Supplementary material for:

SHMIP
The Subglacial Hydrology Model Intercomparison Project

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Contents

Part I.
Extra figures

S1. Figures with direct correspondence to article

The figures in this section have an identical setup to the corresponding figure in the main text, but here we show all the runs of the suite.

S1.1. Figures for suite B

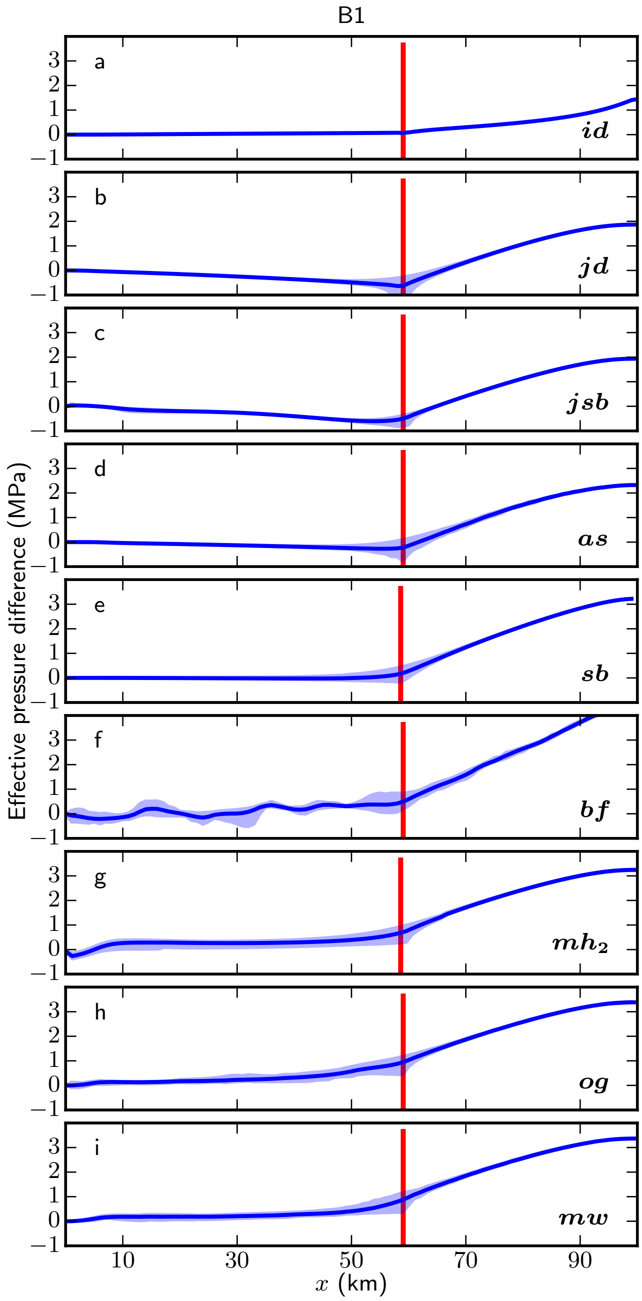

Figure S1: As Fig. 3, showing run **B1**.

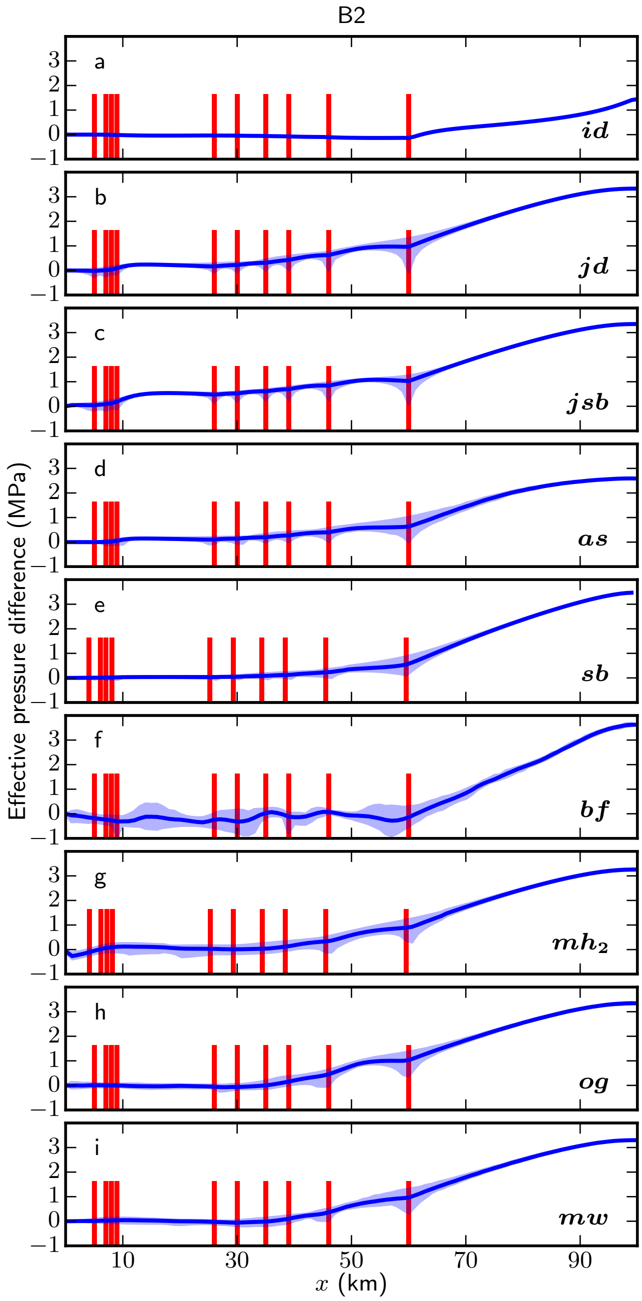

Figure S2: As Fig. 3, showing run **B2**.

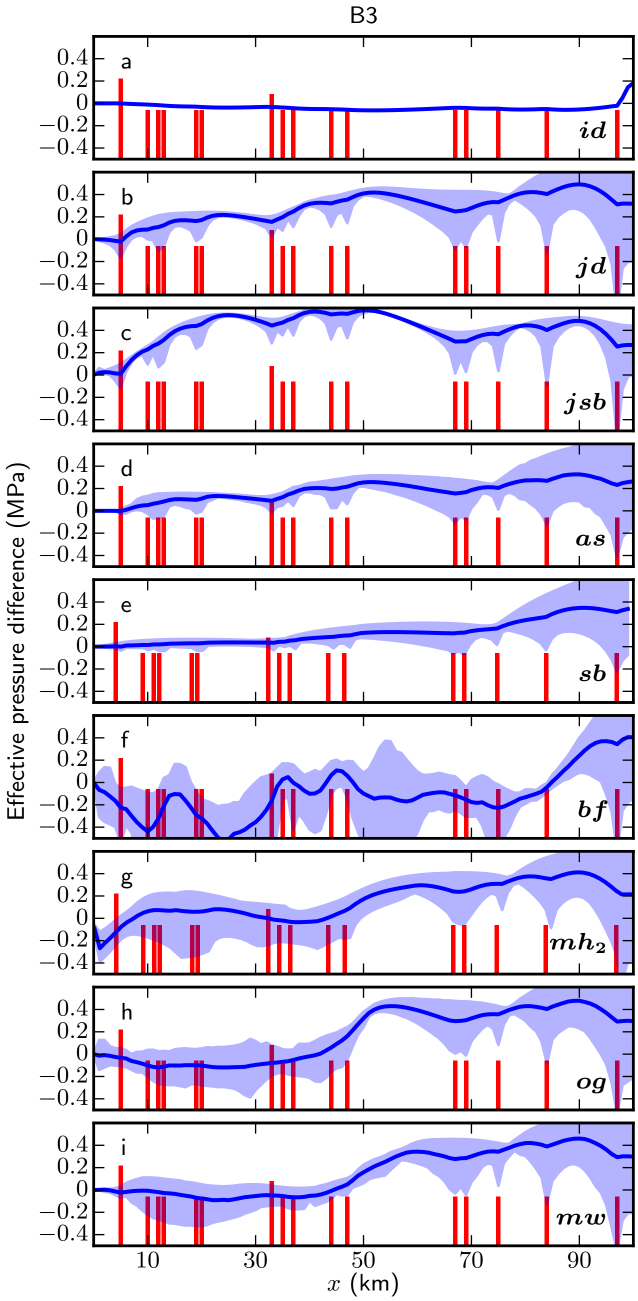

Figure S3: As Fig. 3, showing run **B3**.

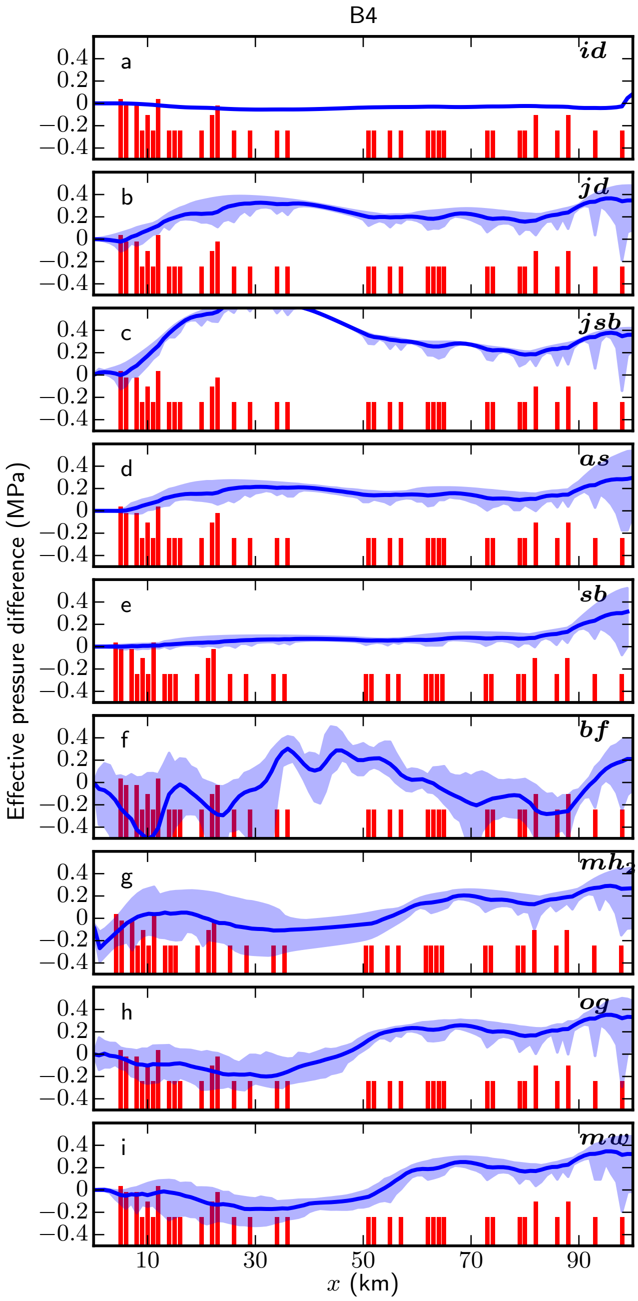

Figure S4: As Fig. 3, showing run **B4**.

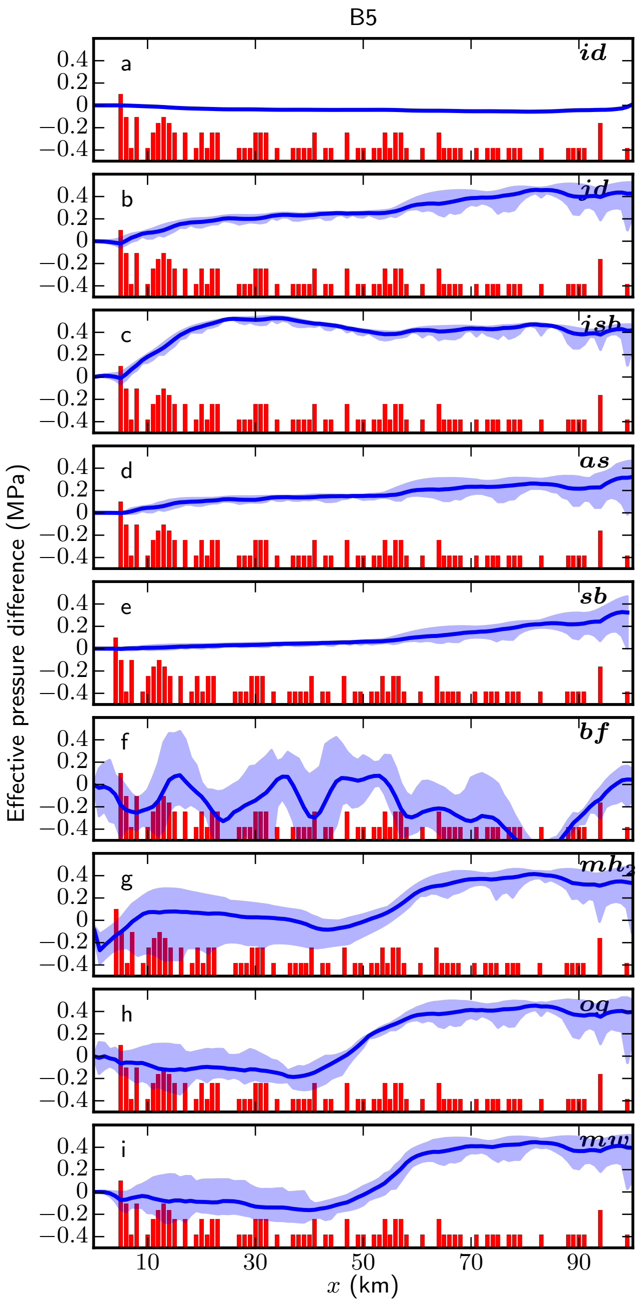

Figure S5: As Fig. 3, showing run **B5**.

S1.2. Figures for suite C

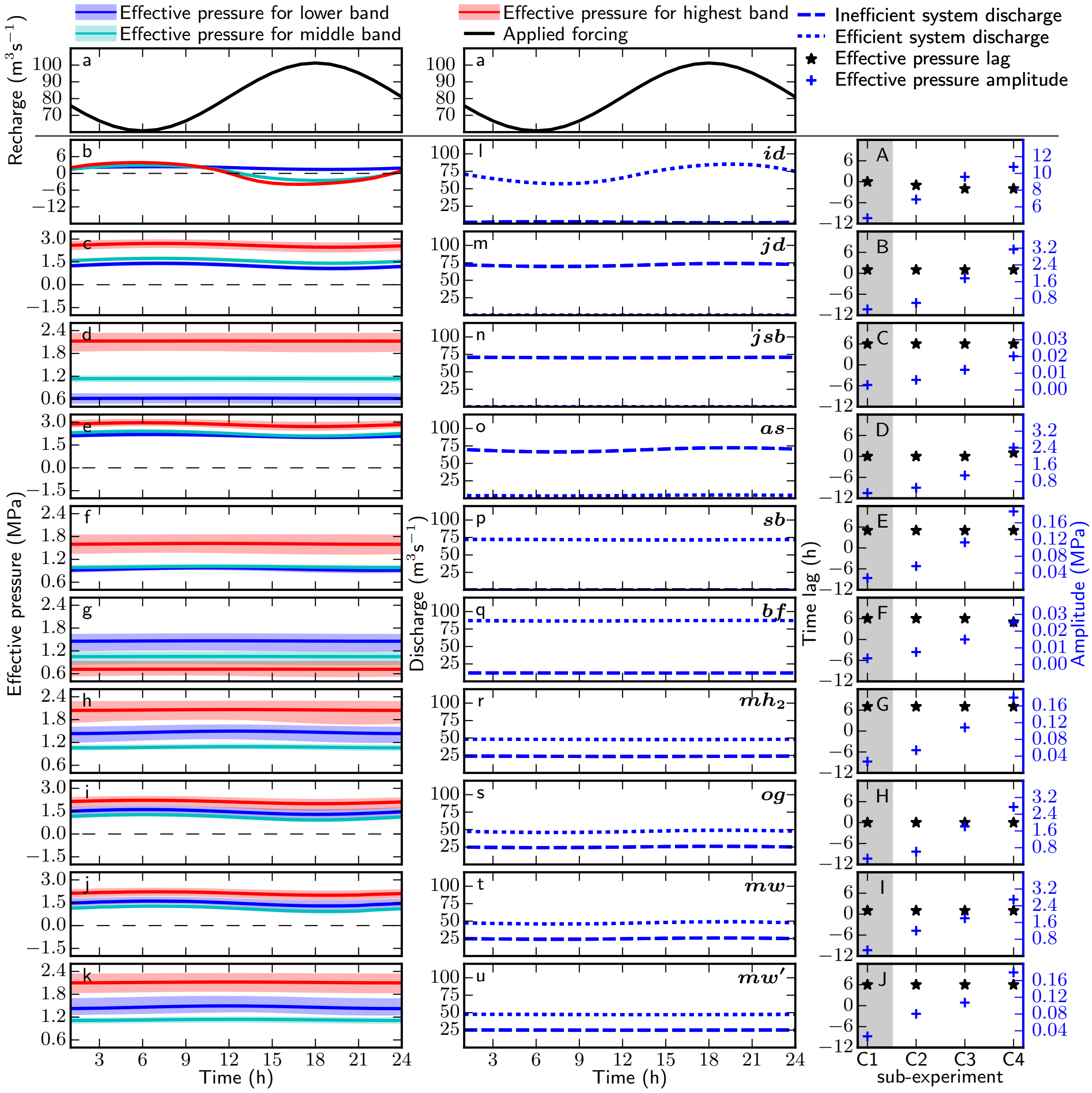

Figure S6: As Fig. 4, showing run **C1** in left and middle column.

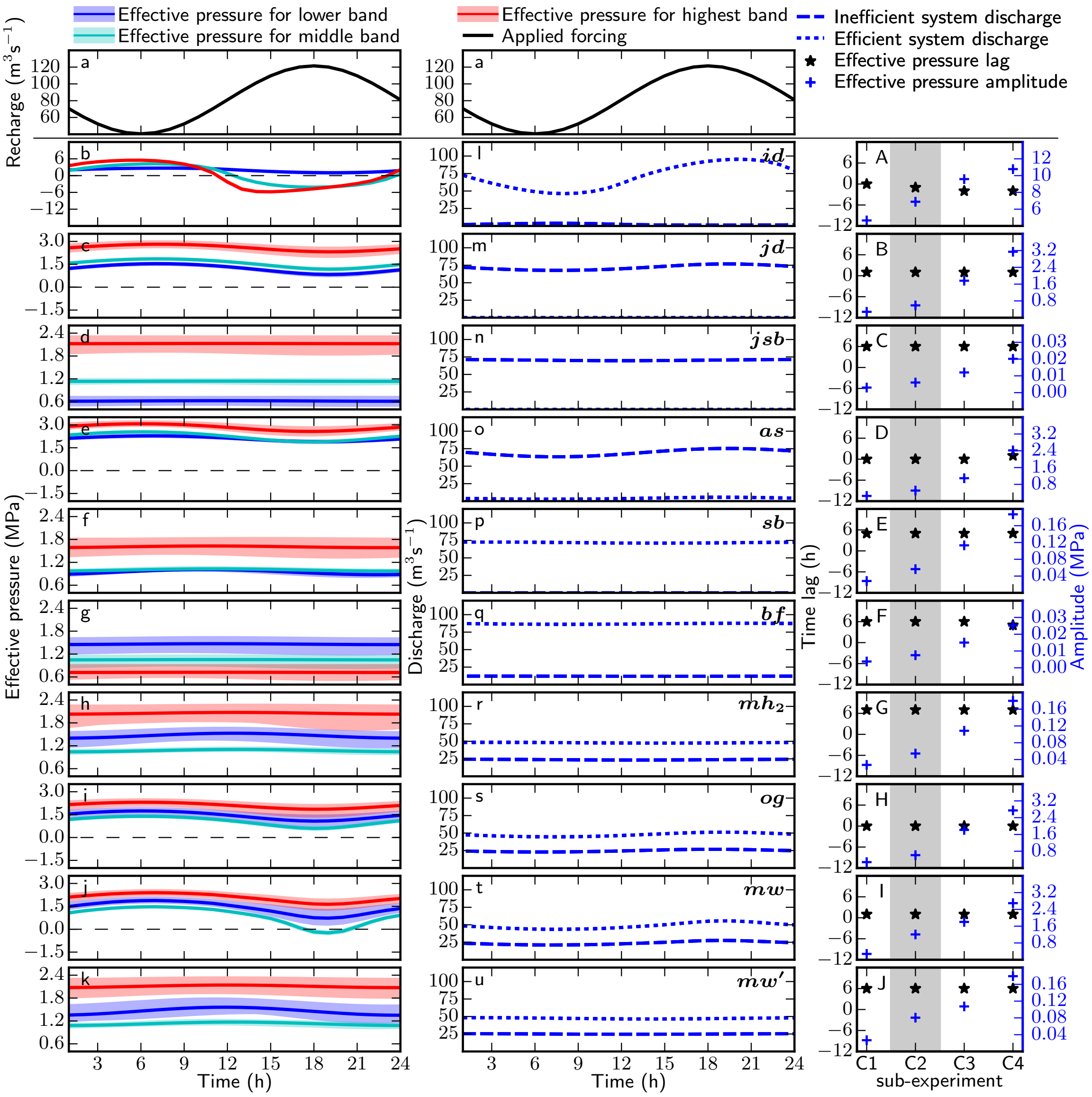

Figure S7: As Fig. 4, showing run **C2** in left and middle column.

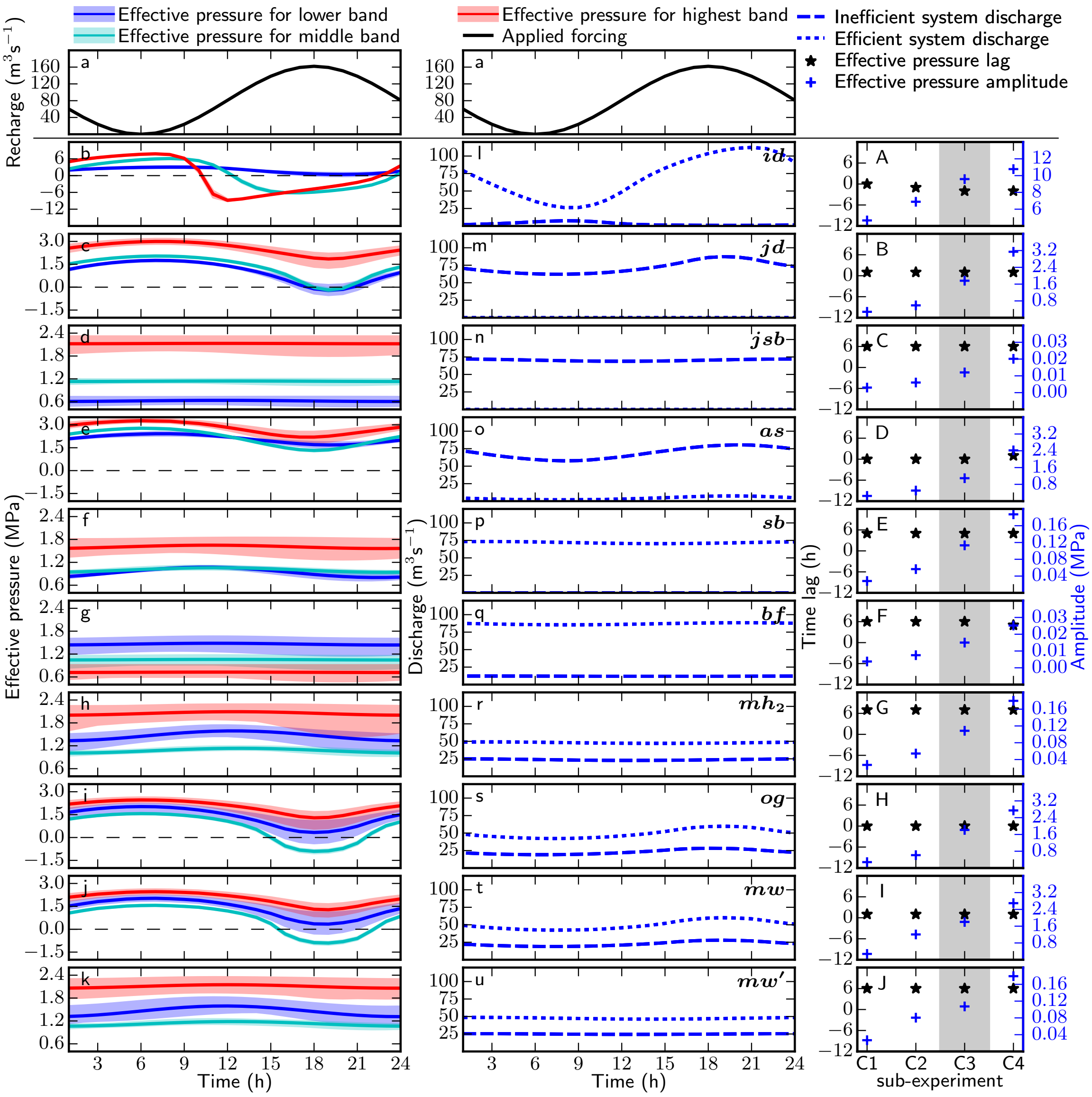

Figure S8: As Fig. 4, showing run **C3** in left and middle column.

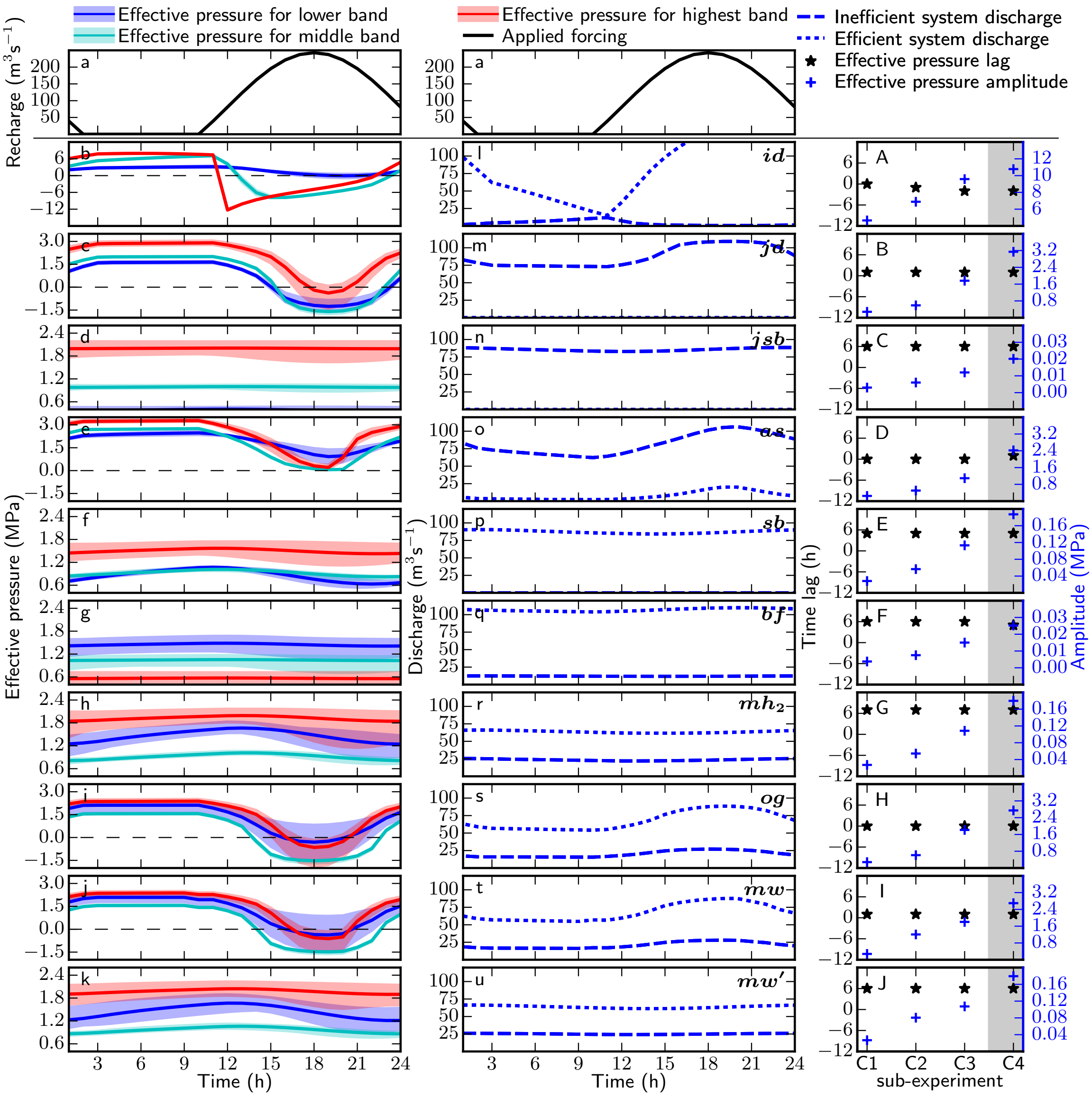

Figure S9: As Fig. 4, showing run **C4** in left and middle column.

S1.3. Figures for suite D

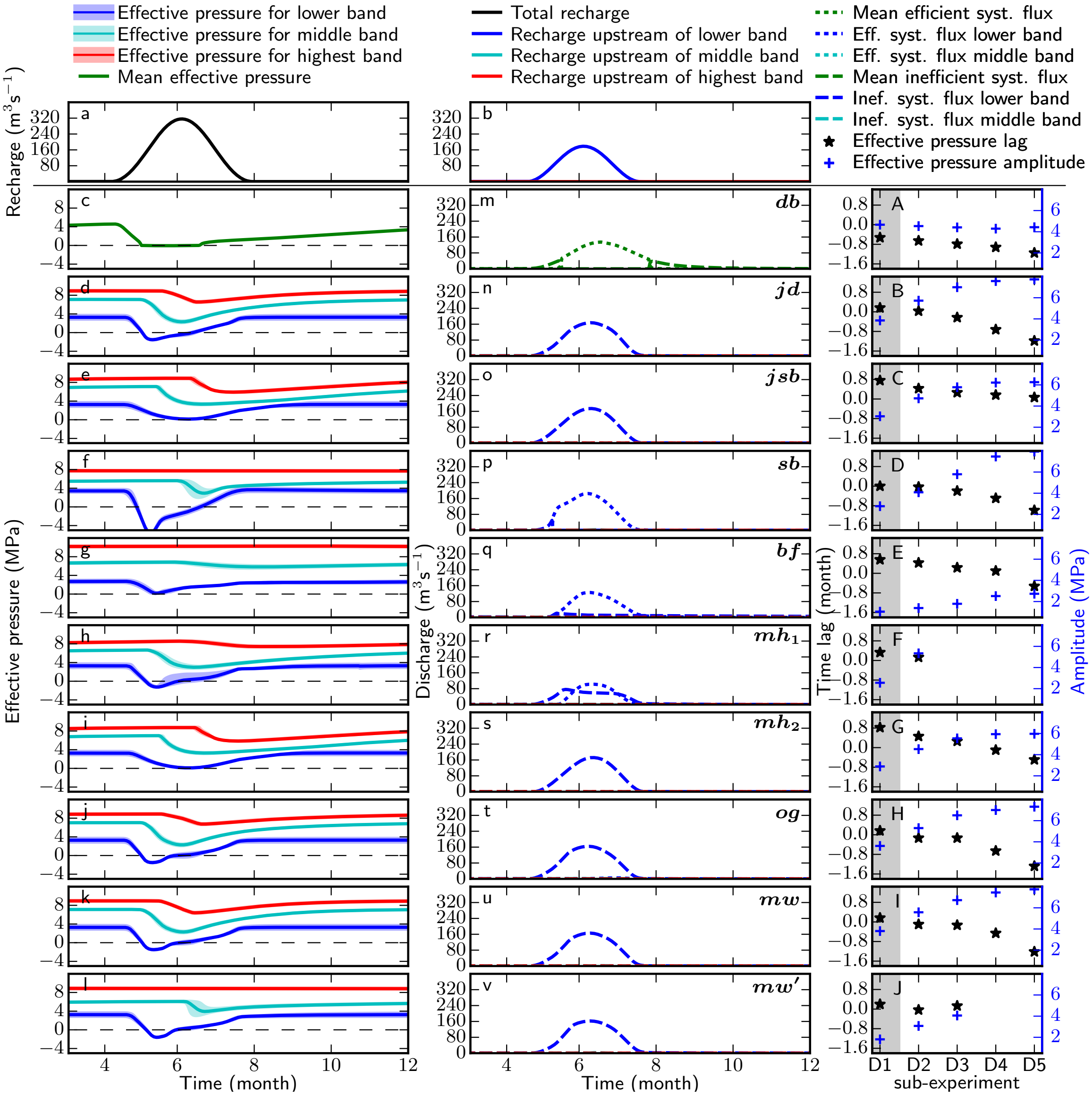

Figure S10: As Fig. 5, showing run **D1** in left and middle column.

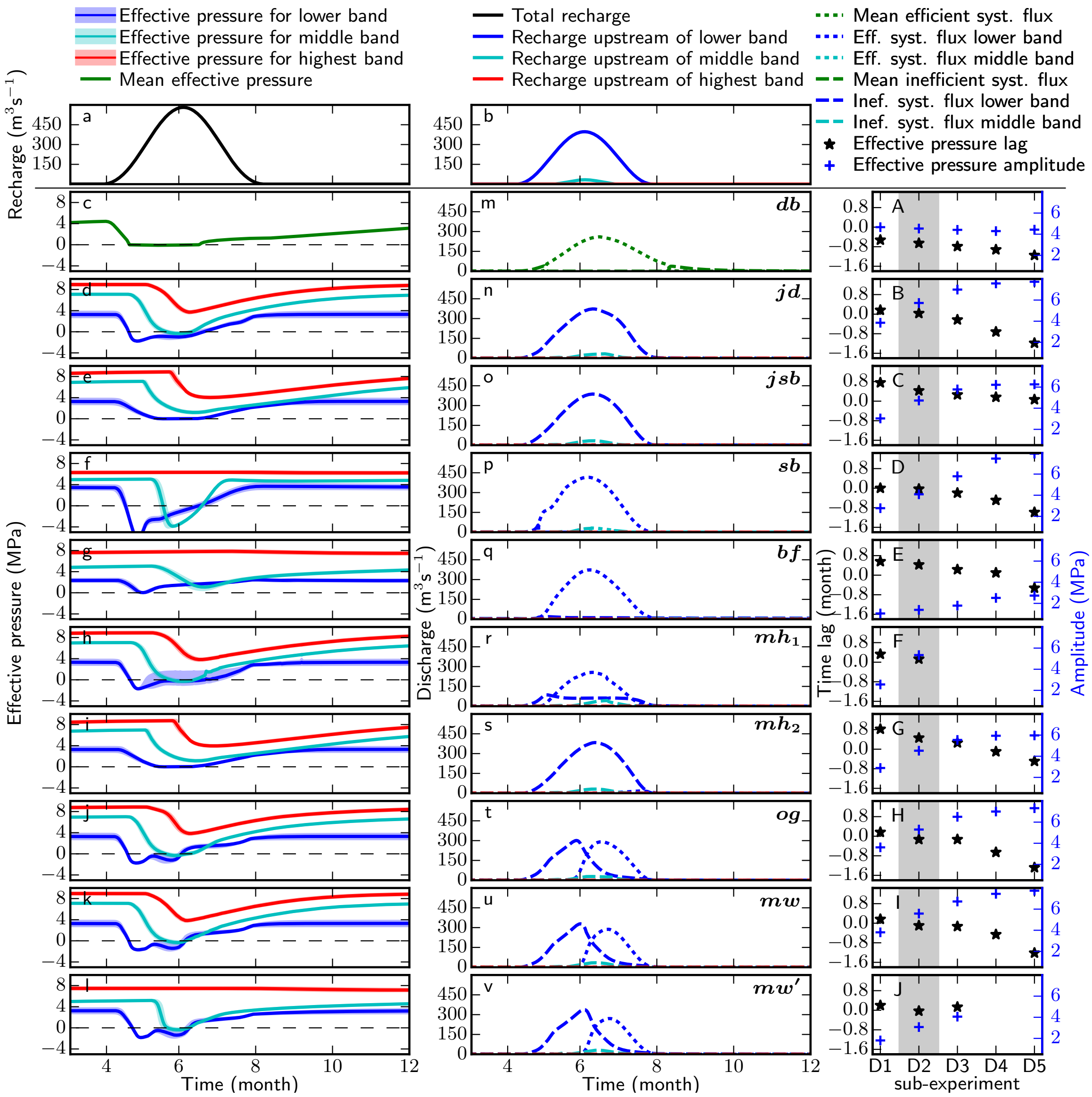

Figure S11: As Fig. 5, showing run **D2** in left and middle column.

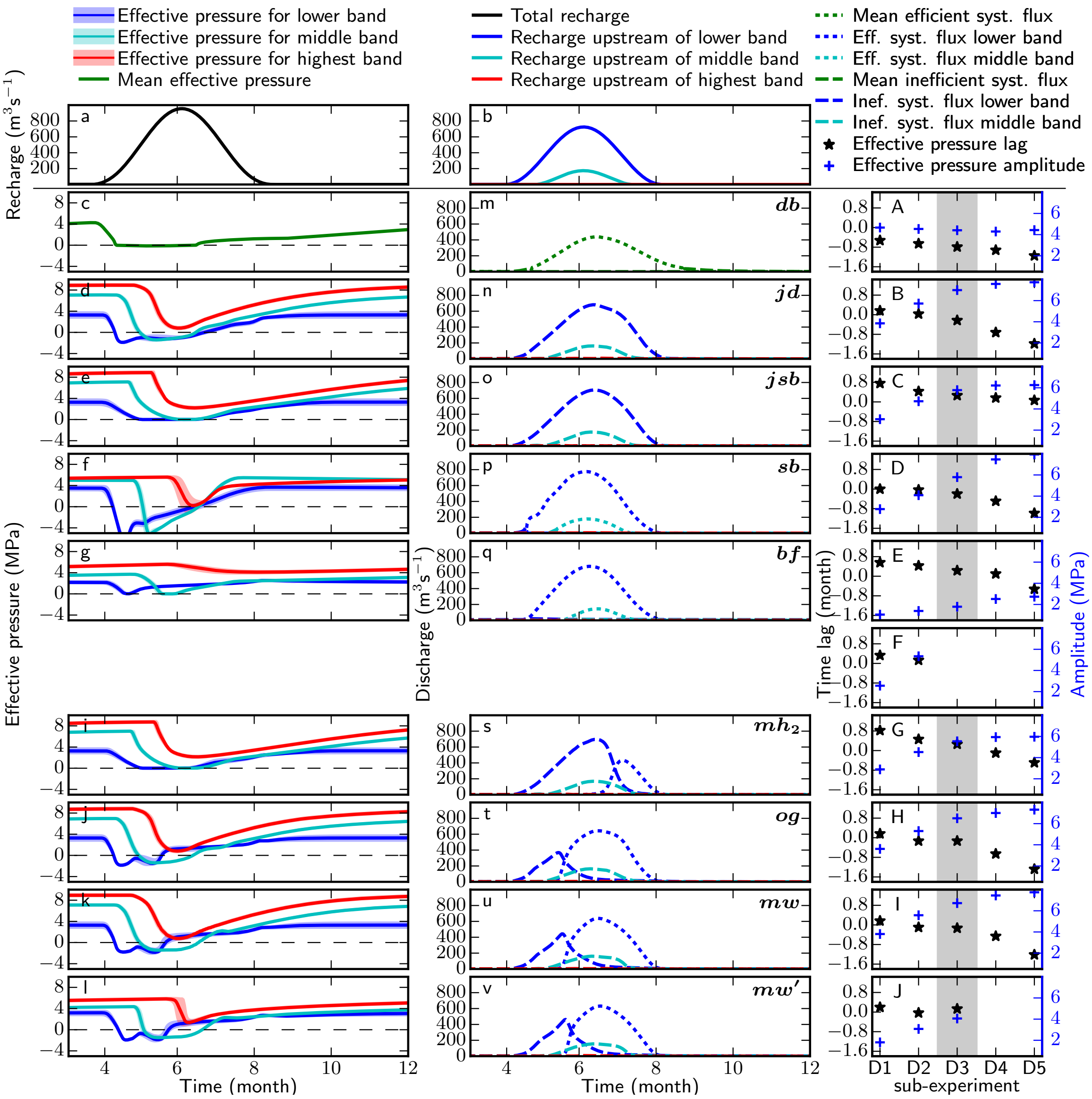

Figure S12: As Fig. 5, showing run **D3** in left and middle column.

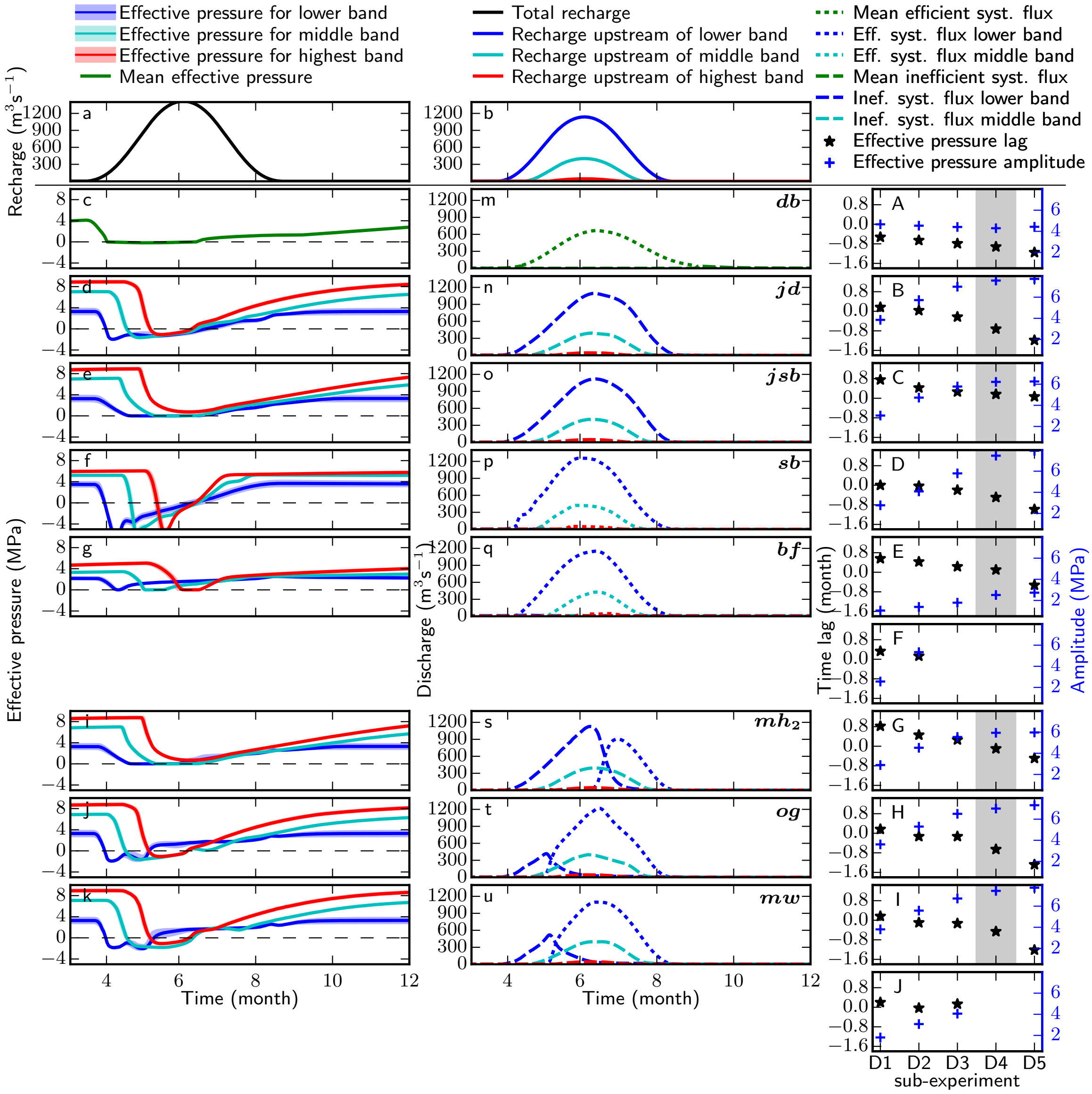

Figure S13: As Fig. 5, showing run **D4** in left and middle column.

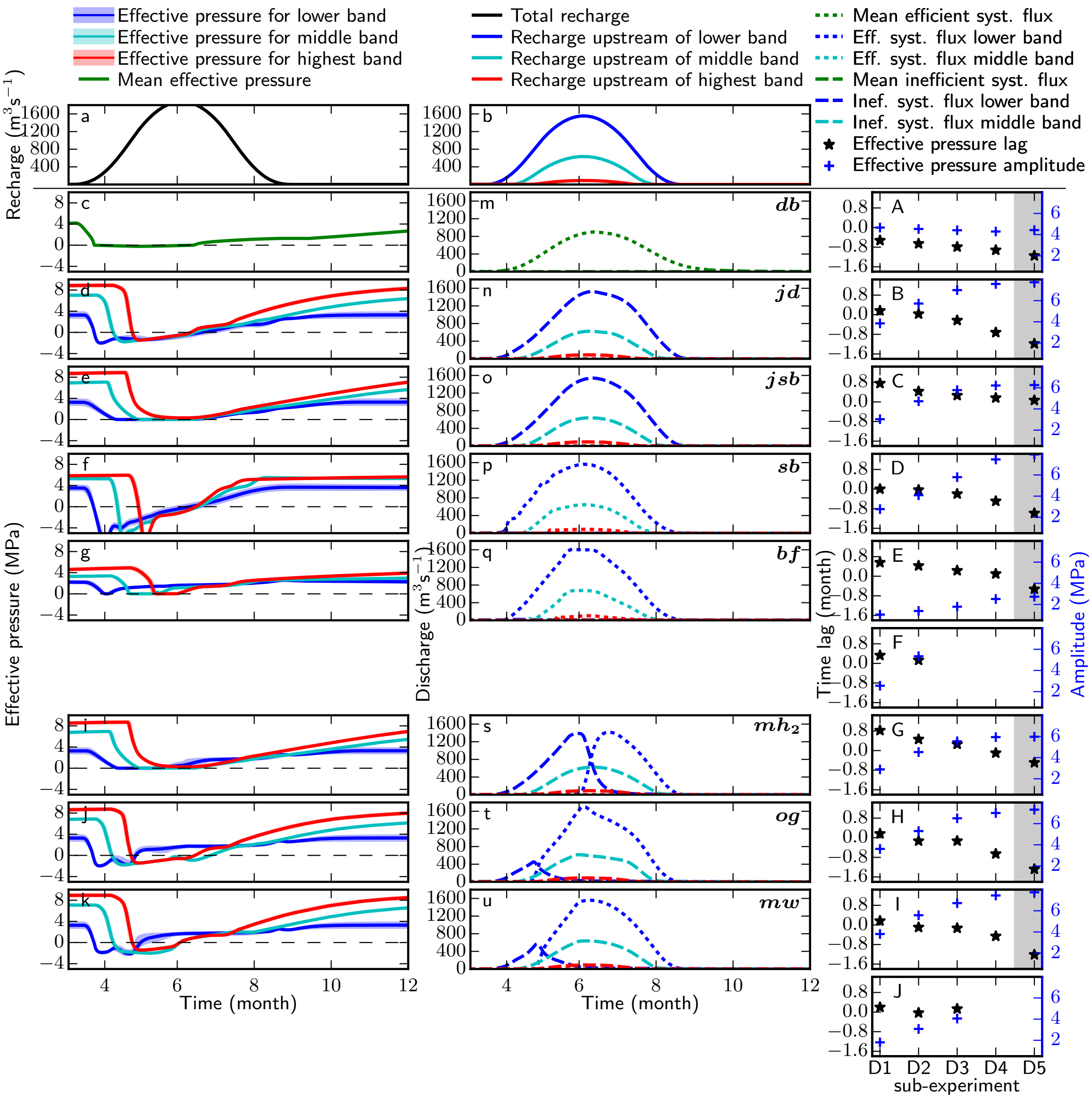

Figure S14: As Fig. 5, showing run **D5** in left and middle column.

S1.4. Figures for suite F

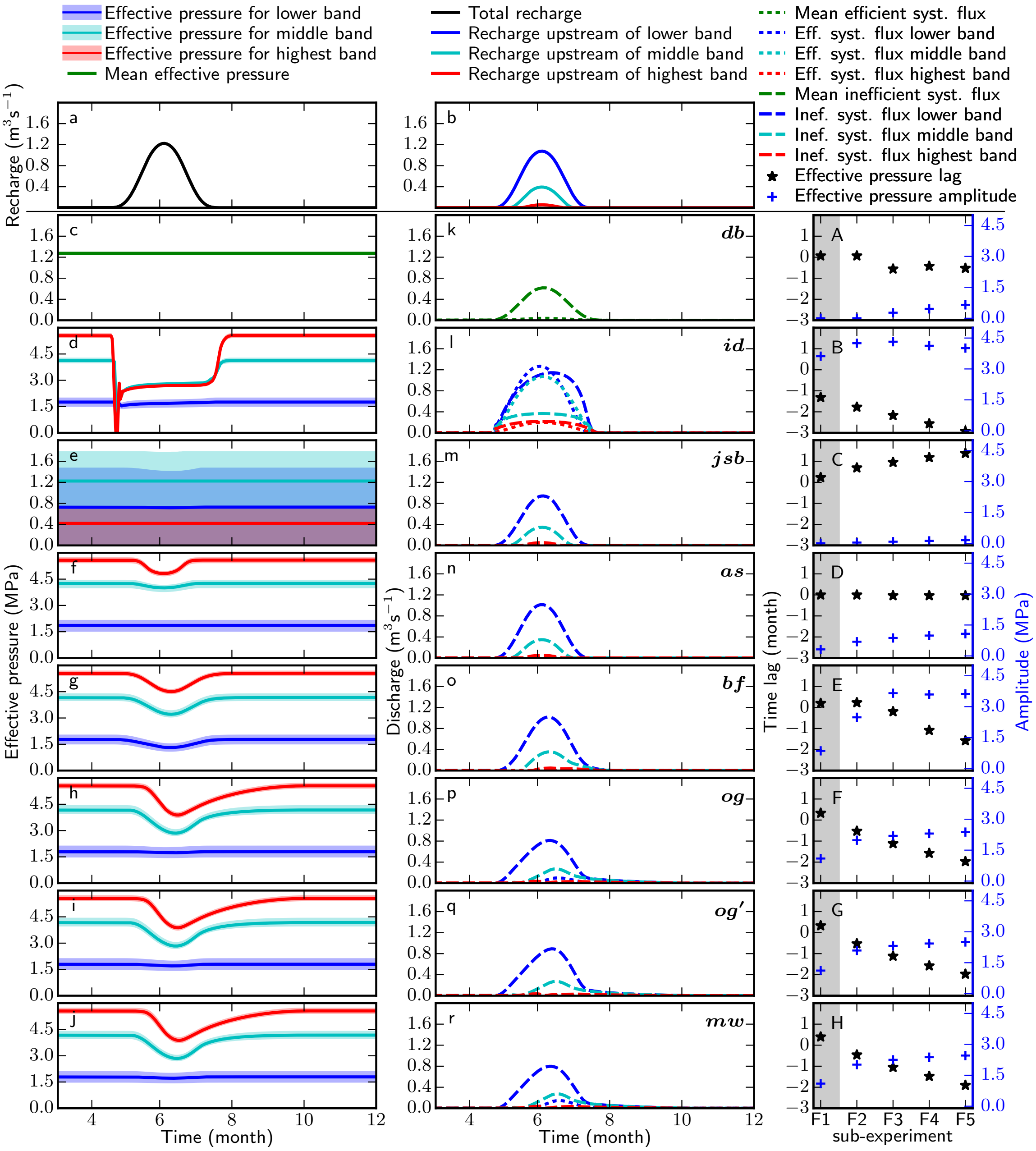

Figure S15: As Fig. 7, showing run **F1** in left and middle column.

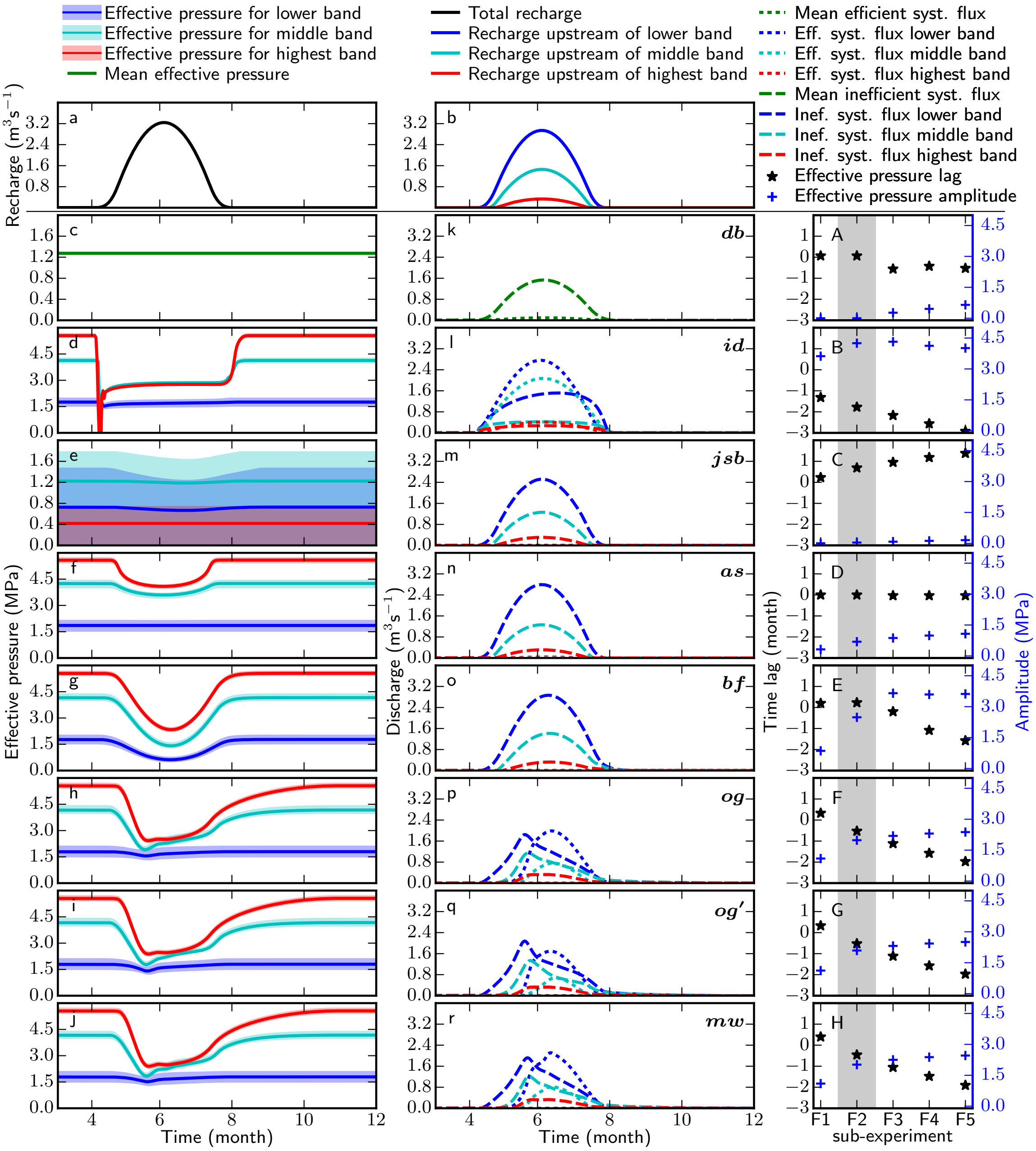

Figure S16: As Fig. 7, showing run **F2** in left and middle column.

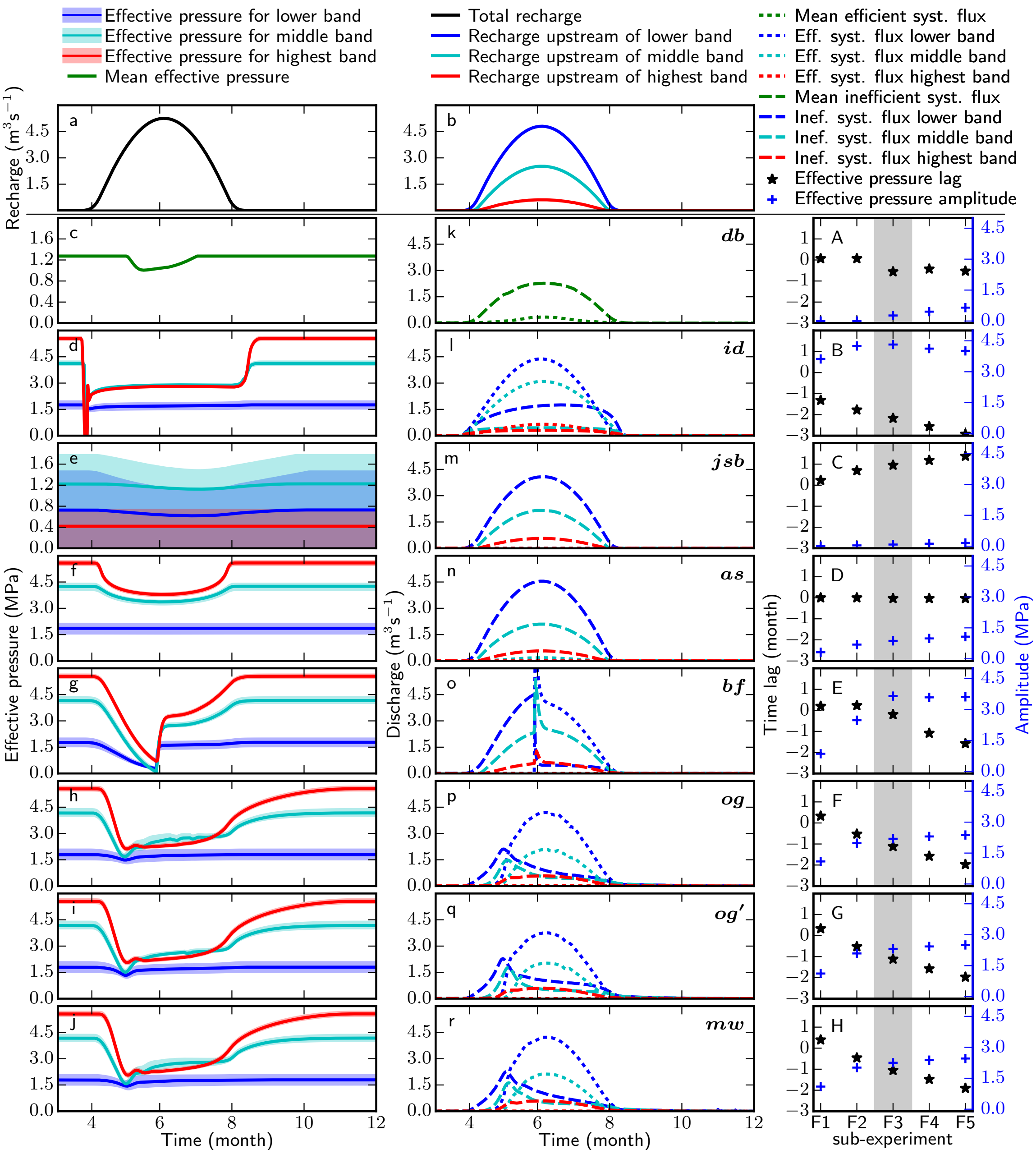

Figure S17: As Fig. 7, showing run **F3** in left and middle column.

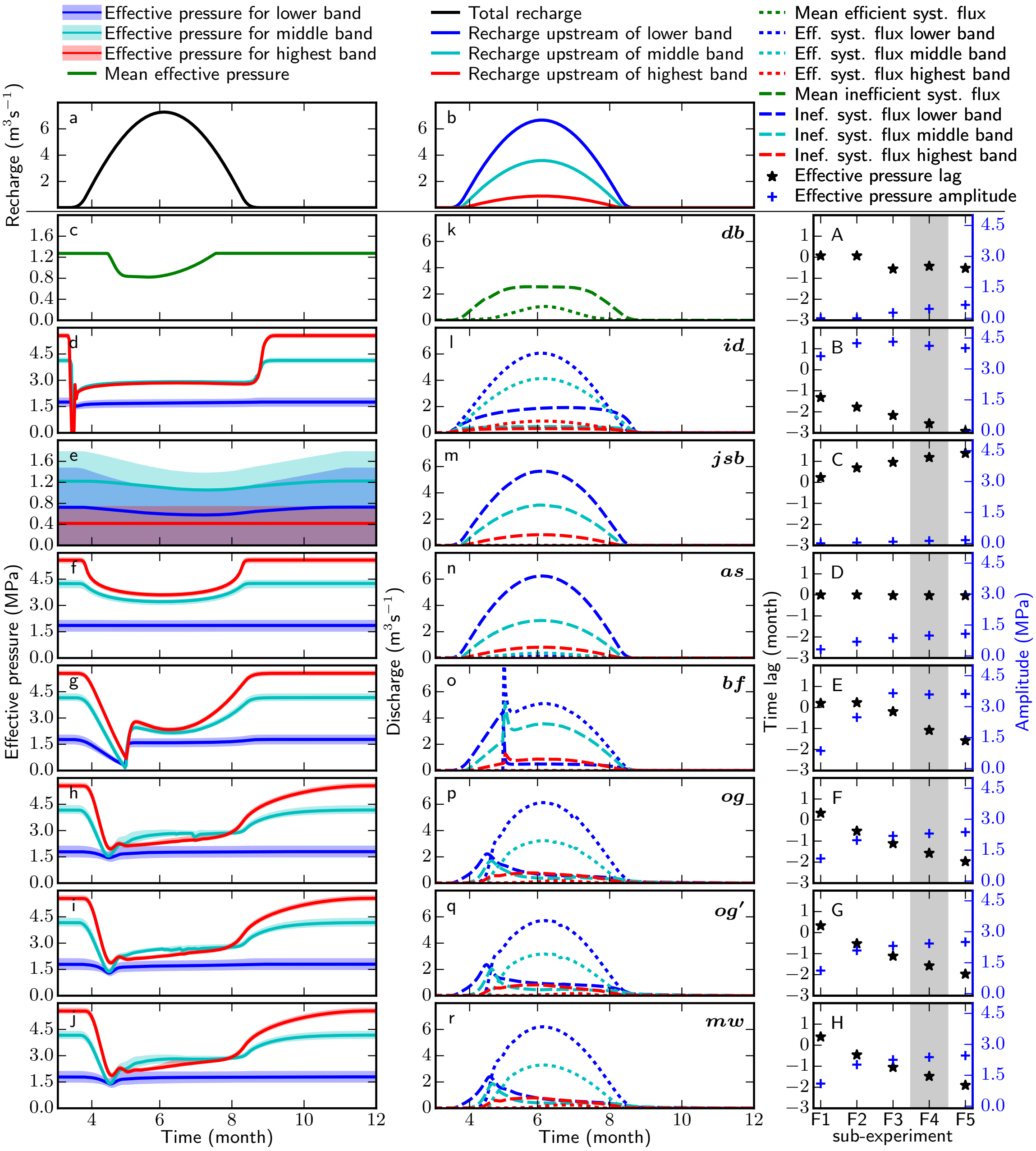

Figure S18: As Fig. 7, showing run **F4** in left and middle column.

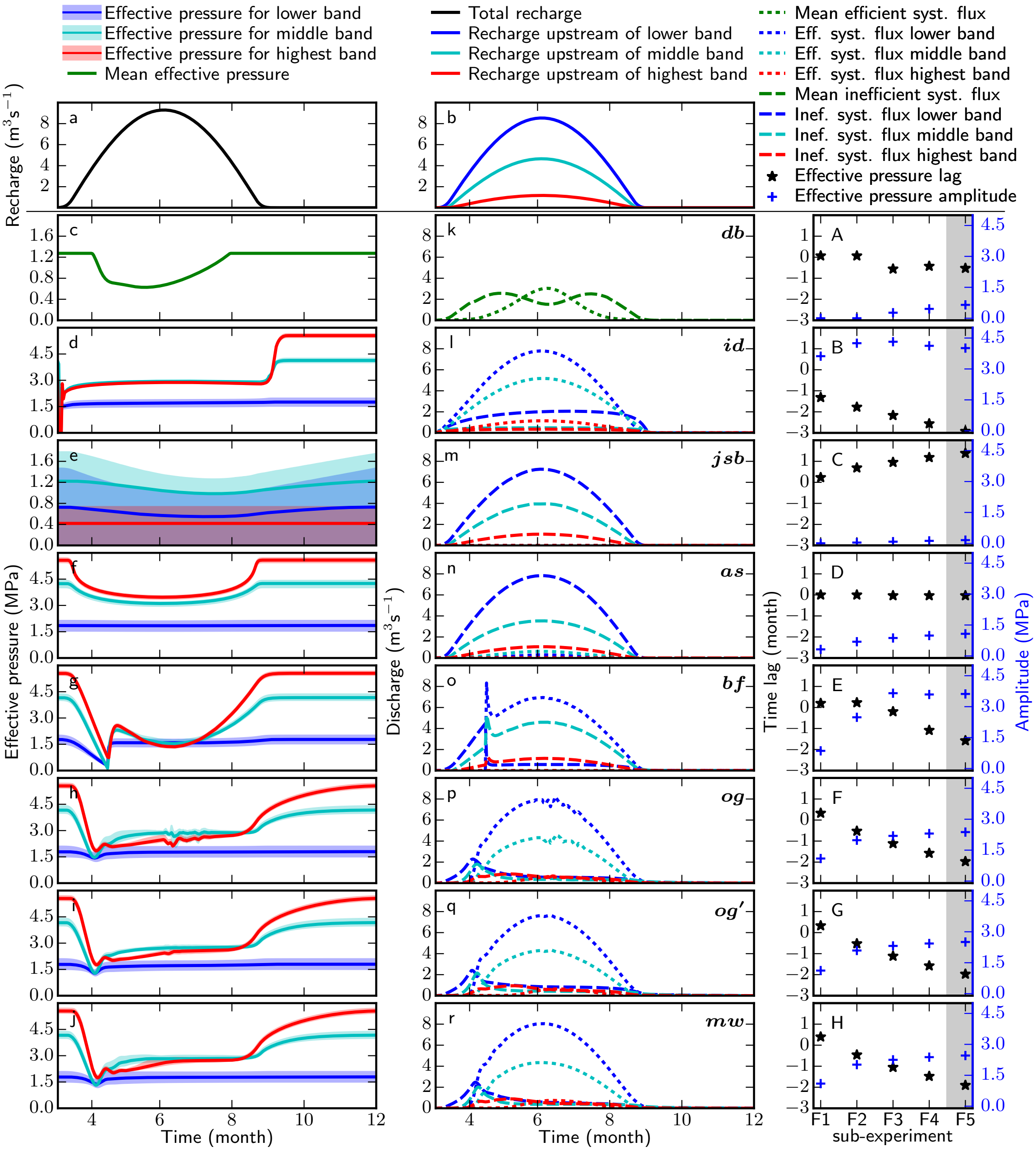

Figure S19: As Fig. 7, showing run **F5** in left and middle column.

S2. Figures for each run and model

The figures in this section are showing the results of each run one at a time for the different models. The first section shows the results for the steady state runs and the second section shows the results of the transient runs (both for effective pressure and efficient discharge). This set of figures is however not exaustive and you can access the whole intercompariosn results at de Fleurian and others (2018).

References

de Fleurian B, Werder MA, Beyer S, Brinkerhoff DJ, Delaney I, Dow CF, Downs J, Gagliardini O, Hoffman MJ, Hooke RL, Seguinot J and Sommers AN (2018) Results from the shmip exercise. e-collection (doi: 10.3929/ethz-b-000249168)

S2.1. Figures for steady state suites

S2.1.1. Suite A model *db*

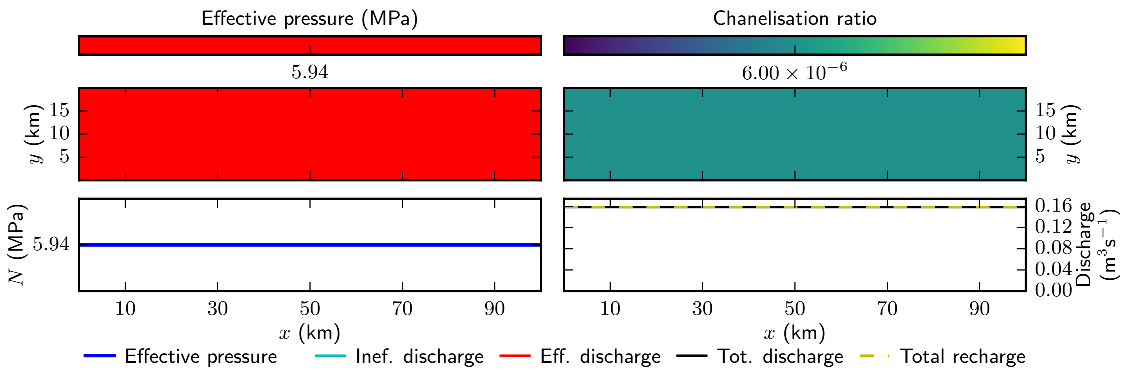

Figure S20: This is the result of run A1 for model *db*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

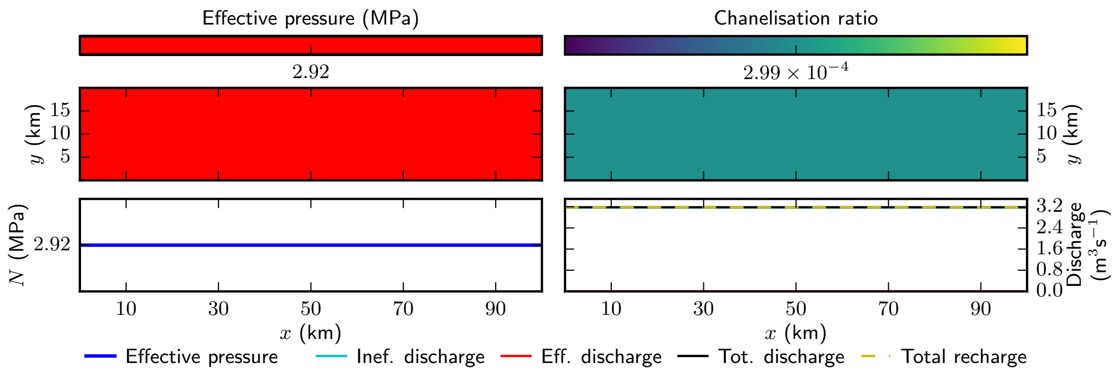

Figure S21: This is the result of run A2 for model *db*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

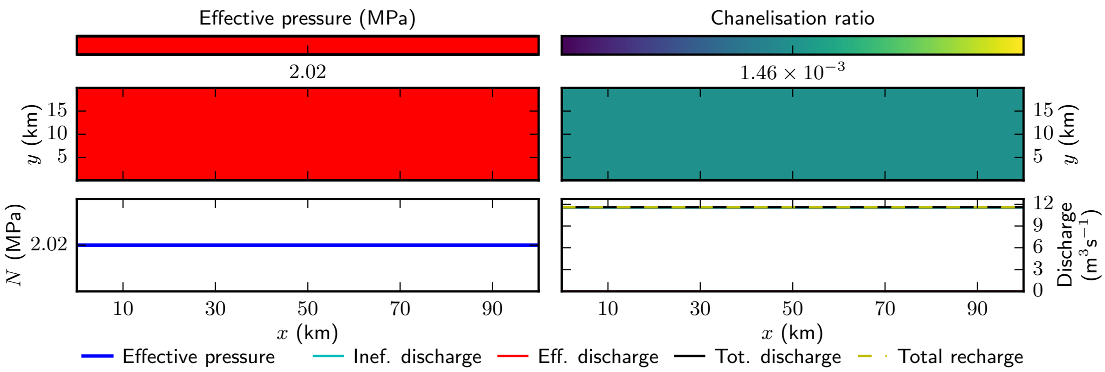

Figure S22: This is the result of run A3 for model *db*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

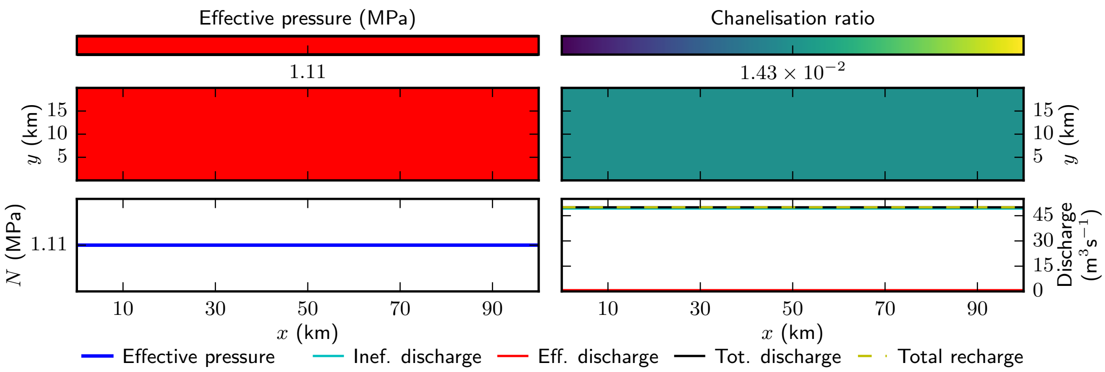

Figure S23: This is the result of run A4 for model *db*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

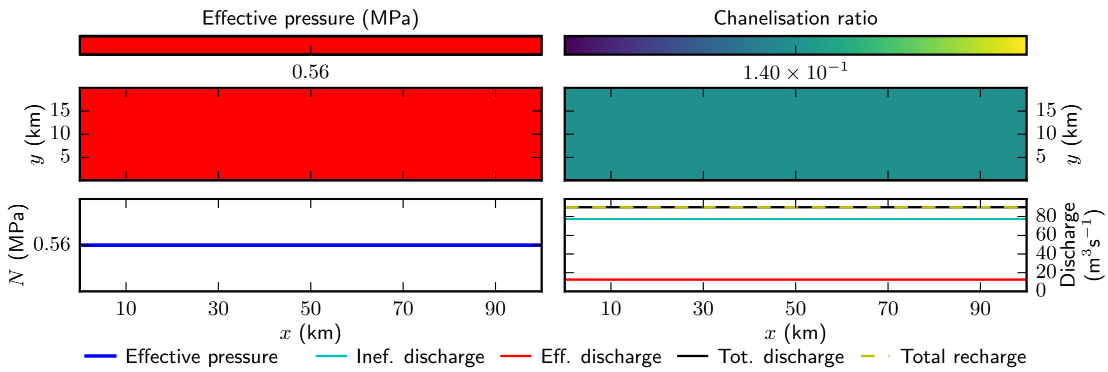

Figure S24: This is the result of run A5 for model *db*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

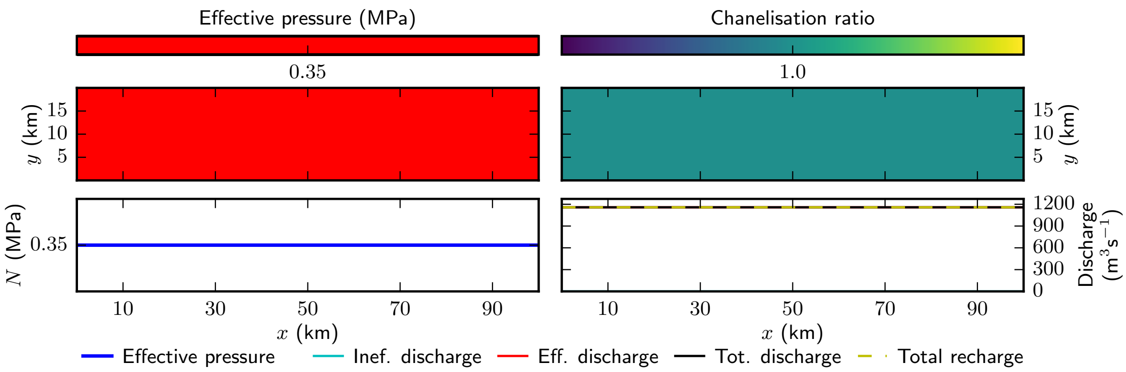

Figure S25: This is the result of run A6 for model *db*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

S2.1.2. Suite E model *db*

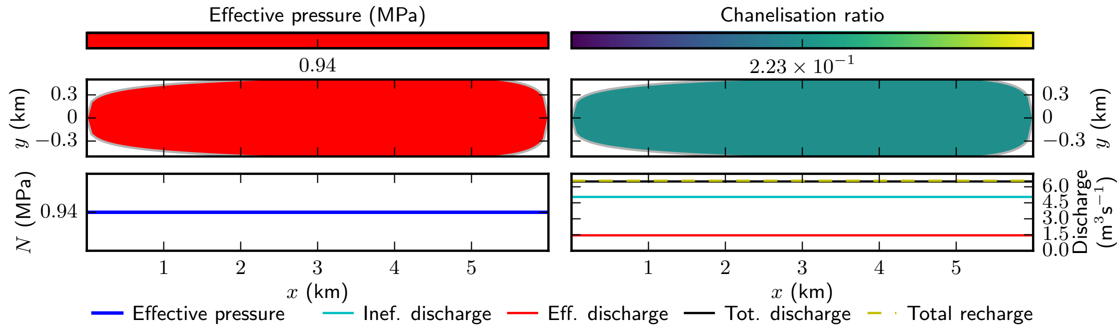

Figure S26: This is the result of run E1 for model *db*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

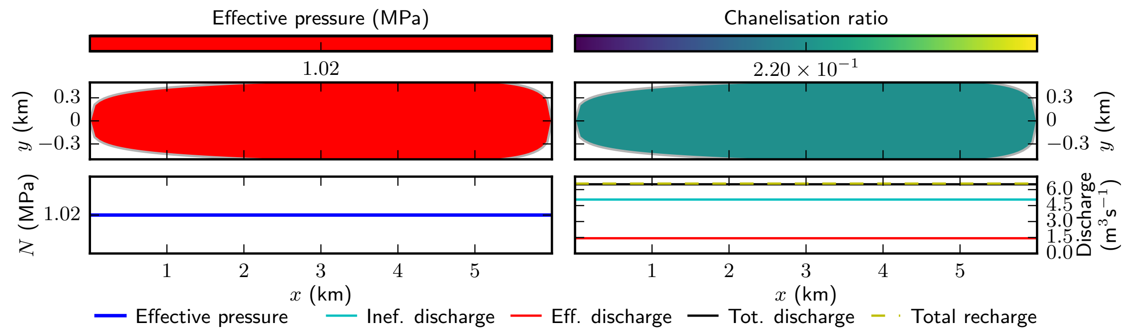

Figure S27: This is the result of run E2 for model *db*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

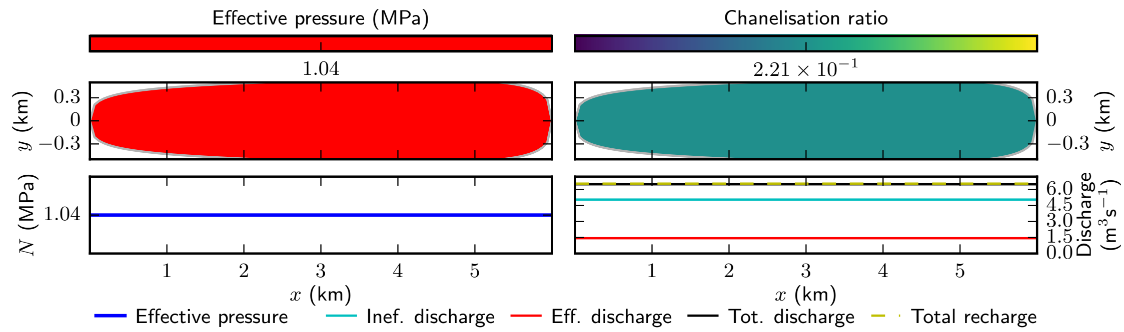

Figure S28: This is the result of run E3 for model *db*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

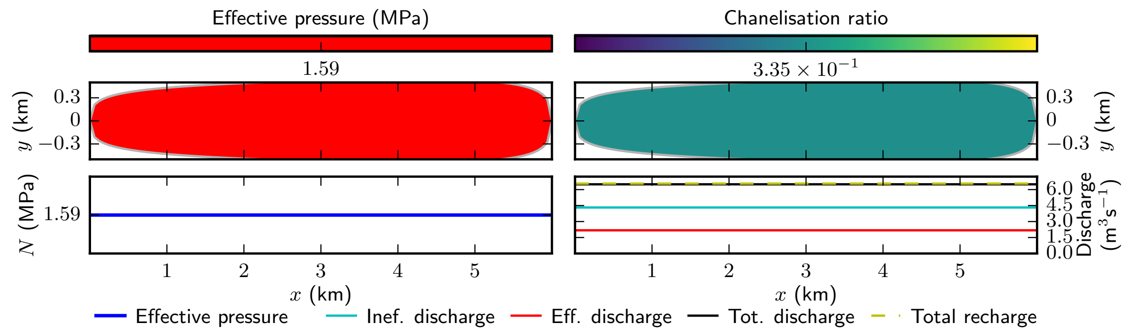

Figure S29: This is the result of run E4 for model *db*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

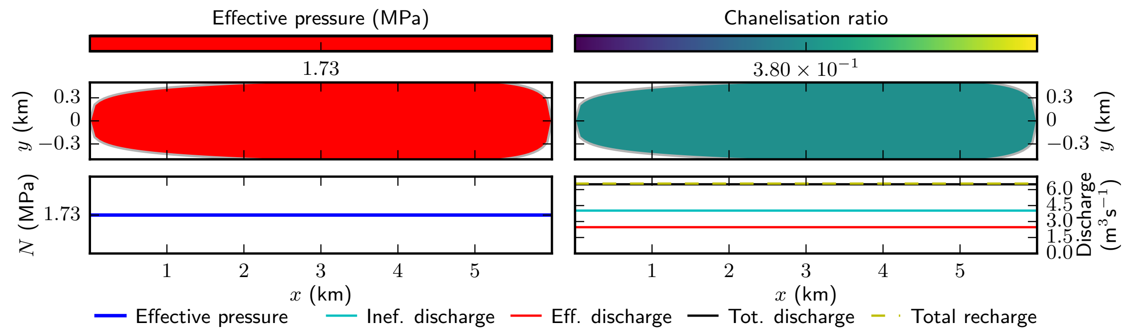

Figure S30: This is the result of run E5 for model *db*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

S2.1.3. Suite A model rh

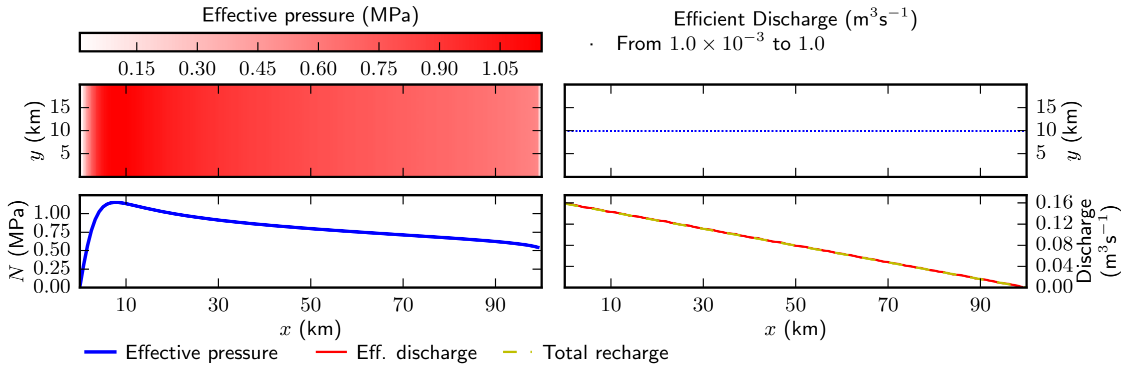

Figure S31: This is the result of run A1 for model rh.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

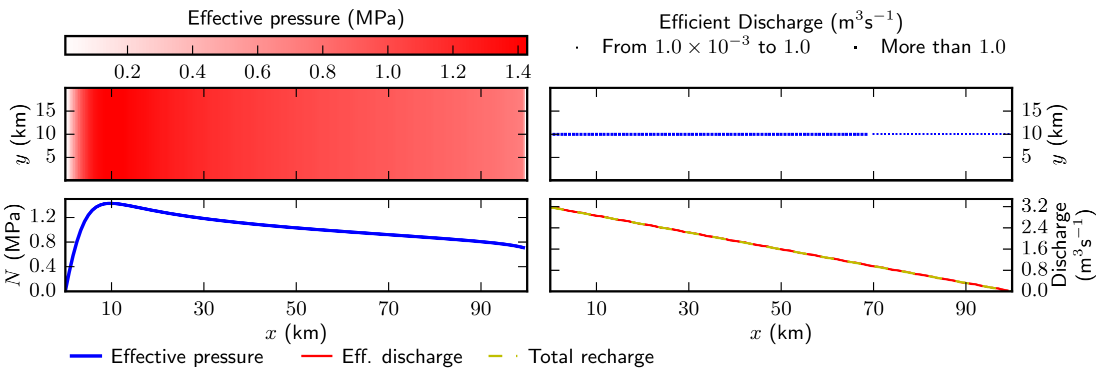

Figure S32: This is the result of run A2 for model rh.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

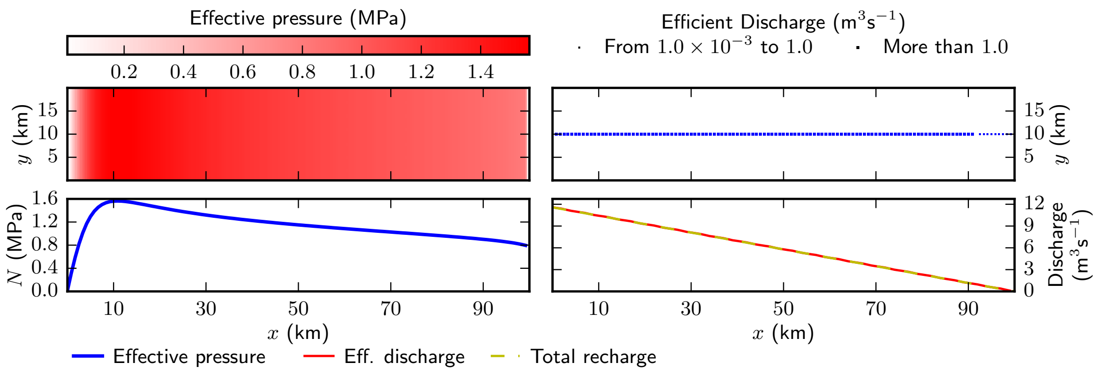

Figure S33: This is the result of run A3 for model rh.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

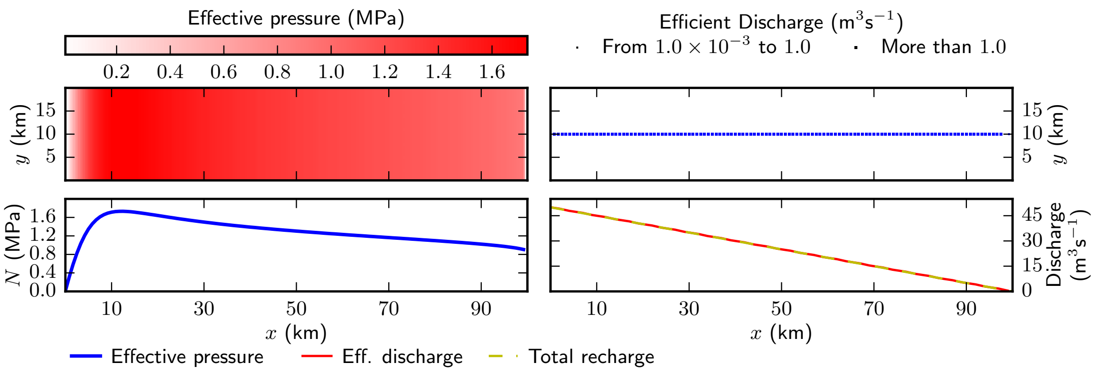

Figure S34: This is the result of run A4 for model rh.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

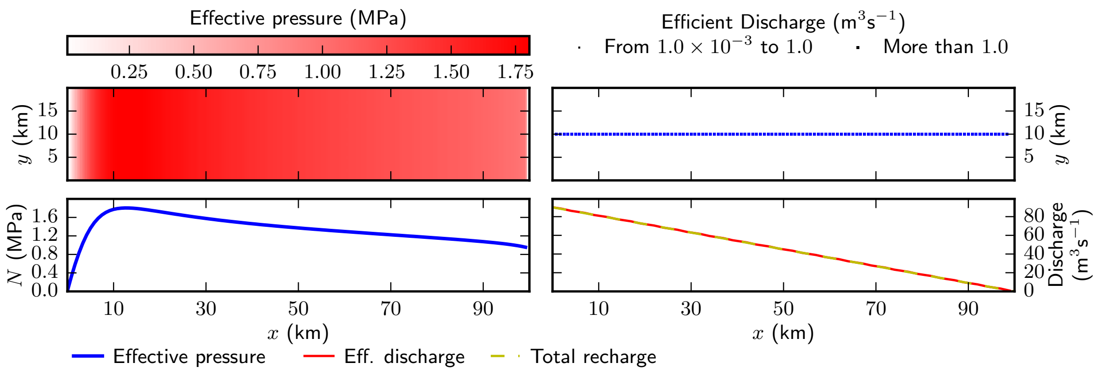

Figure S35: This is the result of run A5 for model rh.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

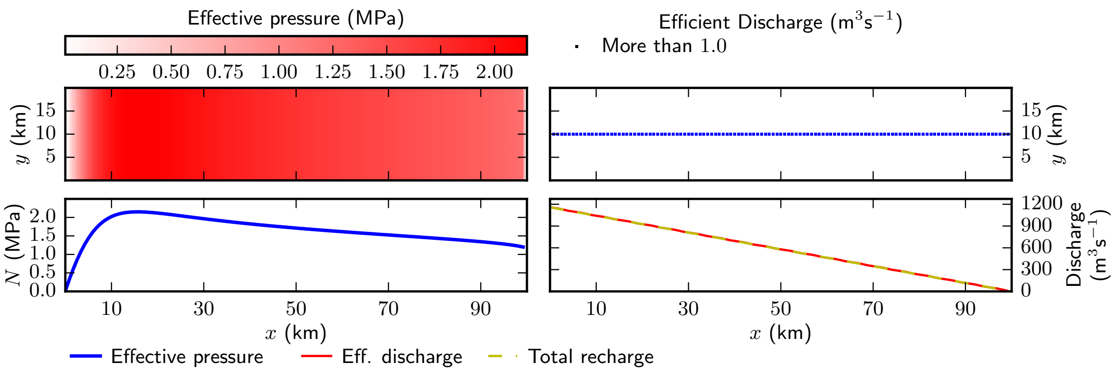

Figure S36: This is the result of run A6 for model rh.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

S2.1.4. Suite E model rh

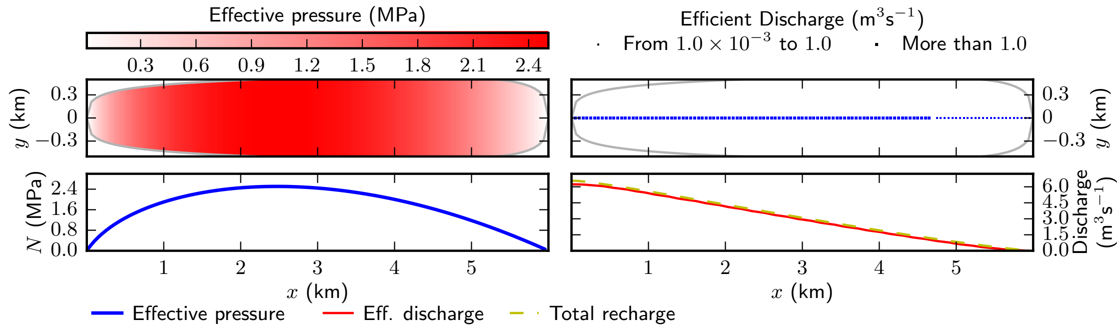

Figure S37: This is the result of run E2 for model rh.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

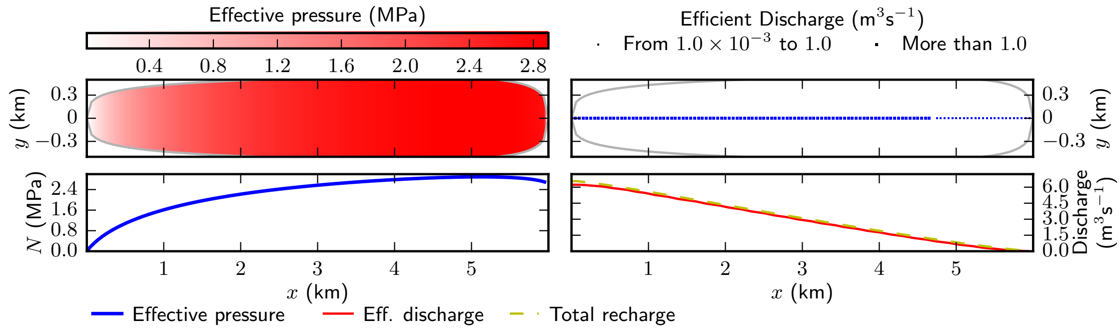

Figure S38: This is the result of run E3 for model rh.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

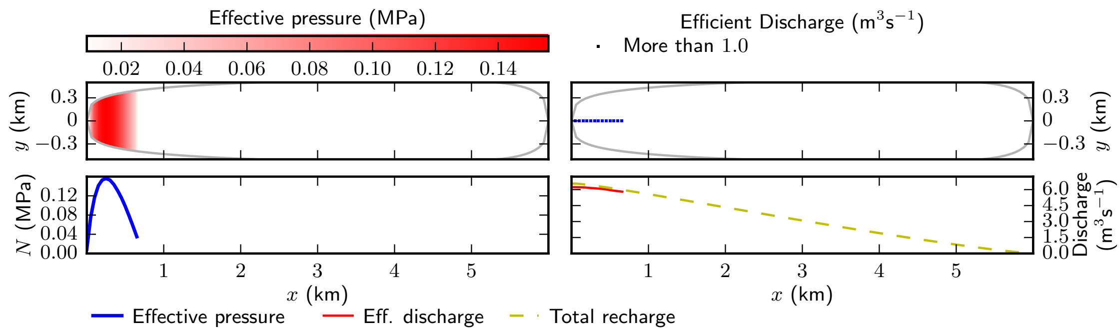

Figure S39: This is the result of run E4 for model rh.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

S2.1.5. Suite A model *cdf*

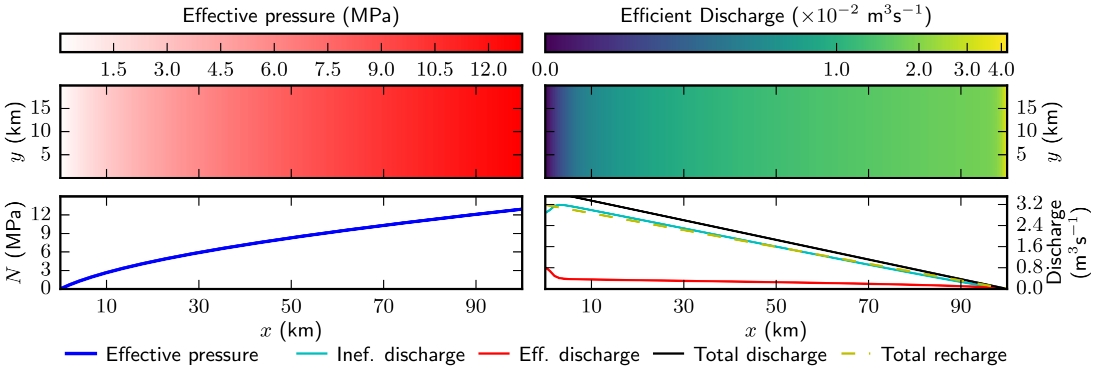

Figure S40: This is the result of run A2 for model *cdf*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

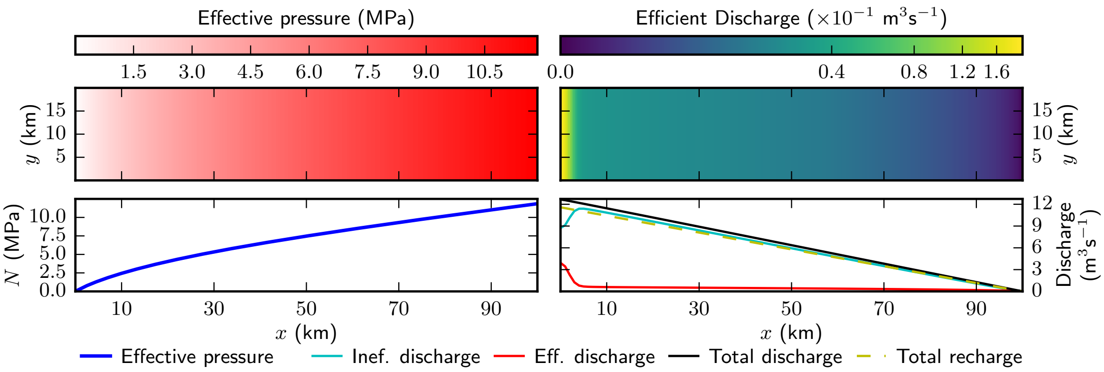

Figure S41: This is the result of run A3 for model *cdf*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

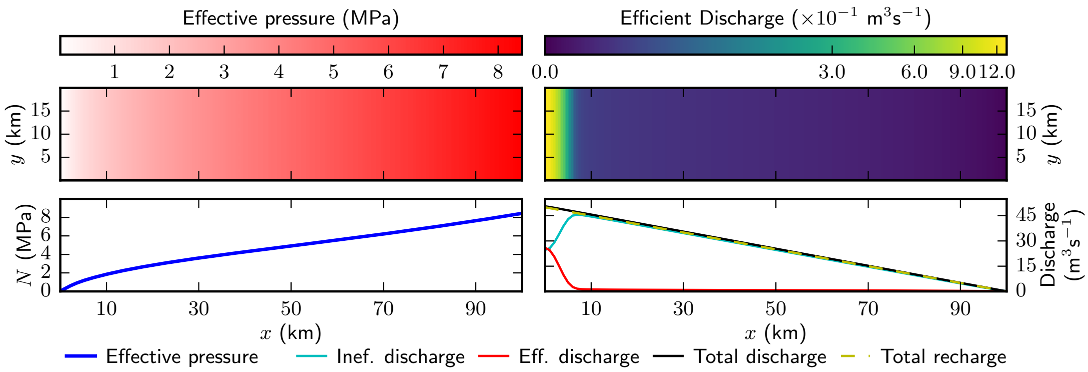

Figure S42: This is the result of run A4 for model *cdf*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

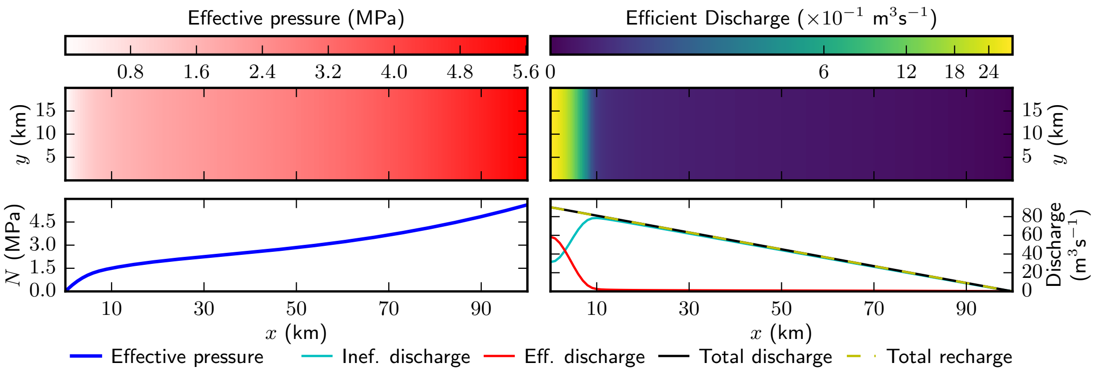

Figure S43: This is the result of run A5 for model *cdf*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

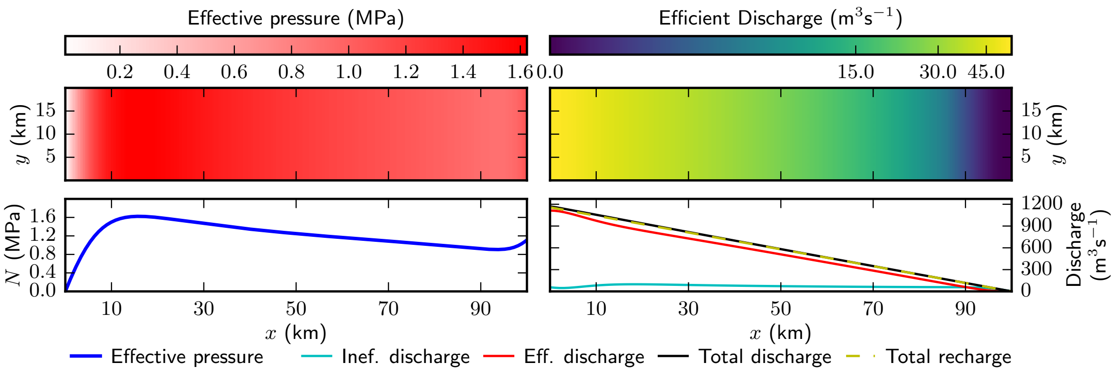

Figure S44: This is the result of run A6 for model *cdf*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

S2.1.6. Suite A model *id*

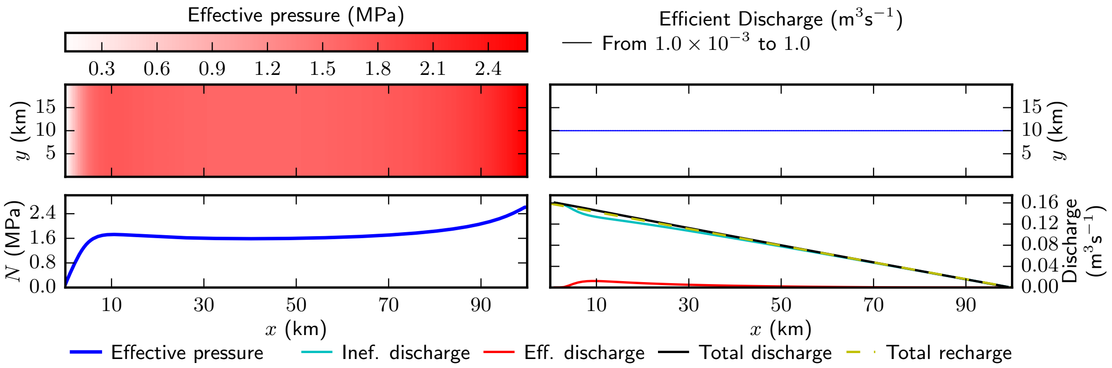

Figure S45: This is the result of run A1 for model *id*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

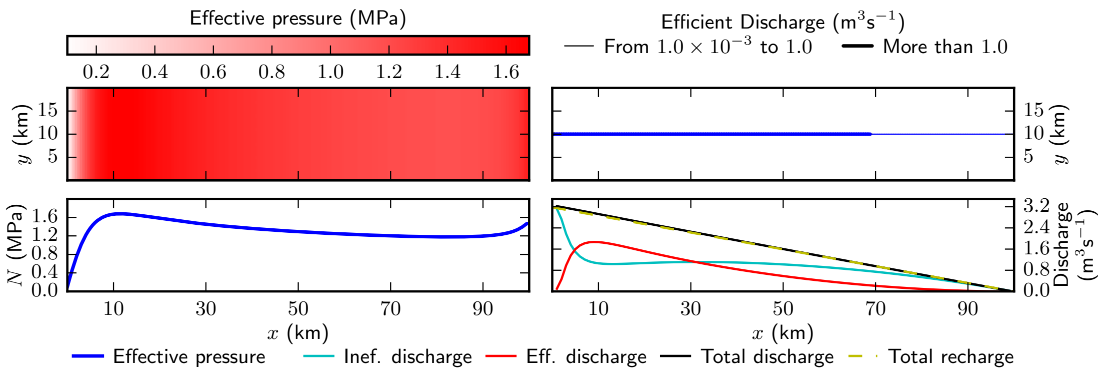

Figure S46: This is the result of run A2 for model *id*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

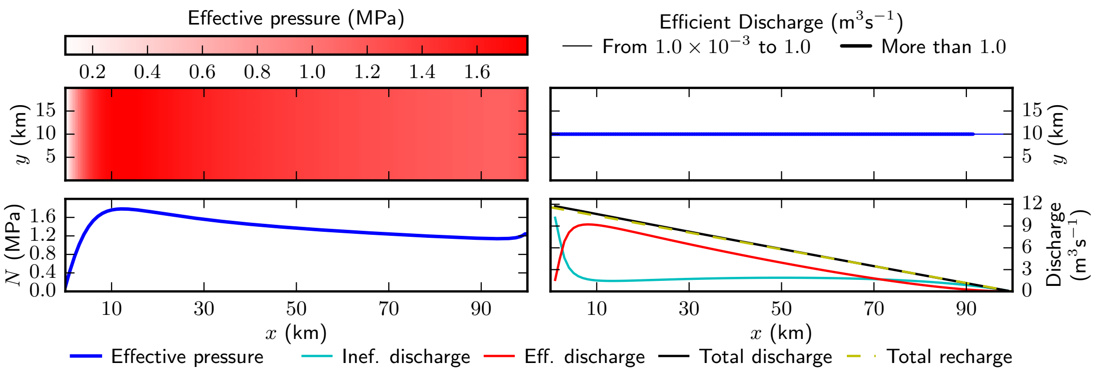

Figure S47: This is the result of run A3 for model *id*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

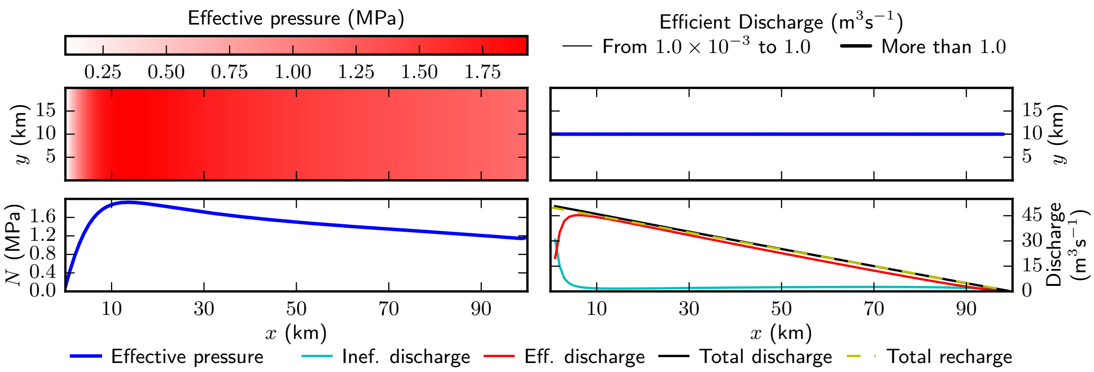

Figure S48: This is the result of run A4 for model *id*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

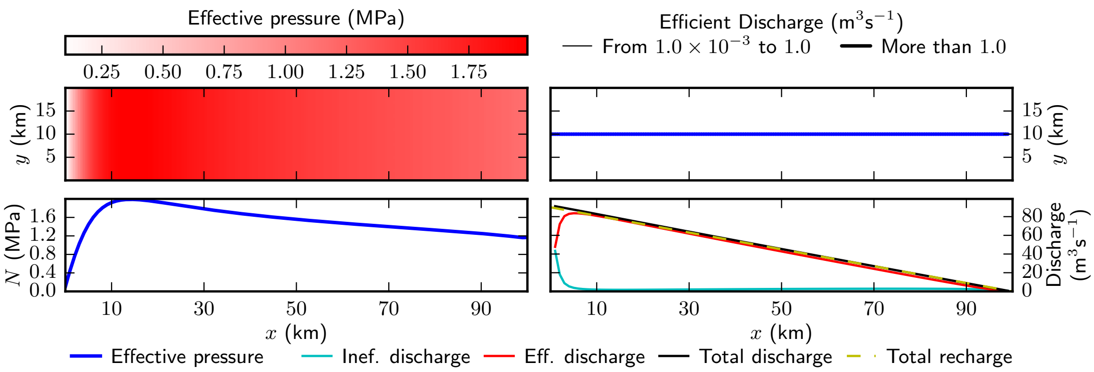

Figure S49: This is the result of run A5 for model *id*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

