

SUPPLEMENTARY INFORMATION FOR:

# Revisiting glacier mass balance sensitivity to surface air temperature using a data-driven regionalization

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## Contents

### Supplementary Figures S1 – S20

These figures provide further detail on the representativeness of glaciers, the clustering result and how it compares with RGI zones.

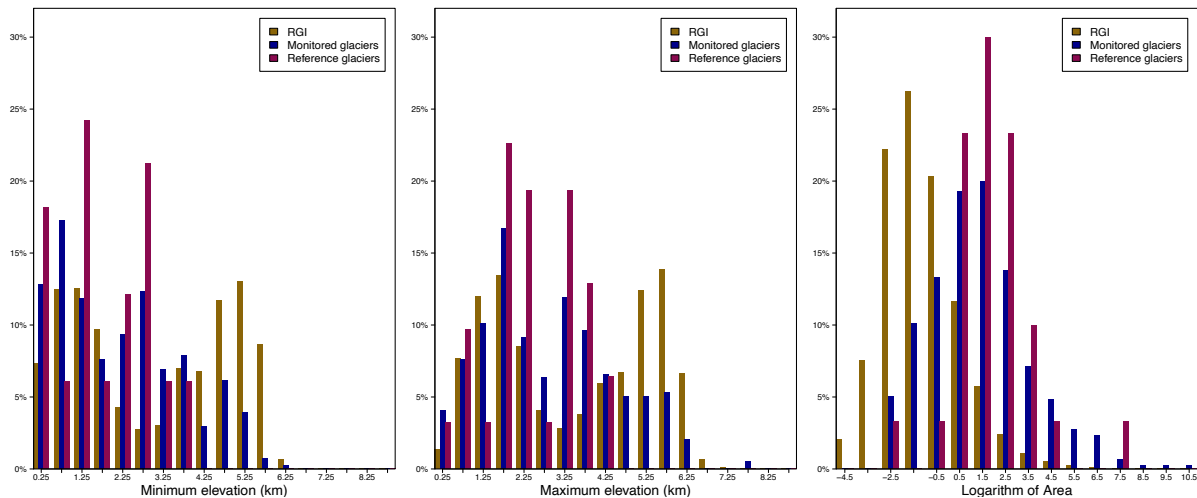


Figure S1: Comparison of the set of all monitored glaciers, the set of reference glaciers, and the RGI for three key variables: minimum and maximum elevation, and area (in logarithmic scale). For elevations the bar plot used 500-m bins. It is clear that the set that considers all monitored glaciers is much less biased than reference glaciers, relative to the RGI, as almost every bin of the RGI is accompanied by a bar of the set. This is not the case for the set of reference glaciers, as all plots show some bins no represented at all, with a clear bias towards low elevation glaciers. This is especially important for minimum and maximum elevations, key factors in determining the climatic regime according to our results, as the set of monitored glaciers fills all bins. In the case of area, that in our analysis resulted unimportant for classification at this global scale, only very small glaciers, below the threshold normally applied for defining a glacier, seem underrepresented in the set of all monitored glaciers (-2.5 is the log of 0.08 km<sup>2</sup>). This clearly contrasts with the bias in reference glaciers (data source: Randolph Glacier Inventory and the World Glacier Monitoring Service).

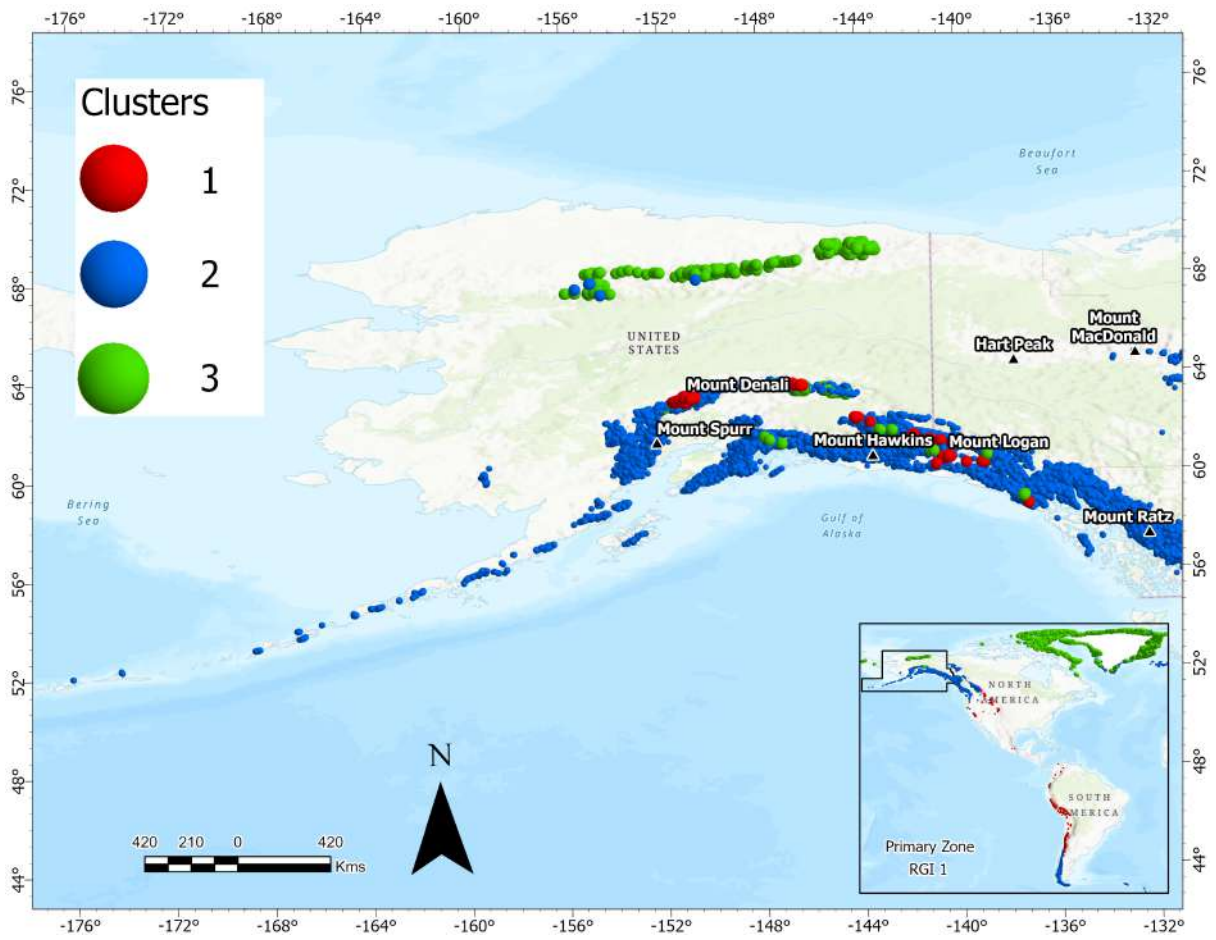


Figure S2: Detailed view of the clustering for the RGI primary zone 1.

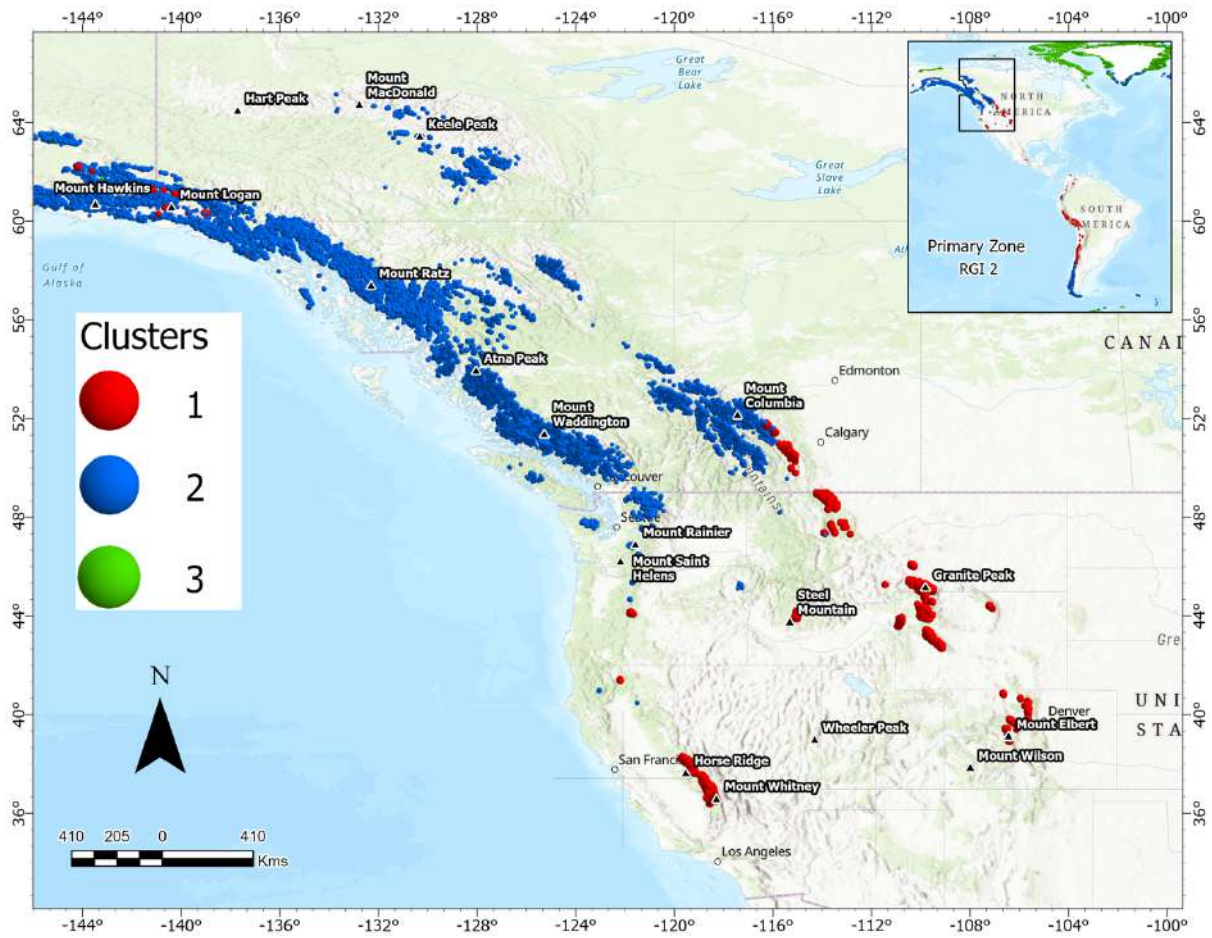


Figure S3: Detailed view of the clustering for the RGI primary zone 2.

