Appendix B + Appendix C

for

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Downstream and upstream influence in river meandering. Part 1. General theory and application to overdeepening

vol. pp. 2001

FM 11345

Editorial file with appendices to Part One

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(Received 5 December 2000)

Appendix B. Coefficients of equations (5.15, 5.16)

$$\sigma_i = \frac{1}{\xi_4}\{\xi_i + \Delta_o \xi_{i+1} + \Delta_2(\alpha_2 \varepsilon_{i+2} - \delta_2 \beta_{i+2})\} \qquad (i = 0, 1, 2, 3, 4)$$

$$\varrho_i = -\frac{1}{\xi_4}\{\mu_{i-1} + \Delta_o \mu_i + \Delta_2(\alpha_2 \eta_{i+1} - \delta_2 \gamma_{i+1})\} \qquad (i = 1, 2, 3, 4, 5, 6, 7) \ ,$$

where

$$\Delta_o = \frac{\delta_2 \alpha_o - \delta_o \alpha_2}{\delta_2 \alpha_1 - \delta_1 \alpha_2} \qquad \Delta_1 = \delta_2 \Delta_o - \delta_1 \qquad \Delta_2 = \delta_2 \Delta_o^2 - \delta_1 \Delta_o + \delta_o \ ,$$

and

$$\xi_i = \Delta_1(\delta_2 \beta_{i+1} - \alpha_2 \varepsilon_{i+1}) + \delta_2(\alpha_2 \varepsilon_i - \delta_2 \beta_i) + (\alpha_1 \delta_2 - \alpha_2 \delta_1)\varepsilon_{i+1} \qquad (i = 0, 1, 2, 3, 4, 5)$$

$$\mu_i = \Delta_1(\delta_2 \gamma_{i+1} - \alpha_2 \eta_{i+1}) + \delta_2(\alpha_2 \eta_i - \delta_2 \gamma_i) + (\alpha_1 \delta_2 - \alpha_2 \delta_1)\eta_{i+1} \qquad (i = 0, 1, 2, 3, 4, 5, 6, 7) \ ,$$

$$\alpha_o = a_2 \qquad \alpha_1 = \frac{1}{F_o^2} \qquad \alpha_2 = \frac{1 - a_5}{M^2 F_o^2 a_6}$$

$$\beta_o = \beta_1 = \beta_5 = \beta_6 = 0 \qquad \beta_2 = a_1 \qquad \beta_3 = 1 \qquad \beta_4 = \frac{1 - a_4}{M^2 F_o^2 a_6}$$

$$\gamma_o = \gamma_1 = \gamma_7 = \gamma_8 = 0 \qquad \gamma_2 = b_1 - a_2 \bar{d}_1 \qquad \gamma_3 = -\bar{h}_1 - a_2 \bar{d}_2$$

$$\gamma_4 = -\alpha_2 \bar{d}_1 - \bar{h}_2 - a_2 \bar{d}_3 \qquad \gamma_5 = -\alpha_2 \bar{d}_2 - \bar{h}_3 \qquad \gamma_6 = -\alpha_2 \bar{d}_3$$

$$\delta_o = -M^2 a_6 \qquad \delta_1 = a_5 - 1 - F_o^2 a_3 a_6 \qquad \delta_2 = -F_o^2 a_6$$

$$\varepsilon_o = \varepsilon_1 = \varepsilon_2 = \varepsilon_5 = \varepsilon_6 = 0 \qquad \varepsilon_3 = a_4 - 1 - F_o^2 a_3 a_6 \qquad \varepsilon_4 = -F_o^2 a_6$$

$$\eta_o = \eta_1 = \eta_2 = \eta_7 = \eta_8 = 0 \qquad \eta_3 = -\delta_1 \bar{d}_1$$

$$\eta_4 = -\delta_1 \bar{d}_2 + F_o^2 a_6 \bar{d}_1 \qquad \eta_5 = -\delta_1 \bar{d}_3 + F_o^2 a_6 \bar{d}_2 \qquad \eta_6 = F_o^2 a_6 \bar{d}_3 \ ,$$