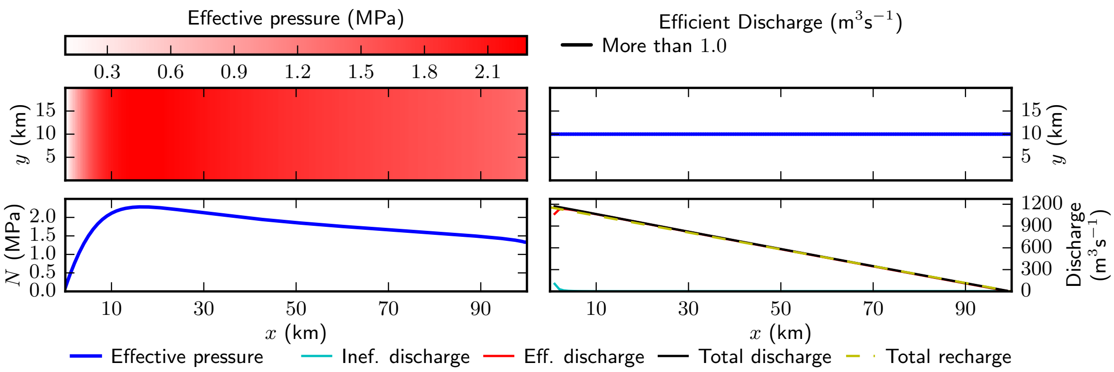

Figure S50: This is the result of run A6 for model *id*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

S2.1.7. Suite B model *id*

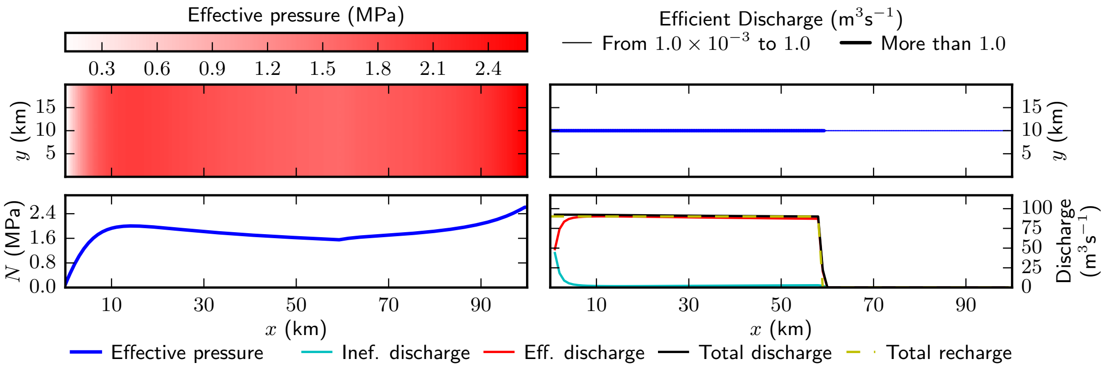

Figure S51: This is the result of run B1 for model *id*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

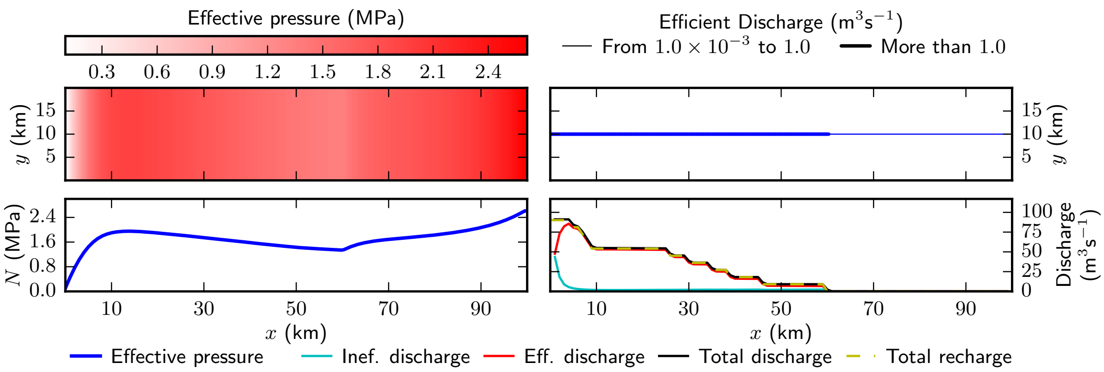

Figure S52: This is the result of run B2 for model *id*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

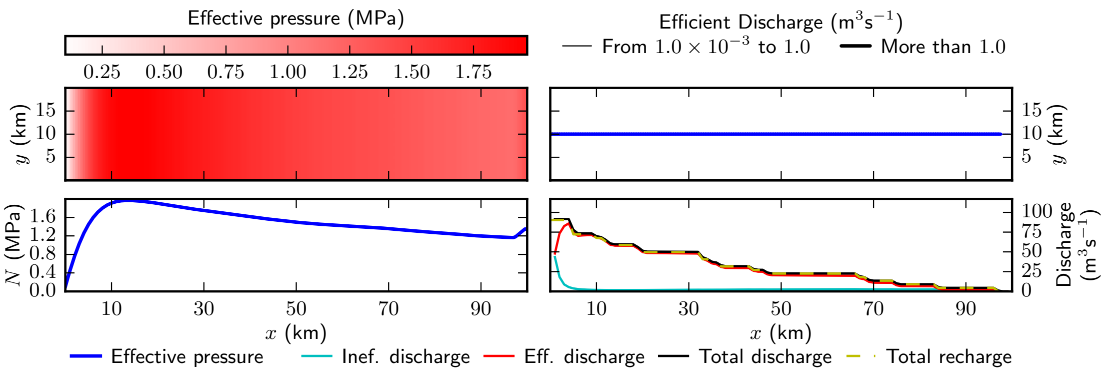

Figure S53: This is the result of run B3 for model *id*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

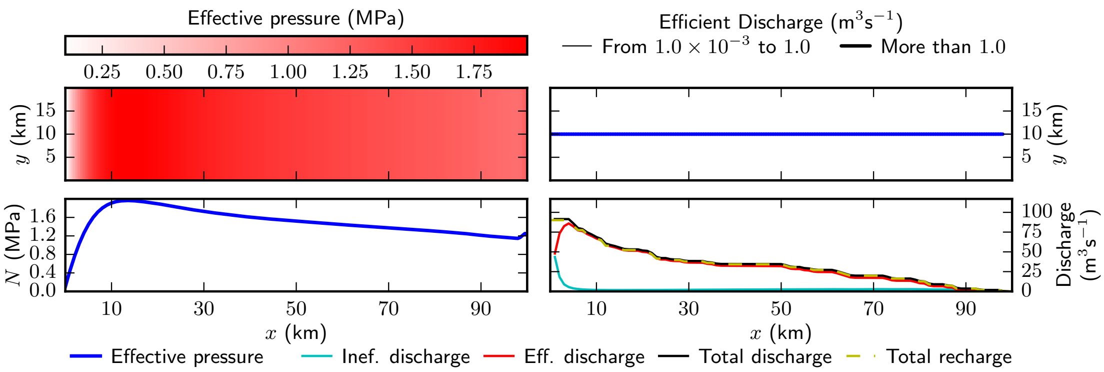

Figure S54: This is the result of run B4 for model *id*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

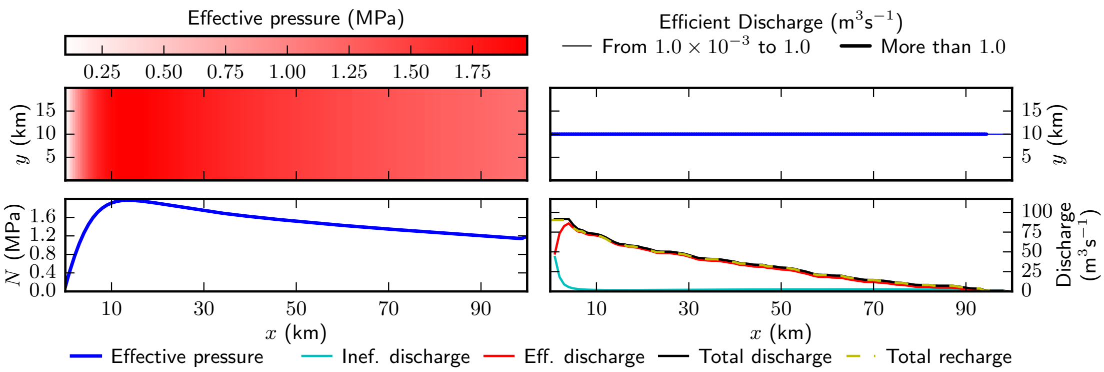

Figure S55: This is the result of run B5 for model *id*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

S2.1.8. Suite E model *id*

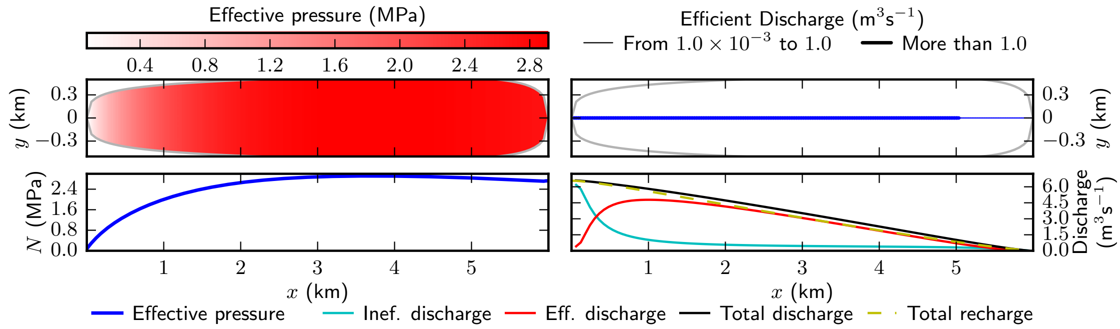

Figure S56: This is the result of run E1 for model *id*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

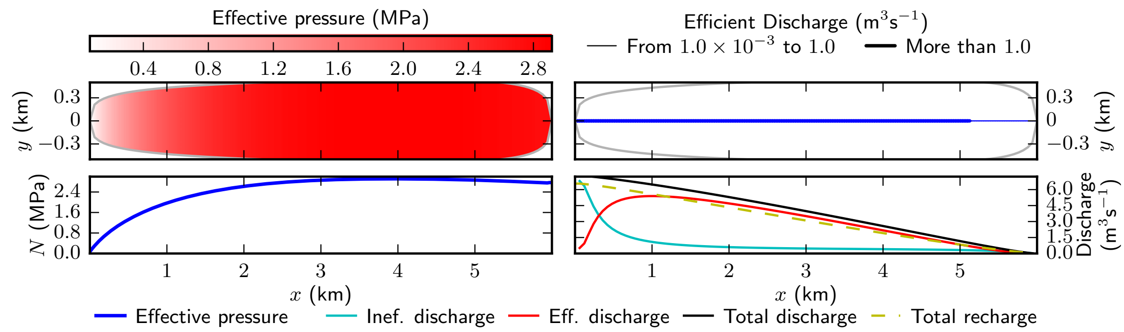

Figure S57: This is the result of run E2 for model *id*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

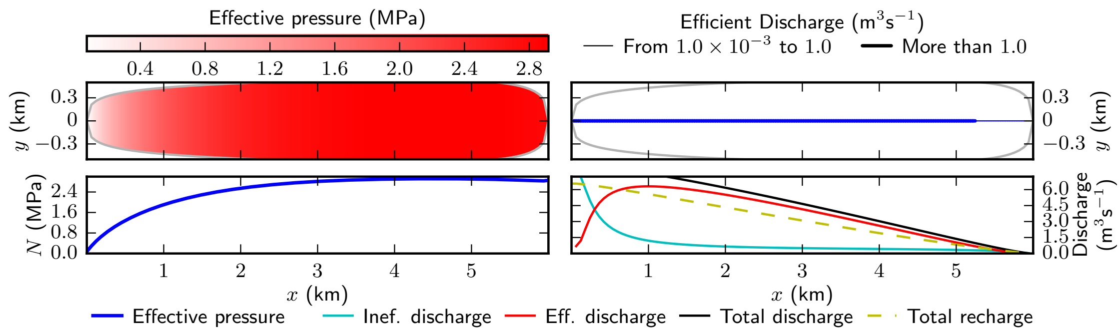

Figure S58: This is the result of run E3 for model *id*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

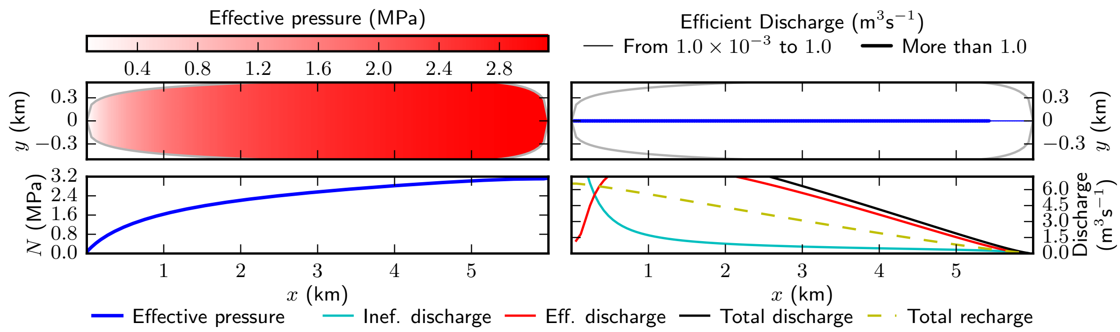

Figure S59: This is the result of run E4 for model *id*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

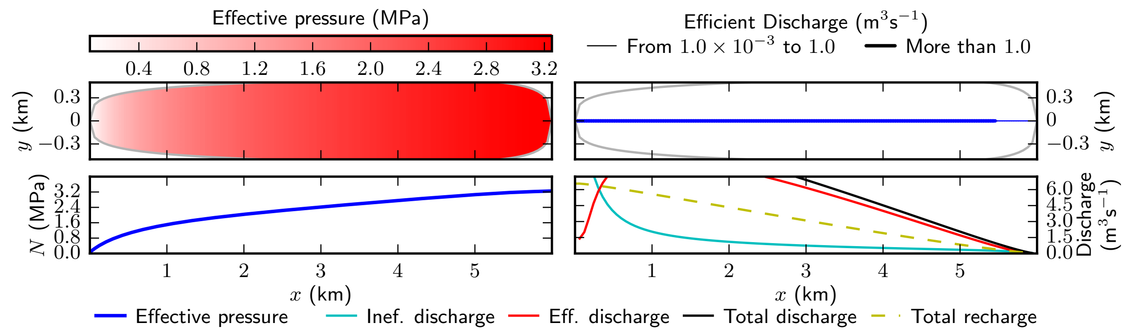

Figure S60: This is the result of run E5 for model *id*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

S2.1.9. Suite A model jd

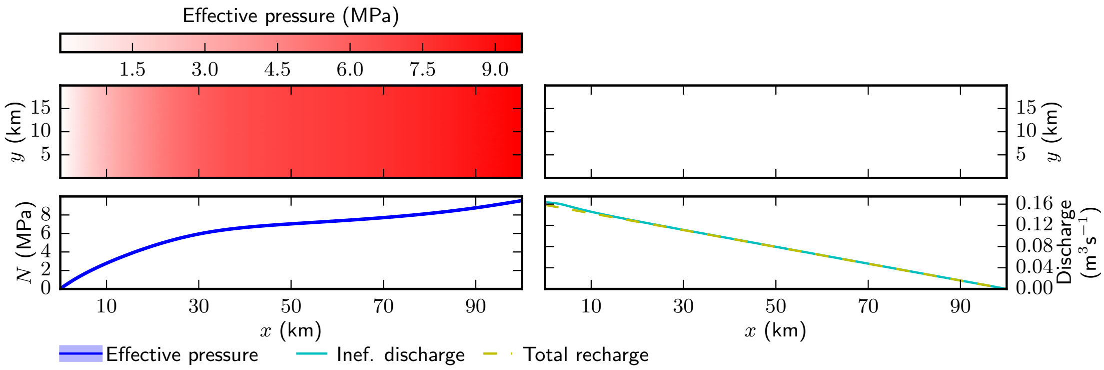

Figure S61: This is the result of run A1 for model jd.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

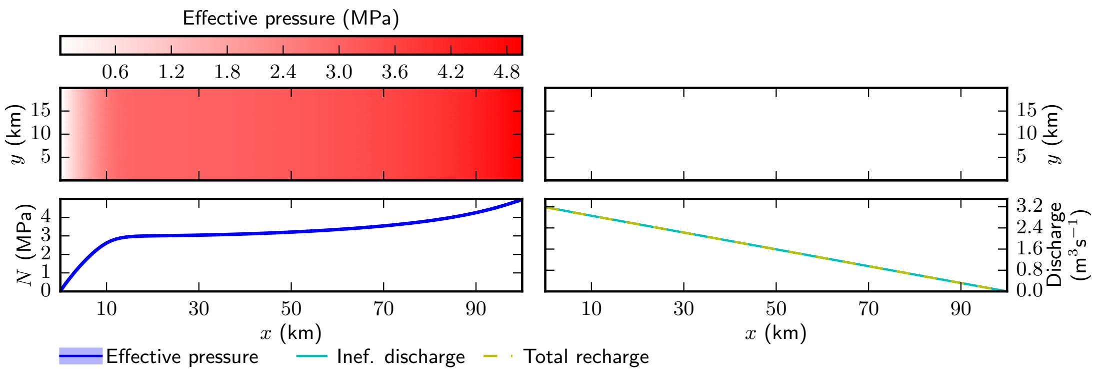

Figure S62: This is the result of run A2 for model *jd*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

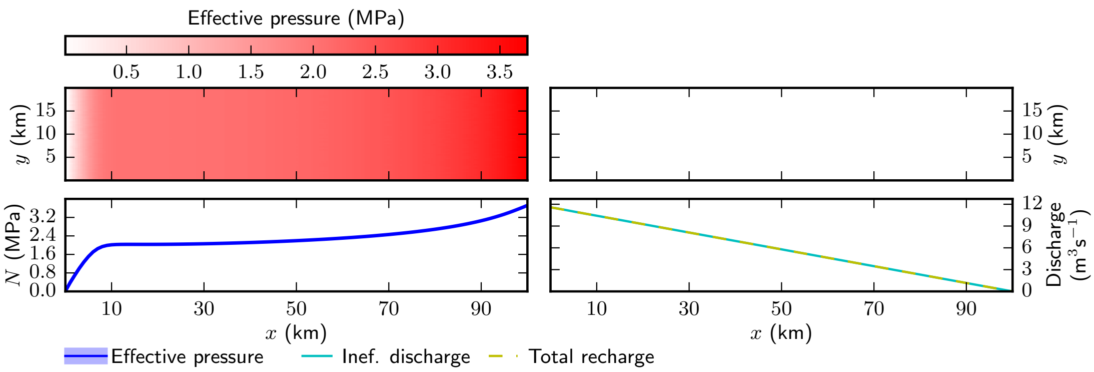

Figure S63: This is the result of run A3 for model *jd*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

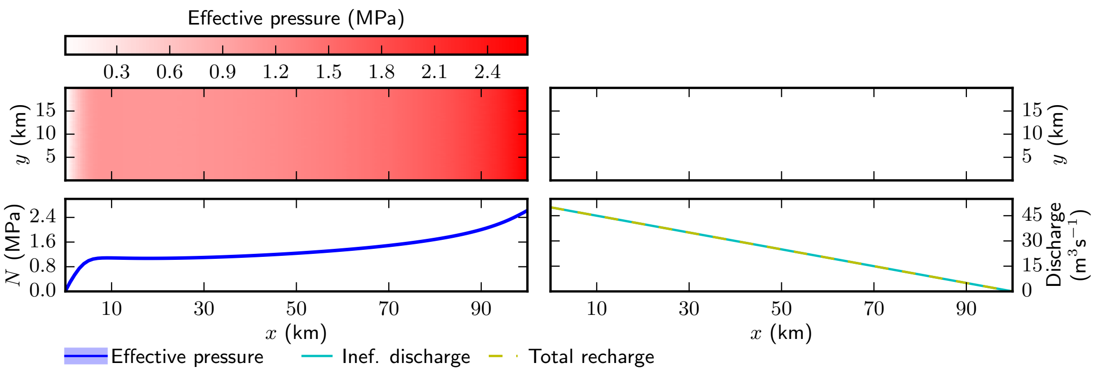

Figure S64: This is the result of run A4 for model *jd*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

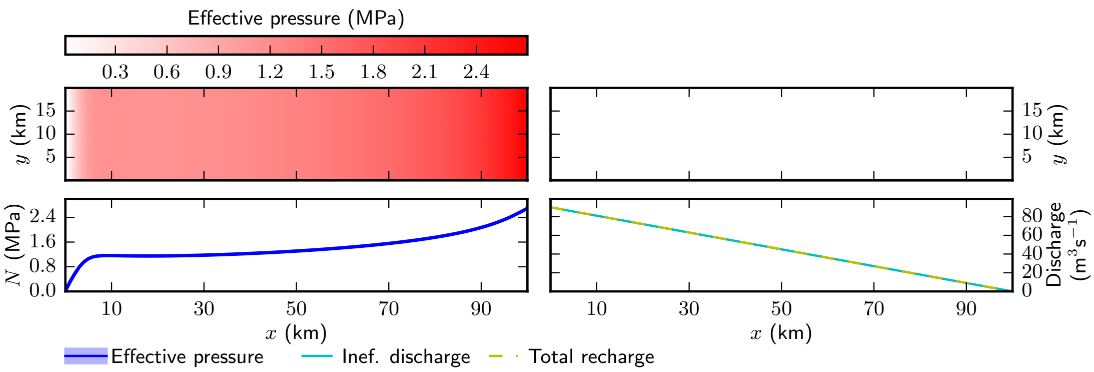

Figure S65: This is the result of run A5 for model *jd*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

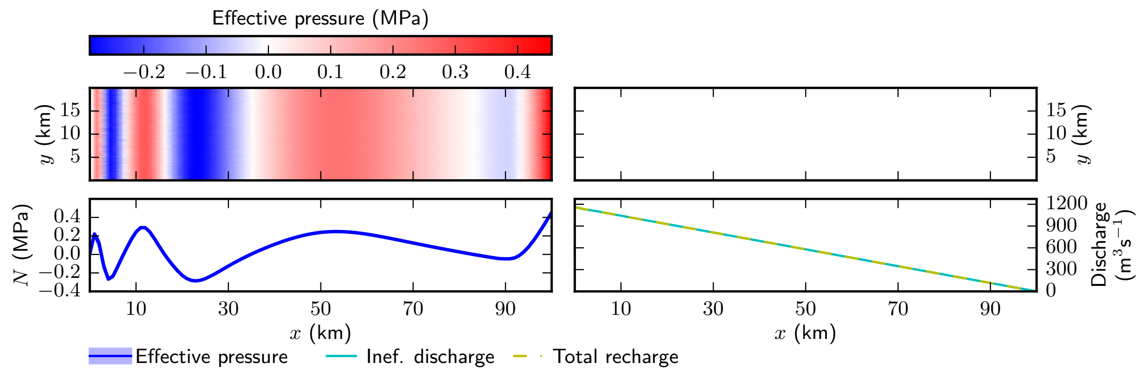

Figure S66: This is the result of run A6 for model *jd*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

S2.1.10. Suite B model jd

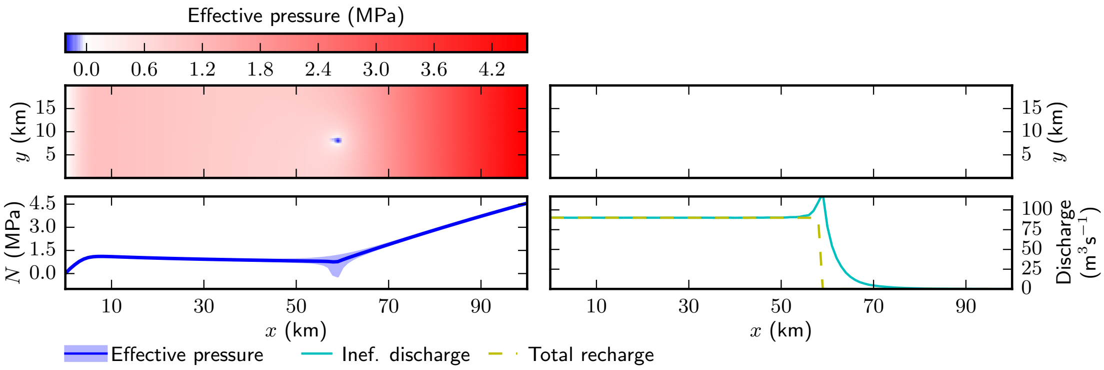

Figure S67: This is the result of run B1 for model jd.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

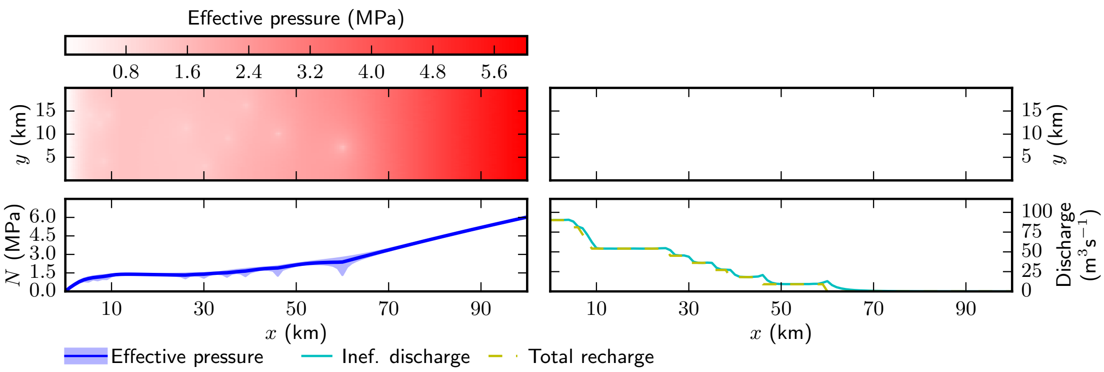

Figure S68: This is the result of run B2 for model *jd*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

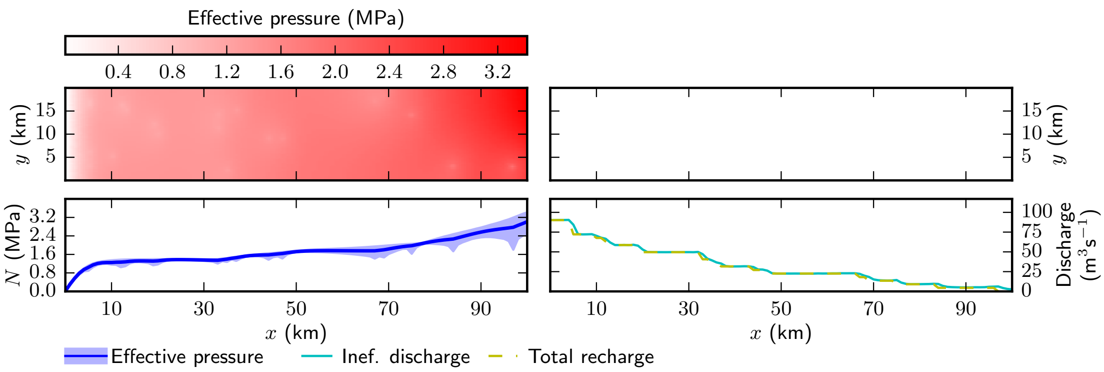

Figure S69: This is the result of run B3 for model *jd*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

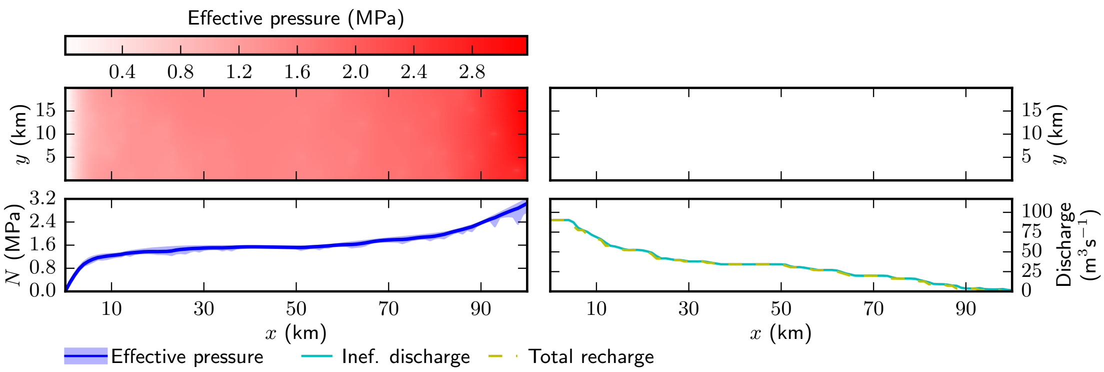

Figure S70: This is the result of run B4 for model *jd*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

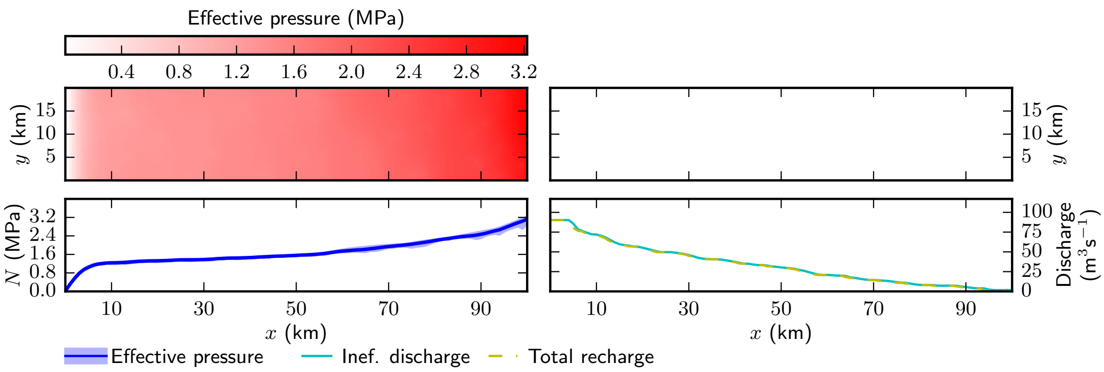

Figure S71: This is the result of run B5 for model *jd*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

S2.1.11. Suite E model jd

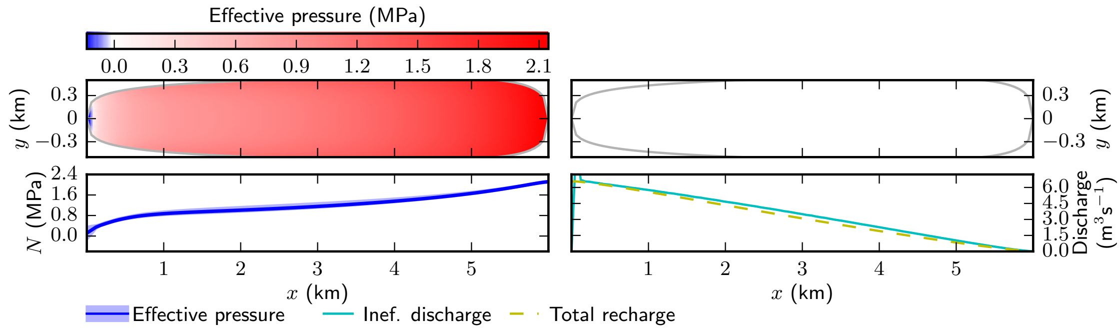

Figure S72: This is the result of run E1 for model jd.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

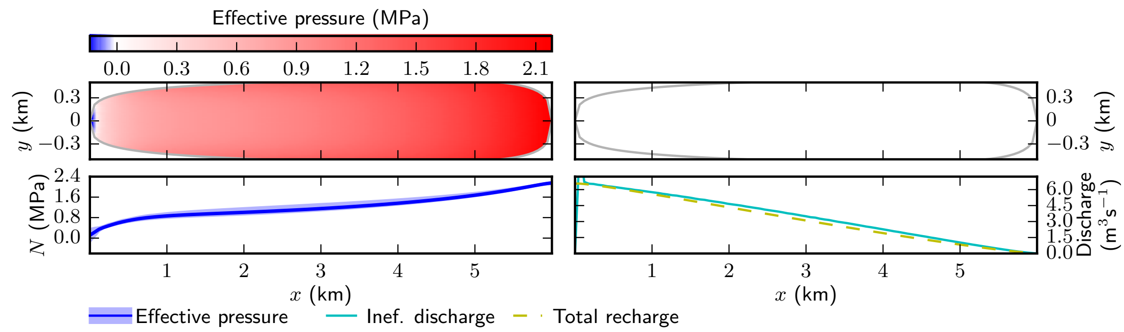

Figure S73: This is the result of run E2 for model jd.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

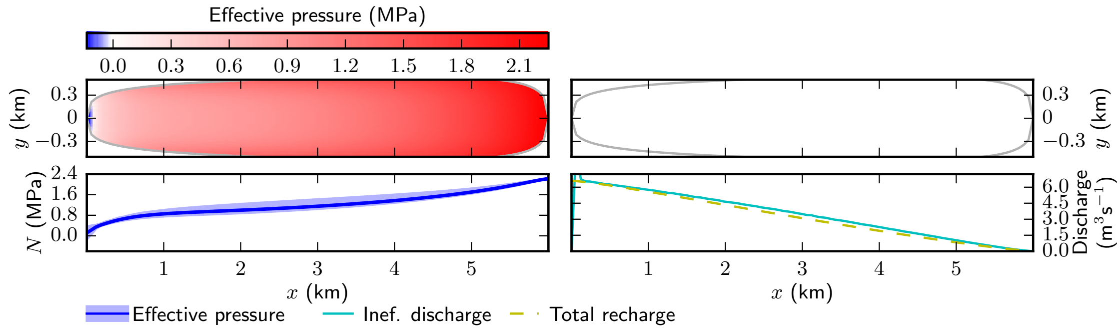

Figure S74: This is the result of run E3 for model *jd*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

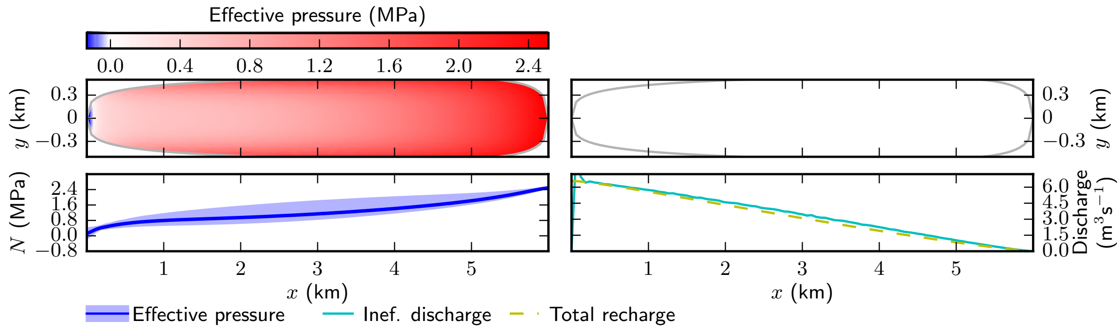

Figure S75: This is the result of run E4 for model *jd*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

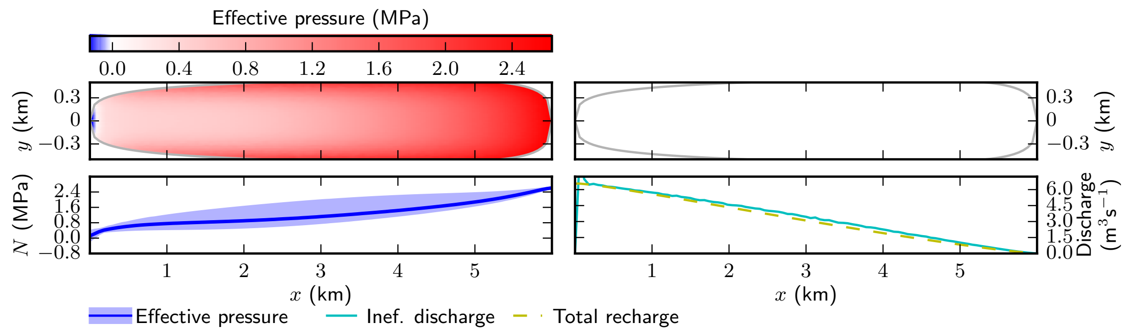

Figure S76: This is the result of run E5 for model *jd*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

S2.1.12. Suite A model jsb

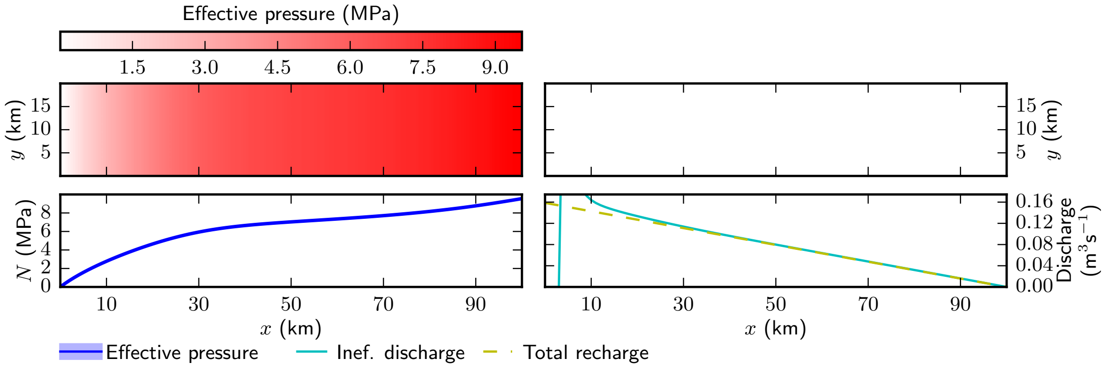

Figure S77: This is the result of run A1 for model jsb.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

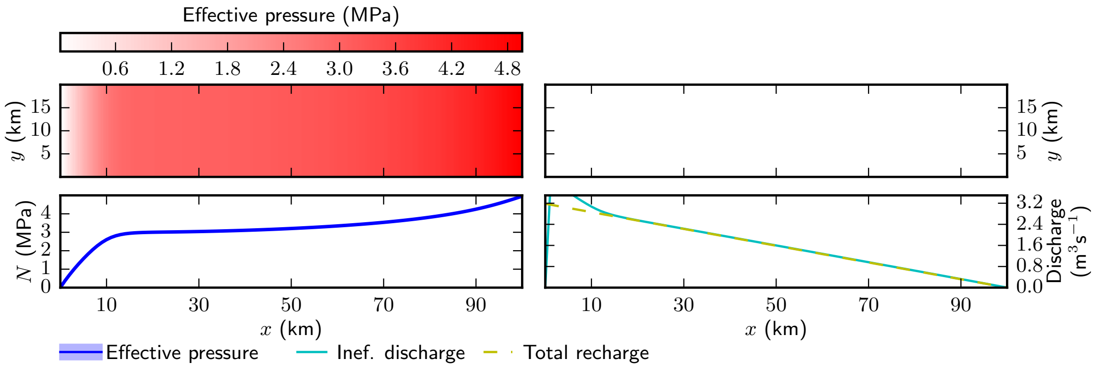

Figure S78: This is the result of run A2 for model *jsb*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

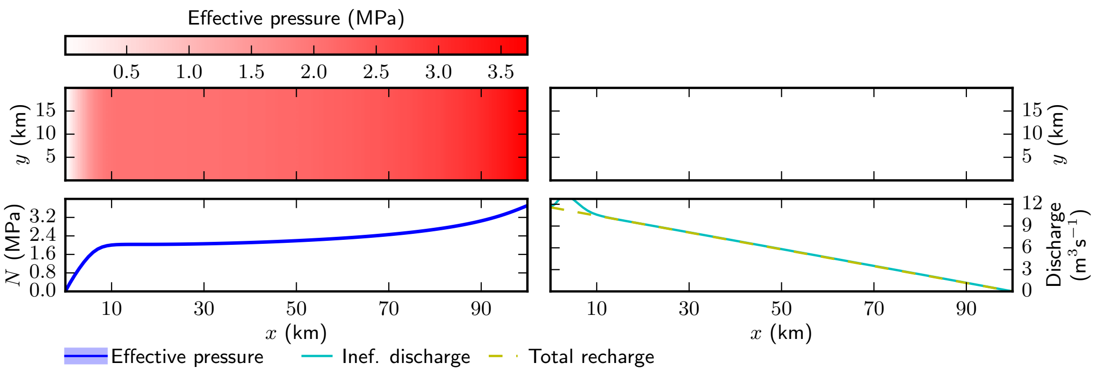

Figure S79: This is the result of run A3 for model *jsb*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

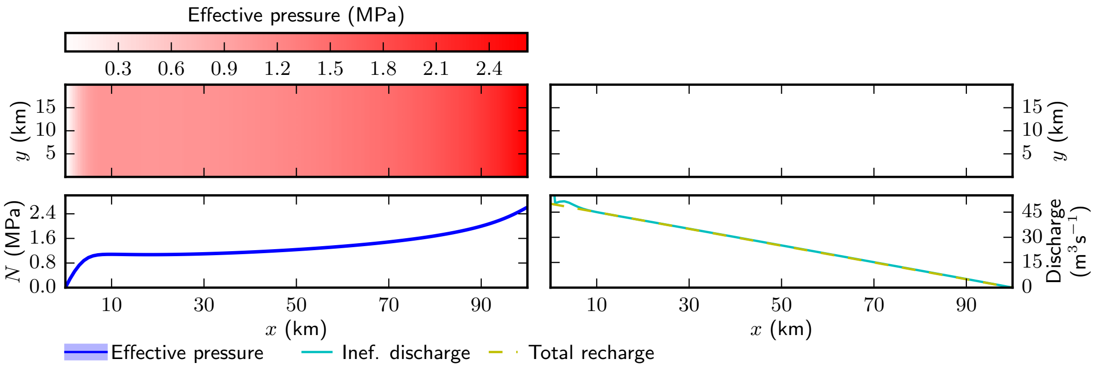

Figure S80: This is the result of run A4 for model *jsb*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

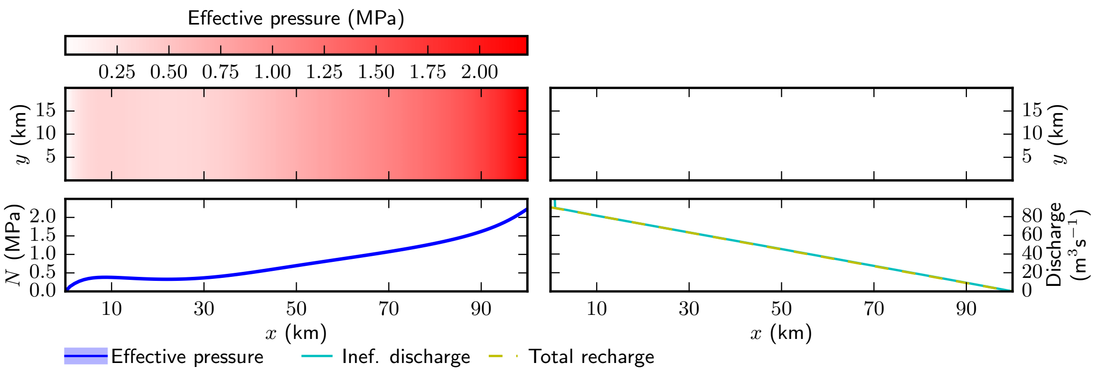

Figure S81: This is the result of run A5 for model *jsb*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

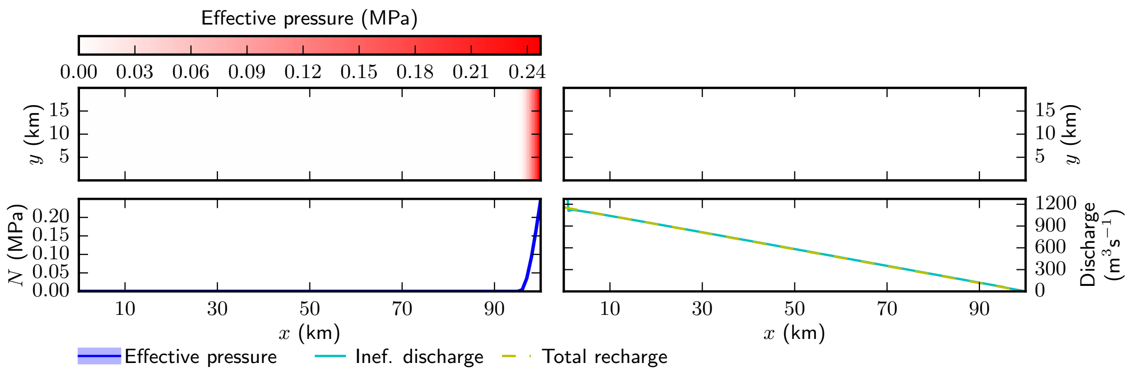

Figure S82: This is the result of run A6 for model *jsb*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

S2.1.13. Suite B model jsb

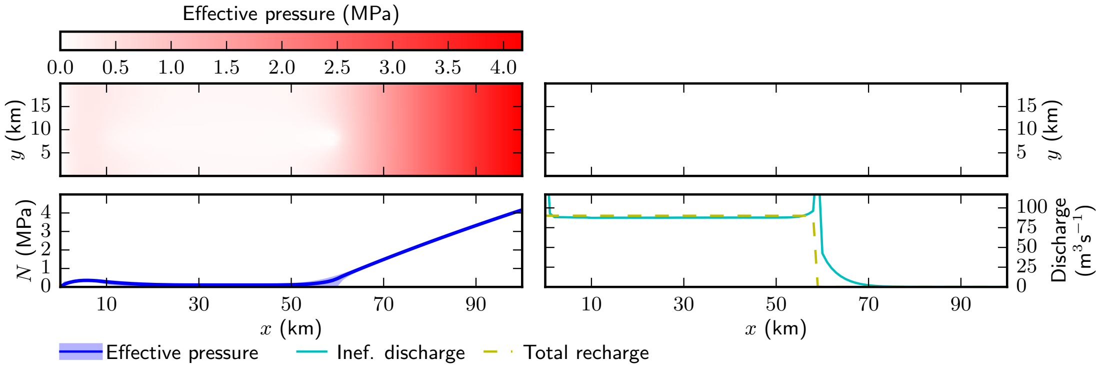

Figure S83: This is the result of run B1 for model jsb.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

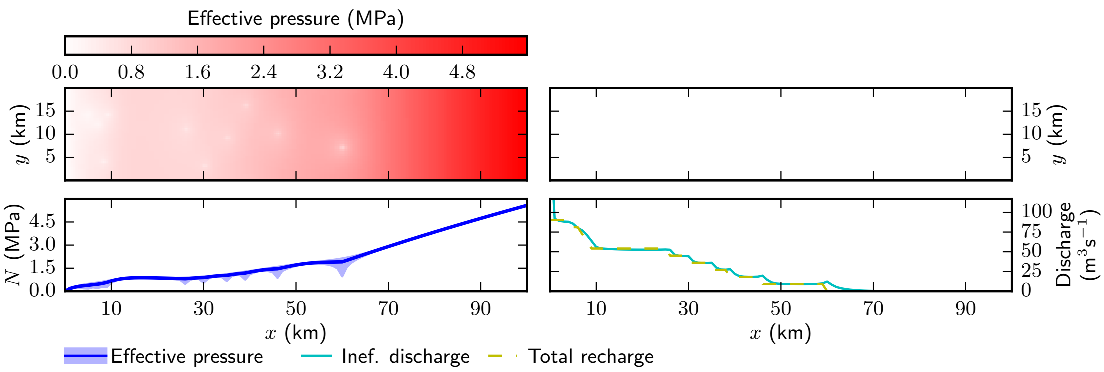

Figure S84: This is the result of run B2 for model *jsb*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

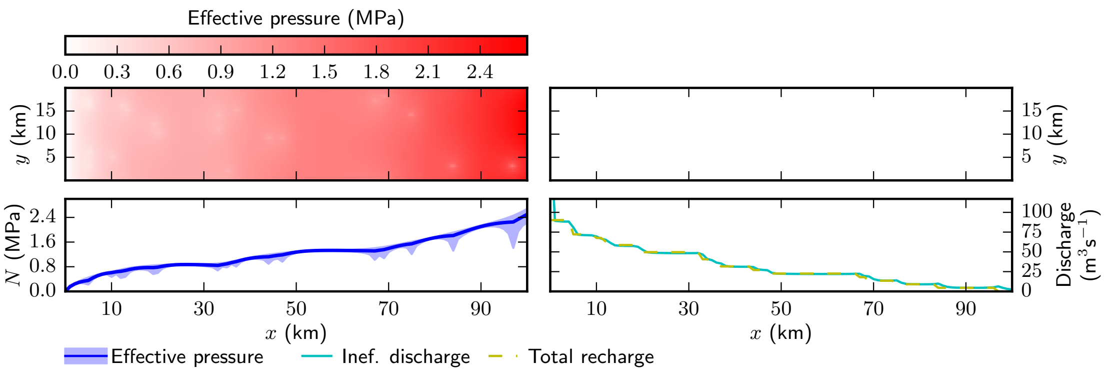

Figure S85: This is the result of run B3 for model *jsb*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

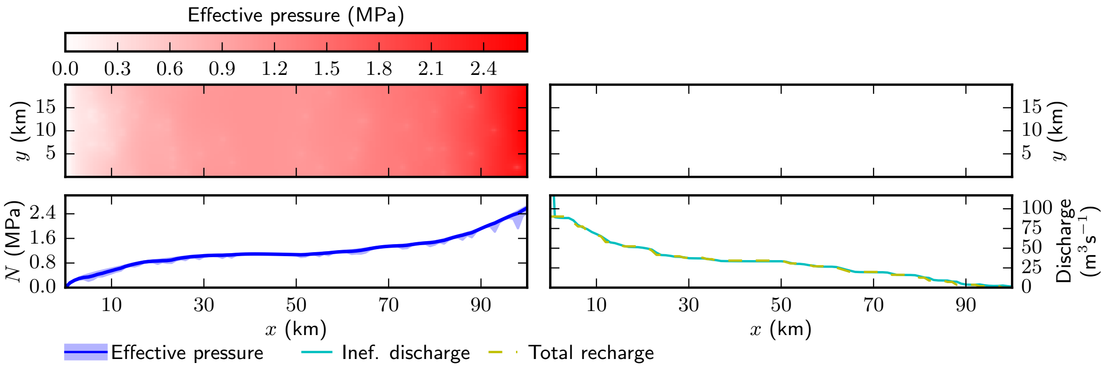

Figure S86: This is the result of run B4 for model *jsb*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

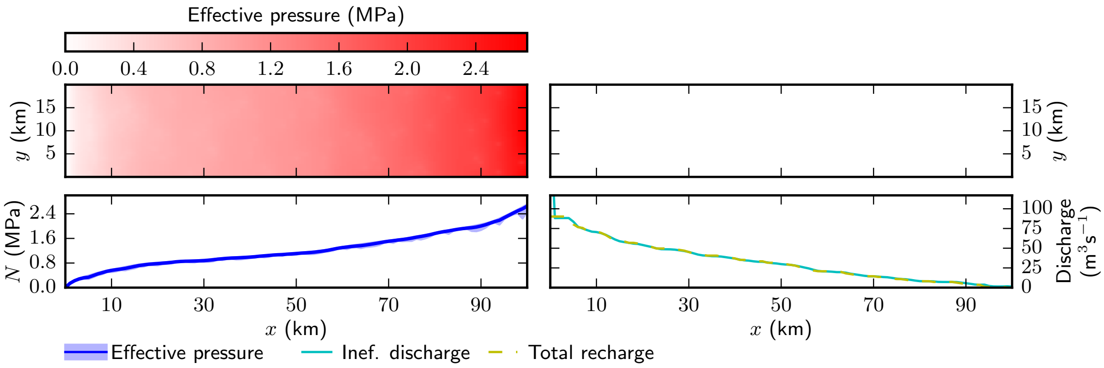

Figure S87: This is the result of run B5 for model *jsb*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

S2.1.14. Suite E model jsb

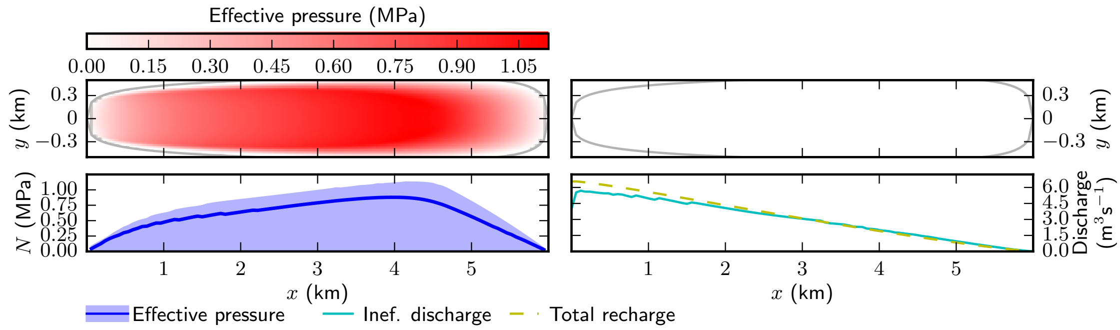

Figure S88: This is the result of run E1 for model jsb.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

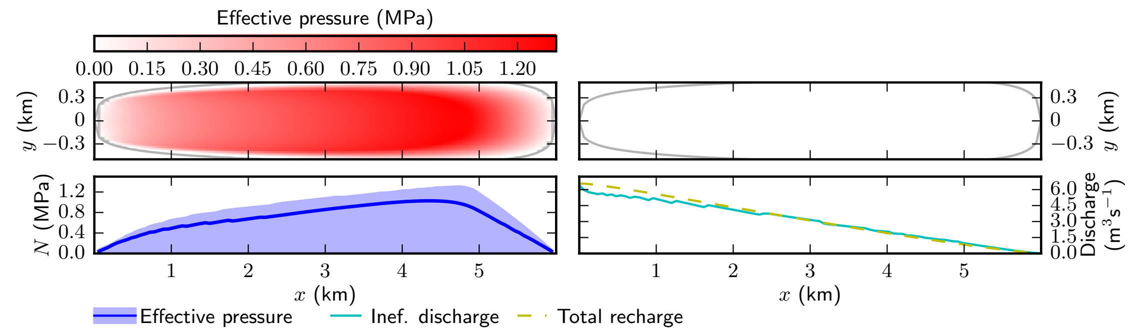

Figure S89: This is the result of run E2 for model *jsb*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

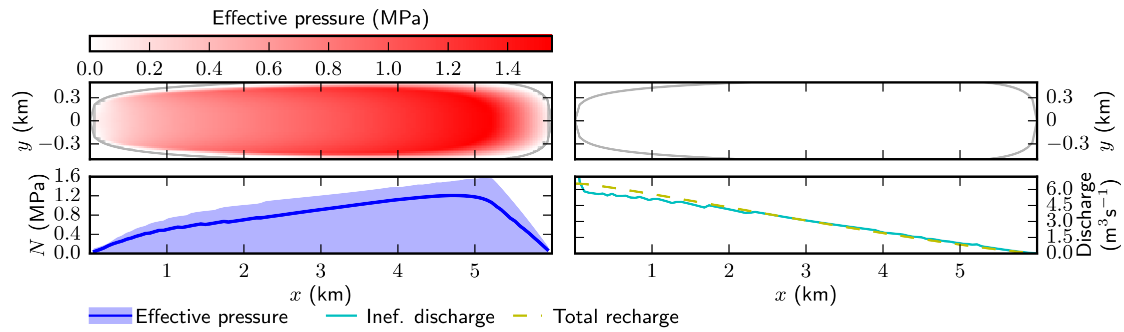

Figure S90: This is the result of run E3 for model *jsb*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

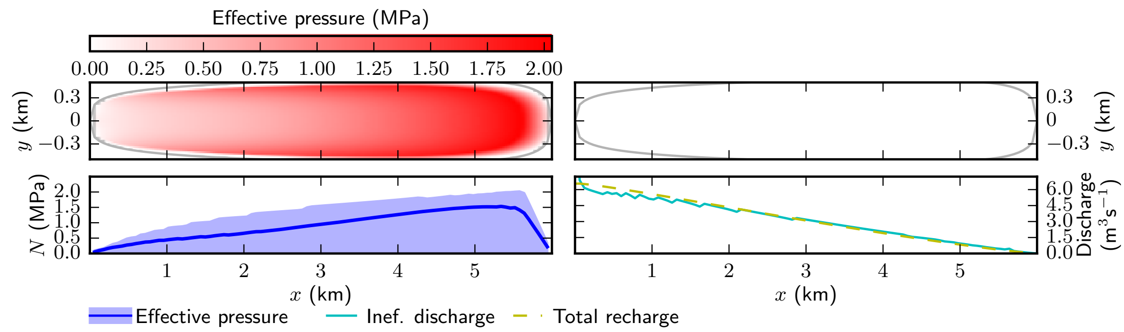

Figure S91: This is the result of run E4 for model *jsb*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

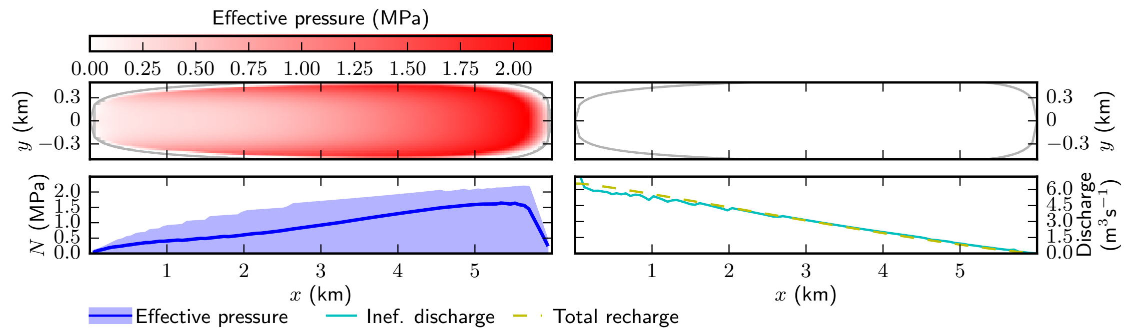

Figure S92: This is the result of run E5 for model *jsb*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

S2.1.15. Suite A model as

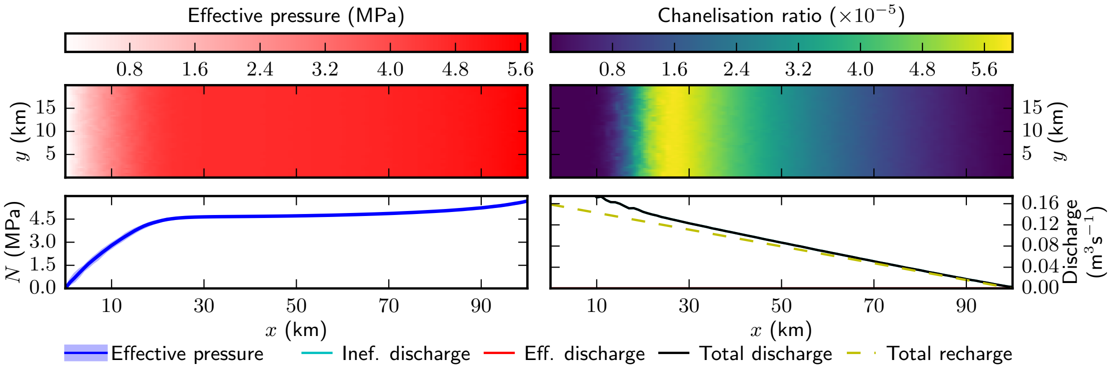

Figure S93: This is the result of run A1 for model as.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

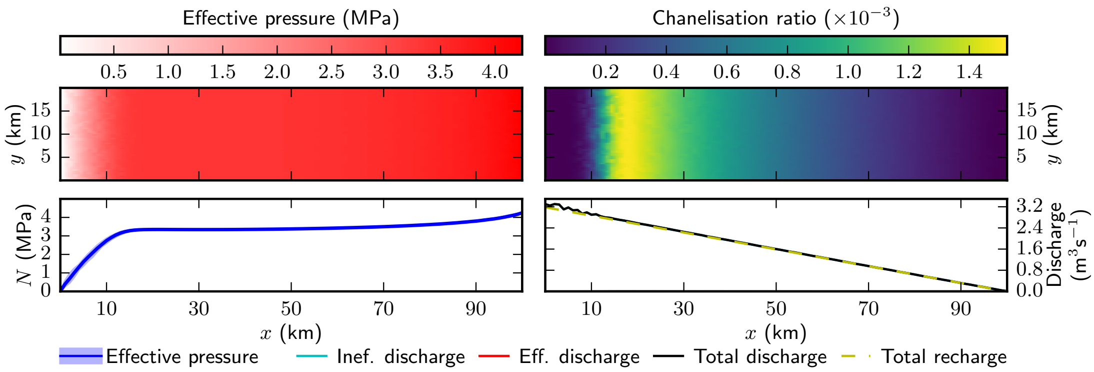

Figure S94: This is the result of run A2 for model *as*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

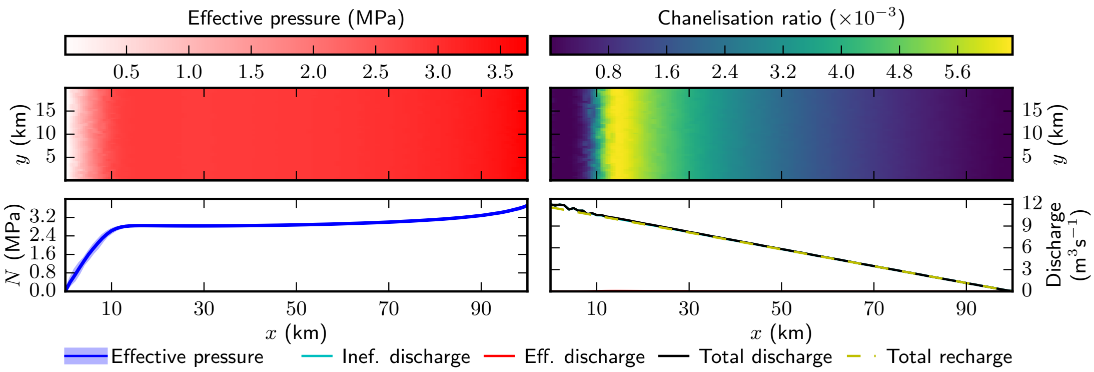

Figure S95: This is the result of run A3 for model *as*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

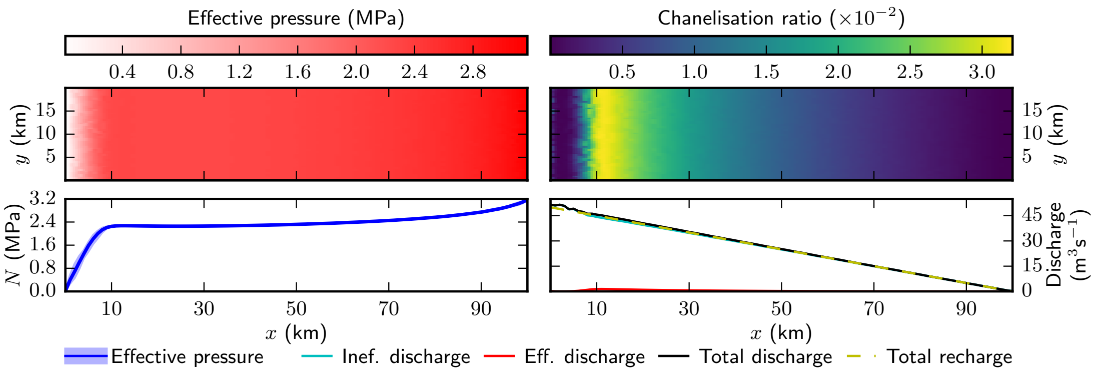

Figure S96: This is the result of run A4 for model *as*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

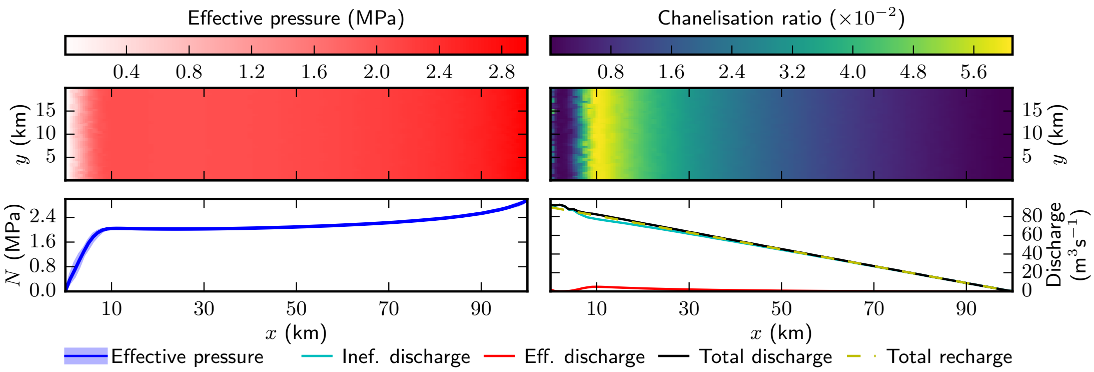

Figure S97: This is the result of run A5 for model *as*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

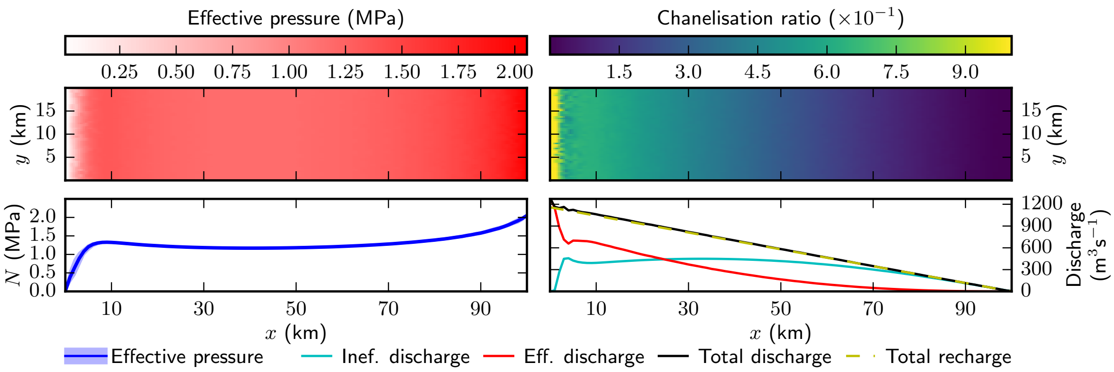

Figure S98: This is the result of run A6 for model *as*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

S2.1.16. Suite B model as

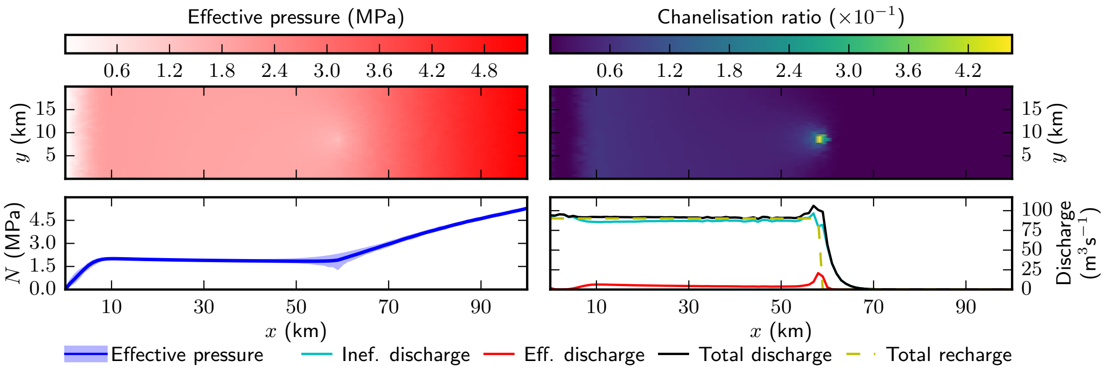

Figure S99: This is the result of run B1 for model as.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

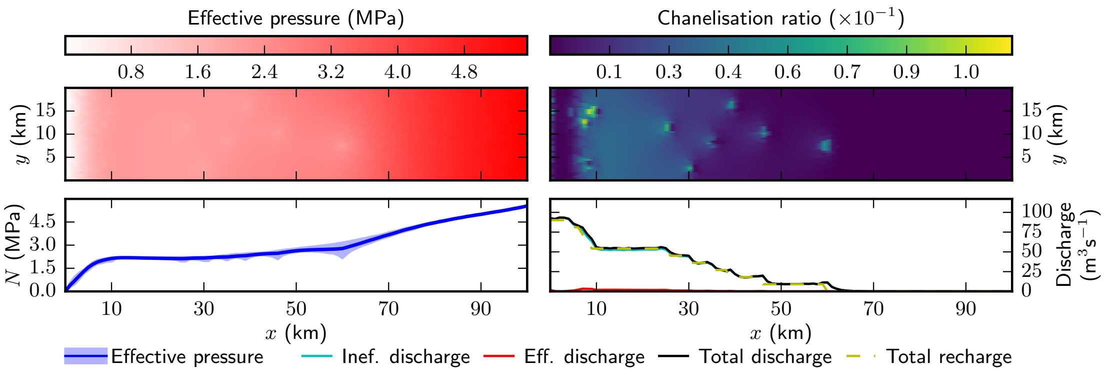

Figure S100: This is the result of run B2 for model *as*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

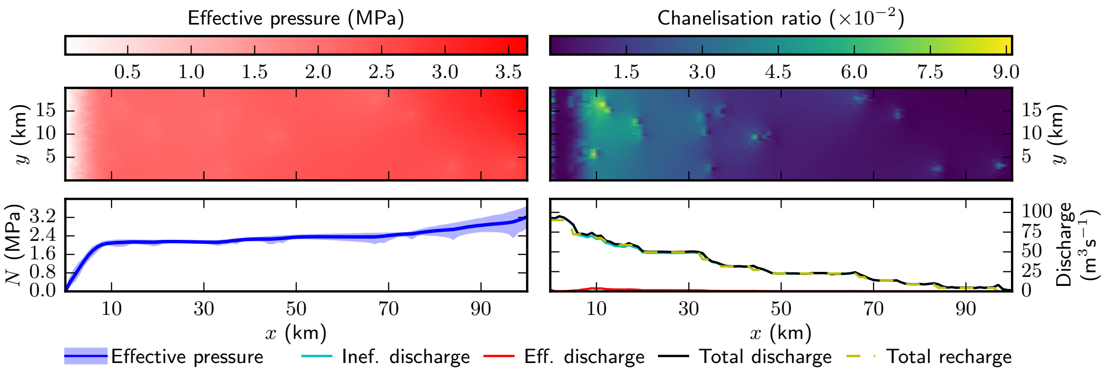

Figure S101: This is the result of run B3 for model *as*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

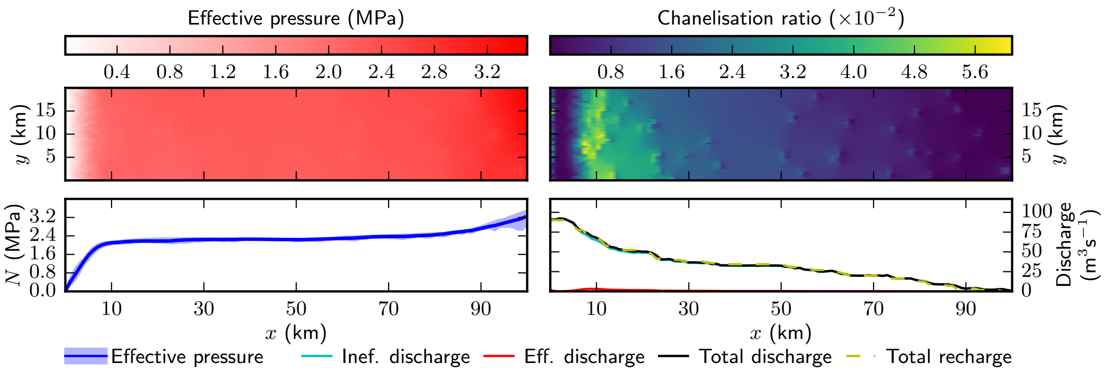

Figure S102: This is the result of run B4 for model *as*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

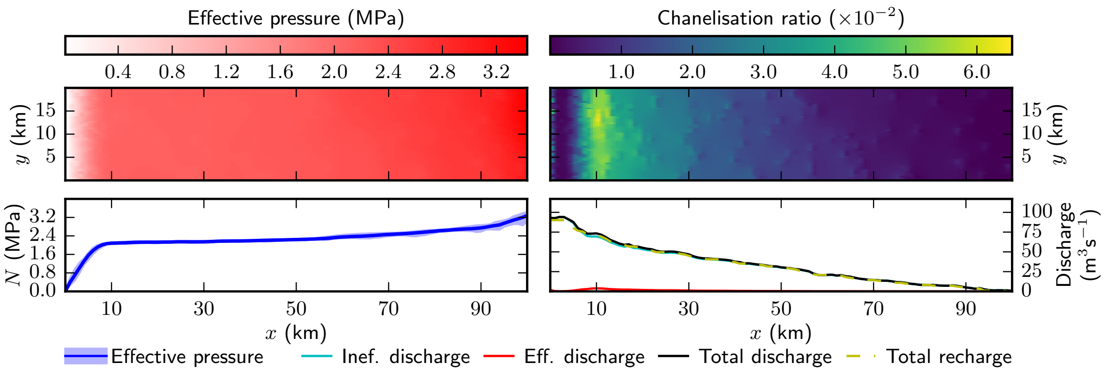

Figure S103: This is the result of run B5 for model *as*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

S2.1.17. Suite E model as

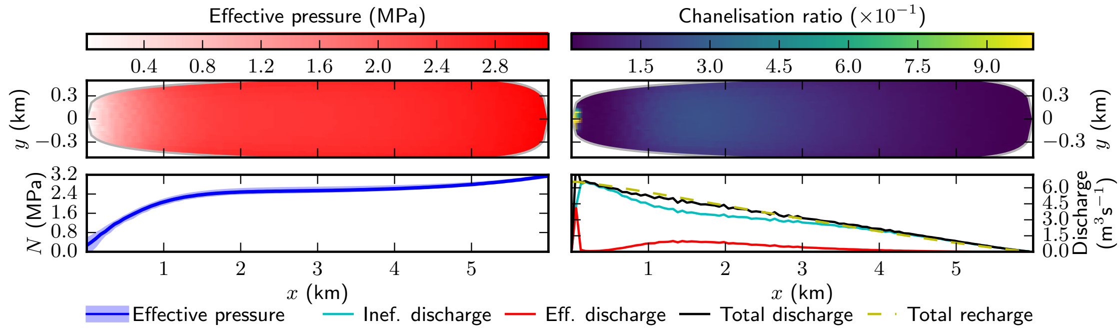

Figure S104: This is the result of run E1 for model as.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

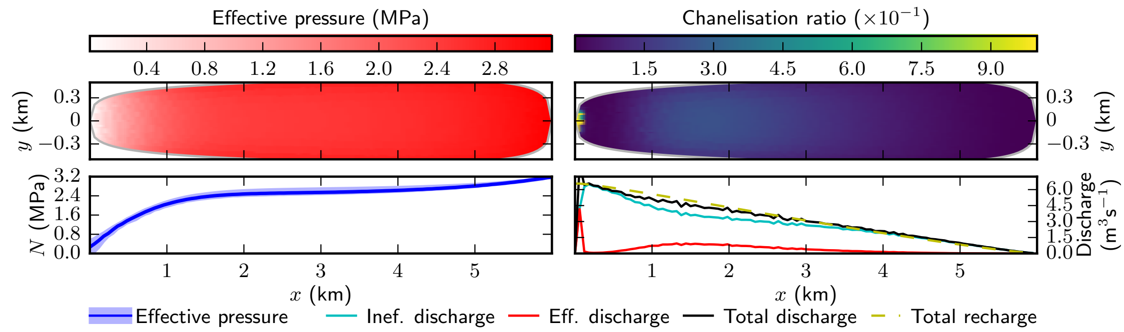

Figure S105: This is the result of run E2 for model *as*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

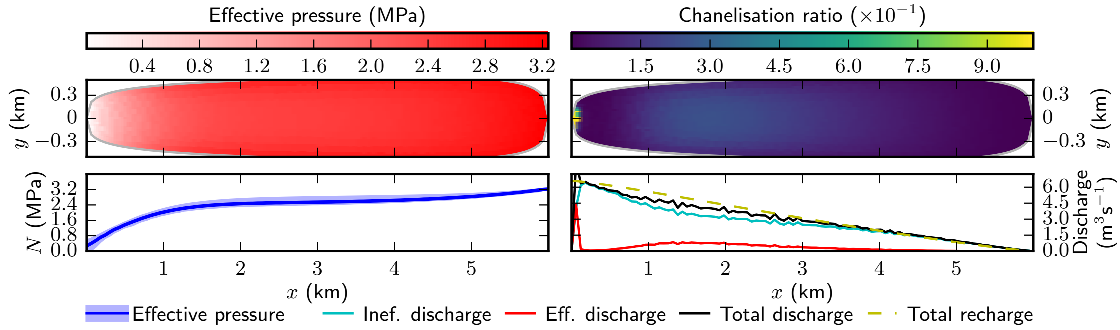

Figure S106: This is the result of run E3 for model *as*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

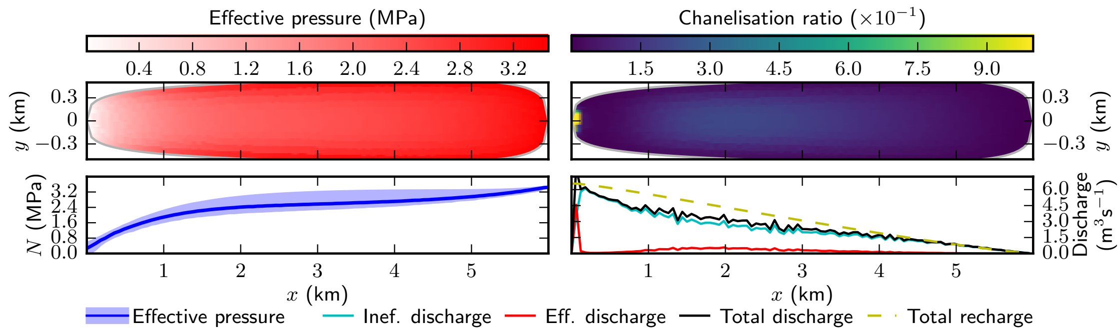

Figure S107: This is the result of run E4 for model *as*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

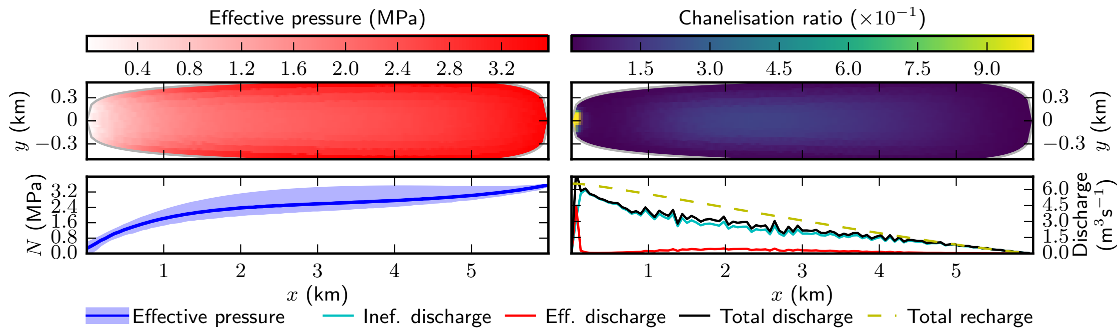

Figure S108: This is the result of run E5 for model *as*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

S2.1.18. Suite A model *sb*

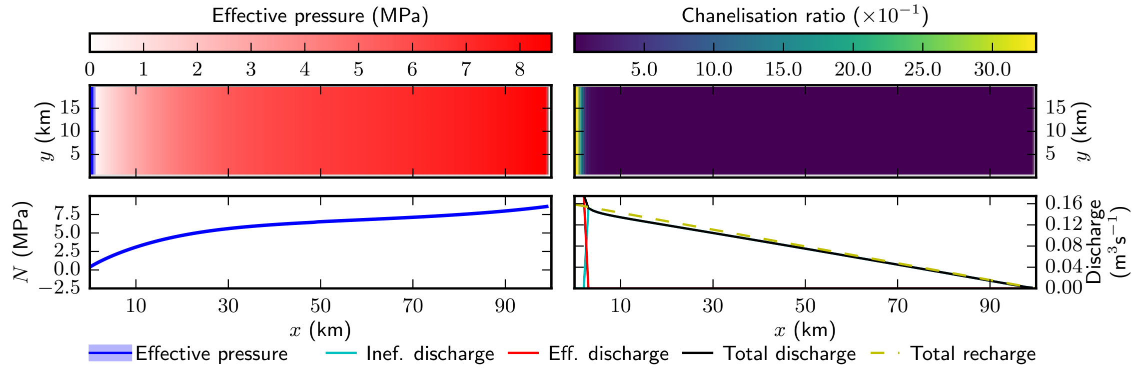

Figure S109: This is the result of run A1 for model *sb*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

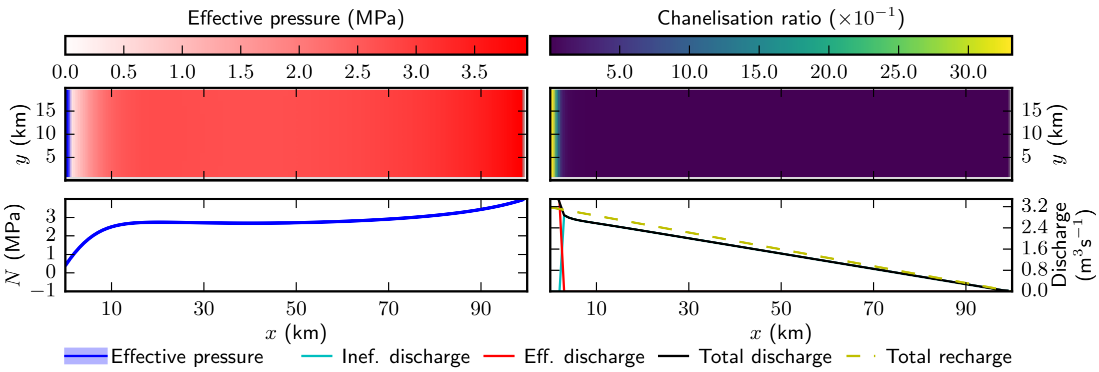

Figure S110: This is the result of run A2 for model *sb*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

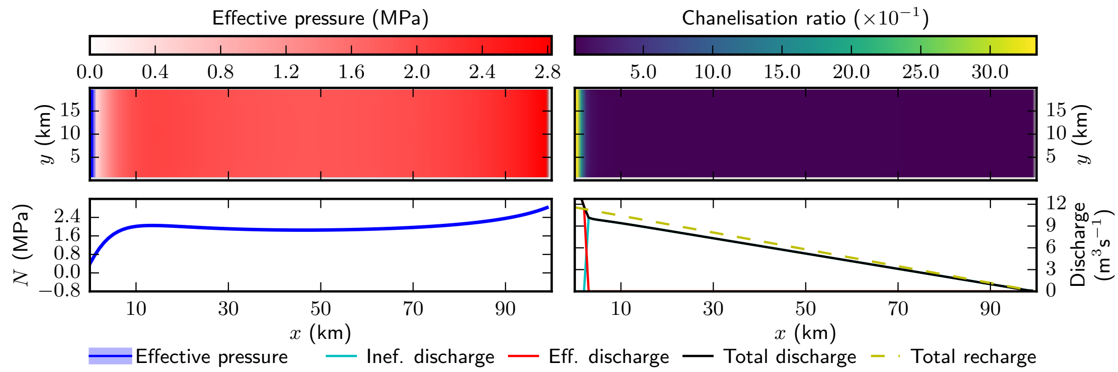

Figure S111: This is the result of run A3 for model *sb*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

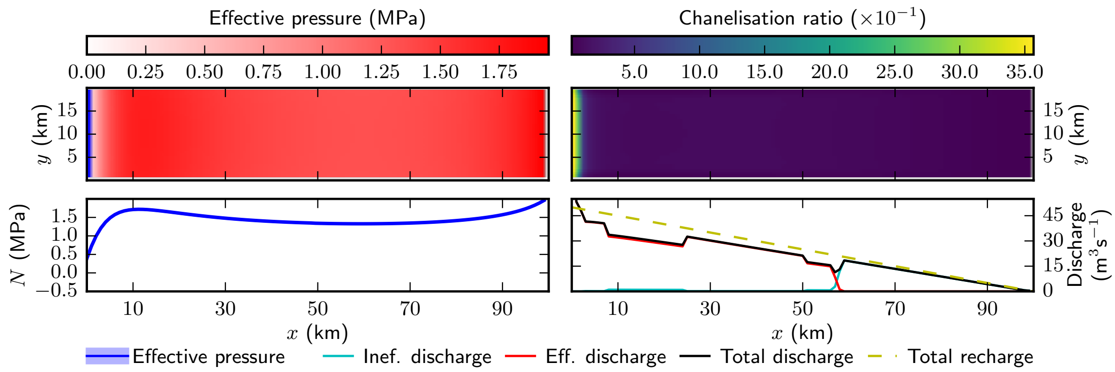

Figure S112: This is the result of run A4 for model *sb*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

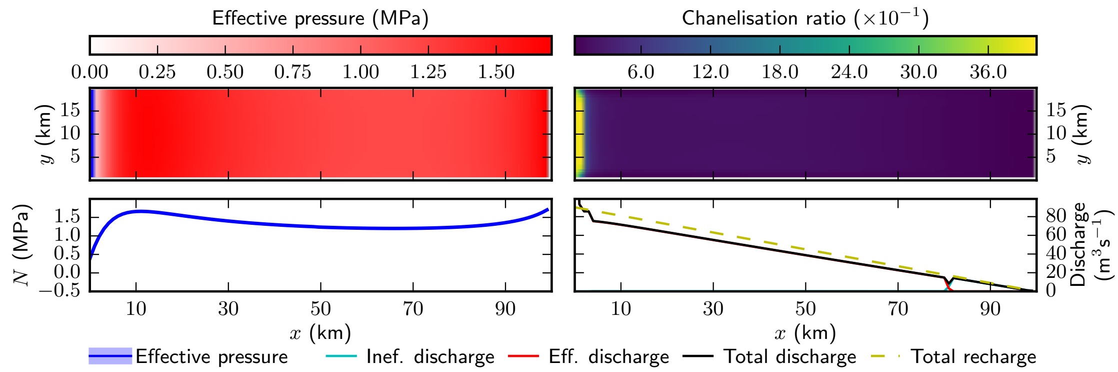

Figure S113: This is the result of run A5 for model *sb*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

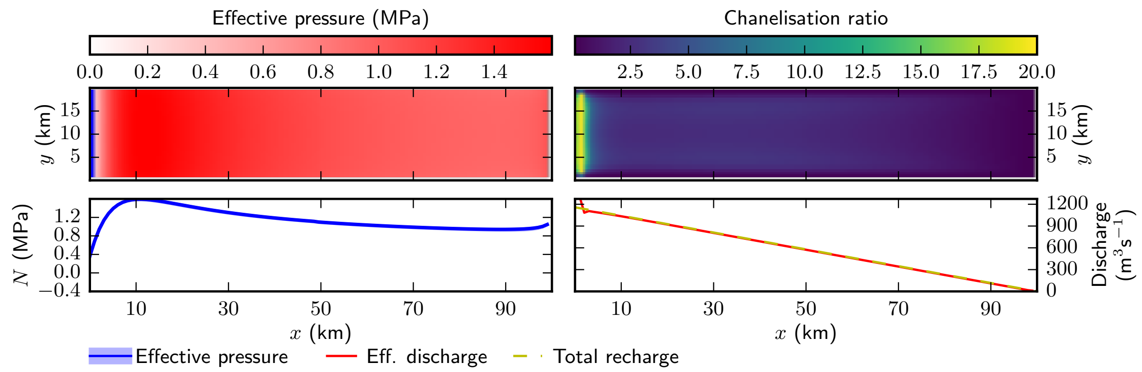

Figure S114: This is the result of run A6 for model *sb*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

S2.1.19. Suite B model *sb*

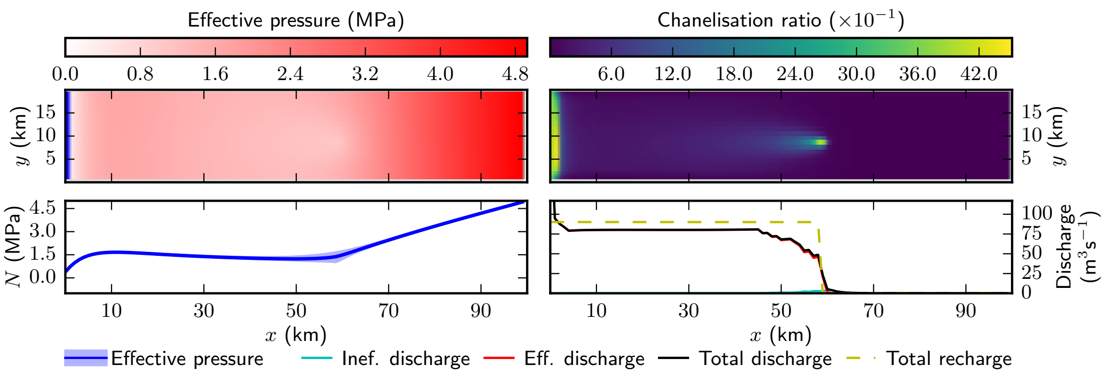

Figure S115: This is the result of run B1 for model *sb*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

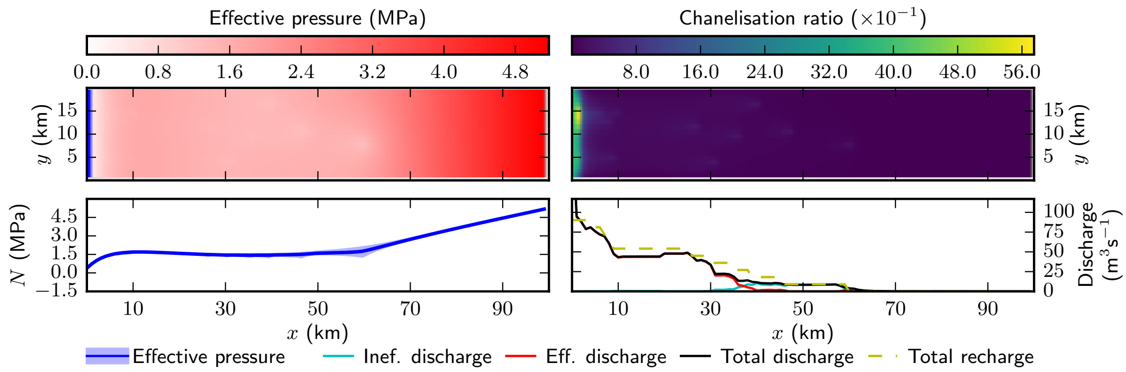

Figure S116: This is the result of run B2 for model *sb*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

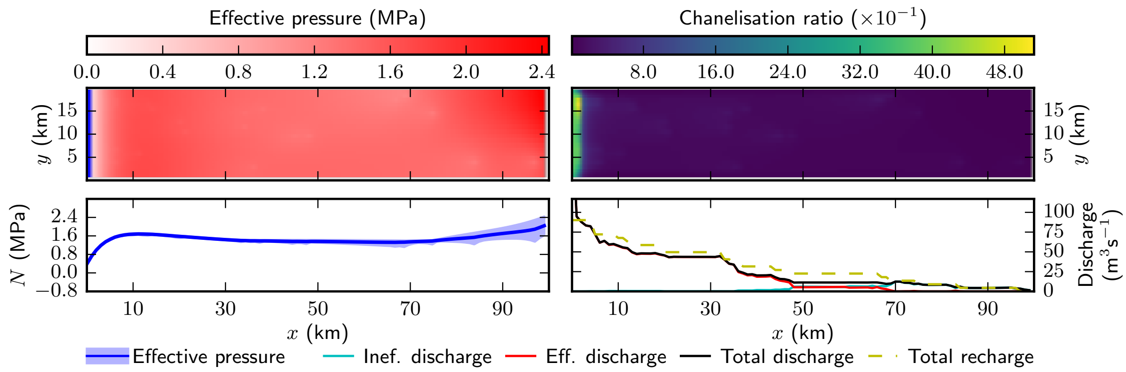

Figure S117: This is the result of run B3 for model *sb*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

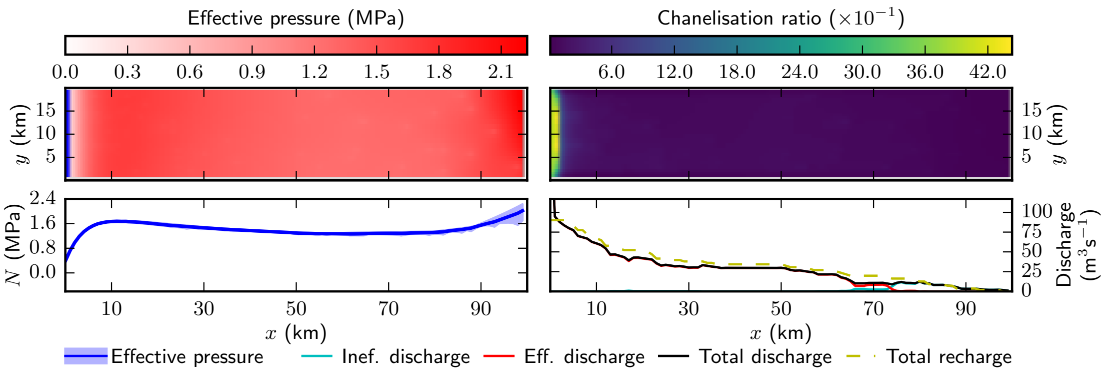

Figure S118: This is the result of run B4 for model *sb*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

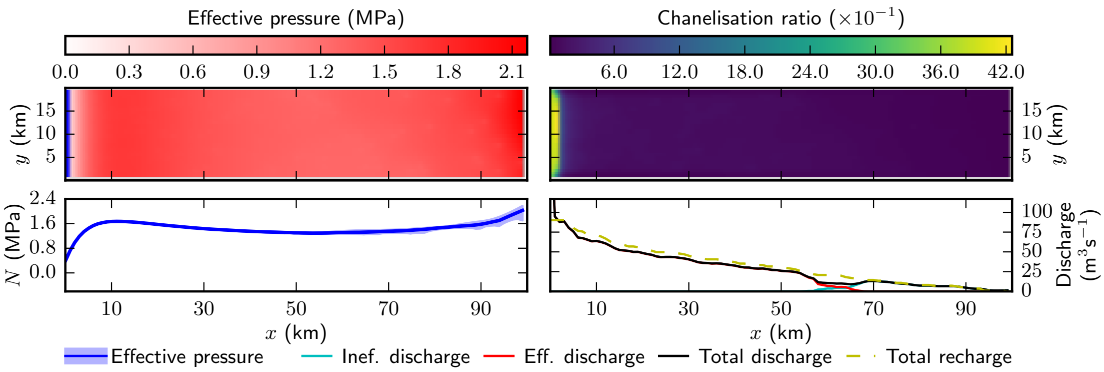

Figure S119: This is the result of run B5 for model *sb*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

S2.1.20. Suite A model bf

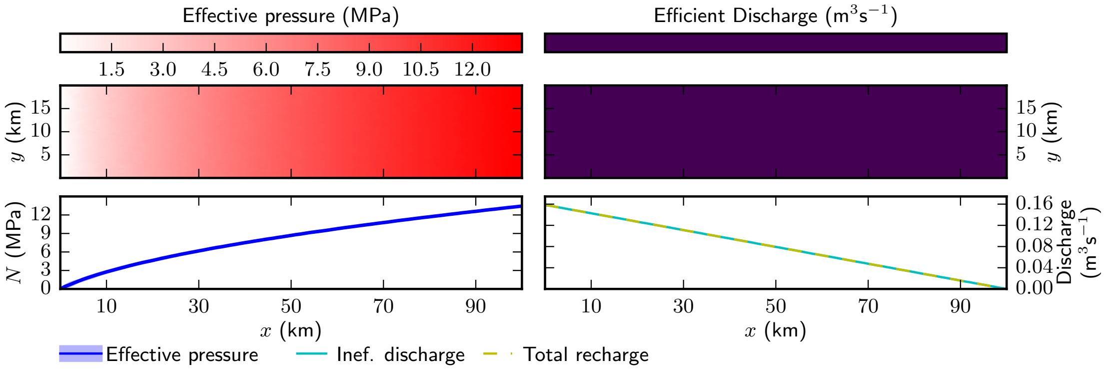

Figure S120: This is the result of run A1 for model bf.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

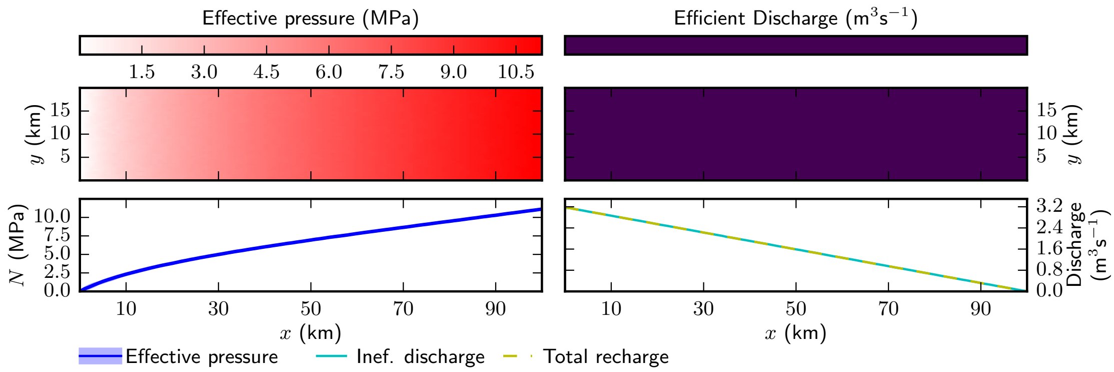

Figure S121: This is the result of run A2 for model bf.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

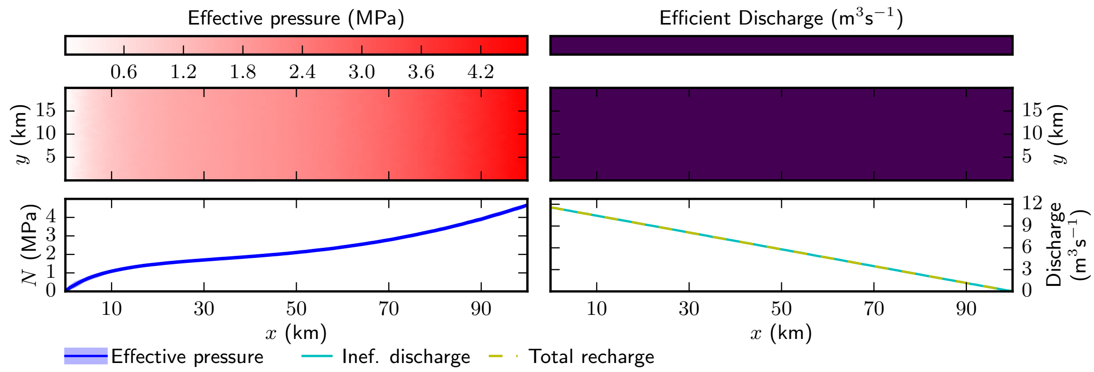

Figure S122: This is the result of run A3 for model bf.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

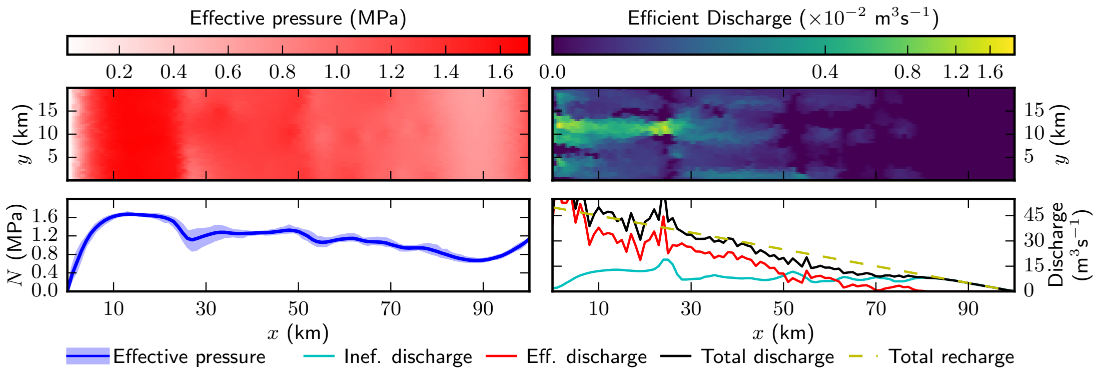

Figure S123: This is the result of run A4 for model bf.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

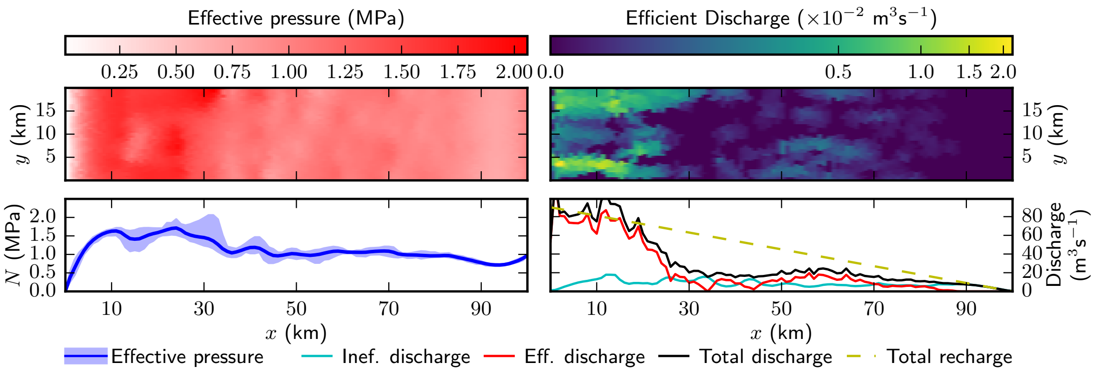

Figure S124: This is the result of run A5 for model bf.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

S2.1.21. Suite B model bf

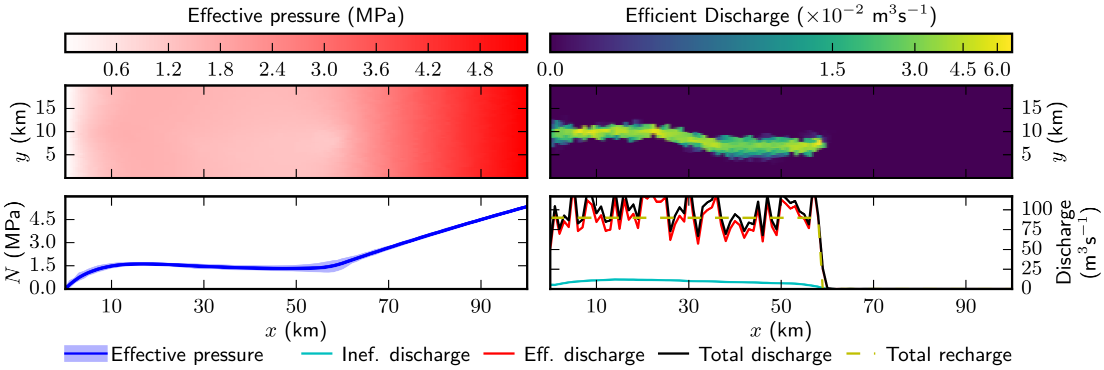

Figure S125: This is the result of run B1 for model bf.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

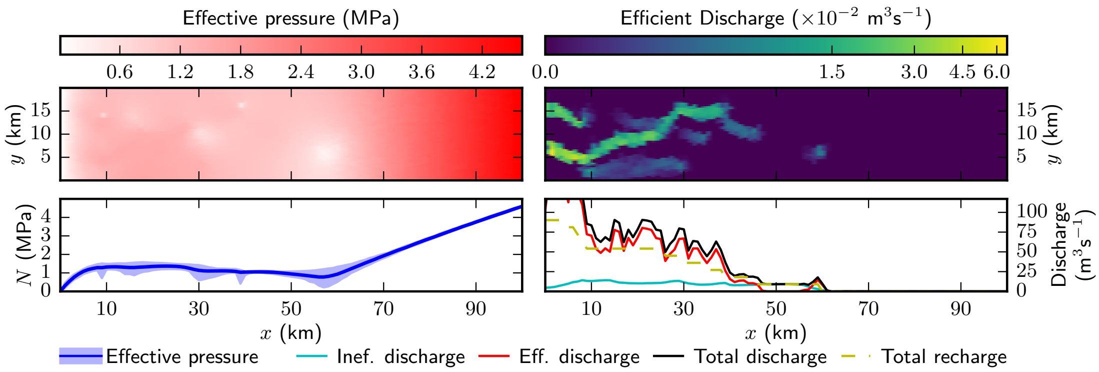

Figure S126: This is the result of run B2 for model bf.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

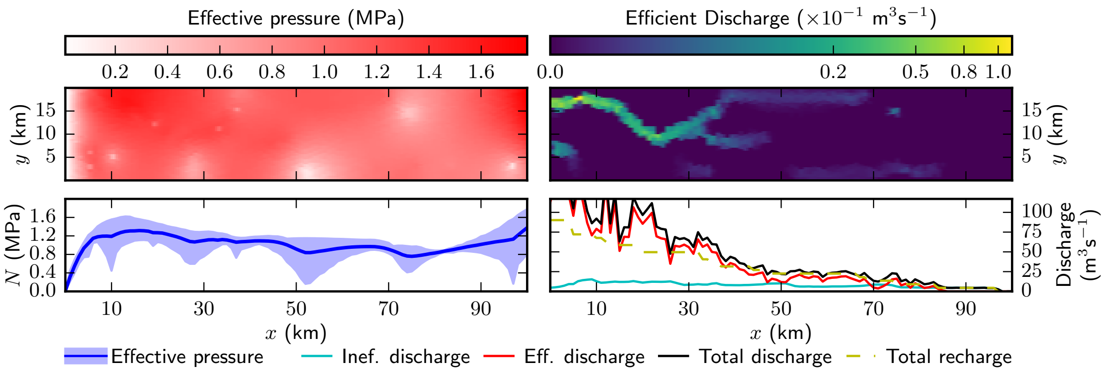

Figure S127: This is the result of run B3 for model bf.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

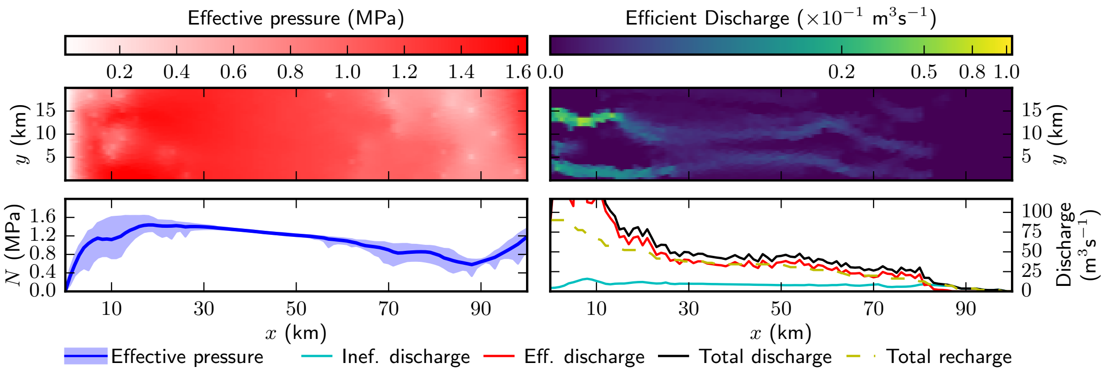

Figure S128: This is the result of run B4 for model bf.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