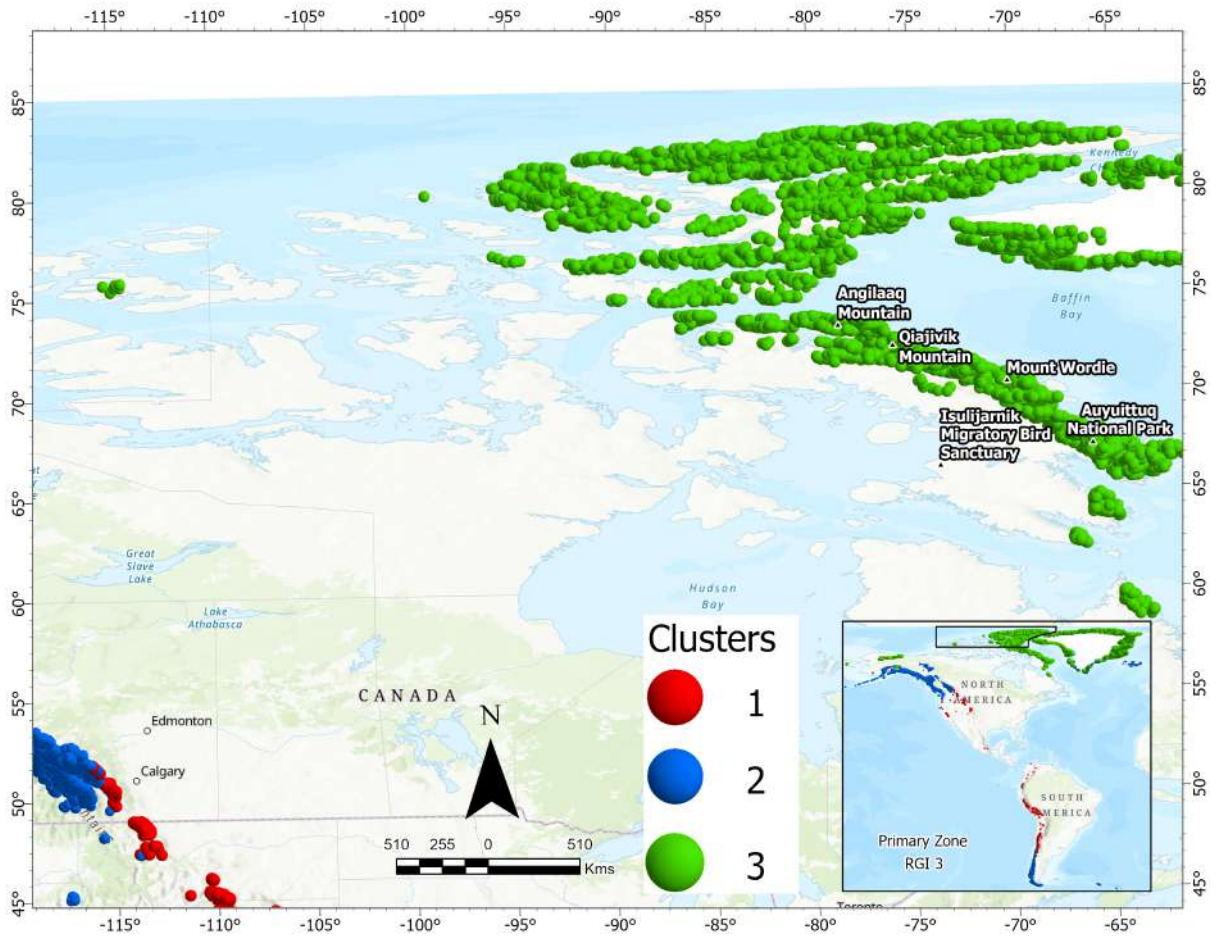


Figure S4: Detailed view of the clustering for the RGI primary zone 3.



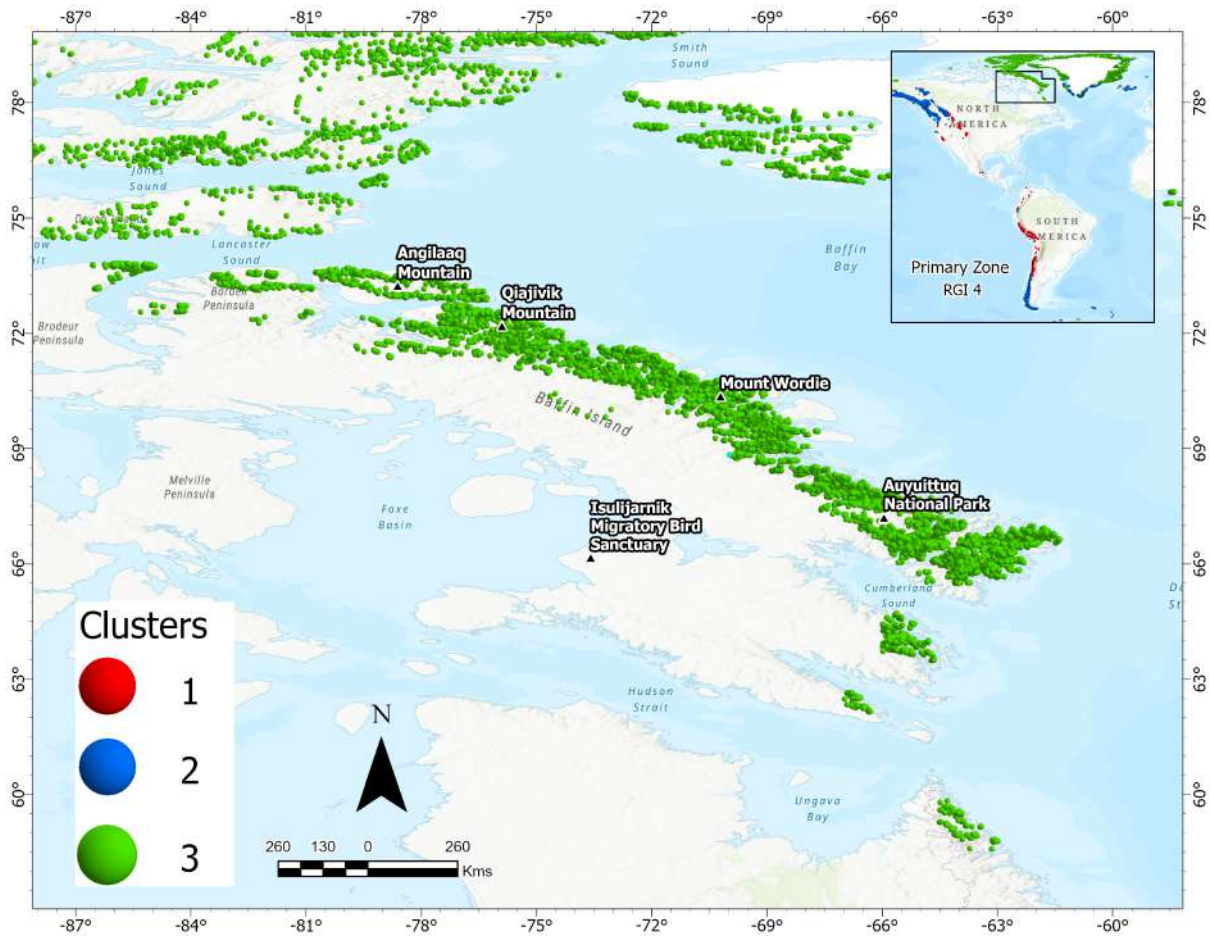


Figure S5: Detailed view of the clustering for the RGI primary zone 4.