Furthermore:

$$d_{mo} d_{mj} = -\left[M^2 H_j + T_o T_j + a_3 \tilde{v}_{mj}\right] \qquad j = 1,2,3$$

$$d_{mo} d_{mj} = -\left[M^2 H_{j-1} + T_o T_{j-1} + a_3 \tilde{v}_{m(j-1)}\right] A_m \qquad j = 5,6,7,8$$

$$d_{mo} d_{m4} = -T_3 \qquad d_{mo} d_{m9} = -(\bar{d}_3 + T_7) A_m \ ,$$

where

$$d_{mo} = M^2 H_o + T_o^2 + a_3 T_o \ ,$$

$$T_o = \alpha_2 M^2 - F_o^2 a_2; \qquad T_1 = -F_o^2 a_1 \ ; \ H_o = \frac{1}{F_o^2} + T_o \alpha_2 \ ; \qquad H_1 = \alpha_2 T_1$$

$$T_2 = F_o^2[\alpha_2(a_3 - \beta_4) - 1]; \qquad T_3 = F_o^2(\alpha_2 - \beta_4) \ ; \ H_2 = T_2 \alpha_2 + \beta_4; \qquad H_3 = T_3 \alpha_2$$

$$T_i = F_o^2 \left[B_{i-5} + \alpha_2(a_3 + \beta_4)\bar{d}_{i-4}\right] \quad (i = 5,6,7) \ ; \ T_4 = F_o^2 B_1$$

$$H_i = \alpha_2(\bar{d}_i + T_i) \quad (i = 5,6,7) \ ; \ H_4 = \alpha_2 T_4 \ ,$$

$$T = 1 - F_o^2 \alpha_2(\alpha_2 + a_3); B_i = b_i - a_2 \bar{d}_2 \quad (i = 1,2,3) \ ; \ B_4 = \bar{h}_3 \ .$$

Coefficients $v_{m1} - v_{m9}$, $h_{m1} - h_{m9}$ can be put in the form:

$$M v_{mj} = \tilde{v}_{mj} + T_o d_{mj} \quad (j = 1, ..., 9)$$

$$\tilde{v}_{m1} = T_1 \ , \ \tilde{v}_{m2} = T_2 + 1 \ , \ \tilde{v}_{m3} = T_3 \ , \quad \tilde{v}_{m5} = T_4$$

$$\tilde{v}_{m6} = T_5 + \bar{d}_1 \ , \ \tilde{v}_{m7} = T_6 + \bar{d}_2 \ , \quad \tilde{v}_{m8} = T_7 + \bar{d}_3$$

$$h_{mj} = \tilde{h}_{mj} + H_o d_{mj} \ ; \ \tilde{h}_{mj} = H_j \quad (j = 1, ..., 3, 5, ..., 8)$$

$$\tilde{v}_{m4} = \tilde{v}_{m9} = \tilde{h}_{m4} = \tilde{h}_{m9} = 0$$

Appendix C. Coefficients of equations (6.1 - 6.4)

Coefficients $g_{ik}(k = 0, 1, ..., 5)$ can be written in the form:

$$g_{jk} = \frac{w_j}{w} r_{jk} \qquad (k = 0, 1, ..., 6) \ ,$$

where

$$r_{jk} = \sum_{i=k}^{6} \varrho_{i+1} (\lambda_{mj})^{i-k}$$

while $w_j (j = 1, 2, 3, 4)$ and w are determinants defined as follows: let

$$W \equiv \begin{pmatrix} 1 & 1 & 1 & 1 \\ \lambda_{m1} & \lambda_{m2} & \lambda_{m3} & \lambda_{m4} \\ \lambda_{m1}^2 & \lambda_{m2}^2 & \lambda_{m3}^2 & \lambda_{m4}^2 \\ \lambda_{m1}^3 & \lambda_{m2}^3 & \lambda_{m3}^3 & \lambda_{m4}^3 \end{pmatrix} \qquad I = \begin{pmatrix} 0 \\ 0 \\ 0 \\ 1 \end{pmatrix}$$

hence:

$$w = det(W)$$

$$w_j = det(W_j)$$

where W_j is obtained by replacing the j-th column of W with I.

$\{\Gamma_{jk\ell}\}$ is the following matrix, where j is fixed:

$$\{\Gamma_{jk\ell}\} \equiv \begin{pmatrix} g_{j1} & g_{jo} & g_{jo}\lambda_{mj} & g_{jo}\lambda_{mj}^2 & -\sigma_4/4 & 0 & 0 & 0 & 0 \\ g_{j2} & g_{j1} & g_{jo} & g_{jo}\lambda_{mj} & 0 & -\sigma_4/4 & 0 & 0 & 0 \\ g_{j3} & g_{j2} & g_{j1} & g_{jo} & 0 & 0 & -\sigma_4/4 & 0 & 0 \\ g_{j4} & g_{j3} & g_{j2} & g_{j1} & 0 & 0 & 0 & -\sigma_4/4 & 0 \\ g_{j5} & g_{j4} & g_{j3} & g_{j2} & 0 & 0 & 0 & 0 & -\sigma_4/4 \\ g_{j6} & g_{j5} & g_{j4} & g_{j3} & 0 & 0 & 0 & 0 & 0 \\ 0 & g_{j6} & g_{j5} & g_{j4} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & g_{j6} & g_{j5} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & g_{j6} & 0 & 0 & 0 & 0 & 0 \end{pmatrix}$$