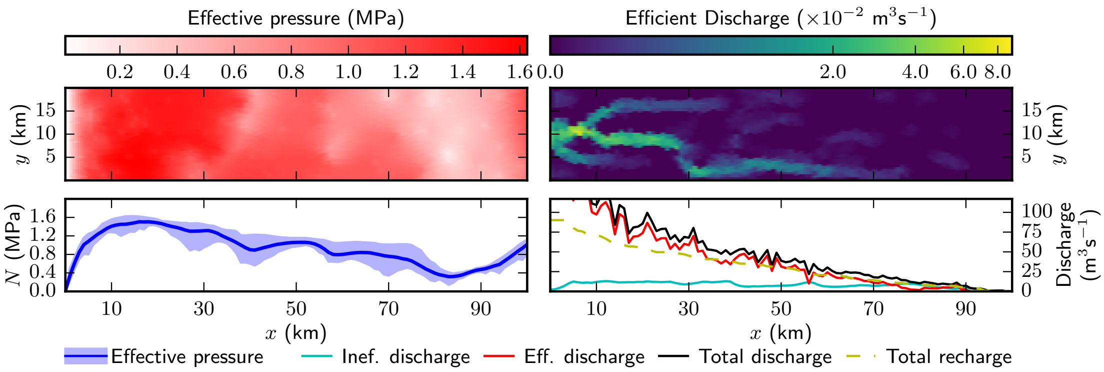

Figure S129: This is the result of run B5 for model bf.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

S2.1.22. Suite E model bf

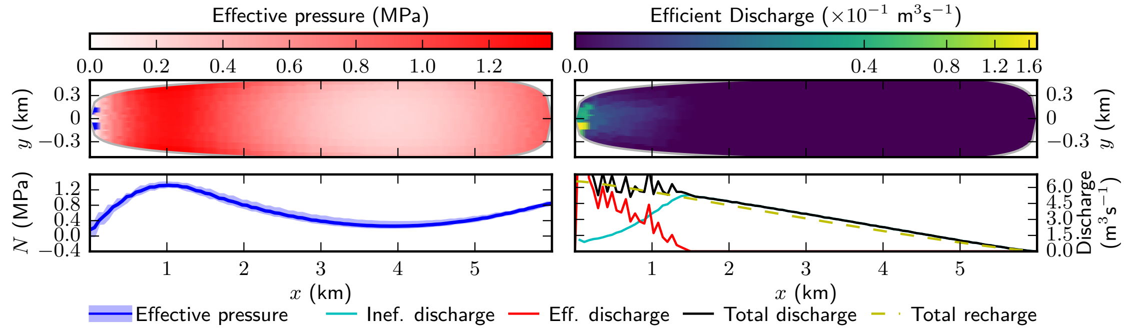

Figure S130: This is the result of run E1 for model bf.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

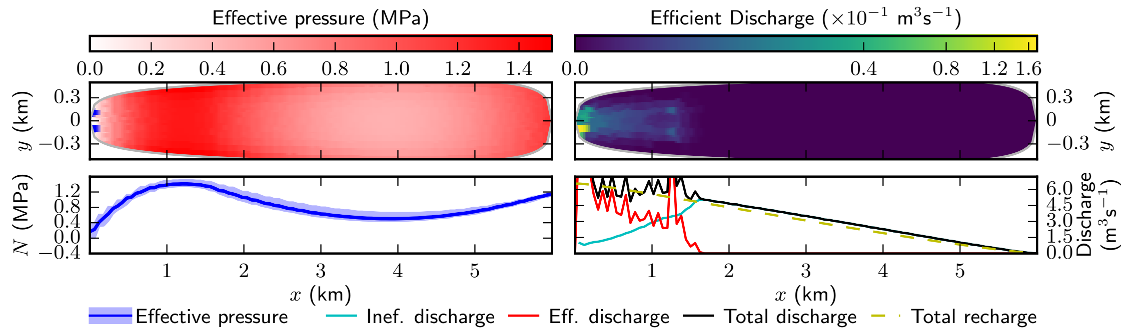

Figure S131: This is the result of run E2 for model bf.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

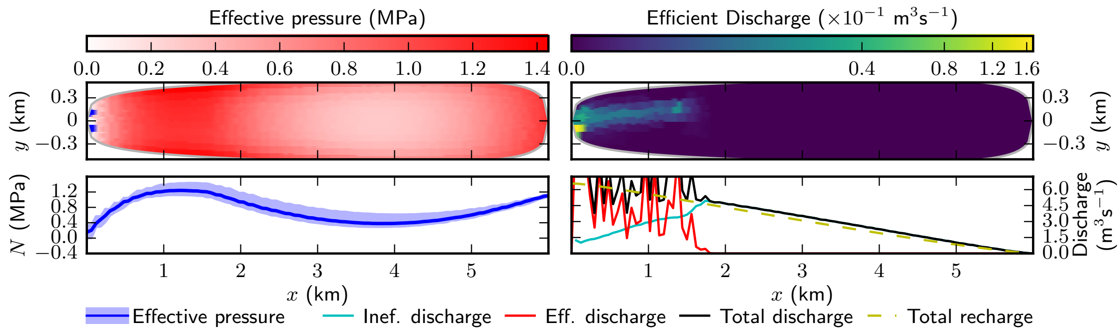

Figure S132: This is the result of run E3 for model bf.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

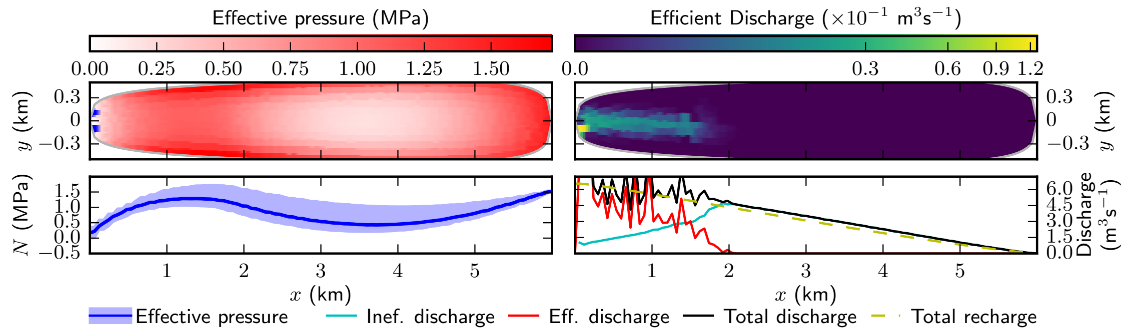

Figure S133: This is the result of run E4 for model bf.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

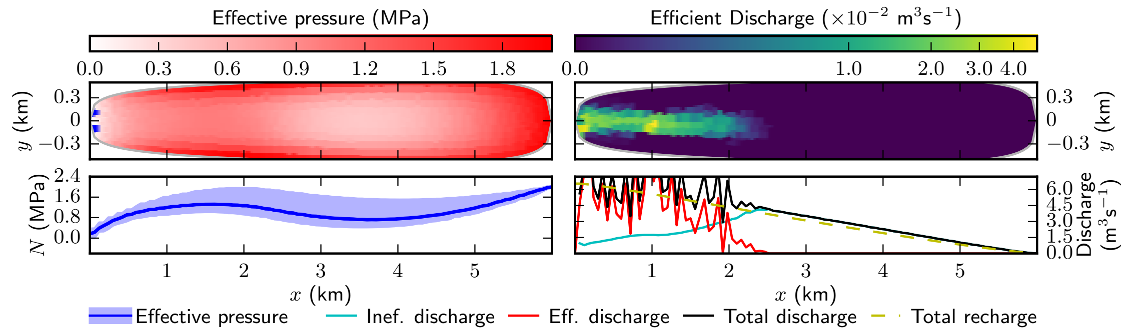

Figure S134: This is the result of run E5 for model bf.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

S2.1.23. Suite A model $mh1$

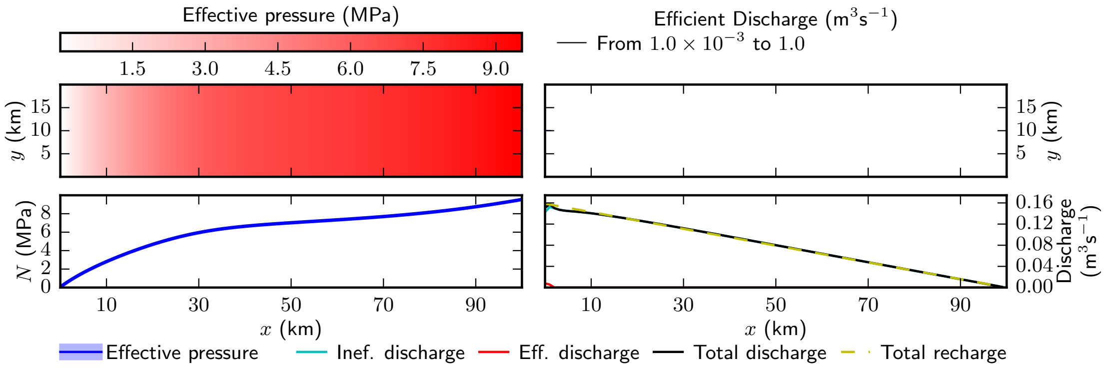

Figure S135: This is the result of run A1 for model $mh1$.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

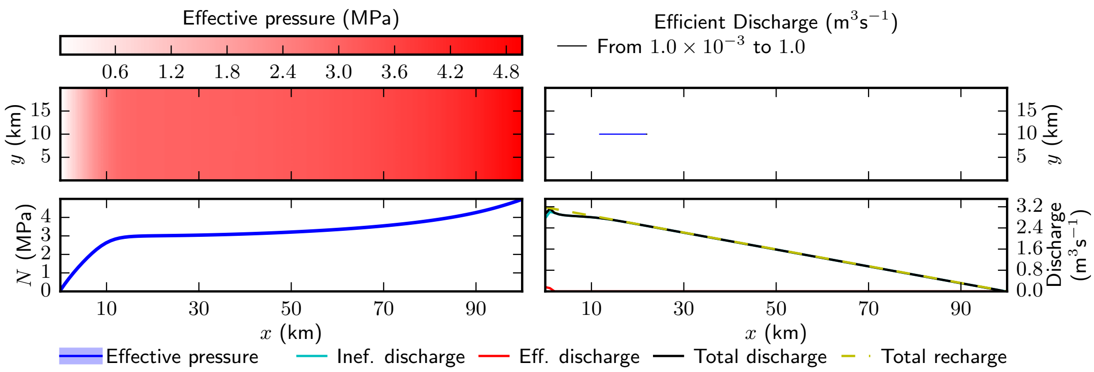

Figure S136: This is the result of run A2 for model $mh1$.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

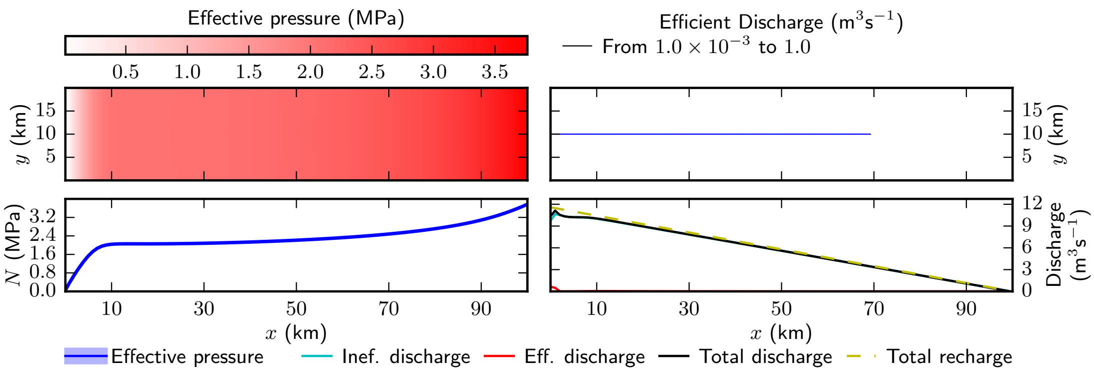

Figure S137: This is the result of run A3 for model $mh1$.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

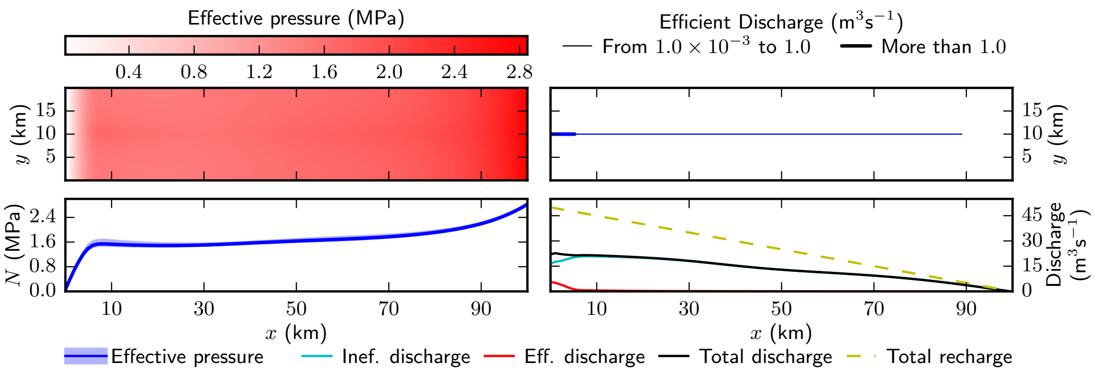

Figure S138: This is the result of run A4 for model $mh1$.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

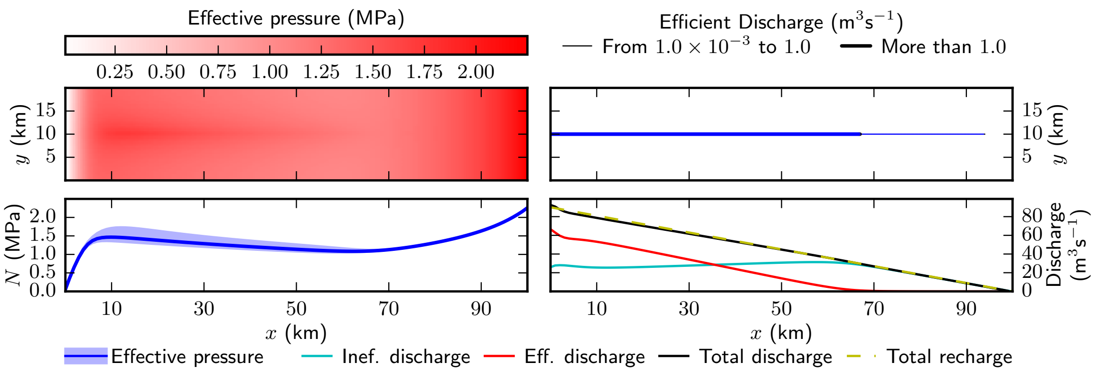

Figure S139: This is the result of run A5 for model $mh1$.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

S2.1.24. Suite A model $mh2$

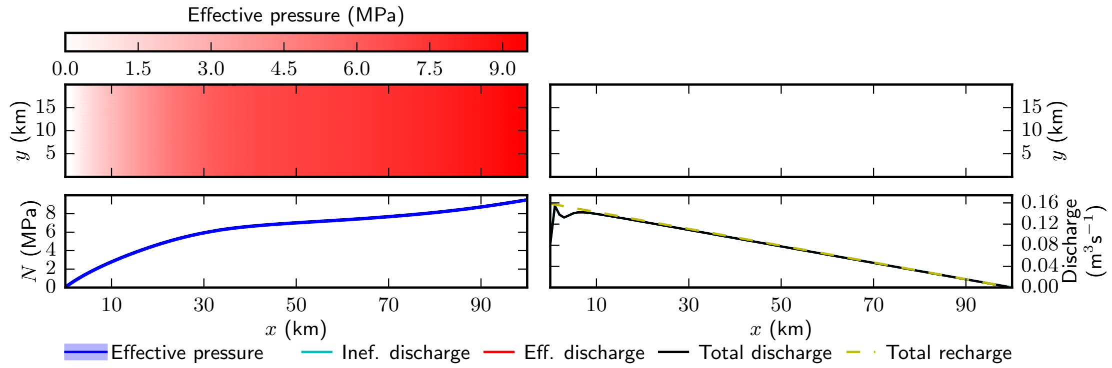

Figure S140: This is the result of run A1 for model $mh2$.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

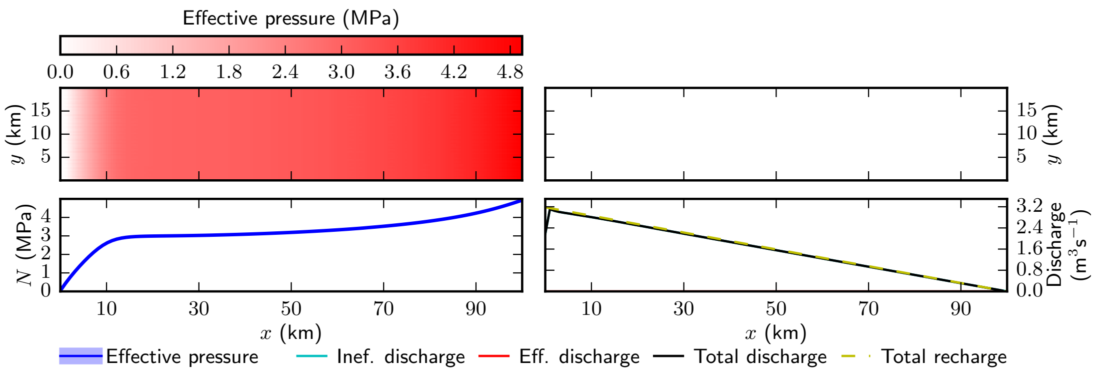

Figure S141: This is the result of run A2 for model *mh*2.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

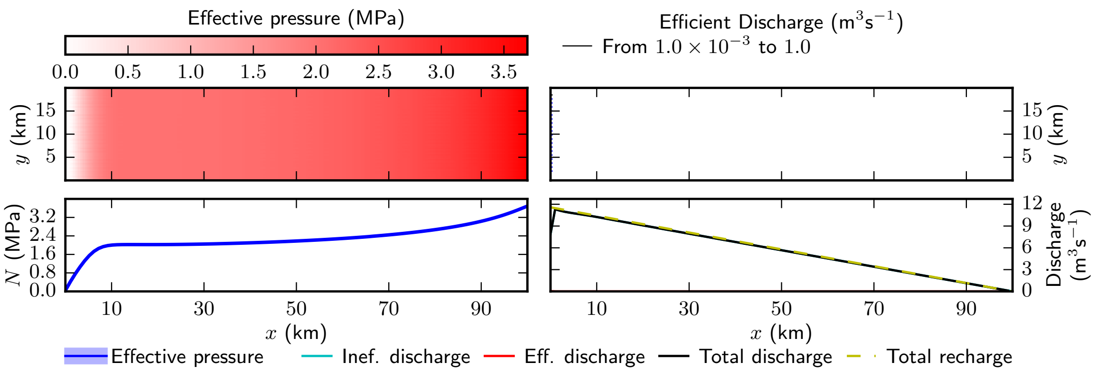

Figure S142: This is the result of run A3 for model $mh2$.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

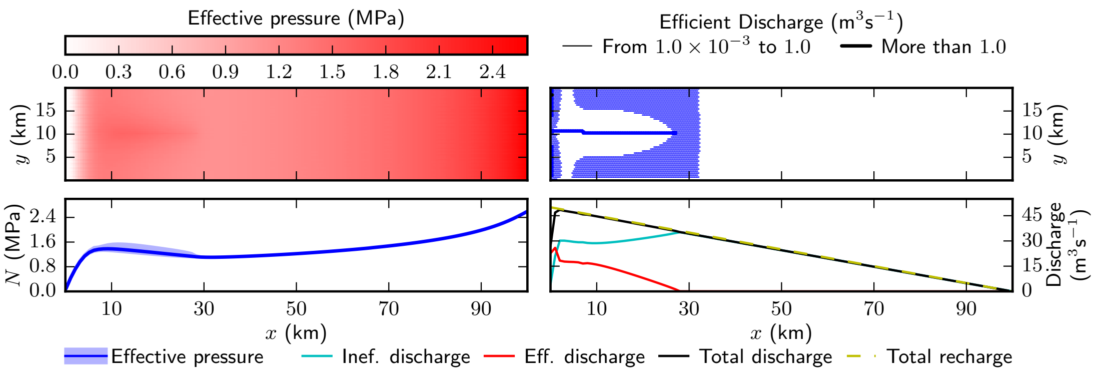

Figure S143: This is the result of run A4 for model $mh2$.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

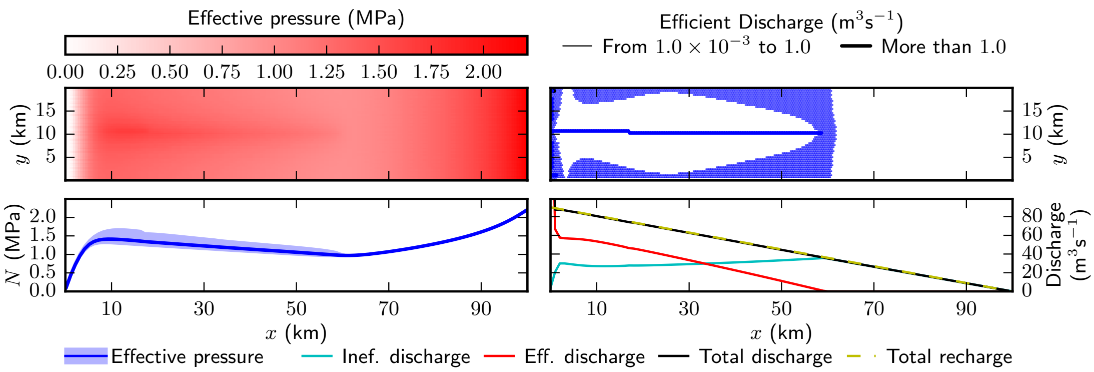

Figure S144: This is the result of run A5 for model *mh*2.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

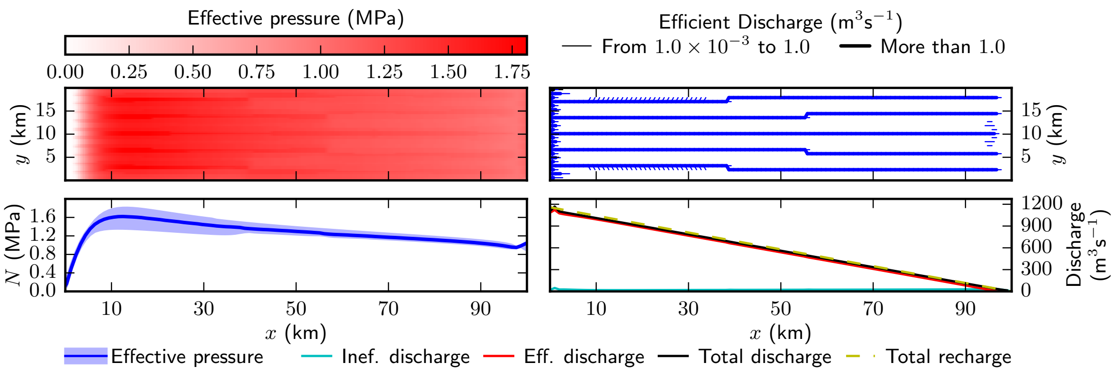

Figure S145: This is the result of run A6 for model *mh*2.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

S2.1.25. Suite B model $mh2$

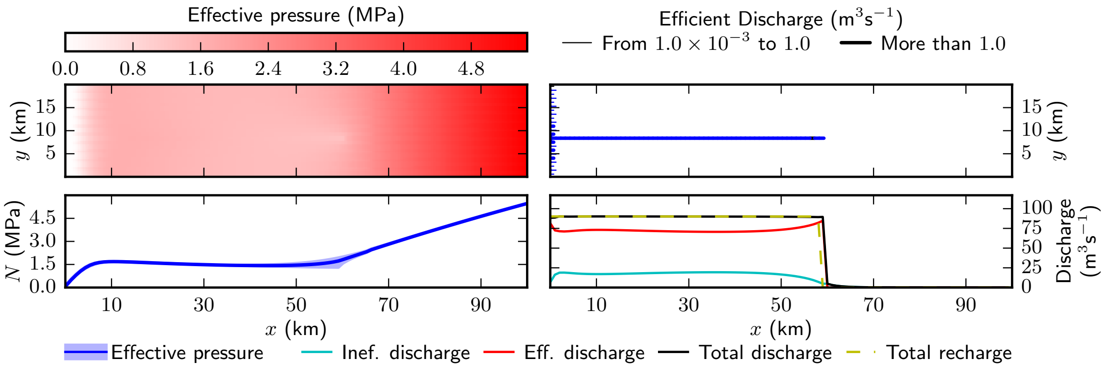

Figure S146: This is the result of run B1 for model $mh2$.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

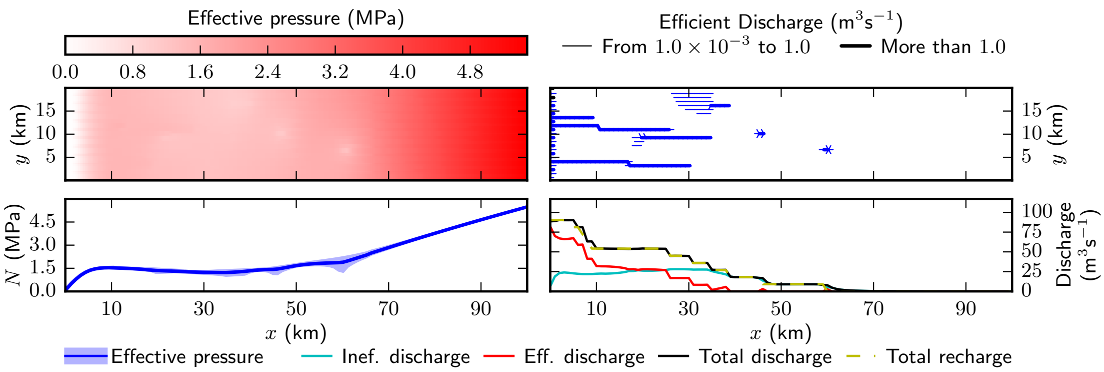

Figure S147: This is the result of run B2 for model $mh2$.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

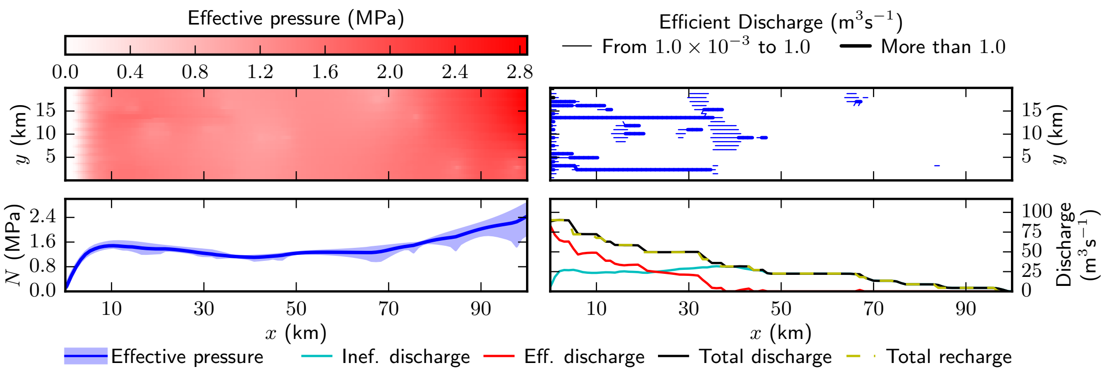

Figure S148: This is the result of run B3 for model *mh*2.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

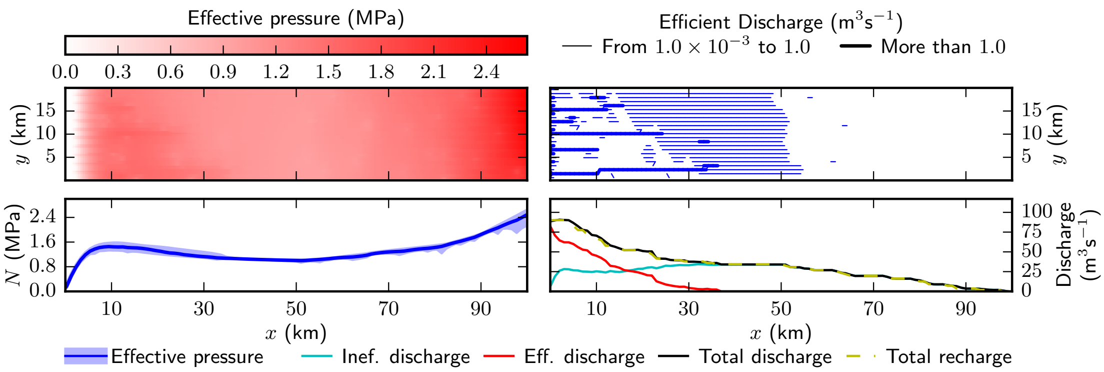

Figure S149: This is the result of run B4 for model $mh2$.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

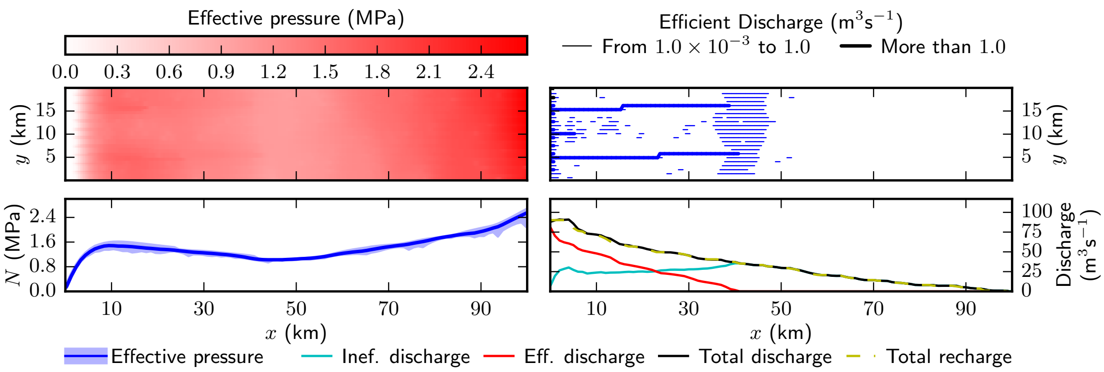

Figure S150: This is the result of run B5 for model *mh*2.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

S2.1.26. Suite A model *og*

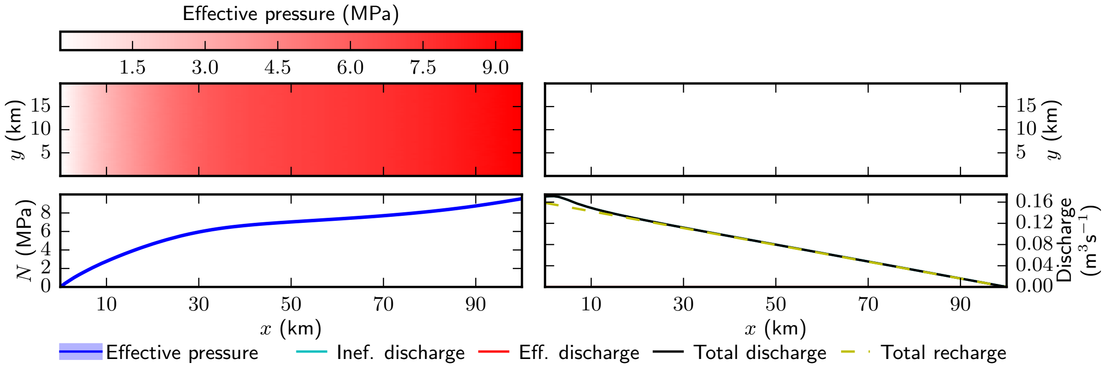

Figure S151: This is the result of run A1 for model *og*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

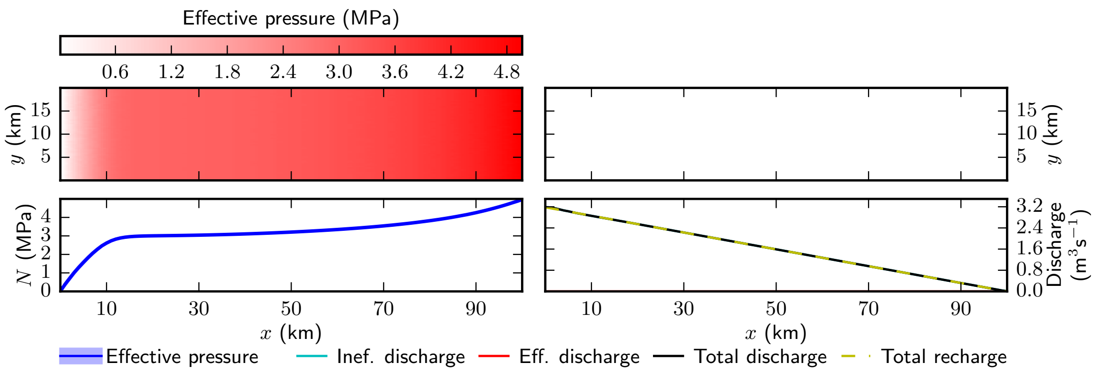

Figure S152: This is the result of run A2 for model *og*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

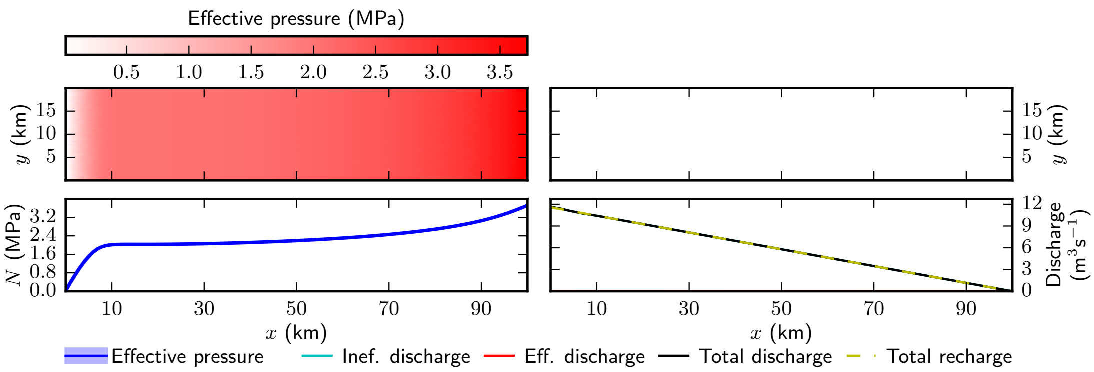

Figure S153: This is the result of run A3 for model *og*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

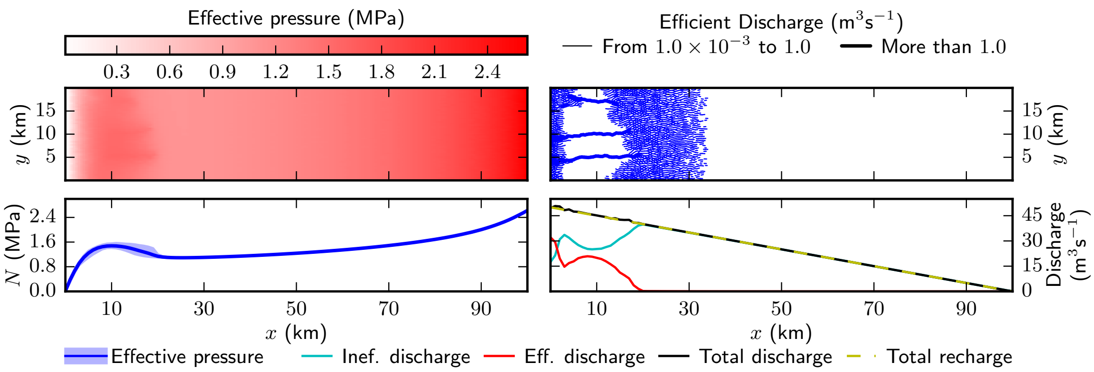

Figure S154: This is the result of run A4 for model *og*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

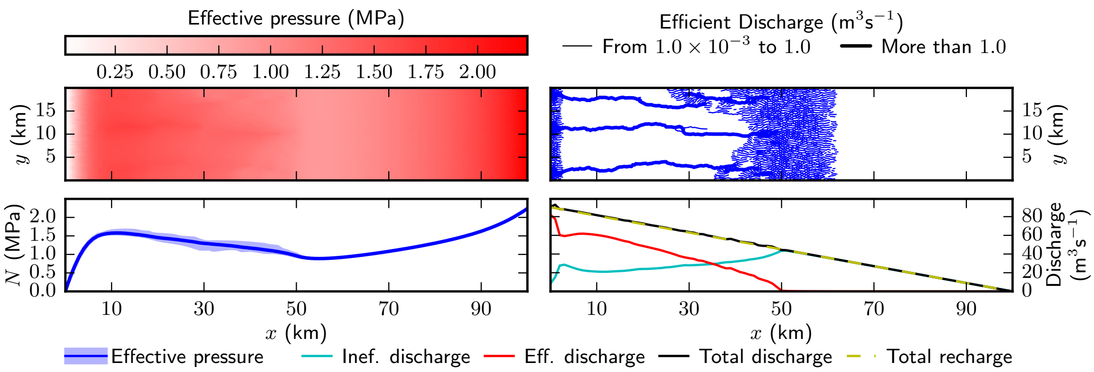

Figure S155: This is the result of run A5 for model *og*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

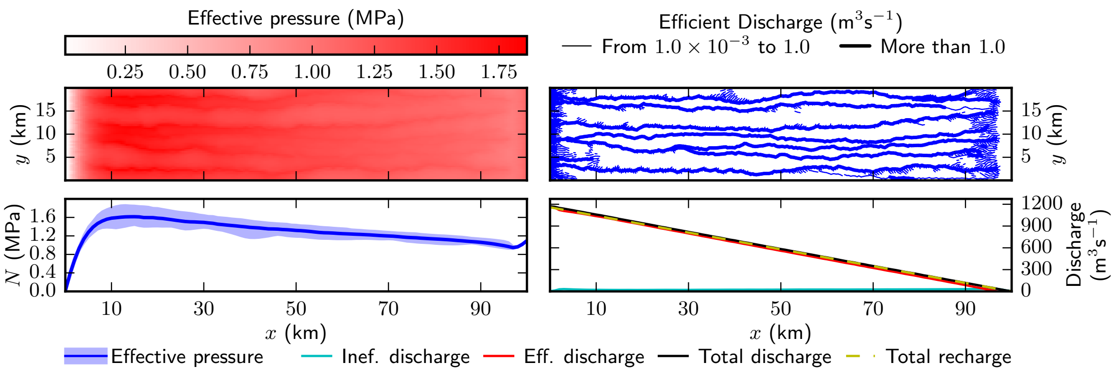

Figure S156: This is the result of run A6 for model *og*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

S2.1.27. Suite B model *og*

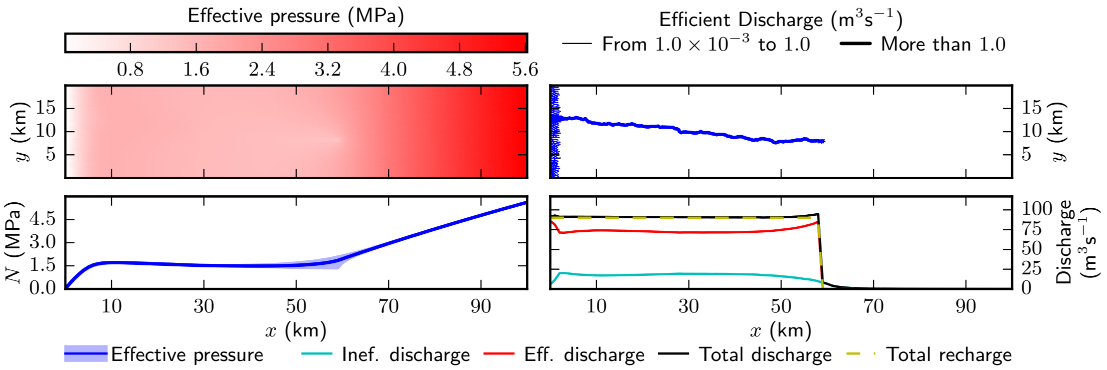

Figure S157: This is the result of run B1 for model *og*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

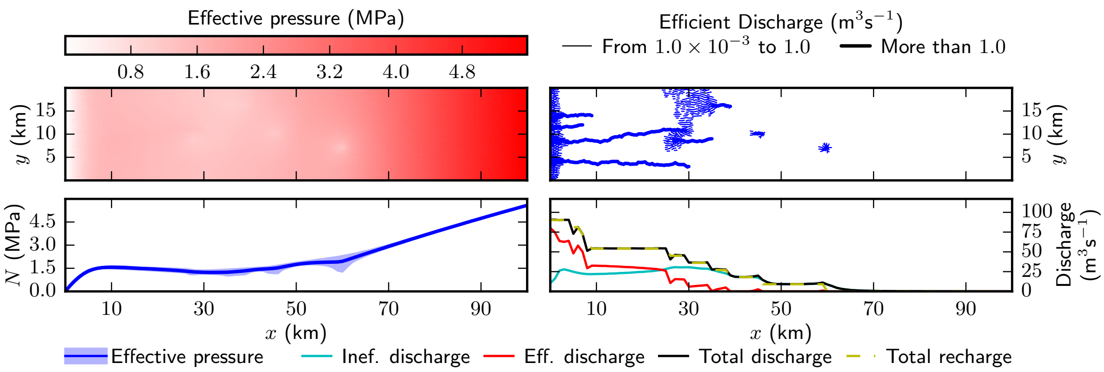

Figure S158: This is the result of run B2 for model *og*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

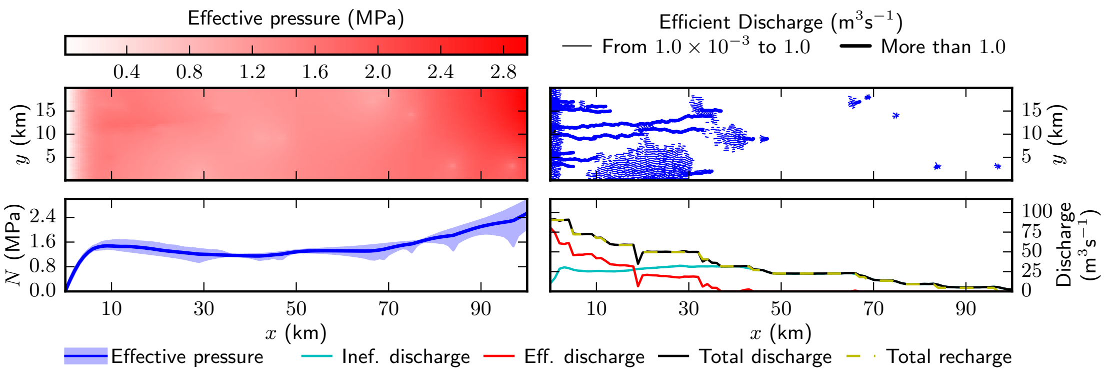

Figure S159: This is the result of run B3 for model *og*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

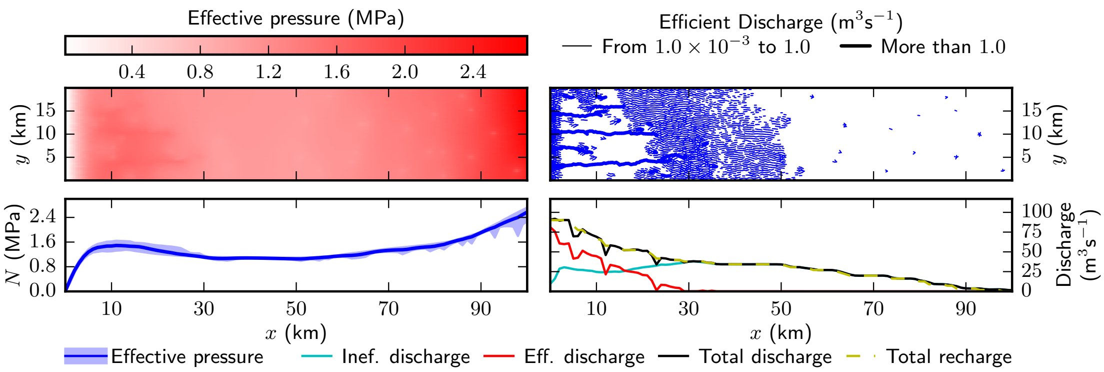

Figure S160: This is the result of run B4 for model *og*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

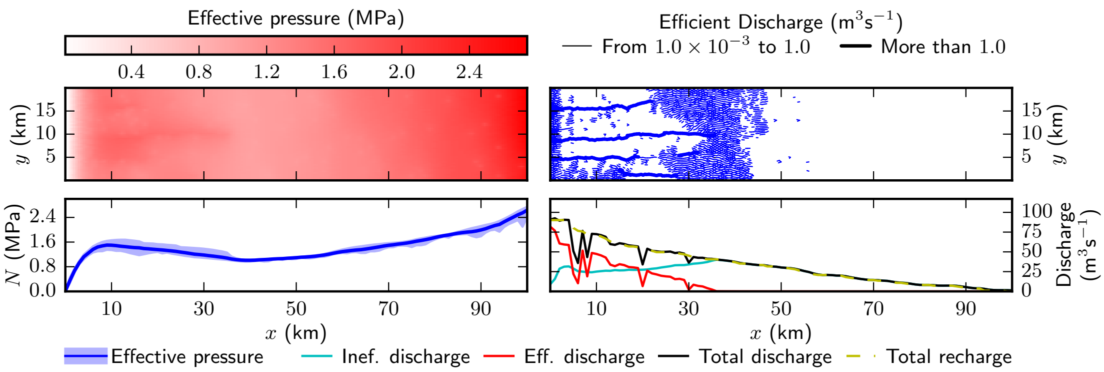

Figure S161: This is the result of run B5 for model *og*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

S2.1.28. Suite E model *og*

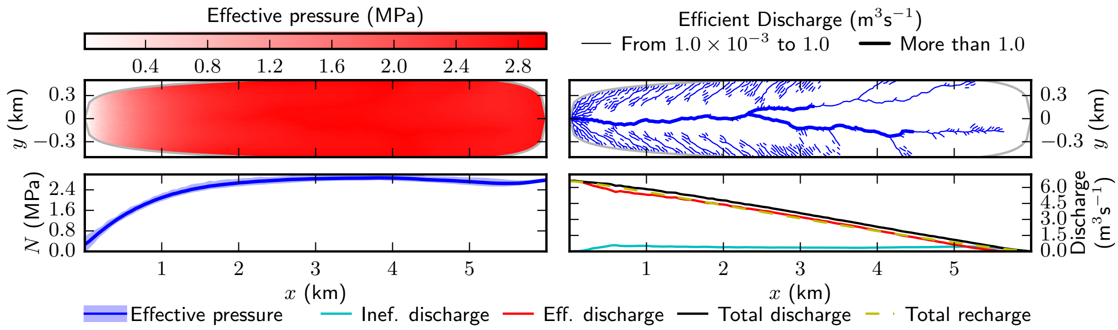

Figure S162: This is the result of run E1 for model *og*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

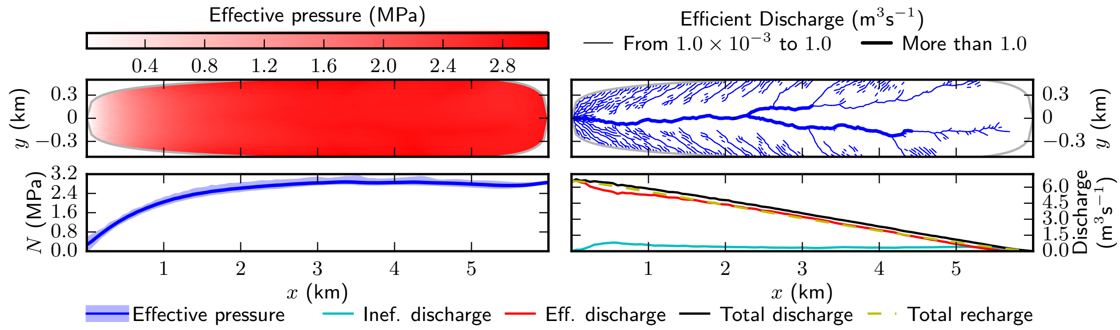

Figure S163: This is the result of run E2 for model *og*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

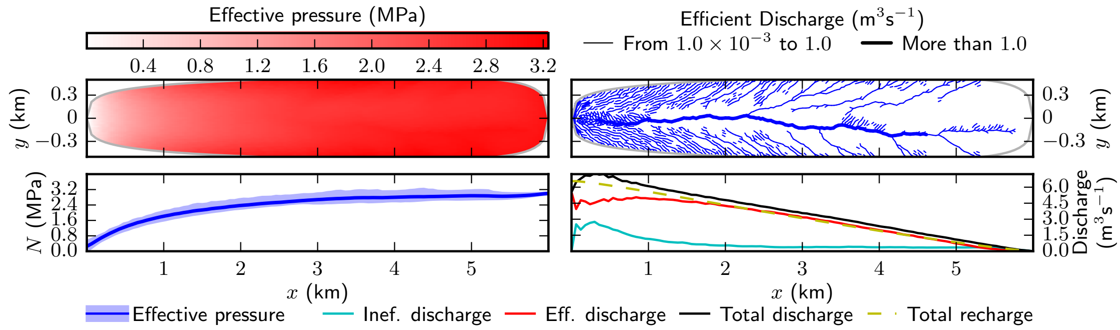

Figure S164: This is the result of run E3 for model *og*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

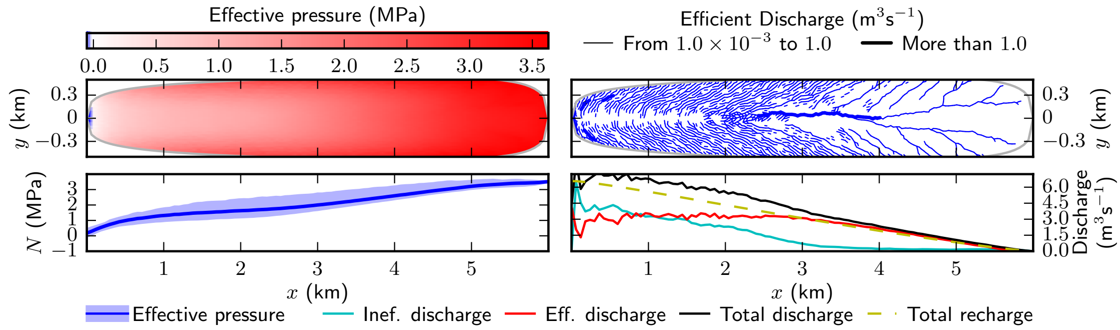

Figure S165: This is the result of run E4 for model *og*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

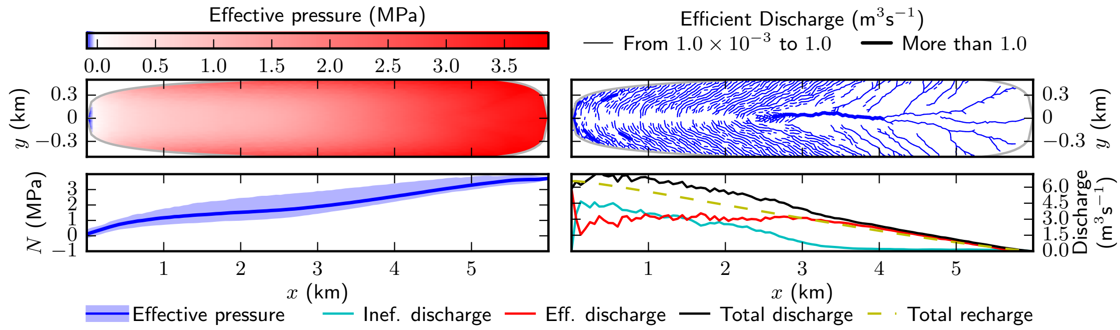

Figure S166: This is the result of run E5 for model *og*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

S2.1.29. Suite E model og'

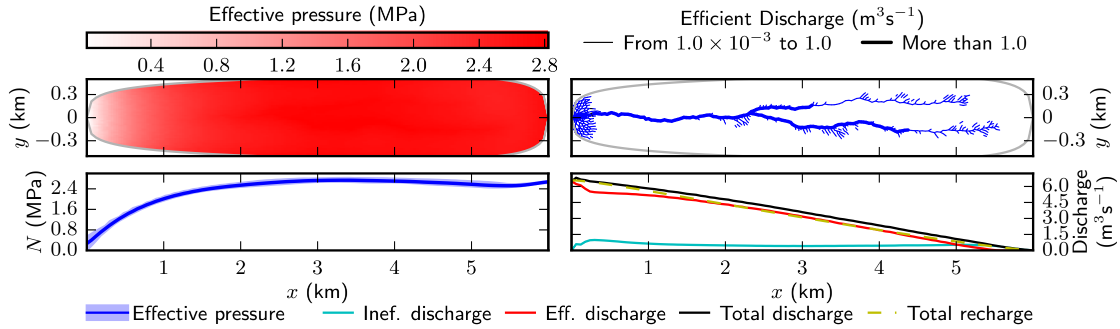

Figure S167: This is the result of run E1 for model og'.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

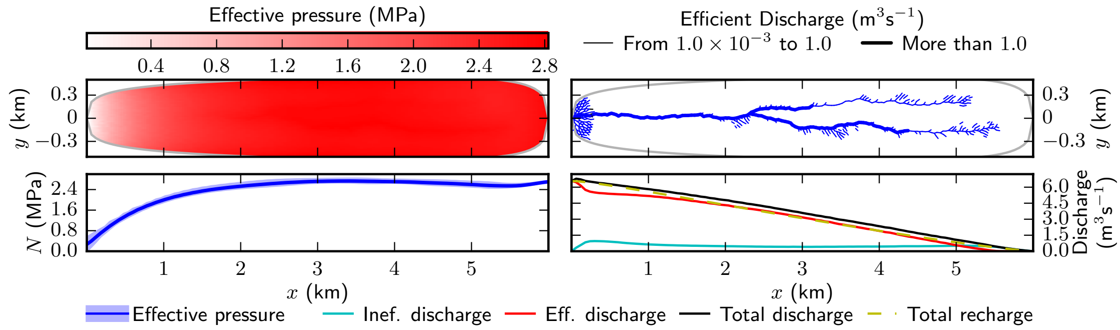

Figure S168: This is the result of run E2 for model og'.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

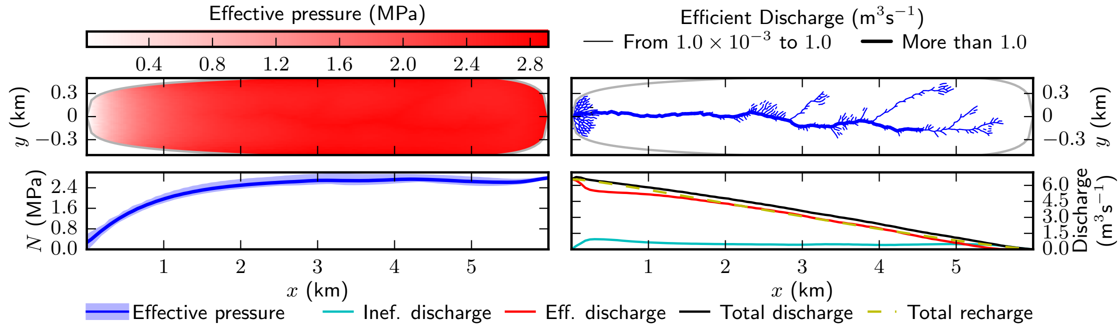

Figure S169: This is the result of run E3 for model og'.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

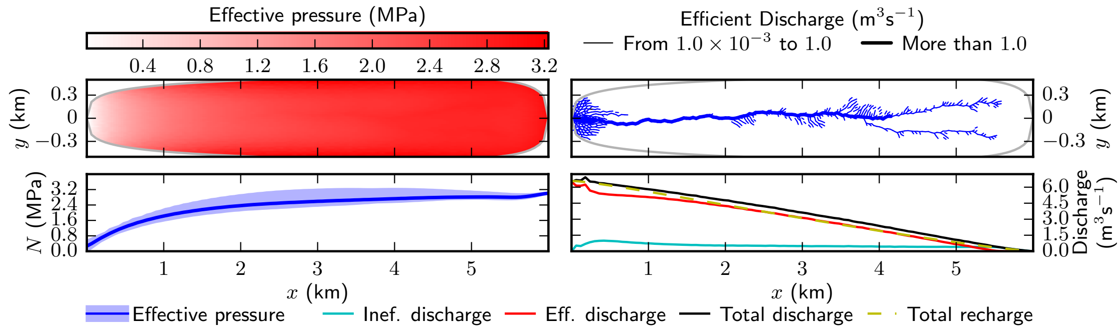

Figure S170: This is the result of run E4 for model og'.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

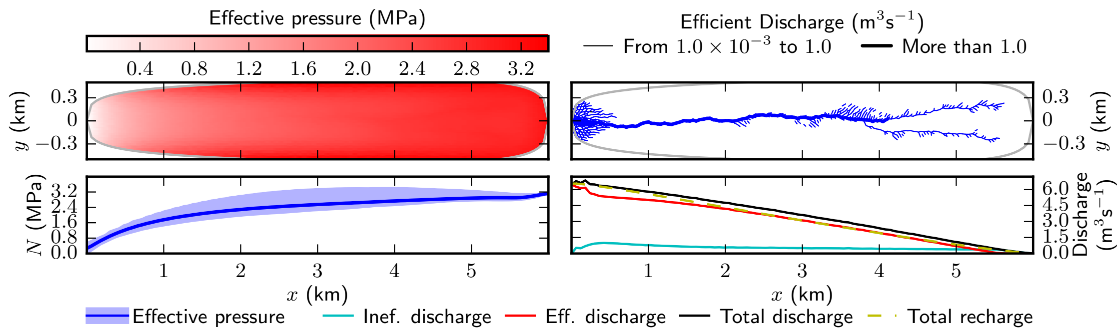

Figure S171: This is the result of run E5 for model og'.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

S2.1.30. Suite A model mw

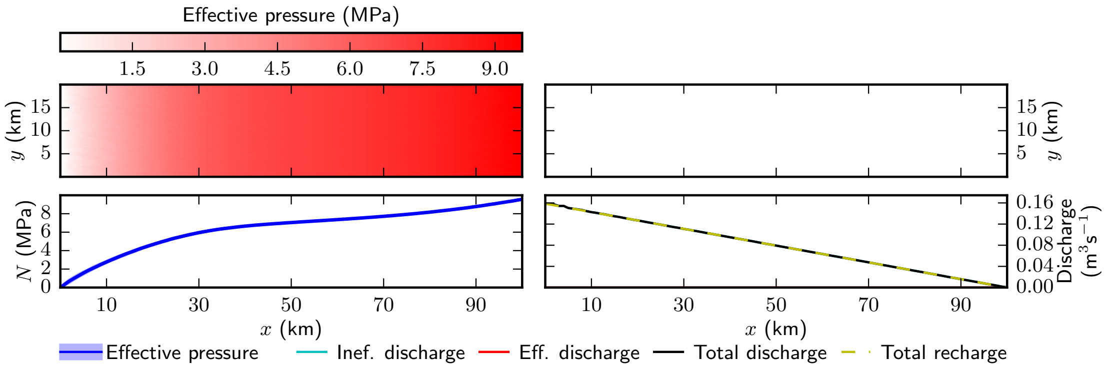

Figure S172: This is the result of run A1 for model mw.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

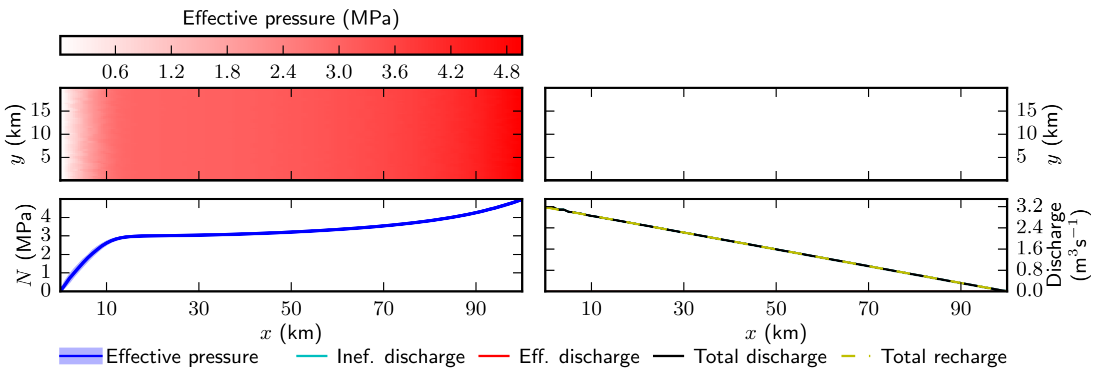

Figure S173: This is the result of run A2 for model *mw*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

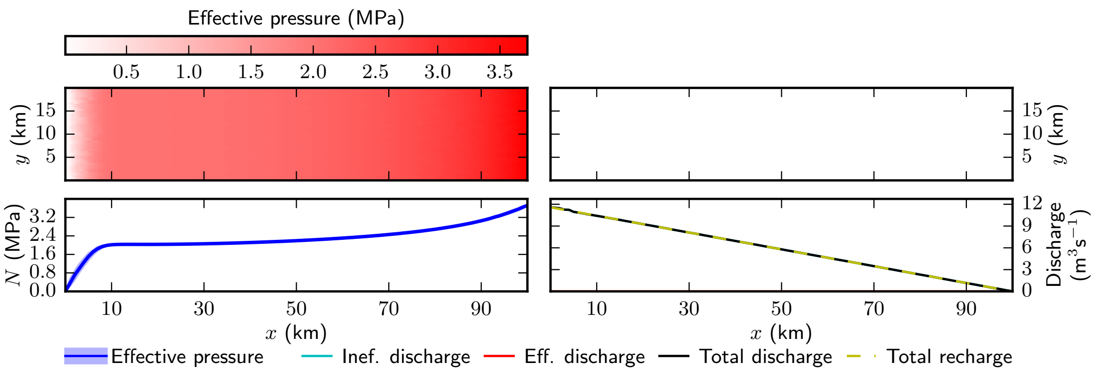

Figure S174: This is the result of run A3 for model *mw*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

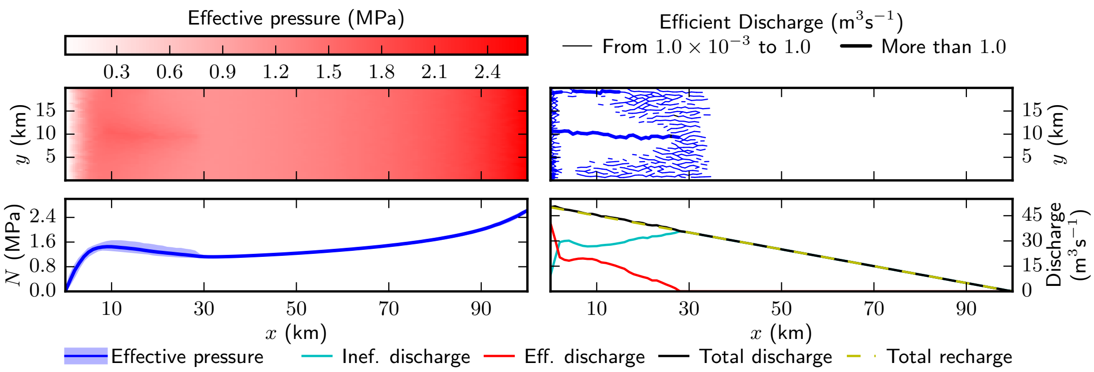

Figure S175: This is the result of run A4 for model *mw*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

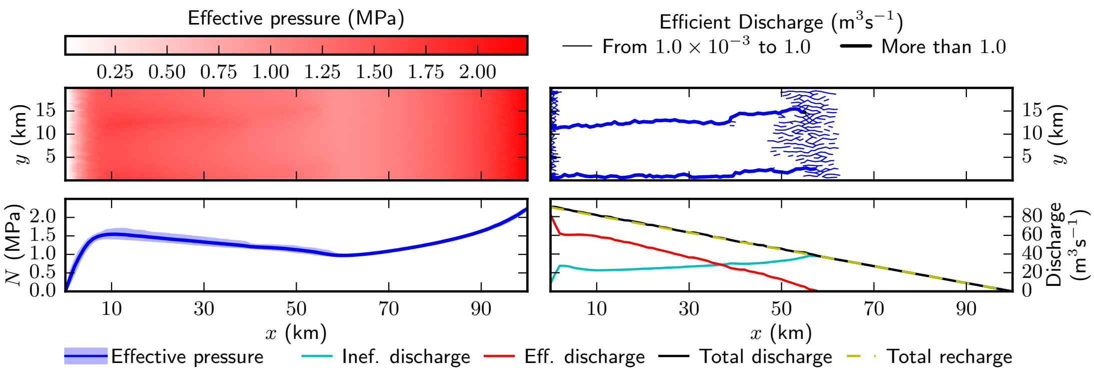

Figure S176: This is the result of run A5 for model *mw*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

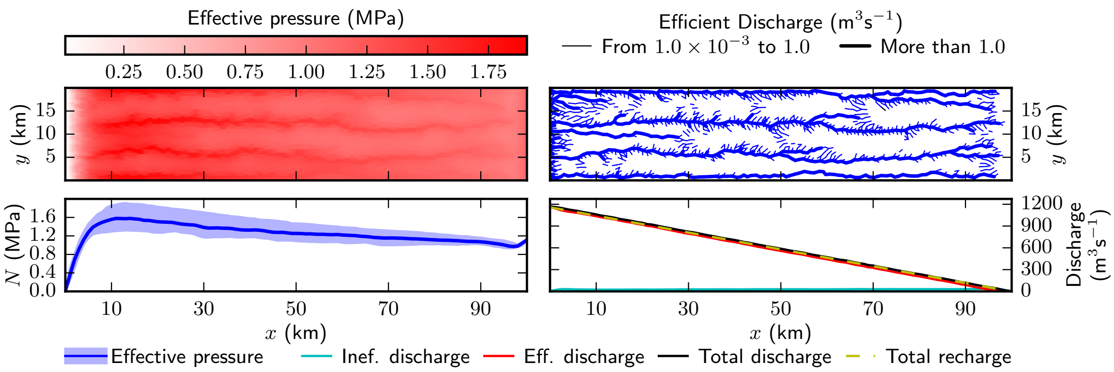

Figure S177: This is the result of run A6 for model *mw*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

S2.1.31. Suite B model mw

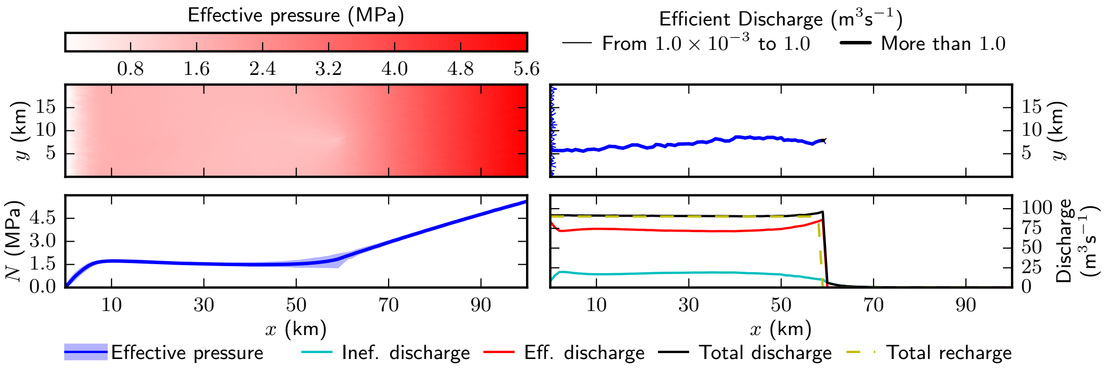

Figure S178: This is the result of run B1 for model mw.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

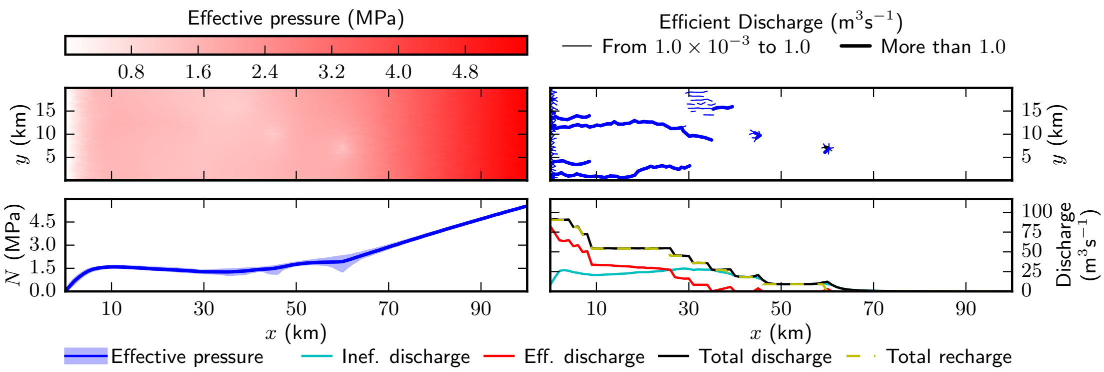

Figure S179: This is the result of run B2 for model *mw*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

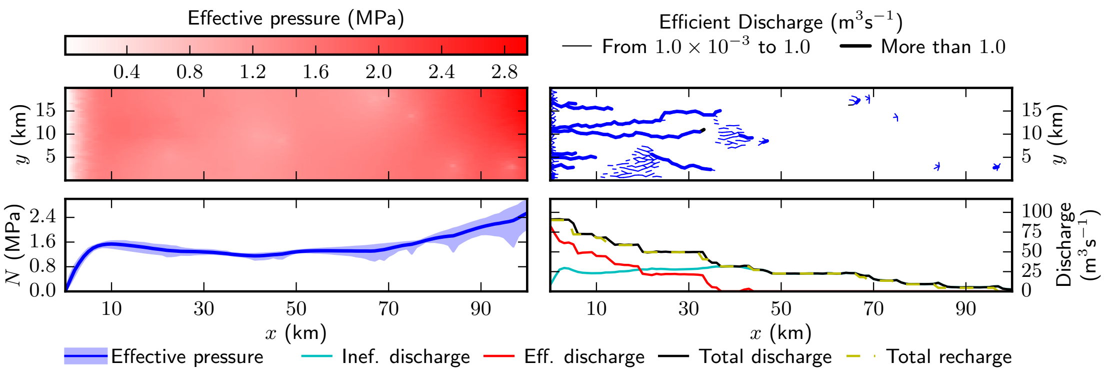

Figure S180: This is the result of run B3 for model *mw*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

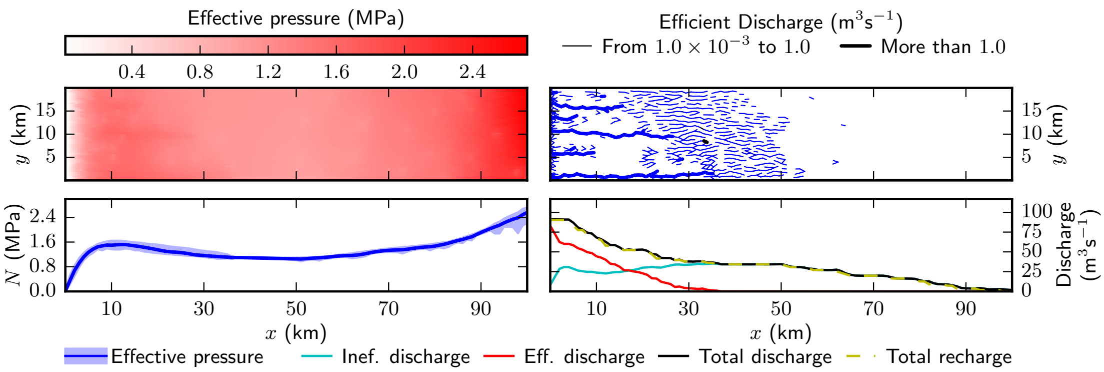

Figure S181: This is the result of run B4 for model *mw*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

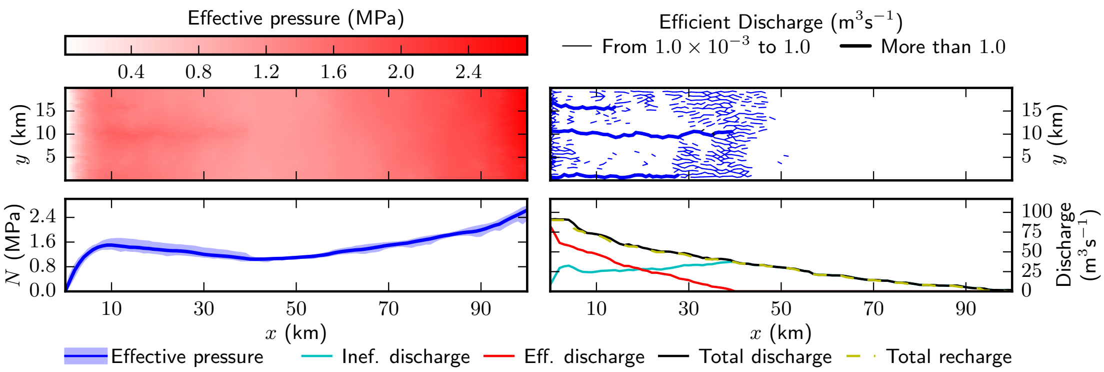

Figure S182: This is the result of run B5 for model *mw*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

S2.1.32. Suite E model mw

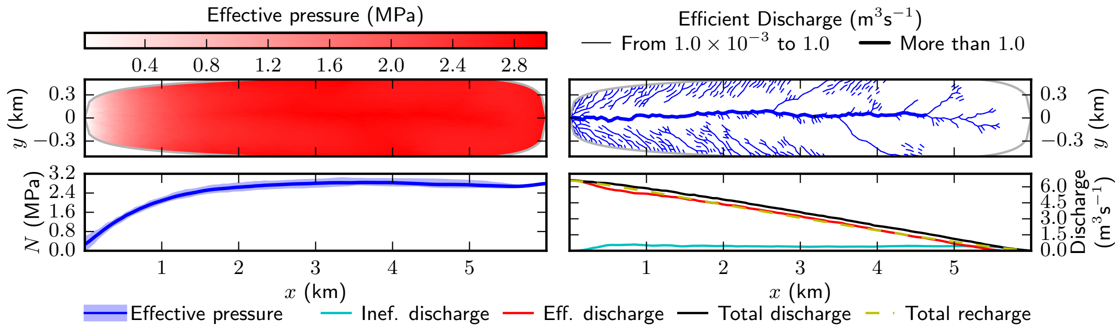

Figure S183: This is the result of run E1 for model mw.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

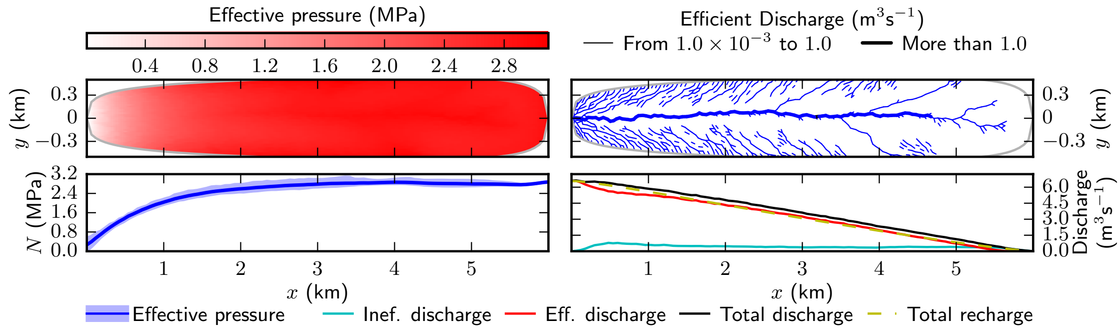

Figure S184: This is the result of run E2 for model *mw*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

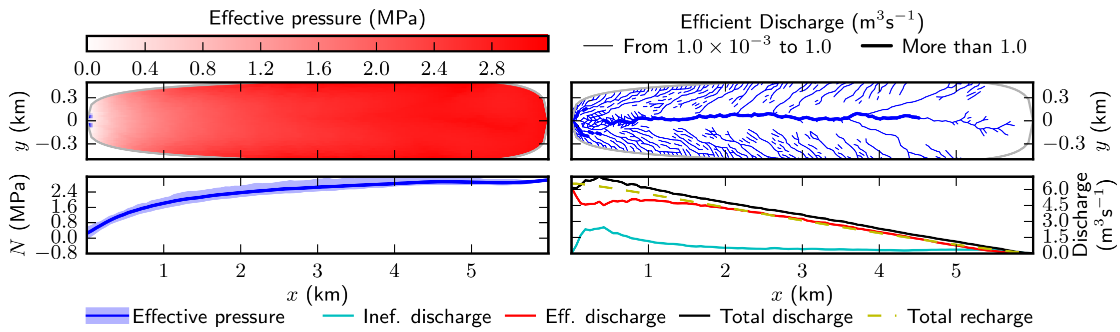

Figure S185: This is the result of run E3 for model *mw*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

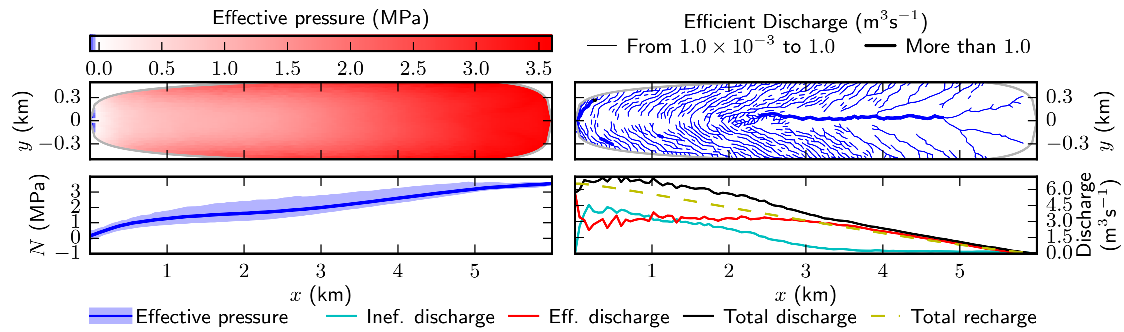

Figure S186: This is the result of run E4 for model *mw*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

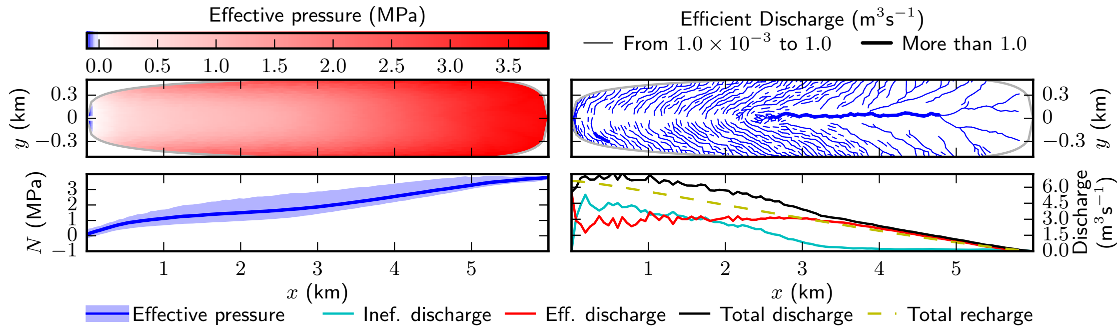

Figure S187: This is the result of run E5 for model *mw*.
The top left pannel shows the effective pressure distribution. The top right panel (if it exists) shows the efficient system drainage or chanelisation ratio depending on the model. The bottom left panel shows the cross section averaged effective pressure (blue line) and its spread (blue shading). The bottom right pannel presents the discharge, in the efficient system (cyan) and in the inefficient system (red), their sum give the total discharge (black) which can be compared to the total recharge (dashed yellow).

S2.2. Figures for transient suites

S2.2.1. Suite D model *db*

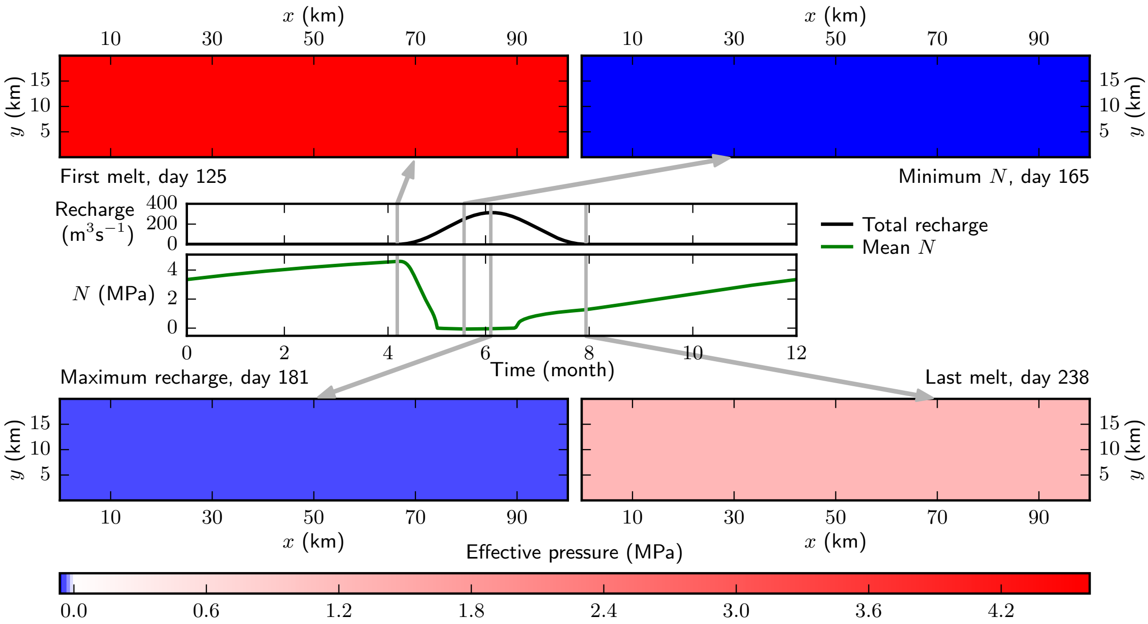

Figure S188: This is the result of run D1 for model *db* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

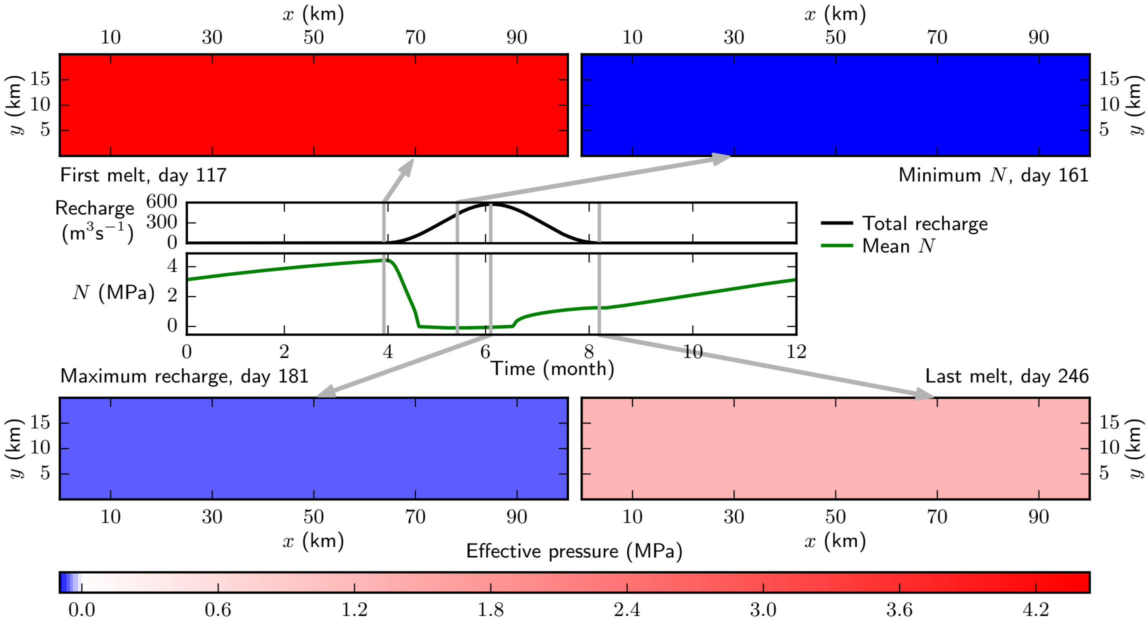

Figure S189: This is the result of run D2 for model *db* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

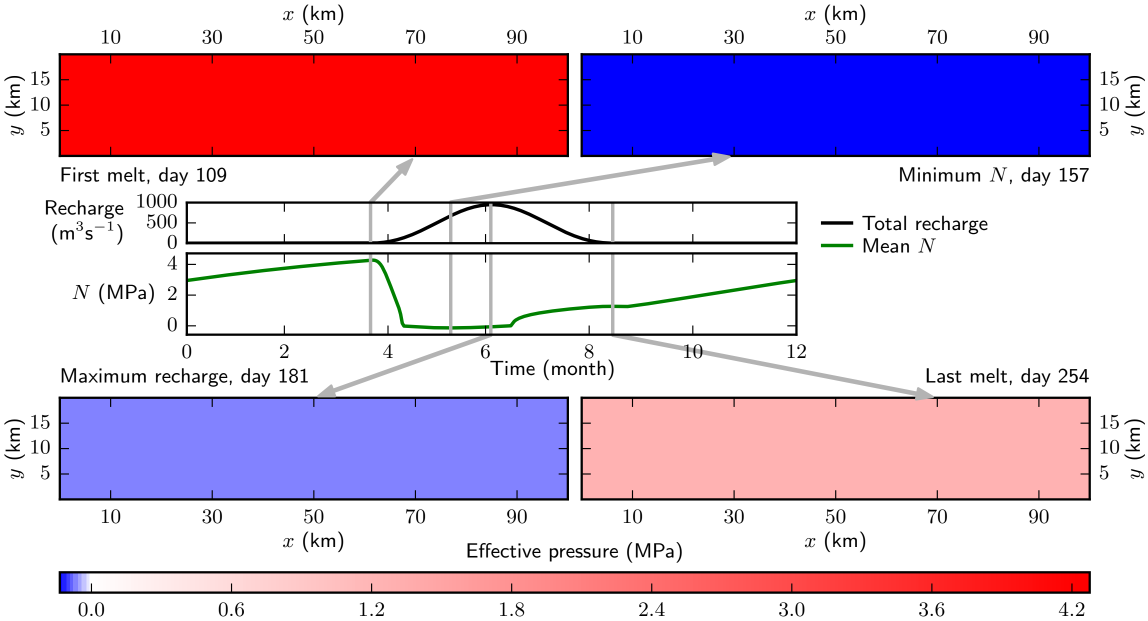

Figure S190: This is the result of run D3 for model *db* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

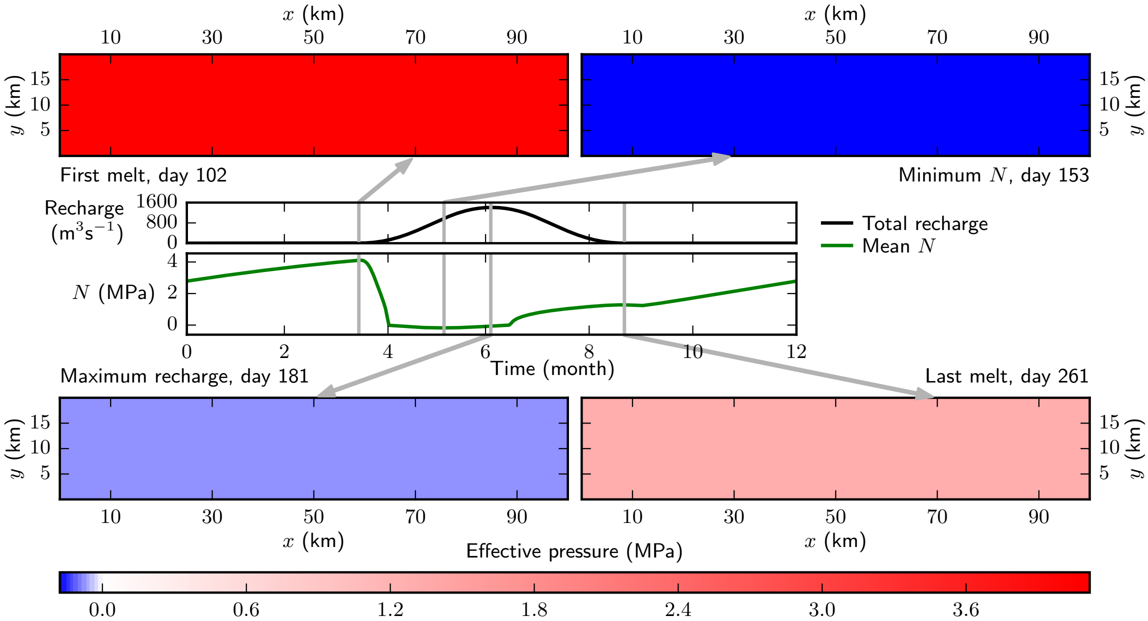

Figure S191: This is the result of run D4 for model *db* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

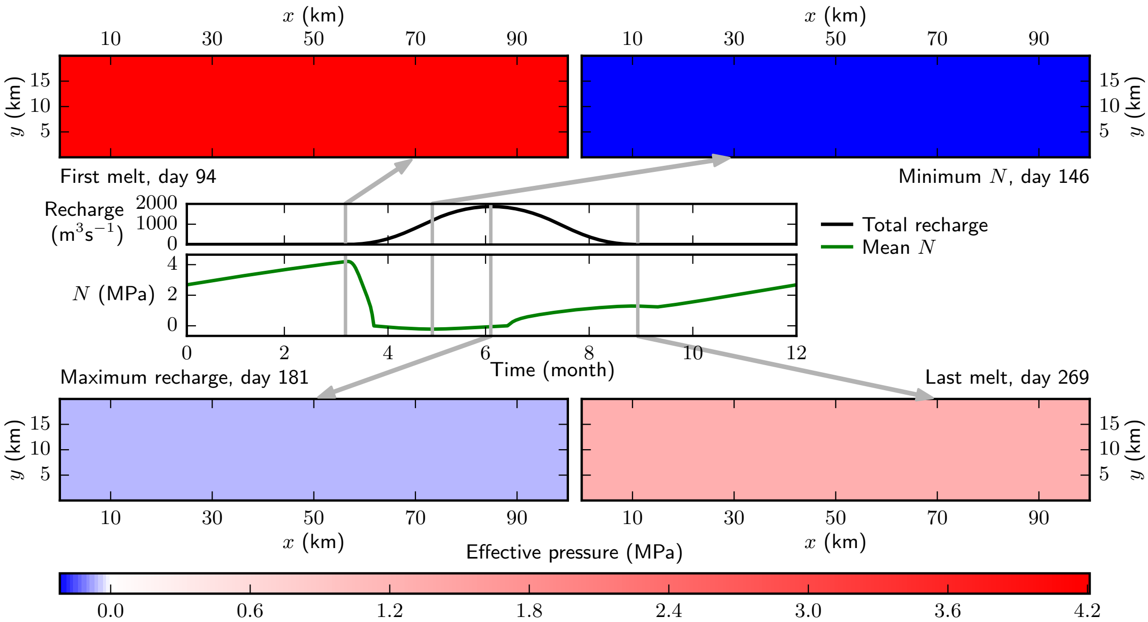

Figure S192: This is the result of run D5 for model *db* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

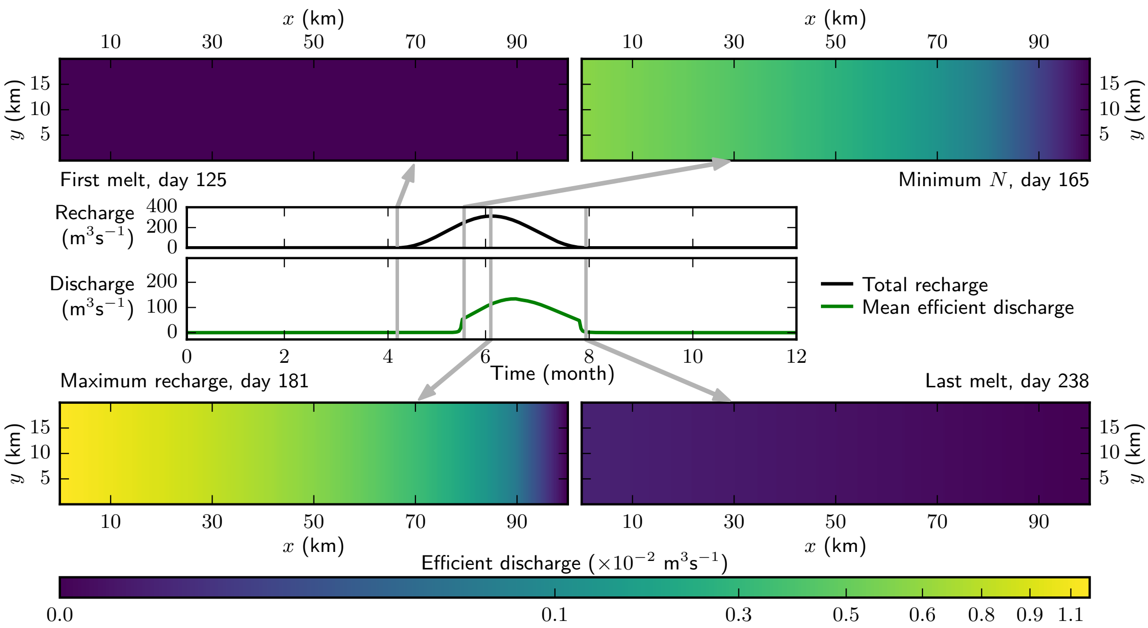

Figure S193: This is the result of run D1 for model *db* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

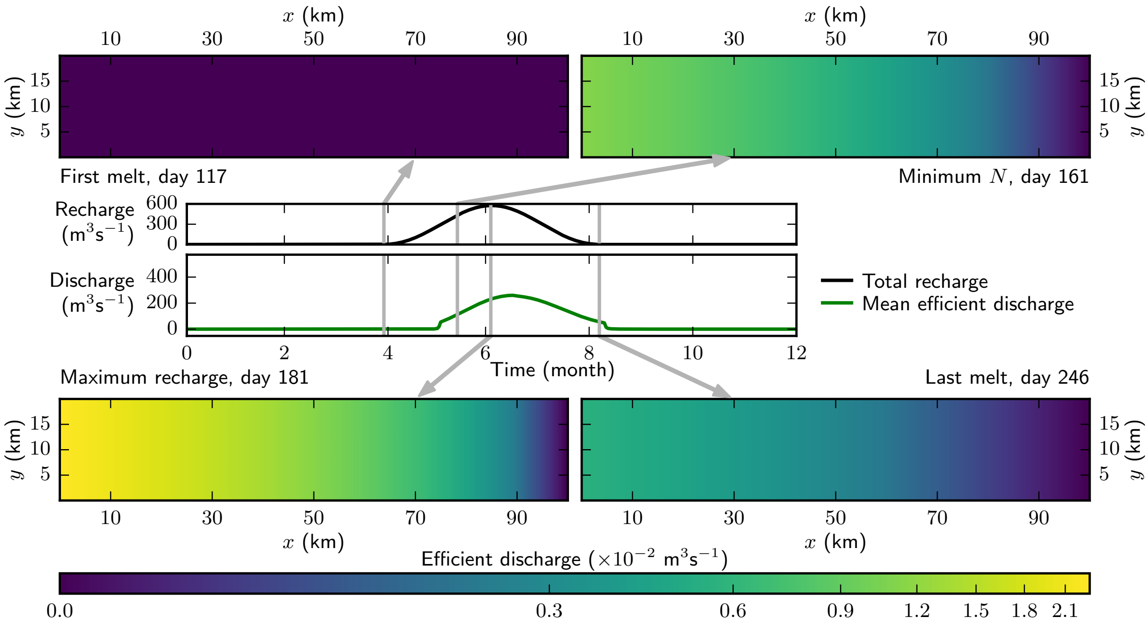

Figure S194: This is the result of run D2 for model *db* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

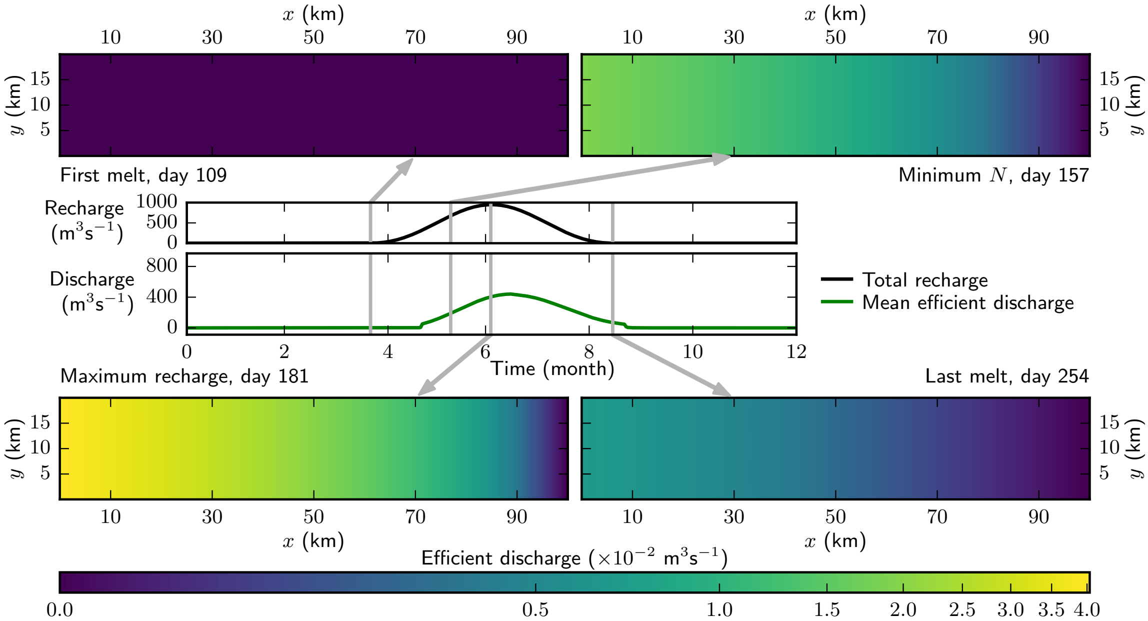

Figure S195: This is the result of run D3 for model *db* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

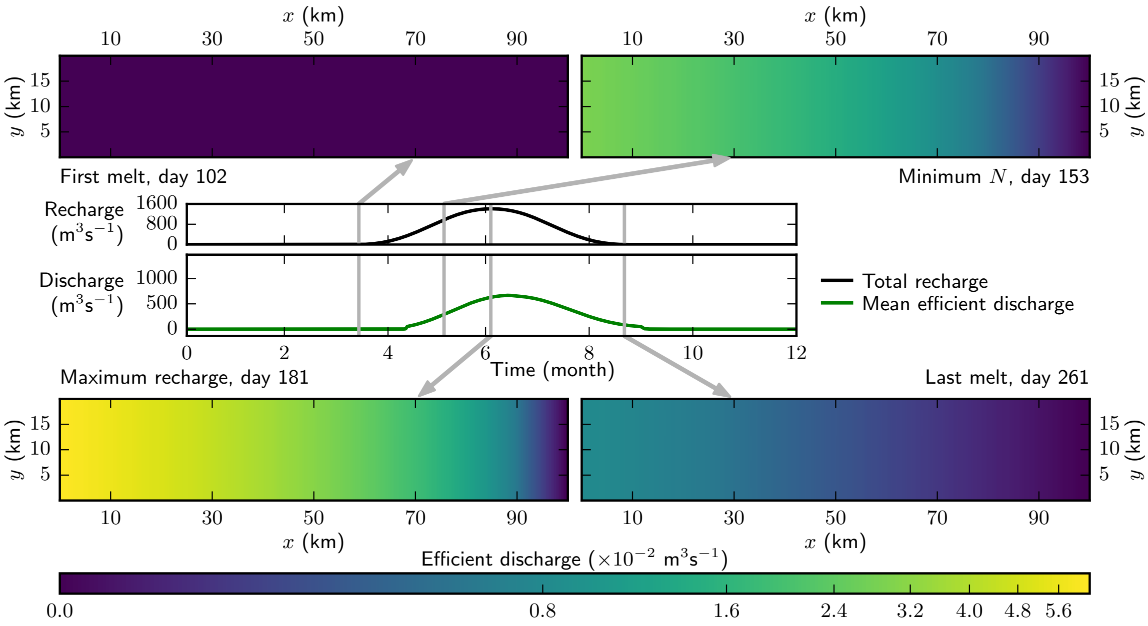

Figure S196: This is the result of run D4 for model *db* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

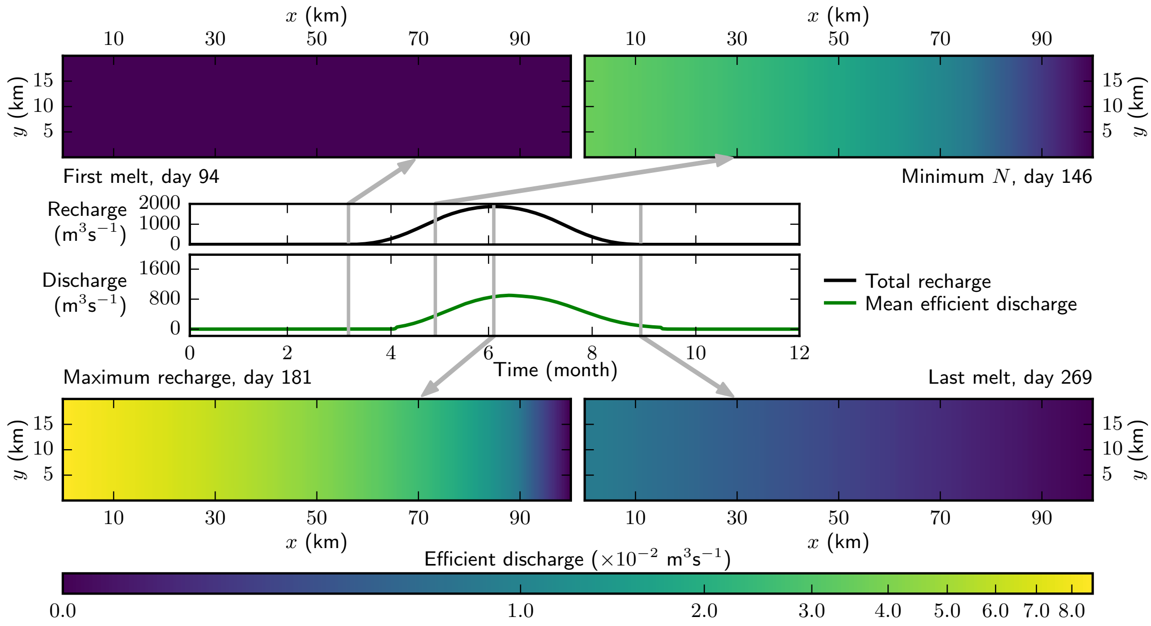

Figure S197: This is the result of run D5 for model *db* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

S2.2.2. Suite F model *db*

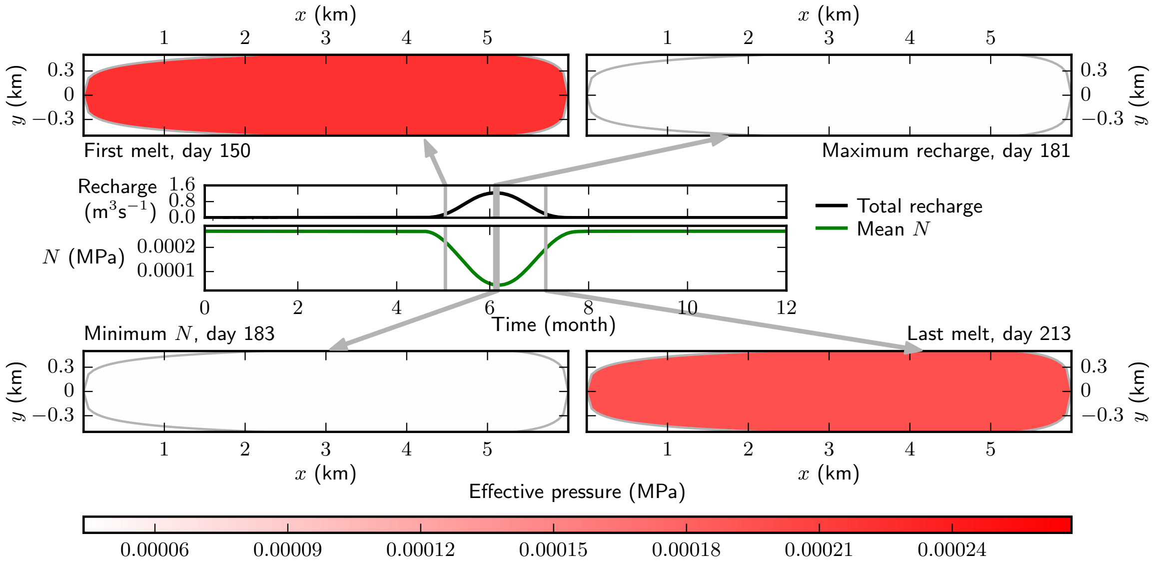

Figure S198: This is the result of run F1 for model *db* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

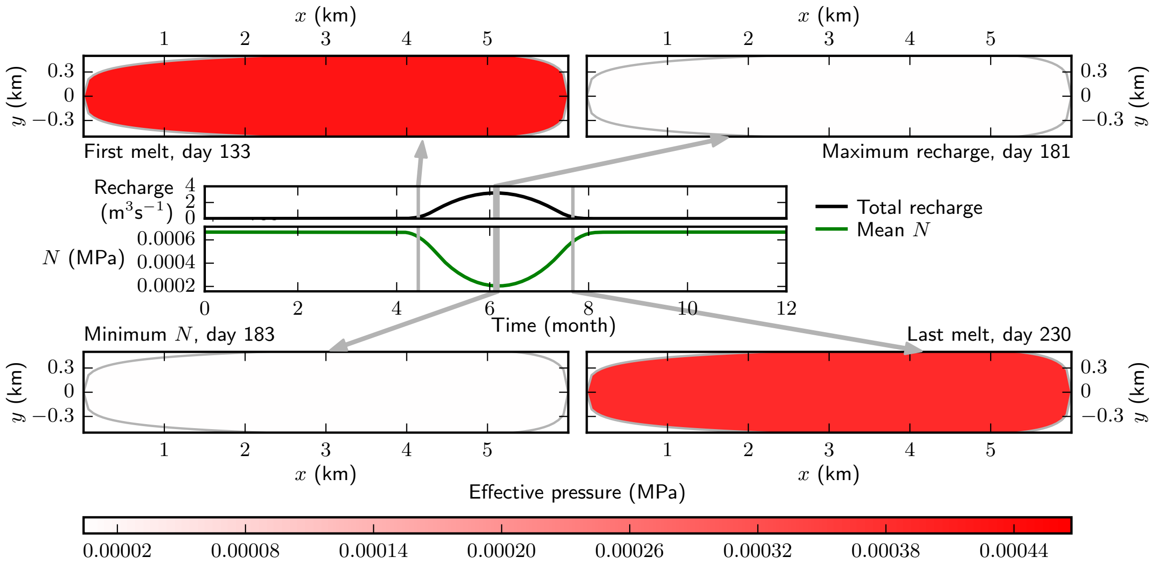

Figure S199: This is the result of run F2 for model *db* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