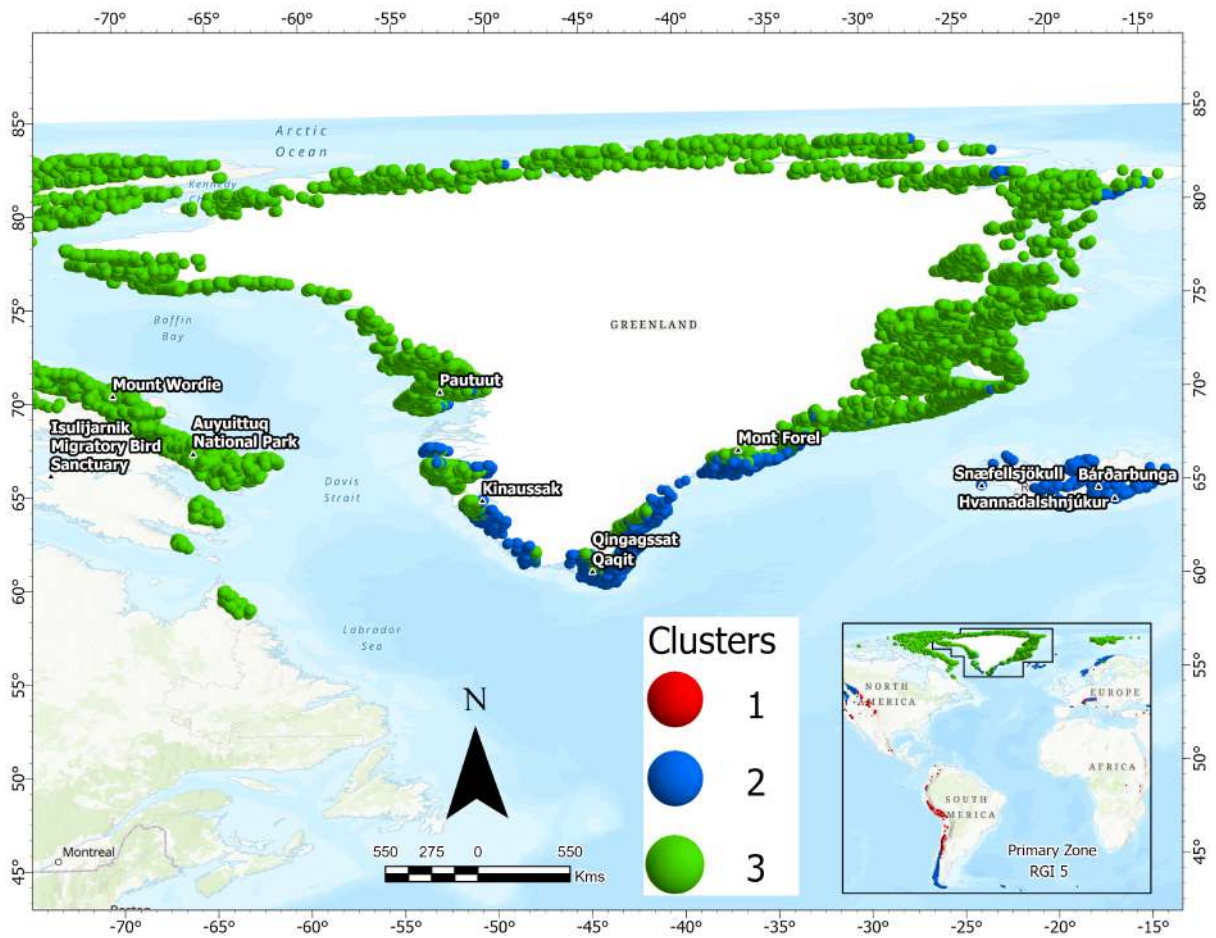


Figure S6: Detailed view of the clustering for the RGI primary zone 5.

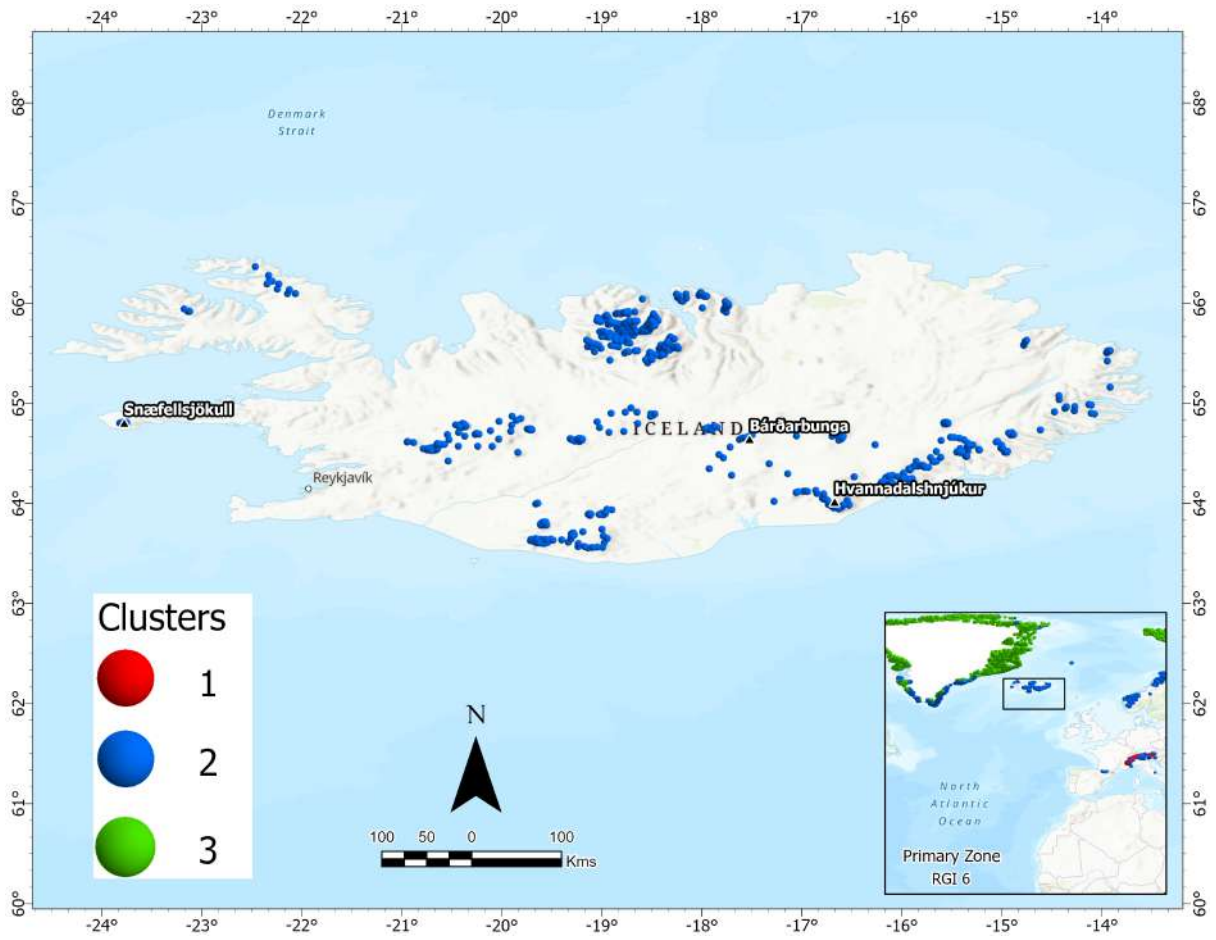


Figure S7: Detailed view of the clustering for the RGI primary zone 6.

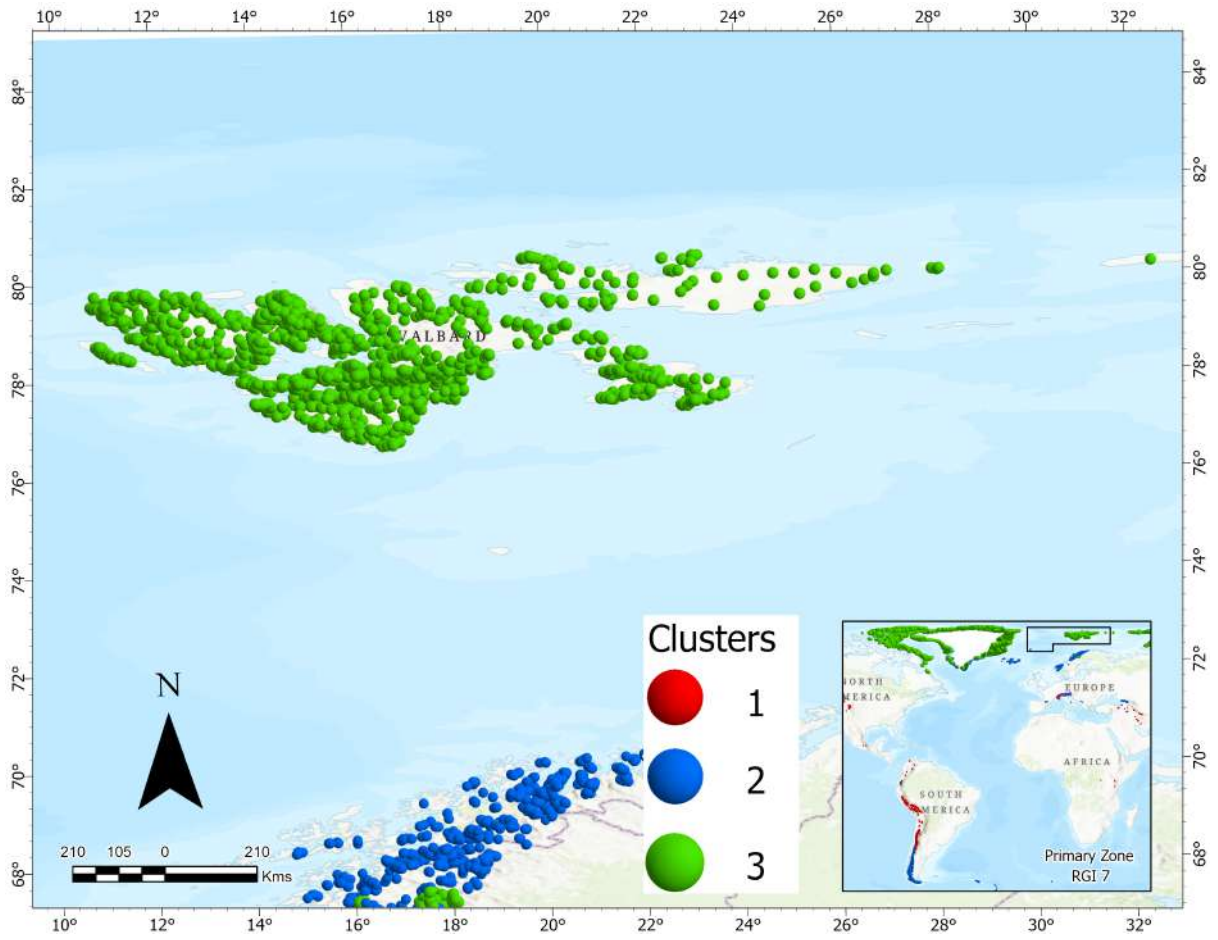


Figure S8: Detailed view of the clustering for the RGI primary zone 7.



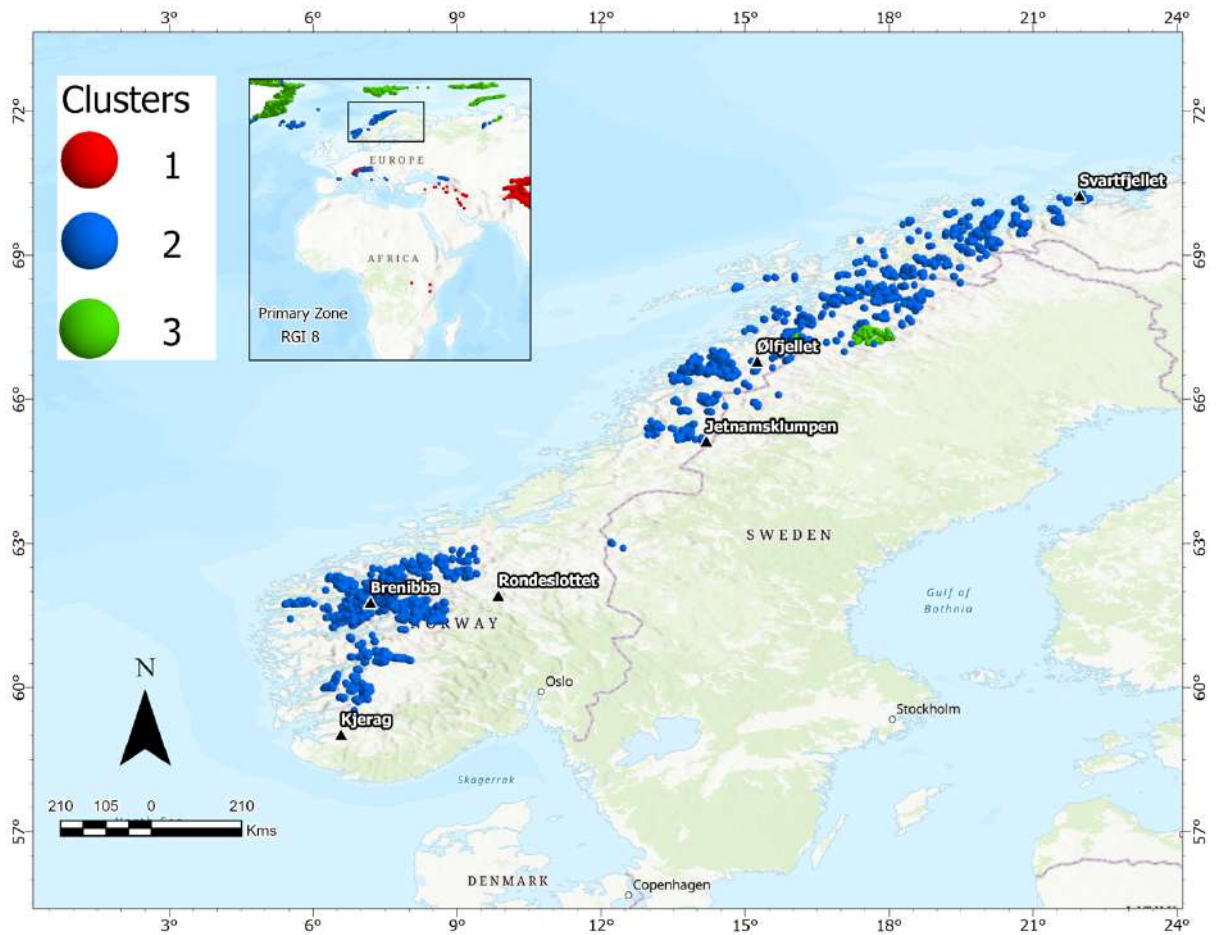


Figure S9: Detailed view of the clustering for the RGI primary zone 8.

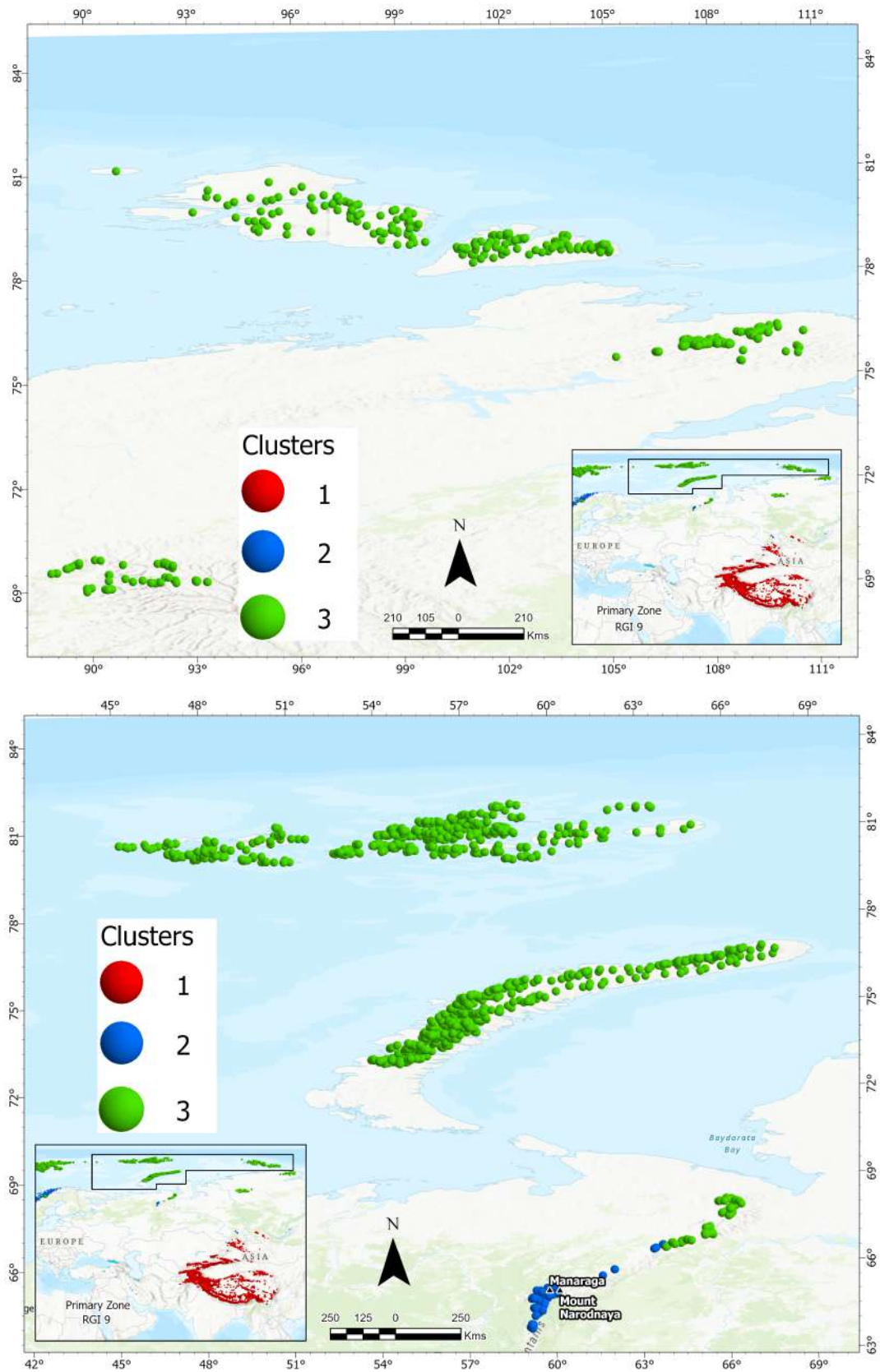


Figure S10: Detailed view of the clustering for the RGI primary zone 9.