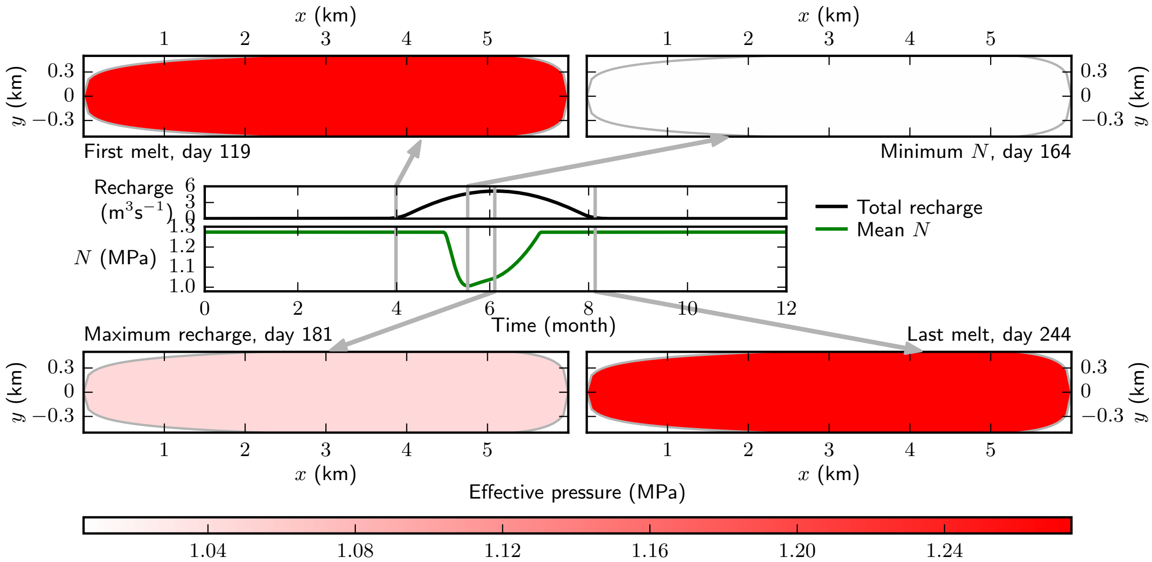

Figure S200: This is the result of run F3 for model *db* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

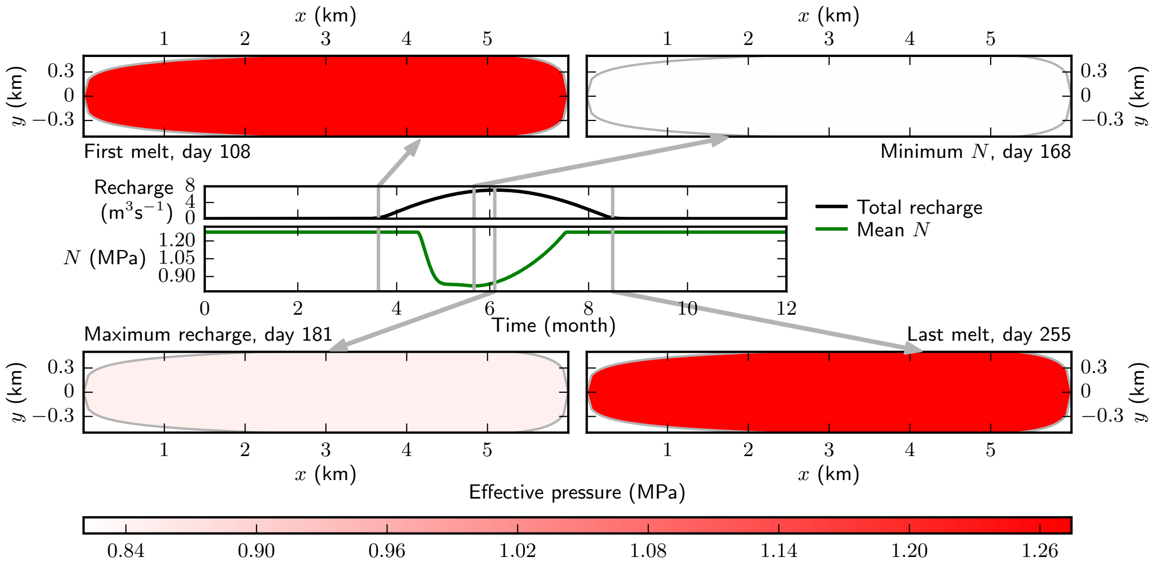

Figure S201: This is the result of run F4 for model *db* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

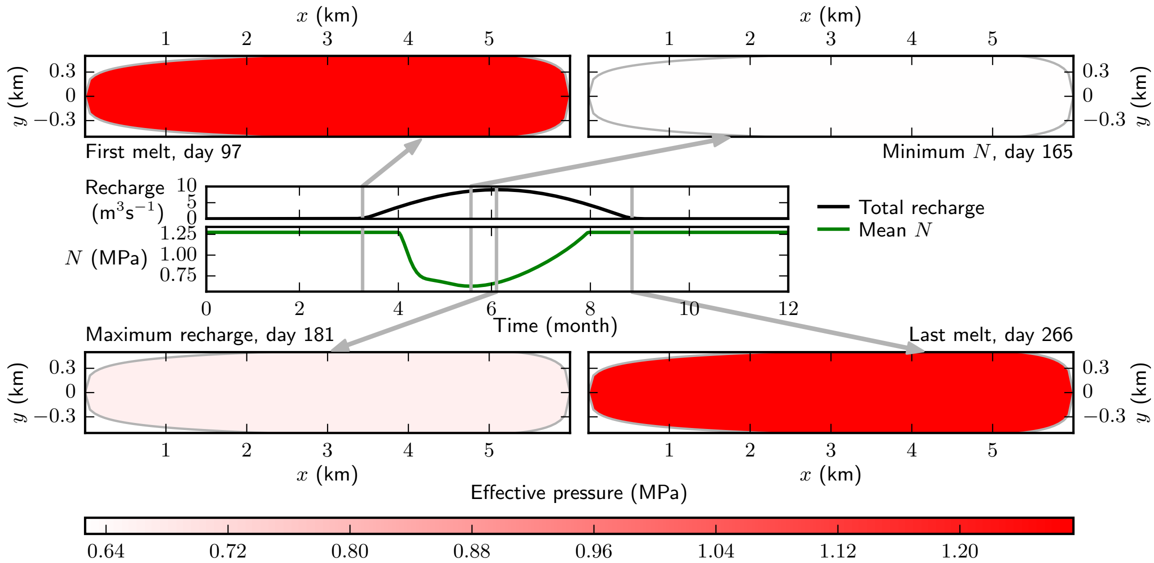

Figure S202: This is the result of run F5 for model *db* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

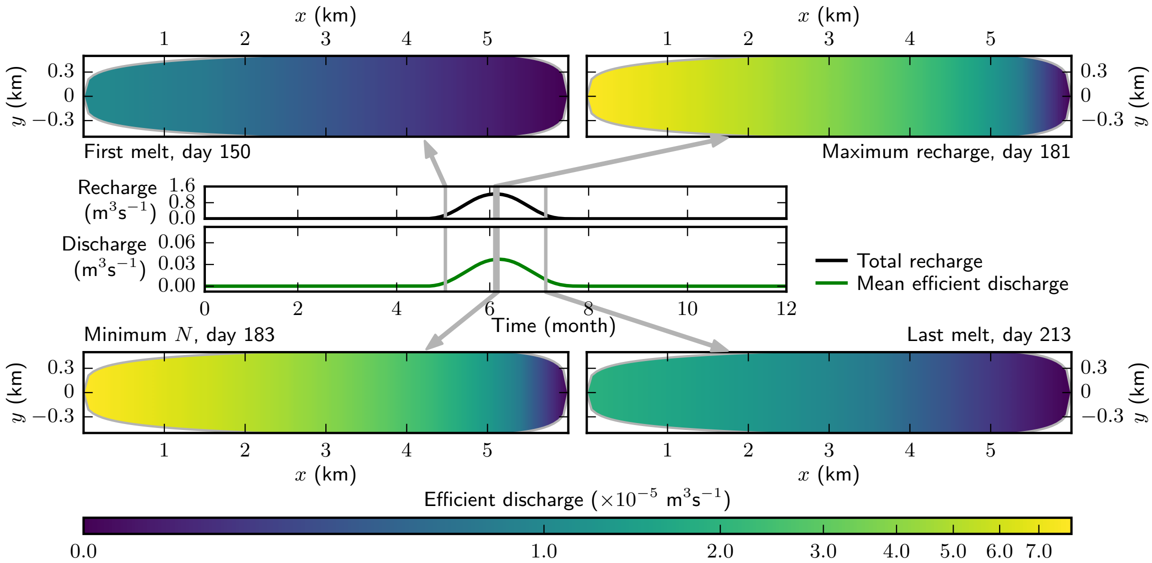

Figure S203: This is the result of run F1 for model *db* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

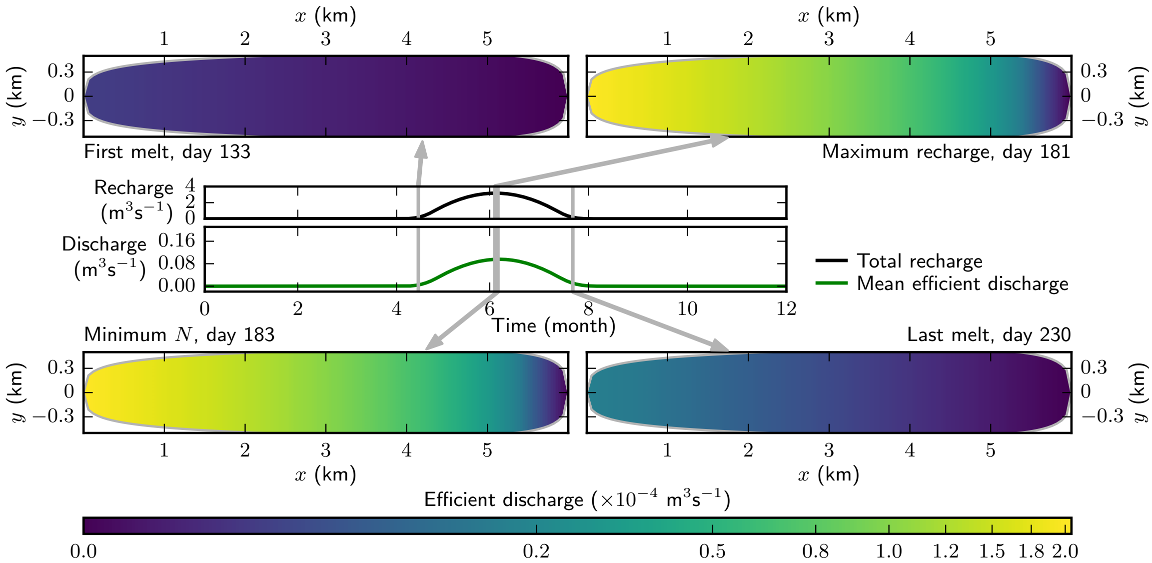

Figure S204: This is the result of run F2 for model *db* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

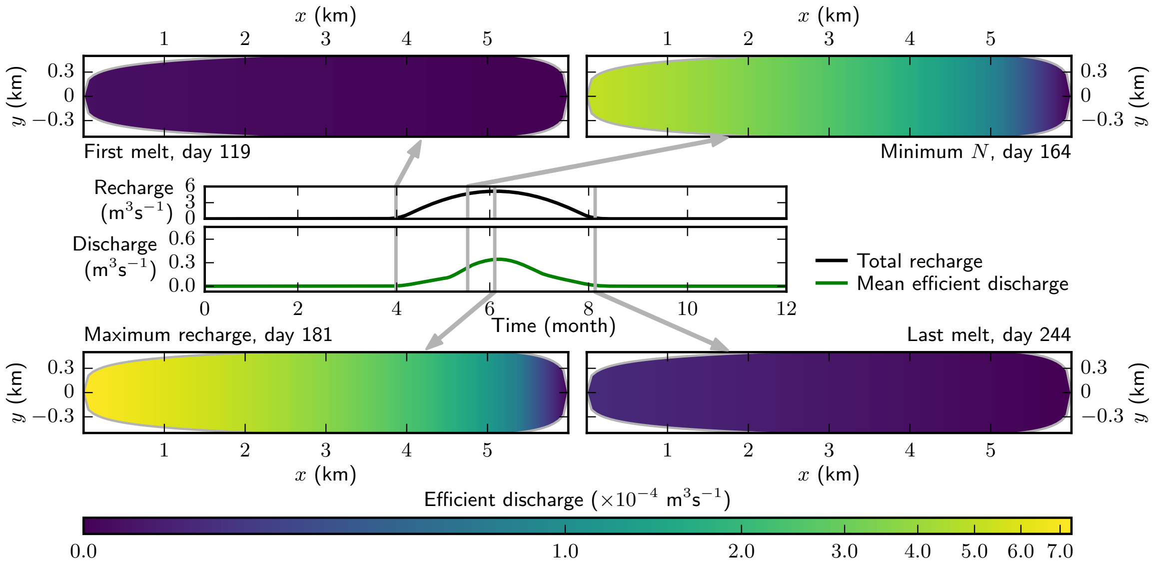

Figure S205: This is the result of run F3 for model *db* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

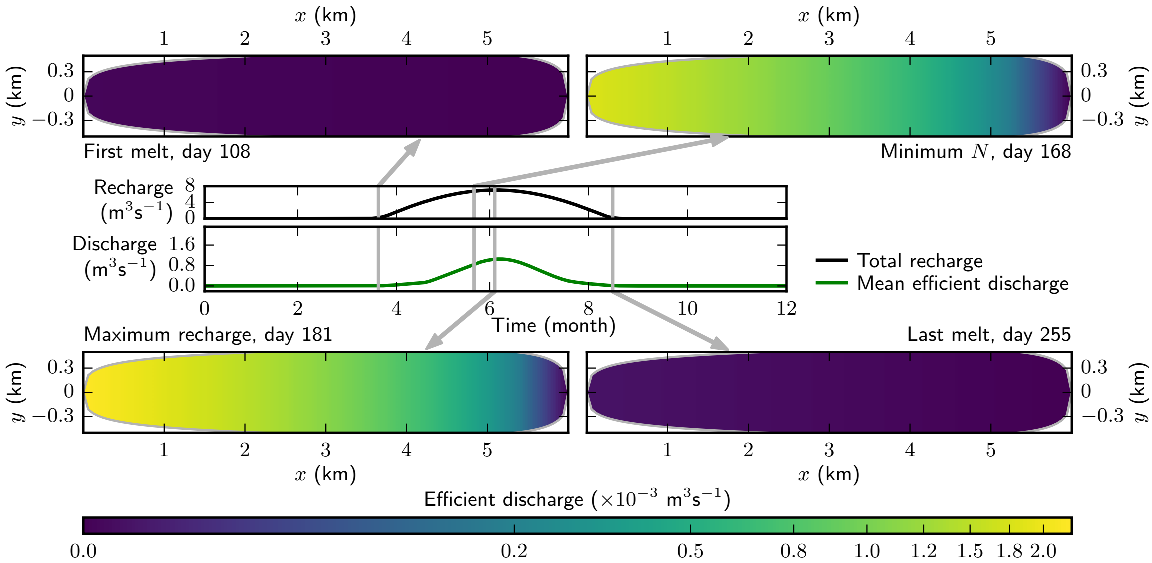

Figure S206: This is the result of run F4 for model *db* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

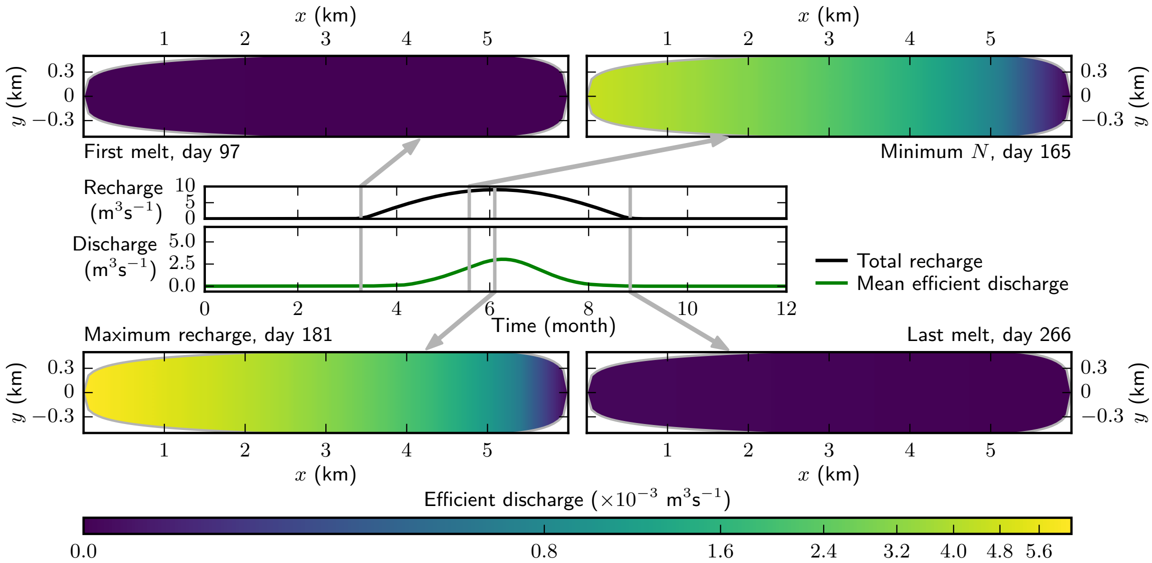

Figure S207: This is the result of run F5 for model *db* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

S2.2.3. Suite C model *id*

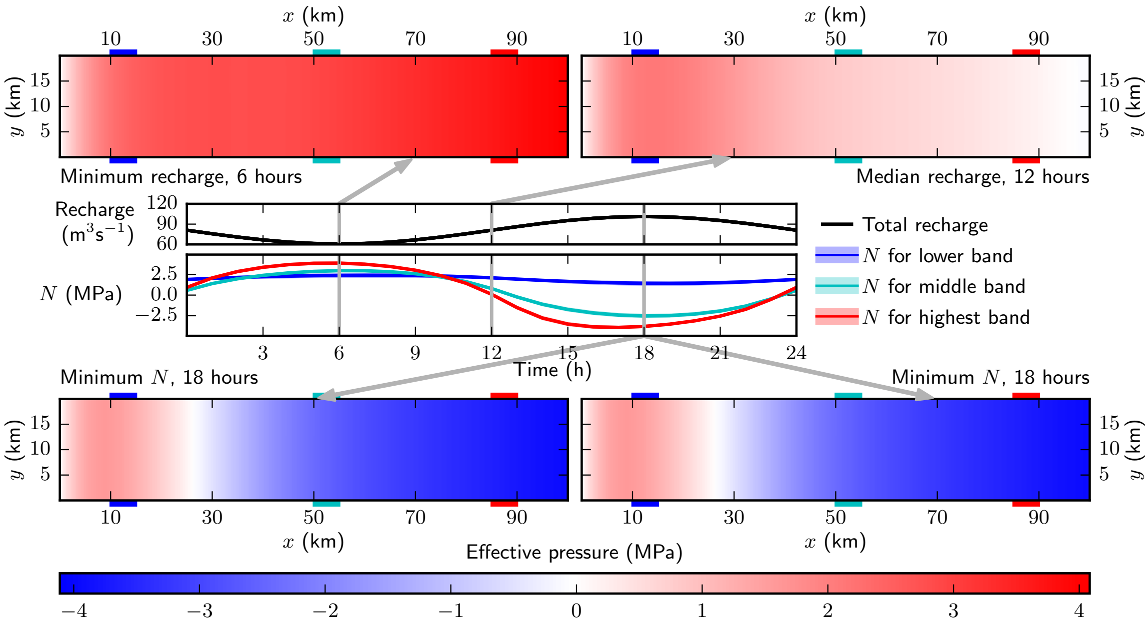

Figure S208: This is the result of run C1 for model *id* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

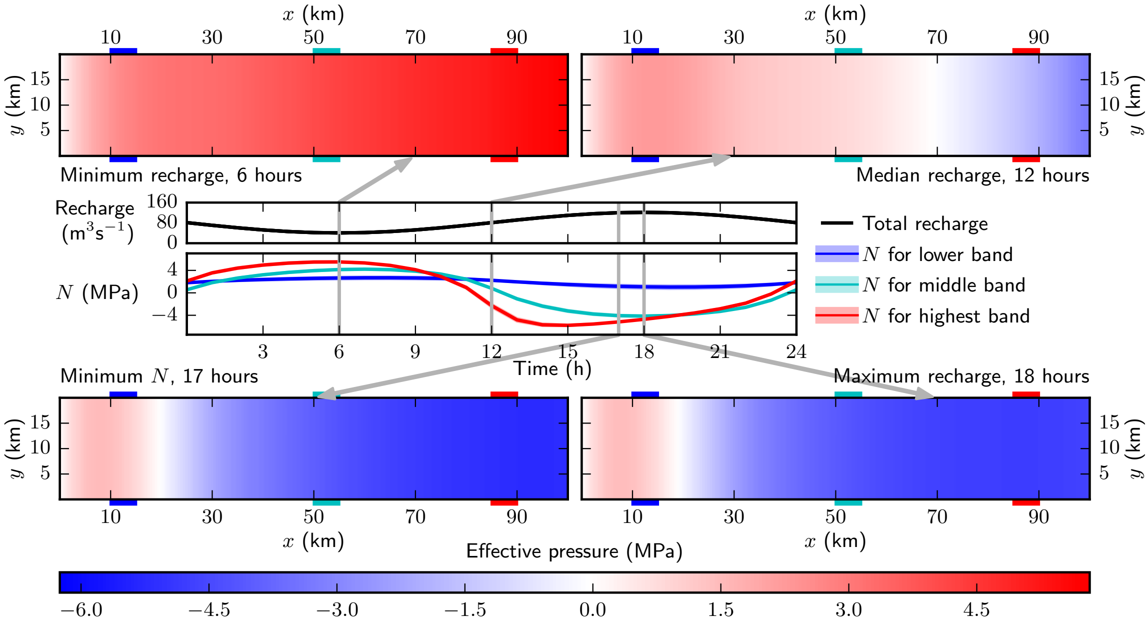

Figure S209: This is the result of run C2 for model *id* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

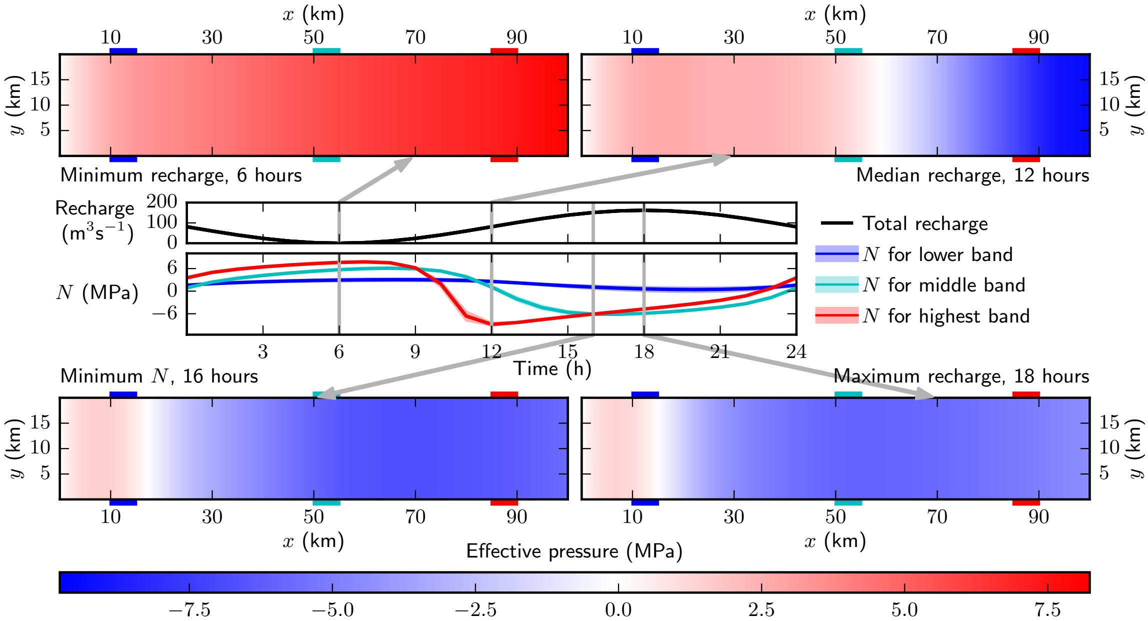

Figure S210: This is the result of run C3 for model *id* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

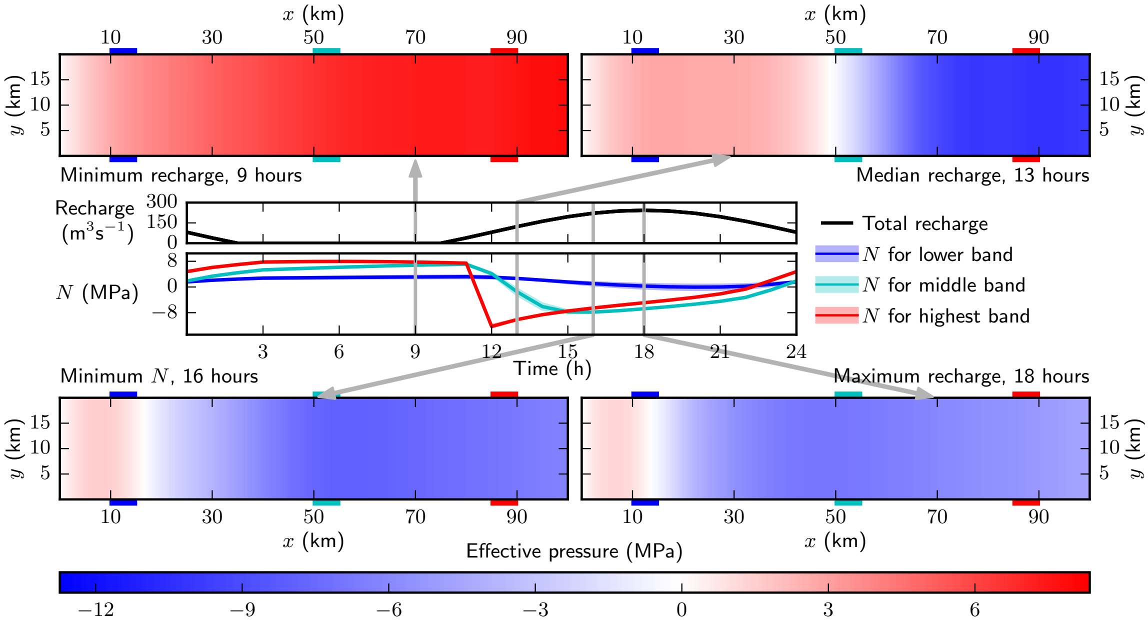

Figure S211: This is the result of run C4 for model *id* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

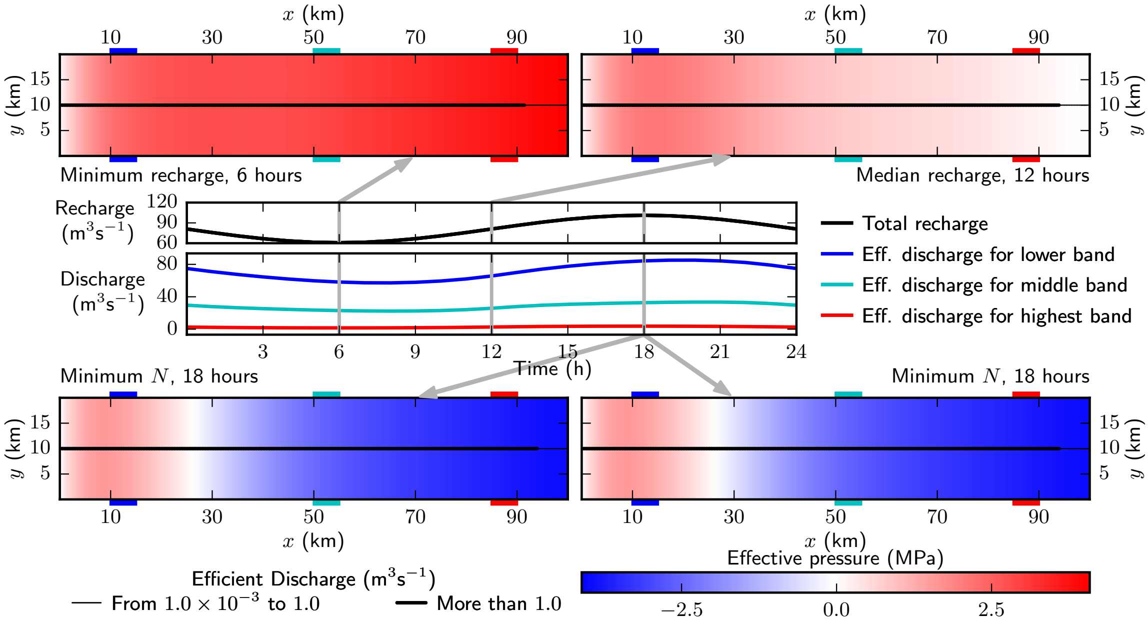

Figure S212: This is the result of run C1 for model *id* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

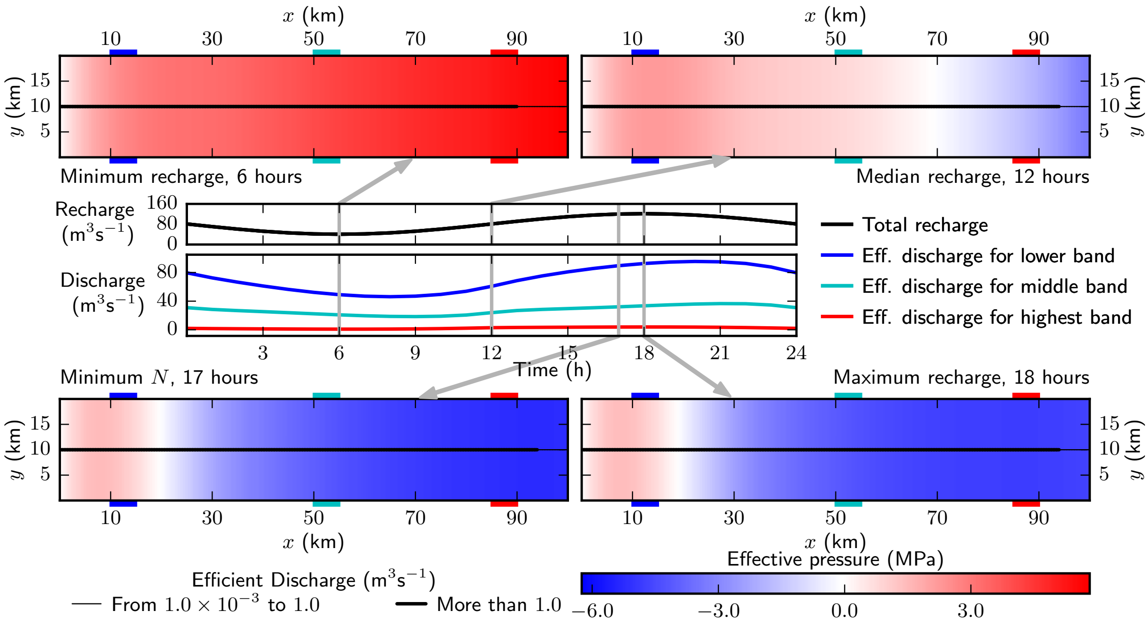

Figure S213: This is the result of run C2 for model *id* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

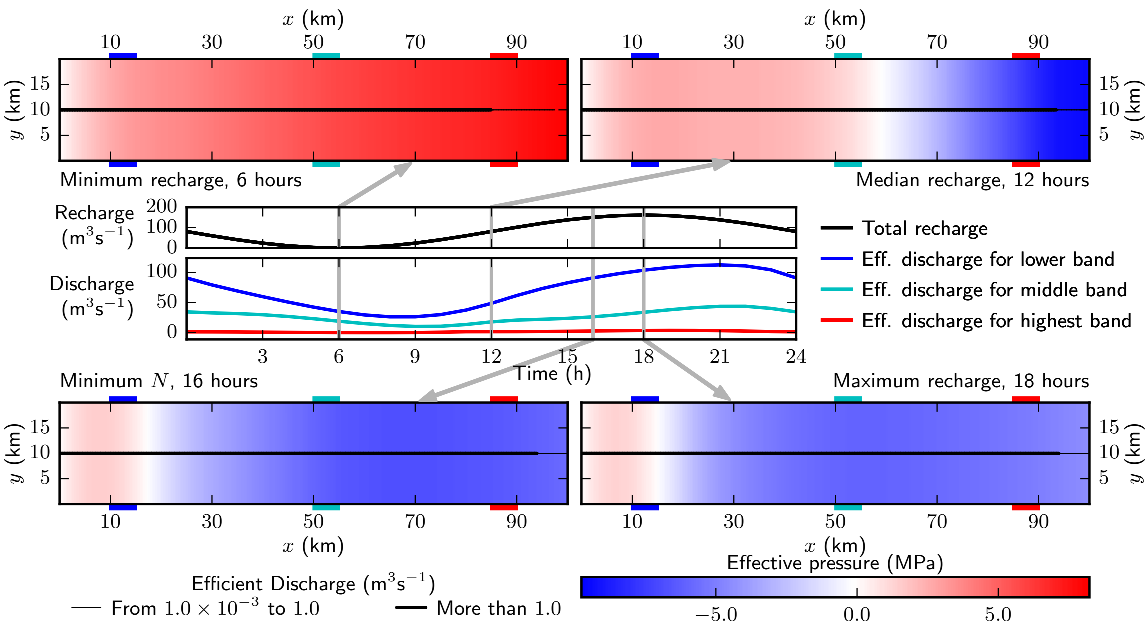

Figure S214: This is the result of run C3 for model *id* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

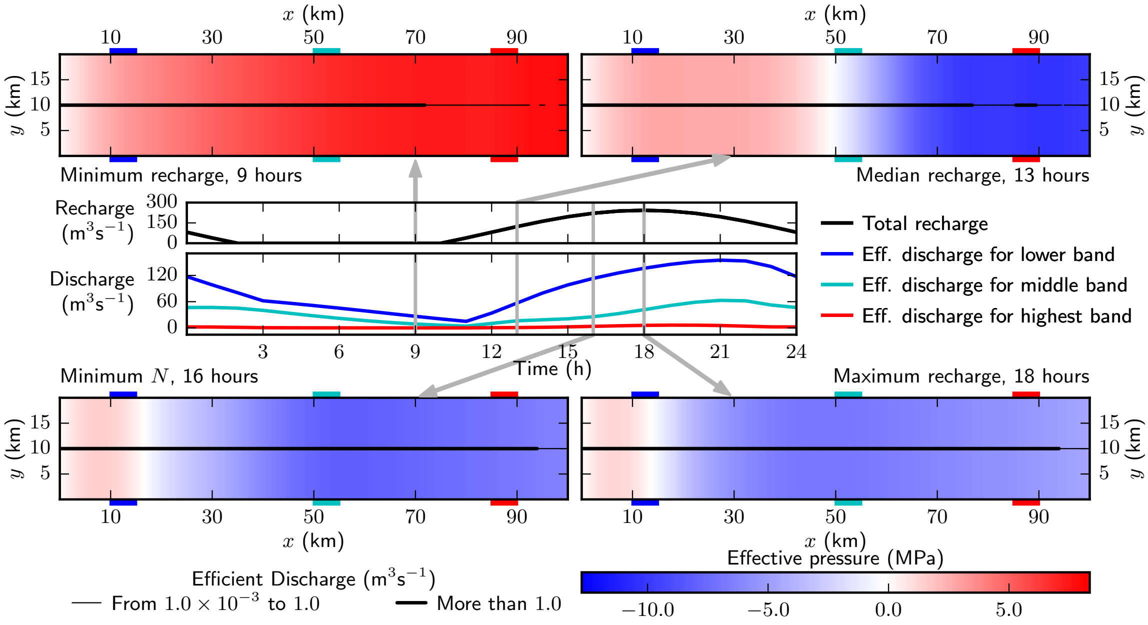

Figure S215: This is the result of run C4 for model *id* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

S2.2.4. Suite F model *id*

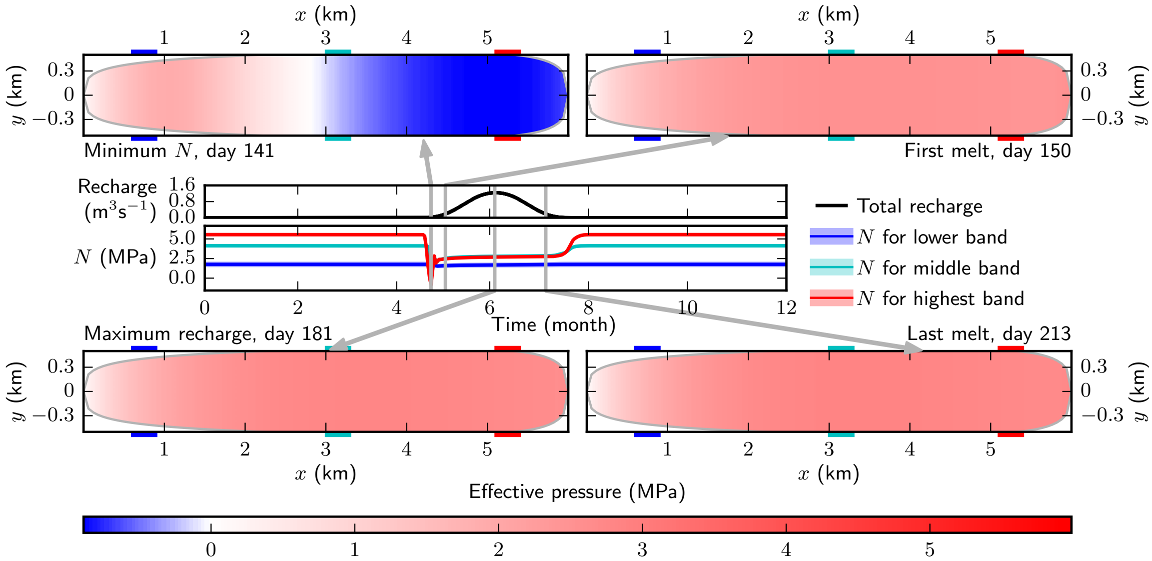

Figure S216: This is the result of run F1 for model *id* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

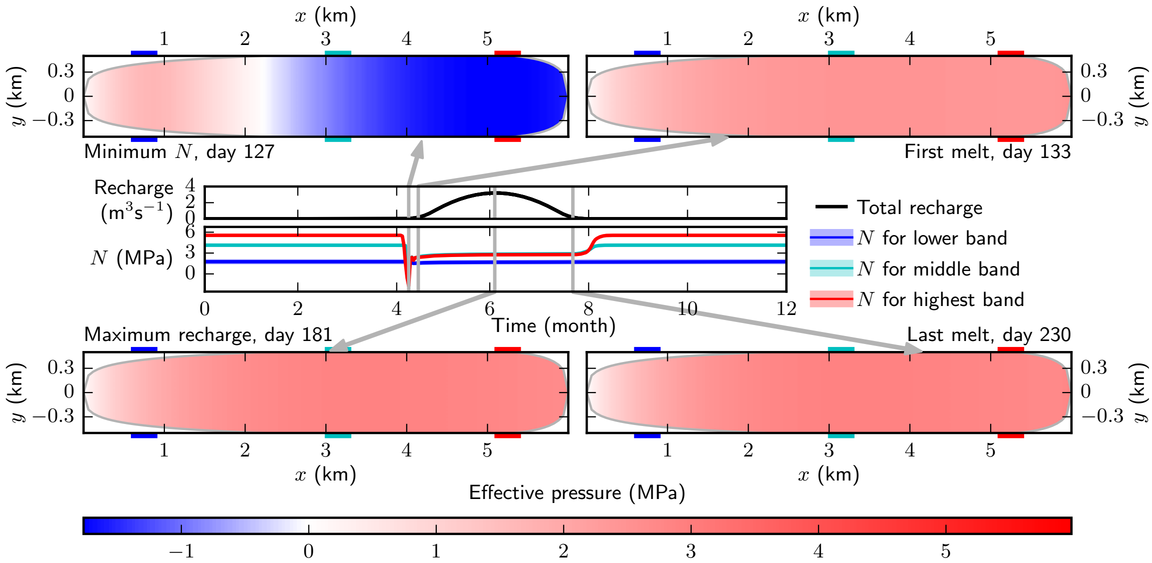

Figure S217: This is the result of run F2 for model *id* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

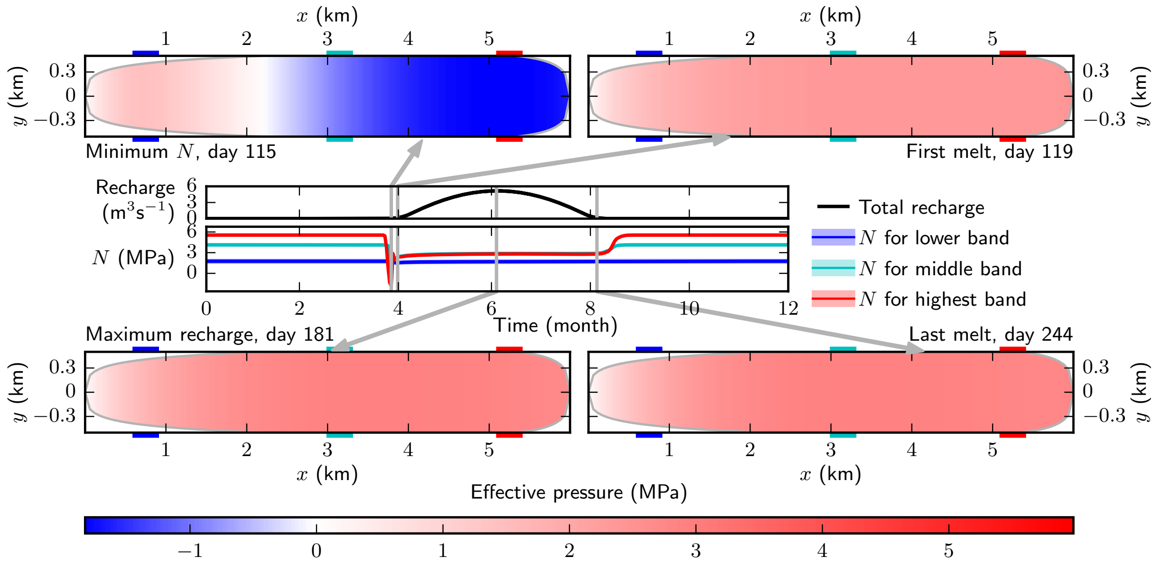

Figure S218: This is the result of run F3 for model *id* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

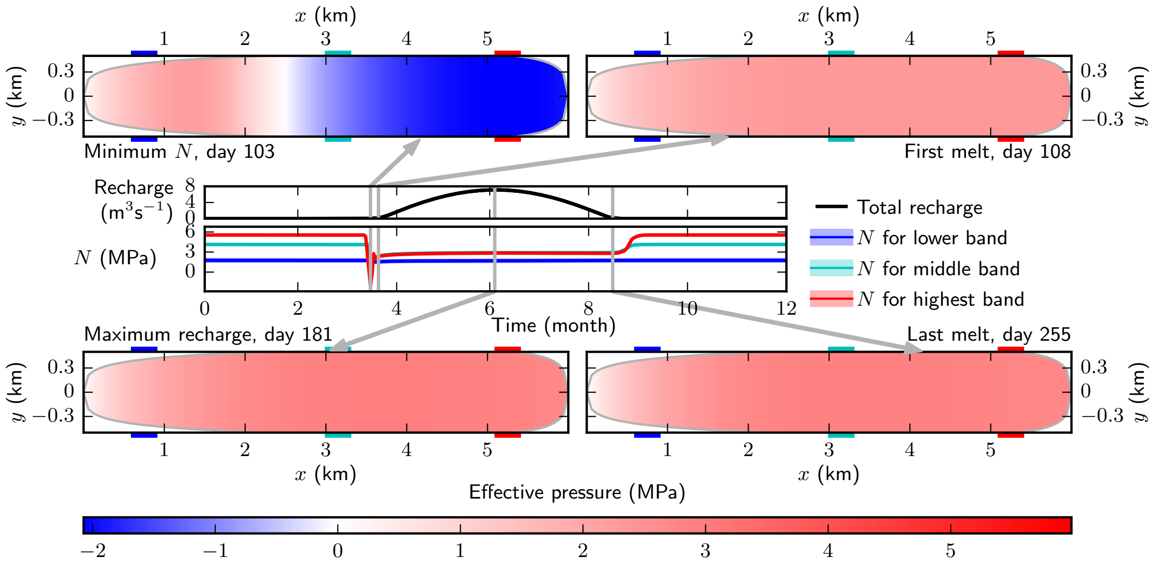

Figure S219: This is the result of run F4 for model *id* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

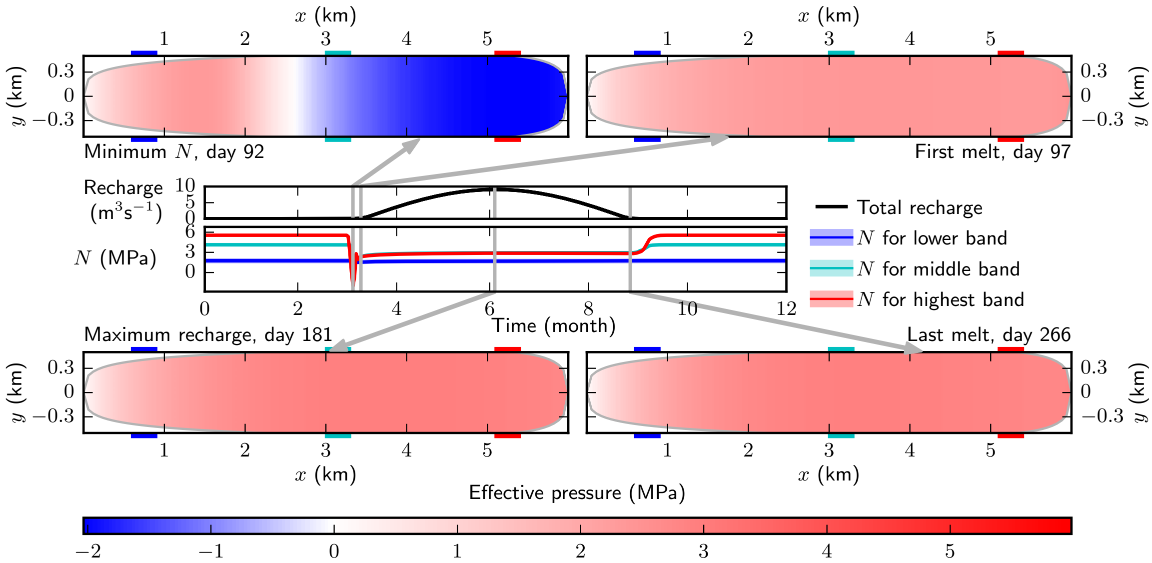

Figure S220: This is the result of run F5 for model *id* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

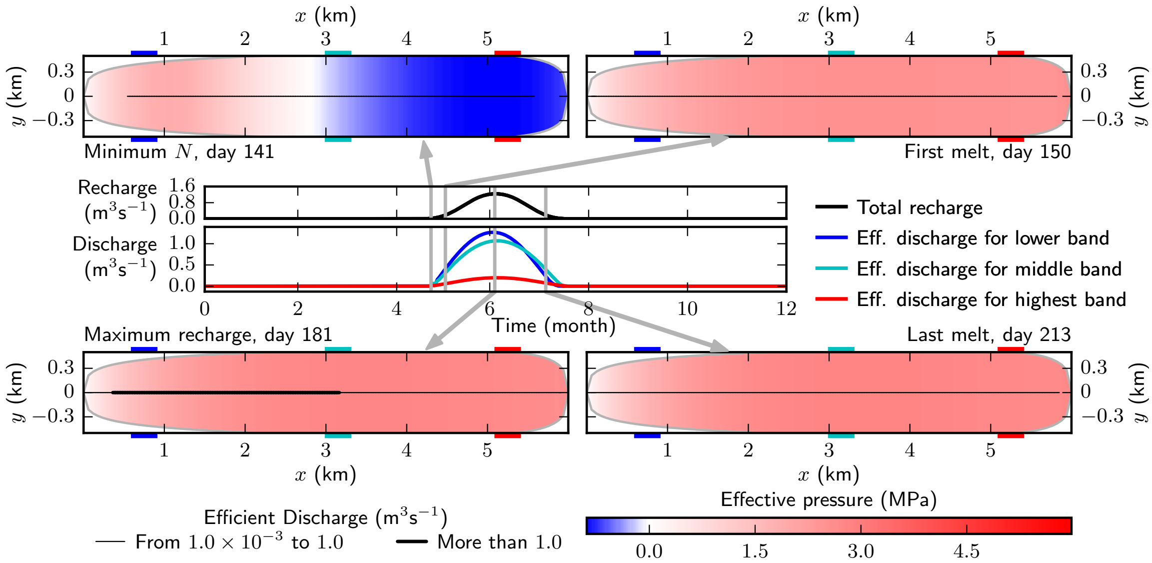

Figure S221: This is the result of run F1 for model *id* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

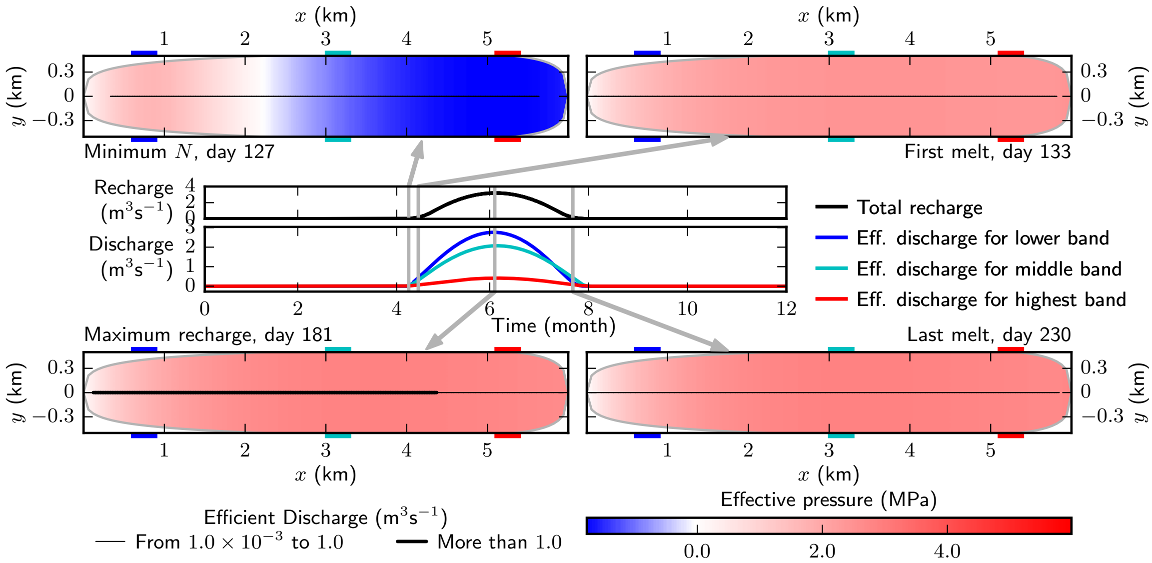

Figure S222: This is the result of run F2 for model *id* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

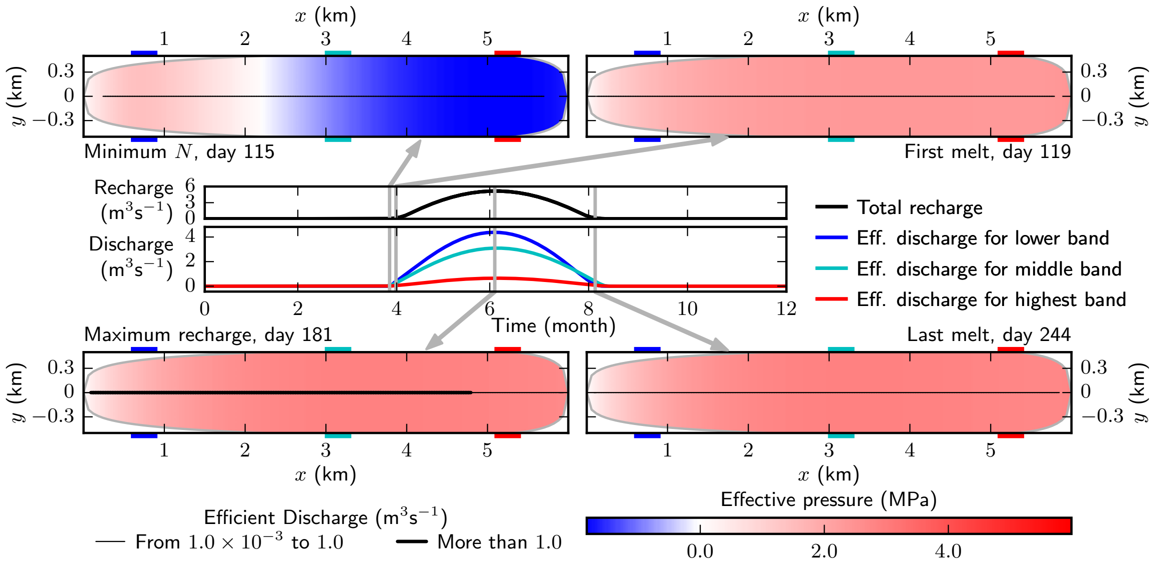

Figure S223: This is the result of run F3 for model *id* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

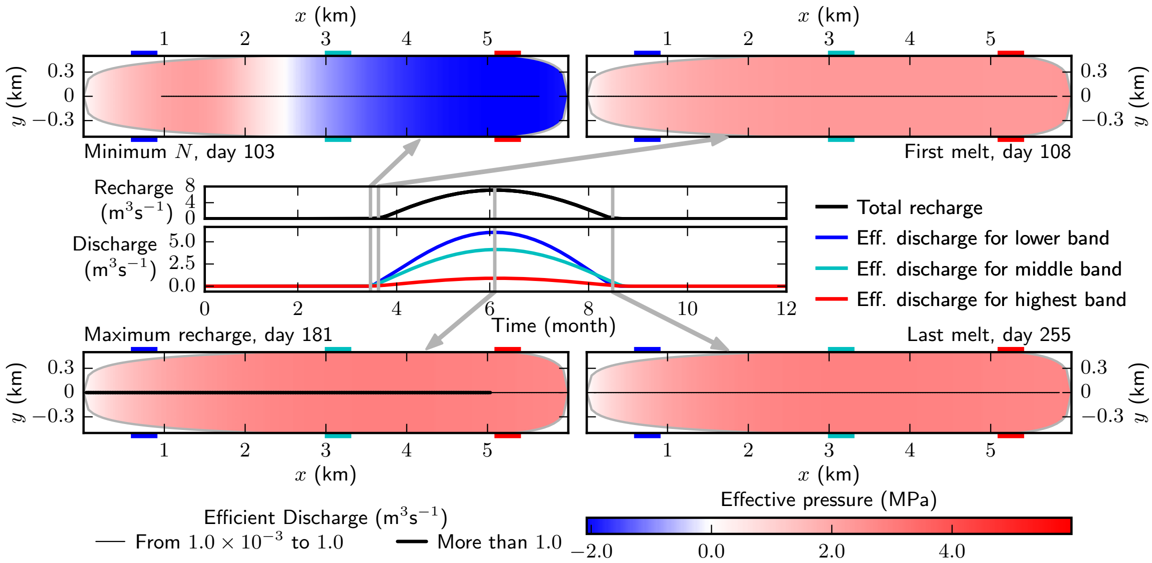

Figure S224: This is the result of run F4 for model *id* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

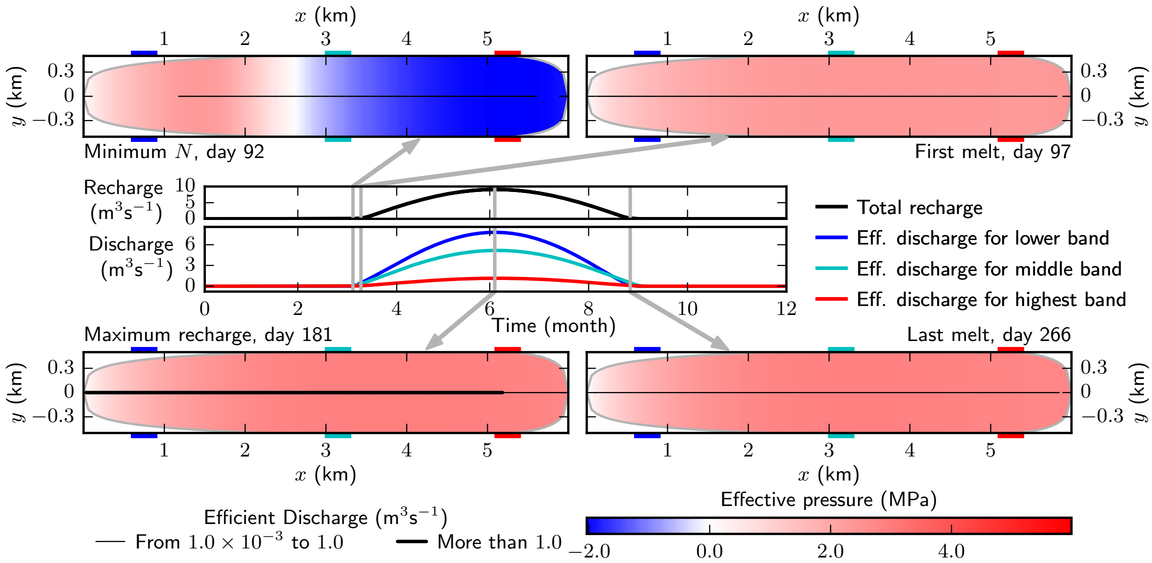

Figure S225: This is the result of run F5 for model *id* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

S2.2.5. Suite C model jd

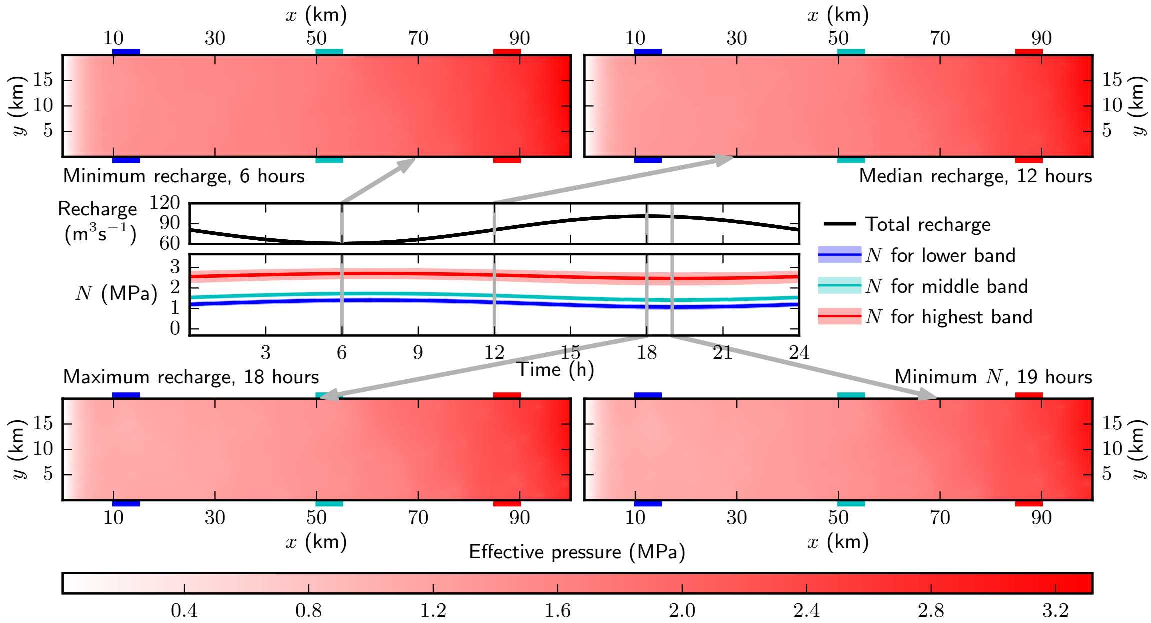

Figure S226: This is the result of run C1 for model jd in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

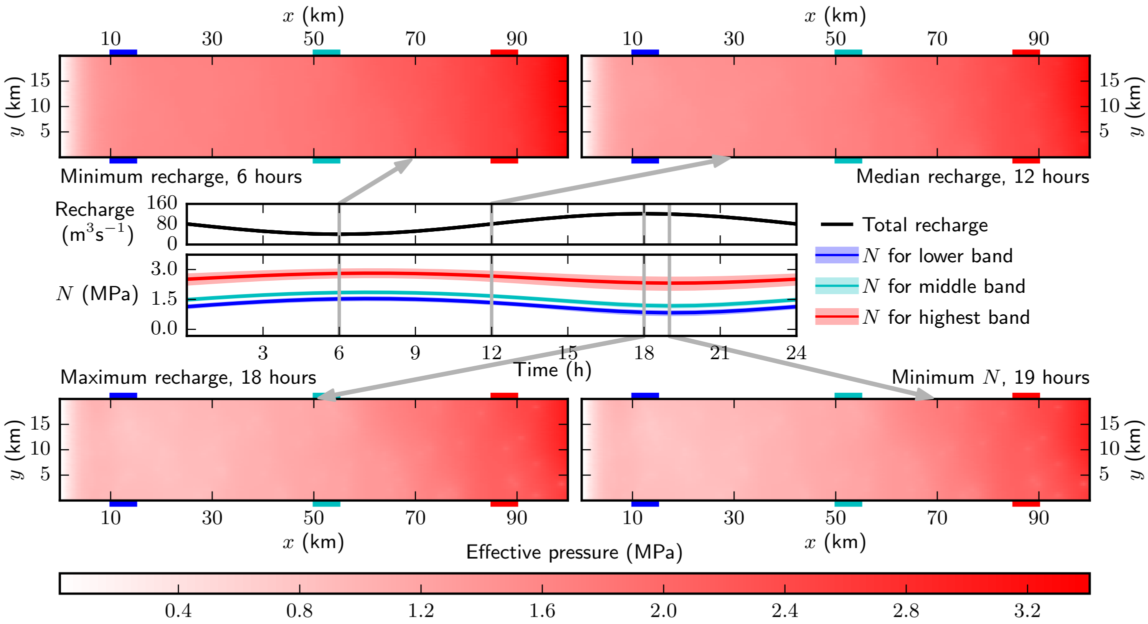

Figure S227: This is the result of run C2 for model *jd* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

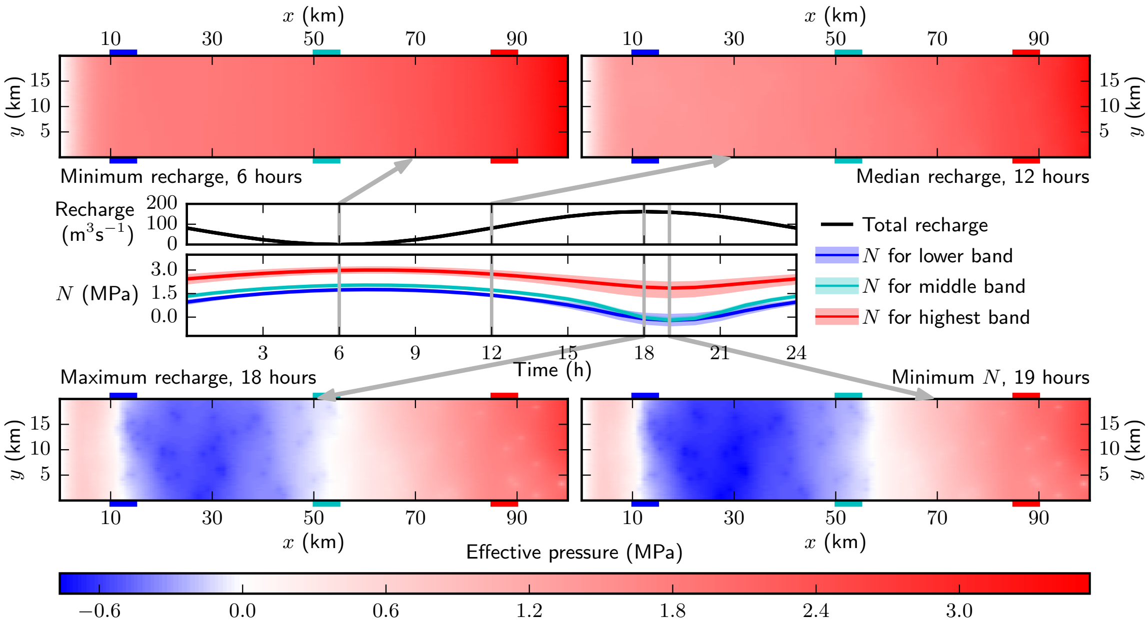

Figure S228: This is the result of run C3 for model *jd* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

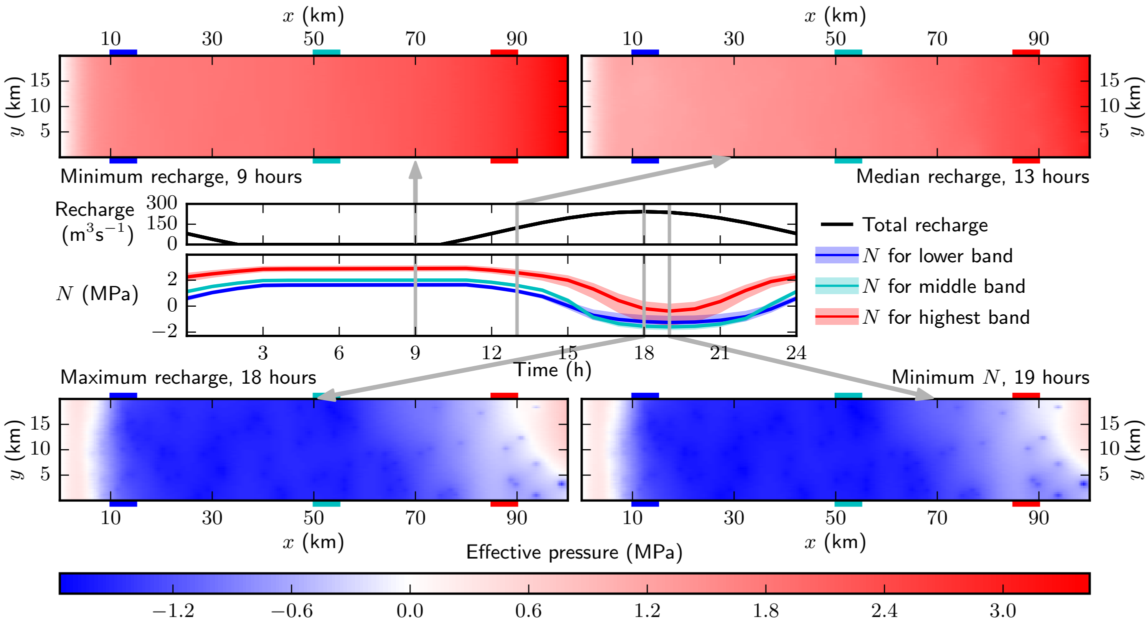

Figure S229: This is the result of run C4 for model *jd* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

S2.2.6. Suite D model jd

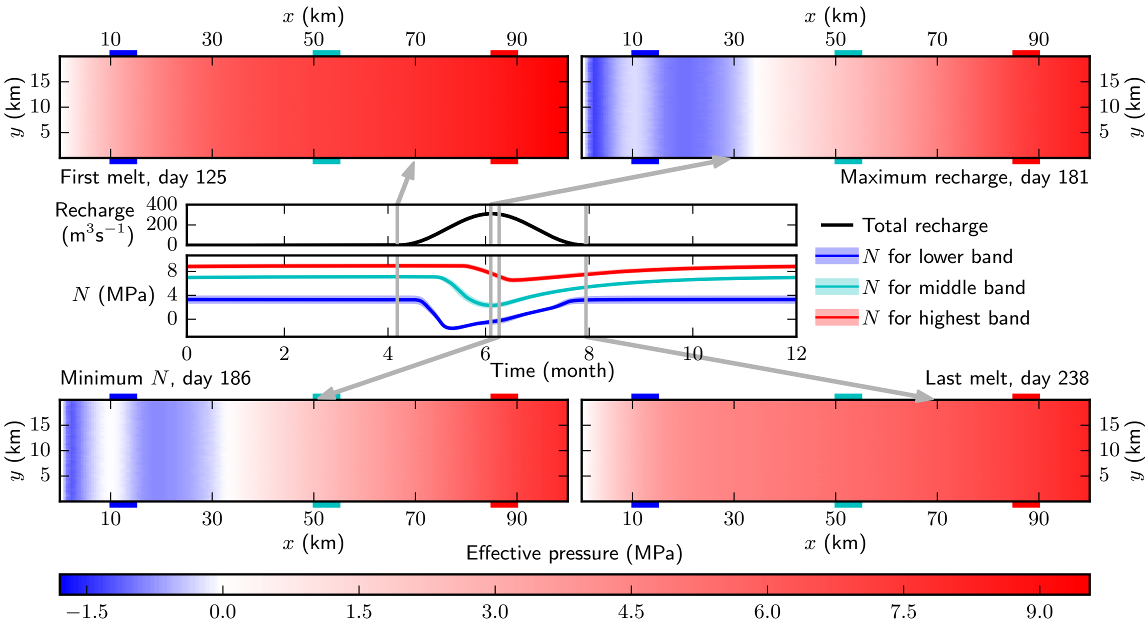

Figure S230: This is the result of run D1 for model jd in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

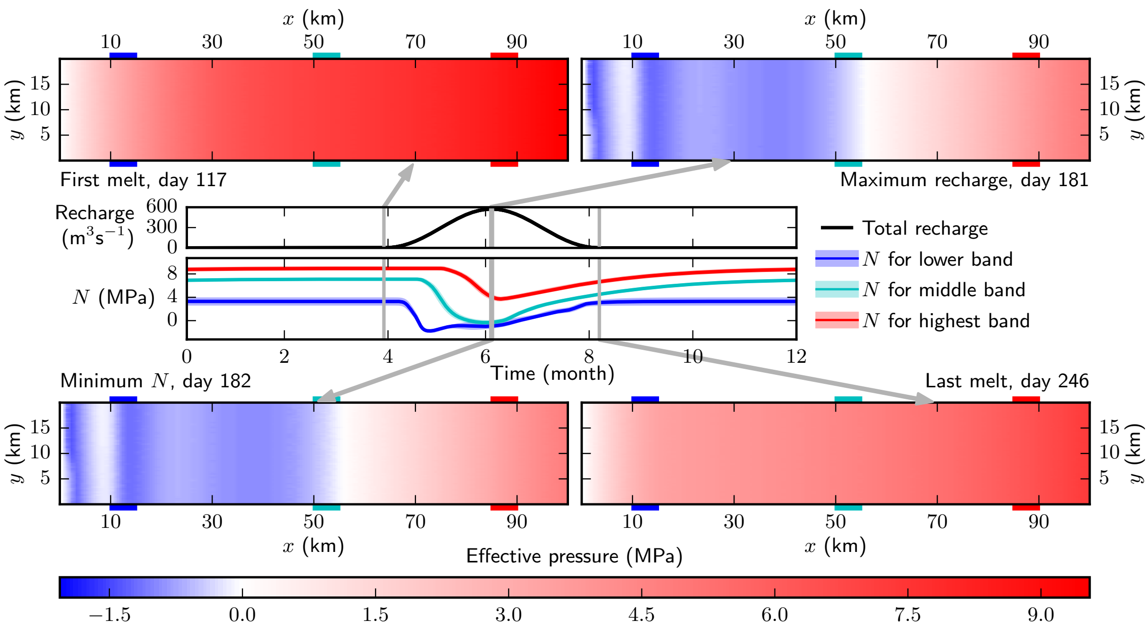

Figure S231: This is the result of run D2 for model *jd* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

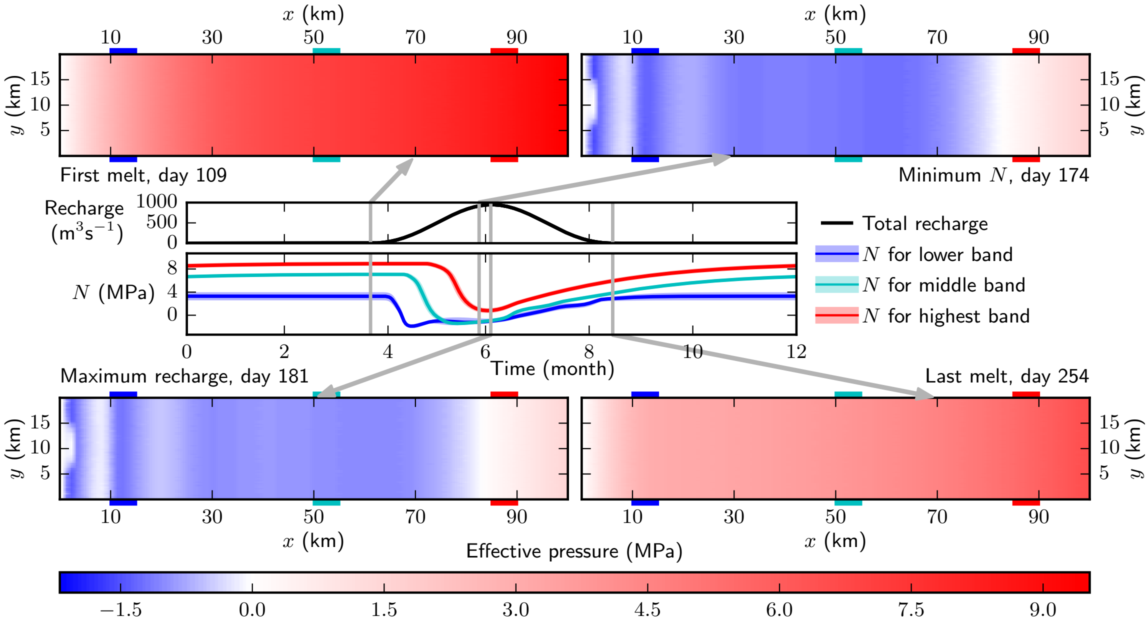

Figure S232: This is the result of run D3 for model *jd* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

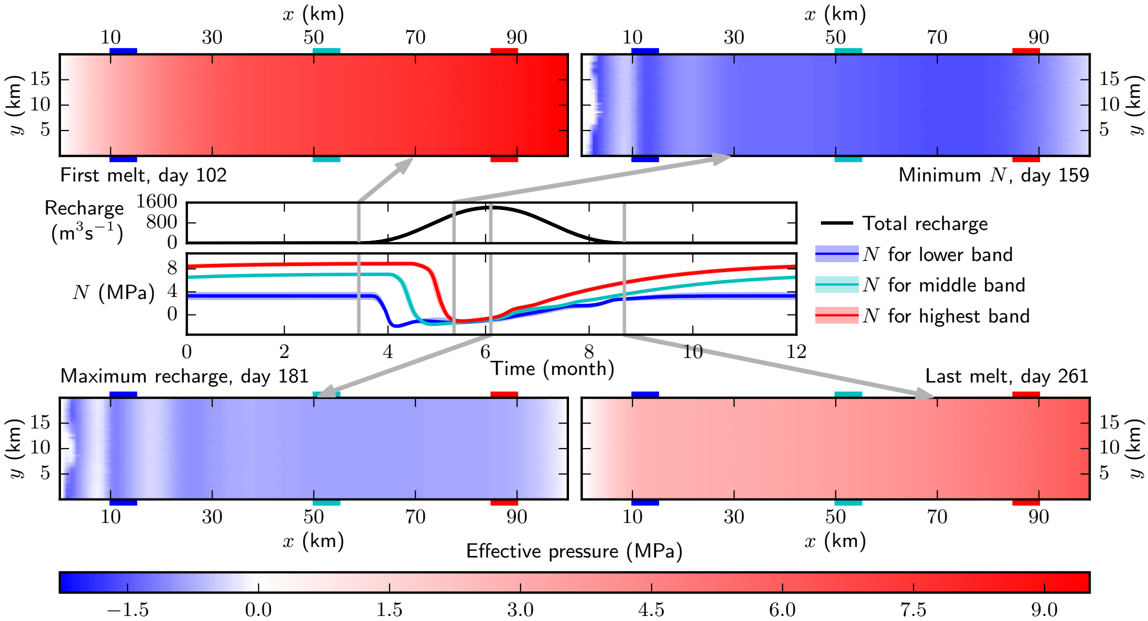

Figure S233: This is the result of run D4 for model *jd* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

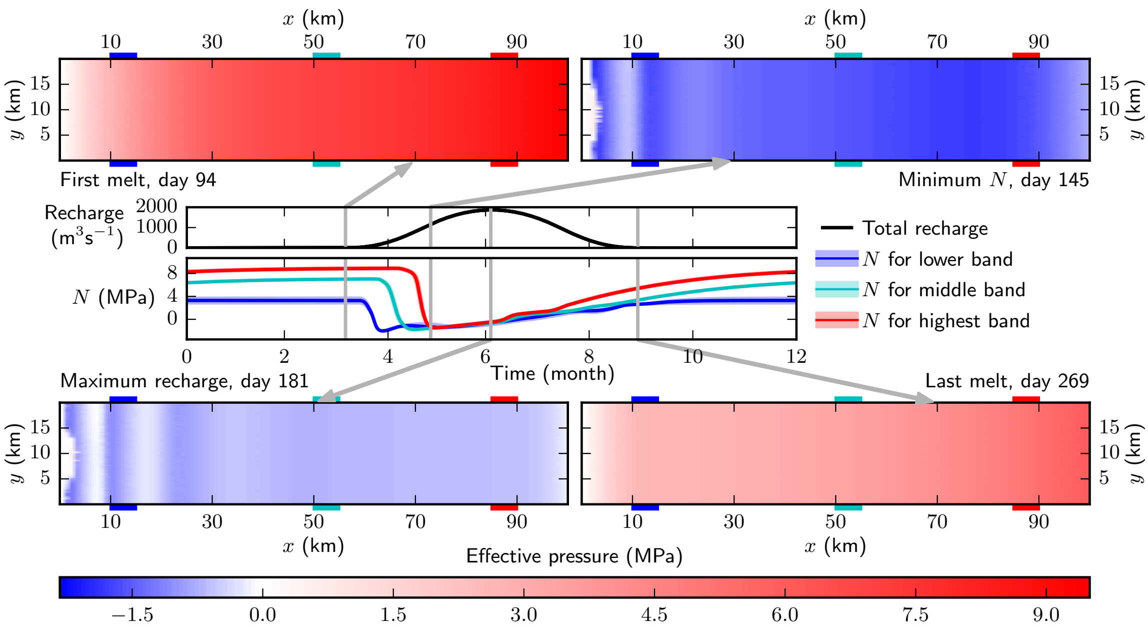

Figure S234: This is the result of run D5 for model *jd* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

S2.2.7. Suite C model jsb

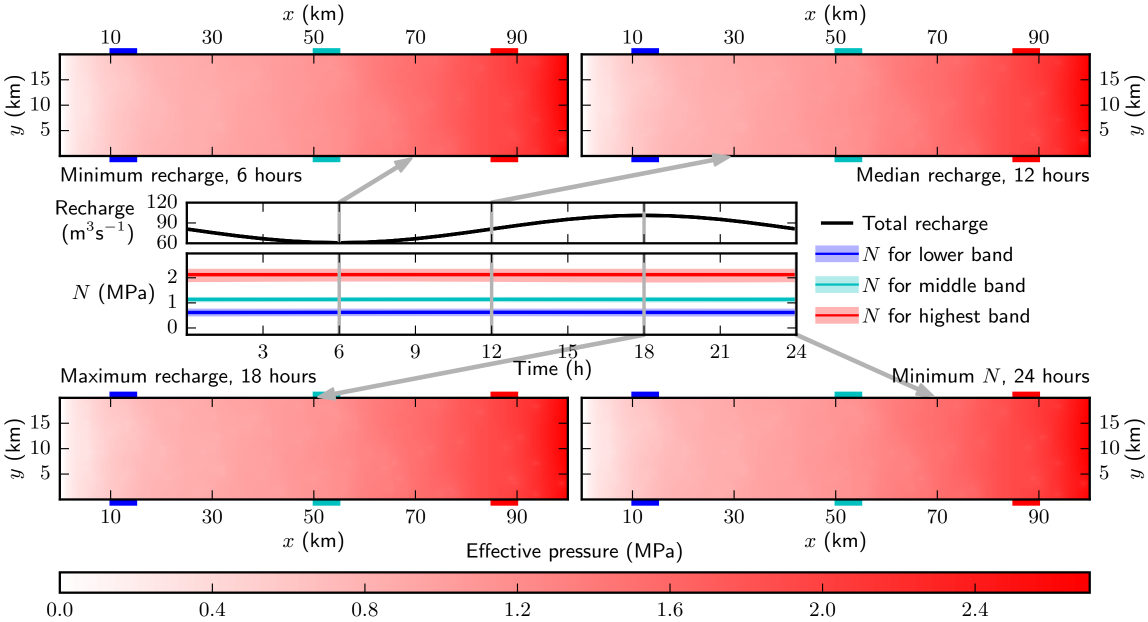

Figure S235: This is the result of run C1 for model jsb in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

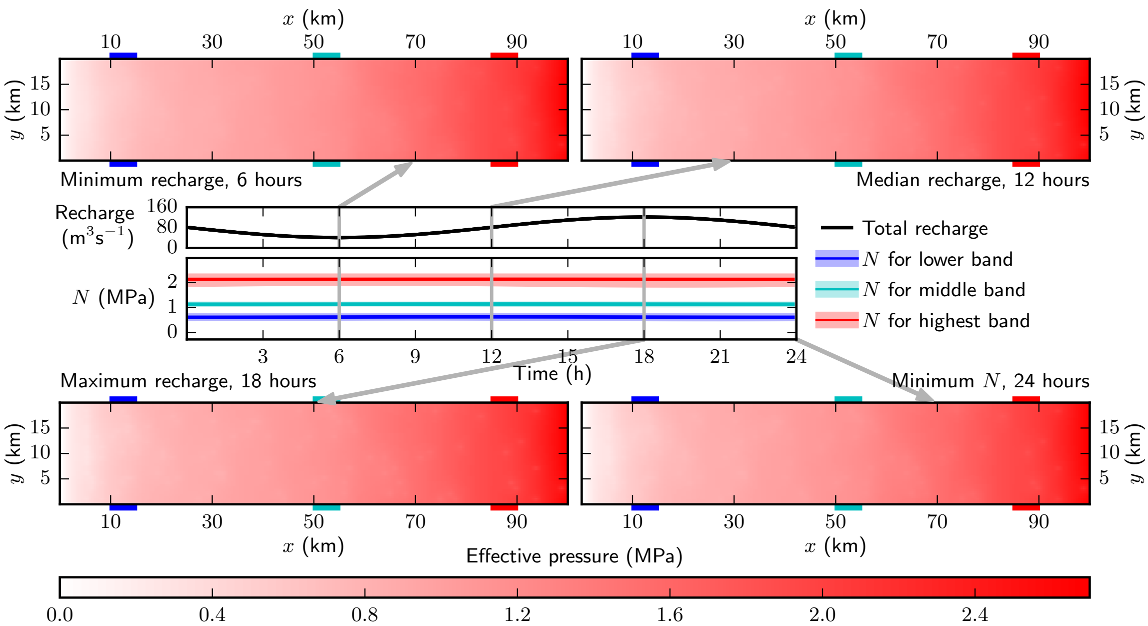

Figure S236: This is the result of run C2 for model *jsb* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

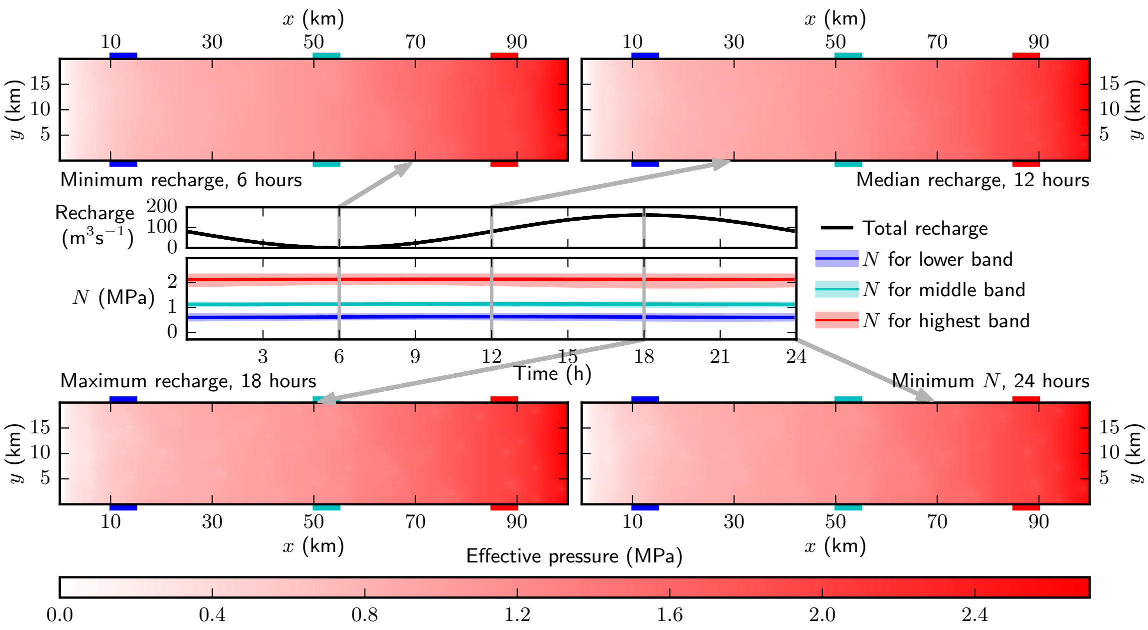

Figure S237: This is the result of run C3 for model *jsb* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

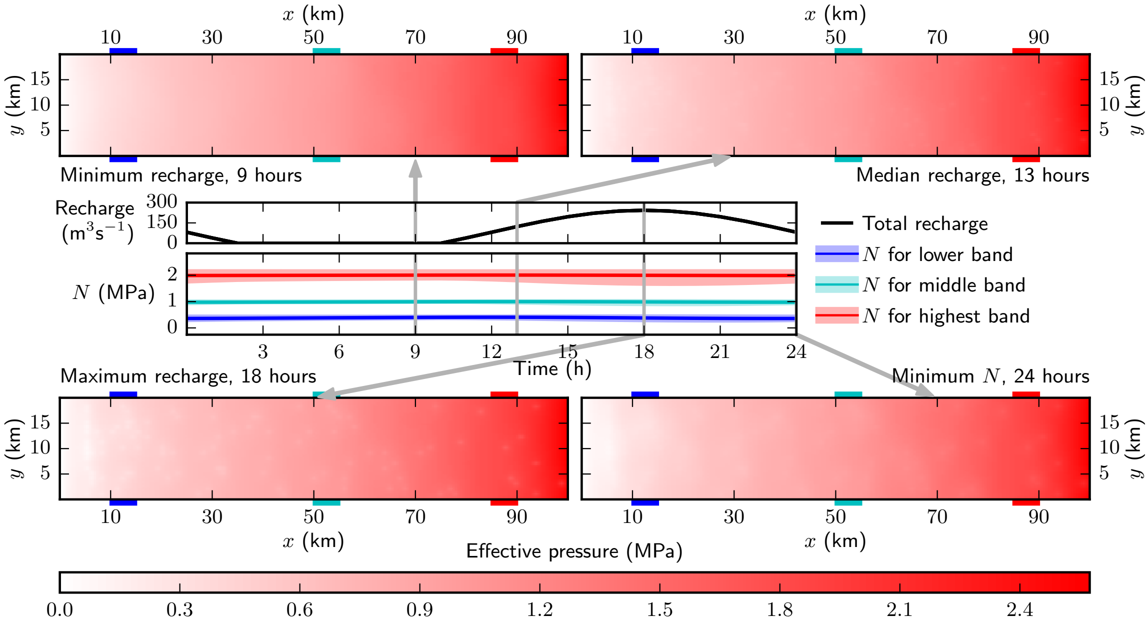

Figure S238: This is the result of run C4 for model *jsb* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

S2.2.8. Suite D model jsb

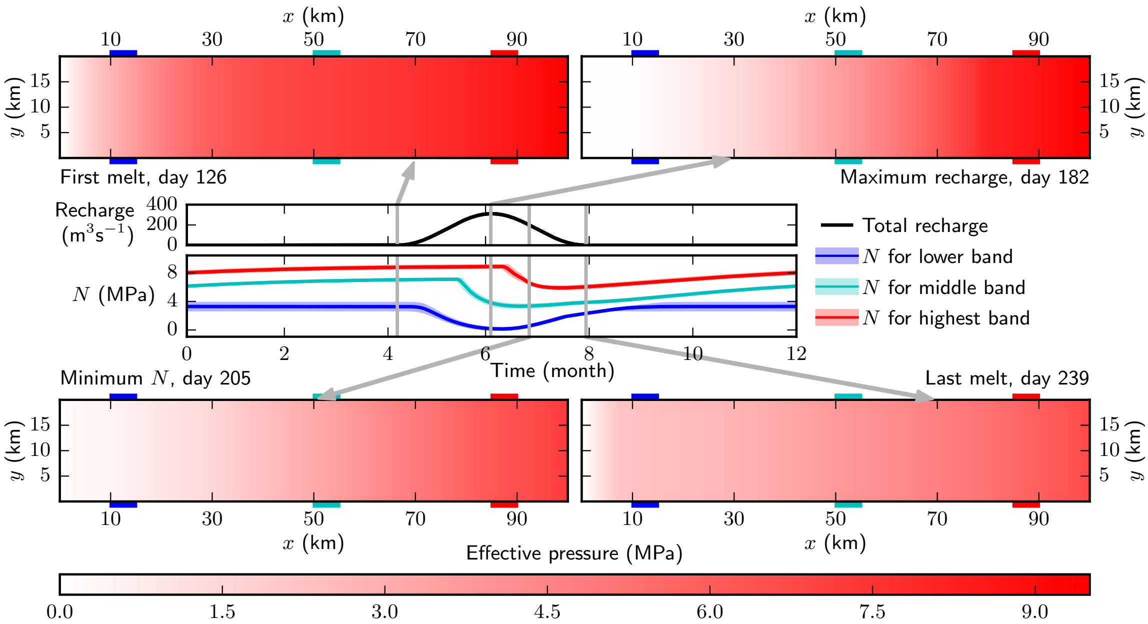

Figure S239: This is the result of run D1 for model jsb in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

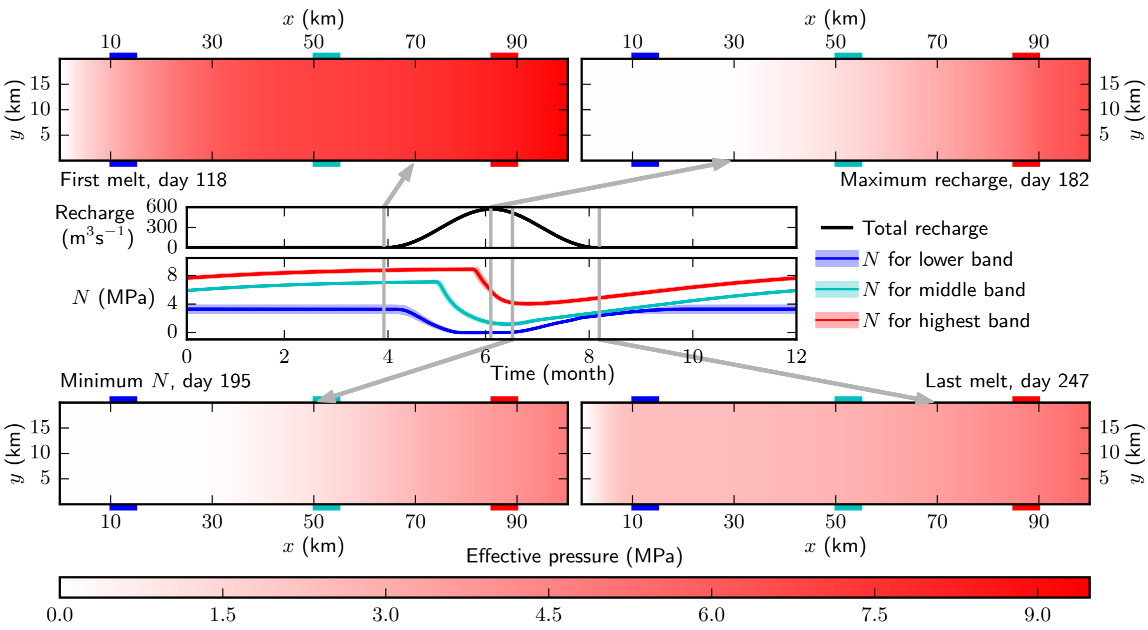

Figure S240: This is the result of run D2 for model *jsb* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

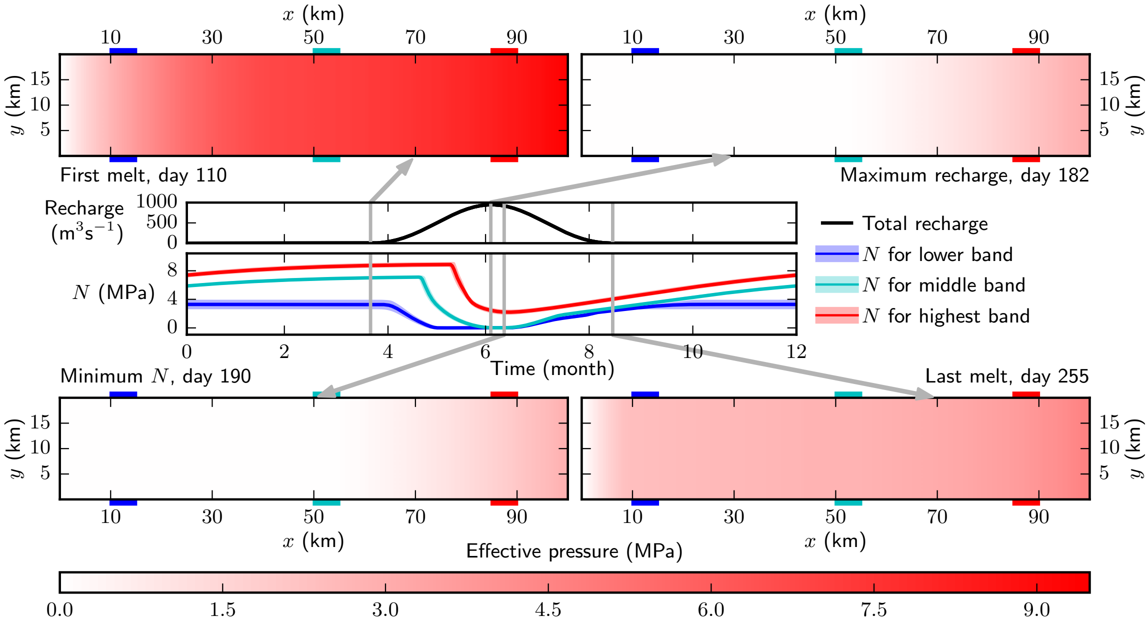

Figure S241: This is the result of run D3 for model *jsb* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

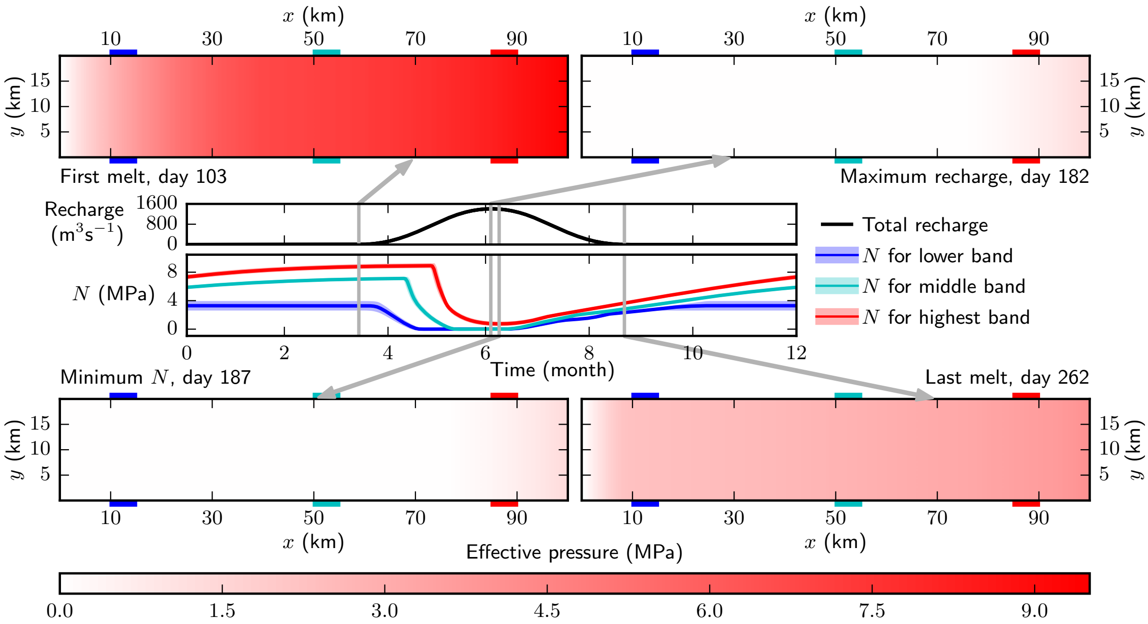

Figure S242: This is the result of run D4 for model *jsb* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

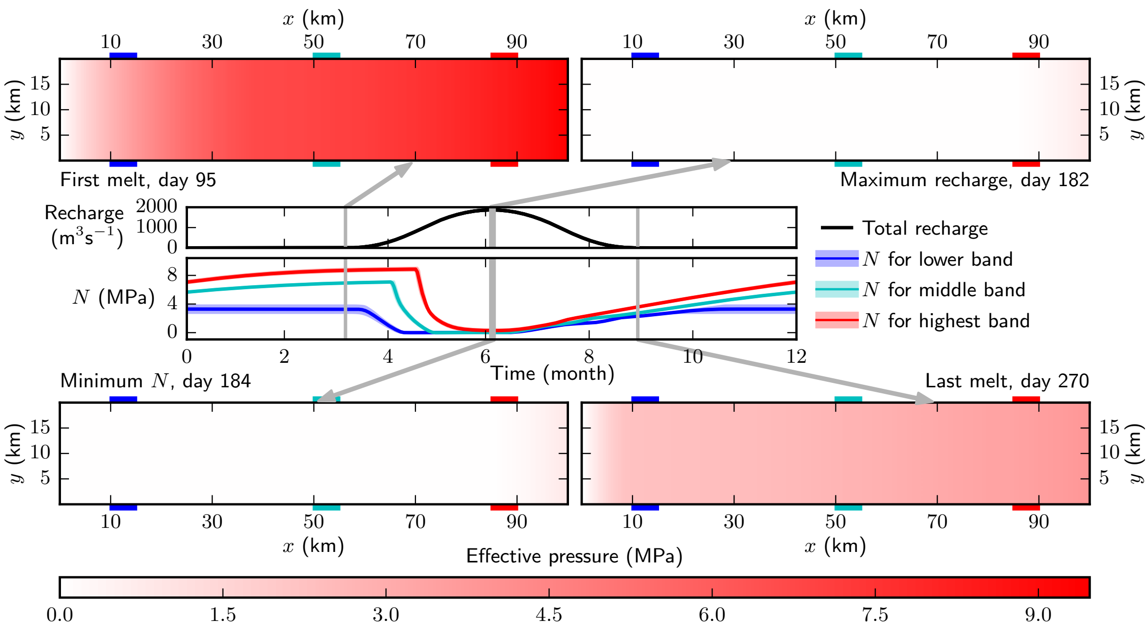

Figure S243: This is the result of run D5 for model *jsb* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

S2.2.9. Suite F model jsb

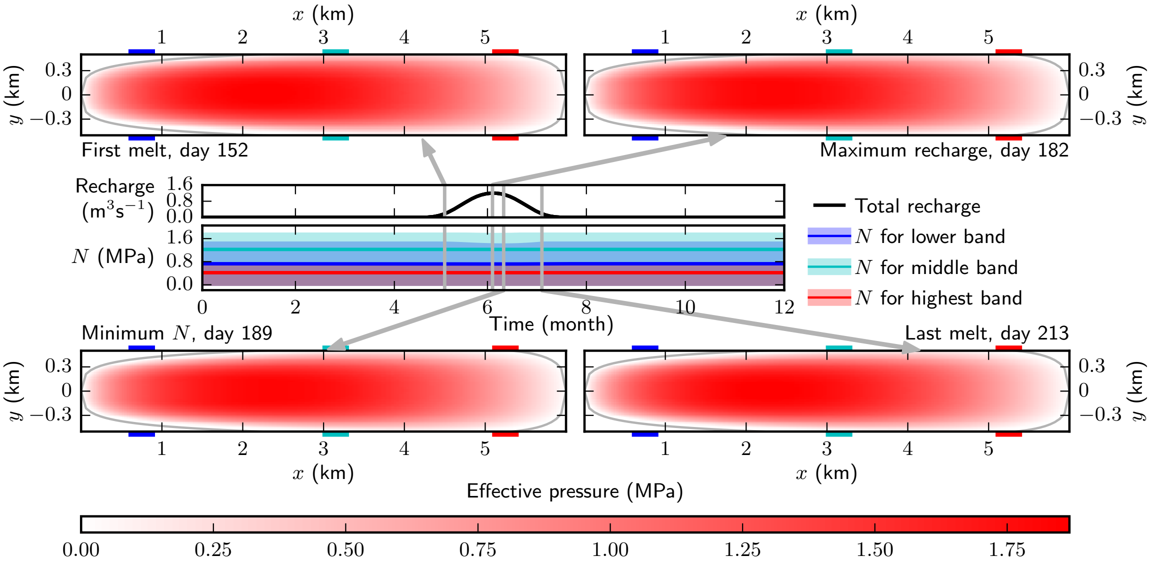

Figure S244: This is the result of run F1 for model jsb in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

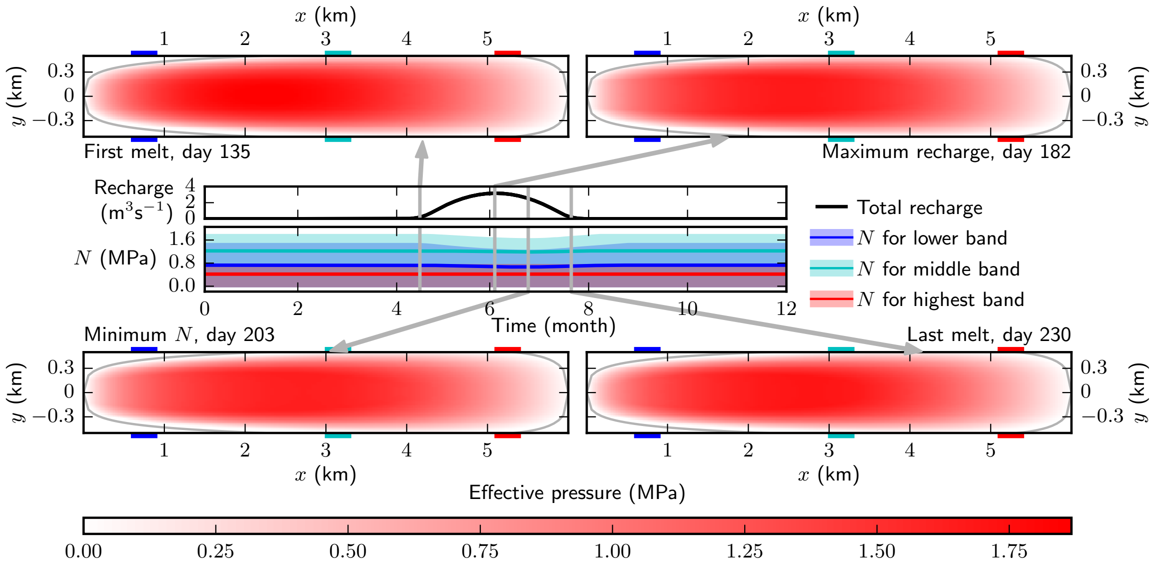

Figure S245: This is the result of run F2 for model *jsb* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

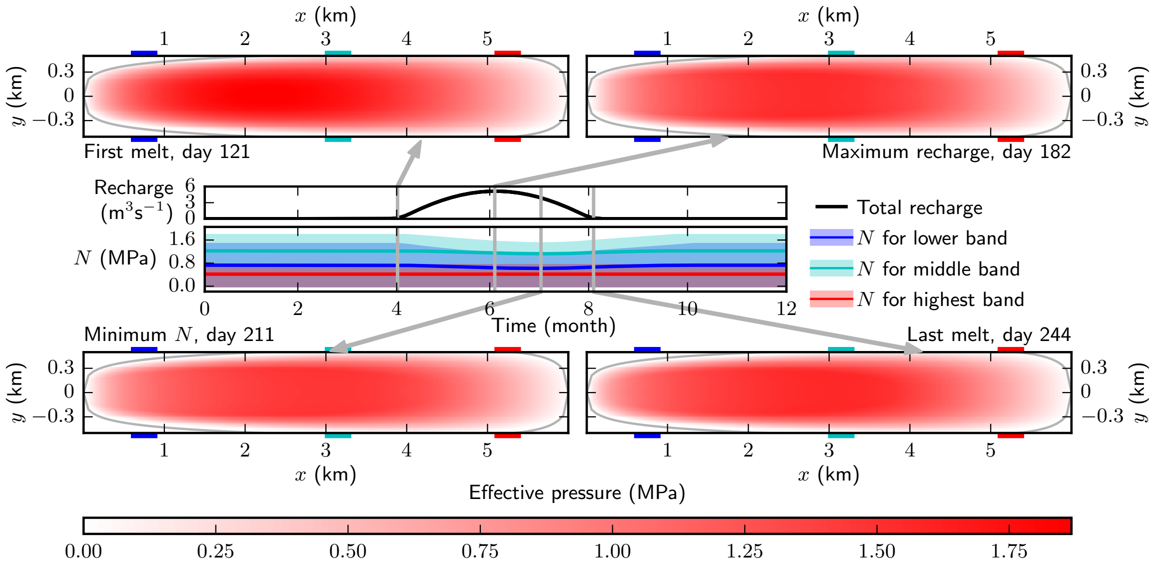

Figure S246: This is the result of run F3 for model *jsb* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

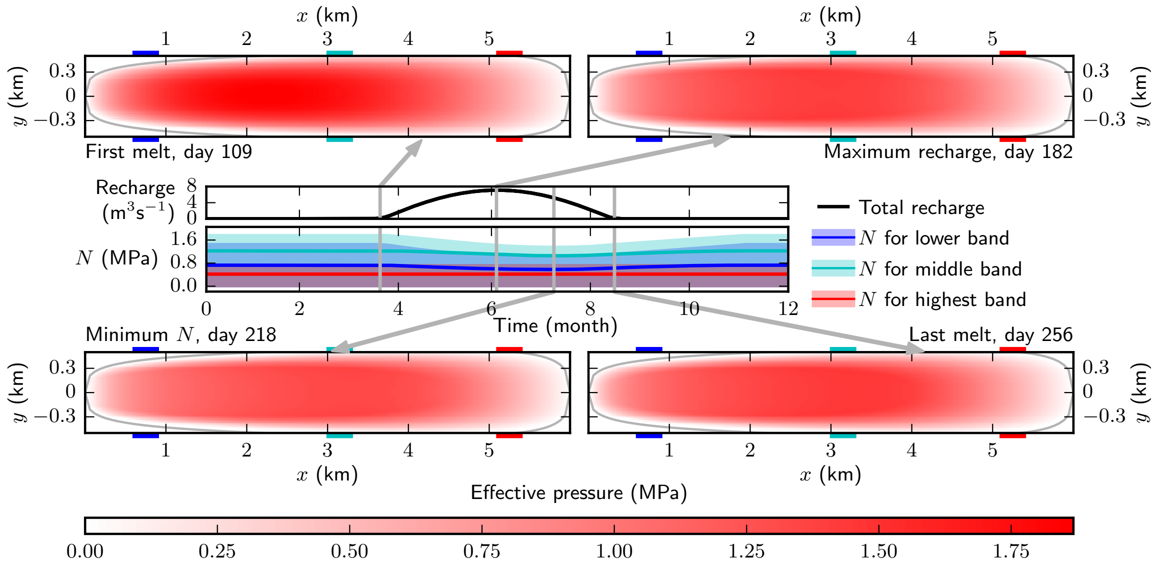

Figure S247: This is the result of run F4 for model *jsb* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