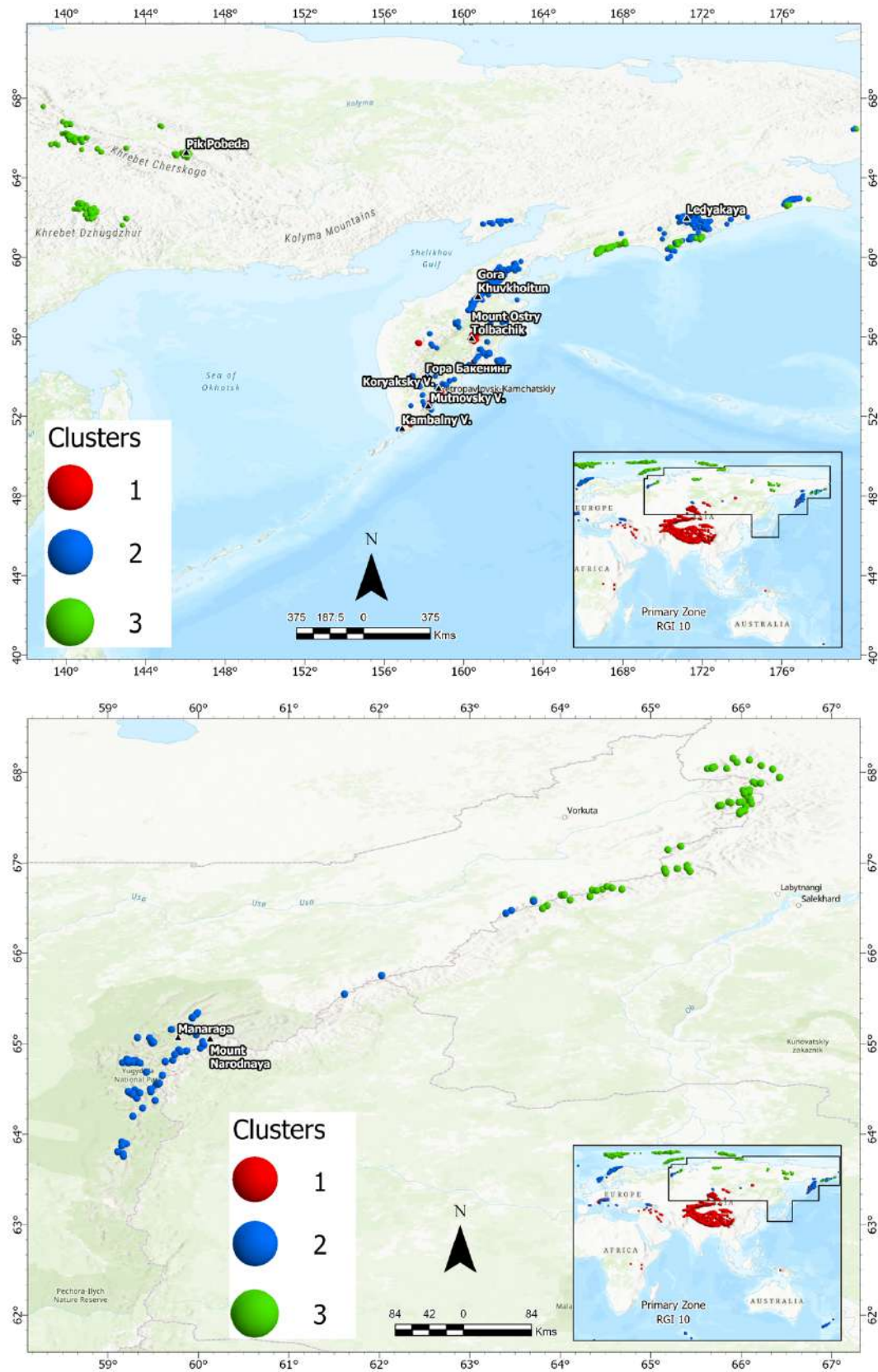


Figure S11: Detailed view of the clustering for the RGI primary zone 10, first part.



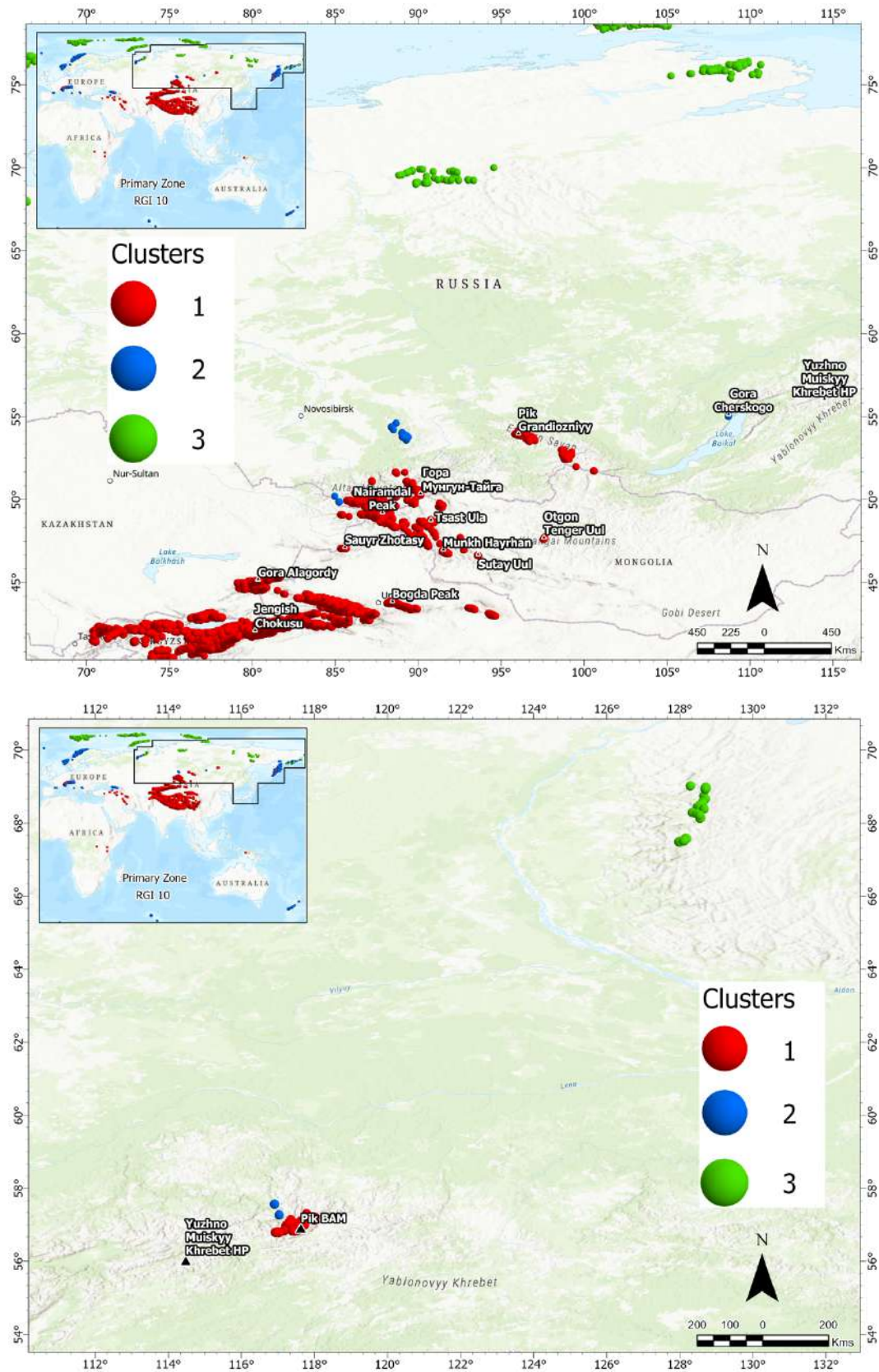


Figure S12: Detailed view of the clustering for the RGI primary zone 10, second part.

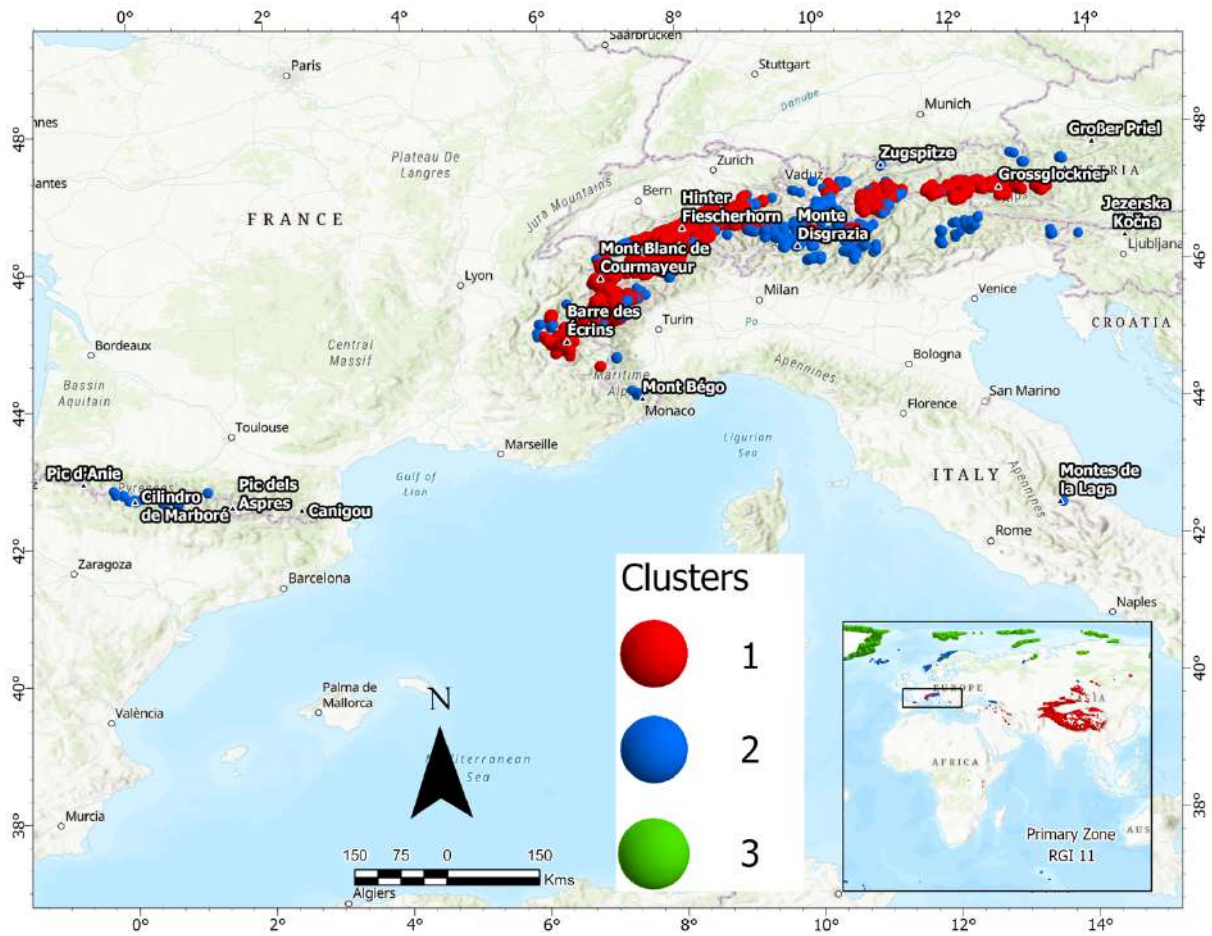


Figure S13: Detailed view of the clustering for the RGI primary zone 11.



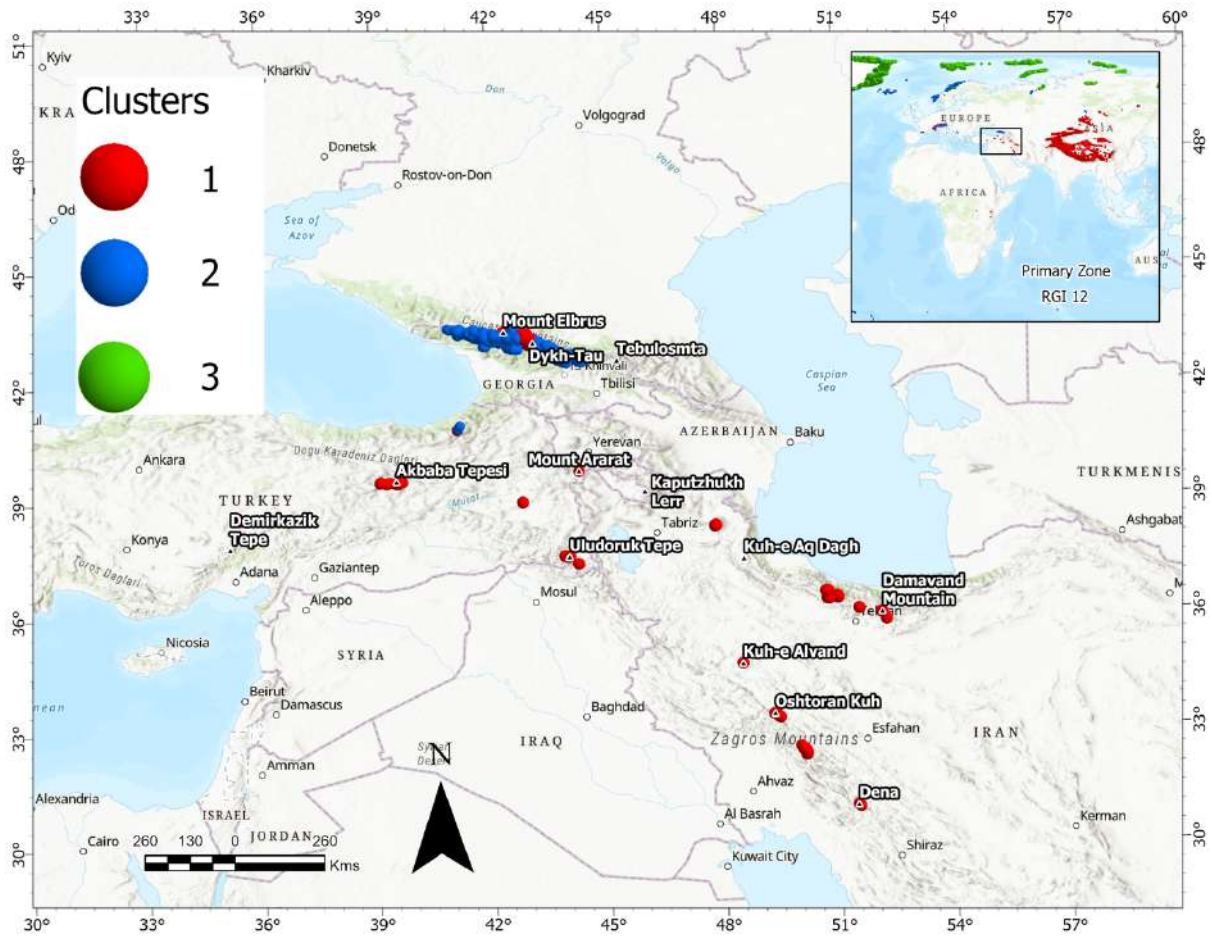


Figure S14: Detailed view of the clustering for the RGI primary zone 12.

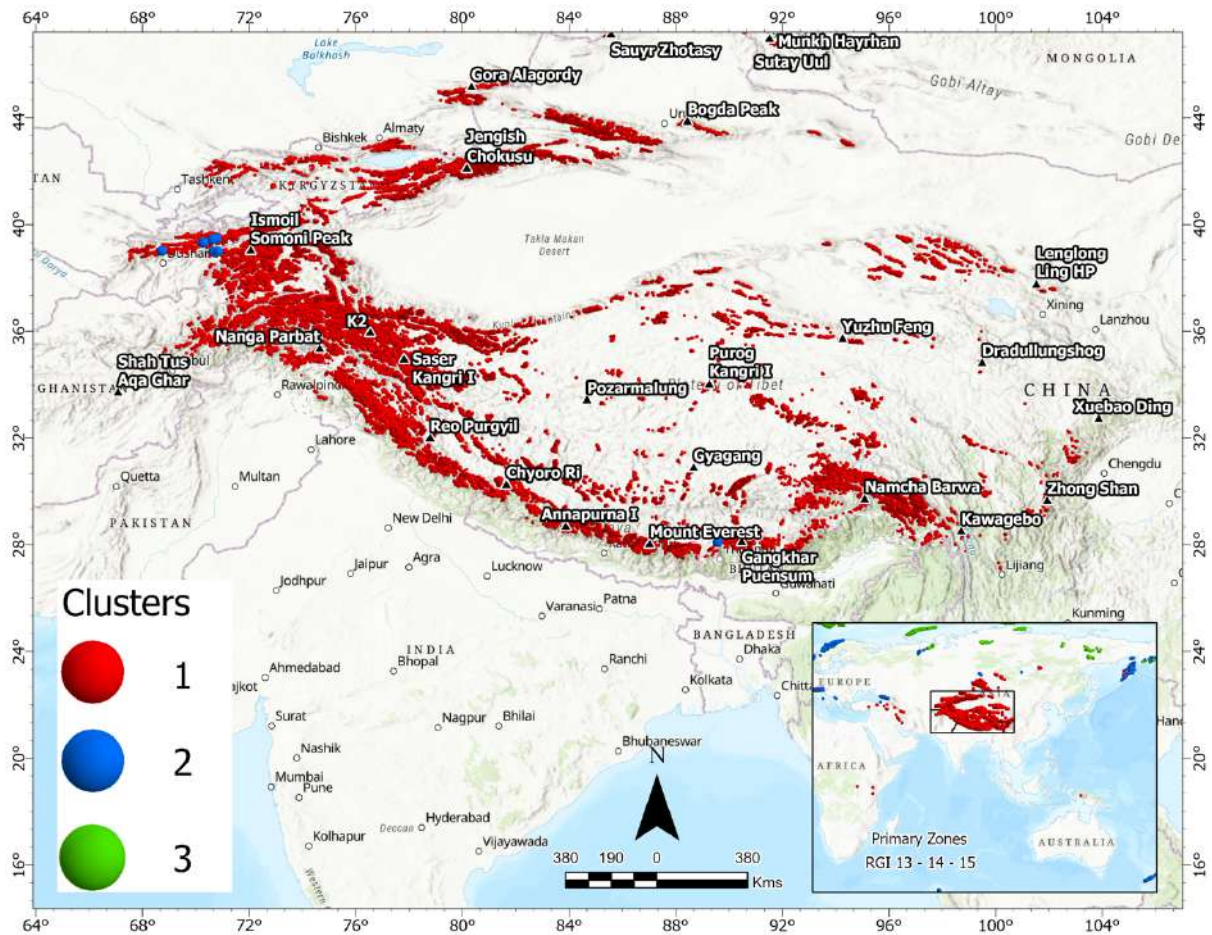


Figure S15: Detailed view of the clustering for the RGI primary zone 13, 14 and 15.