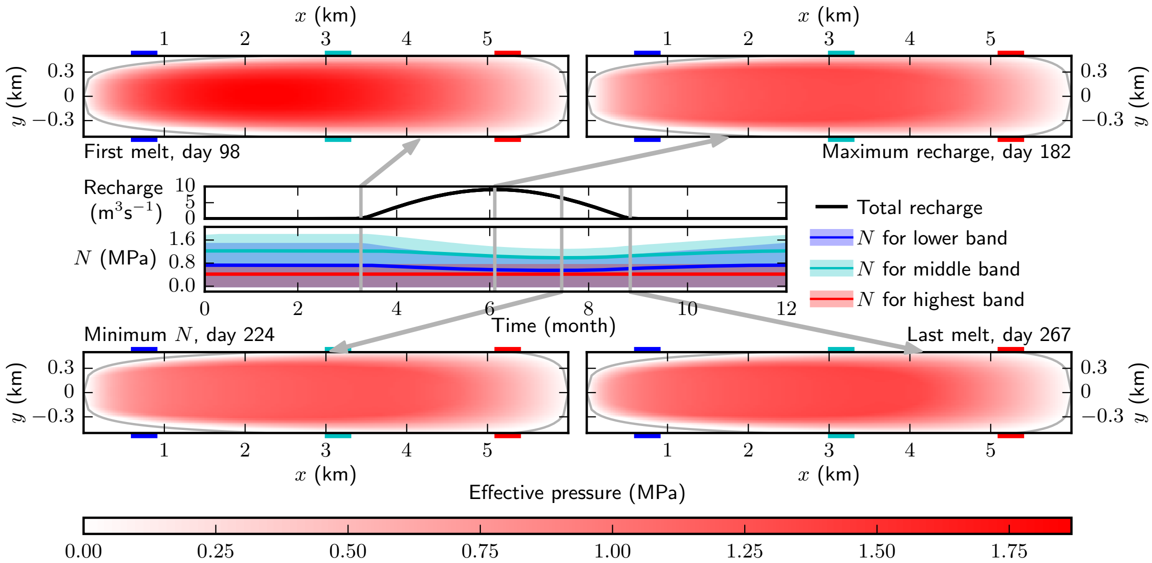

Figure S248: This is the result of run F5 for model *jsb* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

S2.2.10. Suite C model *as*

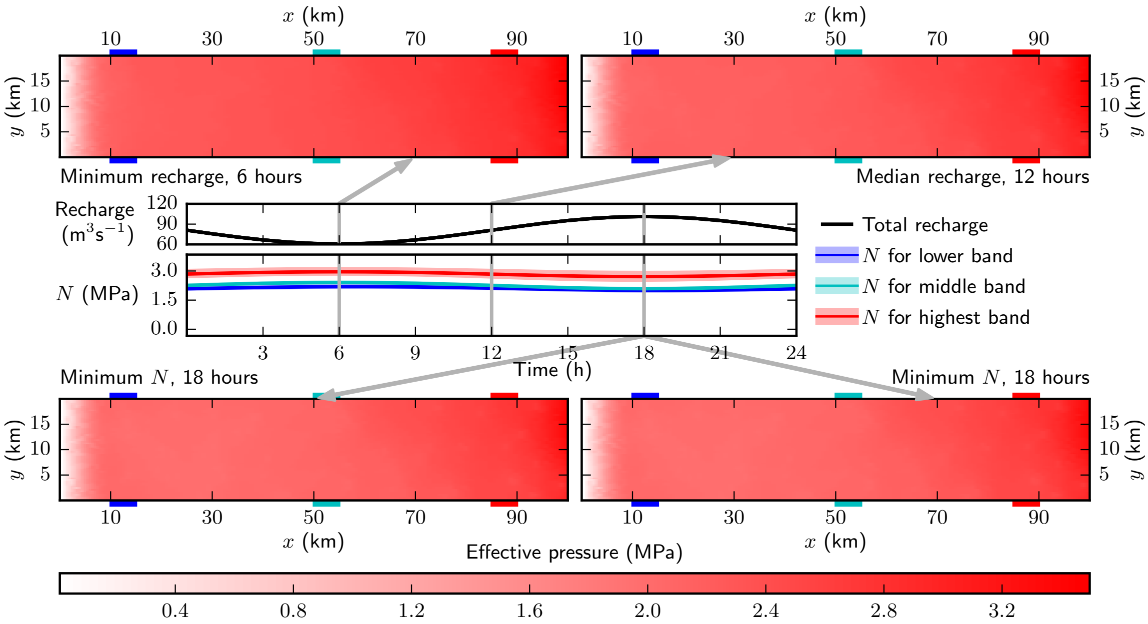

Figure S249: This is the result of run C1 for model *as* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

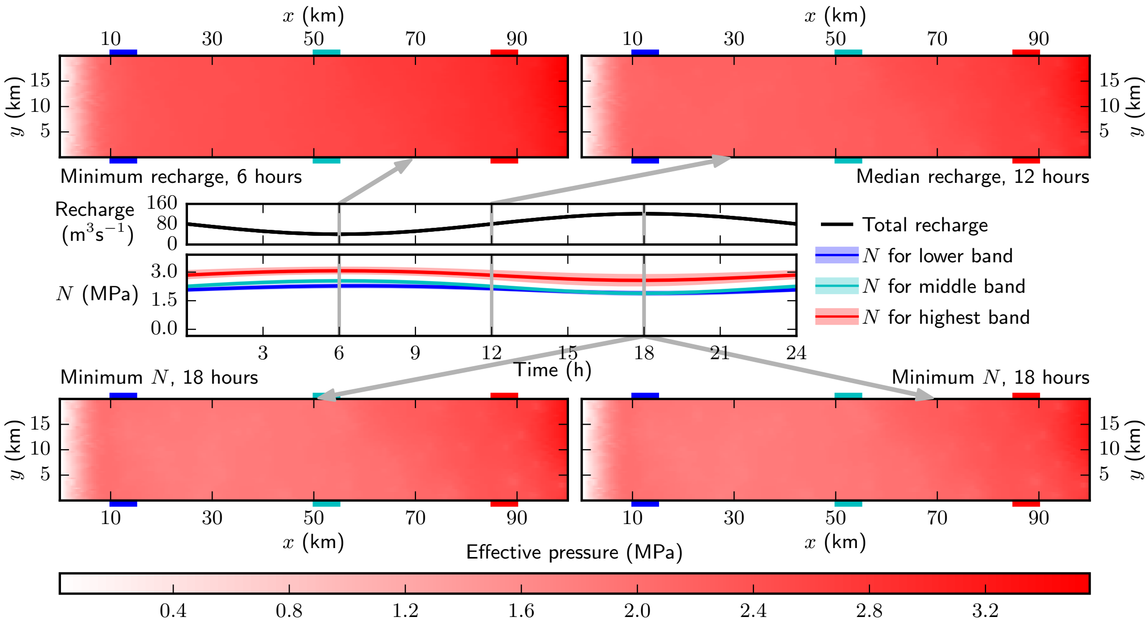

Figure S250: This is the result of run C2 for model *as* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

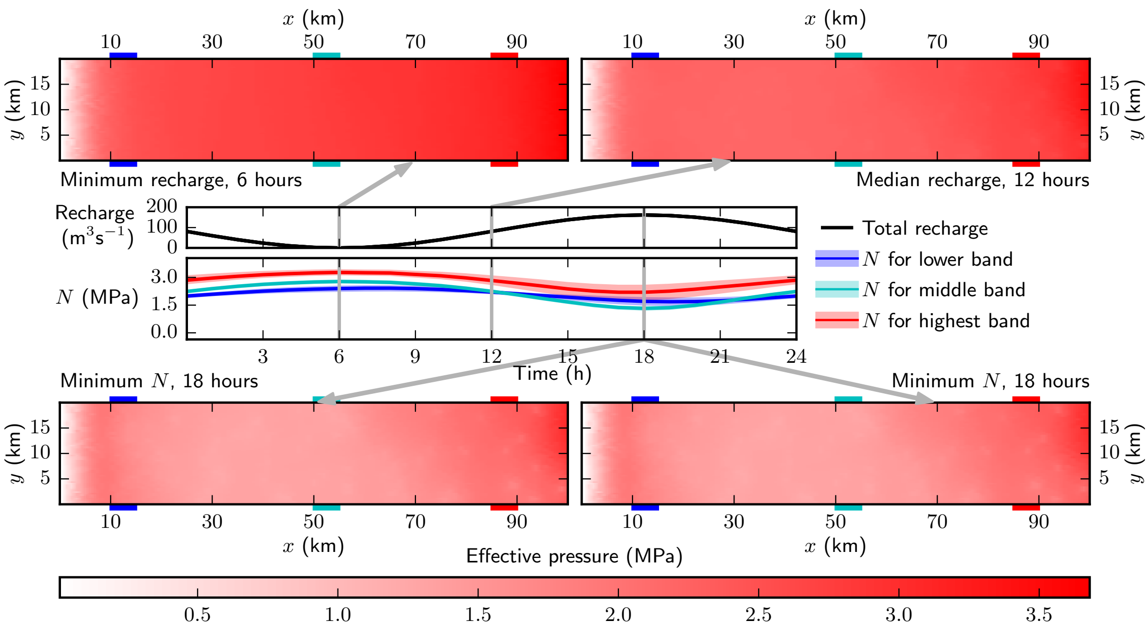

Figure S251: This is the result of run C3 for model *as* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

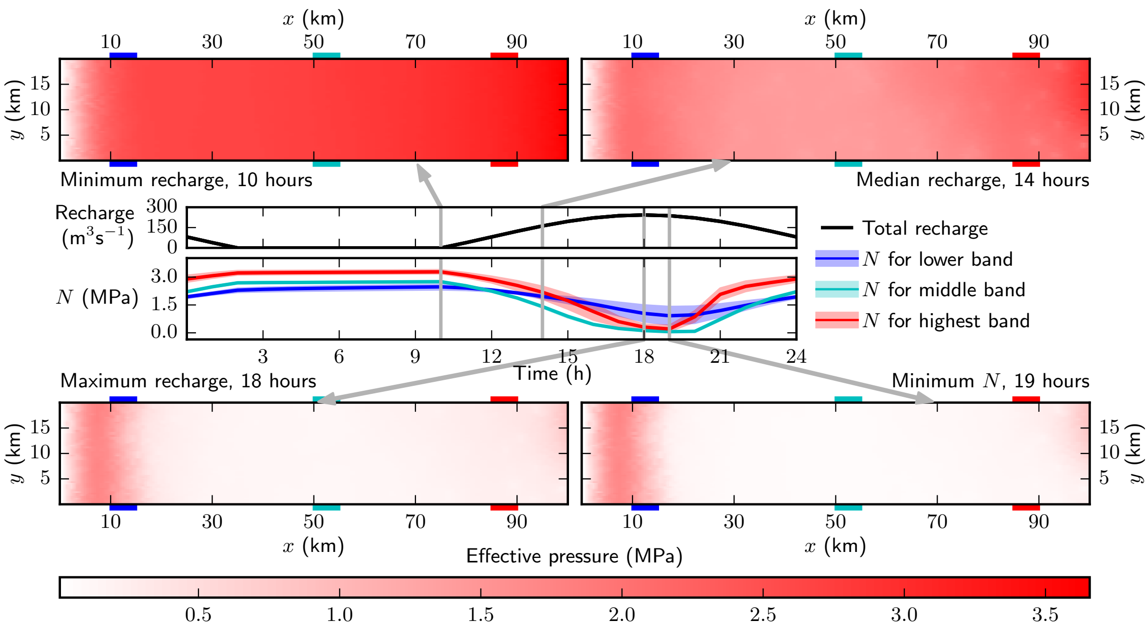

Figure S252: This is the result of run C4 for model *as* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

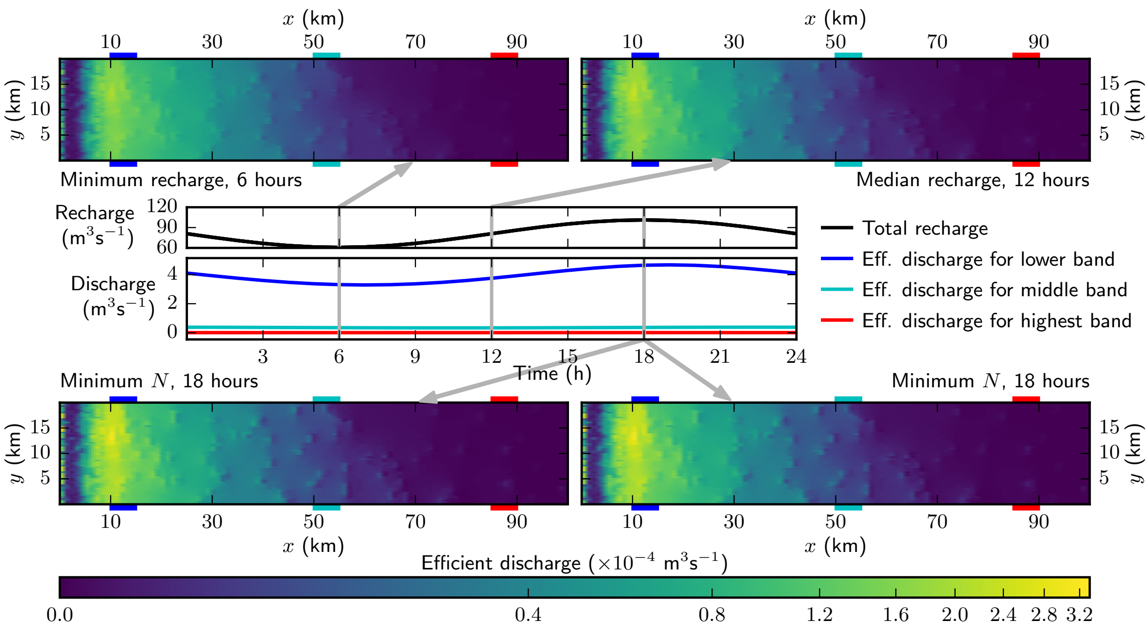

Figure S253: This is the result of run C1 for model *as* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

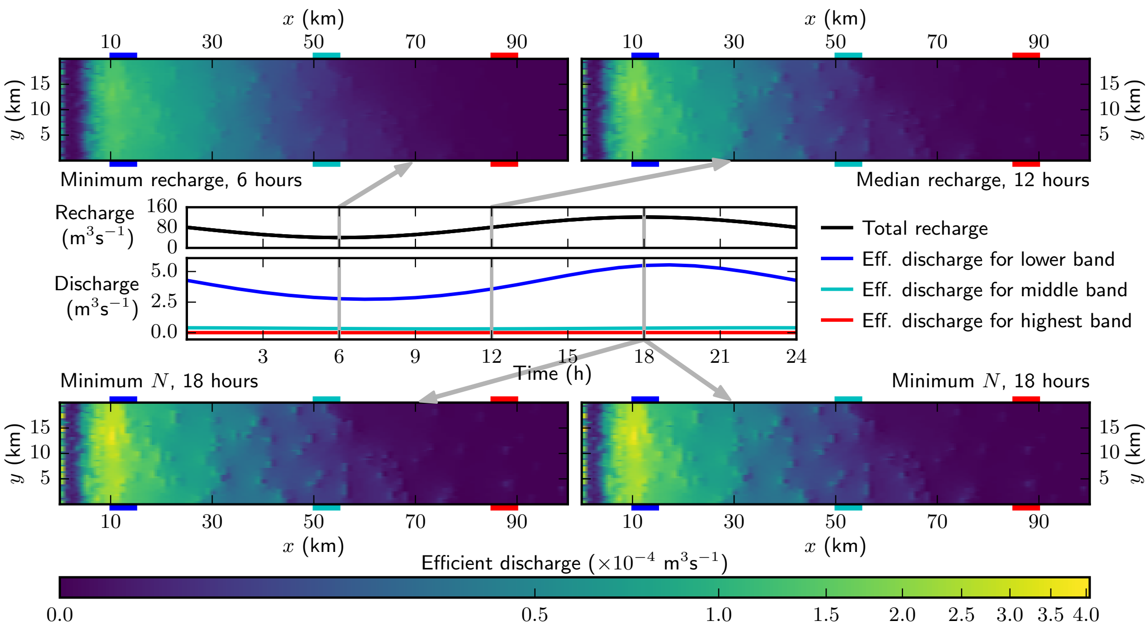

Figure S254: This is the result of run C2 for model *as* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

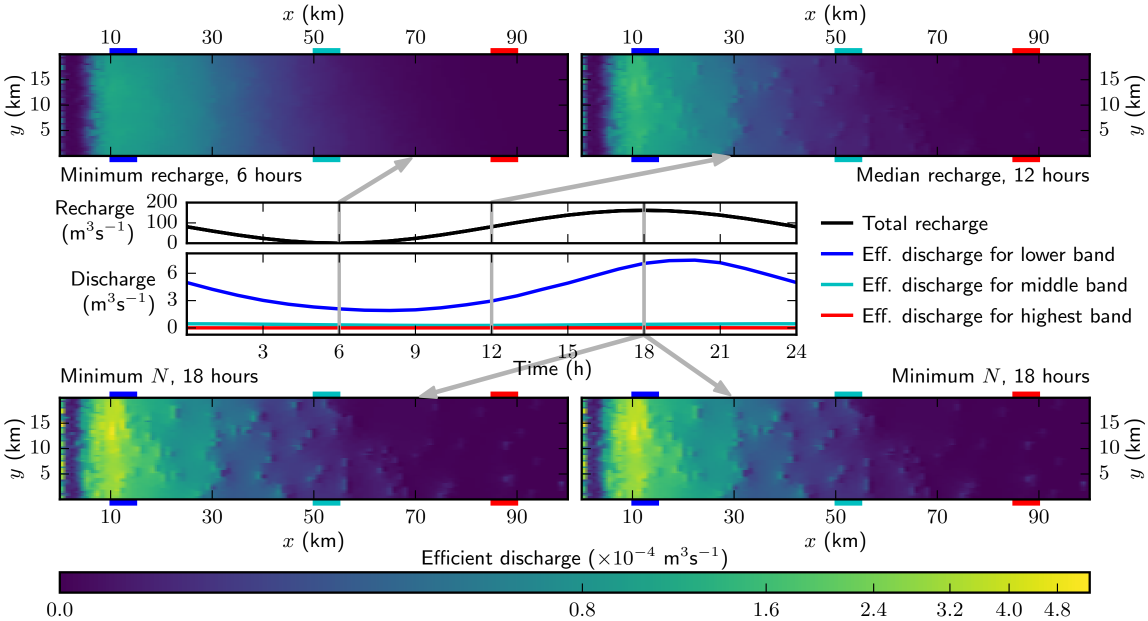

Figure S255: This is the result of run C3 for model *as* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

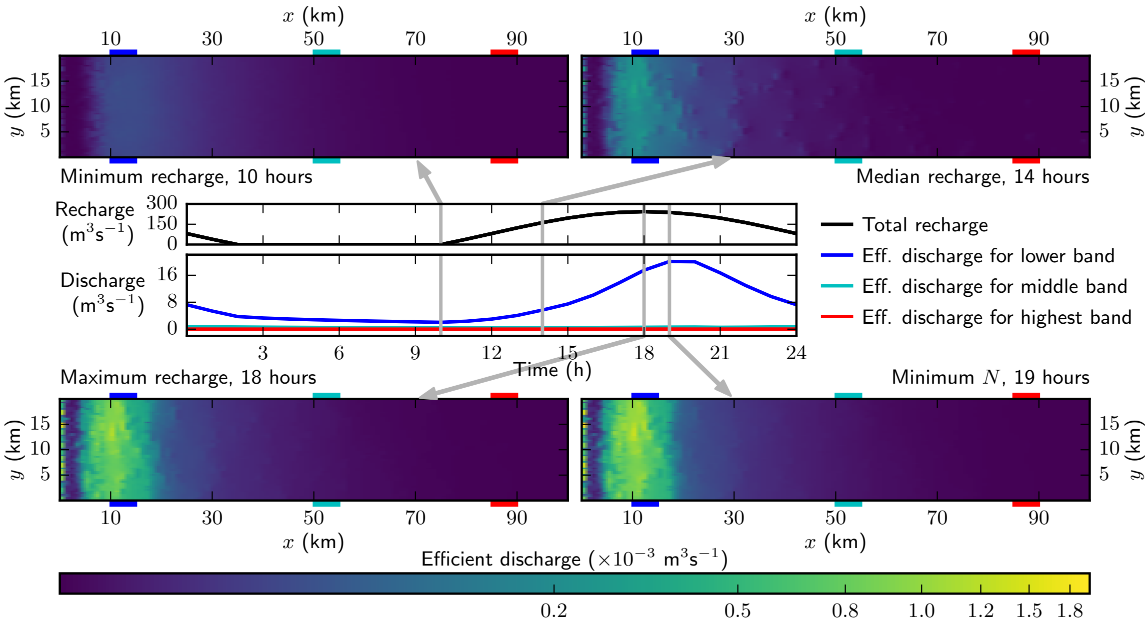

Figure S256: This is the result of run C4 for model *as* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

S2.2.11. Suite F model as

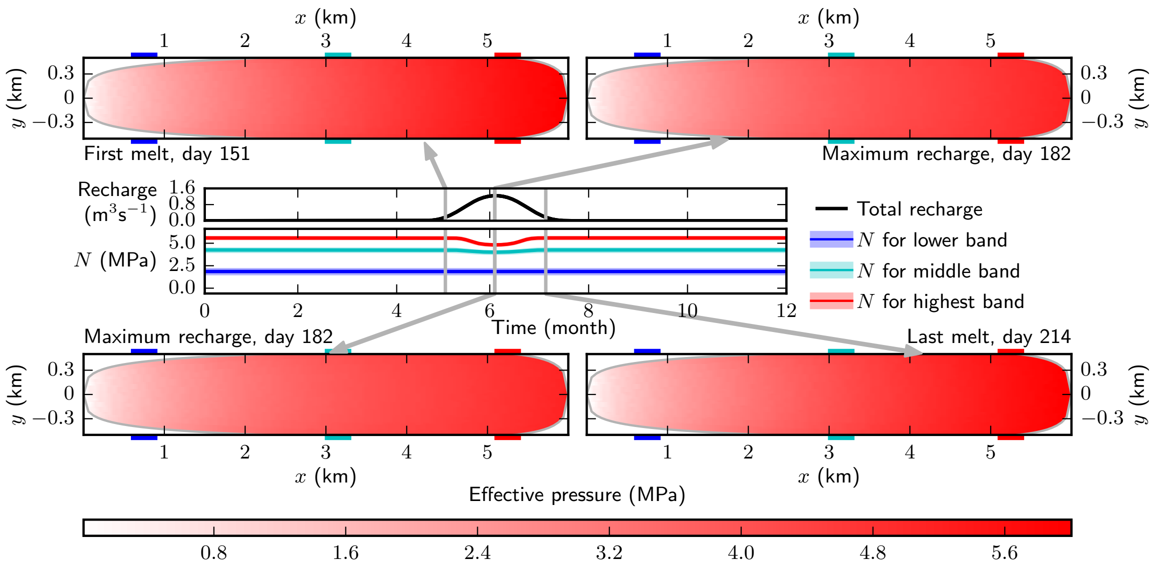

Figure S257: This is the result of run F1 for model as in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

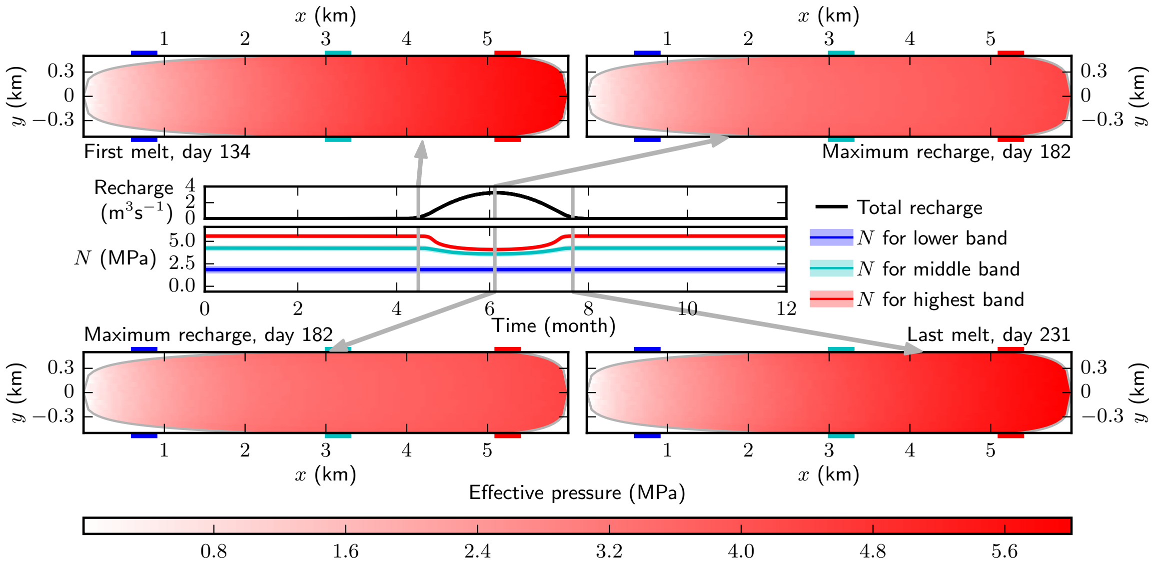

Figure S258: This is the result of run F2 for model *as* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

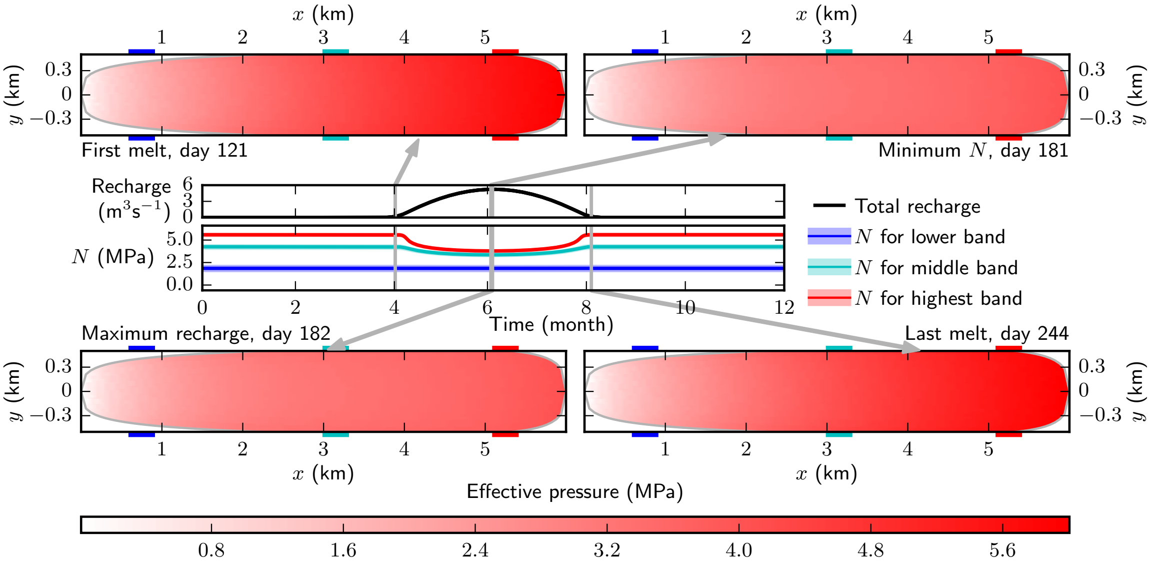

Figure S259: This is the result of run F3 for model *as* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

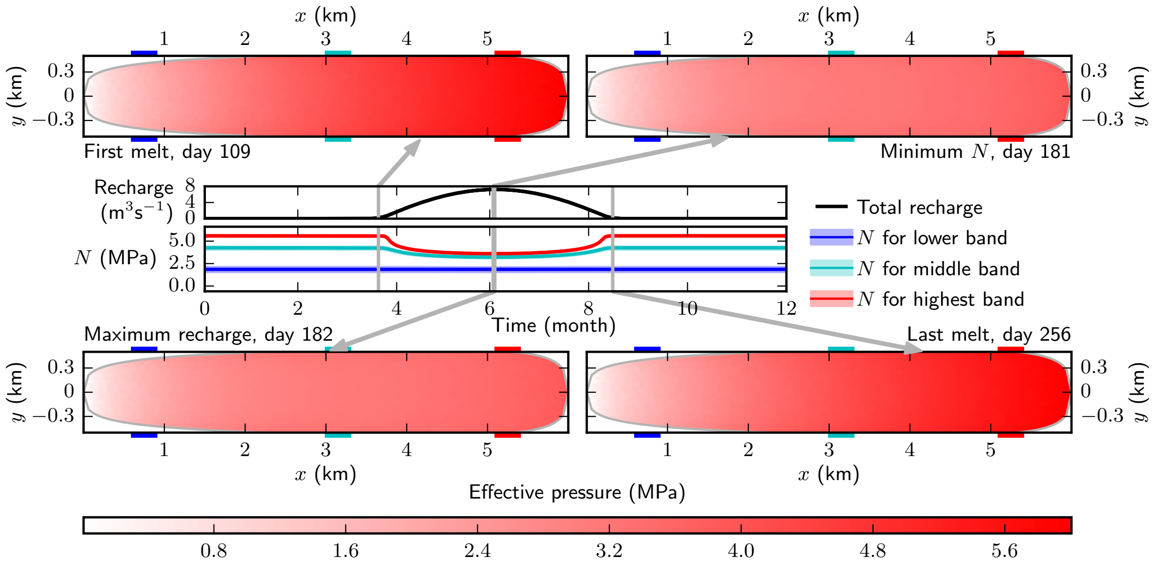

Figure S260: This is the result of run F4 for model *as* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

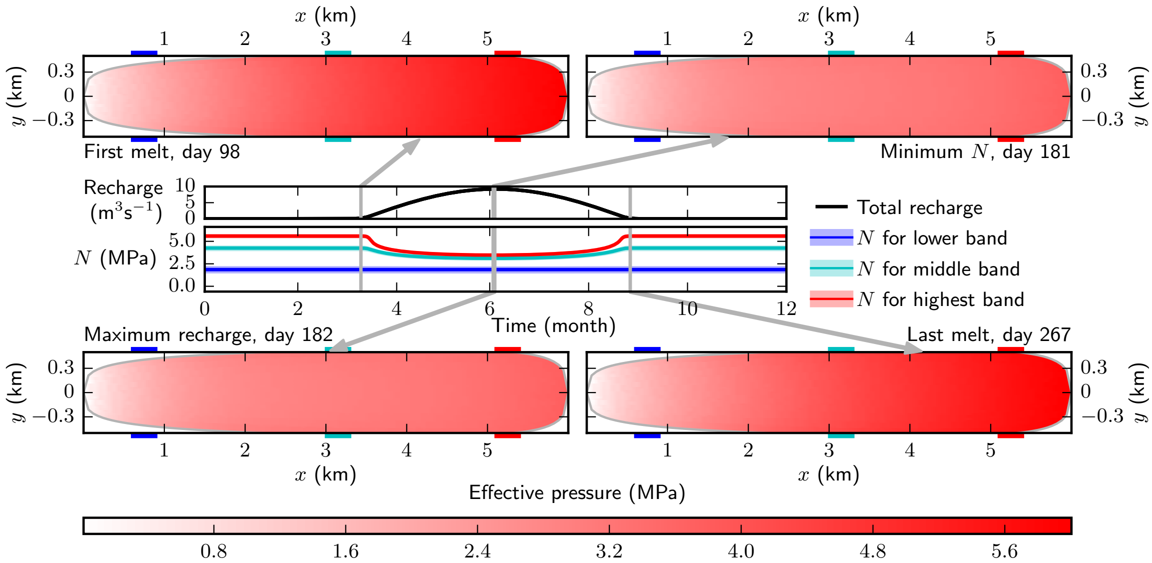

Figure S261: This is the result of run F5 for model *as* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

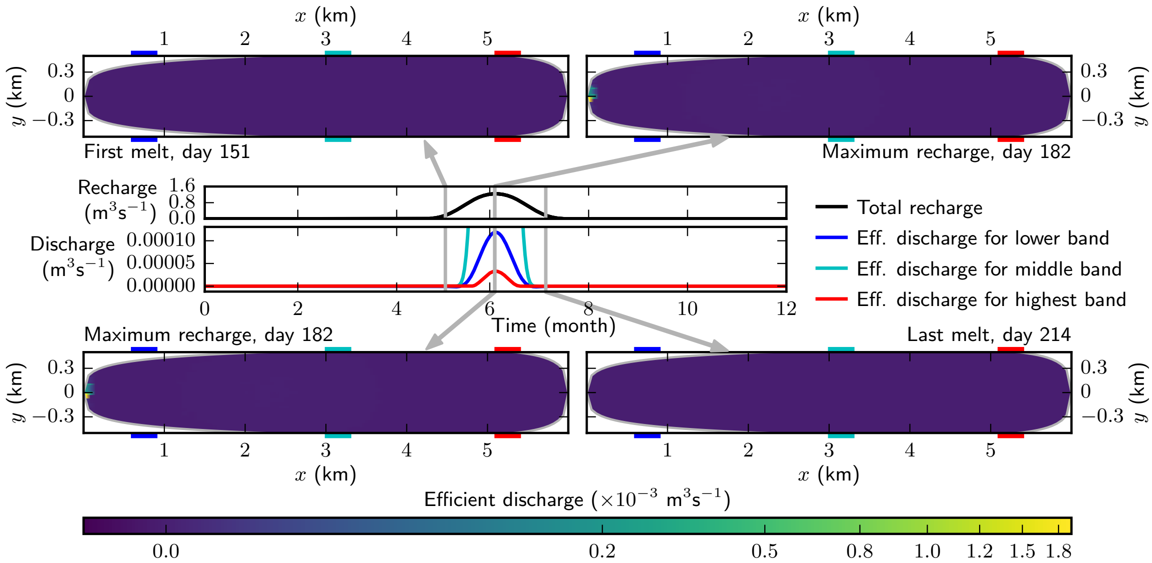

Figure S262: This is the result of run F1 for model *as* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

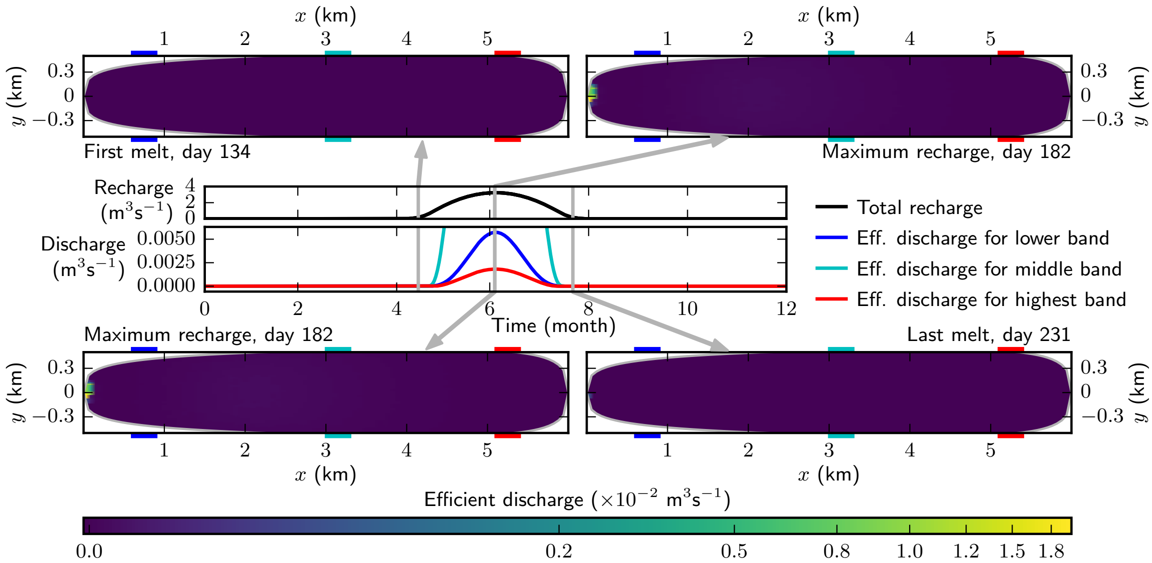

Figure S263: This is the result of run F2 for model *as* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

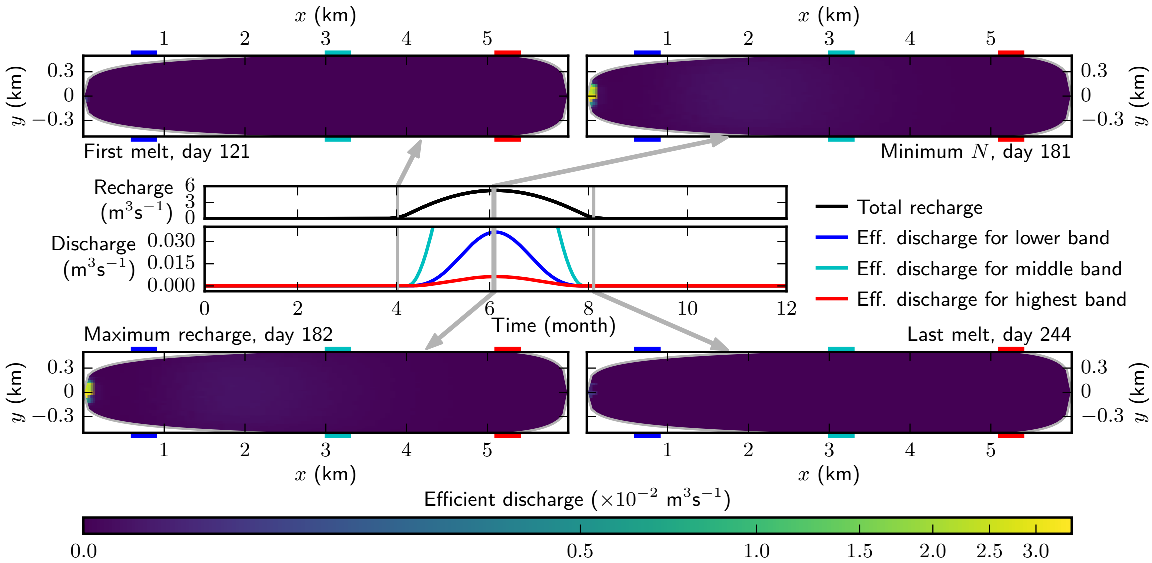

Figure S264: This is the result of run F3 for model *as* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

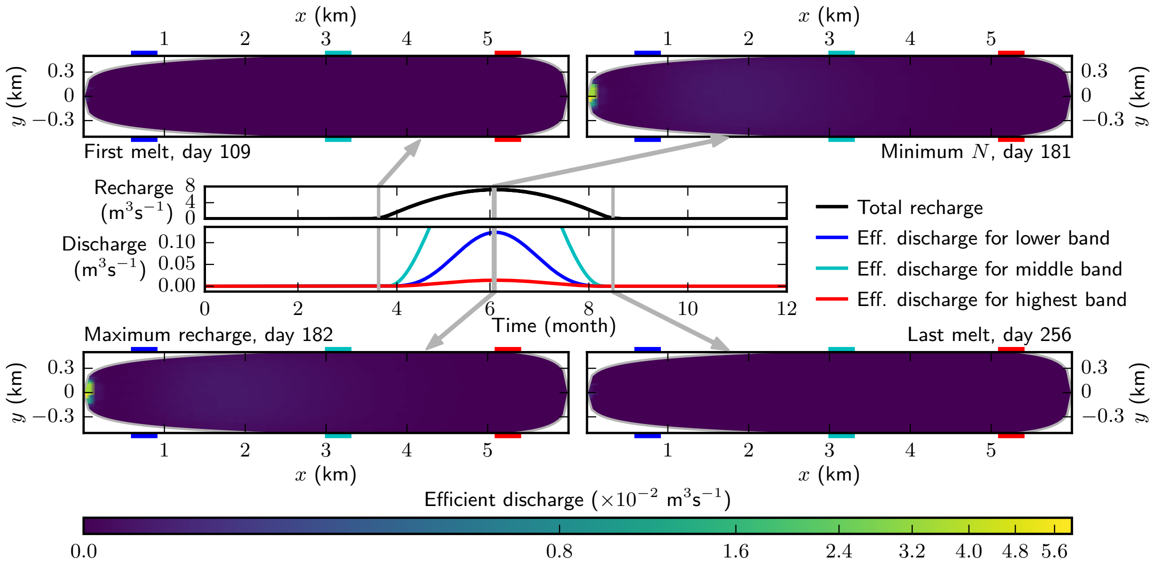

Figure S265: This is the result of run F4 for model *as* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

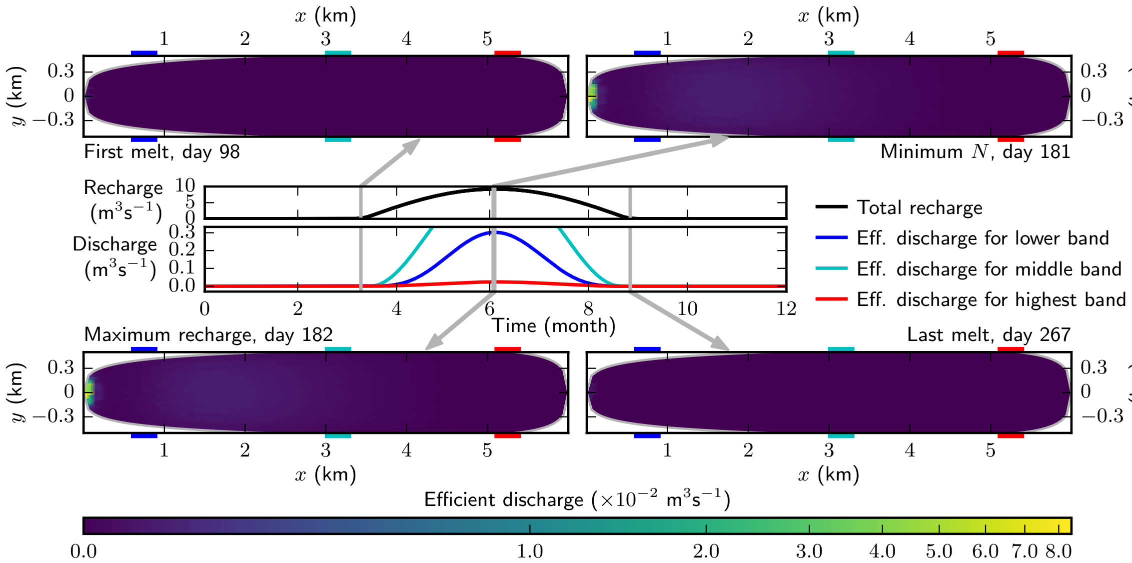

Figure S266: This is the result of run F5 for model *as* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

S2.2.12. Suite C model *sb*

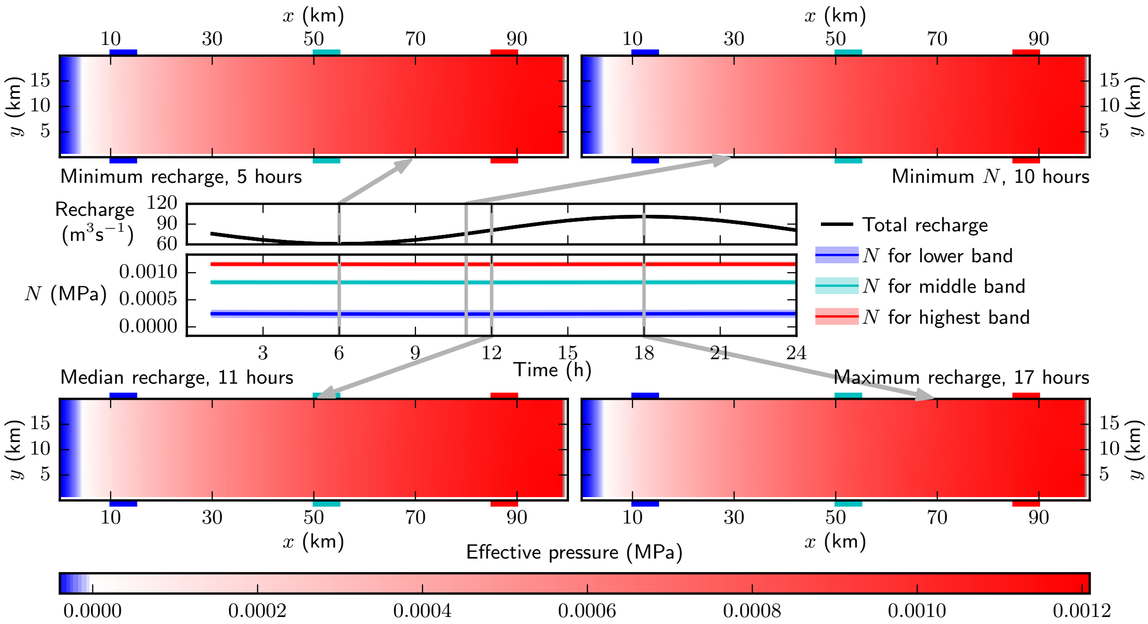

Figure S267: This is the result of run C1 for model *sb* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

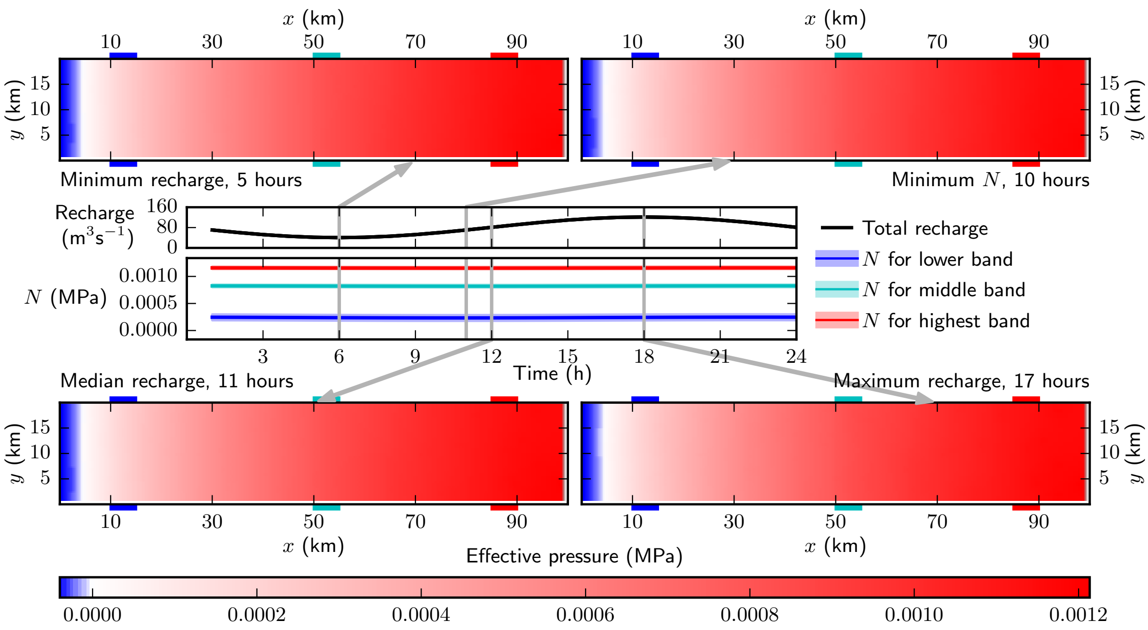

Figure S268: This is the result of run C2 for model *sb* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

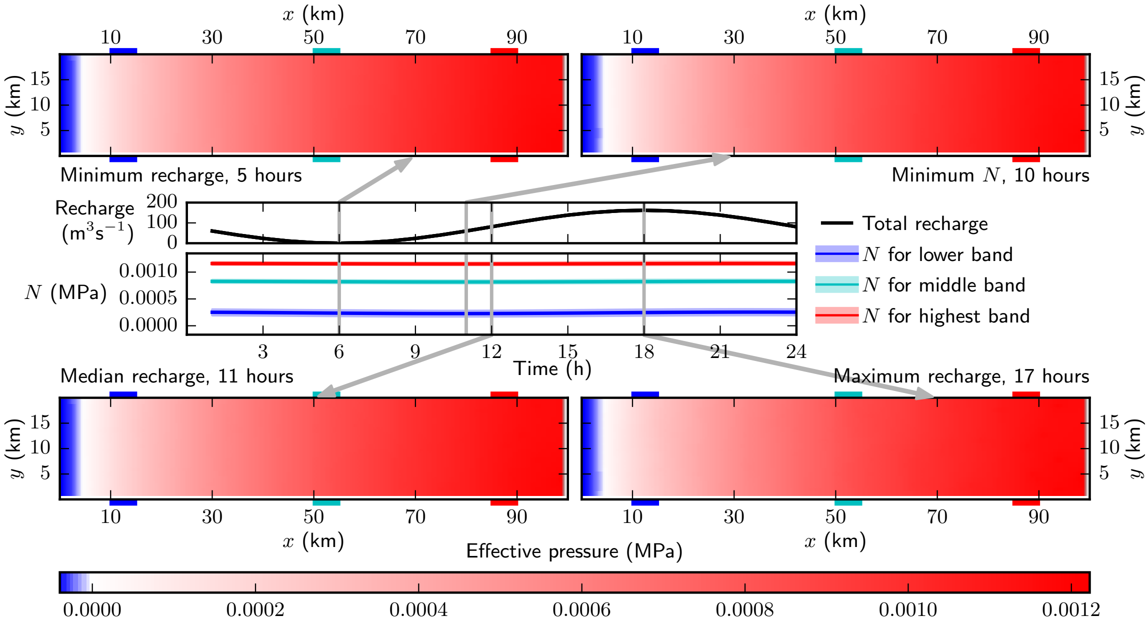

Figure S269: This is the result of run C3 for model *sb* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

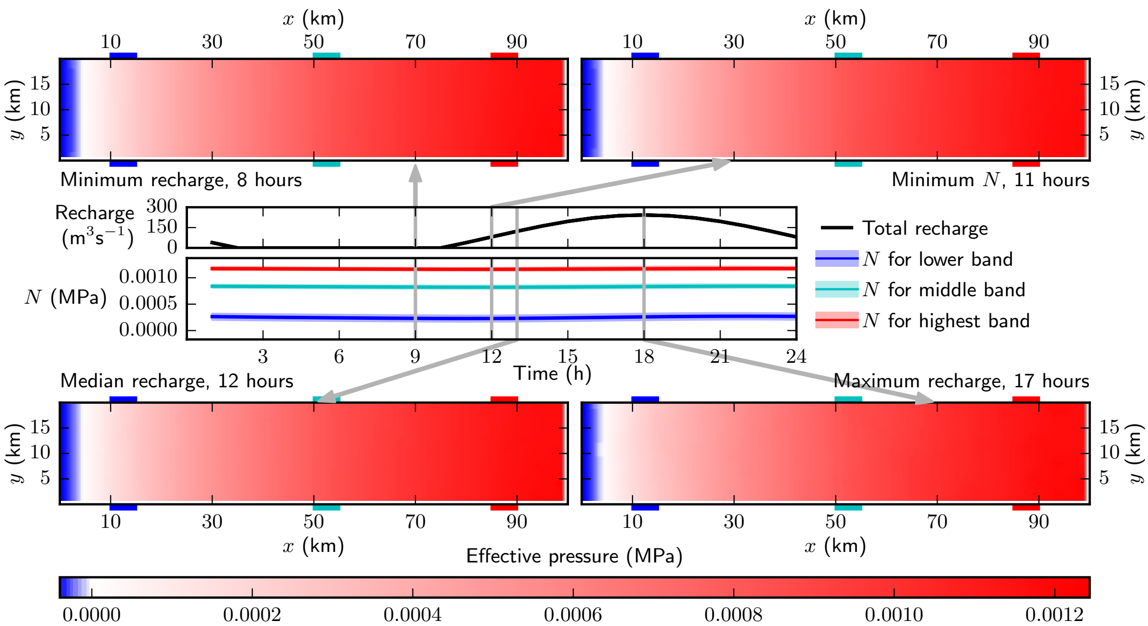

Figure S270: This is the result of run C4 for model *sb* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

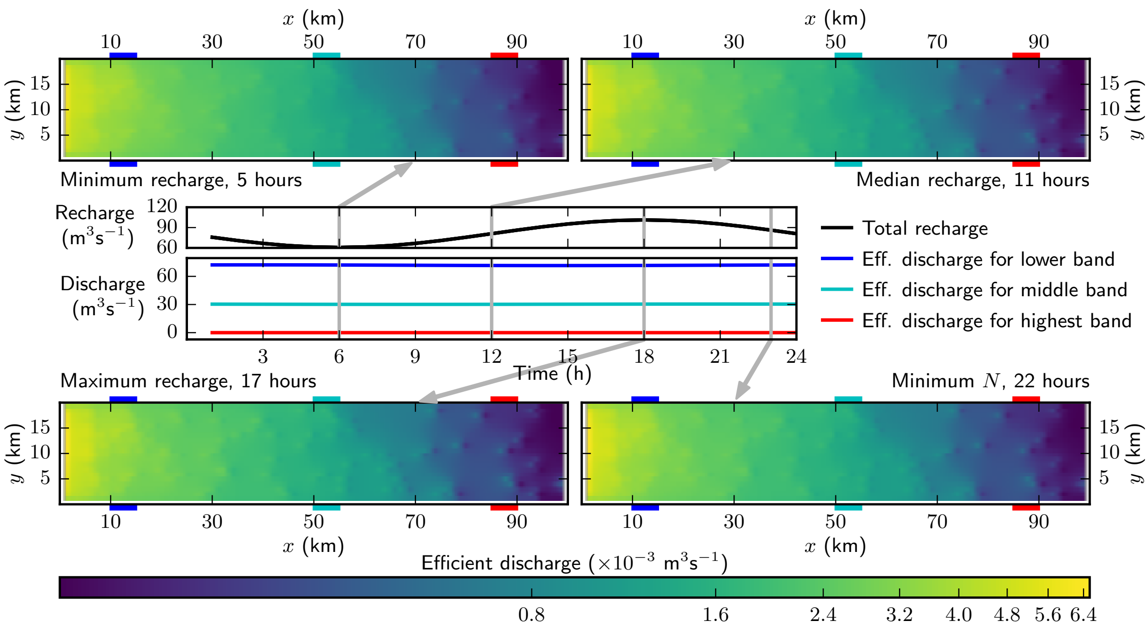

Figure S271: This is the result of run C1 for model *sb* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

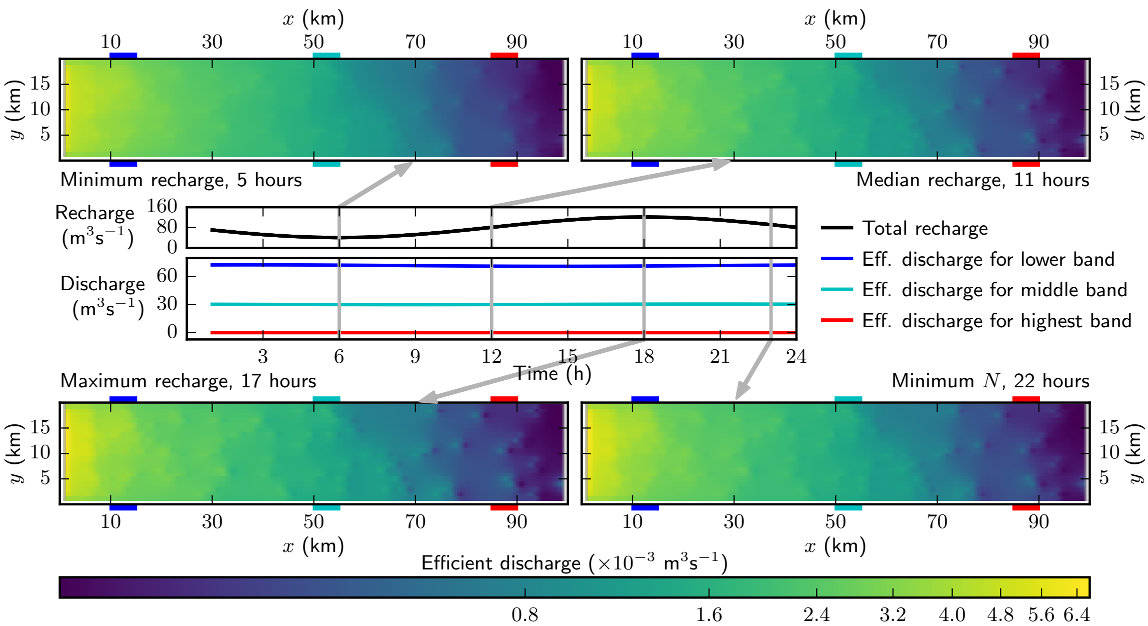

Figure S272: This is the result of run C2 for model *sb* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

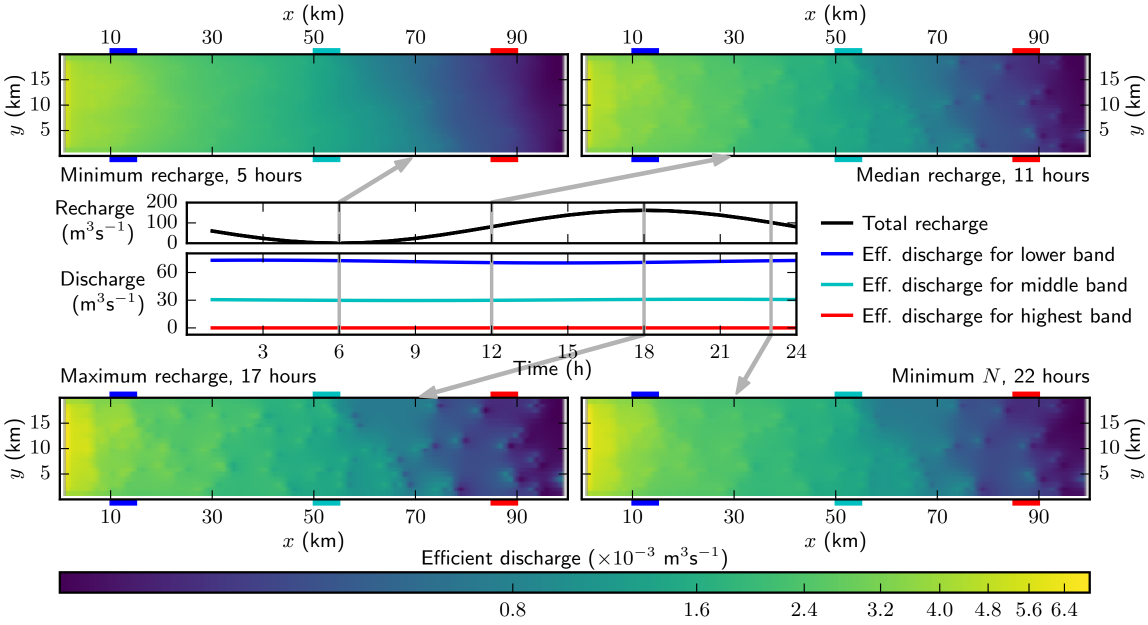

Figure S273: This is the result of run C3 for model *sb* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

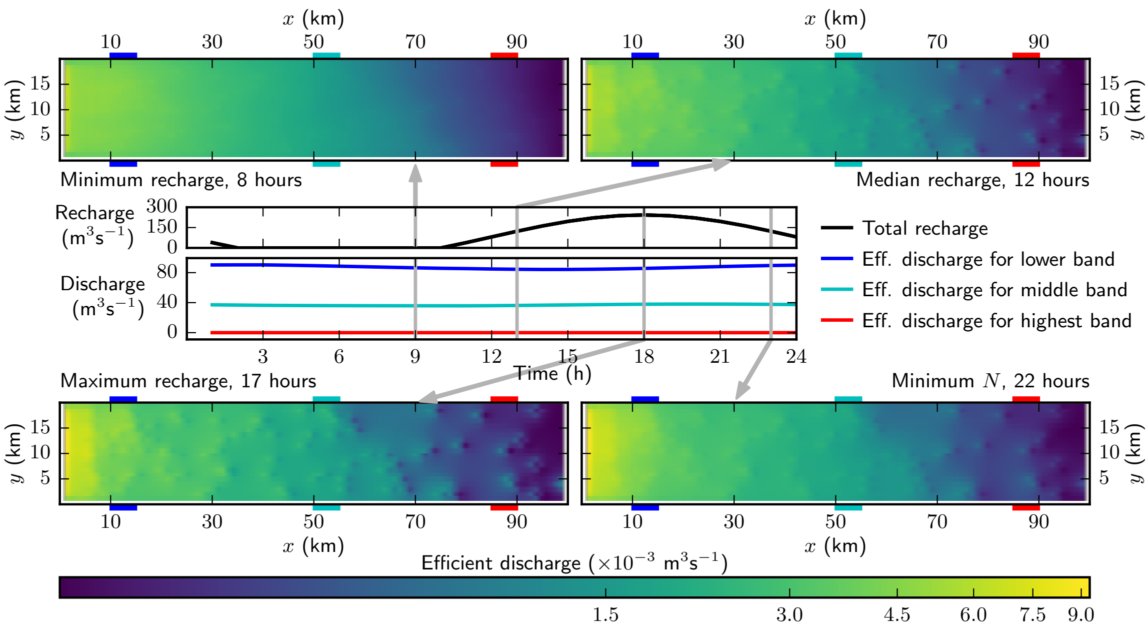

Figure S274: This is the result of run C4 for model *sb* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

S2.2.13. Suite D model *sb*

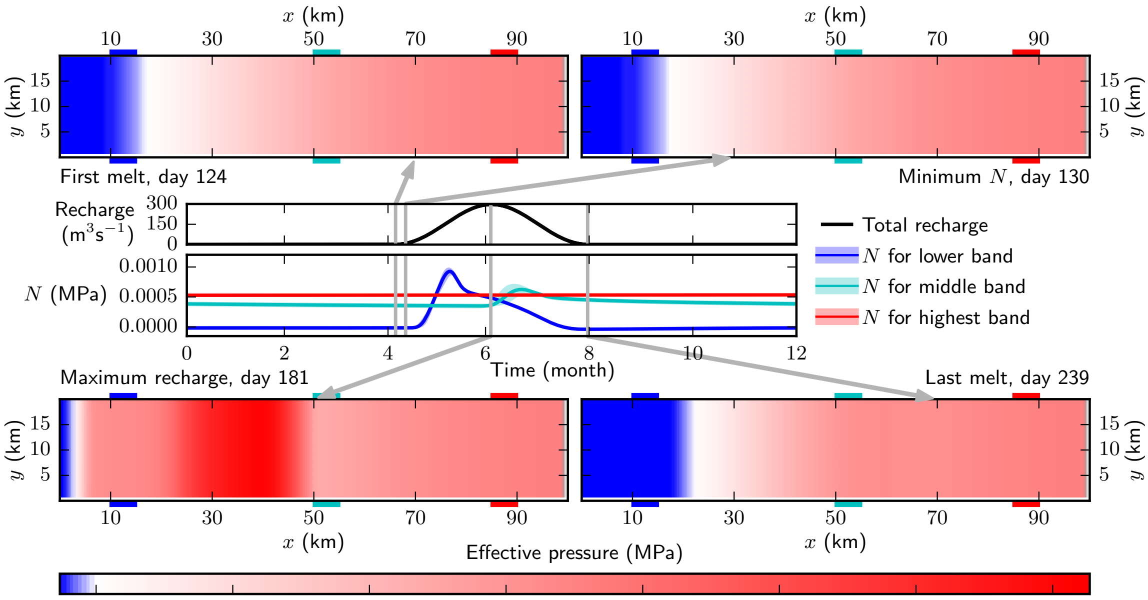

Figure S275: This is the result of run D1 for model *sb* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

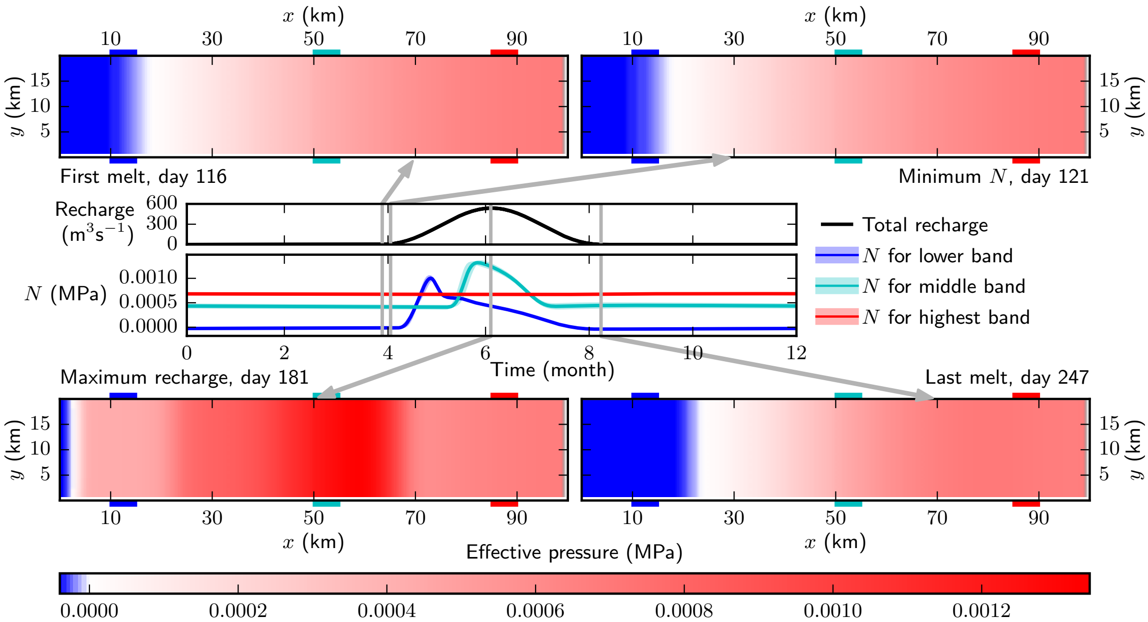

Figure S276: This is the result of run D2 for model *sb* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

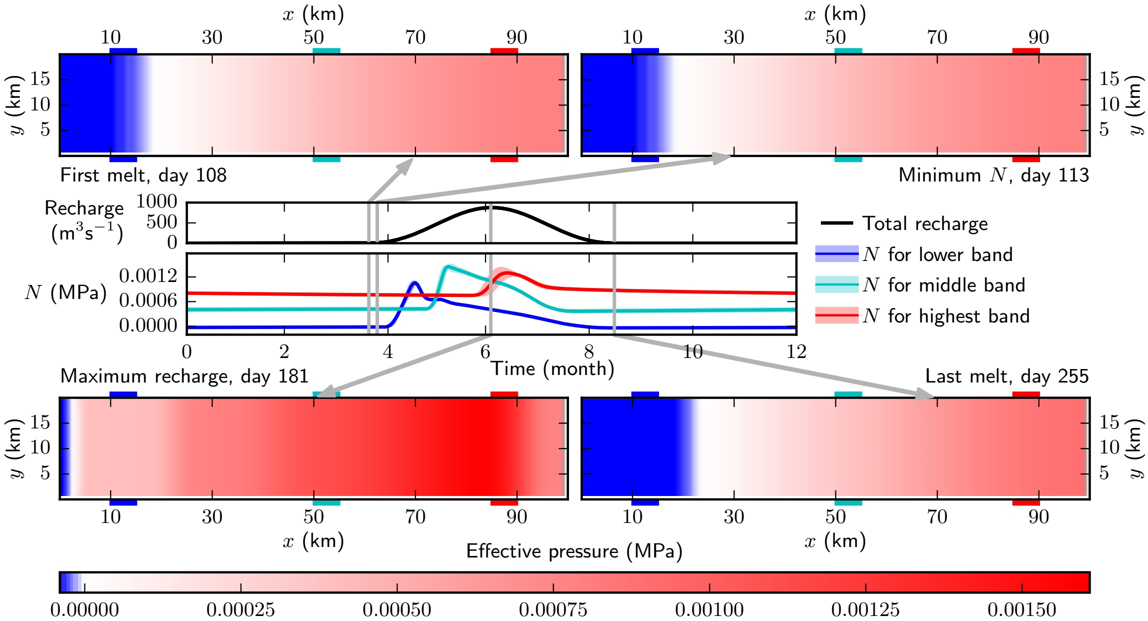

Figure S277: This is the result of run D3 for model *sb* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

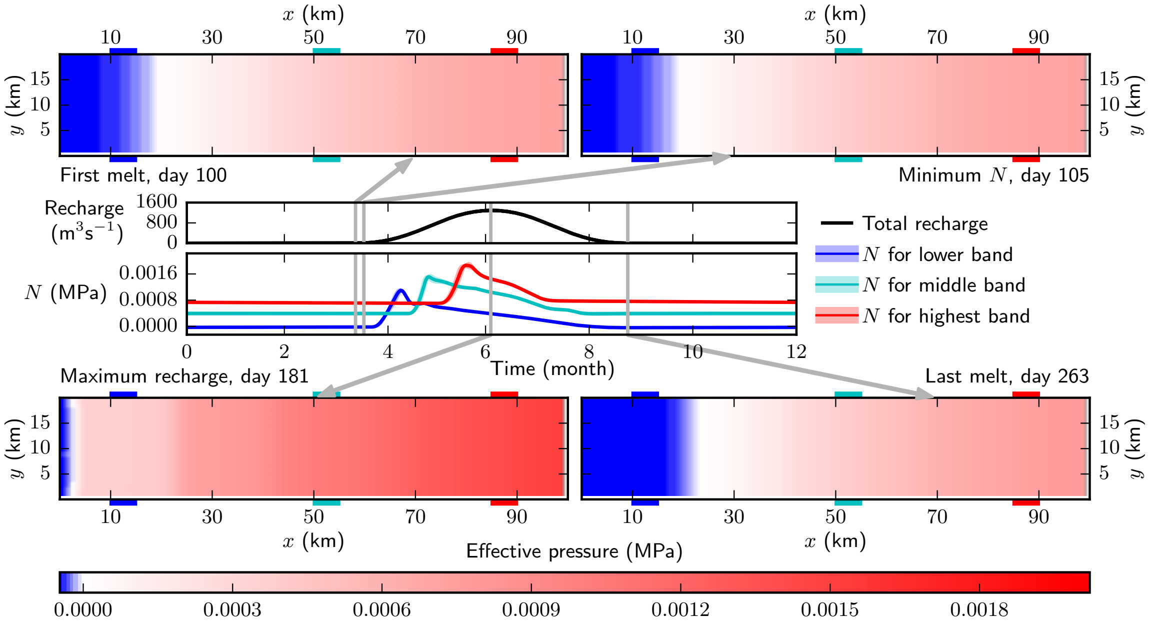

Figure S278: This is the result of run D4 for model *sb* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

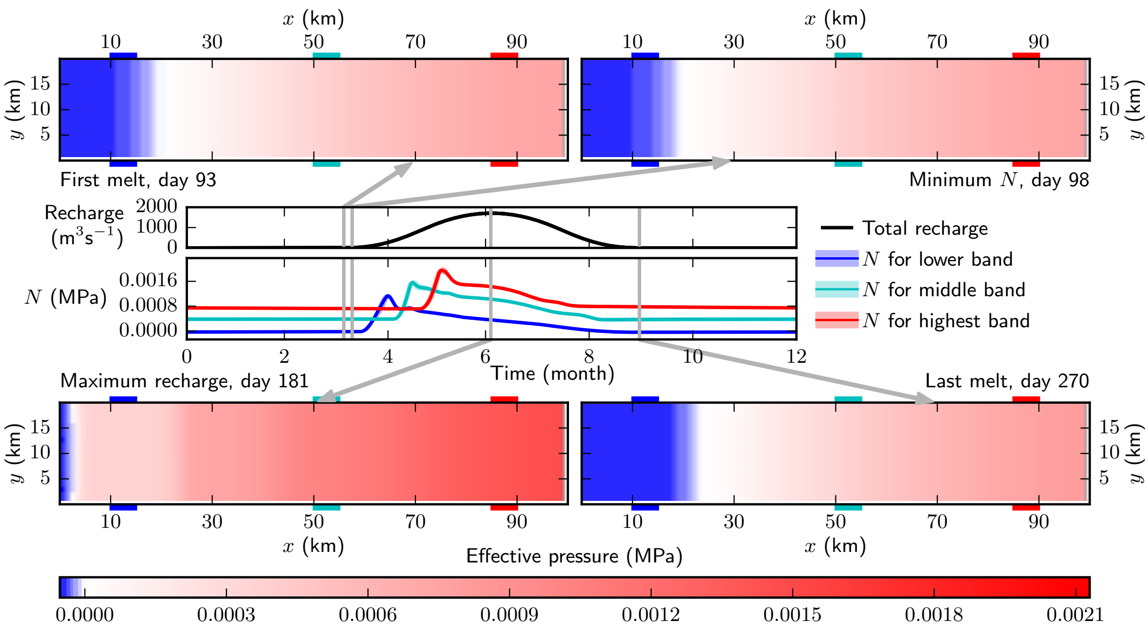

Figure S279: This is the result of run D5 for model *sb* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

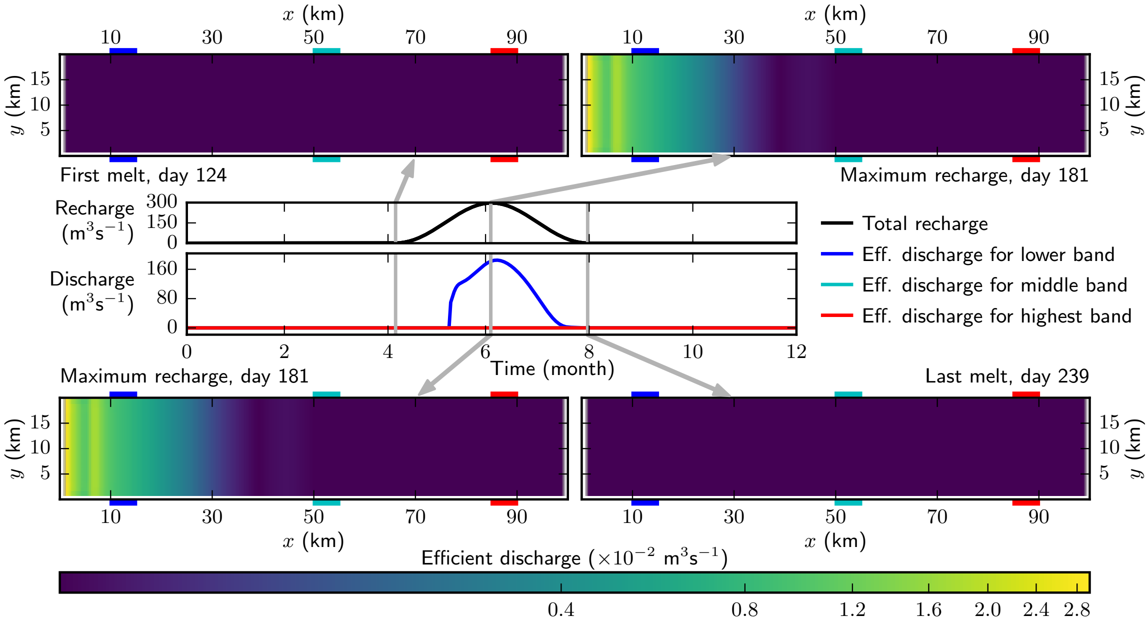

Figure S280: This is the result of run D1 for model *sb* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

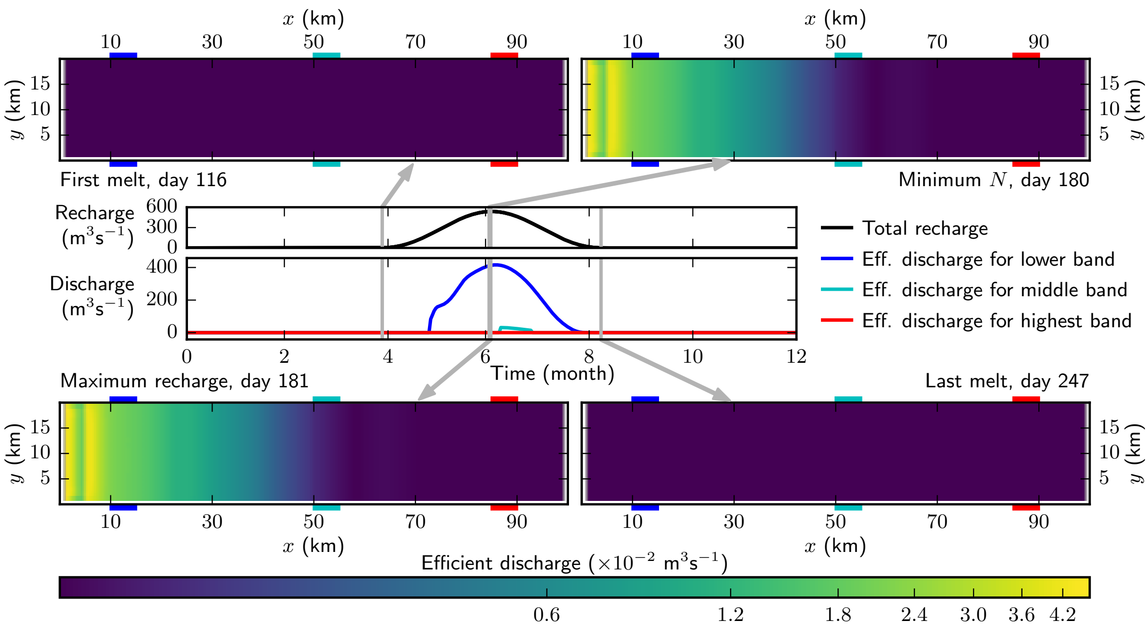

Figure S281: This is the result of run D2 for model *sb* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

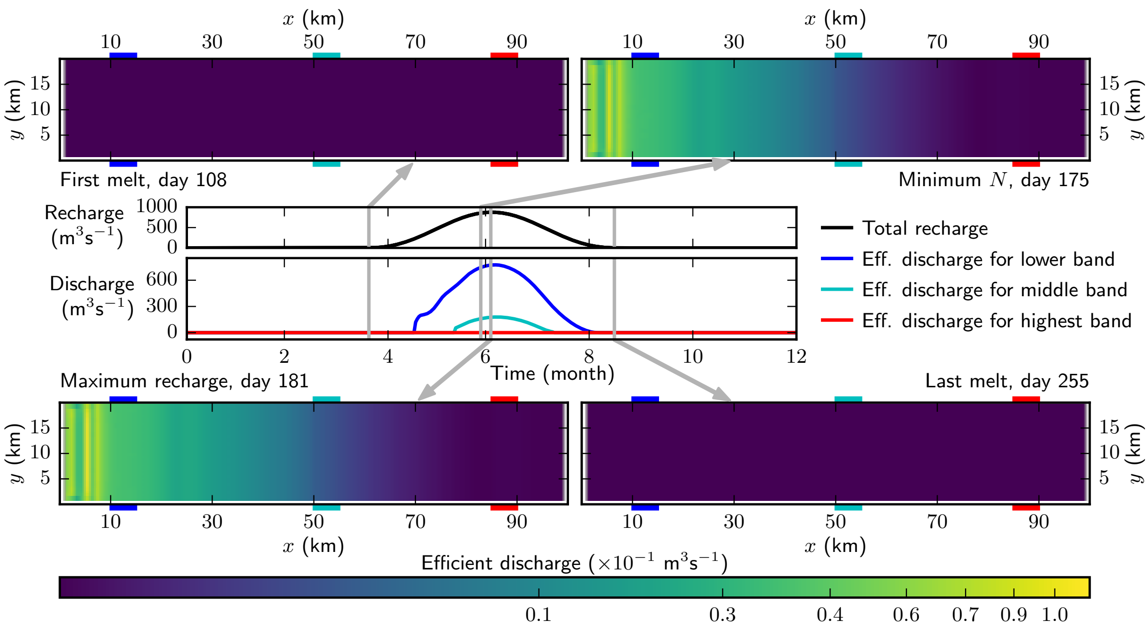

Figure S282: This is the result of run D3 for model *sb* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

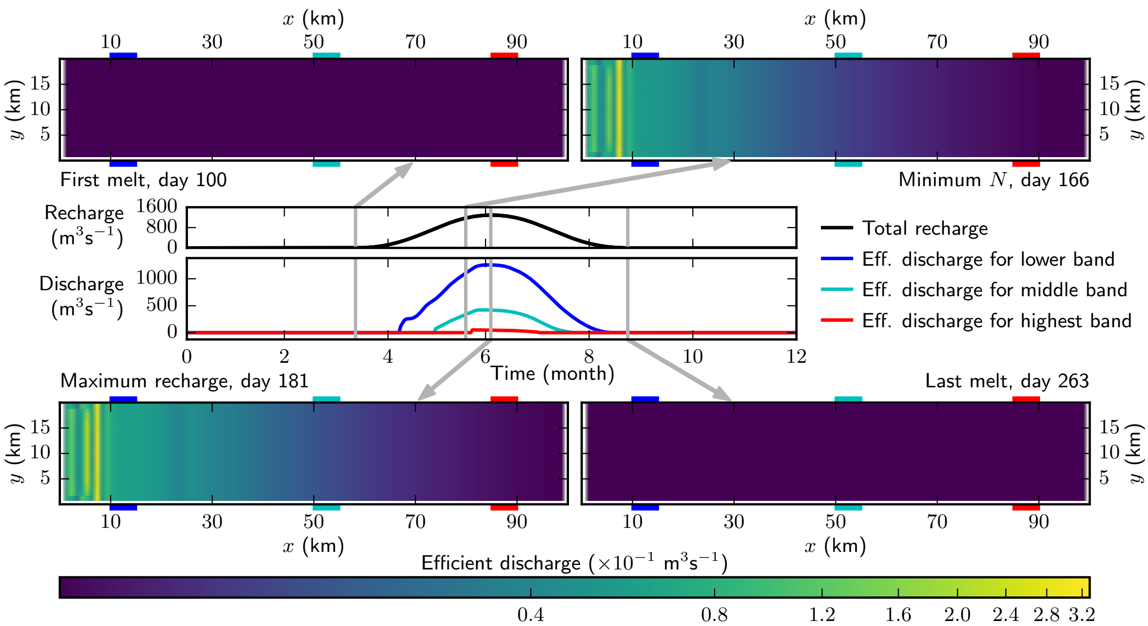

Figure S283: This is the result of run D4 for model *sb* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

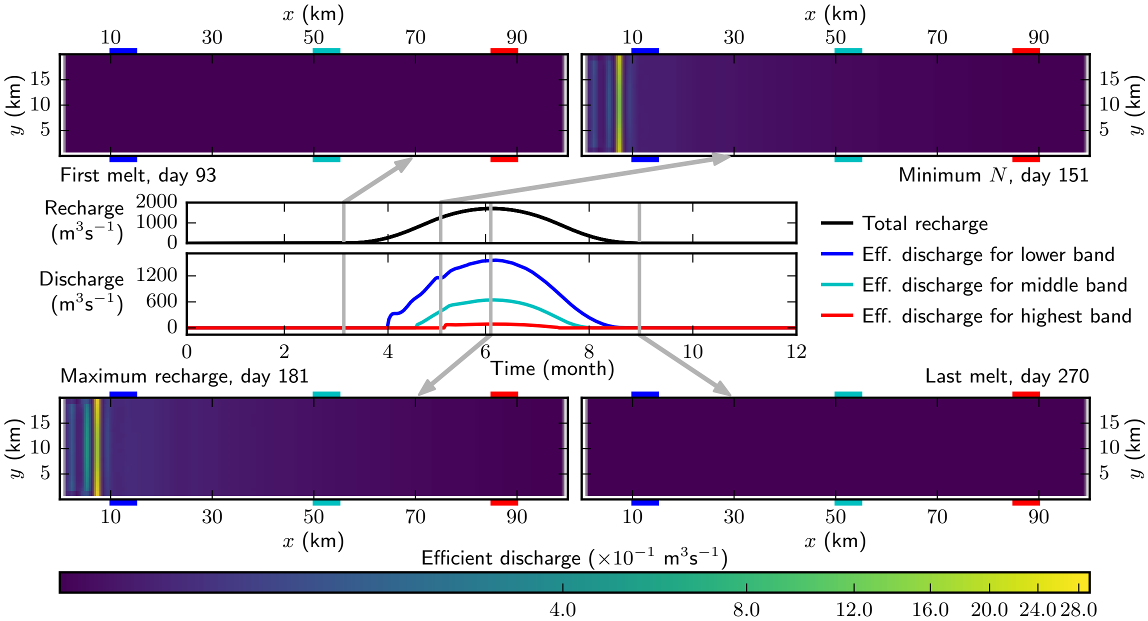

Figure S284: This is the result of run D5 for model *sb* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

S2.2.14. Suite C model bf

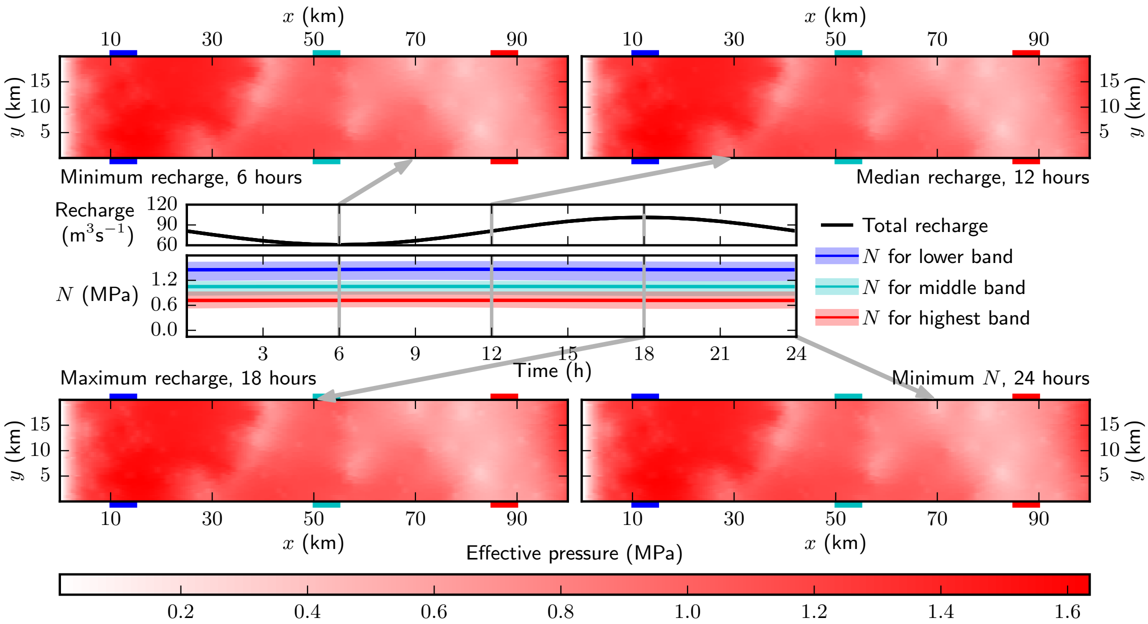

Figure S285: This is the result of run C1 for model bf in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

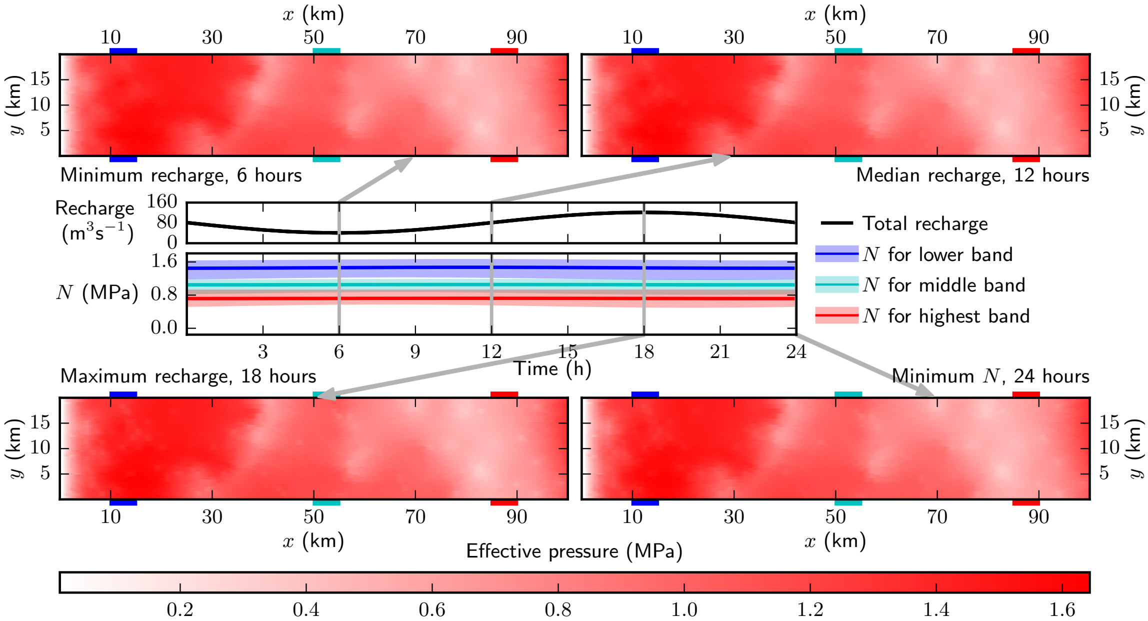

Figure S286: This is the result of run C2 for model bf in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

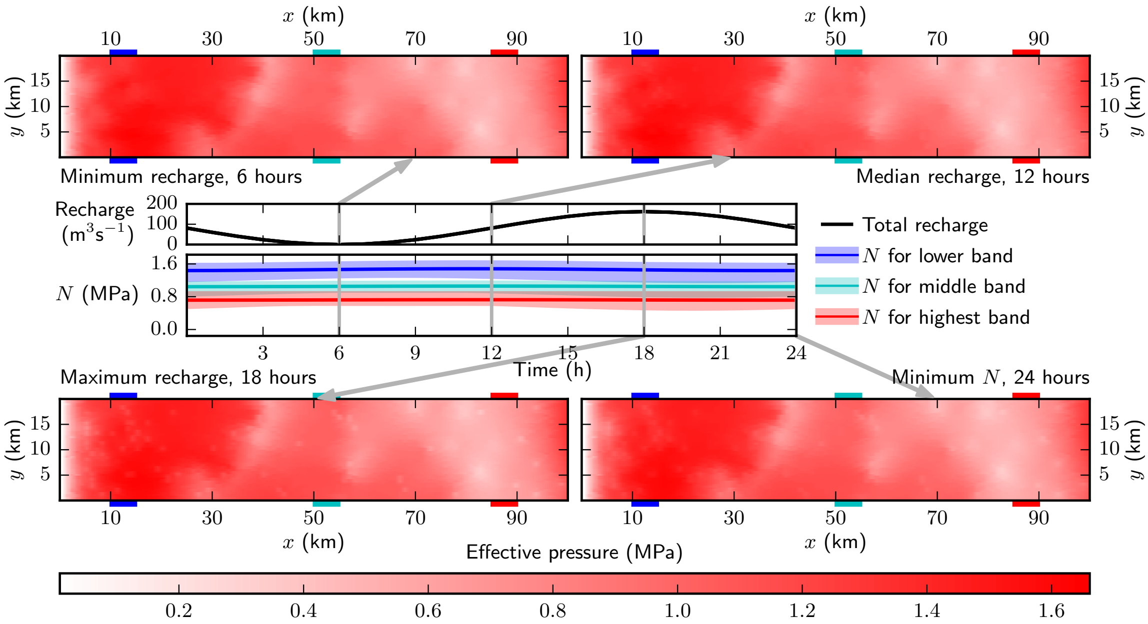

Figure S287: This is the result of run C3 for model bf in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

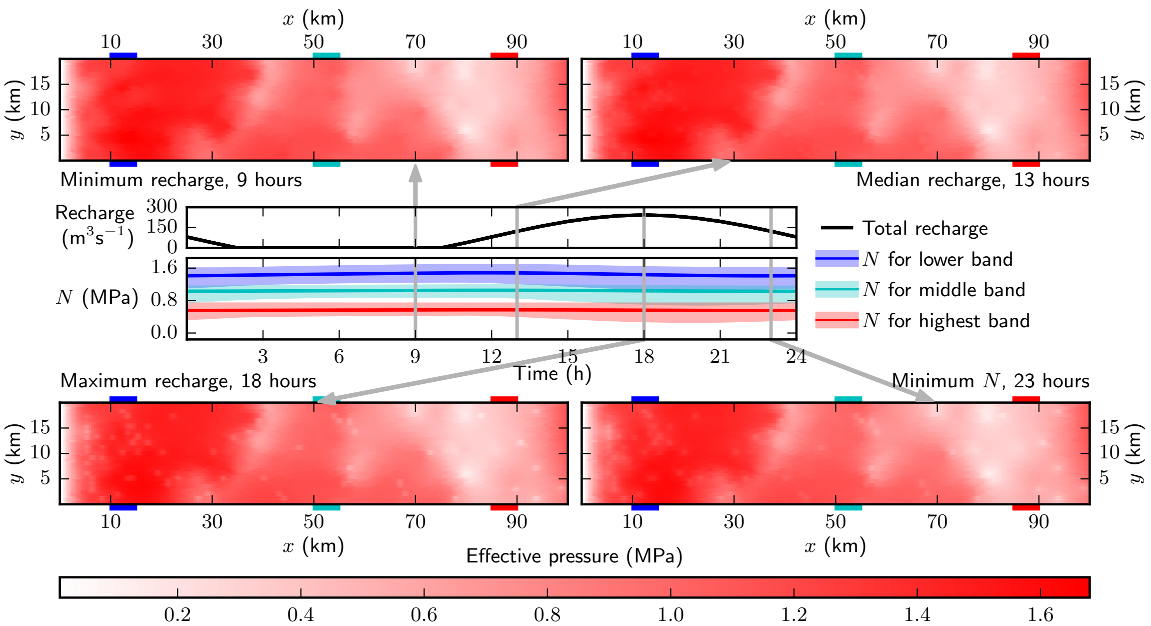

Figure S288: This is the result of run C4 for model bf in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

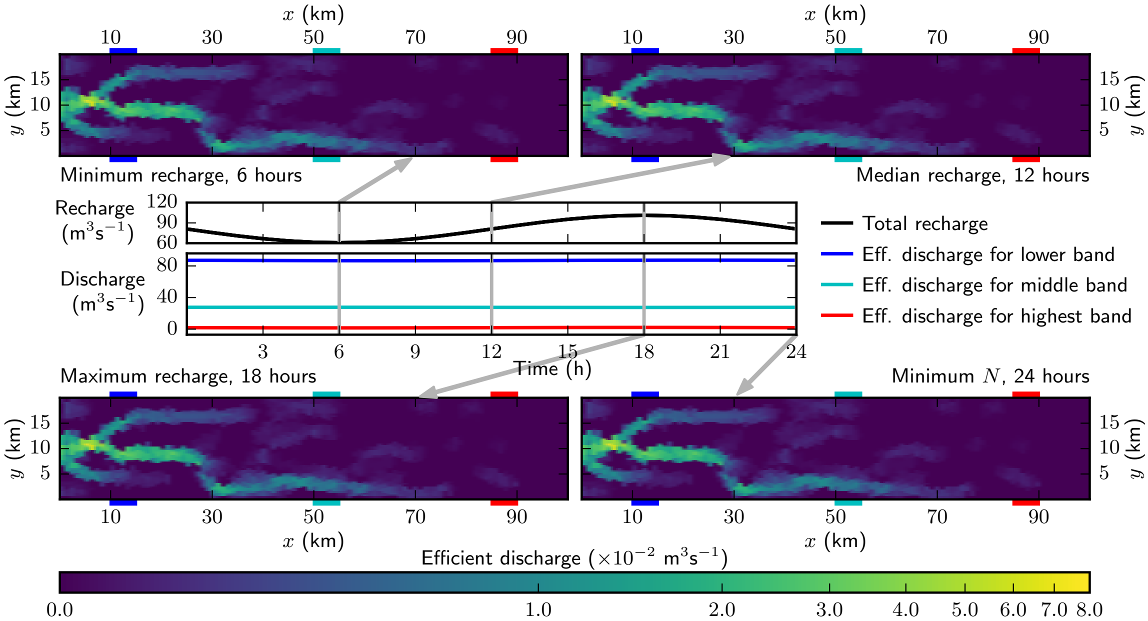

Figure S289: This is the result of run C1 for model bf in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

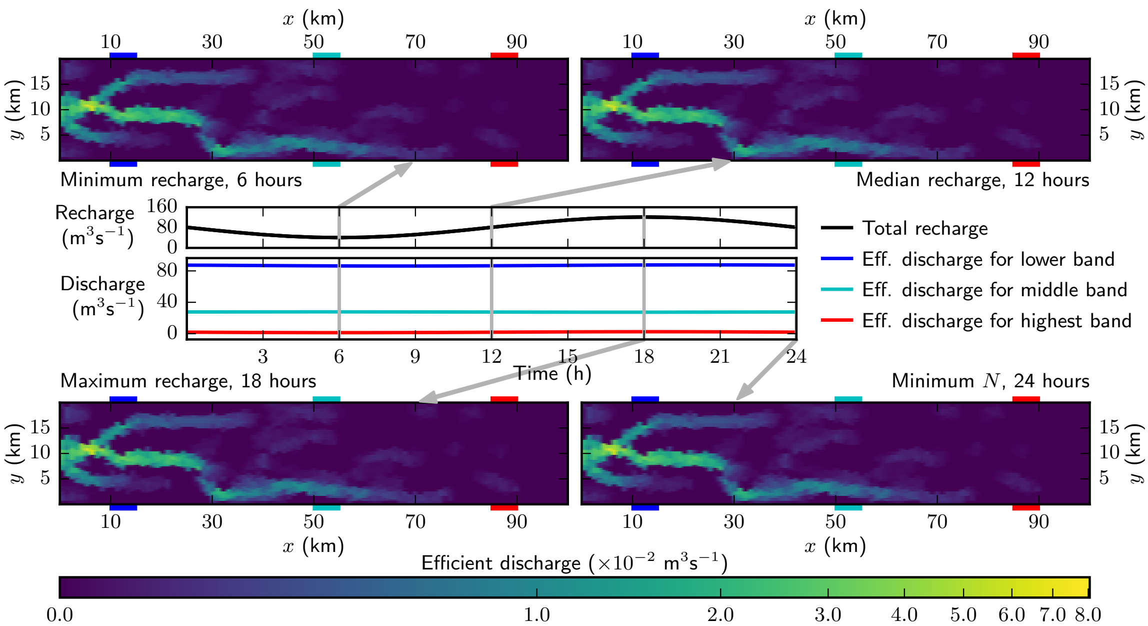

Figure S290: This is the result of run C2 for model bf in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

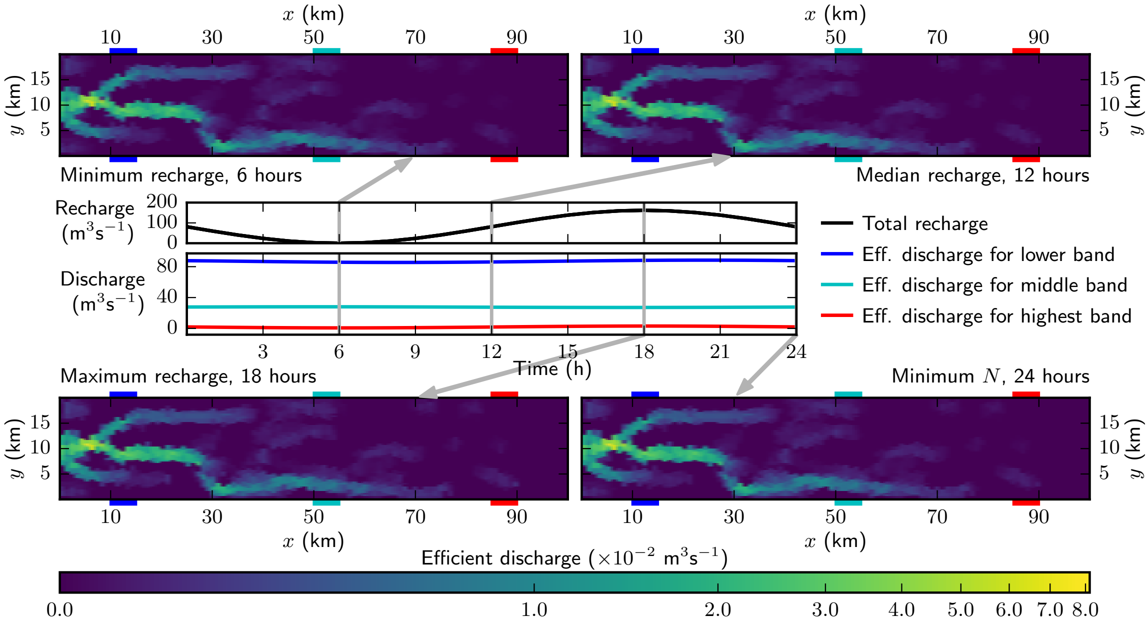

Figure S291: This is the result of run C3 for model bf in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

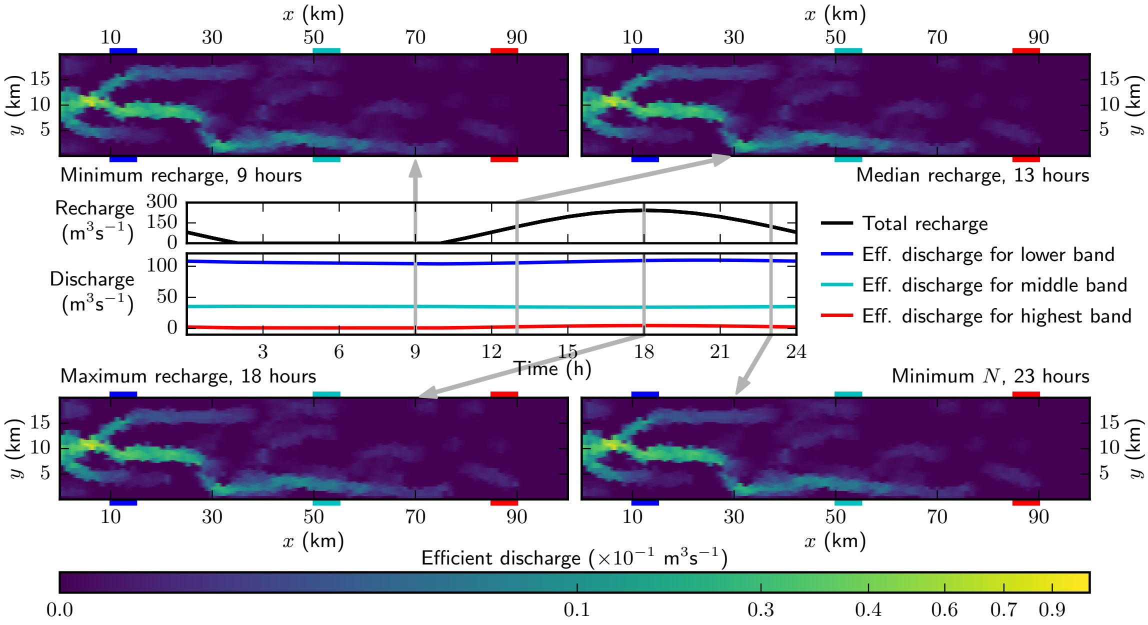

Figure S292: This is the result of run C4 for model bf in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

S2.2.15. Suite D model bf

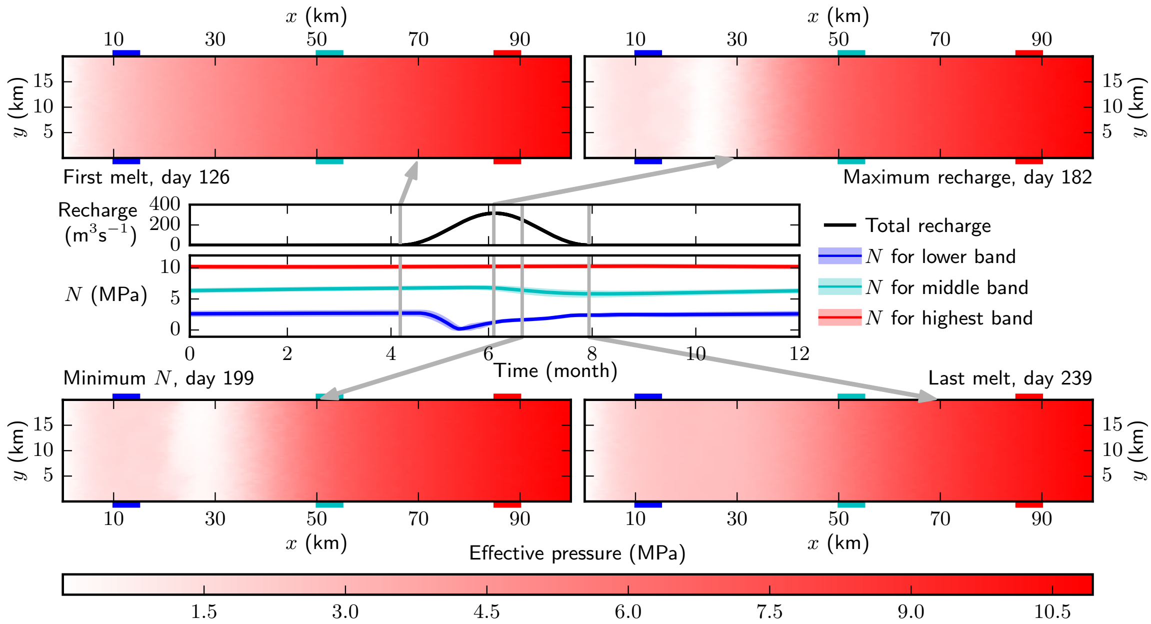

Figure S293: This is the result of run D1 for model bf in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

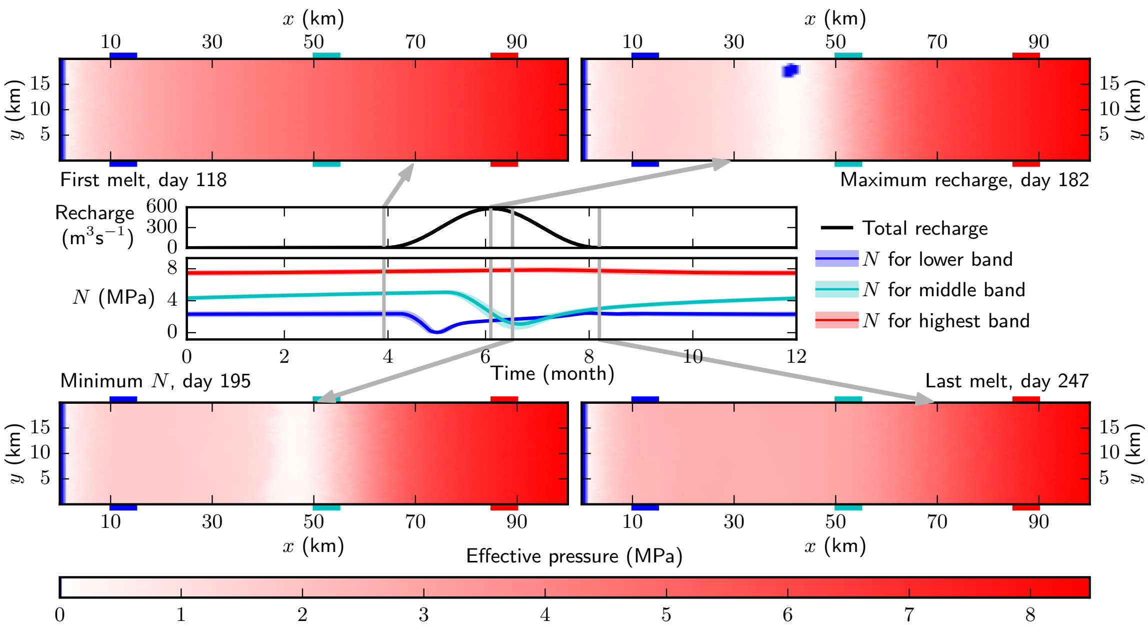

Figure S294: This is the result of run D2 for model bf in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