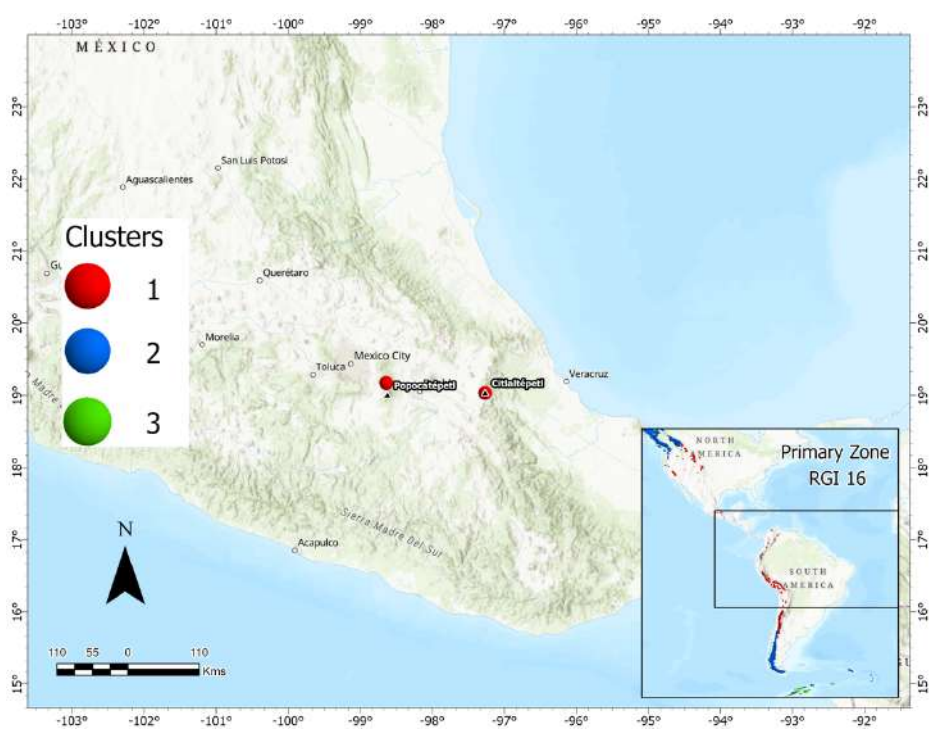
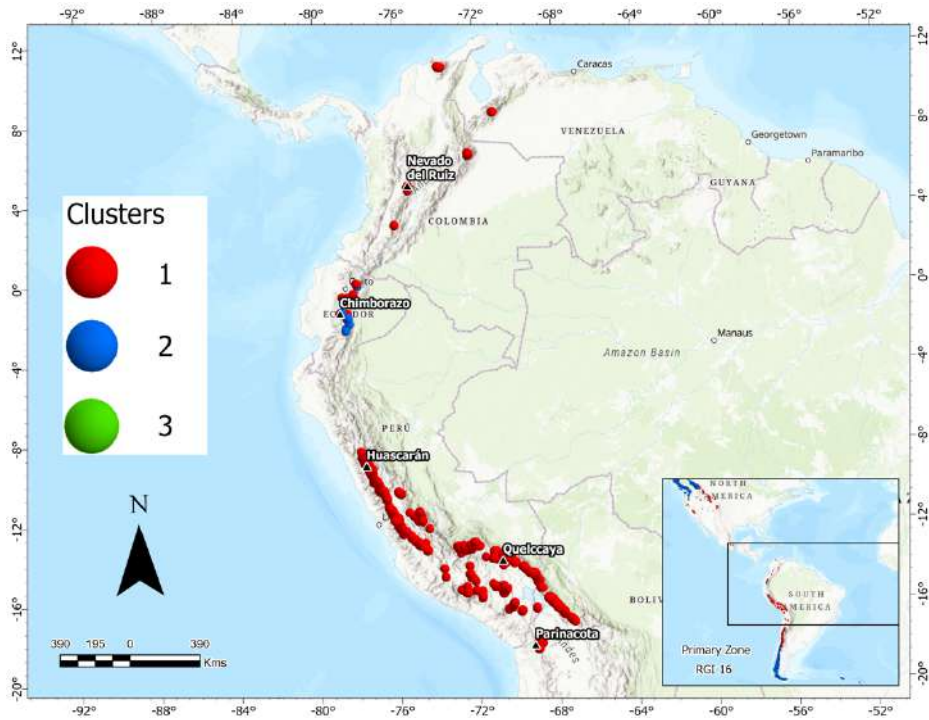


Figure S16: Detailed view of the clustering for the RGI primary zone 16, first part.



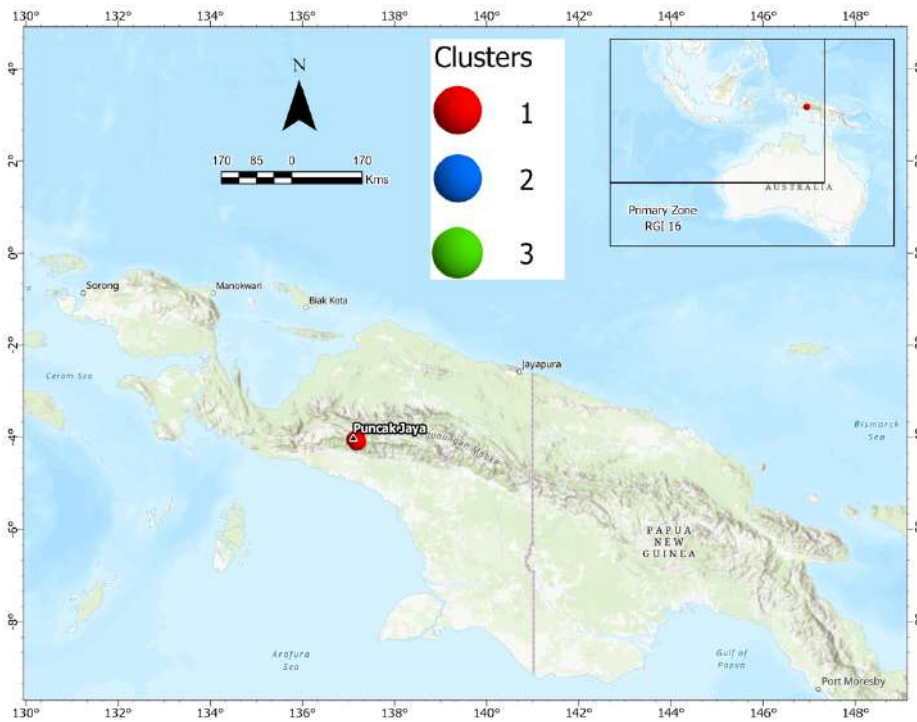
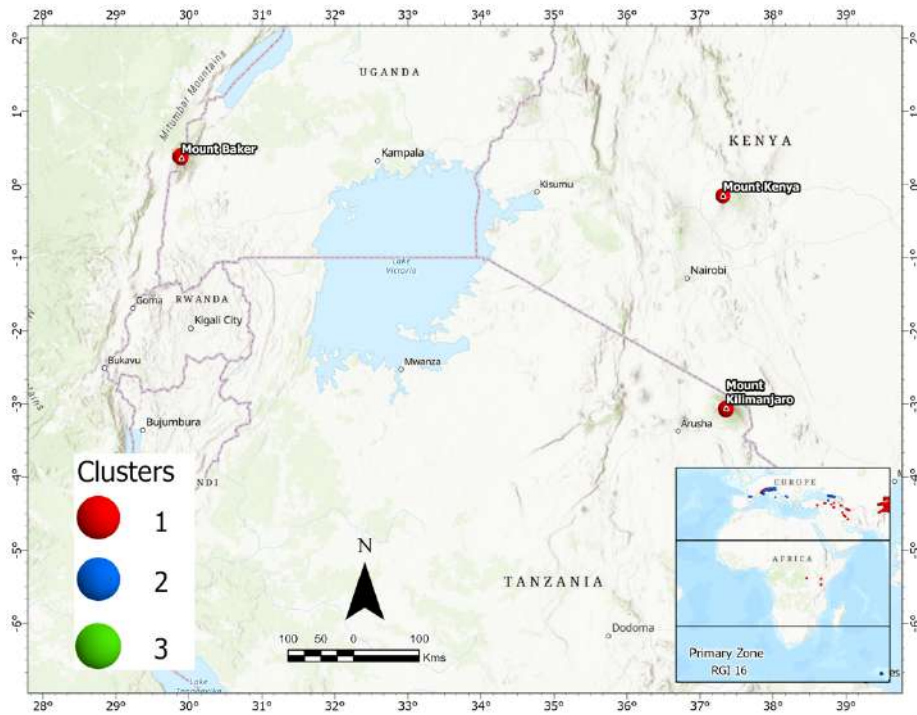


Figure S17: Detailed view of the clustering for the RGI primary zone 16, second part.

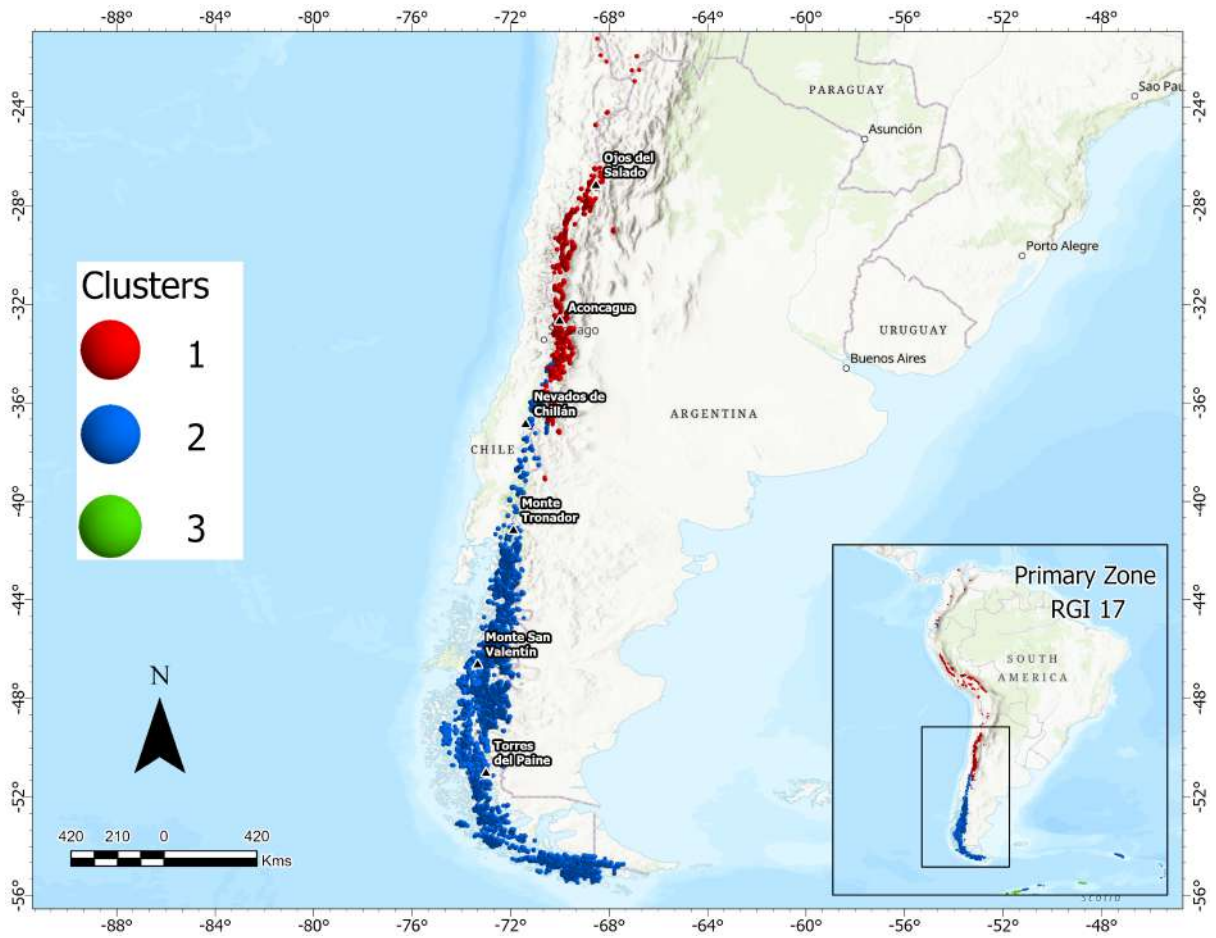


Figure S18: Detailed view of the clustering for the RGI primary zone 17.



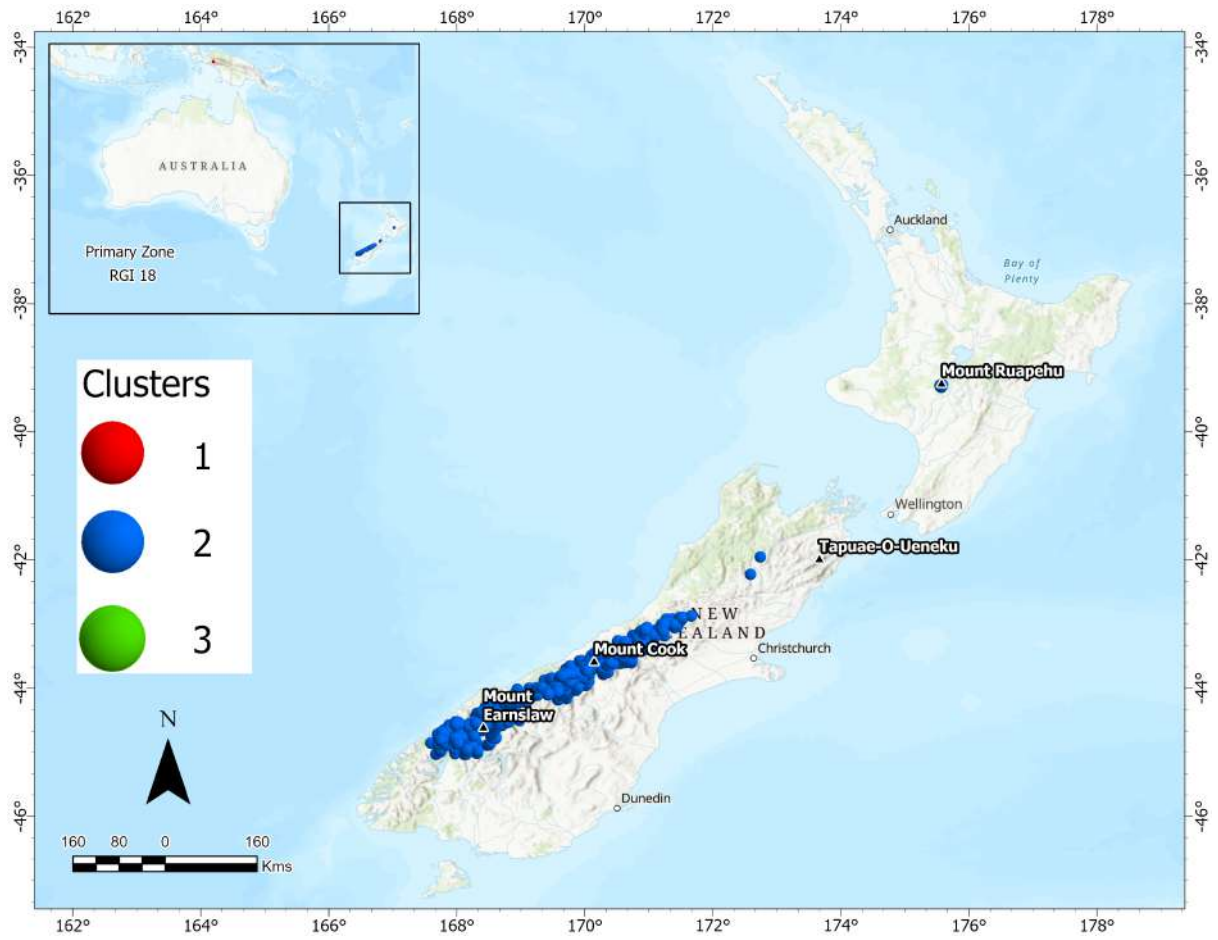


Figure S19: Detailed view of the clustering for the RGI primary zone 18.

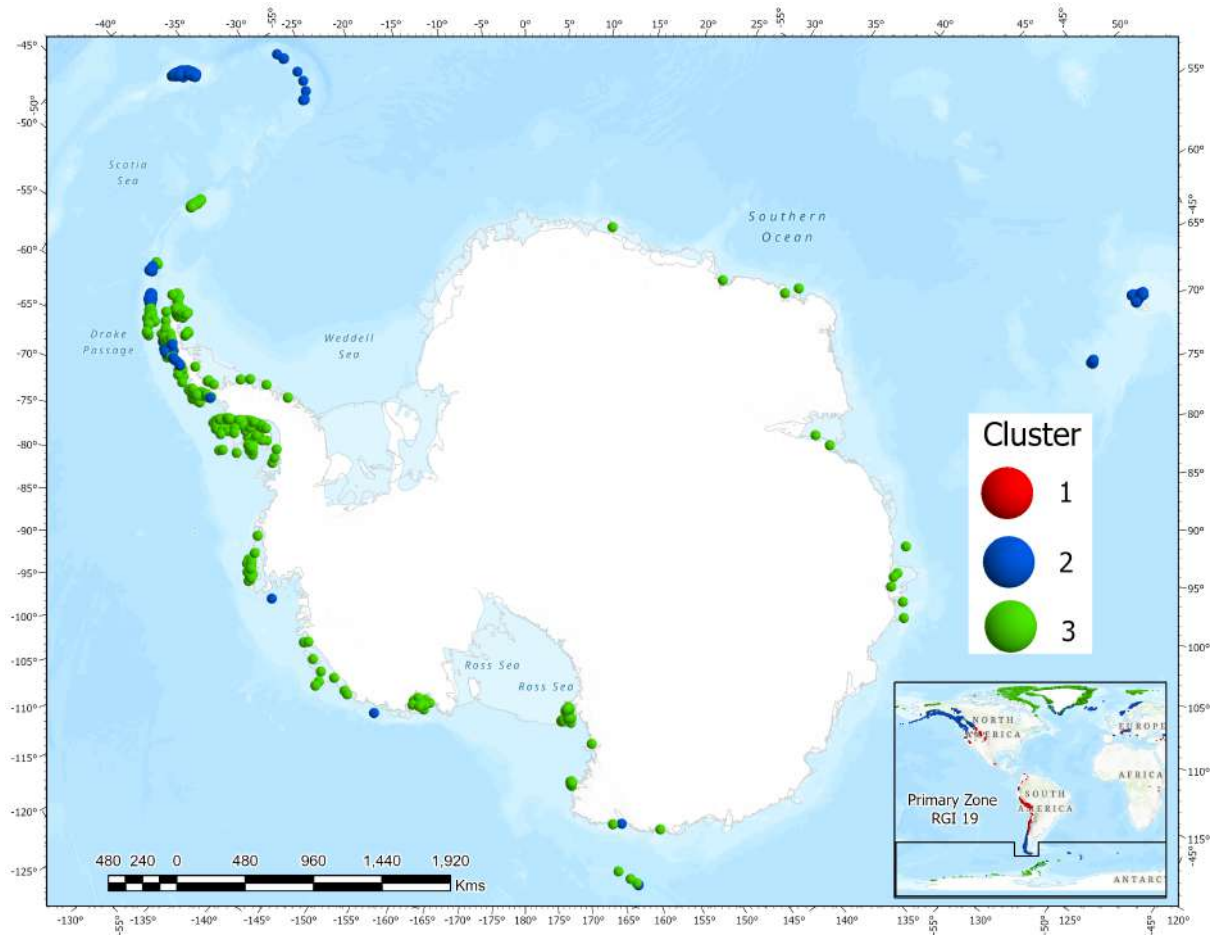


Figure S20: Detailed view of the clustering for the RGI primary zone 19.