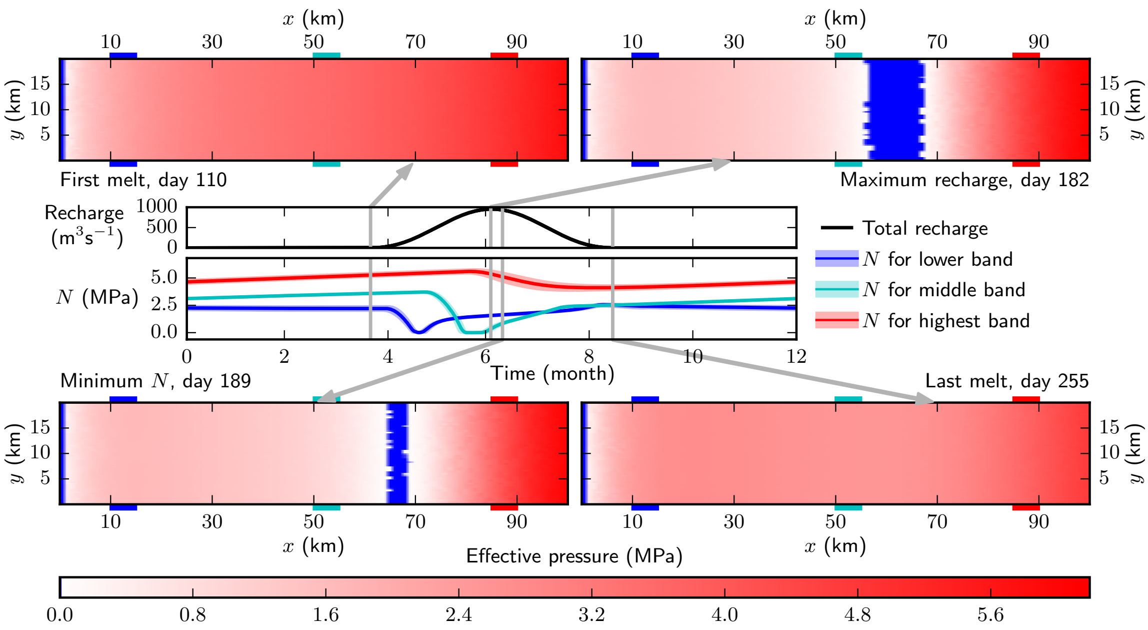

Figure S295: This is the result of run D3 for model bf in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

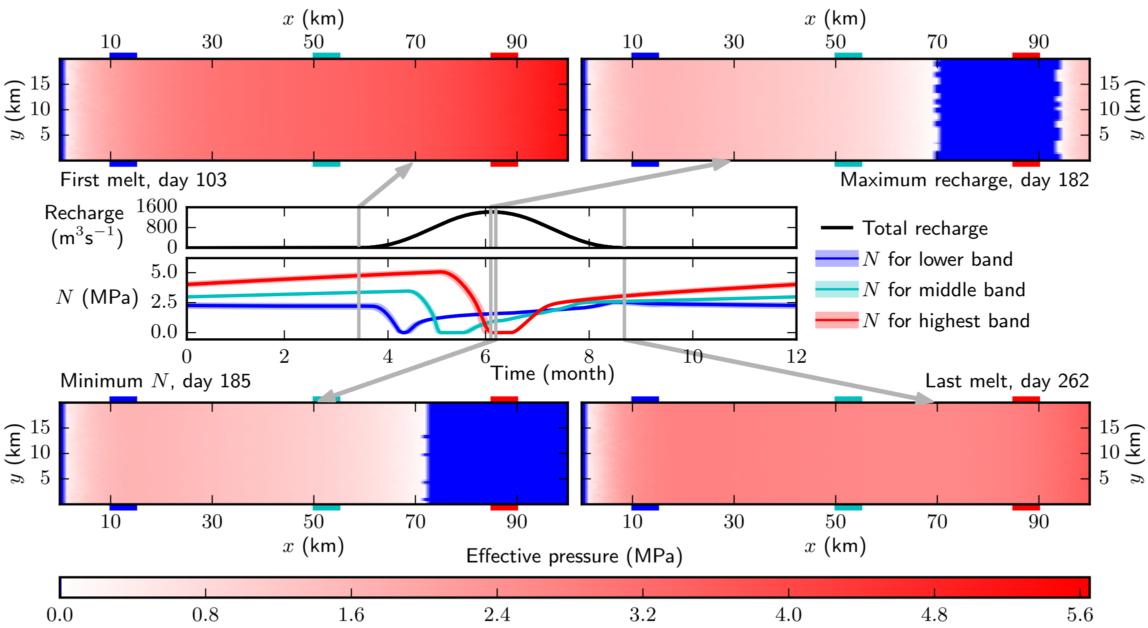

Figure S296: This is the result of run D4 for model bf in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

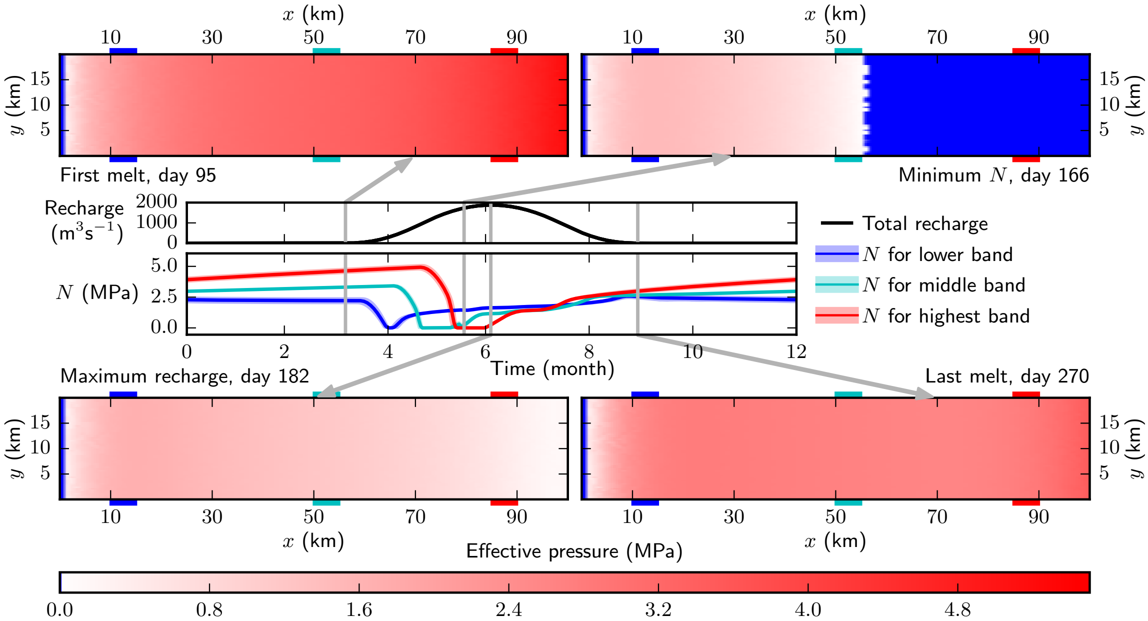

Figure S297: This is the result of run D5 for model bf in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

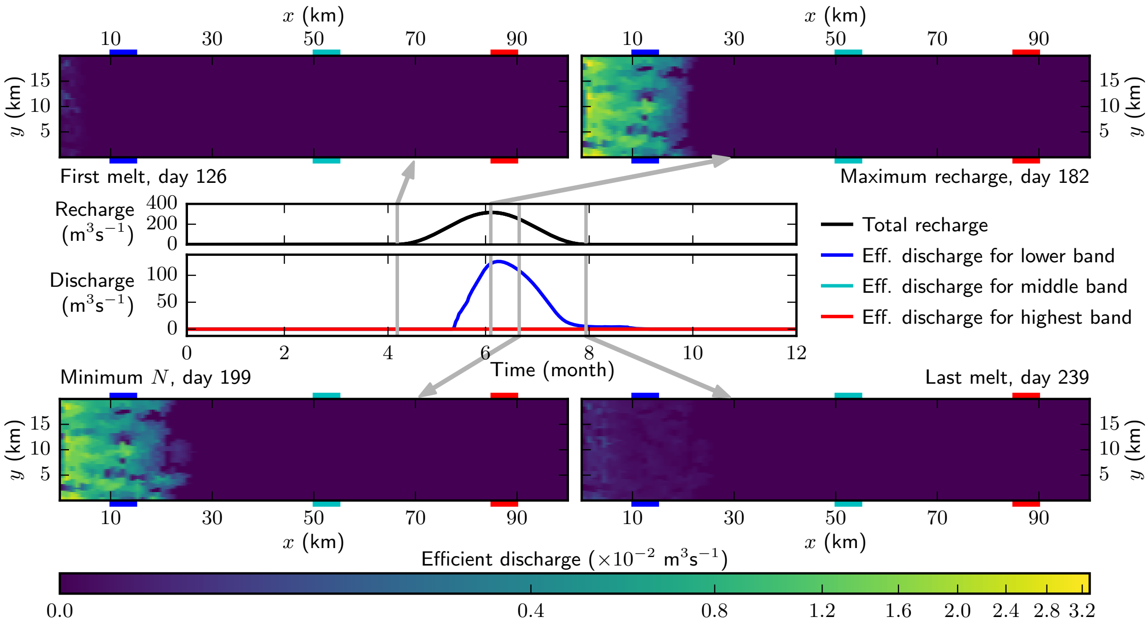

Figure S298: This is the result of run D1 for model *bf* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

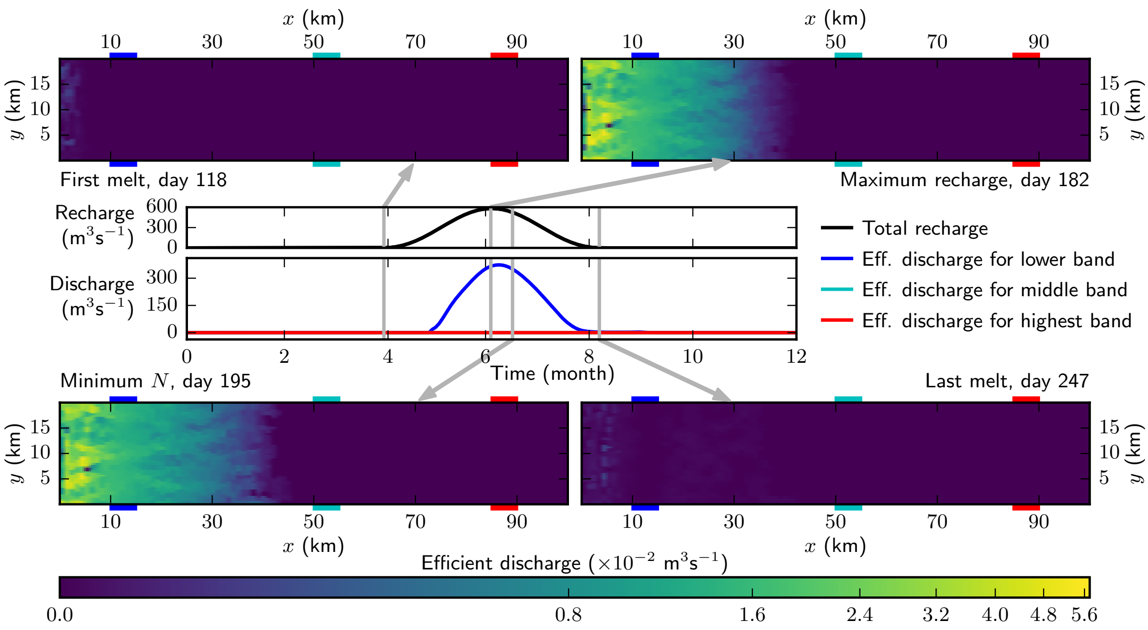

Figure S299: This is the result of run D2 for model bf in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

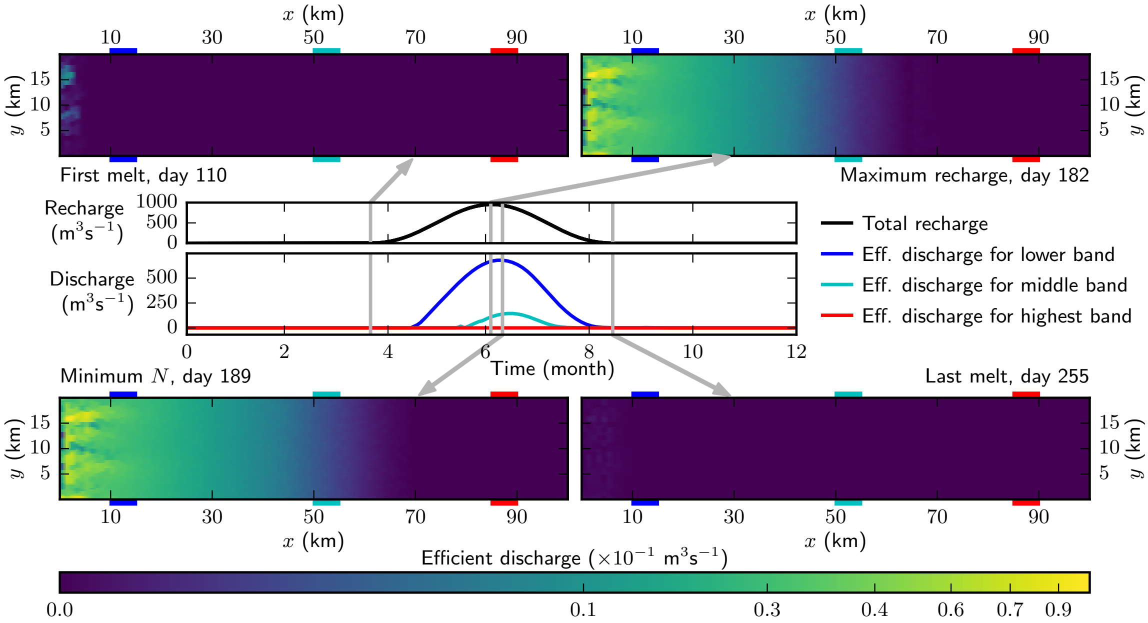

Figure S300: This is the result of run D3 for model bf in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

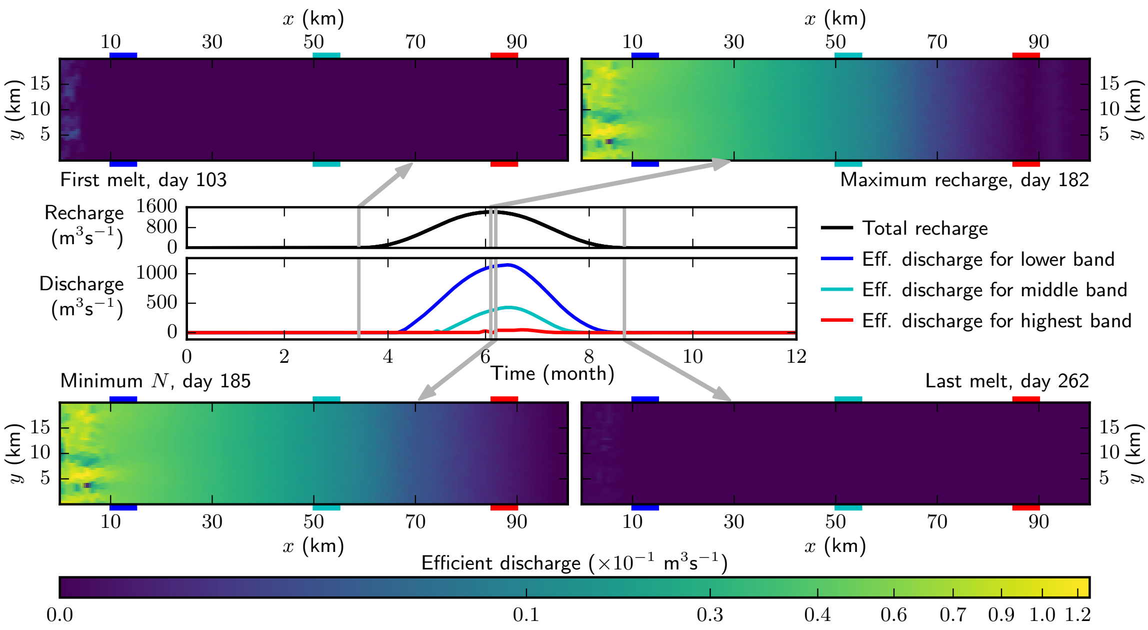

Figure S301: This is the result of run D4 for model bf in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

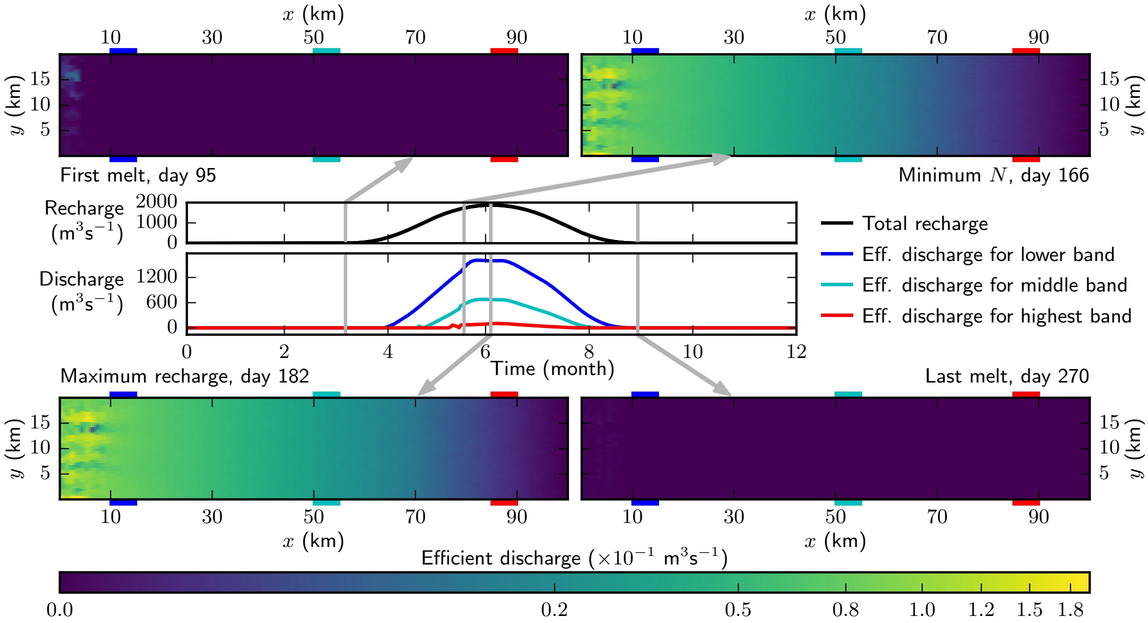

Figure S302: This is the result of run D5 for model bf in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

S2.2.16. Suite F model bf

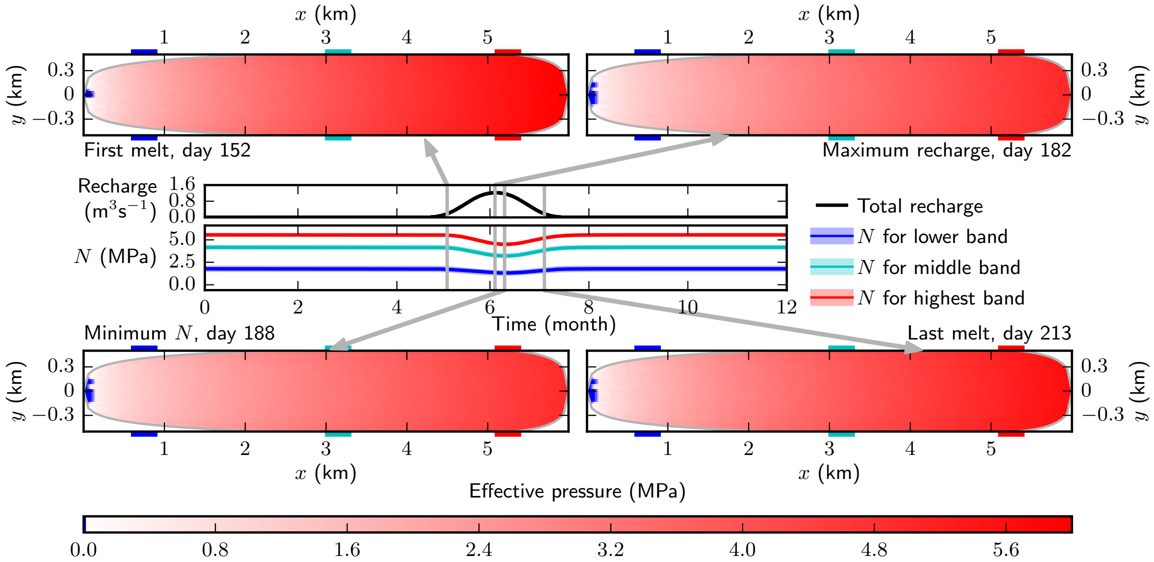

Figure S303: This is the result of run F1 for model bf in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

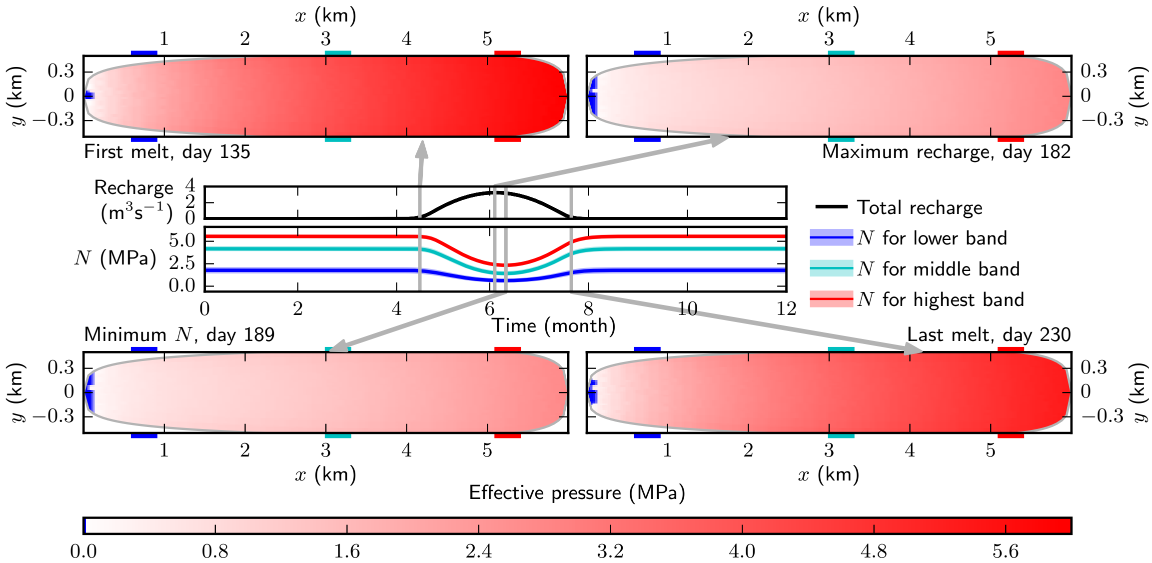

Figure S304: This is the result of run F2 for model bf in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

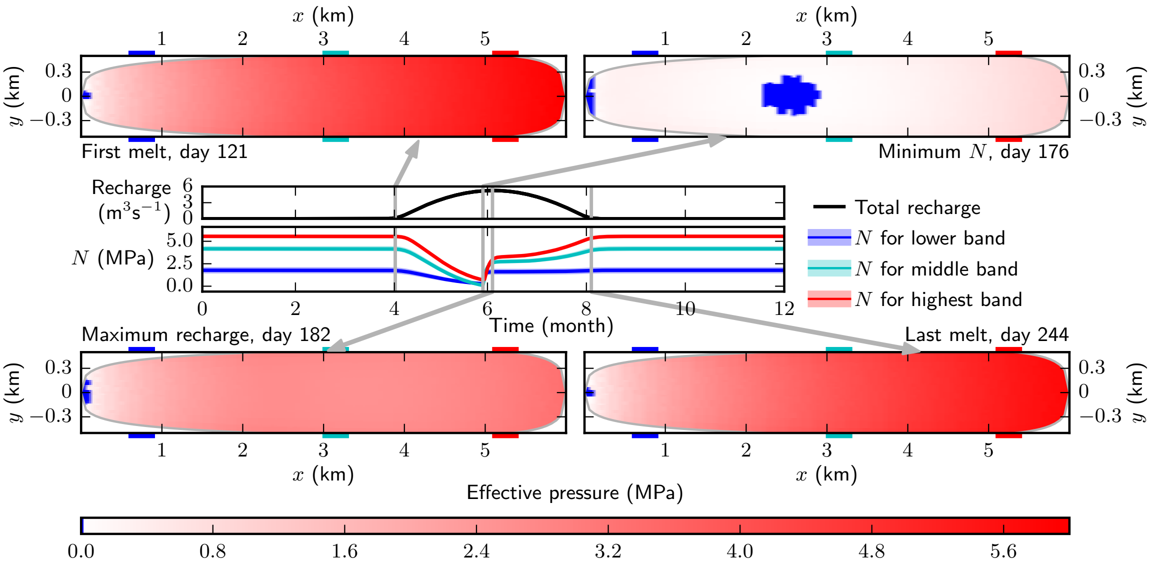

Figure S305: This is the result of run F3 for model bf in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

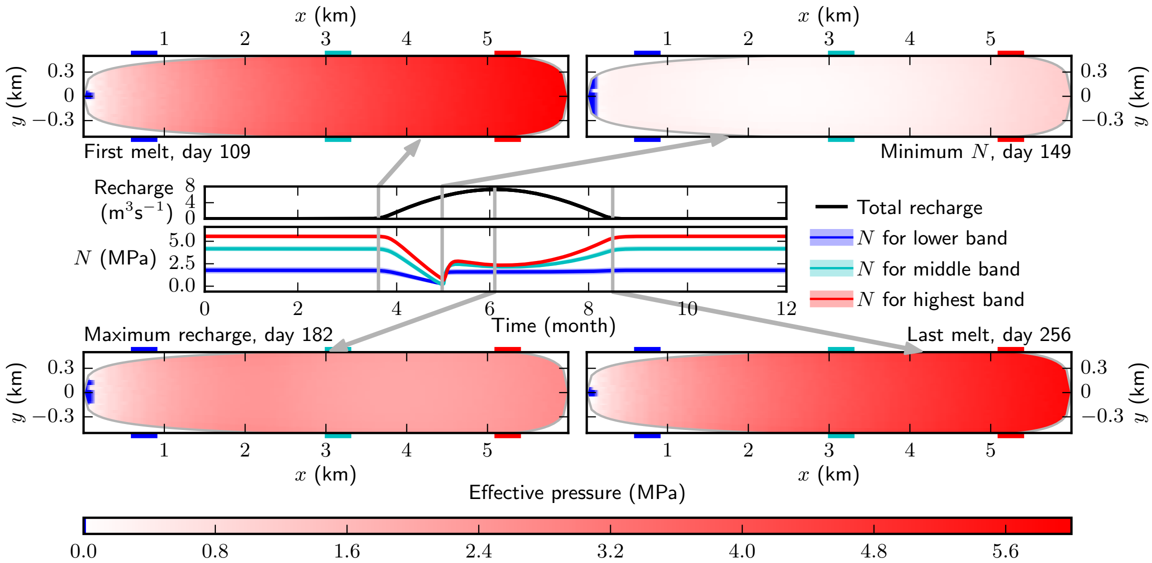

Figure S306: This is the result of run F4 for model bf in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

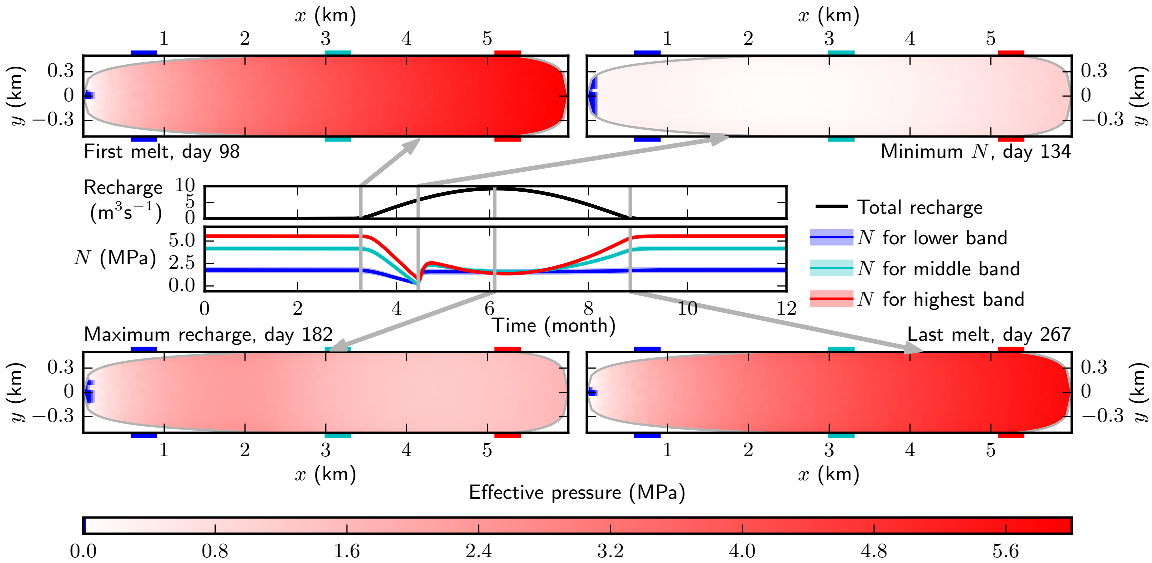

Figure S307: This is the result of run F5 for model *bf* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

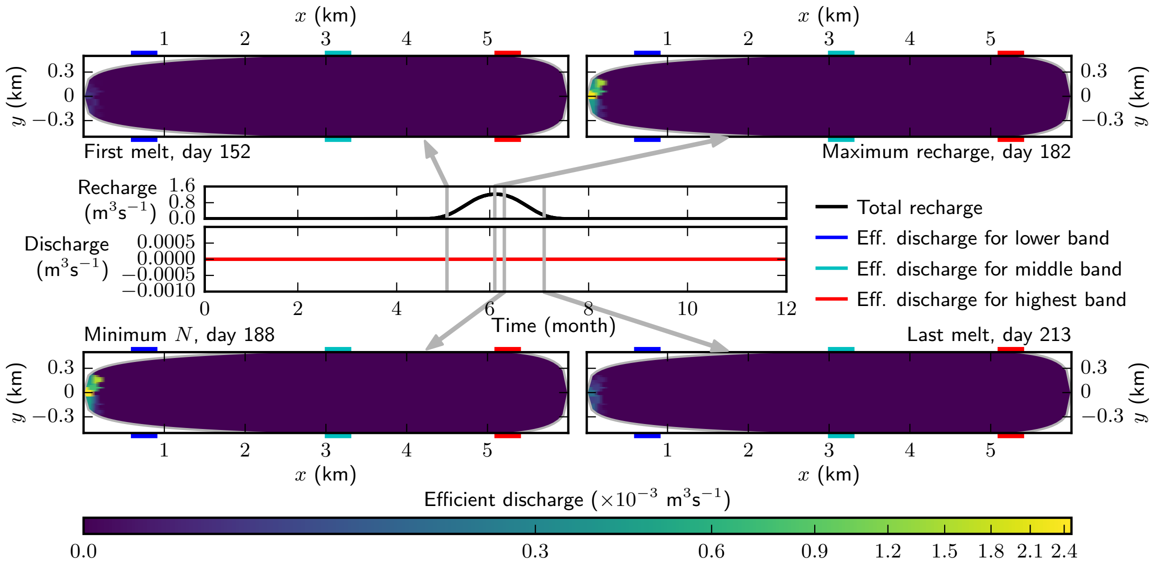

Figure S308: This is the result of run F1 for model *bf* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

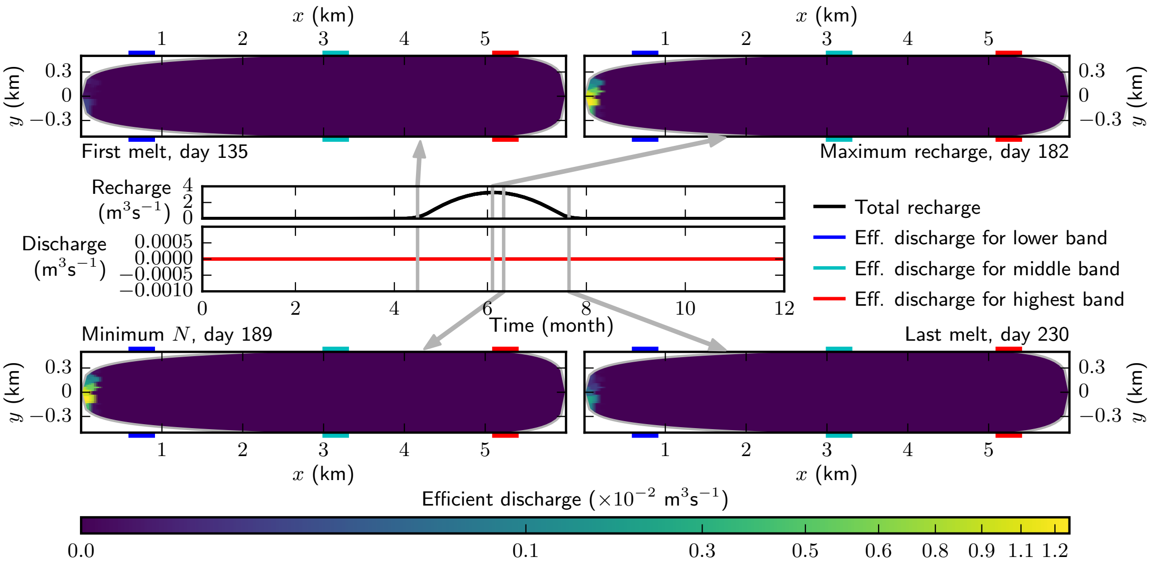

Figure S309: This is the result of run F2 for model *bf* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

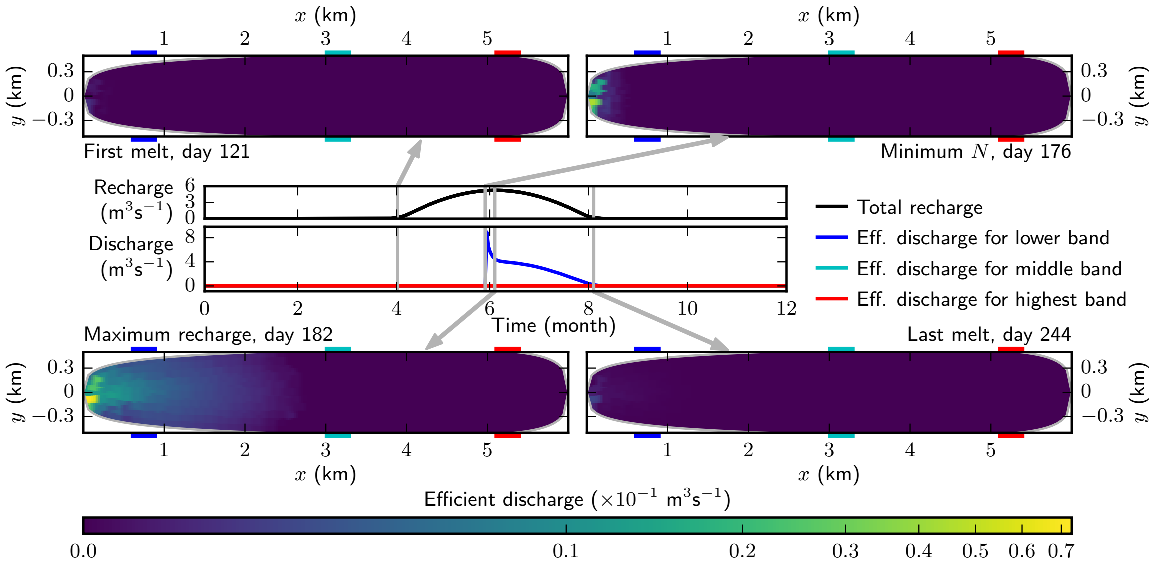

Figure S310: This is the result of run F3 for model bf in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

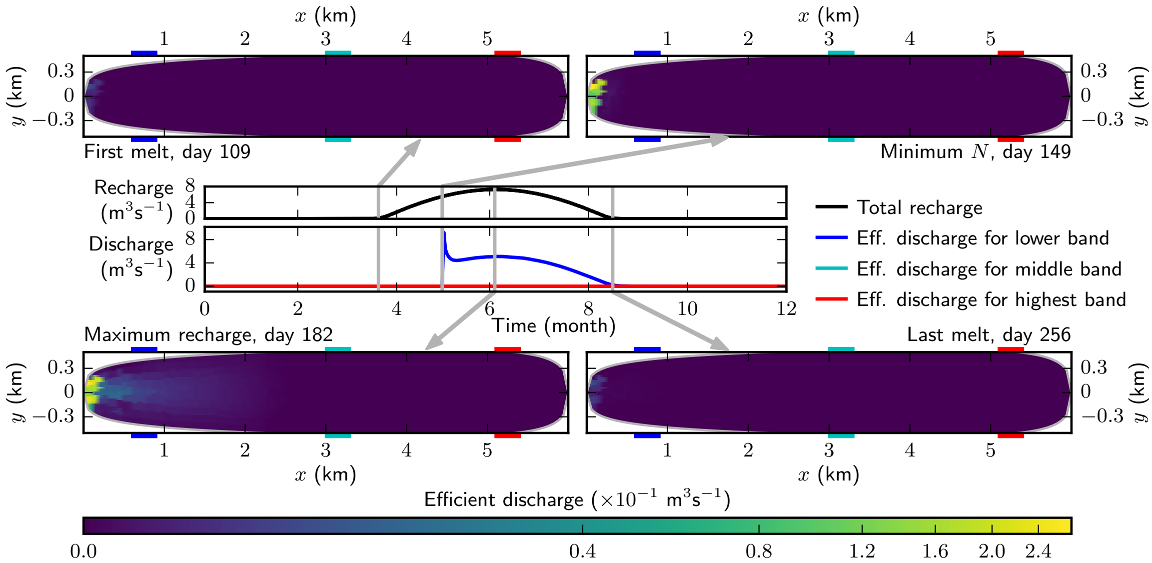

Figure S311: This is the result of run F4 for model *bf* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

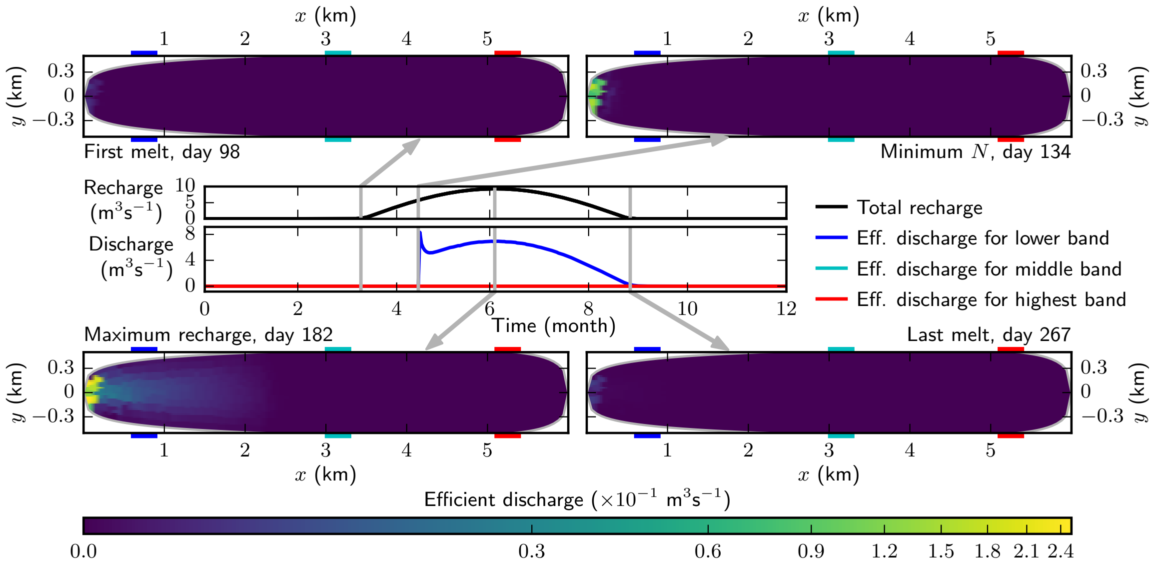

Figure S312: This is the result of run F5 for model *bf* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

S2.2.17. Suite D model $mh1$

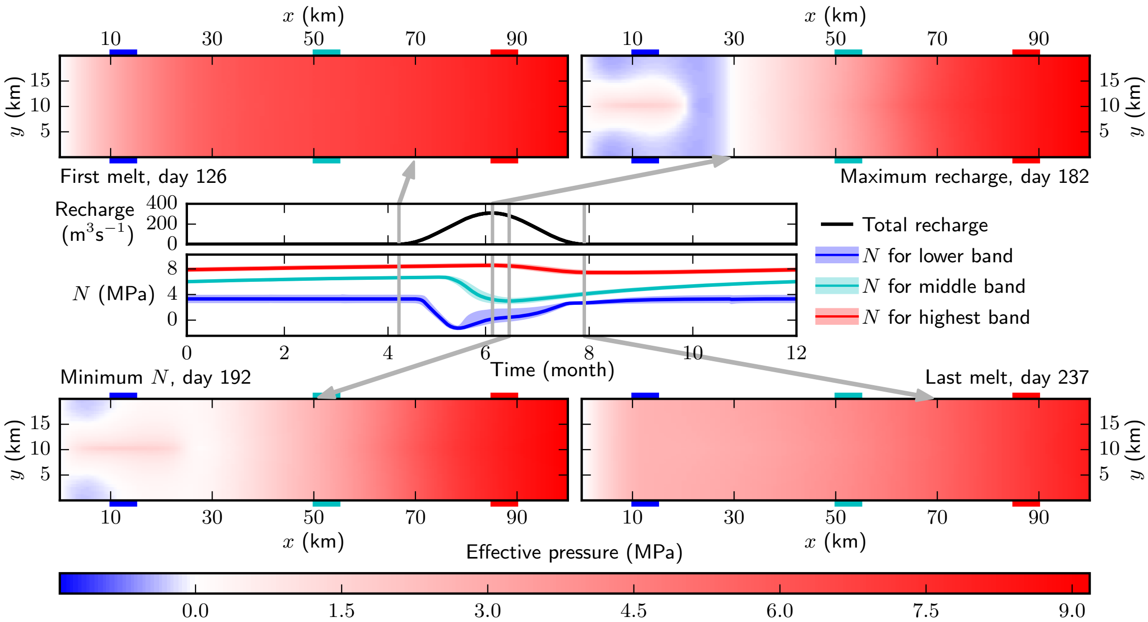

Figure S313: This is the result of run D1 for model $mh1$ in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

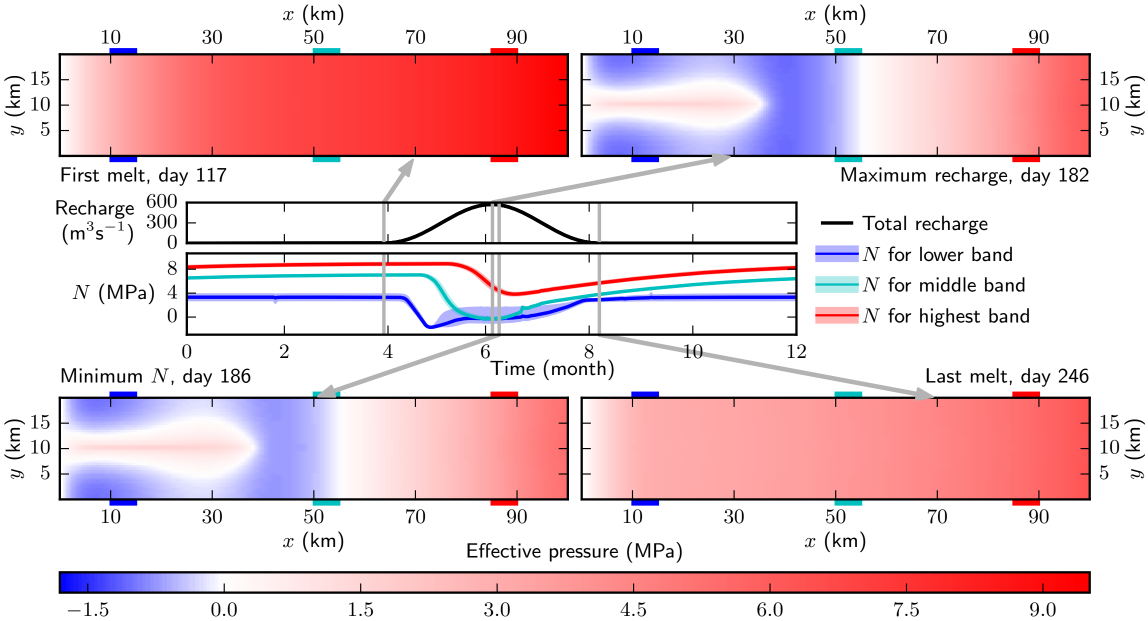

Figure S314: This is the result of run D2 for model $mh1$ in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

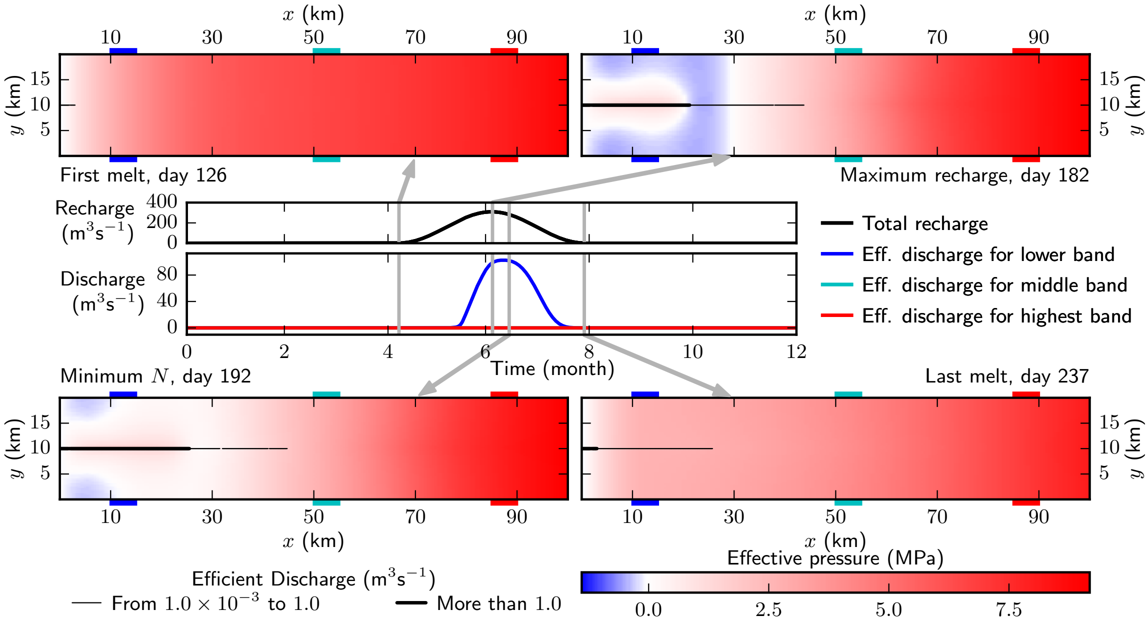

Figure S315: This is the result of run D1 for model $mh1$ in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

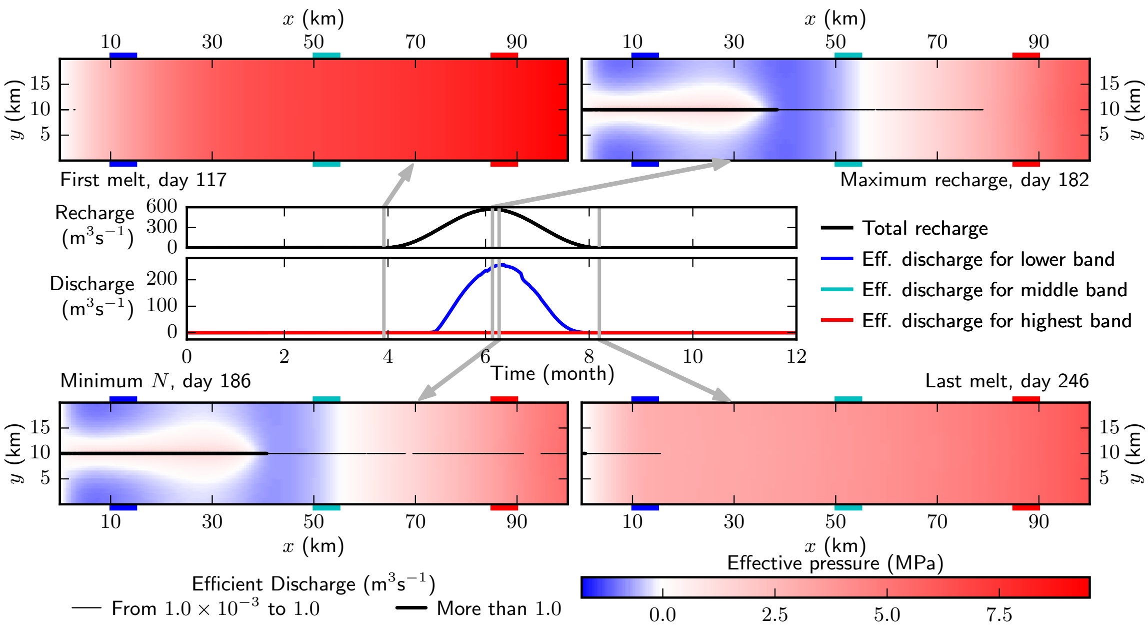

Figure S316: This is the result of run D2 for model $mh1$ in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

S2.2.18. Suite C model $mh2$

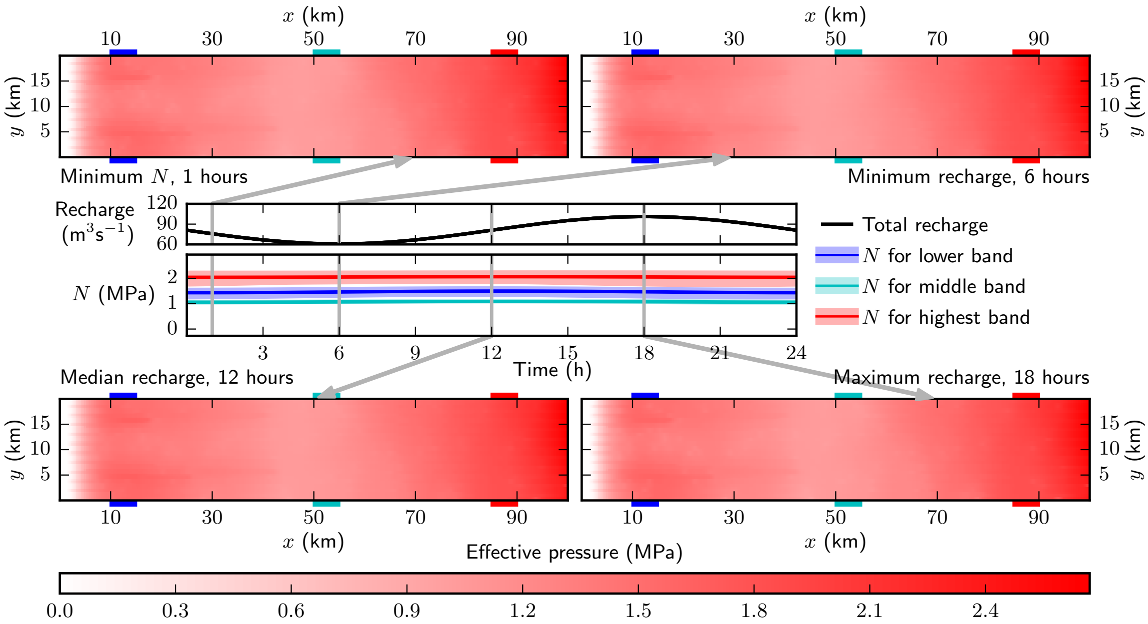

Figure S317: This is the result of run C1 for model $mh2$ in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

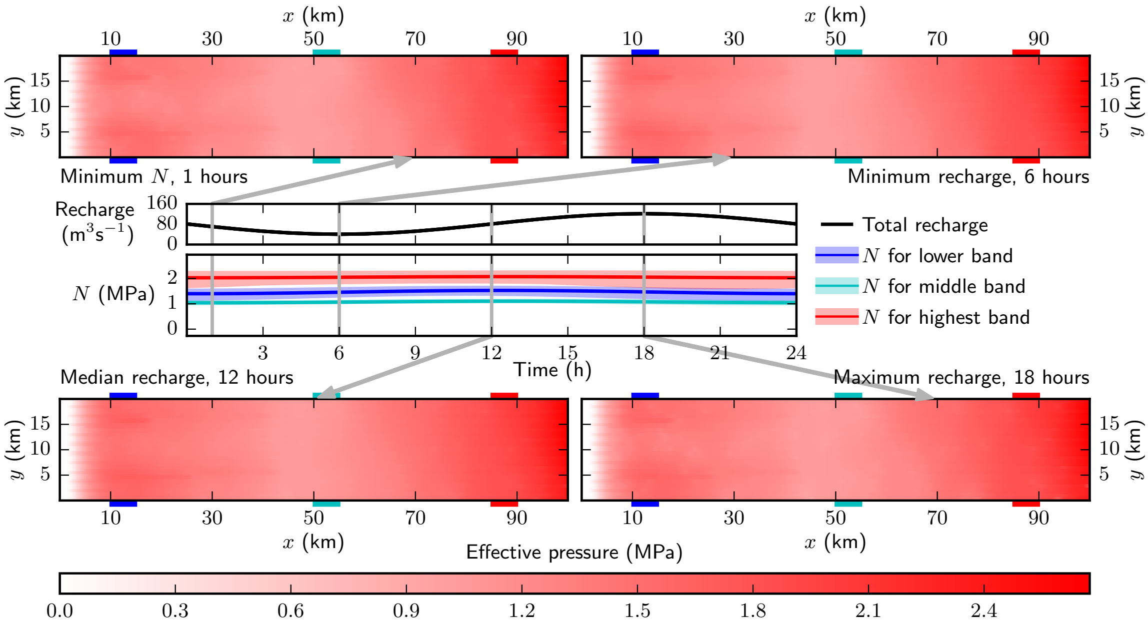

Figure S318: This is the result of run C2 for model *mh*2 in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

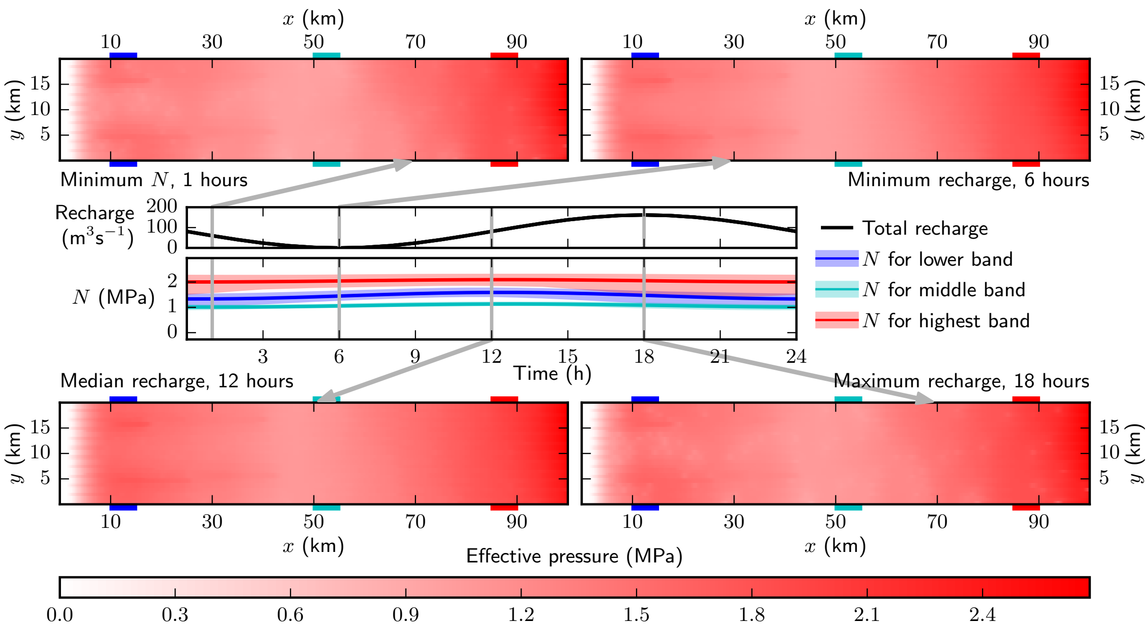

Figure S319: This is the result of run C3 for model *mh*2 in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

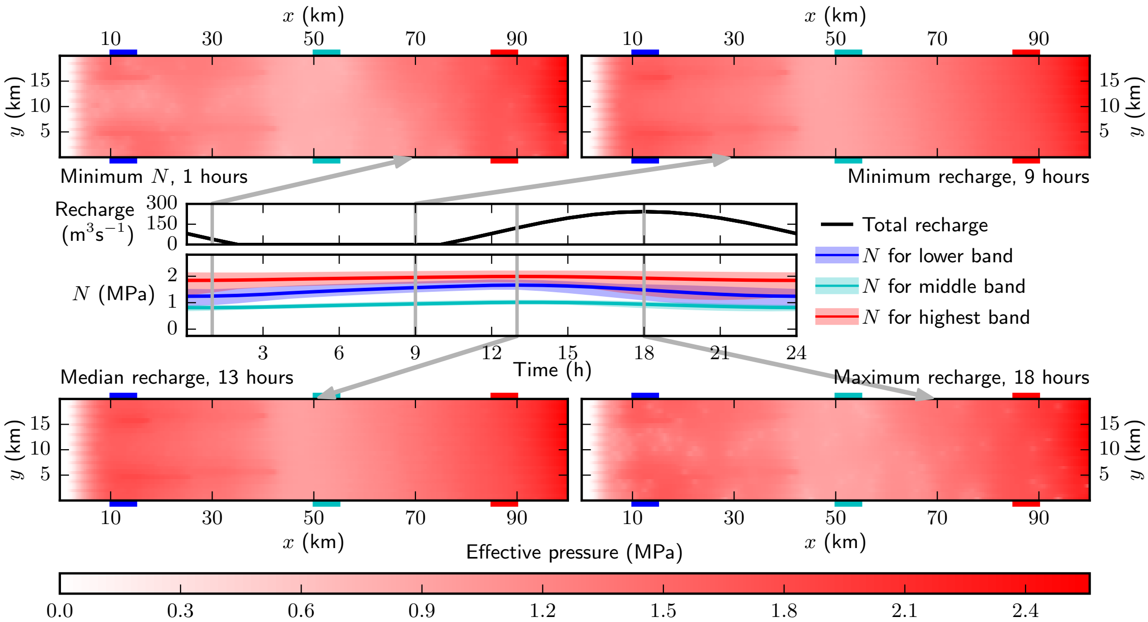

Figure S320: This is the result of run C4 for model *mh*2 in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

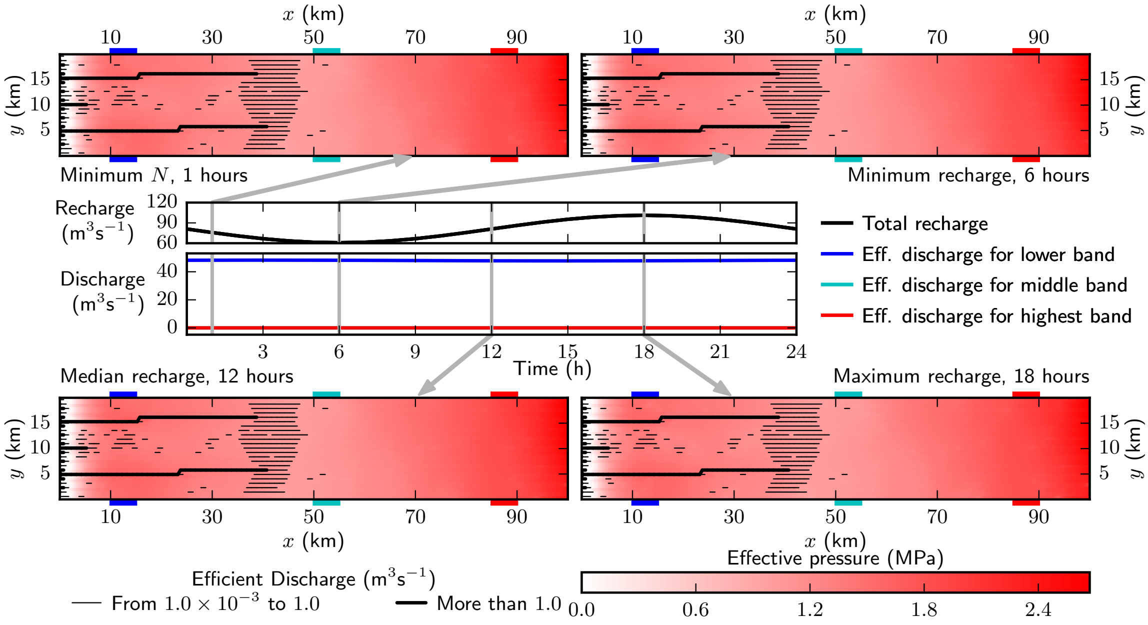

Figure S321: This is the result of run C1 for model *mh*2 in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

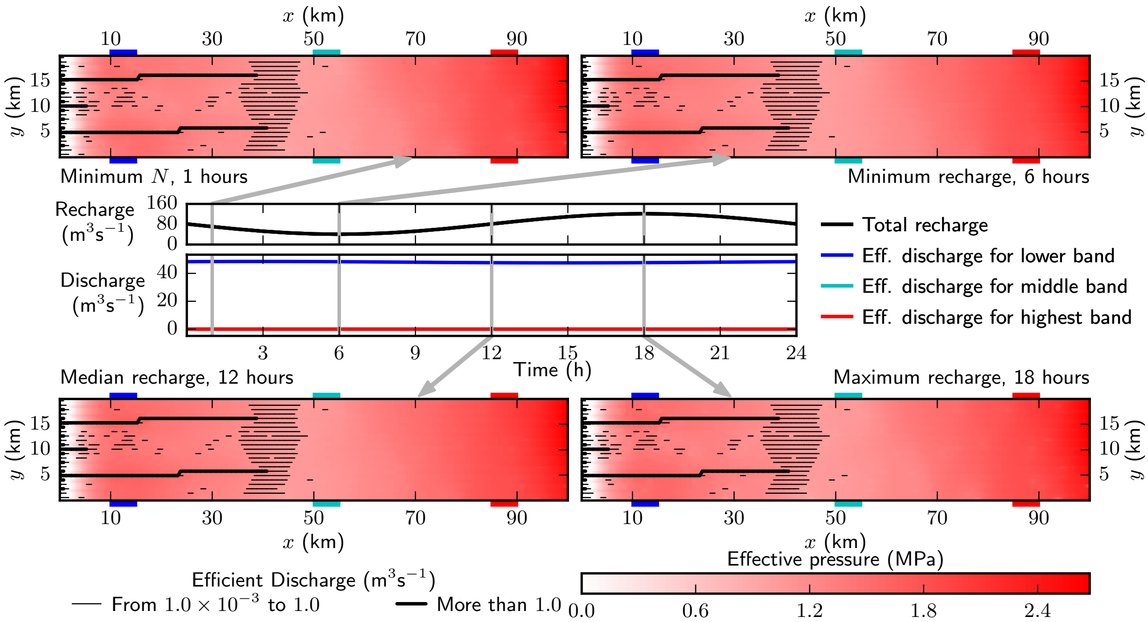

Figure S322: This is the result of run C2 for model *mh*2 in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

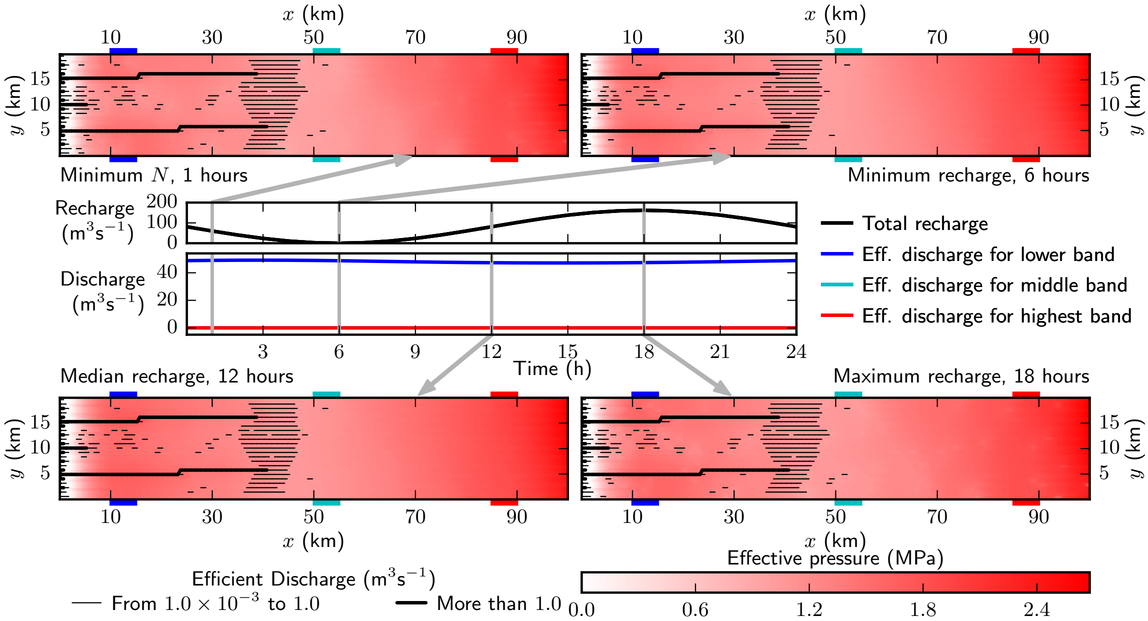

Figure S323: This is the result of run C3 for model *mh*2 in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

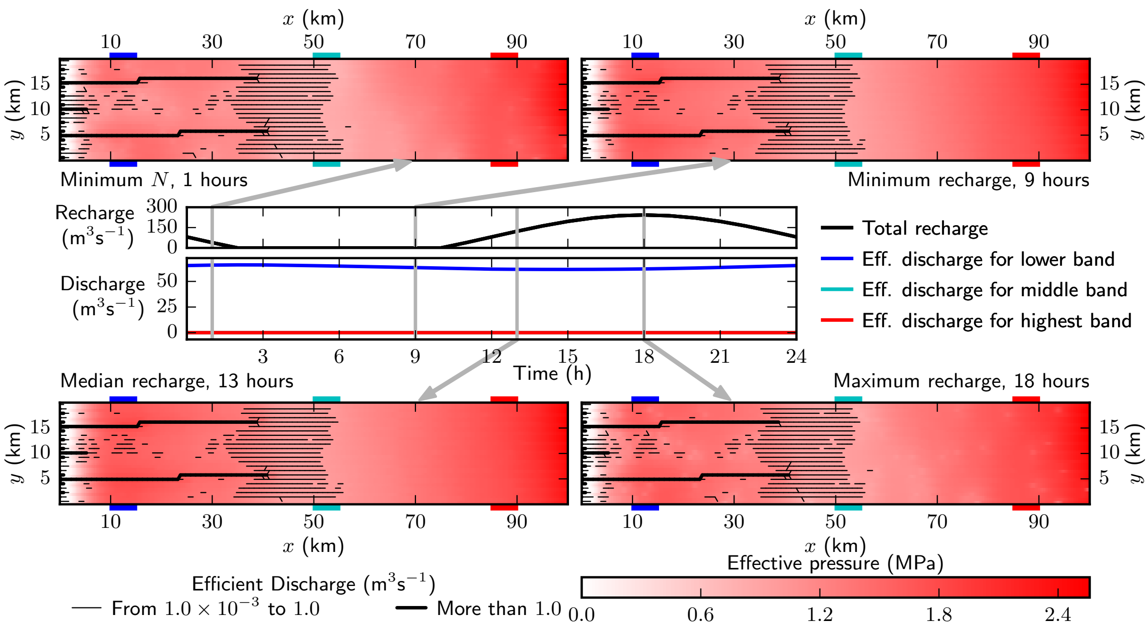

Figure S324: This is the result of run C4 for model $mh2$ in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

S2.2.19. Suite D model *mh2*

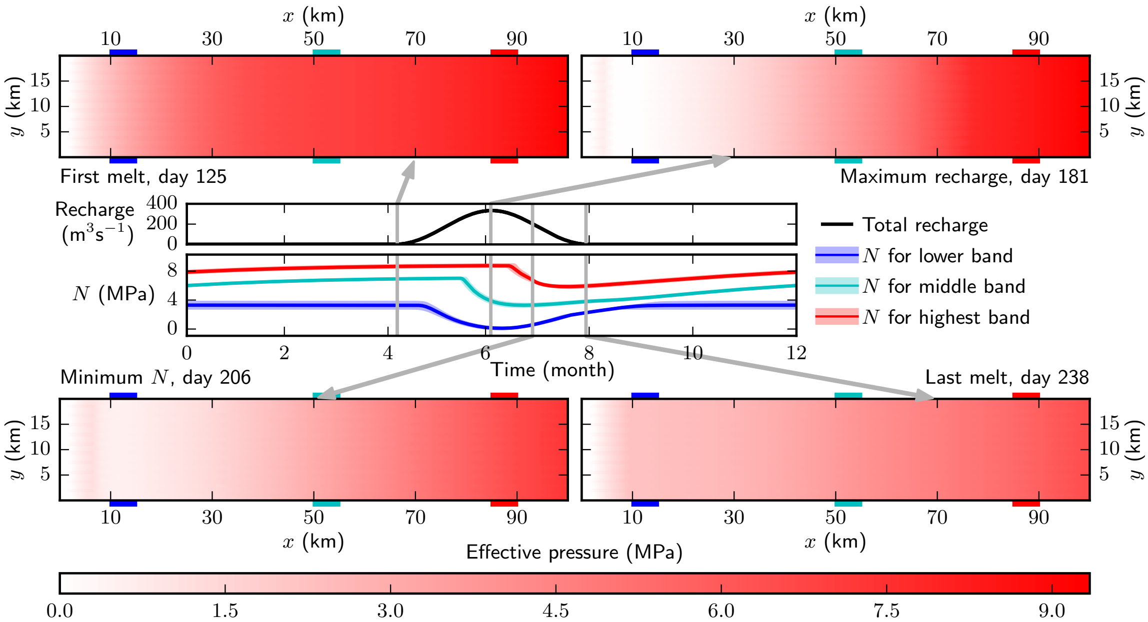

Figure S325: This is the result of run D1 for model *mh*2 in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

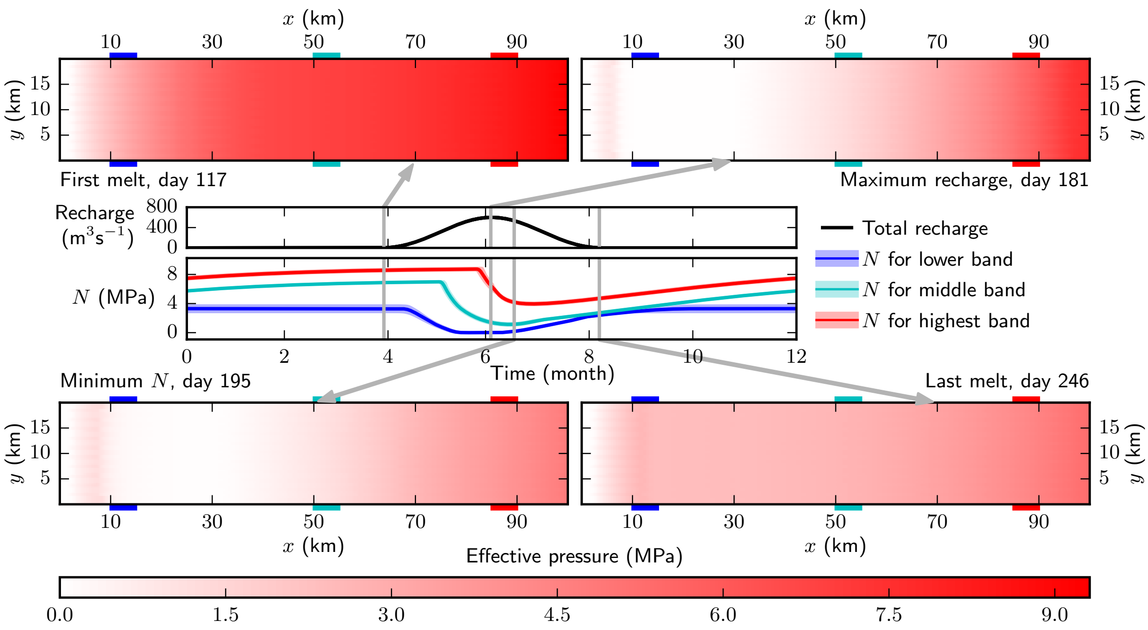

Figure S326: This is the result of run D2 for model $mh2$ in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

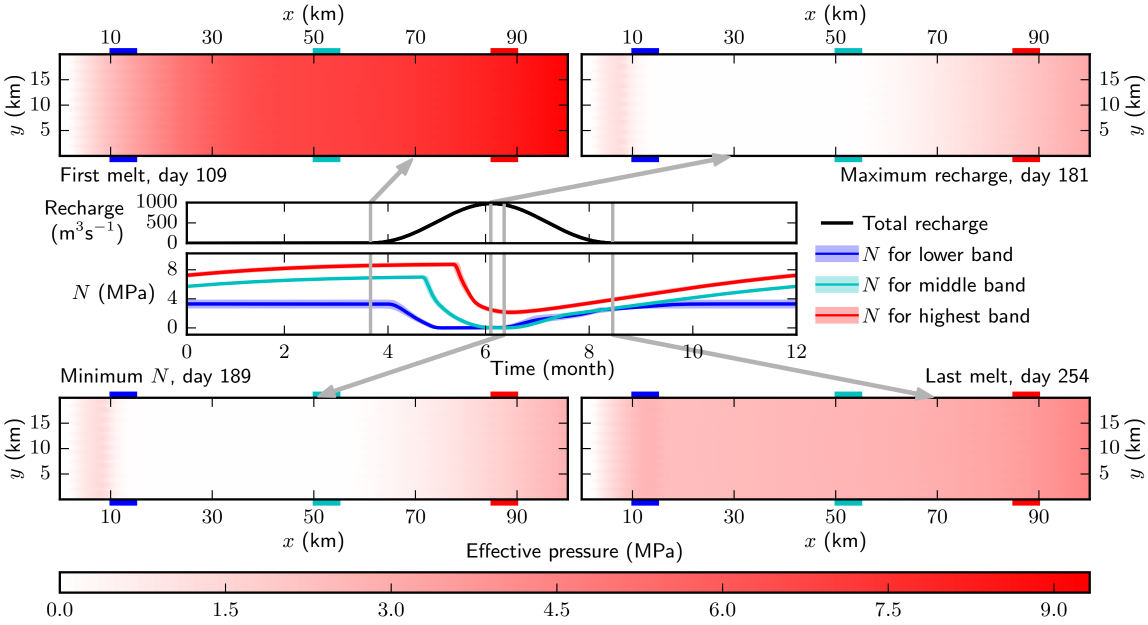

Figure S327: This is the result of run D3 for model *mh*2 in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

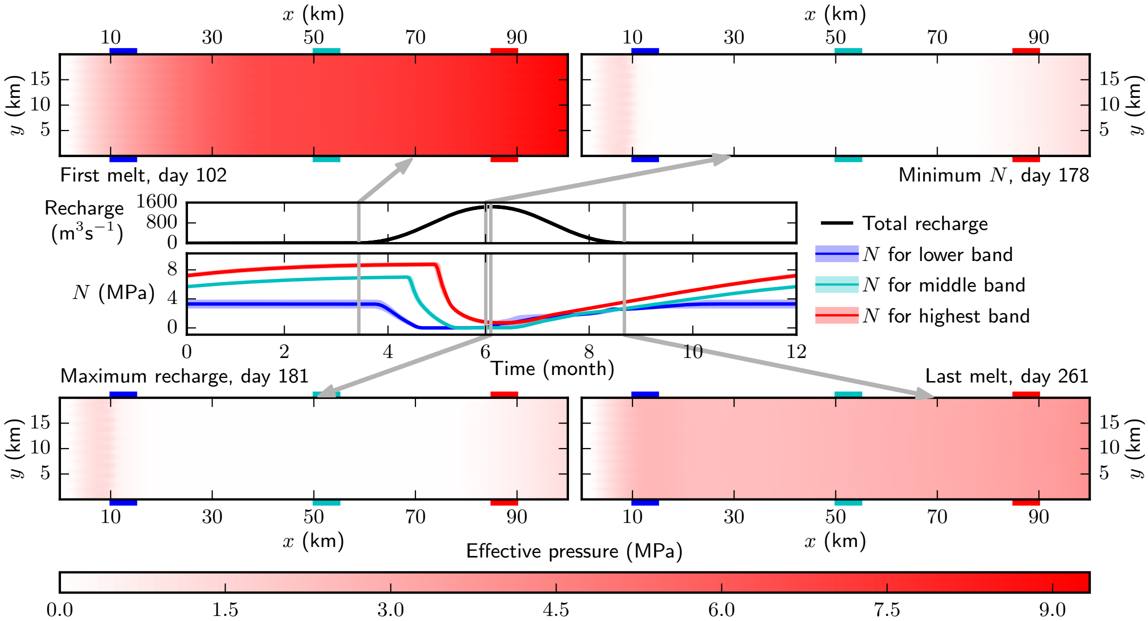

Figure S328: This is the result of run D4 for model *mh*2 in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

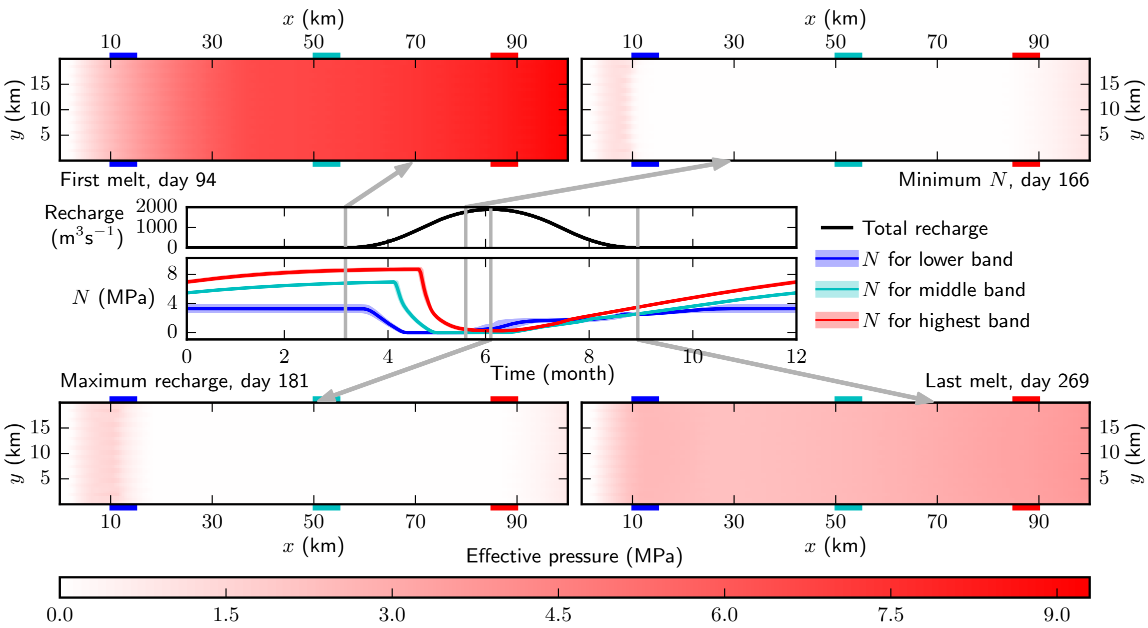

Figure S329: This is the result of run D5 for model *mh*2 in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

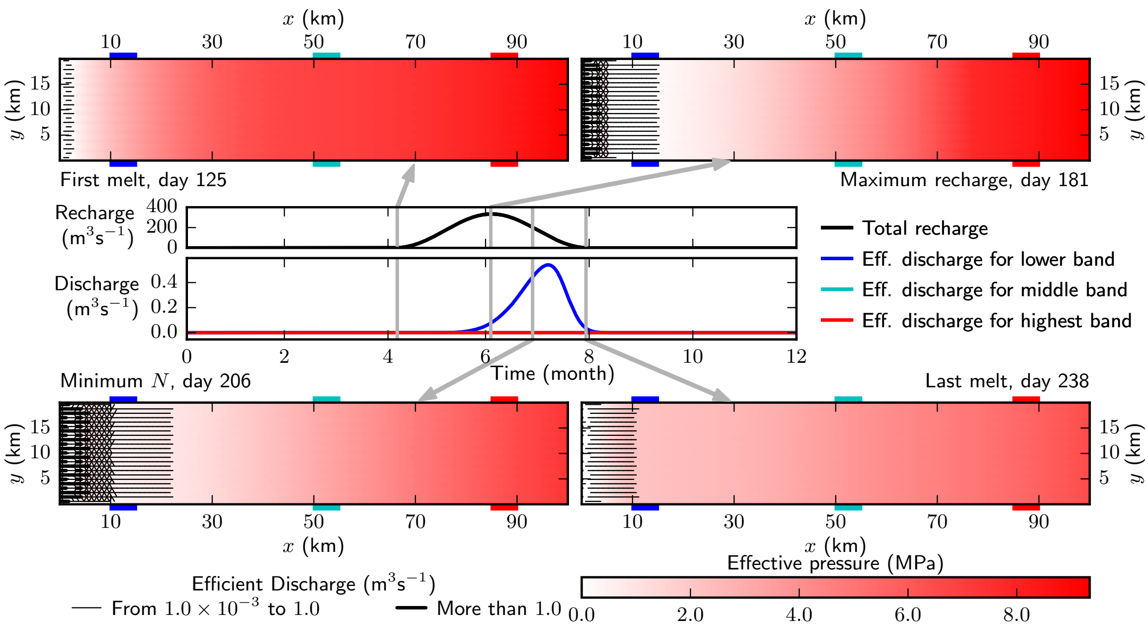

Figure S330: This is the result of run D1 for model $mh2$ in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

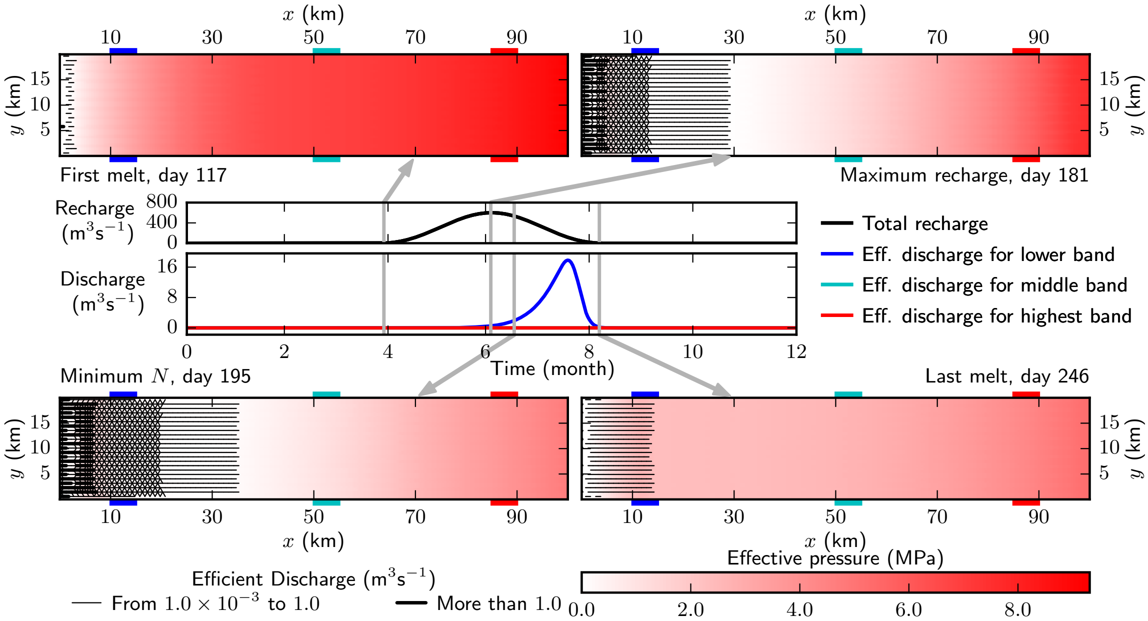

Figure S331: This is the result of run D2 for model $mh2$ in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

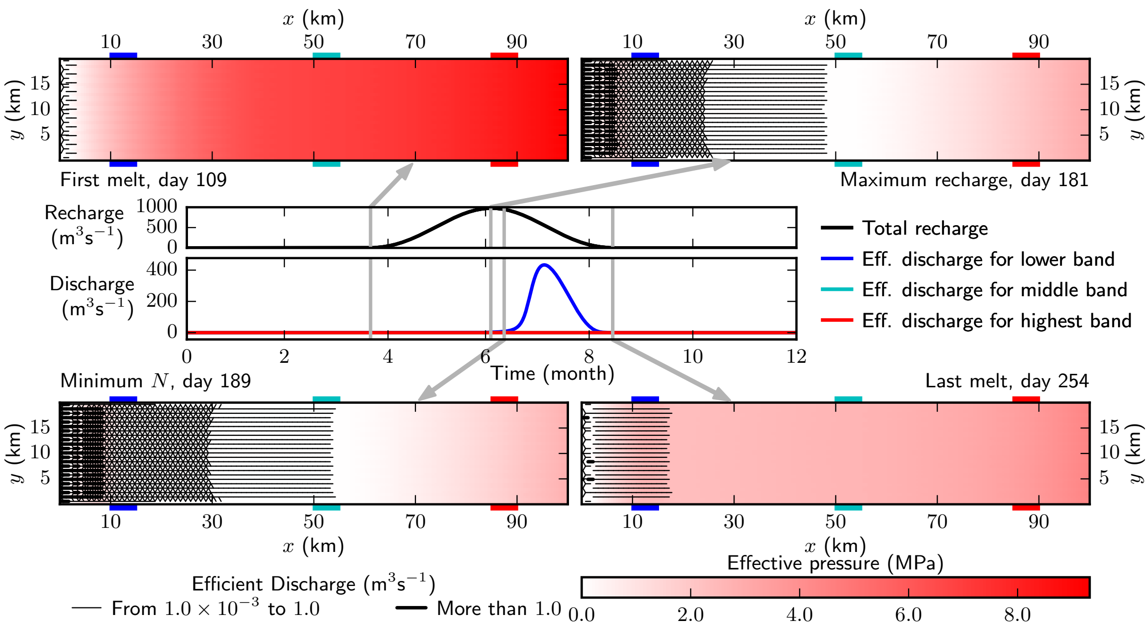

Figure S332: This is the result of run D3 for model *mh*2 in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

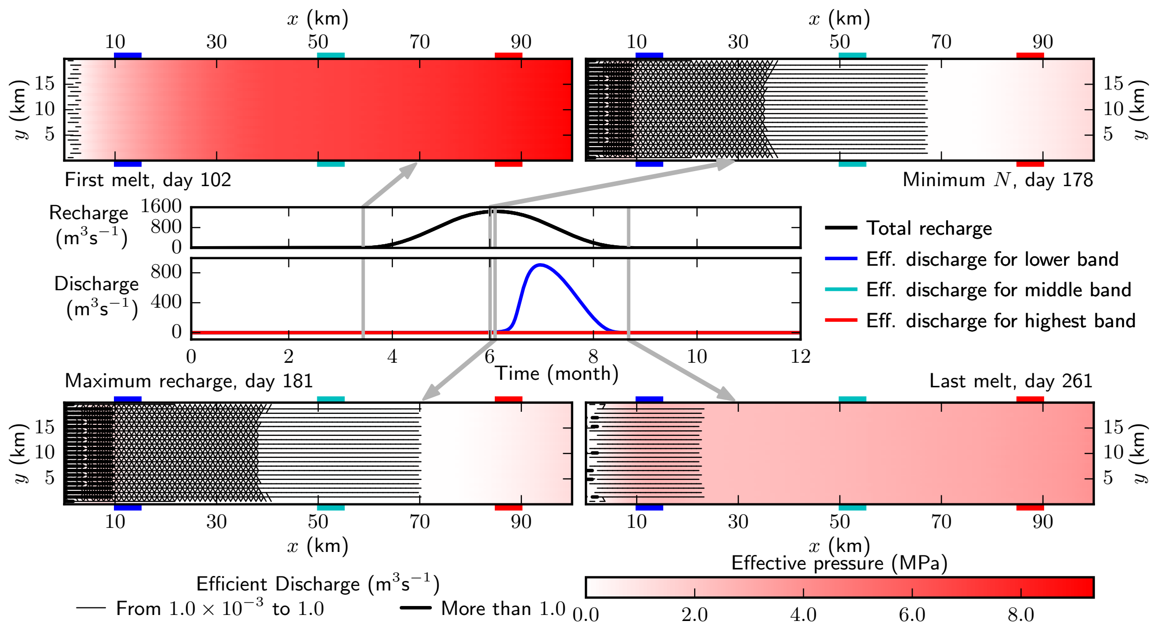

Figure S333: This is the result of run D4 for model *mh*2 in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

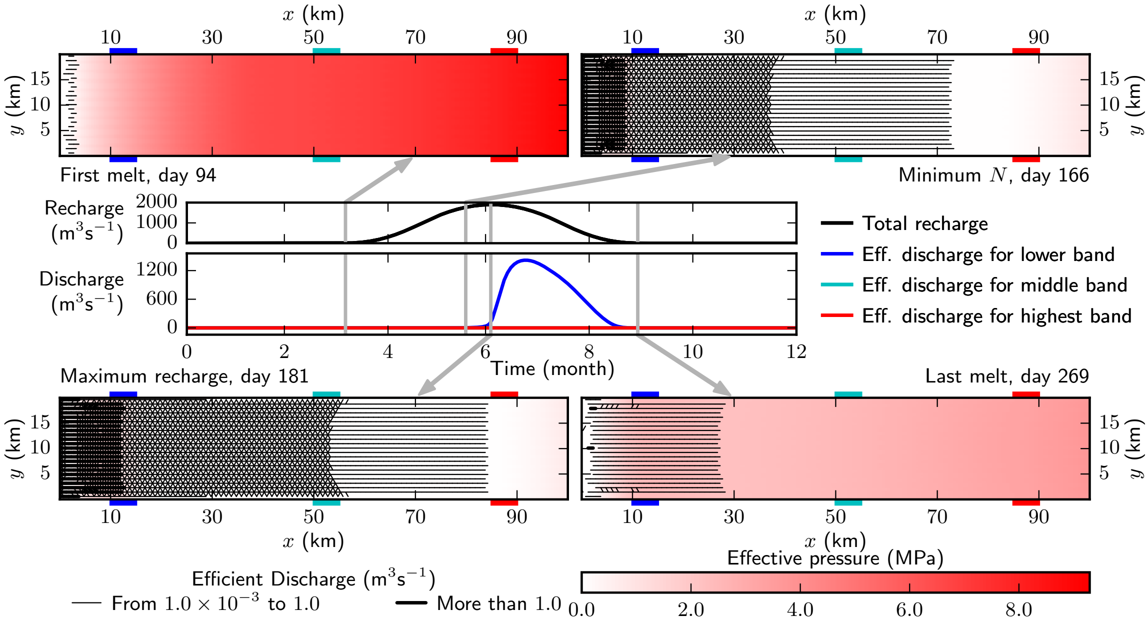

Figure S334: This is the result of run D5 for model $mh2$ in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

S2.2.20. Suite C model *og*

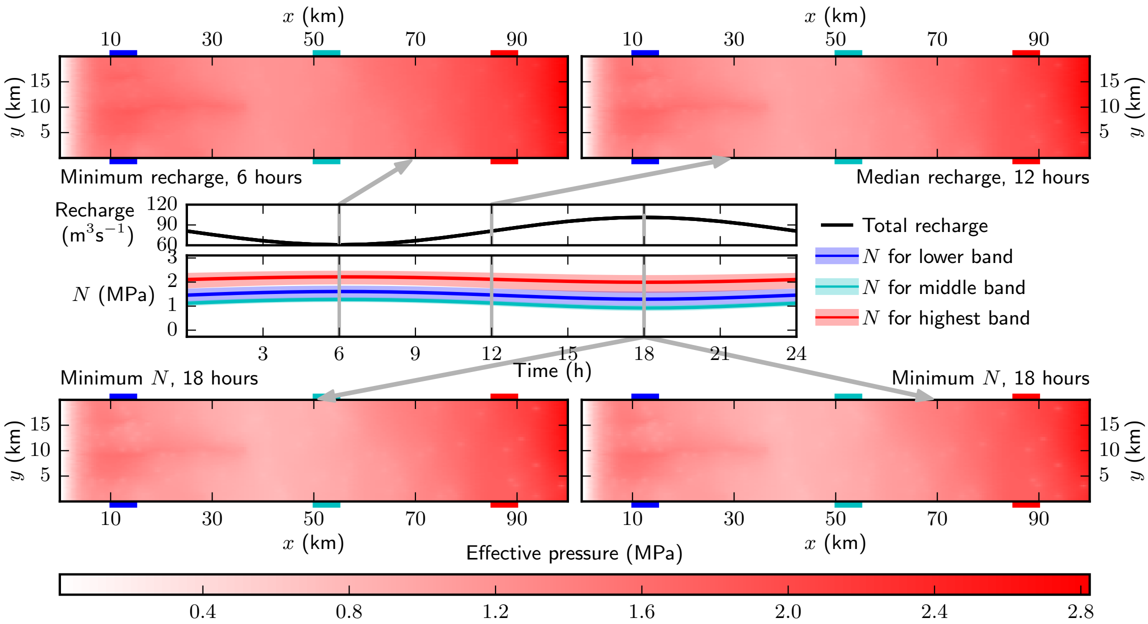

Figure S335: This is the result of run C1 for model *og* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

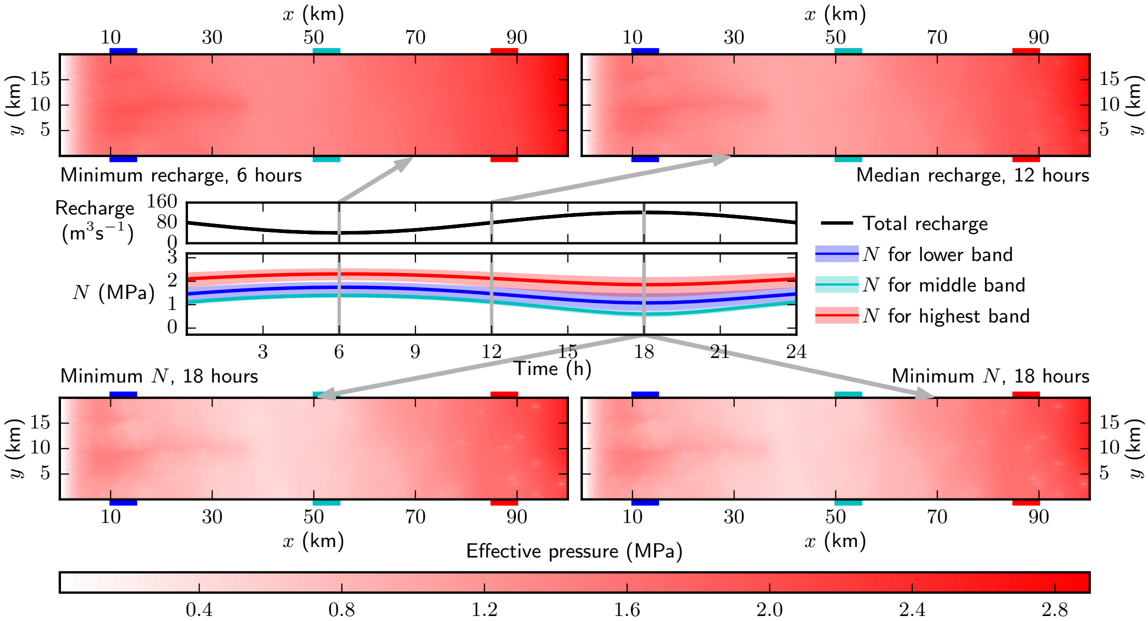

Figure S336: This is the result of run C2 for model *og* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

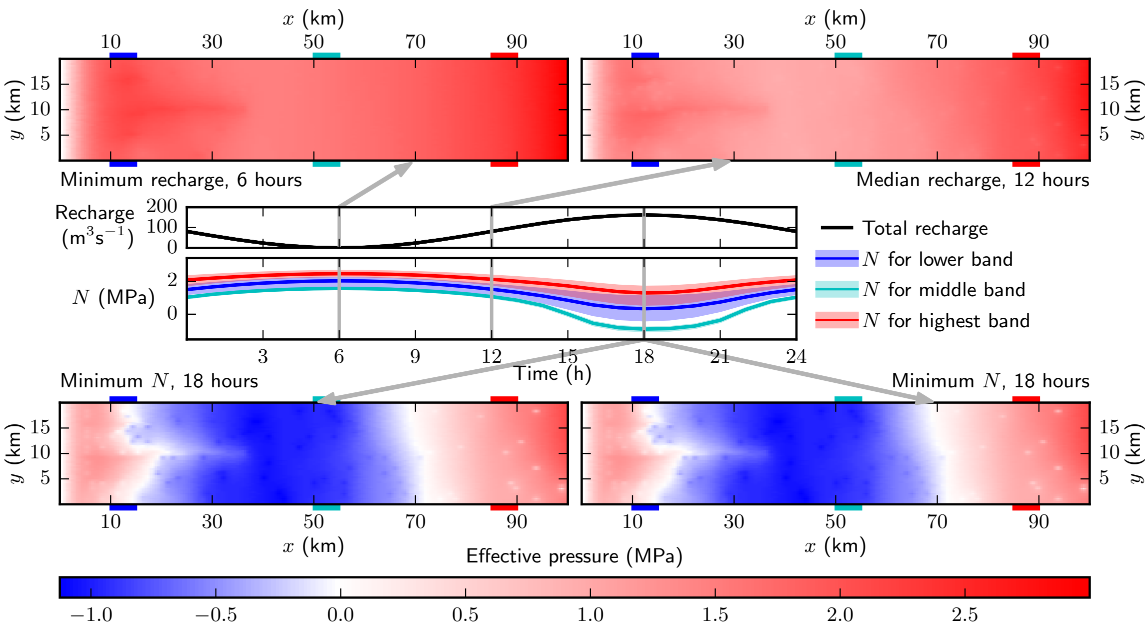

Figure S337: This is the result of run C3 for model *og* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

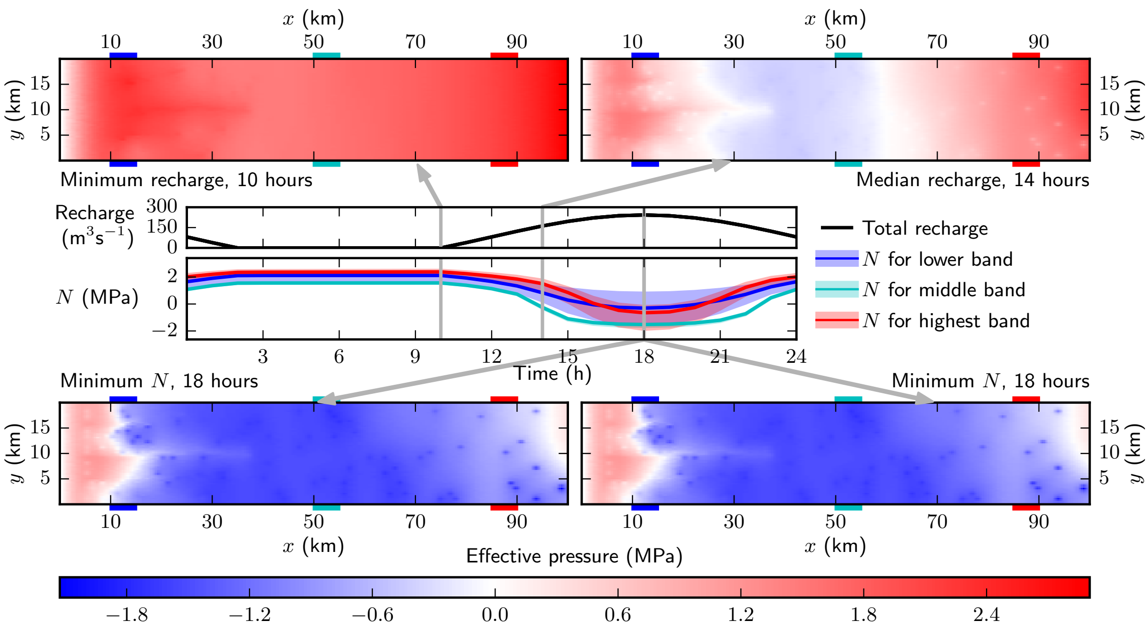

Figure S338: This is the result of run C4 for model *og* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

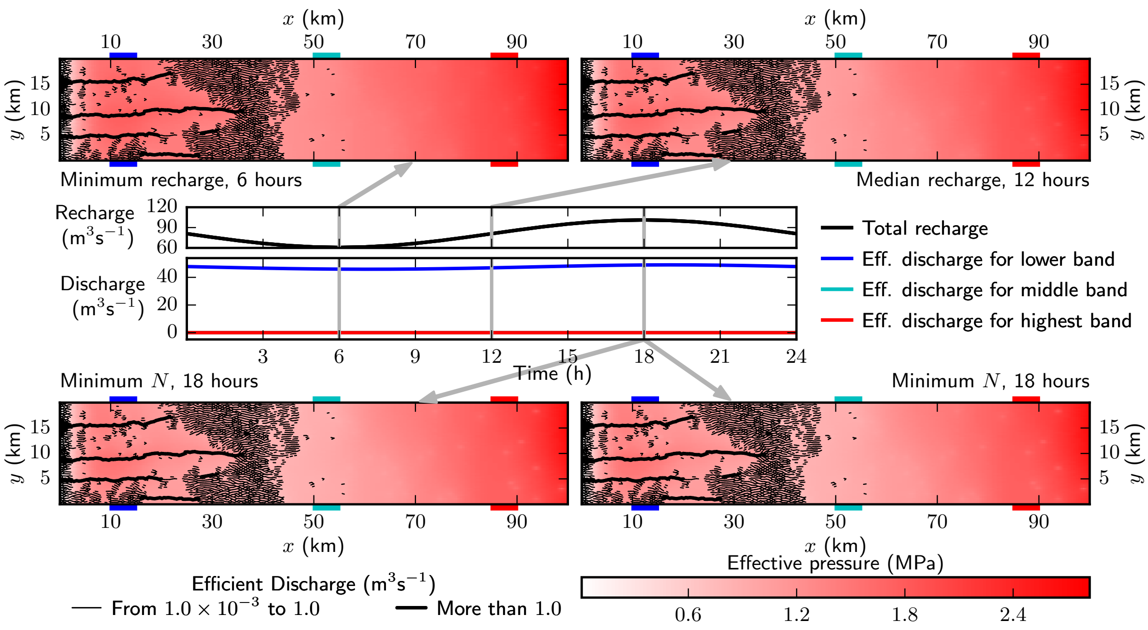

Figure S339: This is the result of run C1 for model *og* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

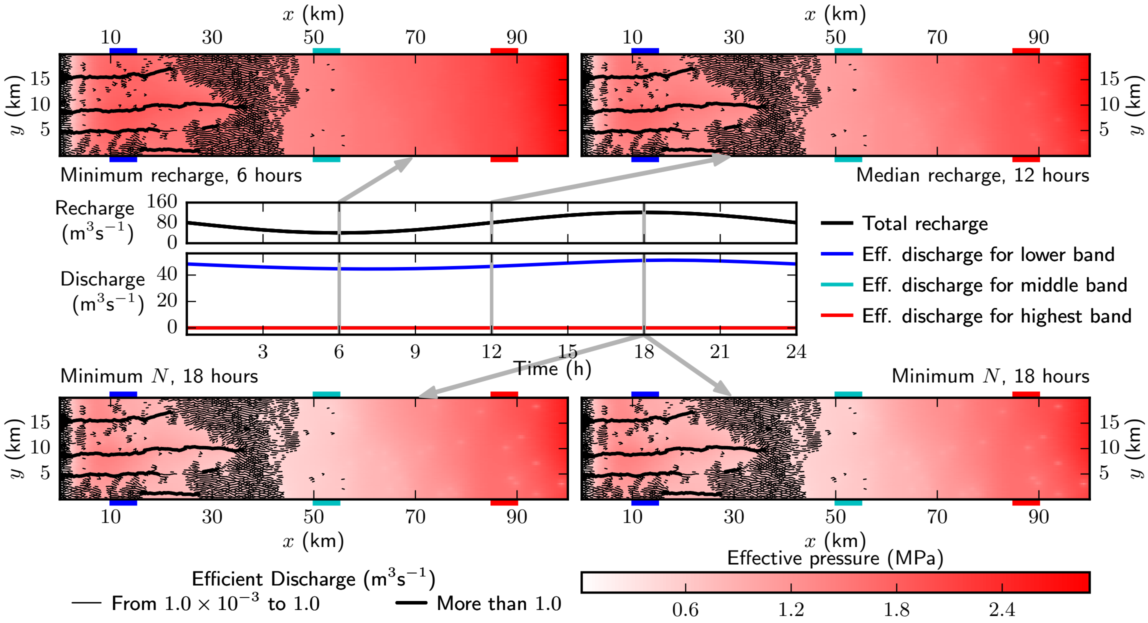

Figure S340: This is the result of run C2 for model *og* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

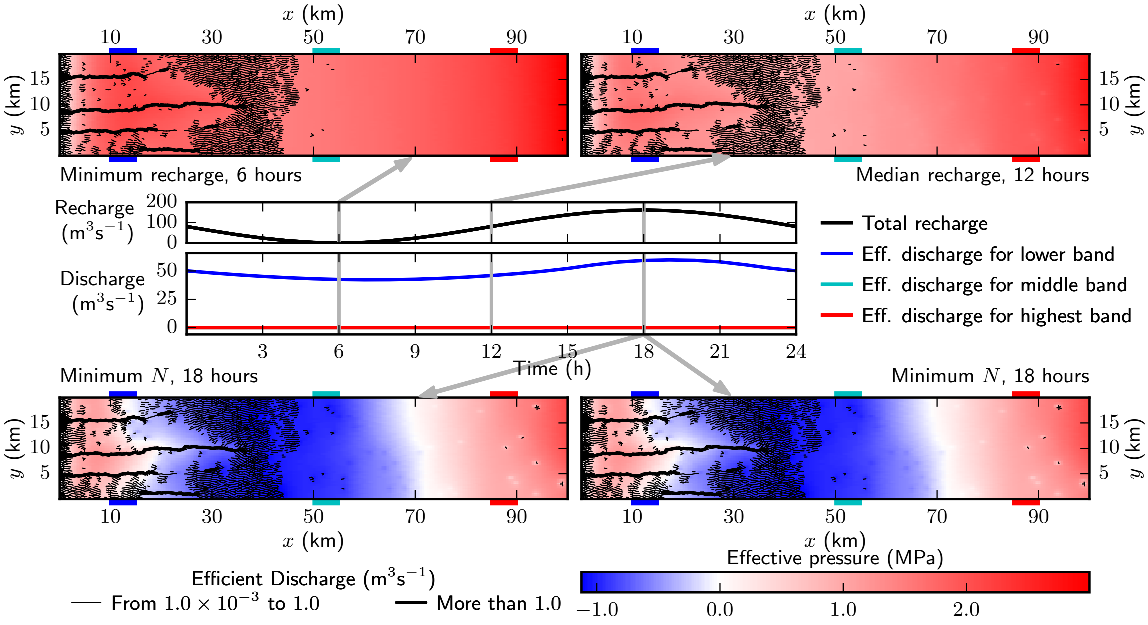

Figure S341: This is the result of run C3 for model *og* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

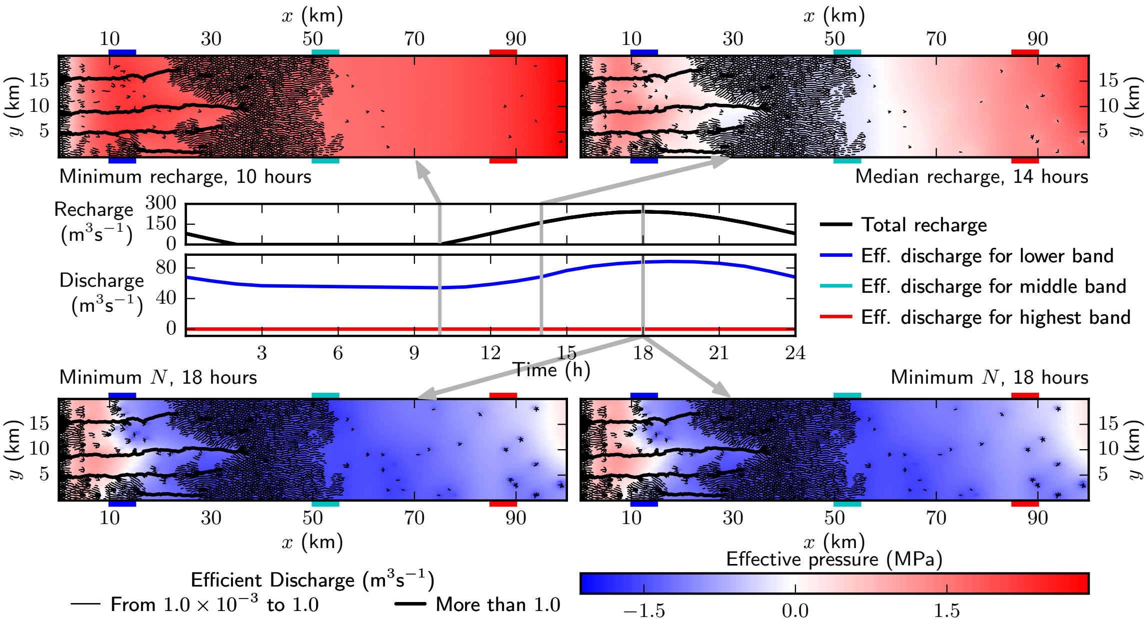

Figure S342: This is the result of run C4 for model *og* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

S2.2.21. Suite D model *og*

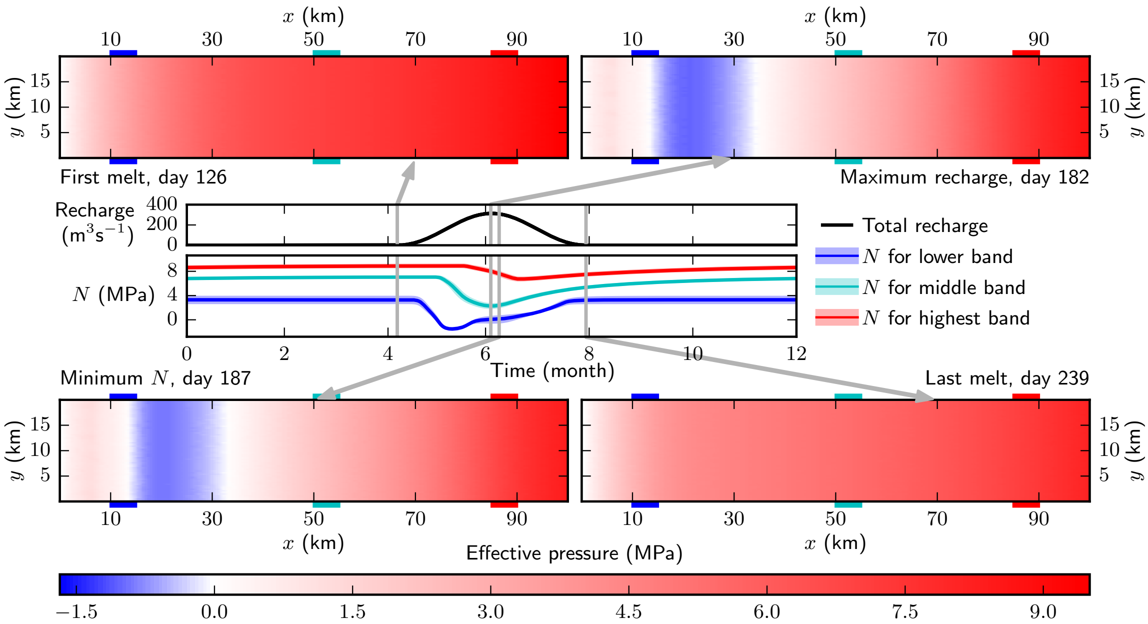

Figure S343: This is the result of run D1 for model *og* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

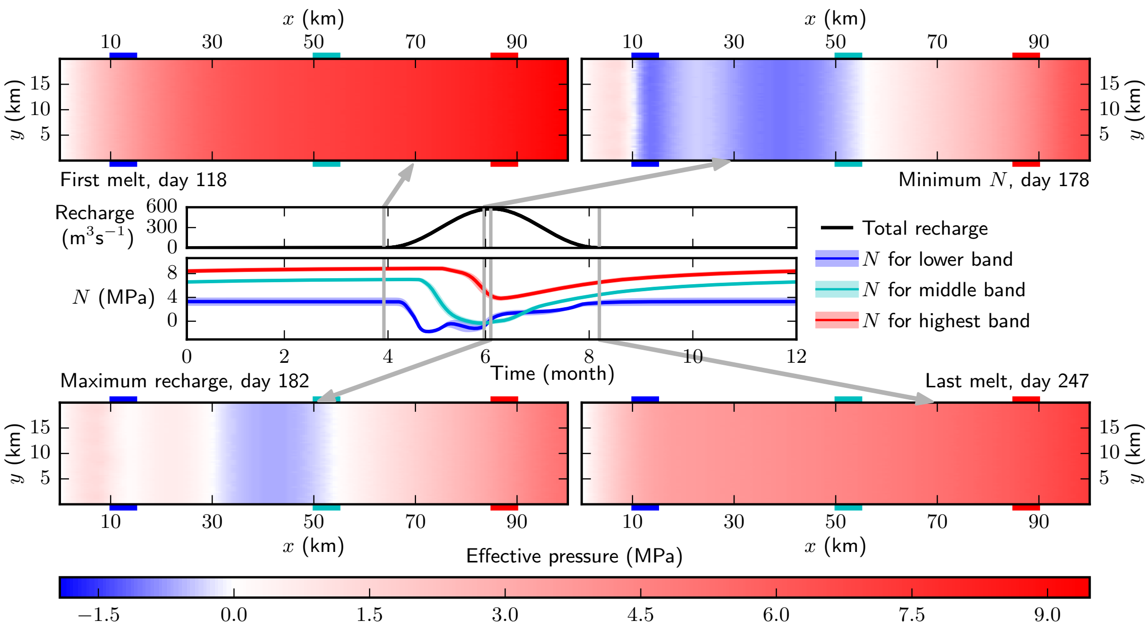

Figure S344: This is the result of run D2 for model *og* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

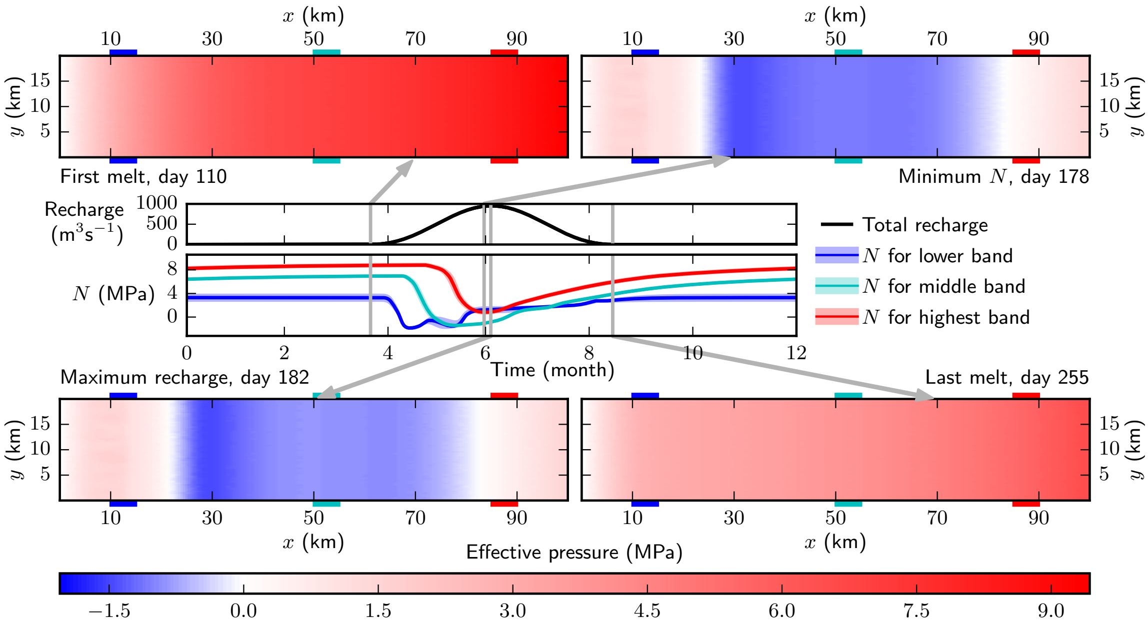

Figure S345: This is the result of run D3 for model *og* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

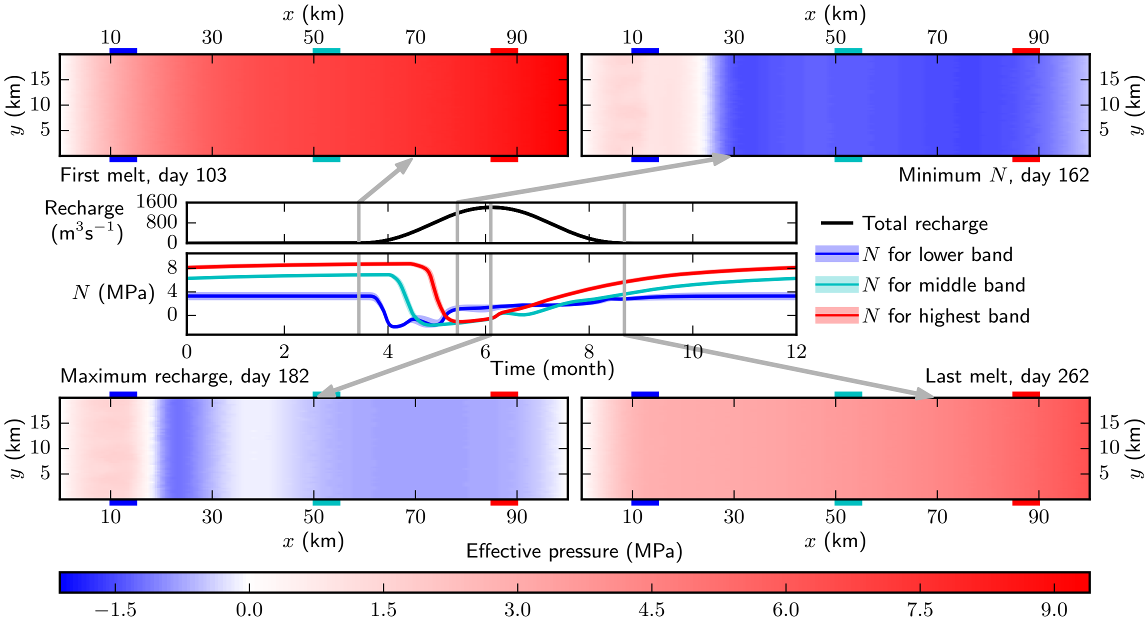

Figure S346: This is the result of run D4 for model *og* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

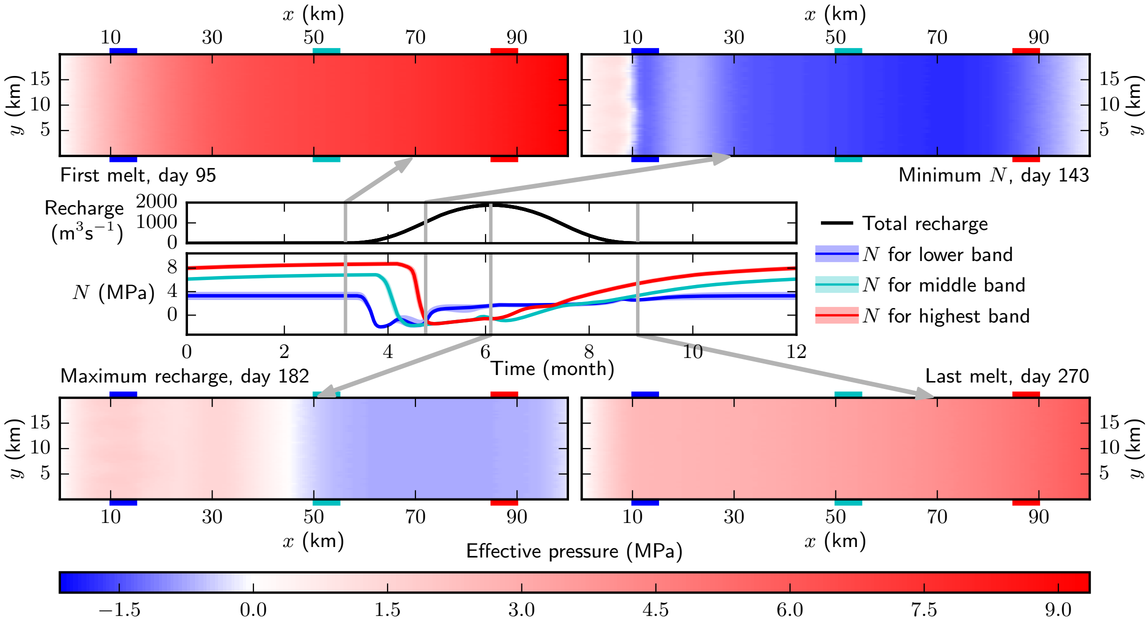

Figure S347: This is the result of run D5 for model *og* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

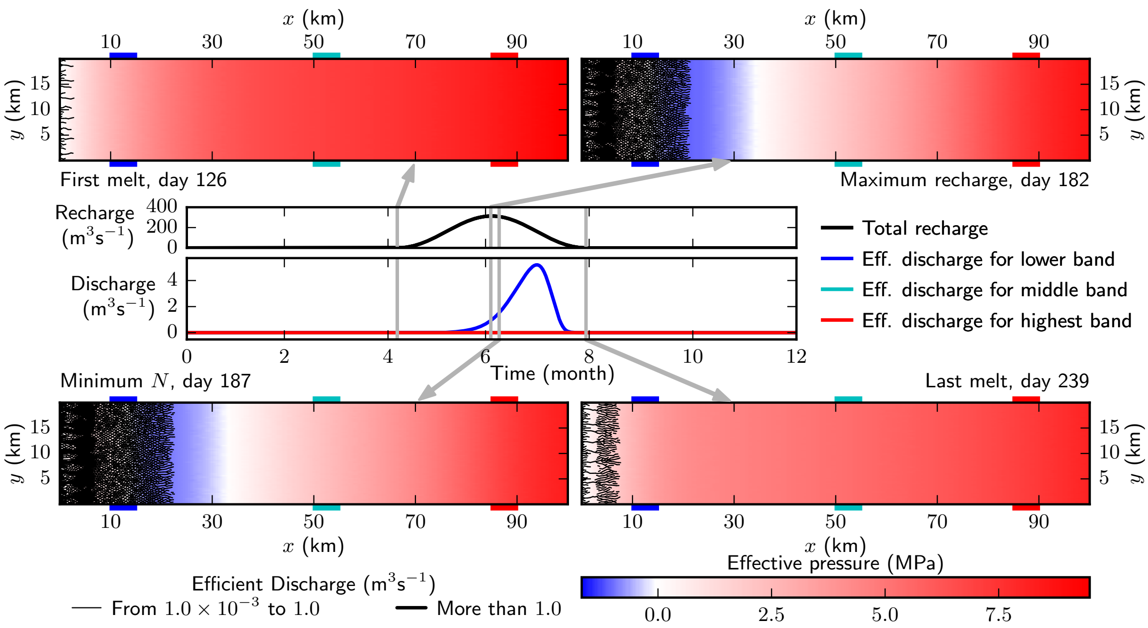

Figure S348: This is the result of run D1 for model *og* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

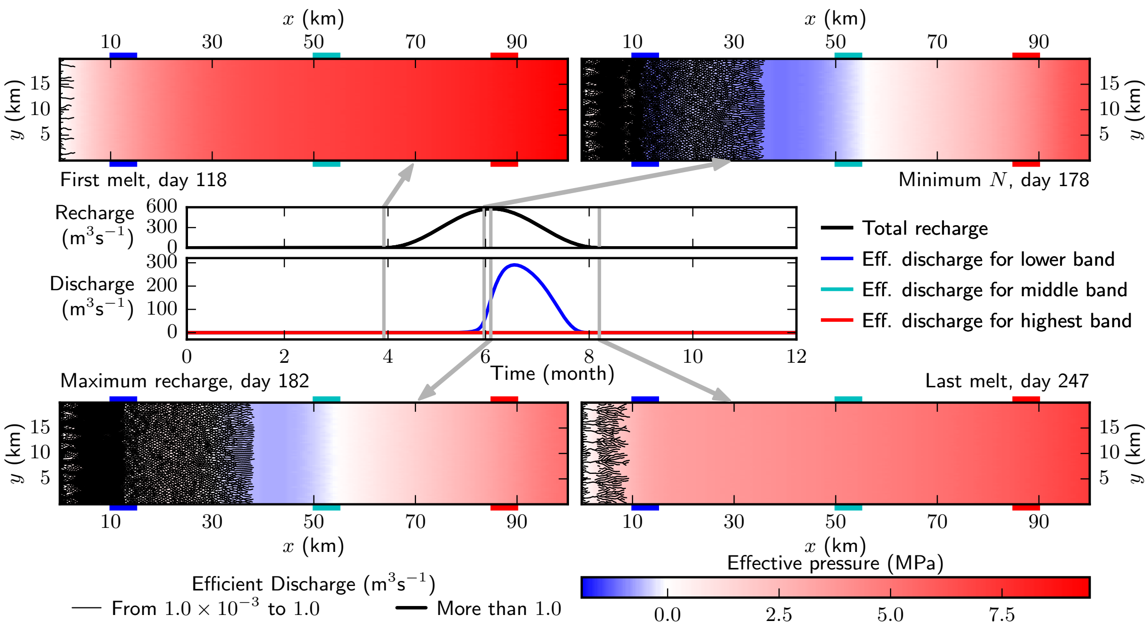

Figure S349: This is the result of run D2 for model *og* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

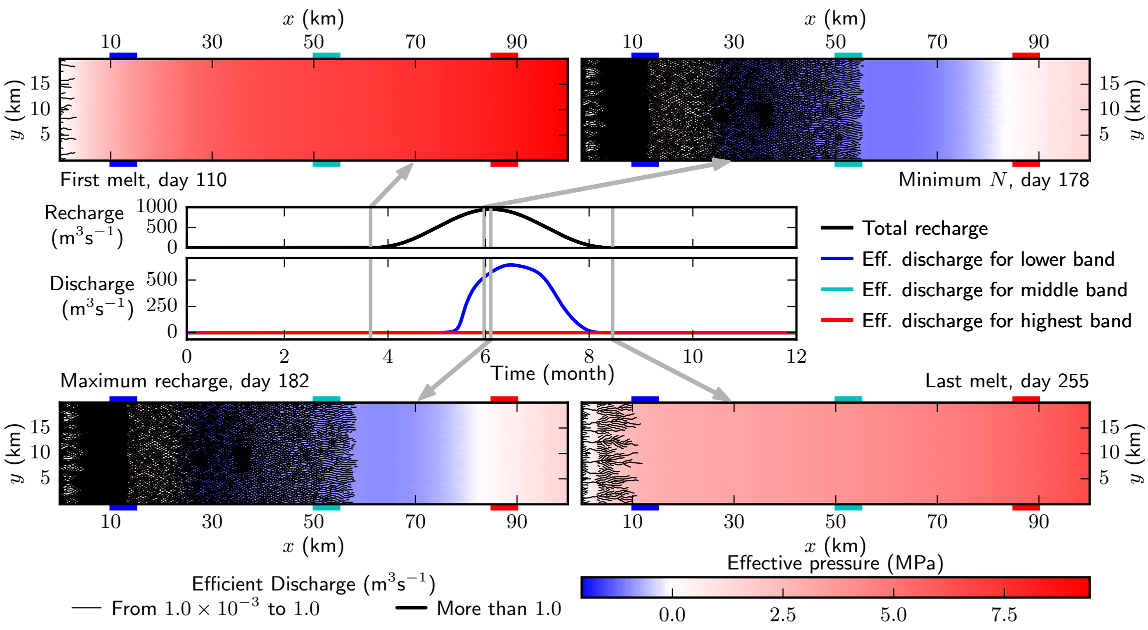

Figure S350: This is the result of run D3 for model *og* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

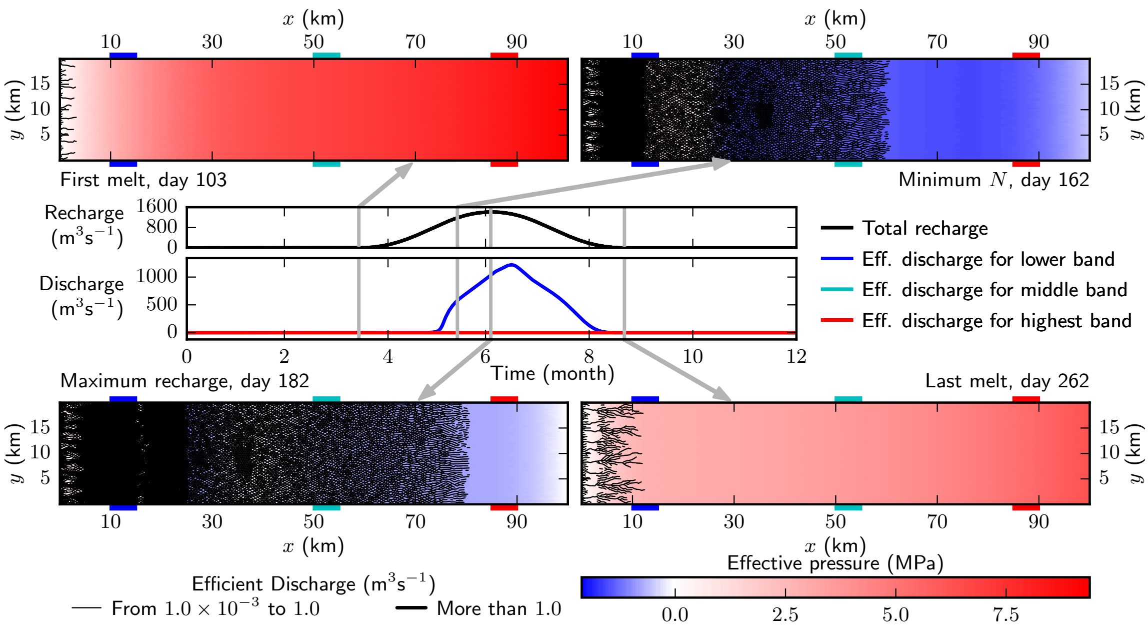

Figure S351: This is the result of run D4 for model *og* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

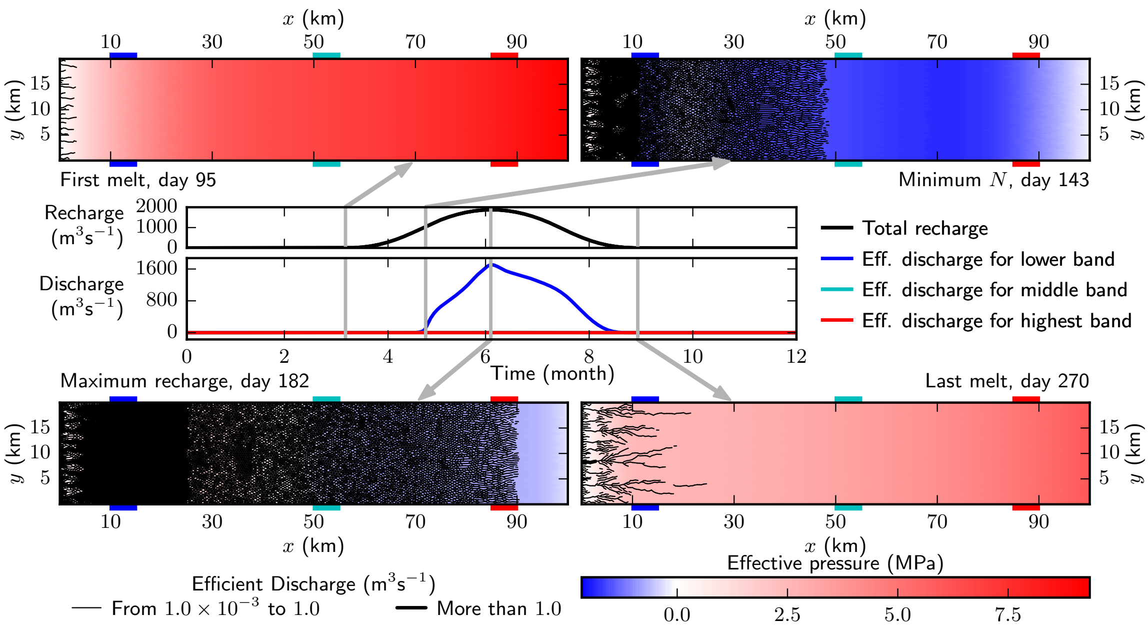

Figure S352: This is the result of run D5 for model *og* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

S2.2.22. Suite F model *og*

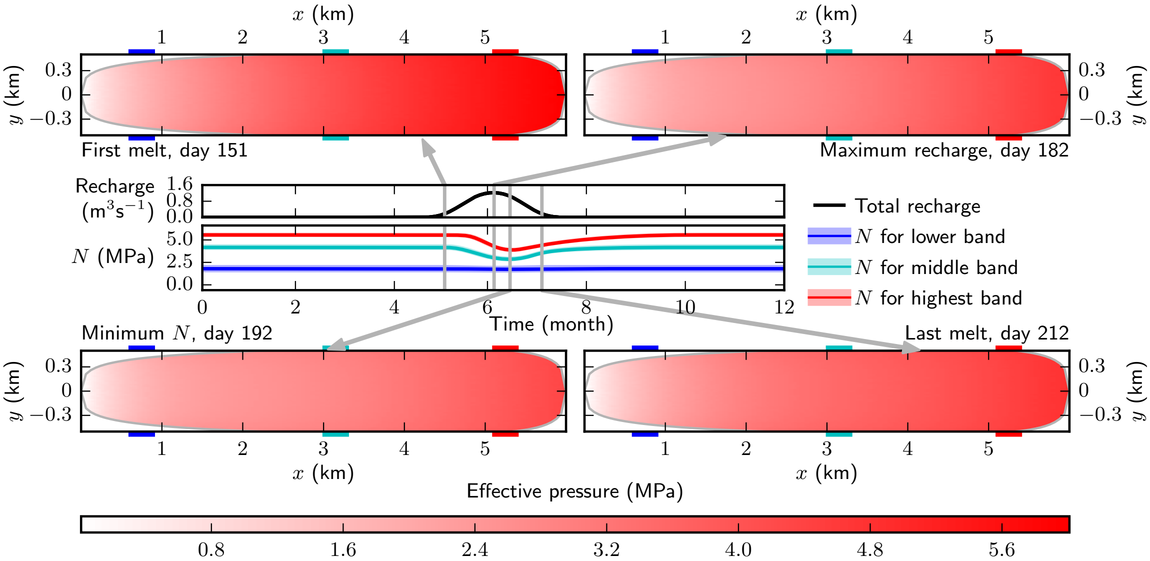

Figure S353: This is the result of run F1 for model *og* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

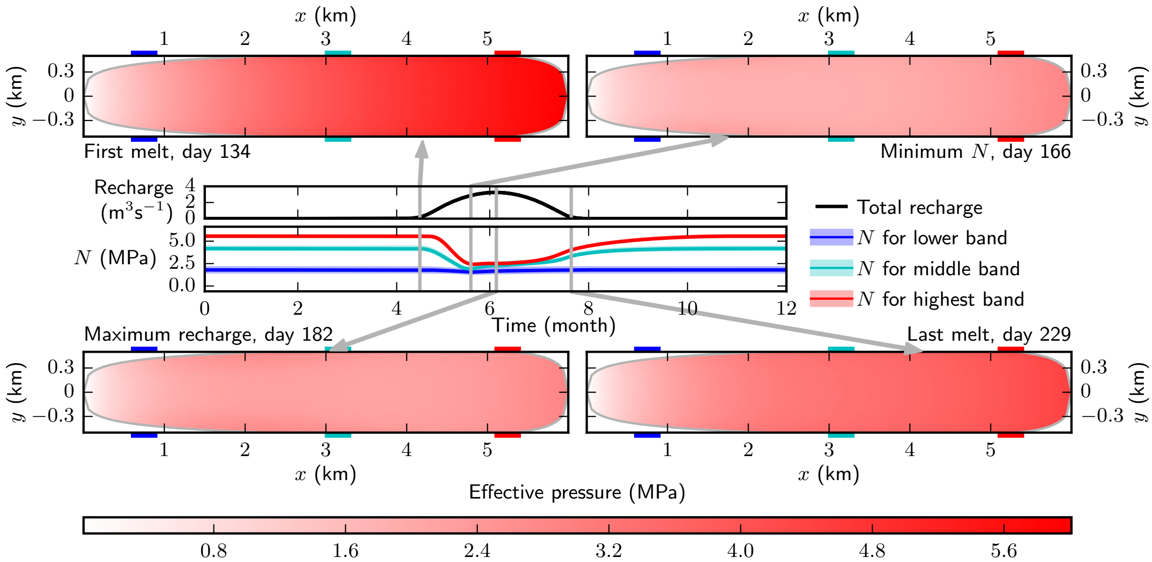

Figure S354: This is the result of run F2 for model *og* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

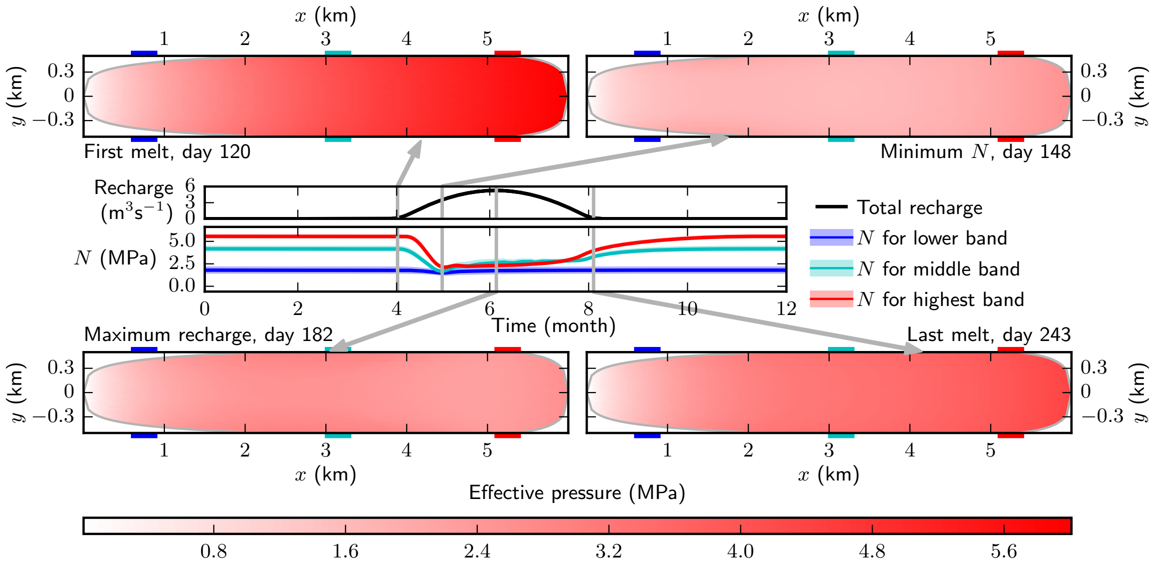

Figure S355: This is the result of run F3 for model *og* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

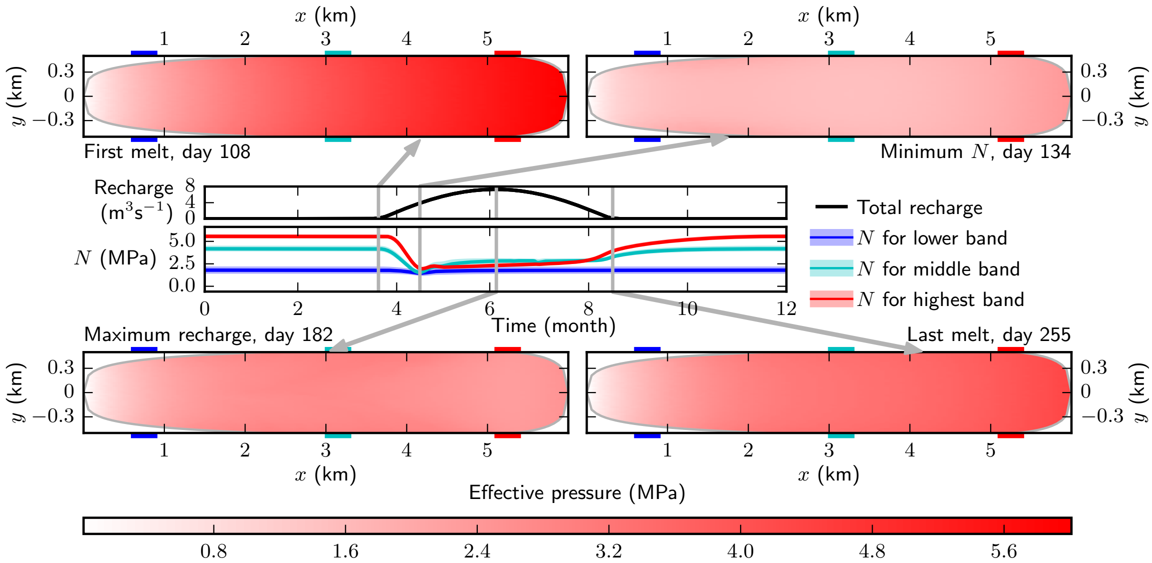

Figure S356: This is the result of run F4 for model *og* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

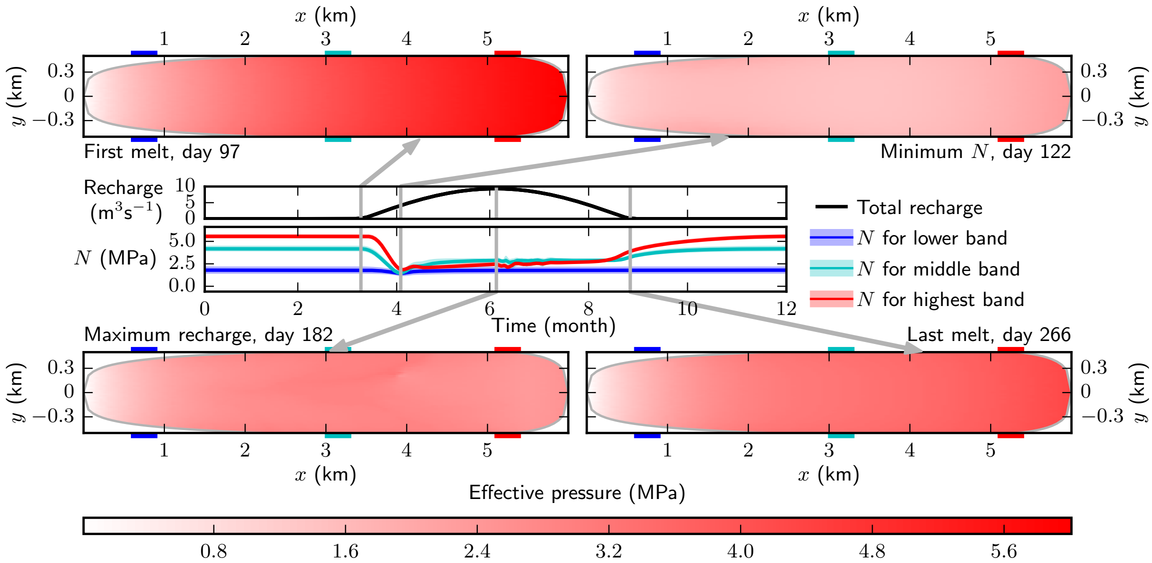

Figure S357: This is the result of run F5 for model *og* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

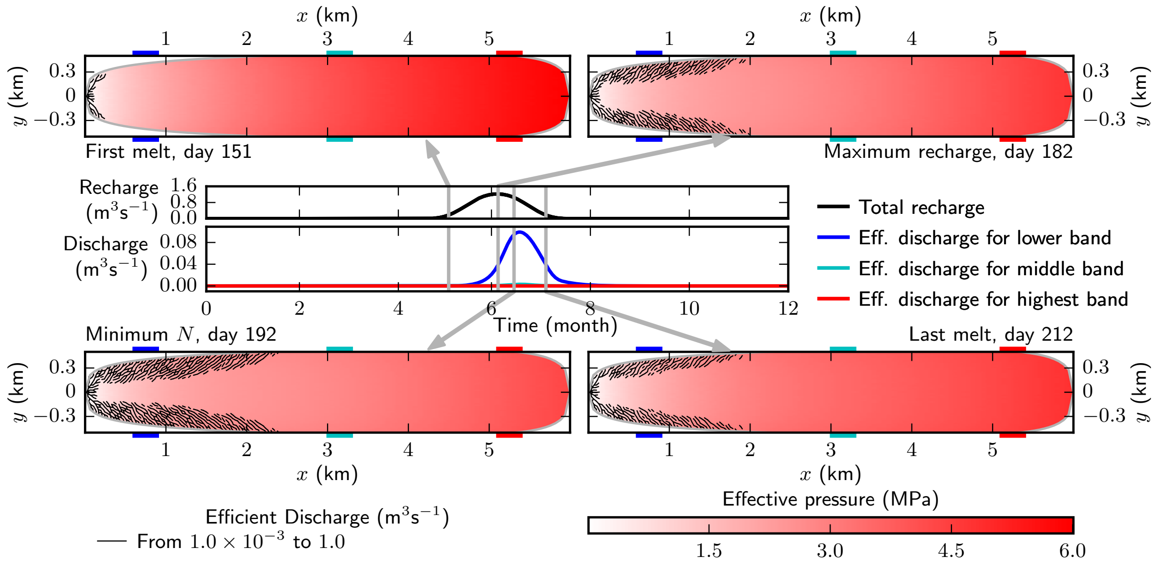

Figure S358: This is the result of run F1 for model *og* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

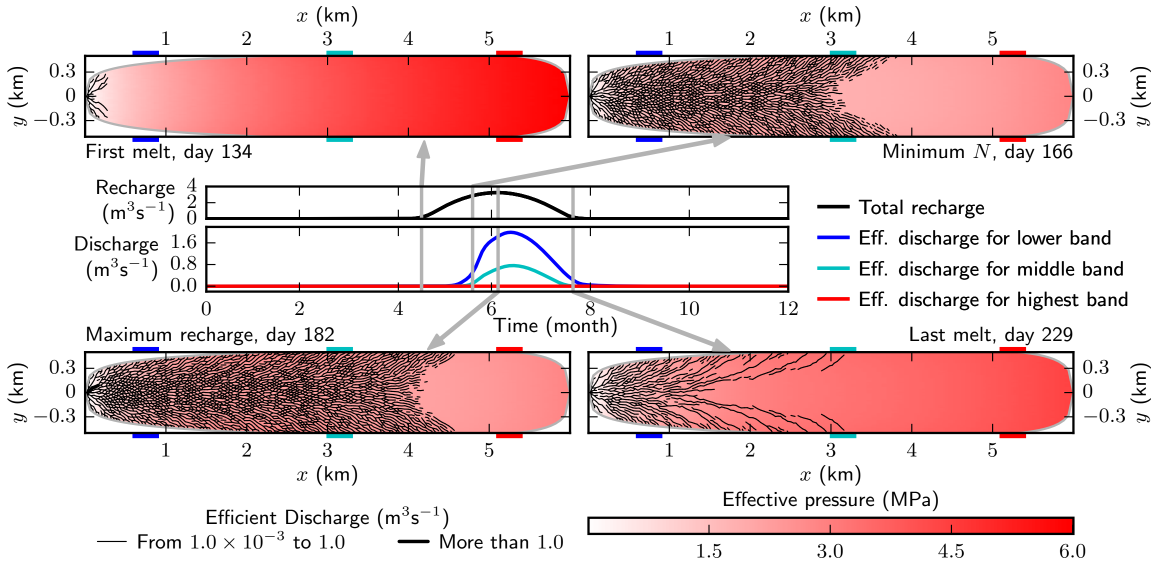

Figure S359: This is the result of run F2 for model *og* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

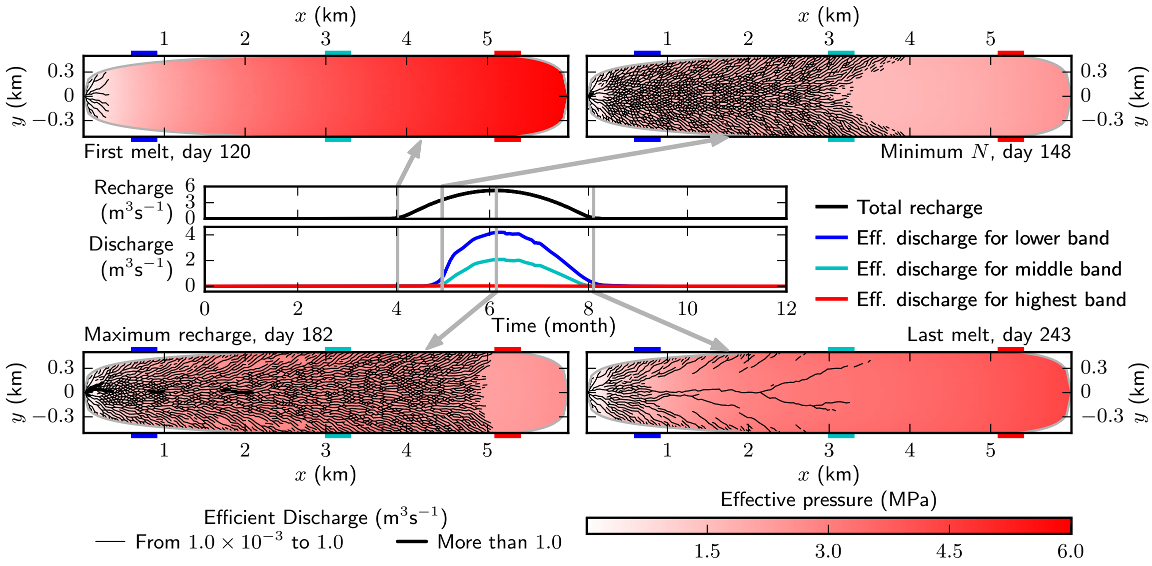

Figure S360: This is the result of run F3 for model *og* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

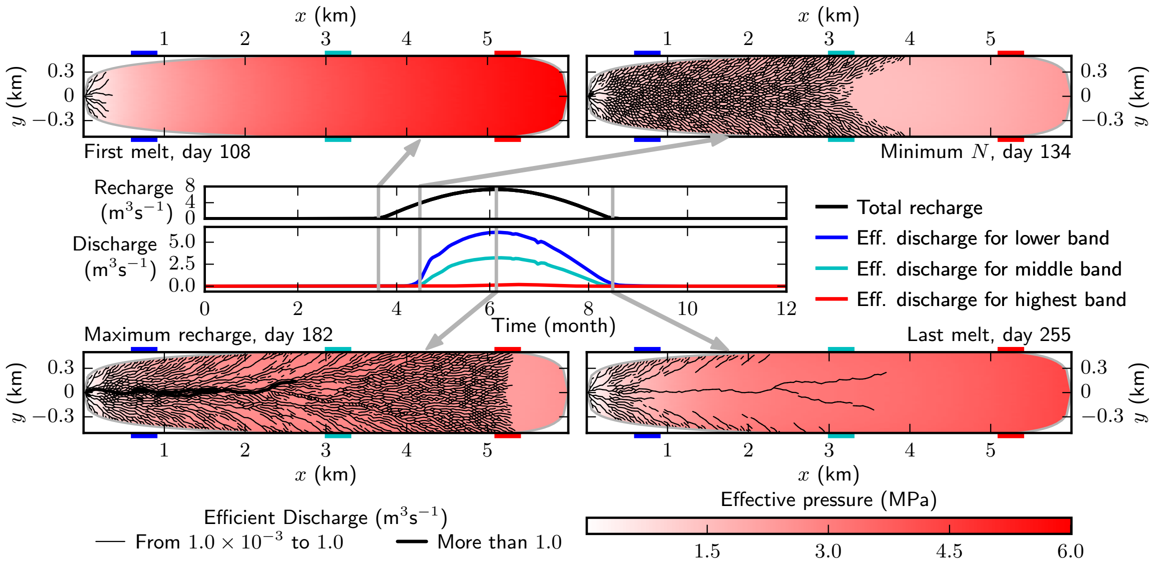

Figure S361: This is the result of run F4 for model *og* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

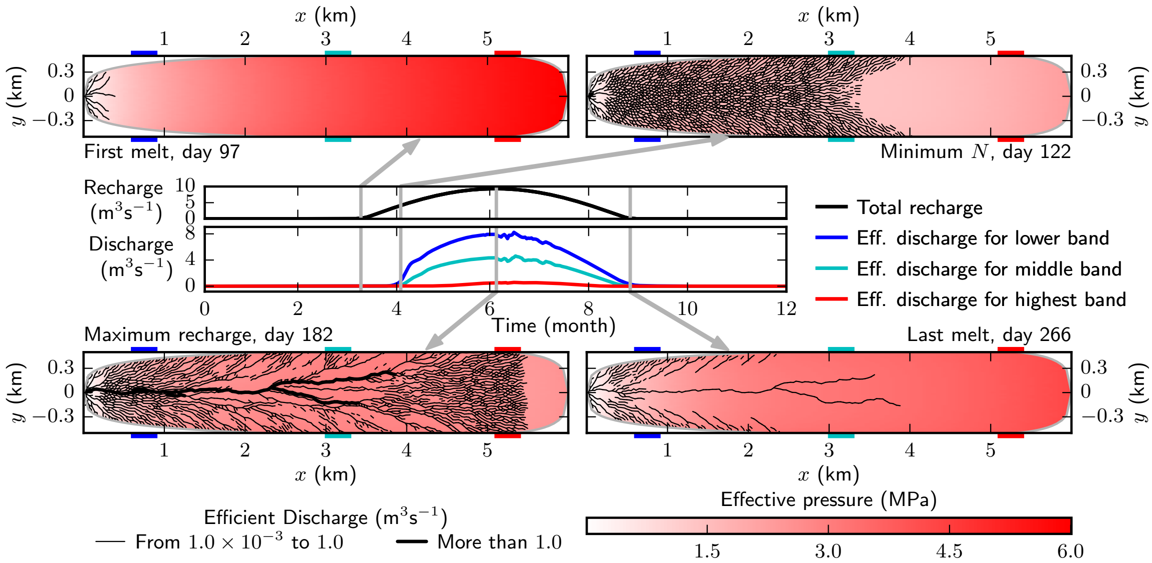

Figure S362: This is the result of run F5 for model *og* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

S2.2.23. Suite F model og'

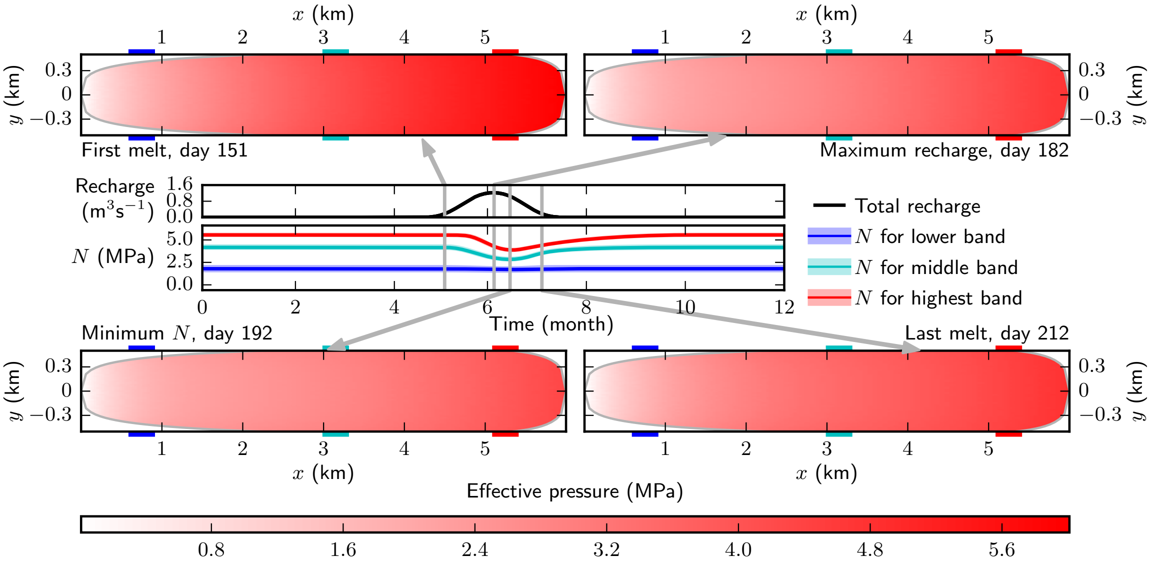

Figure S363: This is the result of run F1 for model og' in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

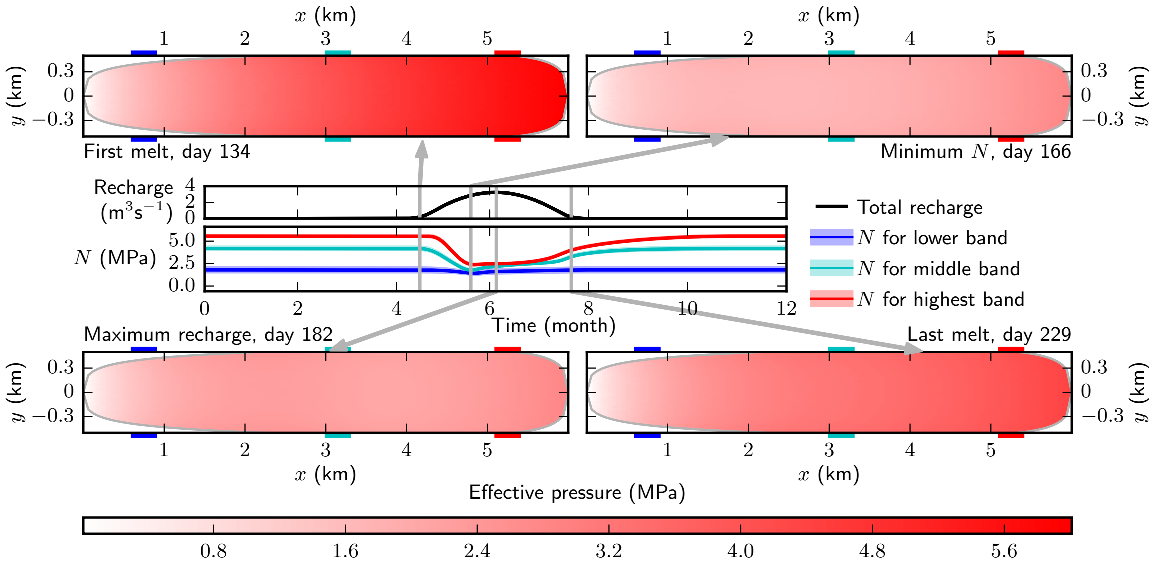

Figure S364: This is the result of run F2 for model og' in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

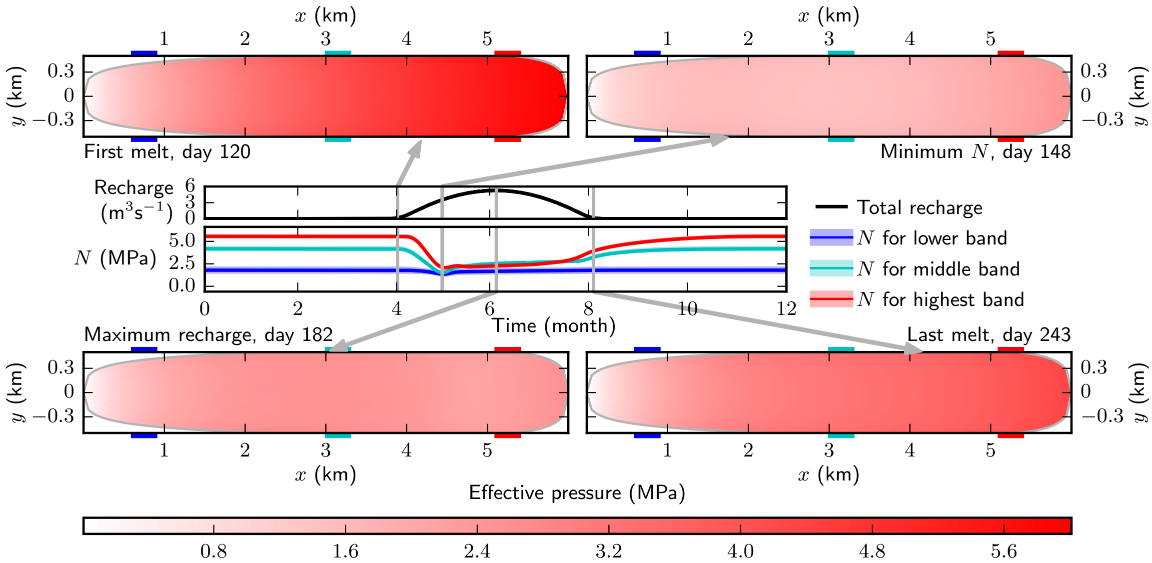

Figure S365: This is the result of run F3 for model og' in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

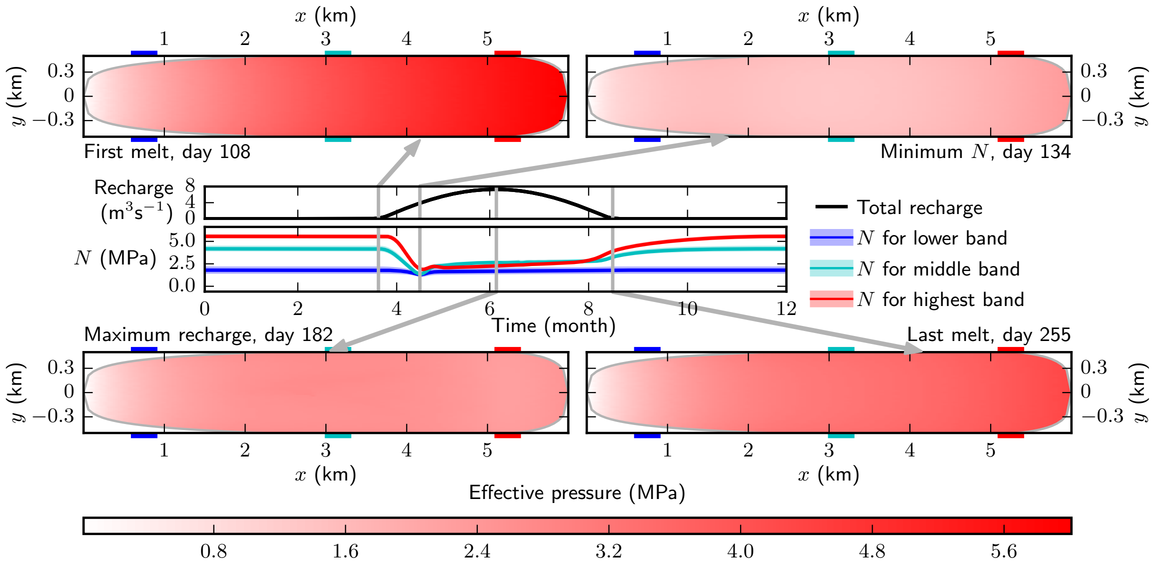

Figure S366: This is the result of run F4 for model og' in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

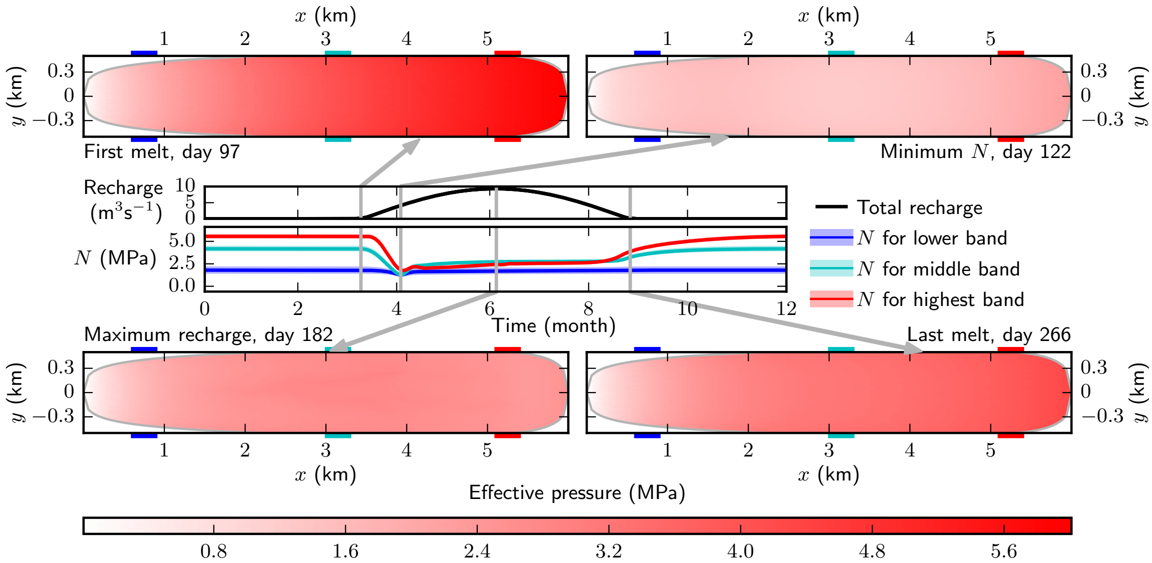

Figure S367: This is the result of run F5 for model og' in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

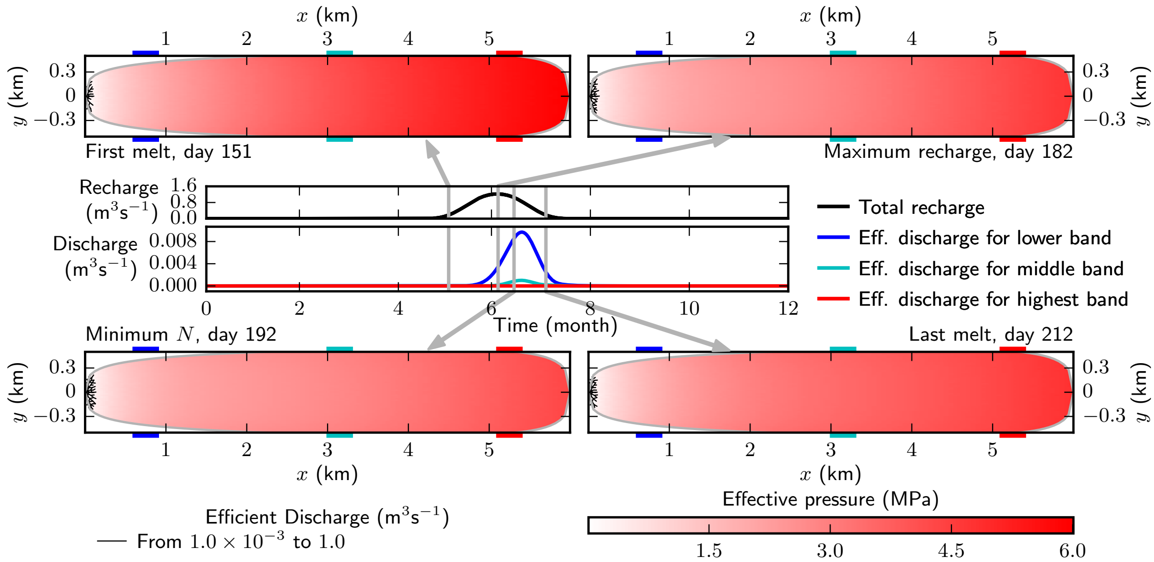

Figure S368: This is the result of run F1 for model og' in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

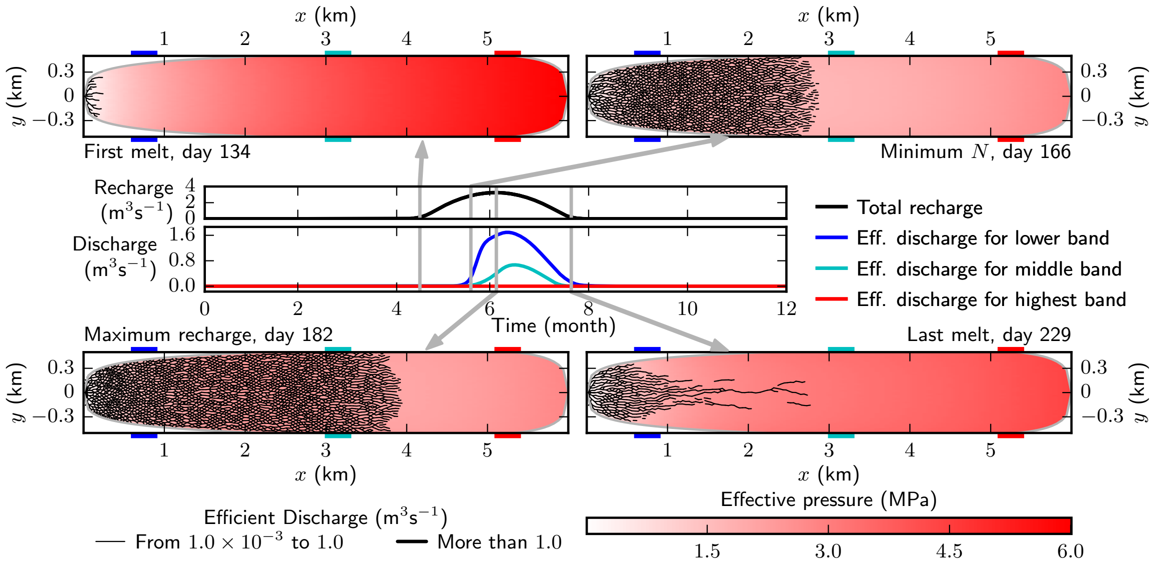

Figure S369: This is the result of run F2 for model og' in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

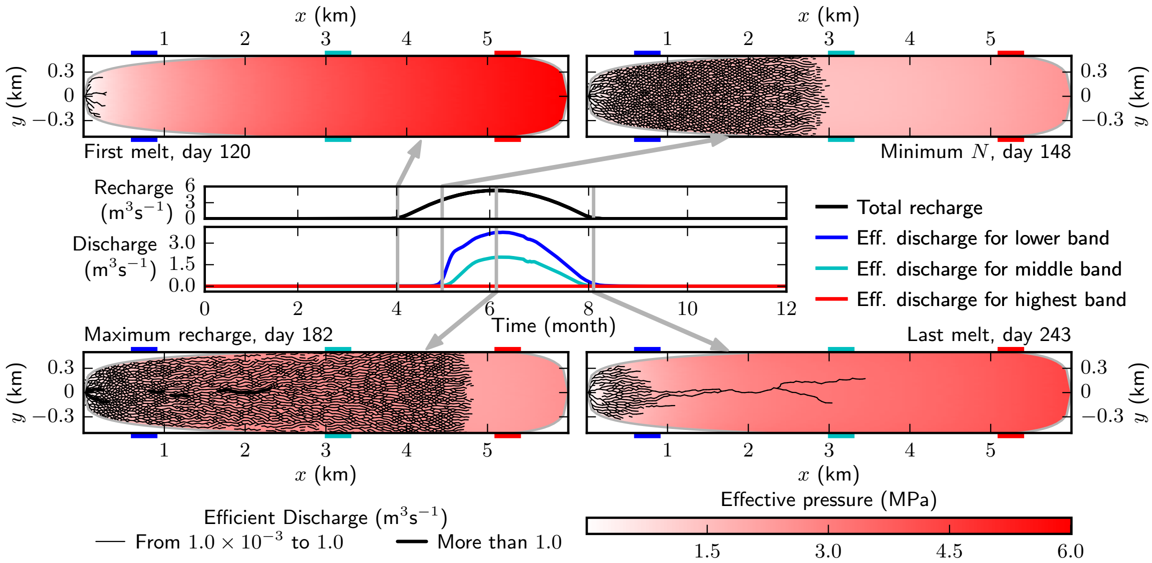

Figure S370: This is the result of run F3 for model og' in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

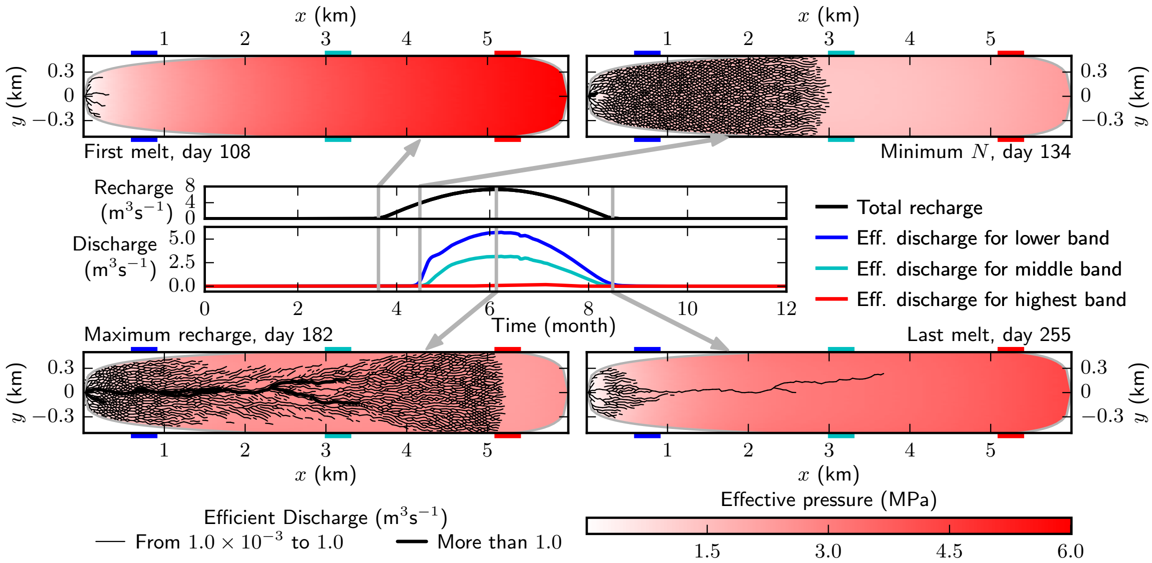

Figure S371: This is the result of run F4 for model og' in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

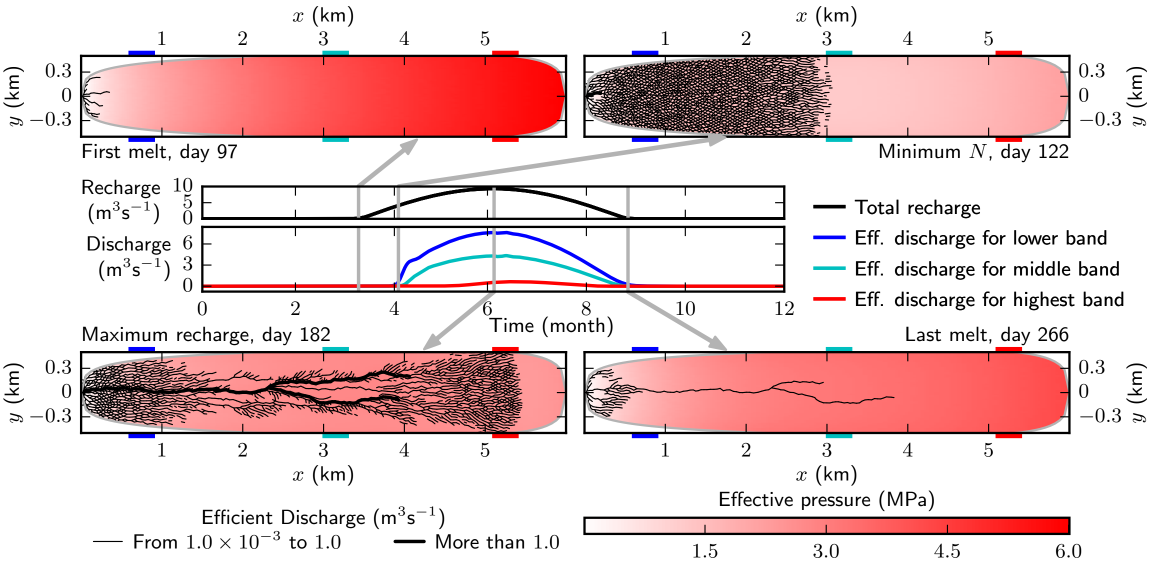

Figure S372: This is the result of run F5 for model og' in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

S2.2.24. Suite C model mw

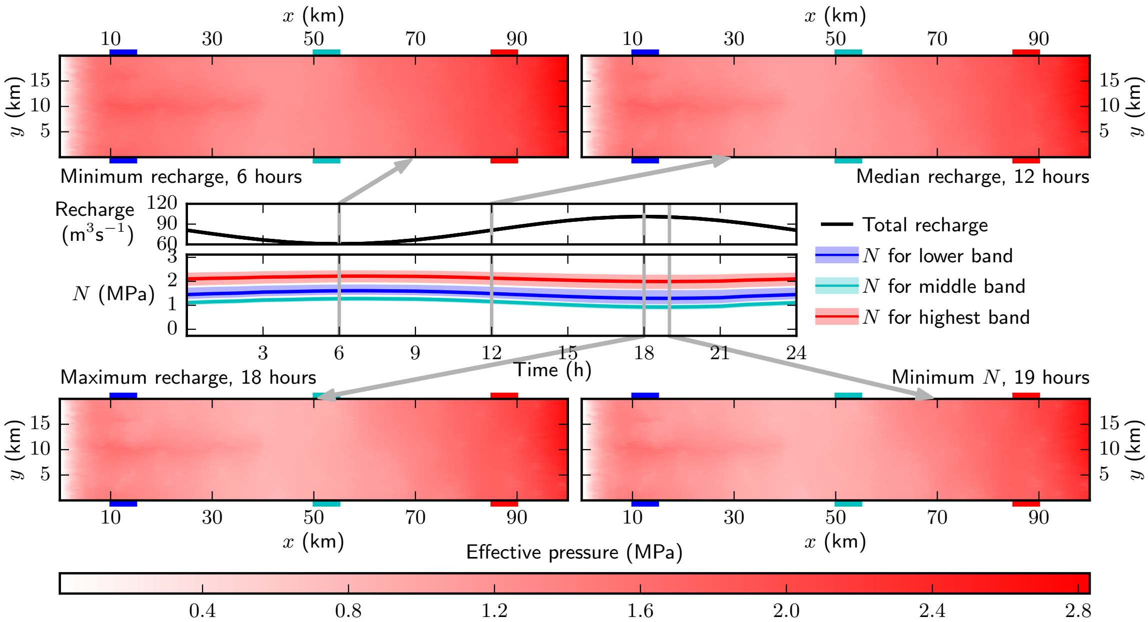

Figure S373: This is the result of run C1 for model mw in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

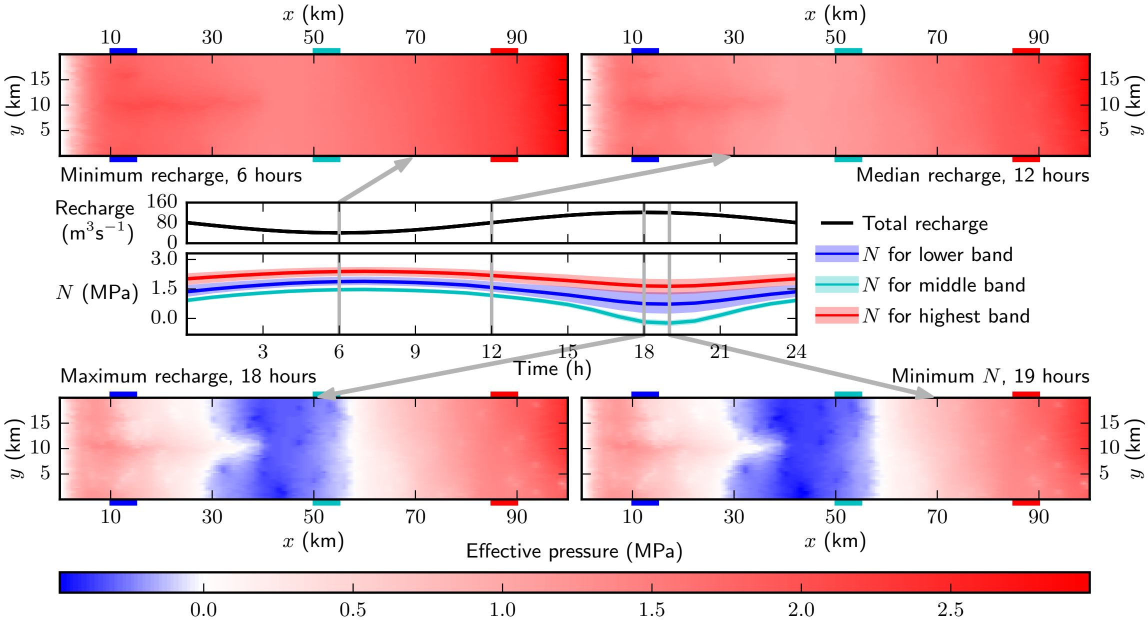

Figure S374: This is the result of run C2 for model *mw* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

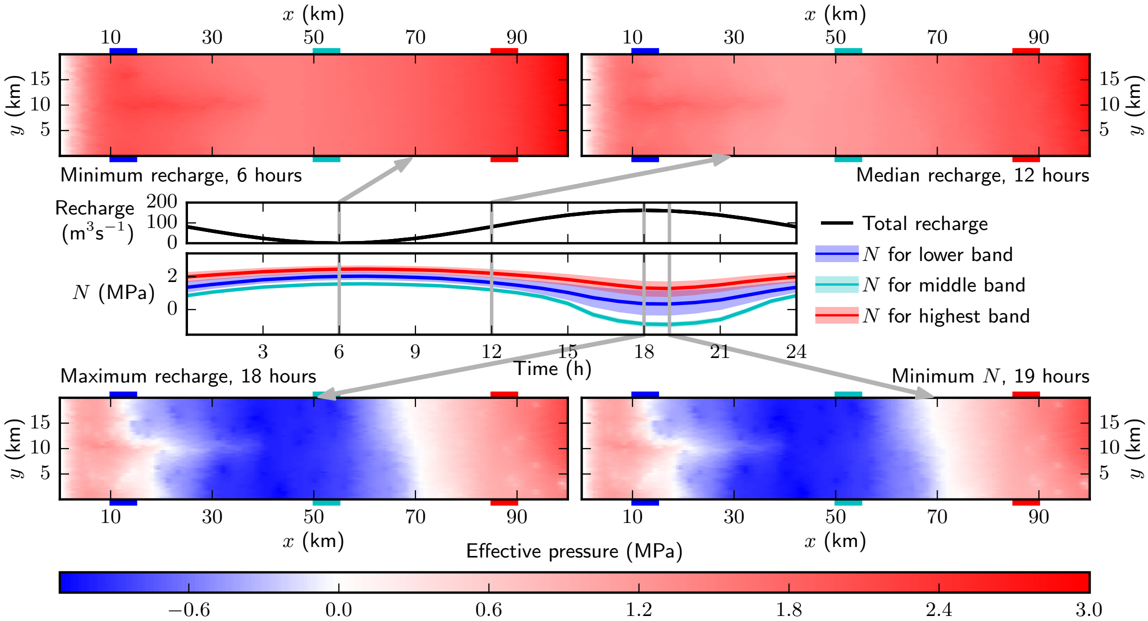

Figure S375: This is the result of run C3 for model *mw* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

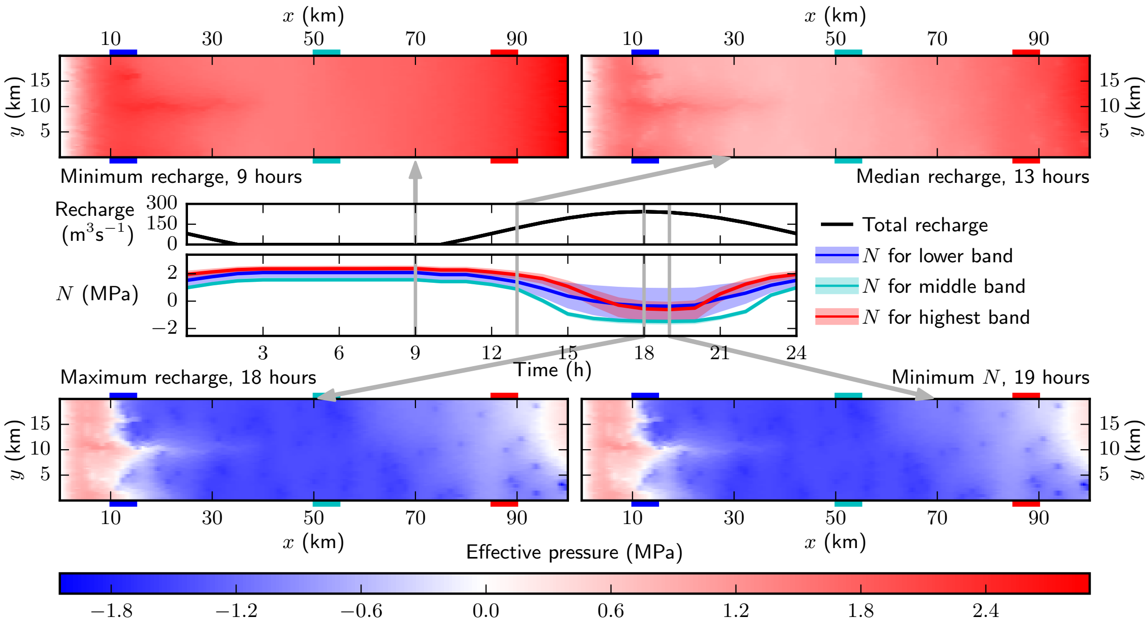

Figure S376: This is the result of run C4 for model *mw* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

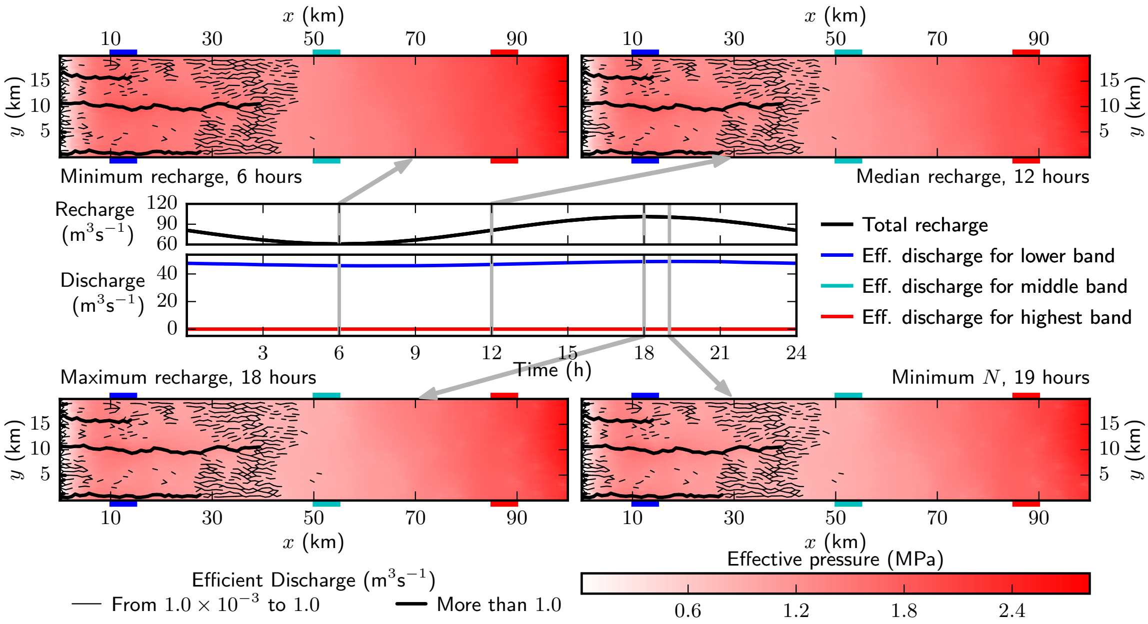

Figure S377: This is the result of run C1 for model *mw* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

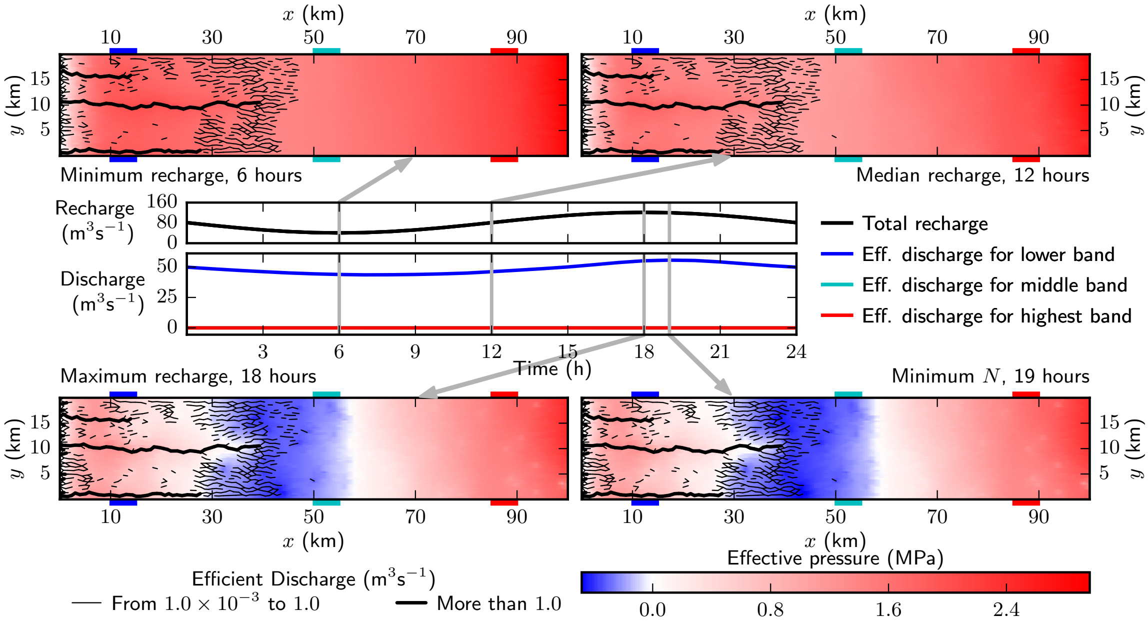

Figure S378: This is the result of run C2 for model *mw* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

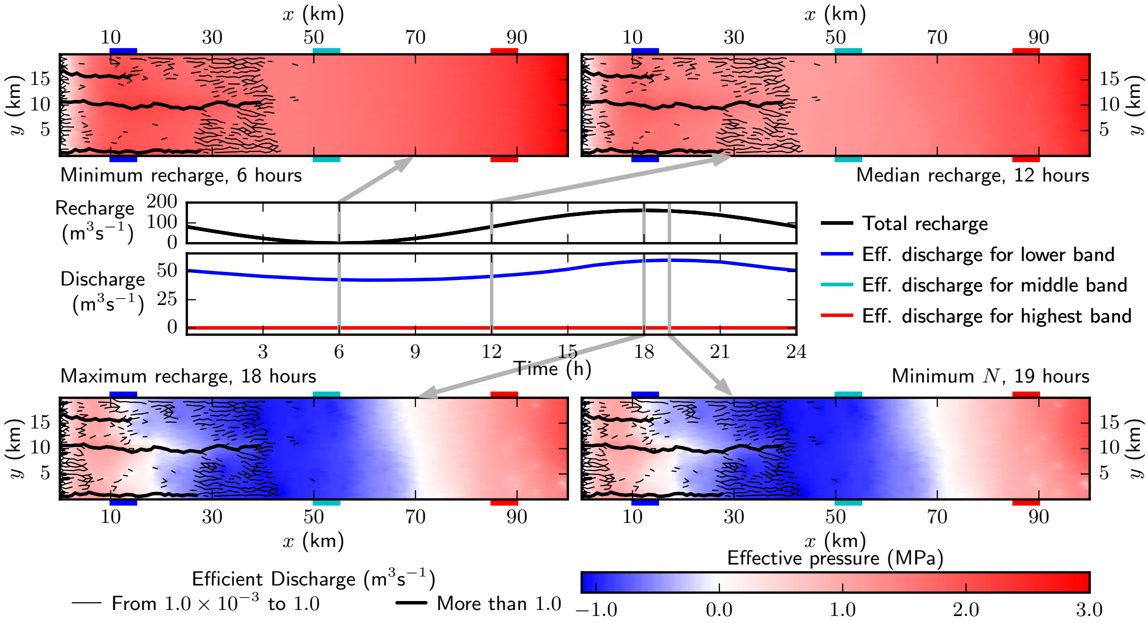

Figure S379: This is the result of run C3 for model *mw* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

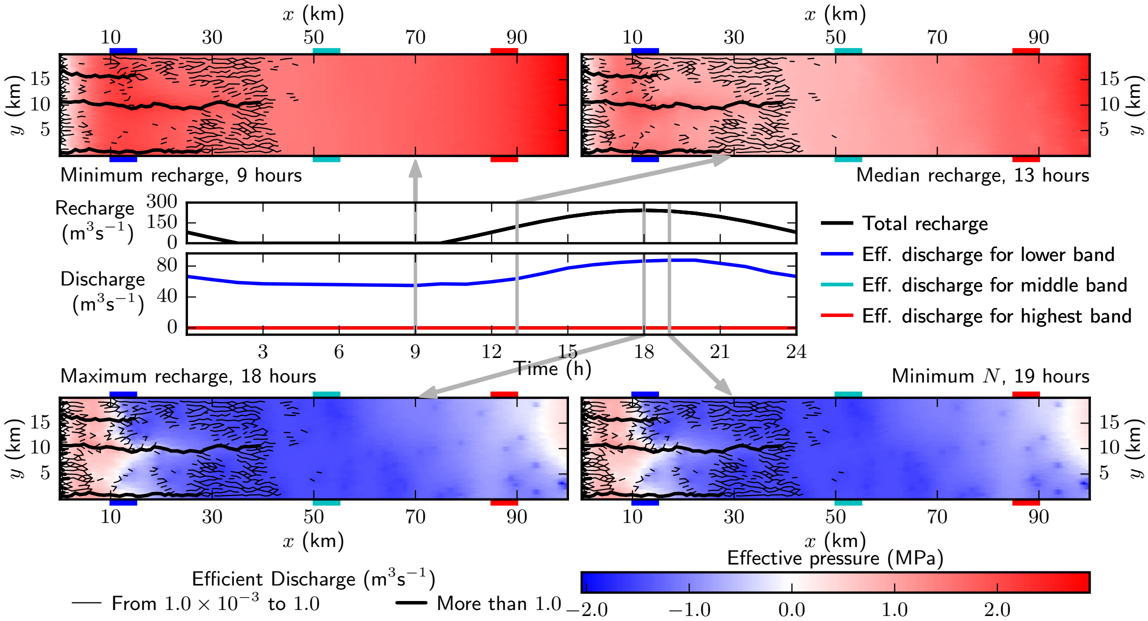

Figure S380: This is the result of run C4 for model *mw* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

S2.2.25. Suite D model mw

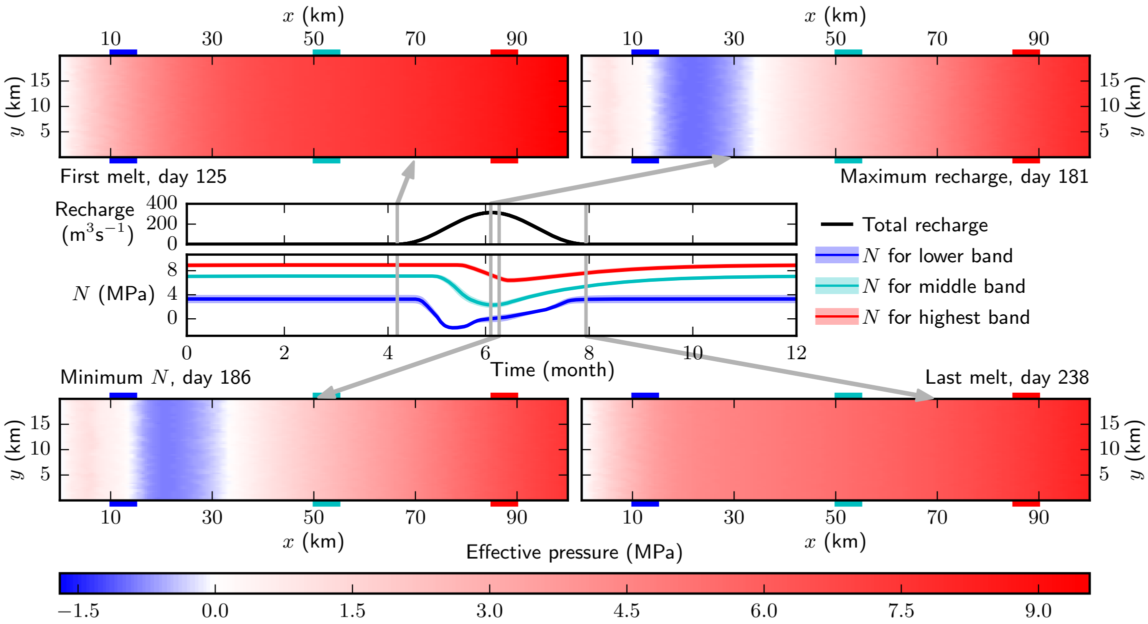

Figure S381: This is the result of run D1 for model mw in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

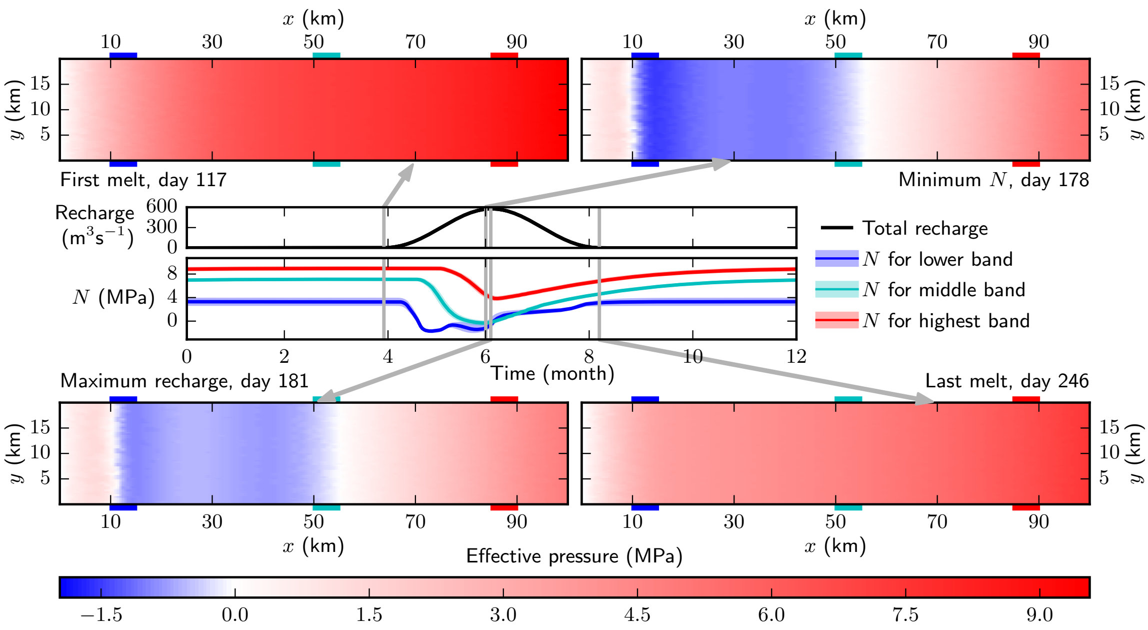

Figure S382: This is the result of run D2 for model *mw* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

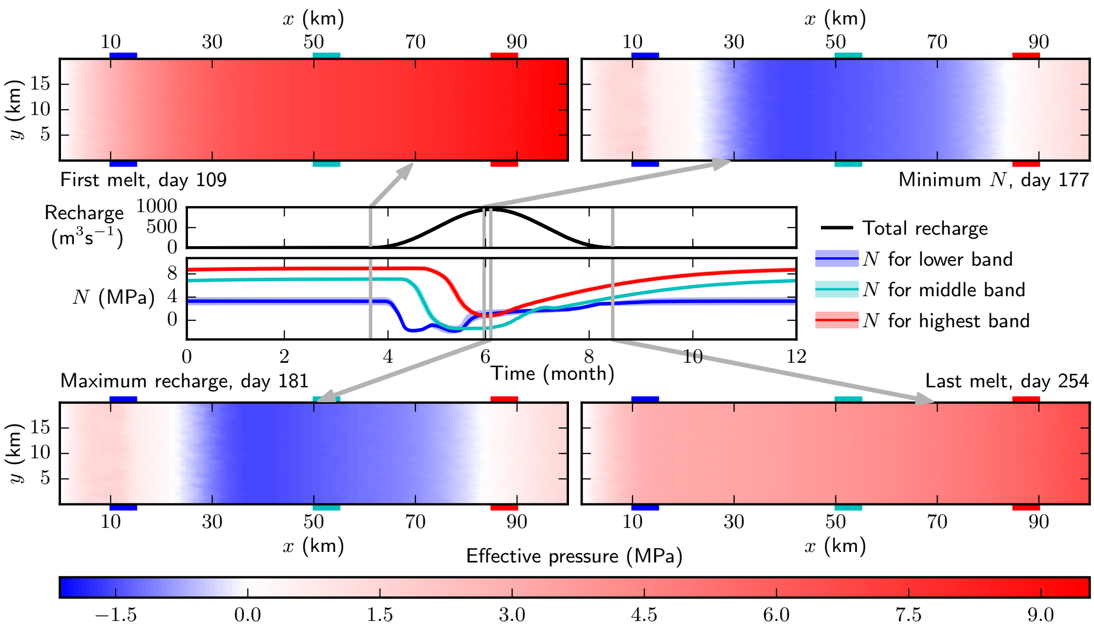

Figure S383: This is the result of run D3 for model *mw* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

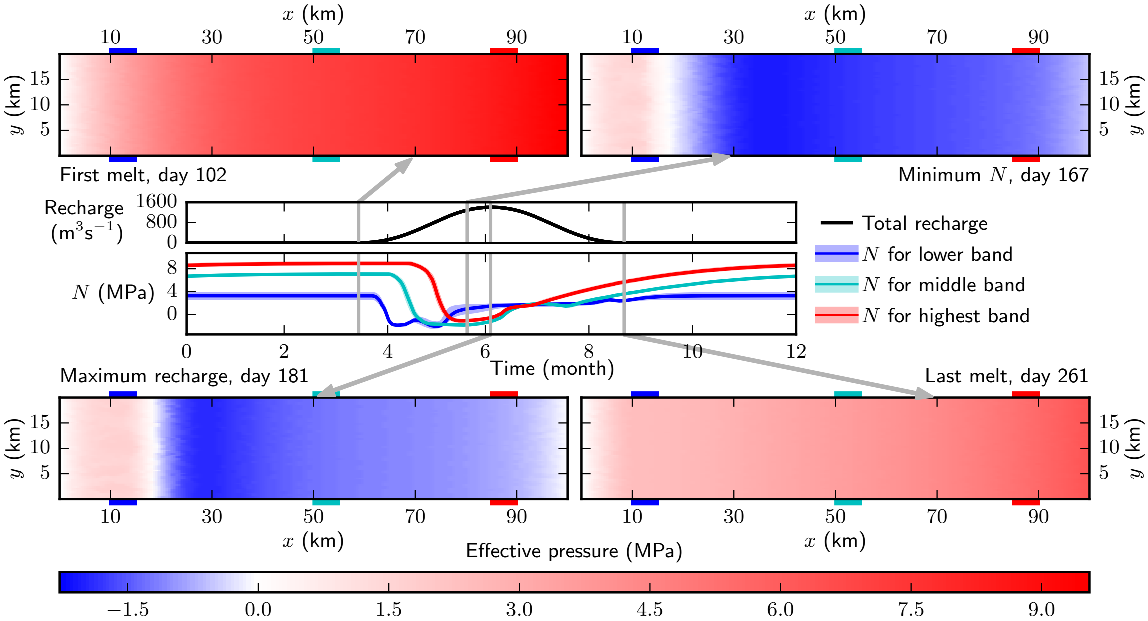

Figure S384: This is the result of run D4 for model *mw* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

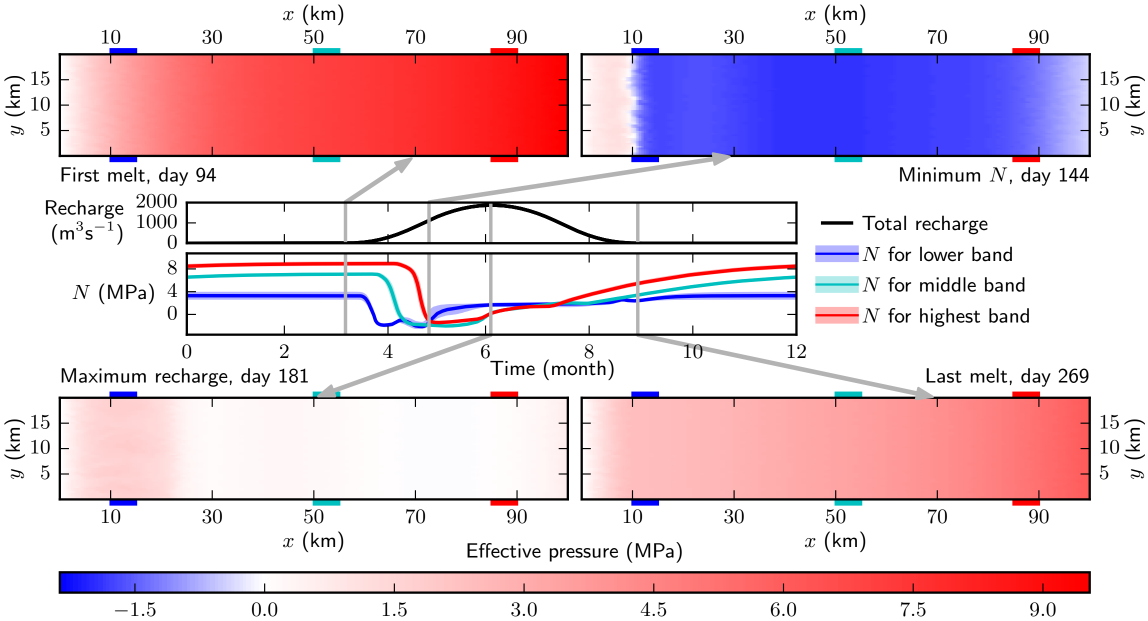

Figure S385: This is the result of run D5 for model *mw* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

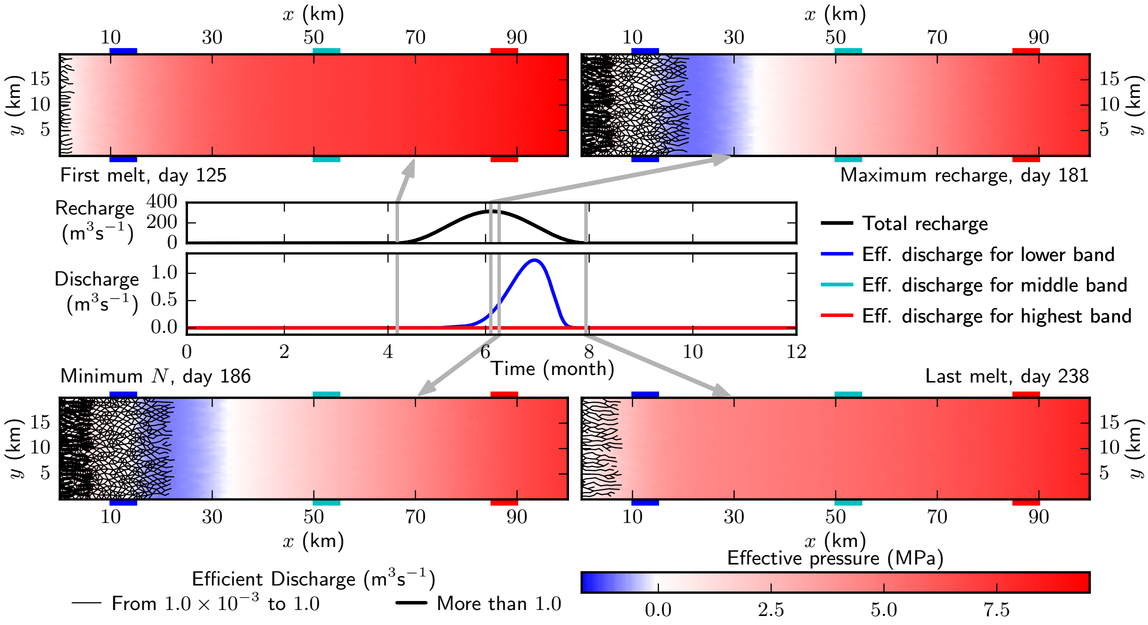

Figure S386: This is the result of run D1 for model *mw* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

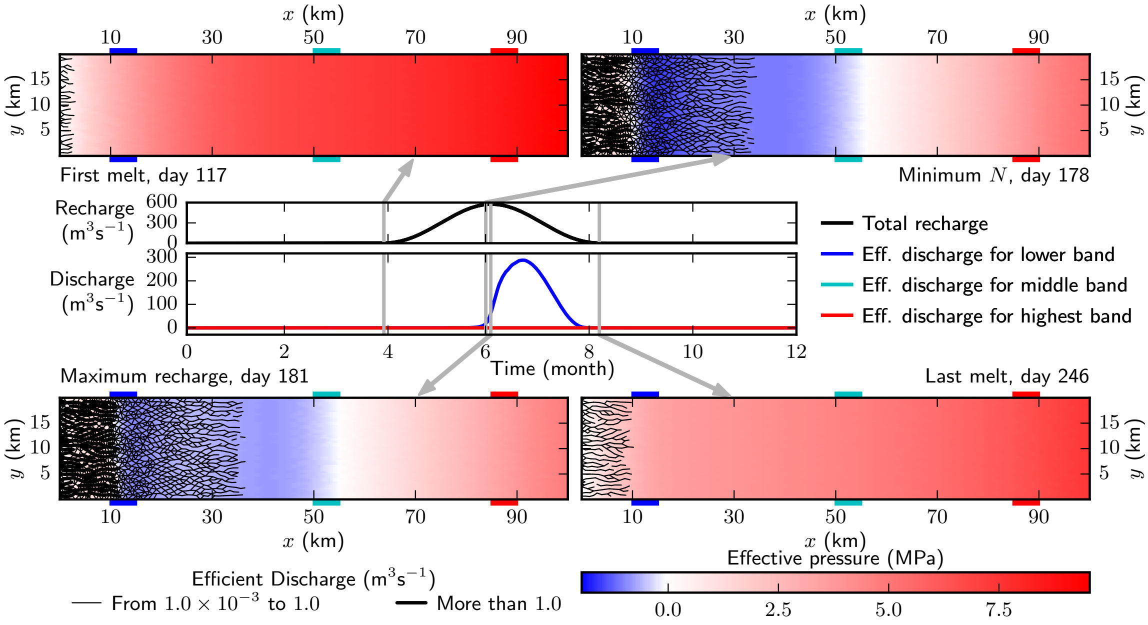

Figure S387: This is the result of run D2 for model *mw* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

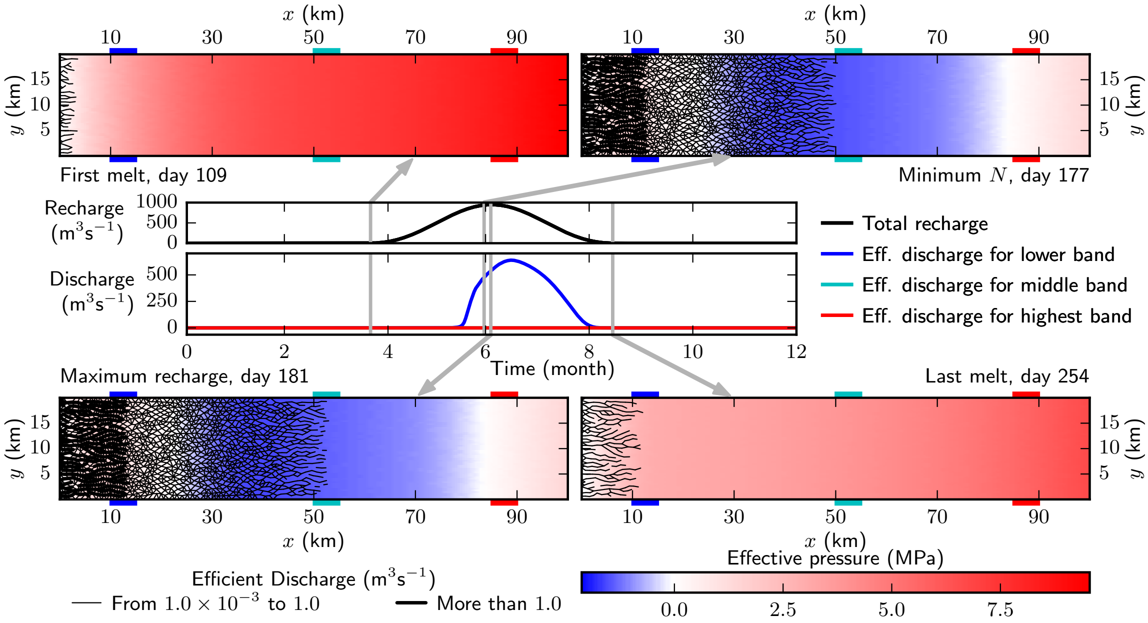

Figure S388: This is the result of run D3 for model *mw* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

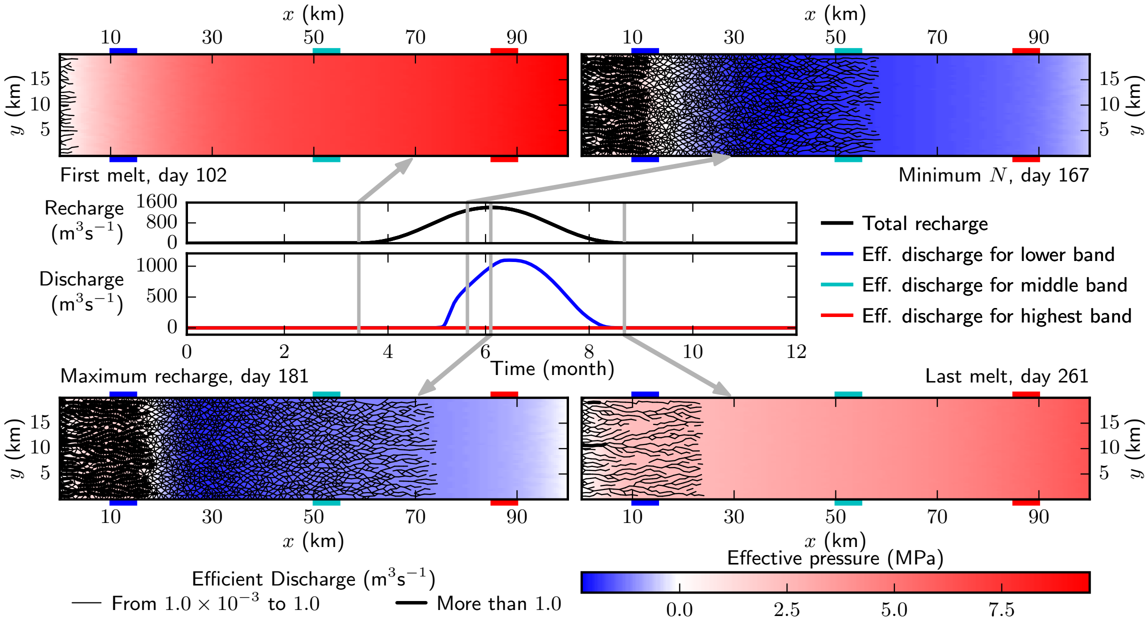

Figure S389: This is the result of run D4 for model *mw* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

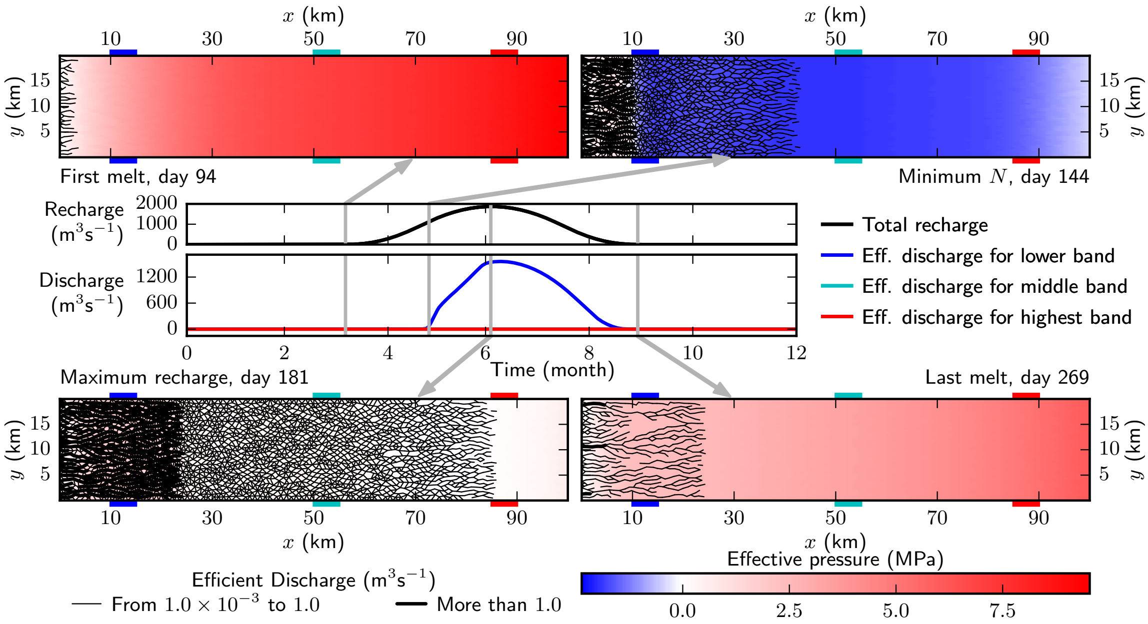

Figure S390: This is the result of run D5 for model *mw* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

S2.2.26. Suite F model mw

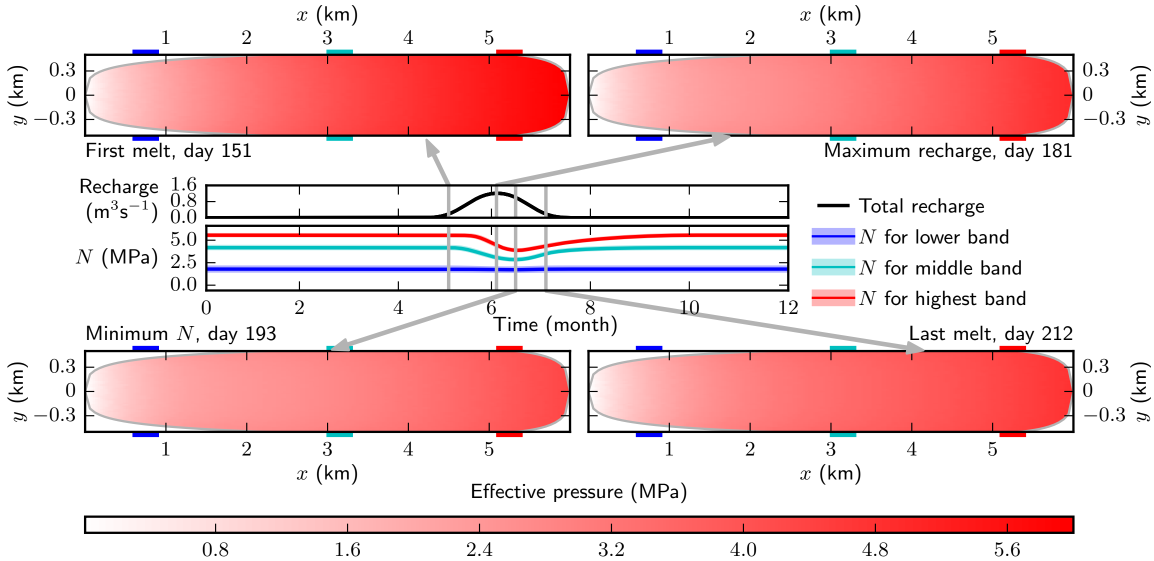

Figure S391: This is the result of run F1 for model mw in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

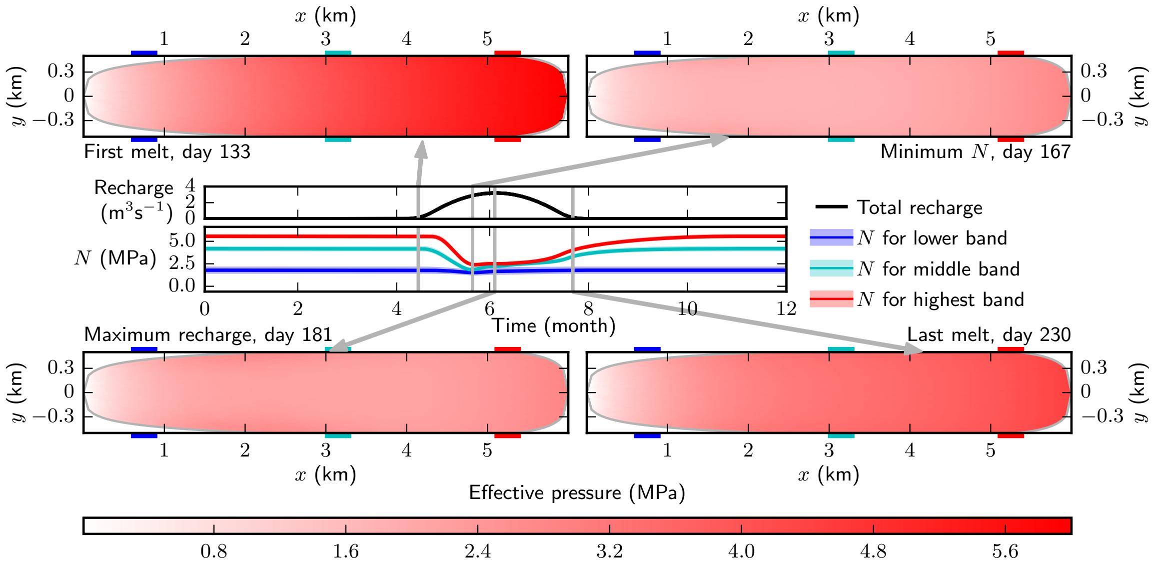

Figure S392: This is the result of run F2 for model *mw* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

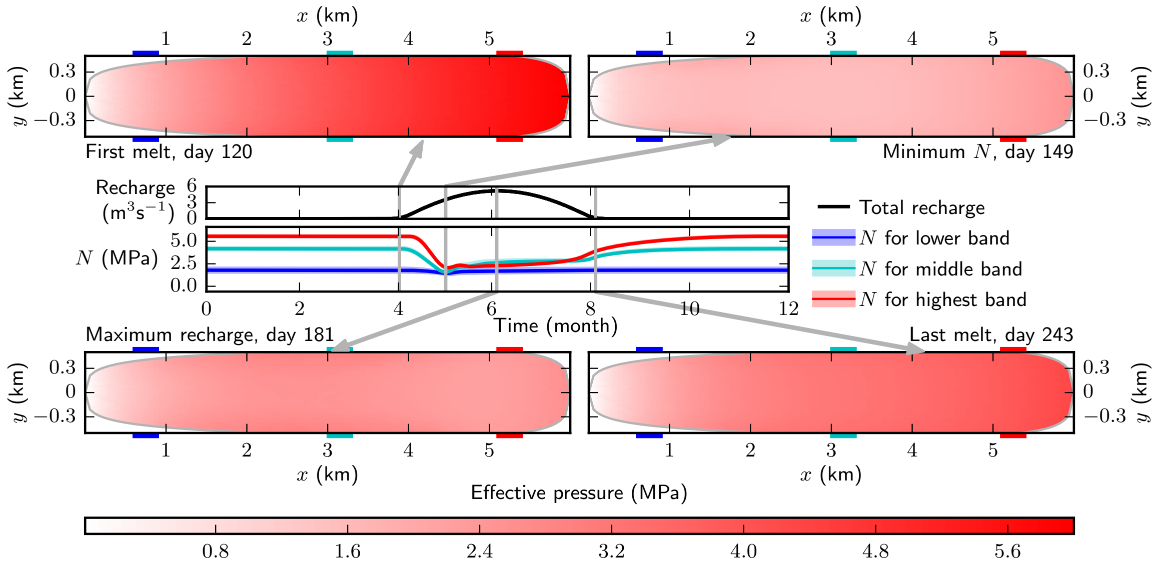

Figure S393: This is the result of run F3 for model *mw* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

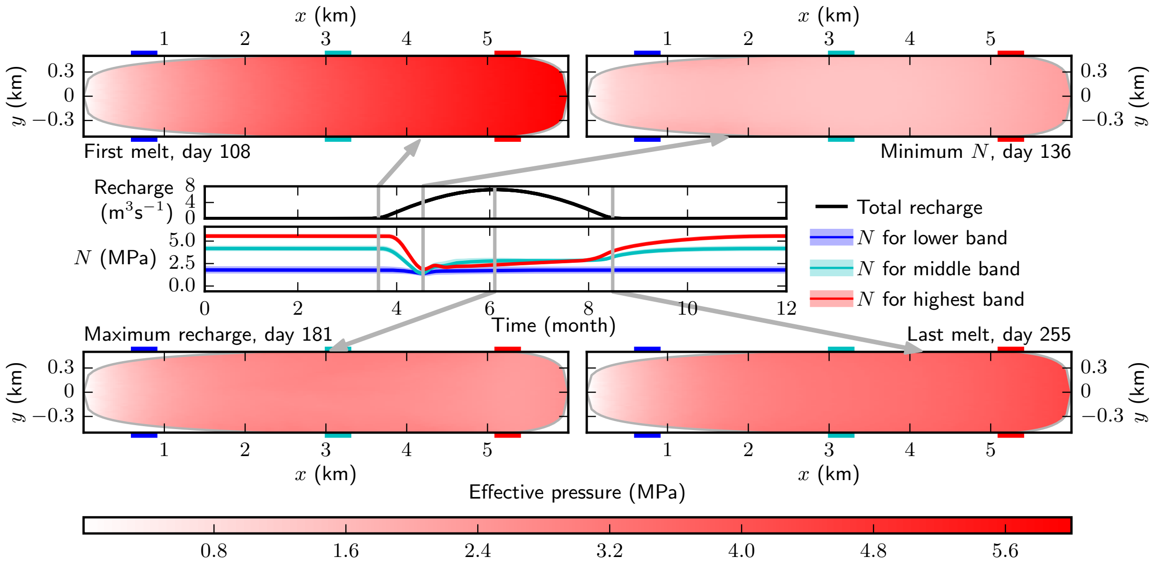

Figure S394: This is the result of run F4 for model *mw* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

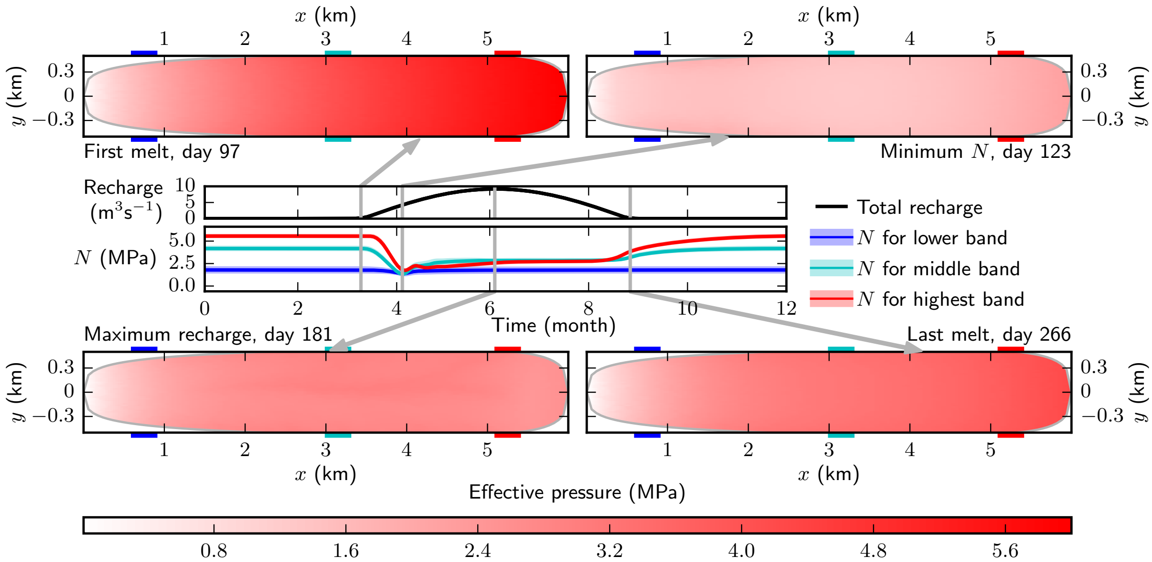

Figure S395: This is the result of run F5 for model *mw* in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

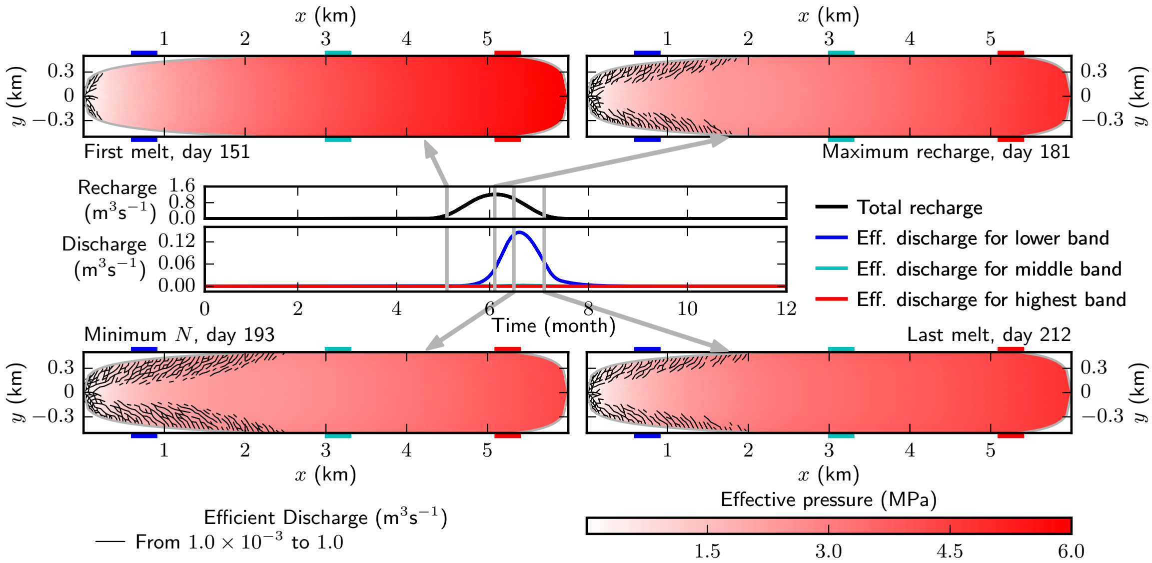

Figure S396: This is the result of run F1 for model *mw* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

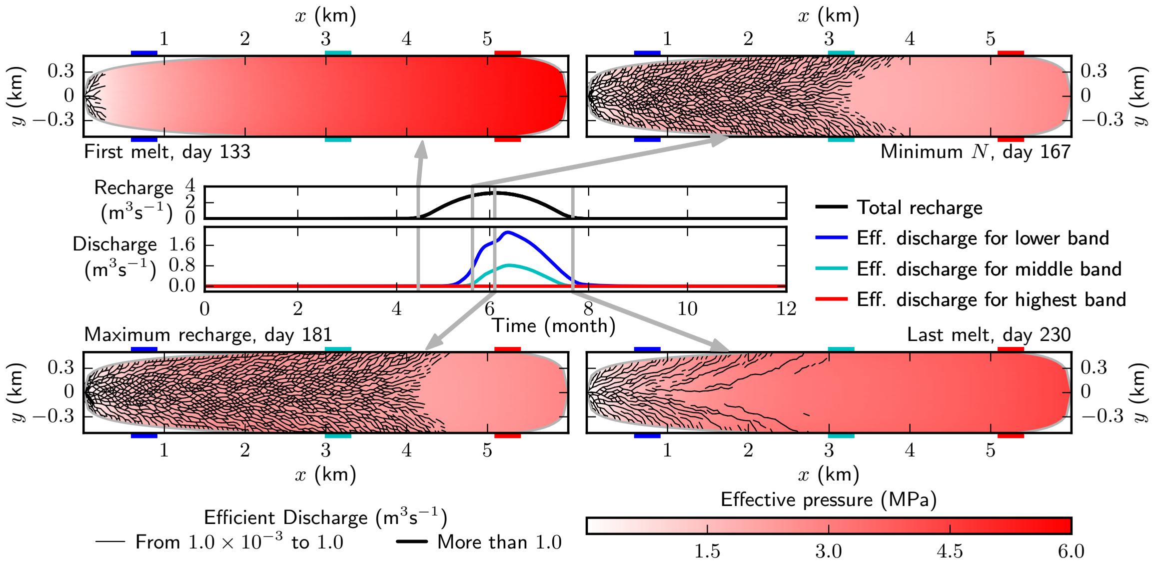

Figure S397: This is the result of run F2 for model *mw* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

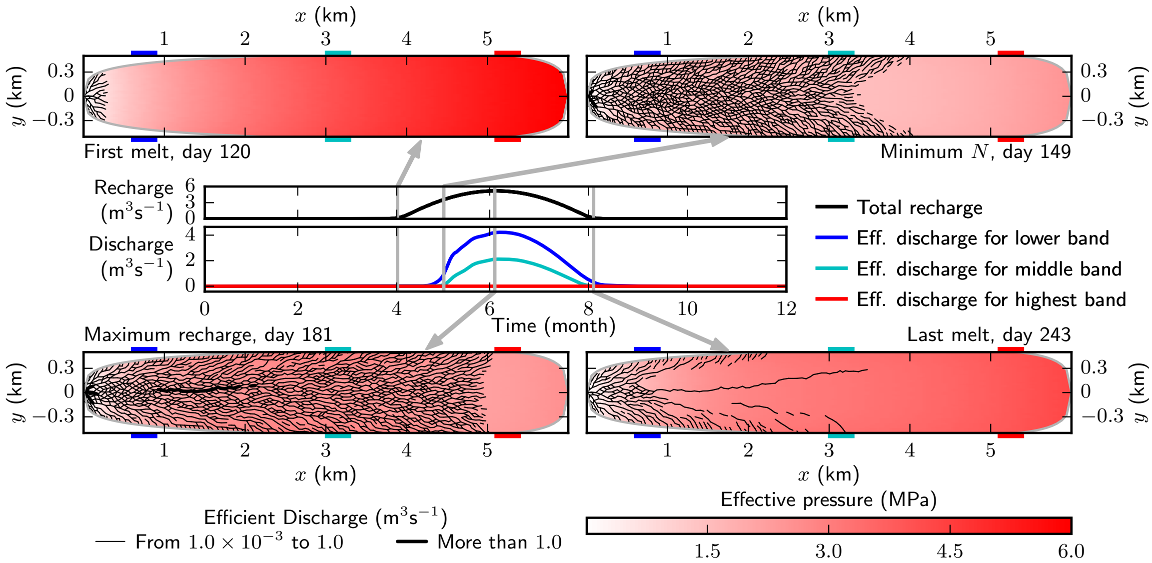

Figure S398: This is the result of run F3 for model *mw* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

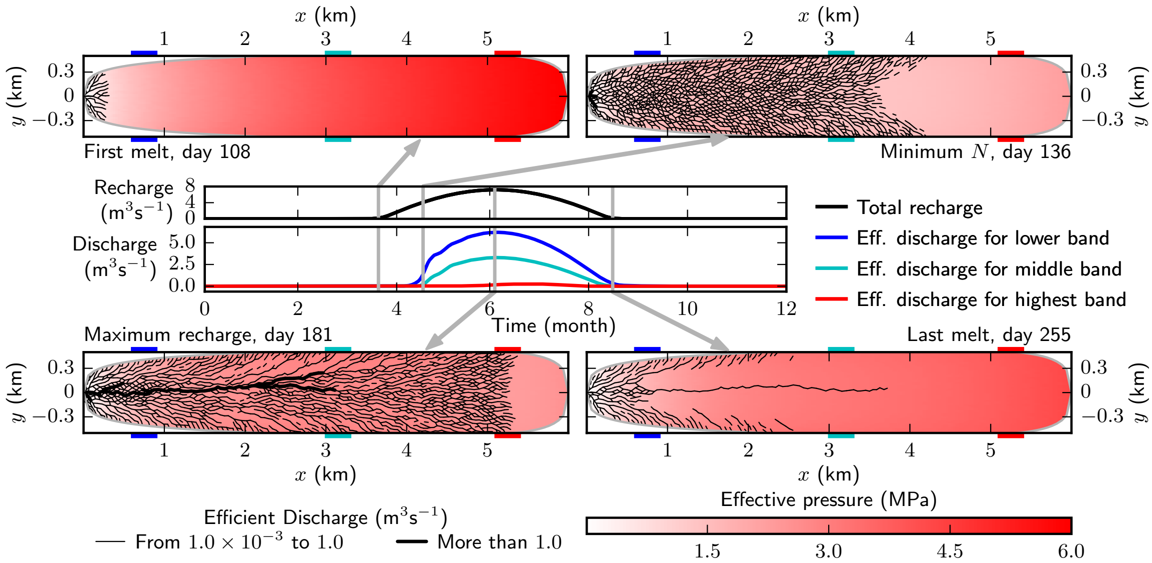

Figure S399: This is the result of run F4 for model *mw* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

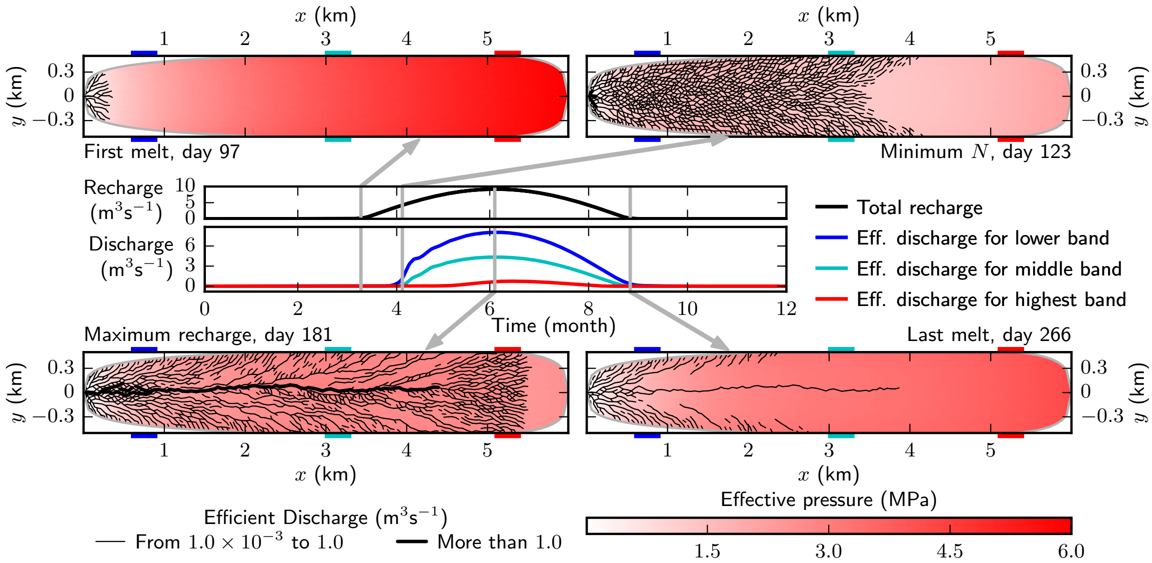

Figure S400: This is the result of run F5 for model *mw* in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

S2.2.27. Suite C model mw'

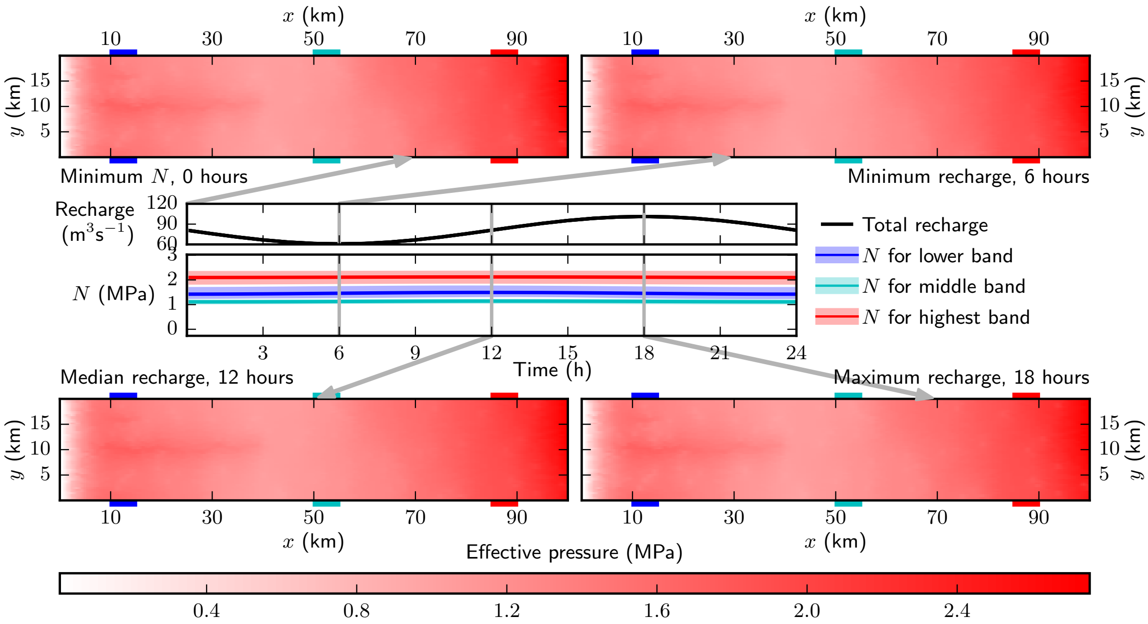

Figure S401: This is the result of run C1 for model mw' in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

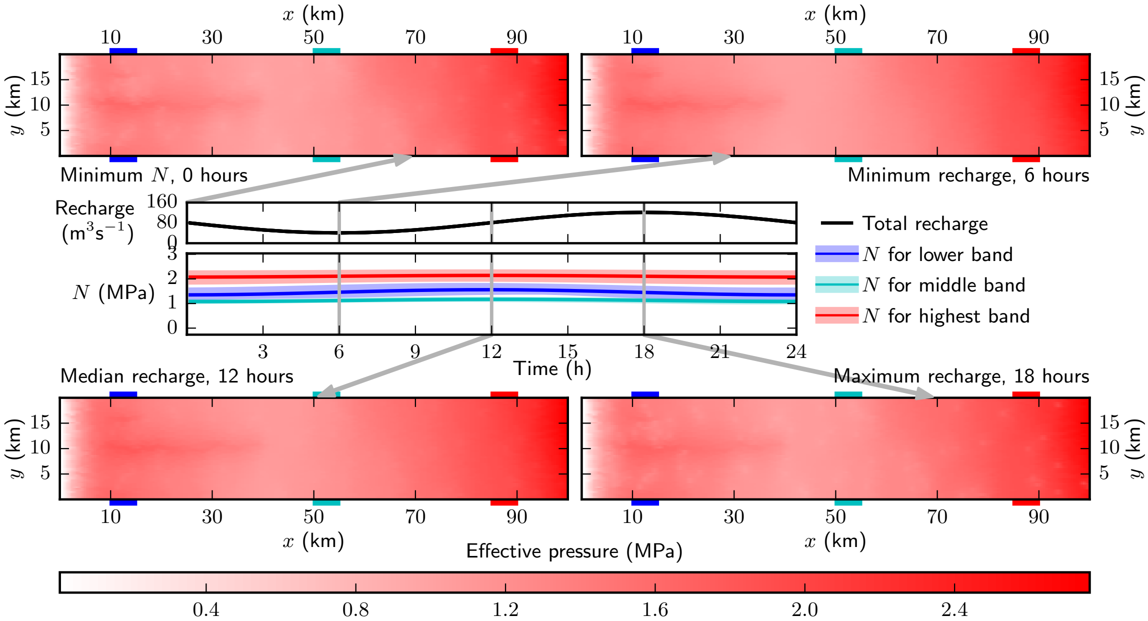

Figure S402: This is the result of run C2 for model mw' in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

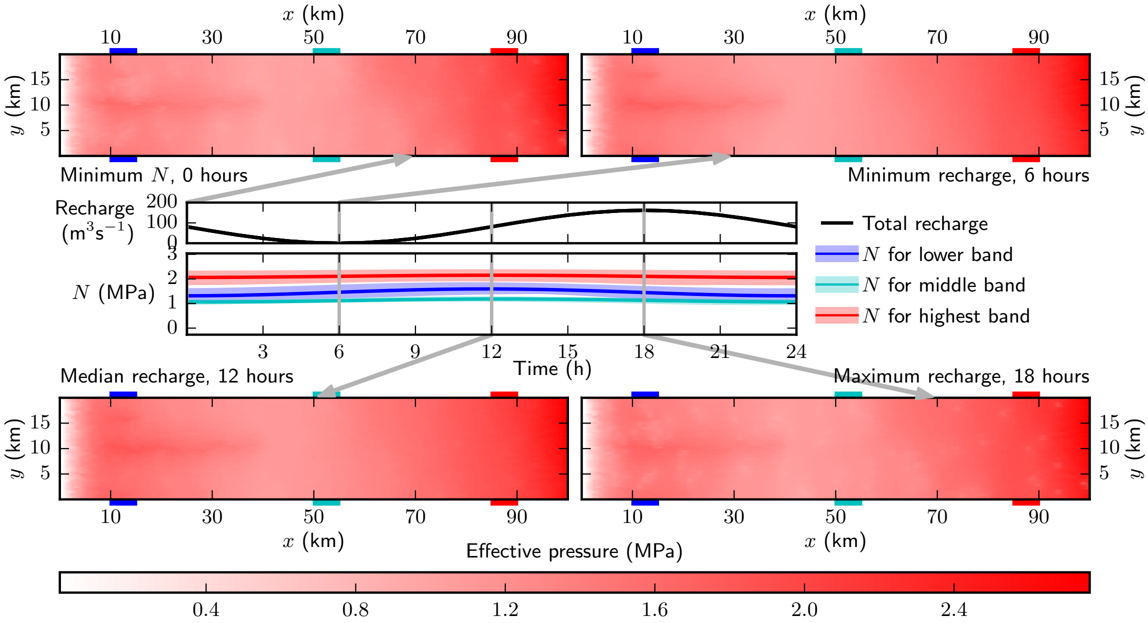

Figure S403: This is the result of run C3 for model mw' in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

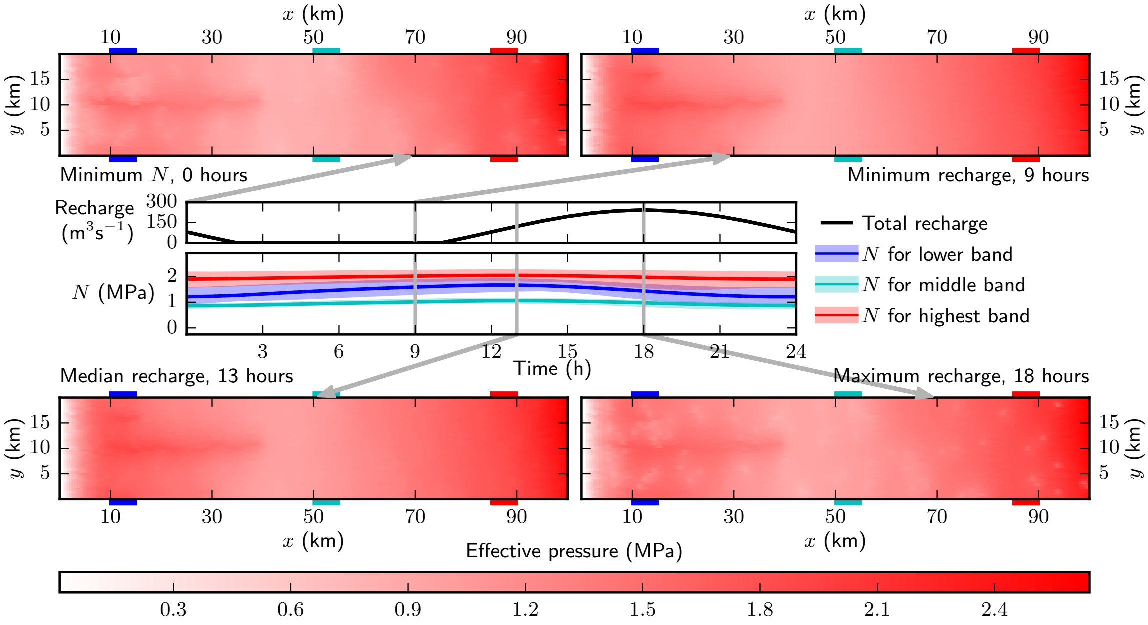

Figure S404: This is the result of run C4 for model mw' in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

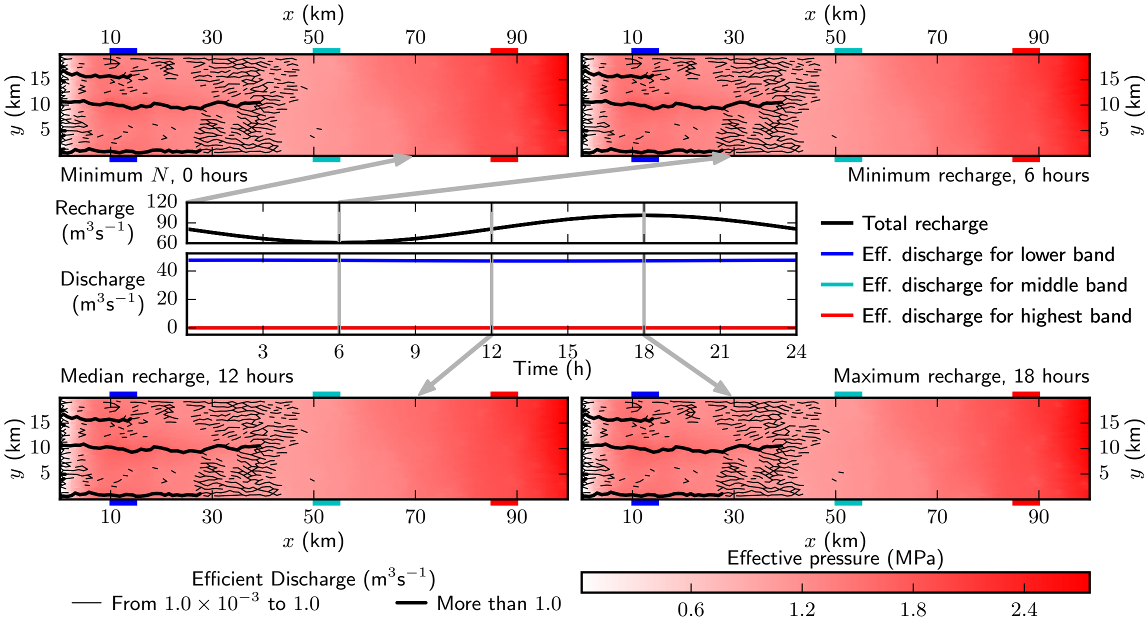

Figure S405: This is the result of run C1 for model mw' in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

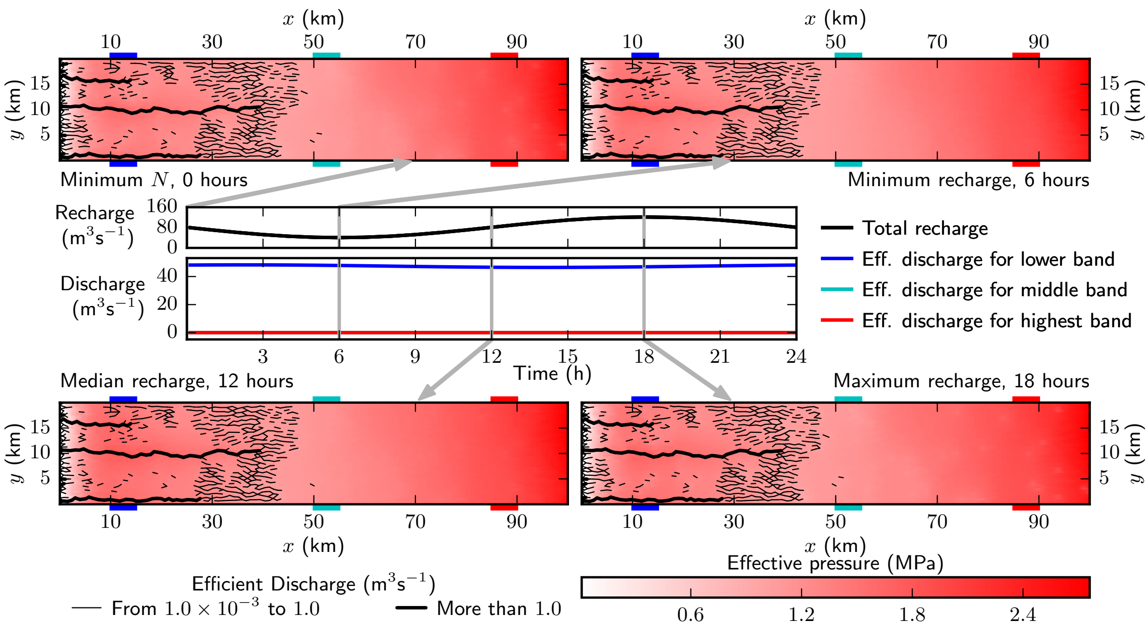

Figure S406: This is the result of run C2 for model mw' in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

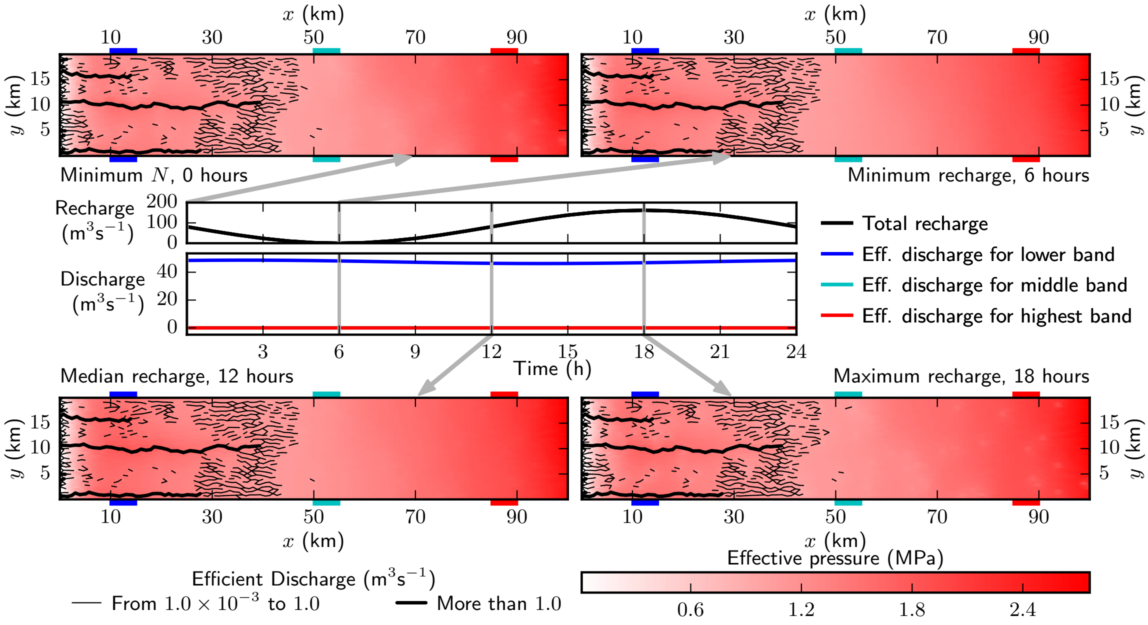

Figure S407: This is the result of run C3 for model mw' in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

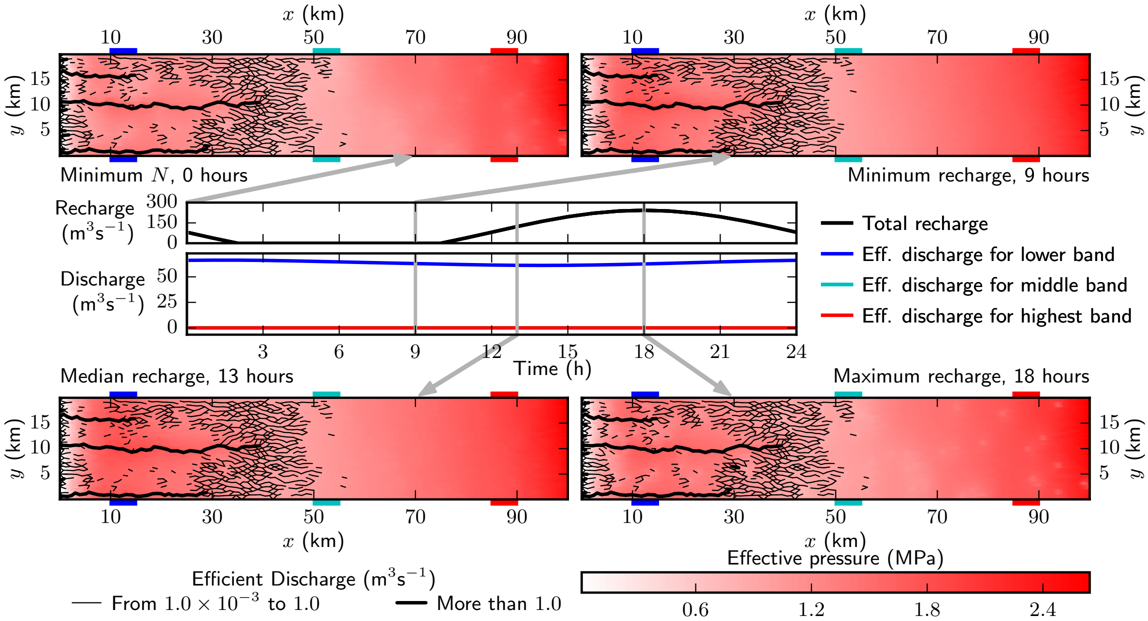

Figure S408: This is the result of run C4 for model mw' in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

S2.2.28. Suite D model mw'

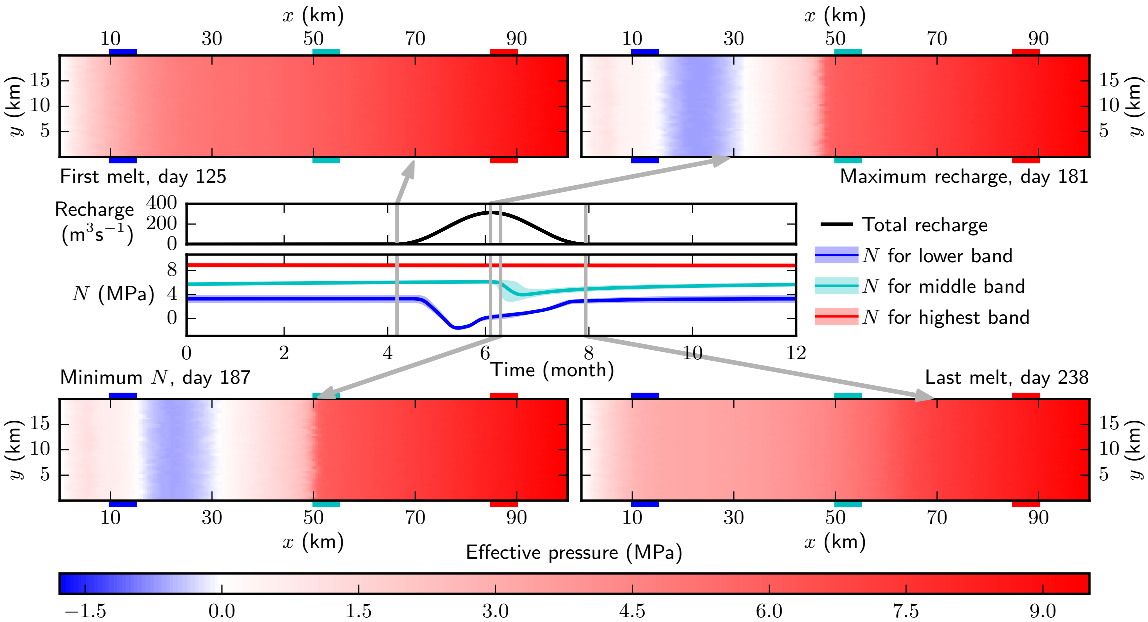

Figure S409: This is the result of run D1 for model mw' in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

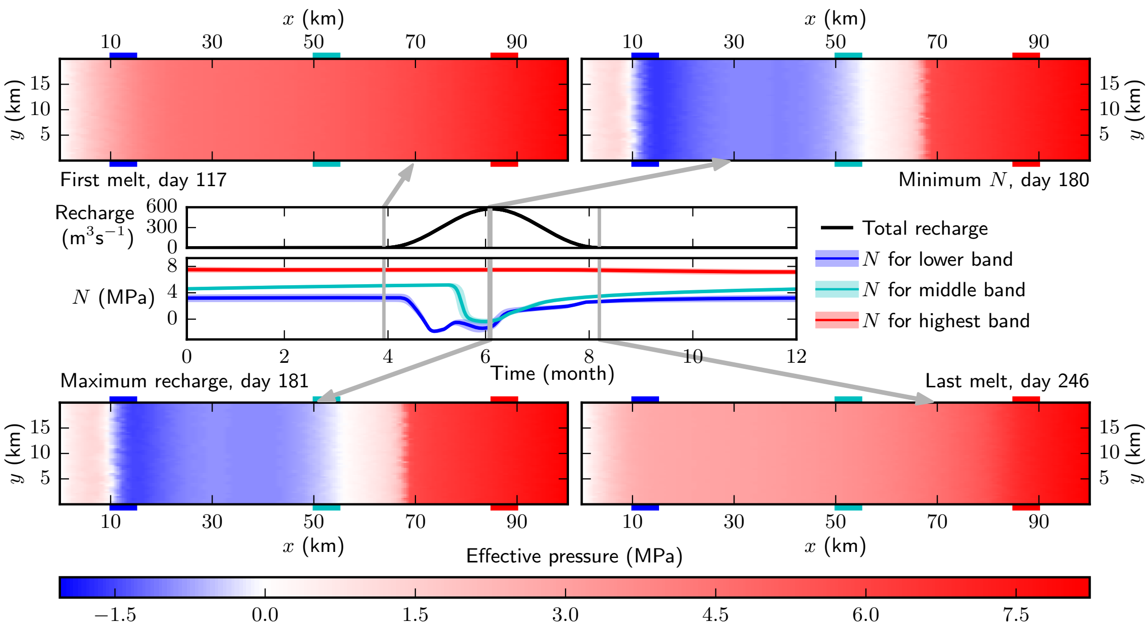

Figure S410: This is the result of run D2 for model mw' in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

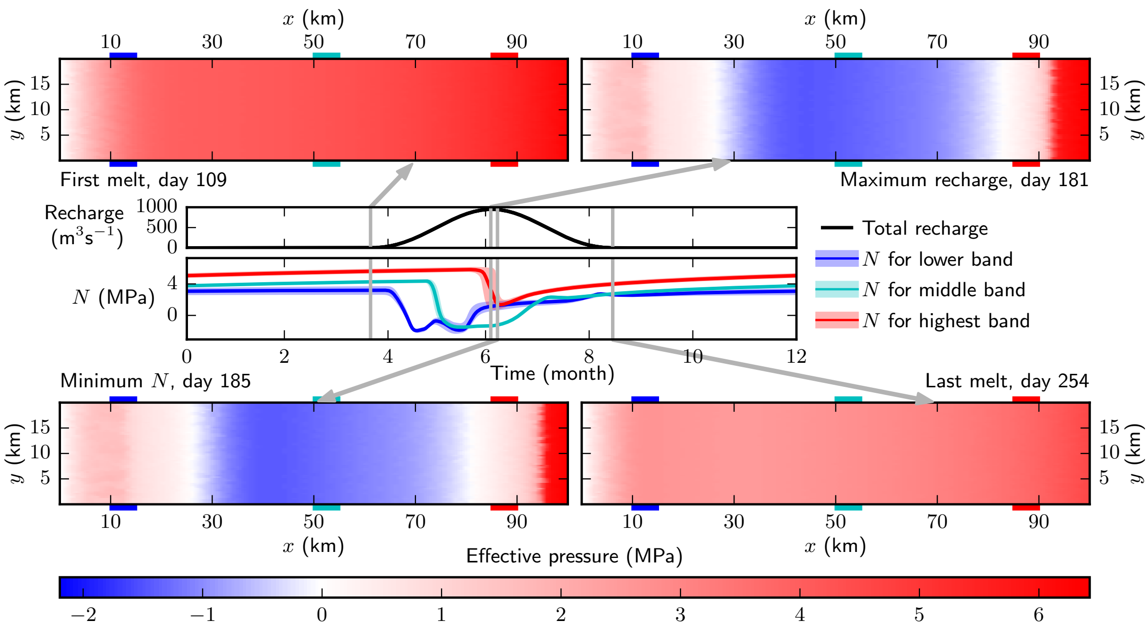

Figure S411: This is the result of run D3 for model mw' in term of effective pressure. The middle pannel presents the evolution of the effective pressure in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the effective pressure at given dates.

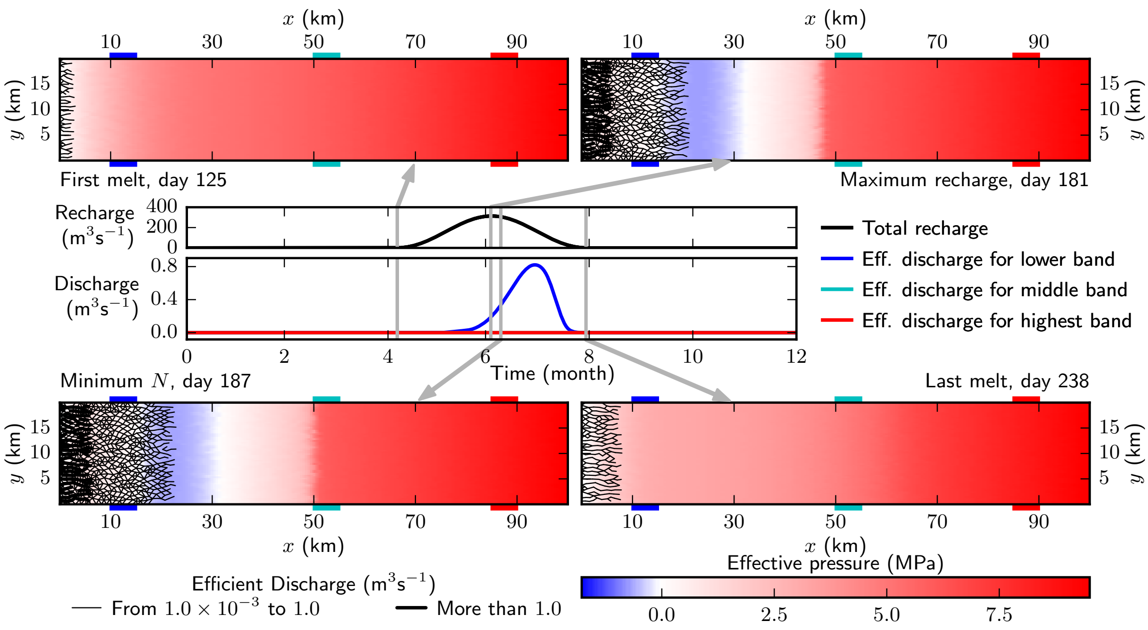

Figure S412: This is the result of run D1 for model mw' in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

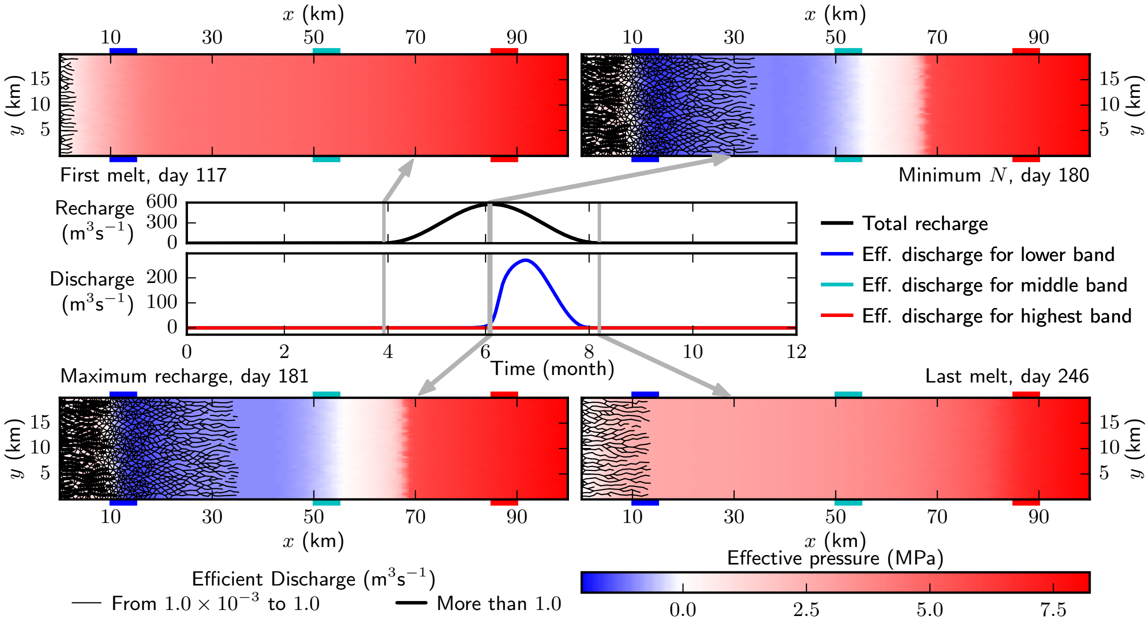

Figure S413: This is the result of run D2 for model mw' in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

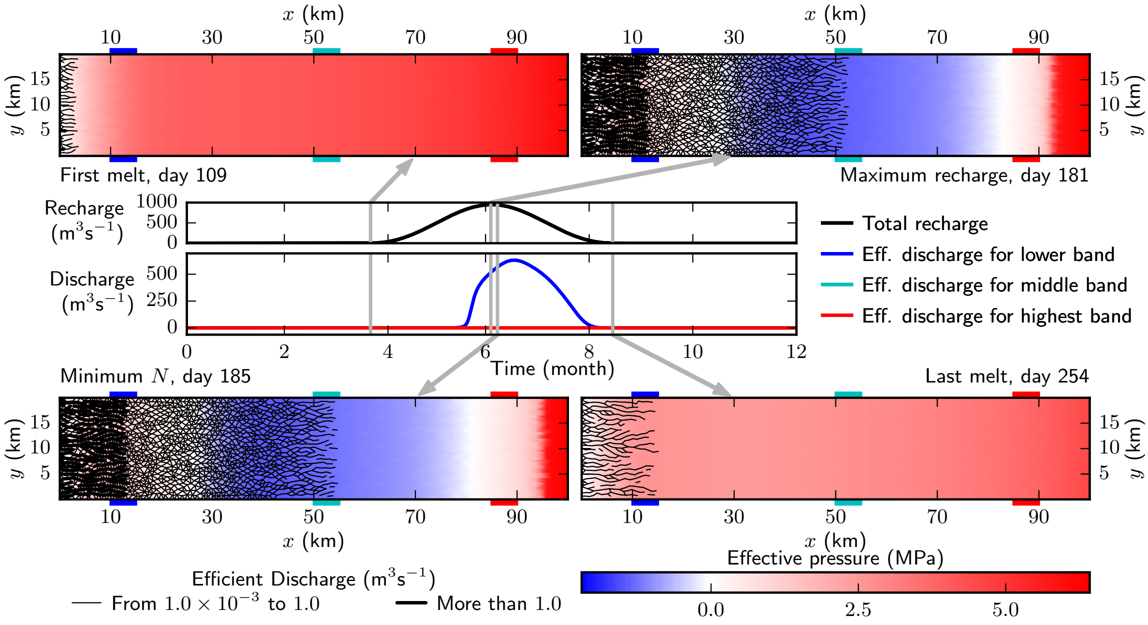

Figure S414: This is the result of run D3 for model mw' in term of discharge. The middle pannel presents the evolution of the efficient discharge in the different zones (highlighted on the maps) with the location of four timestamps presented on the corners. The corner maps show the state of the efficient discharge at given dates.

Part II.
Details of models

We asked each participant to fill-in a questionnaire for each of their model run submissions.

S3. Description of the model *db*

This is the description for the SHMIP subission of model *db* commonly known as LSHM that is described in Brinkerhoff and others (2016).

This model is run by Doug Brinkerhoff, in University of Montana.

This model was developped and implemented by Doug Brinkerhoff.

The model is currently implemented for a serial use.

The current intercomparison have been performed on Dell Laptop, Intel(R) Core(TM) i6-6820HQ CPU @ 2.70GHz, 32GB Memory.

The model used here is open source and can be obtained by E-mailing Doug Brinkerhoff. The version used for the intercomparison is 0.1.

This model solves quations eq. (8) and (10) of the SHMIP paper integrated over the entire spatial domain, leading to 2 0-D ordinary differential equations representing the evolution of spatially averaged hydraulic potential and subglacial cavity size. These equations are integrated in time using a fourth order Runge-Kutta method. This model ignores pressure-thermal coupling, essentially setting $c_t = 0$.

Tuning

How is model *db* set-up with regards to the reference parameters given by *mw*:

Parameter name	*mw* value is used	Used value
Glen's n	Yes	3
Ice flow constant	Yes	$3.375 \times 10^{-24}\,\mathrm{Pa^{-3}\,s^{-1}}$
Ice sliding speed	Yes	$1.0 \times 10^{-6}\,\mathrm{m\,s^{-1}}$
Bedrock bump wave-length	Yes	$2\,\mathrm{m}$
Bedrock bumps height	Yes	$0.1\,\mathrm{m}$
Turbulent flow exponent α	Yes	1.25
Turbulent flow exponent β	Yes	1.5
Conductivity sheet	Yes	$0.005\,\mathrm{m^{7/4}\,kg^{-1/2}}$
Sheet-width contributing to R channel melt	N/A	
Englacial void fraction	No	1×10^{-5} (sqrt) 1×10^{-3} (valley)
Conductivity R channel	N/A	
Darcy-Weisbach equivalent of kc for semi-circular R channel	N/A	

What is the tuning strategy that was used for model *db*:

Reference simulation	Tuned	Tuning variable	remarks
A3	No	N/A	
A5	No	N/A	

Value of the specific parameters used by model *db*

Run synthesis for model *db*

Suite	run	lenght of the run	CPU time	Convergence	suite specific parameters
A	1	10 a	2 s	confident	N/A
	2	10 a	2 s	confident	
	3	10 a	2 s	confident	
	4	10 a	2 s	confident	
	5	10 a	2 s	confident	
	6	10 a	2 s	confident	
D	1	10 a	2 s	confident	N/A
	2	10 a	2 s	confident	
	3	10 a	2 s	confident	
	4	10 a	2 s	confident	
	5	10 a	2 s	confident	
E	1	3 a	3 s	confident	N/A
	2	3 a	3 s	confident	
	3	3 a	3 s	confident	
	4	3 a	3 s	confident	
	5	3 a	3 s	confident	
F	1	3 a	3 s	confident	N/A
	2	3 a	3 s	confident	
	3	3 a	3 s	confident	
	4	3 a	3 s	confident	
	5	3 a	3 s	confident	

Aditional comments on *db*

References

Brinkerhoff DJ, Meyer CR, Bueler E, Truffer M and Bartholomaus TC (2016) Inversion of a glacier hydrology model. *Annals of Glaciology*, **57**(72), 84–95 (doi: 10.1017/aog.2016.3)

S4. Description of the model *id*

This is the description for the SHMIP subission of model *id* commonly known as A single conduit model that is described in (Kessler and Anderson, 2004).

This model is run by Ian Delaney, in ETH Zurich.

This model was developped and implemented by M. A. Werder.

The model is currently implemented for a serial use.

The current intercomparison have been performed on MacBook Pro 2015.

The model used here is open source and can be obtained at `https://bitbucket.org/maurow/1dhydro/overview` The version used for the intercomparison is the one provided above.

This model solves equations eq. (1), (2), and (8) of the SHMIP paper using a finite element discretisation, however, it does not contain term encoding the pressure dependence of the melting point (c.f. eq. (7)).

Tuning

How is model *id* set-up with regards to the reference parameters given by *mw*:

Parameter name	*mw* value is used	Used value
Glen's n	Yes	3
Ice flow constant	Yes	$3.375 \times 10^{-24}\,\mathrm{Pa^{-3}\,s^{-1}}$
Ice sliding speed	Yes	$1^{-6}\,\mathrm{m\,s^{-1}}$
Bedrock bump wave-length	Yes	2 m
Bedrock bumps height	Yes	0.1 m
Turbulent flow exponent α	Yes	1.25
Turbulent flow exponent β	Yes	1.5
Conductivity sheet	Yes	$0.005\,\mathrm{m^{7/4}\,kg^{-1/2}}$
Sheet-width contributing to R channel melt	Yes	2 m
Englacial void fraction	Yes	0 (sqrt) 1×10^{-3} (valley)
Conductivity R channel	Yes	$0.1\,\mathrm{m^{3/2}\,kg^{-1/2}}$
Darcy-Weisbach equivalent of kc for semi-circular R channel	Yes	0.195

What is the tuning strategy that was used for model *id*:

Reference simulation	Tuned	Tuning variable	remarks
A3	No		
A5	No		

Run synthesis for model *id*

Suite	run	lenght of the run	CPU time	Convergence	suite specific parameters
A	1	500 days	0.7 h	confident	N/A
	2	500 days	0.7 h	confident	
	3	500 days	0.7 h	confident	
	4	500 days	0.9 h	confident	
	5	500 days	0.9 h	confident	
	6	500 days	0.8 h	confident	
B	1	500 days	4.5 h	confident	N/A
	2	500 days	9.8 h	confident	
	3	500 days	1.3 h	confident	
	4	500 days	1.2 h	confident	
	5	500 days	0.8 h	confident	
C	1	130 days	8.6 h	confident	N/A
	2	130 days	12.7 h	confident	
	3	130 days	19.4 h	confident	
	4	130 days	29.1 h	confident	
E	1	500 days	1.0 h	confident	N/A
	2	500 days	1.6 h	confident	
	3	500 days	0.9 h	confident	
	4	500 days	1.1 h	confident	
	5	500 days	17.0 h	confident	
F	1	1094 days	17.0 h	confident	The englacial void fraction was set to 5.1×10^{-7} to avoid outburst-like behavior.
	2	1094 days	14.7 h	confident	
	3	1094 days	12.8 h	confident	
	4	1094 days	14.2 h	confident	
	5	1094 days	14.7 h	confident	

References

Kessler MA and Anderson RS (2004) Testing a numerical glacial hydrological model using spring speed-up events and outburst floods. *Geophys. Res. Lett.*, **31**(18), 1–5, ISSN 0094-8276 (doi: 10.1029/2004GL020622)

S5. Description of the model rh

This is the description for the SHMIP sumbission of model rh commonly known as PFQ that is described in Hooke and others (1990); LeB. and others (1989).

This model is run by Roger Hooke, at the School of Earth and Climate Sciences and Climate Change Institute, University of Maine, Orono, ME, USA.

This model was developped and implemented by Roger Hooke.

The model is currently implemented for a serial use.

The current intercomparison have been performed on a desktop computer.

The model used here is PFQA and can be obtained by contacting the author, but documentation is fragmentary. The version used for the intercomparison is PFQA

In this model, Röthlisberger (1972) Equation (20) is integrated numerically from the terminus headward. Various versions of the code have been developed to deal with operator-specified changes in discharge upstream and with conduits that are broad and low rather than semi-circular.

Tuning

How is model rh set-up with regards to the reference parameters given by mw:

Parameter name	mw value is used	Used value
Glen's n	Yes	3
Ice flow constant	Yes	$3.375 \times 10^{-24}\,\mathrm{Pa^{-3}\,s^{-1}}$
Ice sliding speed	N/A	
Bedrock bump wave-length	N/A	
Bedrock bumps height	N/A	
Turbulent flow exponent α	N/A	
Turbulent flow exponent β	N/A	
Conductivity sheet	N/A	
Sheet-width contributing to R channel melt	N/A	
Englacial void fraction	N/A	
Conductivity R channel	N/A	
Darcy-Weisbach equivalent of kc for semi-circular R channel	Yes	0.195

What is the tuning strategy that was used for model rh: None

Reference simulation	Tuned	Tuning variable	remarks
A3	Yes	N/A	
A5	Yes	N/A	

Value of the specific parameters used by model rh

Parameter name	value and unit	Symbol
Clausius-Clapeyron slope	$-0.075\,\mathrm{deg\,MPa^{-1}}$	$dMdP$
Heat capacity of water	$4220\,\mathrm{J\,kg^{-1}\,K^{-1}}$	Cw

Run synthesis for model rh

Suite	run	lenght of the run	CPU time	Convergence	suite specific parameters
A	1	XX a	XX h		N/A
	2	XX a	XX h		
	3	XX a	XX h		
	4	XX a	XX h		
	5	XX a	XX h		
	6	XX a	XX h		
E	1	XX a	XX h		N/A
	2	XX a	XX h		
	3	XX a	XX h		
	4	XX a	XX h		
	5	XX a	XX h		

References

Hooke RL, Laumann T and Kohler J (1990) Subglacial water pressure and the shape of subglacial water conduits. *J. Glaciol.*, **36**(122), 67–71, ISSN 0022-1430

Hooke RL, Laumann T and Kennett MI (1989) Austdalsbreen, norway: Expected reaction to a 40 m increase in water level in the lake into which the glacier calves. *Cold Regions Science and Technology*, **17**(2), 113 – 126, ISSN 0165-232X (doi: https://doi.org/10.1016/S0165-232X(89)80002-3)

Röthlisberger H (1972) Water pressure in intra- and subglacial channels. *J. Glaciol.*, **11**(62), 177–203

S6. Description of the model *cdf*

This is the description for the SHMIP submission of model *cdf* commonly known as the Macroporous-sheet model that is described in Pimentel and Flowers (2010).

This model is run by Christine Dow, from the University of Waterloo

This model was developped and implemented by Gwenn Flowers, Sam Pimentel and Christine Dow.

The model is currently implemented for a serial use.

The current intercomparison have been performed on Sharcnet computer cluster: Orca.

The model used here is closed source.

It is a 1D flowband model where a single flow-following semi-circular R channel exists per specified width of the 1-D vertically-integrated macroporous sheet.

Tuning

How is model *cdf* set-up with regards to the reference parameters given by *mw*:

Parameter name	*mw* value is used	Used value
Glen's n	Yes	3
Ice flow constant	Yes	$3.375 \times 10^{-24}\,\mathrm{Pa}^{-3}\,\mathrm{s}^{-1}$
Ice sliding speed	N/A	
Bedrock bump wave-length	Yes	$2\,\mathrm{m}$
Bedrock bumps height	N/A	
Turbulent flow exponent α	N/A	
Turbulent flow exponent β	N/A	
Conductivity sheet	N/A	
Sheet-width contributing to R channel melt	N/A	
Englacial void fraction	N/A	
Conductivity R channel	N/A	
Darcy-Weisbach equivalent of kc for semi-circular R channel	N/A	

What is the tuning strategy that was used for model *cdf*:

Reference simulation	Tuned	Tuning variable	remarks
A3	No	N/A	
A5	Yes	N	

Value of the specific parameters used by model *cdf*

Parameter name	value and unit	Symbol
Conductivity	$0.1\,\mathrm{m\,s^{-1}}$	K
Conductivity parameter	20	K_a
Conductivity parameter	20	K_a
Geothermal Heat Flux	$0.07\,\mathrm{W\,m^{-2}}$	Q_G
Critical water thickness	$3\,\mathrm{m}$	h_c^s
Manning roughness	0.0394	n'
Vestigial conduit cross-sectional area	$0.1\,\mathrm{m^2}$	S_ϵ
Exchange coefficient	0.1	$\chi^{s:c}$
Conduit spacing	$1000\,\mathrm{m}$	d_c
Numerical compressibility parameter	$1\times10^{-9}\,\mathrm{Pa^{-1}}$	γ

Run synthesis for model *cdf*

Suite	run	lenght of the run	CPU time	Convergence	suite specific parameters
A	1	XX a	XX h	not converged	N/A
	2	XX days	XX h	confident	
	3	2000 days	35.8 h	confident	
	4	900 days	39.5 h	confident	
	5	900 days	37.1 h	confident	
	6	900 days	34.8 h	confident	

Aditional comments on *cdf*

The model only converged for suite A. It does not stabilize with variable water input along the flowband. Therefore runs B through D would destabilize before reaching steady state. For runs E and F, the basal slope was too great and/or the ice too thin to allow the model to stabilize. The pressure gradients along the flowband resulted in the model running below the integration tolerance limit. As a result, only the A suite was possible with this flowband model.

References

Pimentel S and Flowers GE (2010) A numerical study of hydrologically driven glacier dynamics and subglacial flooding. *Proc. R. Soc. A*, **467**(2126), 537–558, ISSN 1364-5021 (doi: 10.1098/rspa.2010.0211)

S7. Description of the model *jd*

This is an implementation of the cavity-sheet model posed by Schoof and others (2012).

This model is run by Jacob Downs, in the Department of Mathematics at the University of Montana.

This model was developed and implemented by Jacob Downs..

The model is currently implemented parallel use.

The current intercomparison was performed on a 28 core server with 2 x Intel Xeon CPU E5-2697 v3 @ 2.60GHz processors and 354625 MB of RAM.

The model used here is open source and can be obtained at `https://github.com/JacobDowns/SheetModel/tree/shmip`. The version used for the intercomparison is the shmip branch linked to above.

Tuning

How is model *jd* set-up with regards to the reference parameters given by *mw*:

Parameter name	*mw* value is used	Used value
Glen's n	Yes	3
Ice flow constant	Yes	$3.375 \times 10^{-24}\,\mathrm{Pa}^{-3}\,\mathrm{s}^{-1}$
Ice sliding speed	Yes	$1 \times 10^{-6}\,\mathrm{m\,s}^{-1}$
Bedrock bump wave-length	Yes	$2\,\mathrm{m}$
Bedrock bumps height	Yes	$0.1\,\mathrm{m}$
Turbulent flow exponent α	Yes	1.25
Turbulent flow exponent β	Yes	1.5
Conductivity sheet	Yes	$0.005\,\mathrm{m}^{7/4}\,\mathrm{kg}^{-1/2}$
Sheet-width contributing to R channel melt	N/A	
Englacial void fraction	N/A	
Conductivity R channel	N/A	
Darcy-Weisbach equivalent of kc for semi-circular R channel	N/A	

What is the tuning strategy that was used for model *jd*:

Reference simulation	Tuned	Tuning variable	remarks
A3	No		
A5	Yes	N	Tuned mean value.

Run synthesis for model jd

Suite	run	length of the run	CPU time	Convergence	suite specific parameters
A	1	4 a	0.45 h	confident	
	2	4 a	0.25 h	confident	
	3	4 a	0.22 h	confident	
	4	4 a	0.33 h	confident	
	5	4 a	0.36 h	confident	$k = 10^{-2}\,\mathrm{m}^{7/4}\,\mathrm{kg}^{-1/2}$
	6	4 a	0.70 h	confident	$k = 10^{-2}\,\mathrm{m}^{7/4}\,\mathrm{kg}^{-1/2}$
B	1	2.5 a	1.94 h	confident	$k = 10^{-2}\,\mathrm{m}^{7/4}\,\mathrm{kg}^{-1/2}$
	2	2.5 a	1.32 h	confident	$k = 10^{-2}\,\mathrm{m}^{7/4}\,\mathrm{kg}^{-1/2}$
	3	2.5 a	0.49 h	confident	$k = 10^{-2}\,\mathrm{m}^{7/4}\,\mathrm{kg}^{-1/2}$
	4	2.5 a	0.43 h	confident	$k = 10^{-2}\,\mathrm{m}^{7/4}\,\mathrm{kg}^{-1/2}$
	5	2.5 a	2.47 h	confident	$k = 10^{-2}\,\mathrm{m}^{7/4}\,\mathrm{kg}^{-1/2}$
C	1	0.25 a	4.18 h	confident	$k = 10^{-2}\,\mathrm{m}^{7/4}\,\mathrm{kg}^{-1/2}$
	2	0.25 a	4.73 h	confident	$k = 10^{-2}\,\mathrm{m}^{7/4}\,\mathrm{kg}^{-1/2}$
	3	0.25 a	5.18 h	confident	$k = 10^{-2}\,\mathrm{m}^{7/4}\,\mathrm{kg}^{-1/2}$
	4	0.25 a	4.56 h	confident	$k = 10^{-2}\,\mathrm{m}^{7/4}\,\mathrm{kg}^{-1/2}$
D	1	25 a	43.15 h	confident	
	2	25 a	42.41 h	confident	
	3	25 a	46.26 h	confident	
	4	25 a	46.46 h	confident	
	5	25 a	48.66 h	confident	
E	1	9.5 a	1.26 h	confident	
	2	9.5 a	1.24 h	confident	
	3	9.5 a	1.25 h	confident	
	4	9.5 a	1.22 h	confident	
	5	9.5 a	1.34 h	confident	

Aditional comments on jd

Suite F was not completed mainly due to time constraints.

References

Schoof C, Hewitt IJ and Werder MA (2012) Flotation and free surface flow in a model for subglacial drainage. Part I: Distributed drainage. *Journal of Fluid Mechanics*, **702**, 126–156 (doi: 10.1017/jfm.2012.165)

S8. Description of the model *jsb*

This is the description for the SHMIP subission of model *jsb* commonly known as PISM that is described in Bueler and van Pelt (2015).

This model is run by J. Seguinot at ETH Zürich.

This model was developped and implemented by E. Bueler, W. van Pelt, and C. Khroulev.

The model is currently implemented for a parallel use.

The current intercomparison have been performed using 8 cores on ETH Zürich Vierzack04/05 computers (Intel(R) Xeon(R) CPU E5-2687W v4 @ 3.00GHz).

The model used here is open-source and can be obtained at `http://pism-docs.org`. The version used for the intercomparison is stable 0.7.3.

This is a 2D cavity-sheet model, typically coupled to ice dynamics via a till layer. For SHMIP experiments the till and ice dynamics components were switched off.

Tuning

How is model *jsb* set-up with regards to the reference parameters given by *mw*:

Parameter name	*mw* value is used	Used value
Glen's n	Yes	3
Ice flow constant	Yes	$3.375 \times 10^{-24}\,\mathrm{Pa^{-3}\,s^{-1}}$
Ice sliding speed	Yes	$1 \times 10^{-6}\,\mathrm{m\,s^{-1}}$
Bedrock bump wave-length	Yes	$2\,\mathrm{m}$
Bedrock bumps height	Yes	$0.1\,\mathrm{m}$
Turbulent flow exponent α	Yes	1.25
Turbulent flow exponent β	Yes	1.5
Conductivity sheet	Yes	$0.005\,\mathrm{m^{7/4}\,kg^{-1/2}}$
Sheet-width contributing to R channel melt	N/A	
Englacial void fraction	No	1×10^{-3} (sqrt) 1×10^{-2} (valley)
Conductivity R channel	N/A	
Darcy-Weisbach equivalent of kc for semi-circular R channel	N/A	

What is the tuning strategy that was used for model *jsb*:

Reference simulation	Tuned	Tuning variable	remarks
A3	No	N/A	Consistent physics.
A5	No	N/A	Consistent physics.

Run synthesis for model *jsb*

Suite	run	lenght of the run	CPU time	Convergence	suite specific parameters
A	1	5 a	0.69 h	confident	$e_v = 1 \times 10^{-3}$
	2	5 a	1.68 h	confident	
	3	5 a	1.81 h	confident	
	4	5 a	0.80 h	confident	
	5	5 a	1.30 h	confident	
	6	5 a	8.71 h	confident	
B	1	5 a	12.87 h	confident	$e_v = 1 \times 10^{-3}$
	2	5 a	11.36 h	confident	
	3	5 a	9.05 h	confident	
	4	5 a	8.52 h	confident	
	5	5 a	2.15 h	confident	
C	1	30 d	0.98 h	confident	$e_v = 1 \times 10^{-3}$
	2	30 d	1.00 h	confident	
	3	30 d	0.99 h	confident	
	4	30 d	0.98 h	dubious	
D	1	5 a	2.15 h	confident	$e_v = 1 \times 10^{-3}$
	2	5 a	3.32 h	confident	
	3	5 a	4.69 h	confident	
	4	5 a	6.44 h	confident	
	5	5 a	8.38 h	confident	
E	1	5 a	12.24 h	confident	$e_v = 1 \times 10^{-2}$
	2	5 a	109.89 h	confident	
	3	5 a	41.63 h	confident	
	4	5 a	52.98 h	confident	
	5	5 a	46.89 h	confident	
F	0	5 a	0.17 h	(spin-up)	$e_v = 1 \times 10^{-2}$
	1	5 a	0.98 h	confident	
	2	5 a	2.07 h	confident	
	3	5 a	3.45 h	confident	
	4	5 a	5.02 h	confident	
	5	5 a	6.61 h	confident	

Aditional comments on *jsb*

In PISM, subglacial hydrology can be coupled to ice dynamics via a layer of porous, compressible till. The effective pressure felt by ice is the effective pressure on the till, which depends on water content in the till. At equilibrium, the till is typically saturated and the till effective pressure is a fixed fraction δ (default 0.02) of the overburden pressure. Instead, these results include effective pressure in the subglacial cavity system, although not that directly felt by ice.

The high melt rate makes the model very slow. This is because it takes tiny time steps to respect the CFL condition on the last grid cell where effective diffusivity is very high, we assume. This is why an increased englacial void fraction was used here as compared to other models.

References

Bueler E and van Pelt W (2015) Mass-conserving subglacial hydrology in the parallel ice sheet model version 0.6. *Geoscientific Model Development*, **8**(6), 1613–1635 (doi: 10.5194/gmd-8-1613-2015)

S9. Description of the model *as*

This is the description for the SHMIP submission of model *as* commonly known as SHaKTI (Subglacial Hydrology and Kinetic Transient Interactions) that is described in Sommers and others (2018).

This model is run by Aleah Sommers, University of Colorado at Boulder.

This model was developed and implemented by Aleah Sommers, Harihar Rajaram, and Mathieu Morlighem.

The model is implemented in parallel.

The current intercomparison was performed on a 24-processor server ("cryo") in the Rajaram lab at University of Colorado at Boulder.

The model used here is available and can be obtained as part of the open source Ice Sheet System Model `http://issm.jpl.nasa.gov` The version used for the intercomparison is ISSM version 4.13

This model is based on a single set of governing equations is applied to the entire domain, allowing inefficient and efficient regimes to naturally evolve without distinguishing between sheet and channel subregions. Equations are based on conservation of water mass, basal gap dynamics, approximate momentum equation, and conservation of energy (includes melt opening term and heat from internal dissipation everywhere in the domain). A spatially variable transmissivity in the flow law allows for representation of the wide transition between laminar and turbulent regimes and self-organized channelization to occur stably. Uses finite element methods.

Tuning

How is model *as* set-up with regards to the reference parameters given by *mw*:

Parameter name	*mw* value is used	Used value
Glen's n	Yes	3
Ice flow constant	No	$5 \times 10^{-25}\,\mathrm{Pa^{-3}\,s^{-1}}$
Ice sliding speed	Yes	$1 \times 10^{-6}\,\mathrm{m\,s^{-1}}$
Bedrock bump wave-length	Yes	2 m
Bedrock bumps height	Yes	0.1 m
Turbulent flow exponent α	N/A	
Turbulent flow exponent β	N/A	
Conductivity sheet	N/A	
Sheet-width contributing to R channel melt	N/A	
Englacial void fraction	Yes	0 (A-C, F) 1×10^{-3} (Suite E only)
Conductivity R channel	N/A	
Darcy-Weisbach equivalent of kc for semi-circular R channel	N/A	

What is the tuning strategy that was used for model *as*:

Reference simulation	Tuned	Tuning variable	remarks
A3	Yes	N,q	Roughly tuned A to approximately match maximum N and q values
A5	No	N/A	

Value of the specific parameters used by model *as*

Parameter name	value and unit	Symbol
Dimensionless parameter controlling nonlinear transition between turbulent and laminar flow	0.001	ω
Kinematic viscosity of water at 0 degrees Celsius	$1.787 \times 10^{-6}\,\mathrm{m}^2\,\mathrm{s}^{-1}$	ν

Run synthesis for model as

Suite	run	length of the run	CPU time	Convergence	suite specific parameters
A	1	110 d	2 h	Confident	Under-relaxation coefficient used in nonlinear iteration: A1=0.001, A2=0.01, A3=0.01, A4=0.1, A5=0.1, A6=0.1
	2	180 d	9 min	Confident	
	3	180 d	10 min	Confident	
	4	180 d	8 min	Confident	
	5	180 d	8 min	Confident	
	6	180 d	20 min	Confident	
B	1	180 d	2 h	Confident	Under-relaxation coefficient used in nonlinear iteration: B1=0.01, B2=0.01, B3=0.01, B4=0.1, B5=0.1
	2	180 d	2 h	Confident	
	3	180 d	2 h	Confident	
	4	180 d	2 h	Confident	
	5	180 d	2 h	Confident	
C	1	30 d	20 min	Confident	Time step of 1 min used for C1 and C2. Time step of 15 min used for C3 and C4.
	2	30 d	20 min	Confident	
	3	30 d	XX h	Confident	
	4	30 d	XX h	Confident	
D					Suite D was not run on this model (not currently set up to handle negative effective pressures).
E	1	1 a	XX h	Confident	Time step of 15 min used for E1, E3, E4, and E5. Time step of 10 min used for E2.
	2	1 a	XX h	Confident	
	3	1 a	XX h	Confident	
	4	1 a	XX h	Confident	
	5	1 a	XX h	Confident	
F	1	4 a	XX h	Confident	Time step of 1 hr used for all F runs. No englacial storage was used.
	2	4 a	XX h	Confident	
	3	4 a	XX h	Confident	
	4	4 a	XX h	Confident	
	5	4 a	XX h	Confident	

References

Sommers A, Rajaram H and Morlighem M (2018) Shakti: Subglacial hydrology and kinetic transient interactions v1.0. *Geoscientific Model Development* , 2955–2974, **11**(7), (doi: 10.5194/gmd-11-2955-2018)

S10. Description of the model *sb*

This is the description for the SHMIP subission of model *sb* commonly known as confined–unconfined aquifer model that is described in Beyer and others (2017).

This model is run by S. Beyer, T. Kleiner and A. Humbert at Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research.

The model is currently implemented for a serial use.

The current intercomparison has been performed on a Intel(R) Core(TM) i7-8550U CPU @ 1.80GHz.

The model used here is closed sourced but that may change in the future The version used for the intercomparison is `v1.1.0`

Similarly to bf, this model represents the subglacial system via a diffusion equation with a single Darcy layer, where the mode of flow can switch between confined and unconfined. The evolution of the drainage system is done by locally adjusting the transmissivity of the Darcy layer according to opening and closure rates.

Tuning

How is model *sb* set-up with regards to the reference parameters given by *mw*:

Parameter name	*mw* value is used	Used value
Glen's n	Yes	3
Ice flow constant	No	$5 \times 10^{-25}\,\mathrm{Pa}^{-3}\,\mathrm{s}^{-1}$
Ice sliding speed	Yes	$1 \times 10^{-6}\,\mathrm{m\,s}^{-1}$
Bedrock bump wave-length	N/A	
Bedrock bumps height	N/A	
Turbulent flow exponent α	N/A	
Turbulent flow exponent β	N/A	
Conductivity sheet	N/A	
Sheet-width contributing to R channel melt	N/A	
Englacial void fraction	N/A	
Conductivity R channel	N/A	
Darcy-Weisbach equivalent of kc for semi-circular R channel	N/A	

What is the tuning strategy that was used for model *sb*:

Reference simulation	Tuned	Tuning variable	remarks
A3	Yes	N	
A5	Yes	N	

Value of the specific parameters used by model *sb*

Parameter name	value and unit	Symbol
Lower limit on transmissivity	$1 \times 10^{-7}\,\mathrm{m^2\,s^{-1}}$	$T_{\min}$
Upper limit on transmissivity	$100\,\mathrm{m^2\,s^{-1}}$	$T_{\max}$
Conductivity	$10\,\mathrm{m\,s^{-1}}$	K
Aquifer layer thickness	$0.1\,\mathrm{m}$	b
Confined–unconfined transition	$0\,\mathrm{m}$	d
Latent heat of fusion	$334\,\mathrm{kJ\,kg^{-1}}$	L
Compressibility of water	$5.04 \times 10^{-10}\,\mathrm{Pa^{-1}}$	β_{w}
Compressibility of porous medium	$10^{-8}\,\mathrm{Pa^{-1}}$	α
Porosity	0.4	ω
Specific storage	$1 \times 10^{-3}\,\mathrm{m^{-1}}$	S_s
Specific yield	0.4	S_y
geometric cavity opening factor	5×10^{-4}	β

Run synthesis for model *sb*

Suite	run	lenght of the run	CPU time	Convergence	suite specific parameters
A	1	20 a	20 min	confident	N/A
	2	20 a	20 min	confident	
	3	20 a	20 min	confident	
	4	20 a	20 min	confident	
	5	20 a	20 min	confident	
	6	20 a	20 min	confident	
B	1	20 a	20 min	confident	N/A
	2	20 a	20 min	confident	
	3	20 a	20 min	confident	
	4	20 a	20 min	confident	
	5	20 a	20 min	confident	
C	1	1 a	1 min	confident	N/A
	2	1 a	2 min	confident	
	3	1 a	2 min	confident	
	4	1 a	2 min	confident	
D	1	10 a	10 min	confident	N/A
	2	10 a	10 min	confident	
	3	10 a	10 min	confident	
	4	10 a	10 min	confident	
	5	10 a	10 min	confident	
	6	10 a	10 min	confident	

References

Beyer S, Kleiner T, Aizinger V, Rückamp M and Humbert A (2017) A confined–unconfined aquifer model for subglacial hydrology and its application to the north east greenland ice stream. *The Cryosphere Discussions*, **2017**, 1–24 (doi: 10.5194/tc-2017-221)

S11. Description of the model bf

This is the description for the SHMIP subission of model bf commonly known as the Double Continuum Approach implemented in the Ice Sheet System Model (ISSM) that is described in de Fleurian and others (2016, 2014).

This model is run by Basile de Fleurian, at the University of Bergen and Bjerknes Centre for Climate Research.

This model was developped and implemented by Basile de Fleurian.

The model is currently implemented for a parallel use but is not optimised yet.

The current intercomparison have been performed on the Vilje cluster. This is a 1404 node cluster where each node is formed of 2 eight core Intel Xeon E5-2670 ('Sandy Bridge') processors.

The model used here is available as part of the ISSM code and can be obtained through the ISSM website `http://issm.jpl.nasa.gov` The version used for the intercomparison is the revision 21560 of the development version.

This model solves the diffusion equation based on Darcy's law in two porous layer. The porous layer representing the efficient drainage system has a varying thickness and is activated based on a water pressure threshold in the inefficient drainage system. An earlier version of this model folowing de Fleurian and others (2014) and without thickness evolution of the efficient drainage layer is implemented in the Elmer/Ice modelling framework[1,2].

Tuning

How is model bf set-up with regards to the reference parameters given by mw:

Parameter name	mw value is used	Used value
Glen's n	Yes	3
Ice flow constant	Yes	$3.375 \times 10^{-24}\,\mathrm{Pa}^{-3}\,\mathrm{s}^{-1}$
Ice sliding speed	N/A	
Bedrock bump wave-length	N/A	
Bedrock bumps height	N/A	
Turbulent flow exponent α	N/A	
Turbulent flow exponent β	N/A	
Conductivity sheet	N/A	
Sheet-width contributing to R channel melt	N/A	
Englacial void fraction	N/A	
Conductivity R channel	N/A	
Darcy-Weisbach equivalent of kc for semi-circular R channel	N/A	

[1] `http://elmerice.elmerfem.org/wiki/doku.php?id=solvers:idssolver`
[2] `http://elmerice.elmerfem.org/wiki/doku.php?id=solvers:eplsolver`

What is the tuning strategy that was used for model bf:

Reference simulation	Tuned	Tuning variable	remarks
A3	Yes	N	Tuning for the inefficient component
A5	Yes	N	Tuningfor the efficient component

Value of the specific parameters used by model bf

Parameter name	value and unit	Symbol
Inefficent system conductivity	$3.19 \times 10^{-3}\,\mathrm{m\,s^{-1}}$	K_i
Inefficient layer thickness	$10\,\mathrm{m}$	e_i
Efficent system conductivity	$9.0 \times 10^{1}\,\mathrm{m\,s^{-1}}$	K_e
Efficient layer initial thickness	$5.0\times^{-4}\,\mathrm{m}$	e_e
Leakage time	$1.0\times^{-7}\,\mathrm{s^{-1}}$	γ
Porosity	0.4	ω
Water compressibility	$5.0 \times 10^{-10}\,\mathrm{Pa^{-1}}$	β_w
Compressibility of the solid	$1.0 \times 10^{-8}\,\mathrm{Pa^{-1}}$	α

Run synthesis for model bf

Suite	run	lenght of the run	CPU time	Convergence	suite specific parameters
A	1	60 a	1 h	confident	N/A
	2	60 a	1 h	confident	
	3	60 a	1 h	confident	
	4	60 a	3 h	confident	
	5	60 a	3 h	confident	
	6	N/A	N/A	not converged	
B	1	18 a	105 h	confident	N/A
	2	50 a	24 h	confident	
	3	40 a	70 h	confident	
	4	18 a	100 h	confident	
	5	21 a	100 h	confident	
C	1	3.8 a	18 h	confident	N/A
	2	3.7 a	20 h	confident	
	3	3.6 a	24 h	confident	
	4	3.6 a	25 h	confident	
D	1	21 a	15 h	confident	N/A
	2	21 a	17 h	confident	
	3	21 a	46 h	confident	
	4	18 a	58 h	confident	
	5	17 a	58 h	confident	
E	1	15 a	32 h	confident	N/A
	2	15 a	32 h	confident	
	3	15 a	32 h	confident	
	4	20 a	27 h	confident	
	5	20 a	28 h	confident	
F	1	5 a	0.3 h	confident	N/A
	2	5 a	0.3 h	confident	
	3	5 a	1.5 h	confident	
	4	5 a	4 h	confident	
	5	5 a	4 h	confident	

References

de Fleurian B, Gagliardini O, Zwinger T, Durand G, Le Meur E, Mair D and Råback P (2014) A double continuum hydrological model for glacier applications. *Cryosphere*, **8**(1), 137–153 (doi: 10.5194/tc-8-137-2014)

de Fleurian B, Morlighem M, Seroussi H, Rignot E, van den Broeke MR, Munneke PK, Mouginot J, Smeets PCJP and Tedstone AJ (2016) A modeling study of the effect of runoff variability on the effective pressure beneath russell glacier, west greenland. *J. Geophys. Res*, **121**(10), ISSN 2169-9003 (doi: 10.1002/2016JF003842)

S12. Description of the model mh_1

This is the description for the SHMIP submission of model mh_1 commonly known as Community Ice Sheet Model (CISM) that is described in Hoffman and Price (2014); Hoffman and others (2016).

This model is run by Matthew Hoffman at Los Alamos National Laboratory

This model was developed and implemented by Matthew Hoffman.

The model is currently implemented for a serial use.

The current intercomparison results were performed on MacBook Pro.

The model used here is available by request from Matthew Hoffman. The version used for the intercomparison is commit 70b54f1839d99a1c52163ca834f657fd653c0cda.

This is a coupled sheet and single R channel model. It models the cavity-sheet on a structured, rectangular grid, and the single R channel exists along edges between model grid cells along the center of the domain. The hydropotential along the channel forms an interior Dirichlet boundary condition on the hydropotential within the distributed system. The model uses a finite difference discretisation. The subglacial hydrology model is part of a larger ice sheet model and can optionally be coupled to ice dynamics.

Tuning

How is model mh_1 set-up with regards to the reference parameters given by mw:

Parameter name	mw value is used	Used value
Glen's n	Yes	3
Ice flow constant	Yes	$3.375 \times 10^{-24}\,\mathrm{Pa^{-3}\,s^{-1}}$
Ice sliding speed	Yes	$1 \times 10^{-6}\,\mathrm{m\,s^{-1}}$
Bedrock bump wave-length	Yes	$2\,\mathrm{m}$
Bedrock bumps height	Yes	$0.1\,\mathrm{m}$
Turbulent flow exponent α	Yes	1.25
Turbulent flow exponent β	Yes	1.5
Conductivity sheet	Yes	$0.005\,\mathrm{m^{7/4}\,kg^{-1/2}}$
Sheet-width contributing to R channel melt	Yes	$2\,\mathrm{m}$
Englacial void fraction	Yes	0 (sqrt)
Conductivity R channel	Yes	$0.1\,\mathrm{m^{3/2}\,kg^{-1/2}}$
Darcy-Weisbach equivalent of kc for semi-circular R channel	Yes	0.195

What is the tuning strategy that was used for model mh_1:

Reference simulation	Tuned	Tuning variable	remarks
A3	No	N/A	Results visually matched mw without tuning
A5	No	N/A	Results visually were close to mw without tuning

Run synthesis for model mh_1

Suite	run	length of the run	CPU time	Convergence	suite specific parameters
A	1	3 a	1.5 h	confident	
	2	3 a	0.7 h	confident	
	3	3 a	0.6 h	confident	
	4	3 a	0.6 h	confident	
	5	3 a	0.3 h	confident	
	6	N/A	N/A	not converged	
D	1	20 a	17 h	confident	N/A
	2	25 a	25 h	confident	
	3			not converged	
	4			not converged	
	5			not converged	

Additional comments on mh_1

Submitted results for both Suites A and D are at 250 m resolution. Suite A Grid convergence: I ran both A3 and A5 at 1km, 500m, and 250m. The initiation of the channel initiation point moved westward, and the channel size lowered slightly, with each refinement (moved closer to the GlaDS results). This is because of the exchange term I calculate to couple the sheet to the channel, which is based on the hydropotential difference between the channel and the center of the cell of the sheet adjacent to the channel. If the mesh is coarse, the gradient is poorly resolved and the difference will be larger than it should be. A5 at 125m resolution was slightly closer to GlaDS results, but was cumbersome to run stably, so I am submitting the 250m results.

References

Hoffman M and Price S (2014) Feedbacks between coupled subglacial hydrology and glacier dynamics. *J. Geophys. Res.*, **119**(3), 414–436, ISSN 2169-9003 (doi: 10.1002/2013JF002943)

Hoffman MJ, Andrews LC, Price SF, Catania GA, Neumann TA, Lüthi MP, Gulley J, Ryser C, Hawley RL and Morriss B (2016) Greenland subglacial drainage evolution regulated by weakly connected regions of the bed. *Nature Communications*, **7**, 13903–

S13. Description of the model mh_2

This is the description for the SHMIP submission of model mh_2 commonly known as Model for Prediction Across Scales-Land Ice (MPASLI) that is described in Hoffman and others (2018b).

This model is run by Matthew Hoffman at Los Alamos National Laboratory.

This model was developed and implemented by Matthew Hoffman.

The model is currently implemented for parallel use.

The current intercomparison results were performed on Wolf at Los Alamos National Laboratory, which has 9856 cores for a total of 205 TFlops using Eight Core Intel Xeon** Sandy-Bridge processors. All runs were performed on a single node (16 cores).

The model used here is available by request from Matthew Hoffman. A public release of the code is anticipated in spring 2018 at `https://github.com/MPAS-Dev`. The version used for the intercomparison is commit 2435f4f2b90fb31b1875382a9b07c067b5d749ed.

It models the cavity-sheet on an unstructured, Voronoi grid, and a network of R channels connect the Voronoi cell centers (channel segments lie on the edges of the dual Delaunay Triangulation mesh). Uniform resolution was used for all SHMIP experiments, meaning the Voronoi cells are all hexagons. The model uses a finite volume discretisation. Evolution of the system occurs through explicit advection of water.

Tuning

How is model mh_2 set-up with regards to the reference parameters given by mw:

Parameter name	mw value is used	Used value
Glen's n	Yes	3
Ice flow constant	Yes	$3.375 \times 10^{-24}\,\mathrm{Pa^{-3}\,s^{-1}}$
Ice sliding speed	Yes	$1 \times 10^{-6}\,\mathrm{m\,s^{-1}}$
Bedrock bump wave-length	Yes	$2\,\mathrm{m}$
Bedrock bumps height	Yes	$0.1\,\mathrm{m}$
Turbulent flow exponent α	Yes	1.25
Turbulent flow exponent β	Yes	1.5
Conductivity sheet	Yes	$0.005\,\mathrm{m^{7/4}\,kg^{-1/2}}$
Sheet-width contributing to R channel melt	Yes	$2\,\mathrm{m}$
Englacial void fraction	No	1×10^{-3} (sqrt)
Conductivity R channel	Yes	$0.1\,\mathrm{m^{3/2}\,kg^{-1/2}}$
Darcy-Weisbach equivalent of kc for semi-circular R channel	Yes	0.195

What is the tuning strategy that was used for model mh_2:

Reference simulation	Tuned	Tuning variable	remarks
A3	No	N/A	Results visually matched mw without tuning
A5	No	N/A	Results visually matched mw without tuning

Run synthesis for model mh_2

Suite	run	length of the run	CPU time	Convergence	suite specific parameters
A	1	100 a	22 h	confident	grid convergence: 500 m and 1 km resolution gave the same results, 500 m submitted; steady state threshold: dh/dt, dN/dt < 0.01%/yr
	2	30 a	3.01 h	confident	
	3	30 a	3.15 h	confident	
	4	69 a	32 h	confident	
	5	64 a	80 h	confident	
	6	18.3 a	368 h	confident	
B	1	40 a	400 h	confident	steady state threshold: dh/dt<0.11%/yr for all cells; dN/dt < 0.15%/yr for all cells
	2	60 a	400 h	confident	
	3	30 a	400 h	confident	
	4	65 a	320 h	confident	
	5	55 a	320 h	confident	
C	1	2 a	32 h	confident	steady state threshold: diurnal cycle for final 5 days visually indistinguishable for maximum sheet thickness and mean effective pressure
	2	2 a	32 h	confident	
	3	2 a	32 h	confident	
	4	11 a	304 h	confident	
D	1	16 a	80 h	confident	N/A
	2	17 a	144 h	confident	
	3	24 a	400 h	confident	
	4	17 a	400 h	confident	
	5	11 a	400 h	dubious	

Additional comments on mh_2

This explicit formulation for advection of water in MPASLI requires a very small time step due to advective, diffusive, and pressure CFL conditions. On many of the runs with channels, time steps were on the order of milliseconds. This explains the very long run times for configurations with large melt inputs. Because this time step scales inversely with the square of the grid resolution, the very high grid resolution needed for suites E and F made those simulations infeasible. While the model supports variable resolution meshes, all runs were performed on fixed resolution meshes (500m for A1-5, 1000m for everything else).

References

Hoffman MJ, Perego M, Price SF, Lipscomb WH, Jacobsen D, Tezaur I, Salinger AG, Tuminaro R and Zhang T (2018b) MPAS-Albany Land Ice (MALI): a variable resolution ice sheet model for earth system modeling using Voronoi grids. *Geoscientific Model Development Discussions*, 1–47 (doi: 10.5194/gmd-2018-78)

S14. Description of the model *og*

This is the description for the SHMIP subission of model *og* commonly known as GlaDS model implemented in Elmer/Ice that is described in Gagliardini and Werder (2018).

This model is run by Olivier Gagliardini, in IGE (University Grenoble Alpes, France).

This model was developed and implemented by Olivier Gagliardini and Mauro Werder.

The model is currently implemented for a serial or parallel use.

The current intercomparison have been performed in serial on our local cluster (Intel(R) Xeon(R) CPU E7- 4830 @2.13GHz (4Go/core)).

The model used here is part of the open source finite element model Elmer/Ice and can be obtained by installing Elmer/Ice (links to Elmer/Ice are its webpage: `http://elmerice.elmerfem.org/` and its wiki: `http://elmerice.elmerfem.org/wiki/doku.php`). The version used for the intercomparison is indicated in the netcdf files. This is Elmer/Ice Version 8.2, Revision ddb8140, Compiled: 2017-07-12.

Tuning

How is model *og* set-up with regards to the reference parameters given by *mw*:

Parameter name	*mw* value is used	Used value
Glen's n	Yes	3
Ice flow constant	Yes	$3.375 \times 10^{-24}\,\mathrm{Pa^{-3}\,s^{-1}}$
Ice sliding speed	Yes	$1 \times 10^{-6}\,\mathrm{m\,s^{-1}}$
Bedrock bump wave-length	Yes	$2\,\mathrm{m}$
Bedrock bumps height	Yes	$0.1\,\mathrm{m}$
Turbulent flow exponent α	Yes	1.25
Turbulent flow exponent β	Yes	1.5
Conductivity sheet	Yes	$0.005\,\mathrm{m^{7/4}\,kg^{-1/2}}$
Sheet-width contributing to R channel melt	Yes	$2\,\mathrm{m}$
Englacial void fraction	Yes	0 (sqrt) 1×10^{-3} (valley)
Conductivity R channel	Yes	$0.1\,\mathrm{m^{3/2}\,kg^{-1/2}}$
Darcy-Weisbach equivalent of kc for semi-circular R channel	N/A	

What is the tuning strategy that was used for model *og*:

Reference simulation	Tuned	Tuning variable	remarks
A3	No	No model Tuning, used the same values	
A5	No	No model Tuning, used the same values	

Run synthesis for model *og*

Suite	run	lenght of the run	CPU time	Convergence	suite specific parameters
A	1	1500 d	3.22 h	Confident	N/A
	2	1500 d	2.56 h	Confident	
	3	1500 d	2.53 h	Confident	
	4	1500 d	3.49 h	Confident	
	5	1500 d	4.74 h	Confident	
	6	1500 d	7.18 h	Confident	
B	1	1500 d	5.56 h	Confident	N/A
	2	1500 d	4.57 h	Confident	
	3	1500 d	4.31 h	Confident	
	4	1500 d	4.13 h	Confident	
	5	1500 d	4.43 h	Confident	
C	1	200 d	41.4 h	Confident	N/A
	2	200 d	45.3 h	Confident	
	3	200 d	47.1 h	Confident	
	4	200 d	43.5 h	Confident	
D	1	50 a	252 h	Confident	N/A
	2	50 a	298 h	Confident	
	3	50 a	316 h	Confident	
	4	50 a	364 h	Confident	
	5	50 a	361 h	Confident	
E	1	1000 d	10.8 h	Confident	N/A
	2	1000 d	11.0 h	Confident	
	3	1000 d	8.98 h	Confident	
	4	1000 d	12.2 h	Confident	
	5	1000 d	11.1 h	Confident	
F	1	50 a	52.5 h	Confident	N/A
	2	50 a	59.4 h	Confident	
	3	50 a	68.0 h	Confident	
	4	50 a	71.4 h	Confident	
	5	50 a	81.4 h	Confident	

Aditional comments on *og*

Elmer/Ice is a finite element model. The number of nodes and triangular elements of the unstructured mesh was ≈10800 and ≈21000, respectively, for the sqrt topography and 4855 and 9384 for the valley topography. Time steps were assumed constant over all the simulation and are given in the previous table.

References

Gagliardini O and Werder MA (2018) Influence of an increasing surface melt over decadal timescales on land terminating outlet glaciers. *Journal of Glaciology*, **accepted**

S15. Description of the model og'

This is the description for the SHMIP submission of model og'. This is exactly the same model as og but with setting $c_t = 0$ for suites E and F.

S16. Description of the model *mw*

This is the description for the SHMIP subission of model *mw* commonly known as GlaDS that is described in Werder and others (2013).

This model is run by Mauro Werder at ETH, Zurich, Switzerland.

This model was developped and implemented by Mauro Werder, Christian Schoof, Ian Hewitt, Christine Dow.

The model is currently implemented for serial use.

The current intercomparison have been performed on desktop computer of recent vintage (around 2016).

The model used here is available on request. The version used for the intercomparison is tagged as `SHMIP` (git SHA `ec0bb5a`)

This is a coupled sheet and R channel model. It models the R channel network on the edges of an unstructured triangular grid. Water exchange between sheet and R channels is computed assuming equal pressure of a channel and the sheet adjacent to it. It uses a finite element discretisation.

Tuning

This is the model *mw* and its parameters are given by:

Parameter name	*mw* value is used	Used value
Glen's n	Yes	3
Ice flow constant	Yes	$3.375 \times 10^{-24}\,\mathrm{Pa}^{-3}\,\mathrm{s}^{-1}$
Ice sliding speed	Yes	$1 \times 10^{-6}\,\mathrm{m\,s}^{-1}$
Bedrock bump wave-length	Yes	2 m
Bedrock bumps height	Yes	0.1 m
Turbulent flow exponent α	Yes	1.25
Turbulent flow exponent β	Yes	1.5
Conductivity sheet	Yes	$0.005\,\mathrm{m}^{7/4}\,\mathrm{kg}^{-1/2}$
Sheet-width contributing to R channel melt	Yes	2 m
Englacial void fraction	Yes	0 (sqrt) 1×10^{-3} (valley)
Conductivity R channel	Yes	$0.1\,\mathrm{m}^{3/2}\,\mathrm{kg}^{-1/2}$
Darcy-Weisbach equivalent of kc for semi-circular R channel	Yes	0.195

What is the tuning strategy that was used for model *mw*:

Reference simulation	Tuned	Tuning variable	remarks
A3	No	N/A	
A5	No	N/A	

Run synthesis for model mw

Suite	run	length of the run	CPU time	Convergence	suite specific parameters
A	1	21 a	11.5 h	confident	N/A
	2	21 a	1.5 h	confident	
	3	21 a	0.6 h	confident	
	4	21 a	0.5 h	confident	
	5	21 a	0.7 h	confident	
	6	21 a	1.7 h	confident	
B	1	21 a	1.3 h	confident	N/A
	2	21 a	0.4 h	confident	
	3	21 a	0.4 h	confident	
	4	21 a	0.3 h	confident	
	5	21 a	0.3 h	confident	
C	1	50 d	1.4 h	confident	N/A
	2	50 d	3.8 h	confident	
	3	50 d	5.1 h	confident	
	4	50 d	0.3 h	confident	
D	1	4 a	1.4 h	confident	N/A
	2	4 a	1.6 h	confident	
	3	4 a	1.4 h	confident	
	4	4 a	1.4 h	confident	
	5	4 a	1.3 h	confident	
	6	4 a	? h	confident	
E	1	2.7 a	2.4 h	confident	N/A
	2	2.7 a	2.3 h	confident	
	3	2.7 a	4.8 h	confident	
	4	2.7 a	3.9 h	confident	
	5	2.7 a	4.3 h	confident	
F	1	2 a	1.5 h	confident	N/A
	2	2 a	46 h	confident	
	3	2 a	172 h	confident	
	4	2 a	185 h	confident	
	5	2 a	160 h	confident	

Aditional comments on mw

GlaDS is a finite element model. The number of nodes (linear elements) was 2650 for the sqrt topography and 2764 for the valley topography. Time stepping was done with an adaptive time-stepper from the Matlab ODE-suite, either ode15s or ode113.

References

Werder MA, Hewitt IJ, Schoof CG and Flowers GE (2013) Modeling channelized and distributed subglacial drainage in two dimensions. *J. Geophys. Res.*, **118**, 1–19, ISSN 2169-9011 (doi: doi:10.1002/jgrf.20146,)

S17. Description of the model mw'

Same as model mw but for one parameter value.

Tuning

How is model mw' set-up with regards to the reference parameters given by mw:

Parameter name	mw value is used	Used value
Englacial void fraction	No	1×10^{-4} (sqrt)

Run synthesis for model mw'

Suite	run	lenght of the run	CPU time	Convergence	suite specific parameters
C	1	50 d	1.8 h	confident	N/A
	2	50 d	4.1 h	confident	
	3	50 d	3.9 h	confident	
	4	50 d	6.5 h	confident	
D	1	4 a	4.6 h	confident	N/A
	2	4 a	8.1 h	confident	
	3	4 a	12.9 h	confident	
	4	4 a	? h	confident	
	5	4 a	? h	confident	
	6	4 a	? h	confident	