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## Bathymetric change analysis of Ramsey Bay, Isle of Man

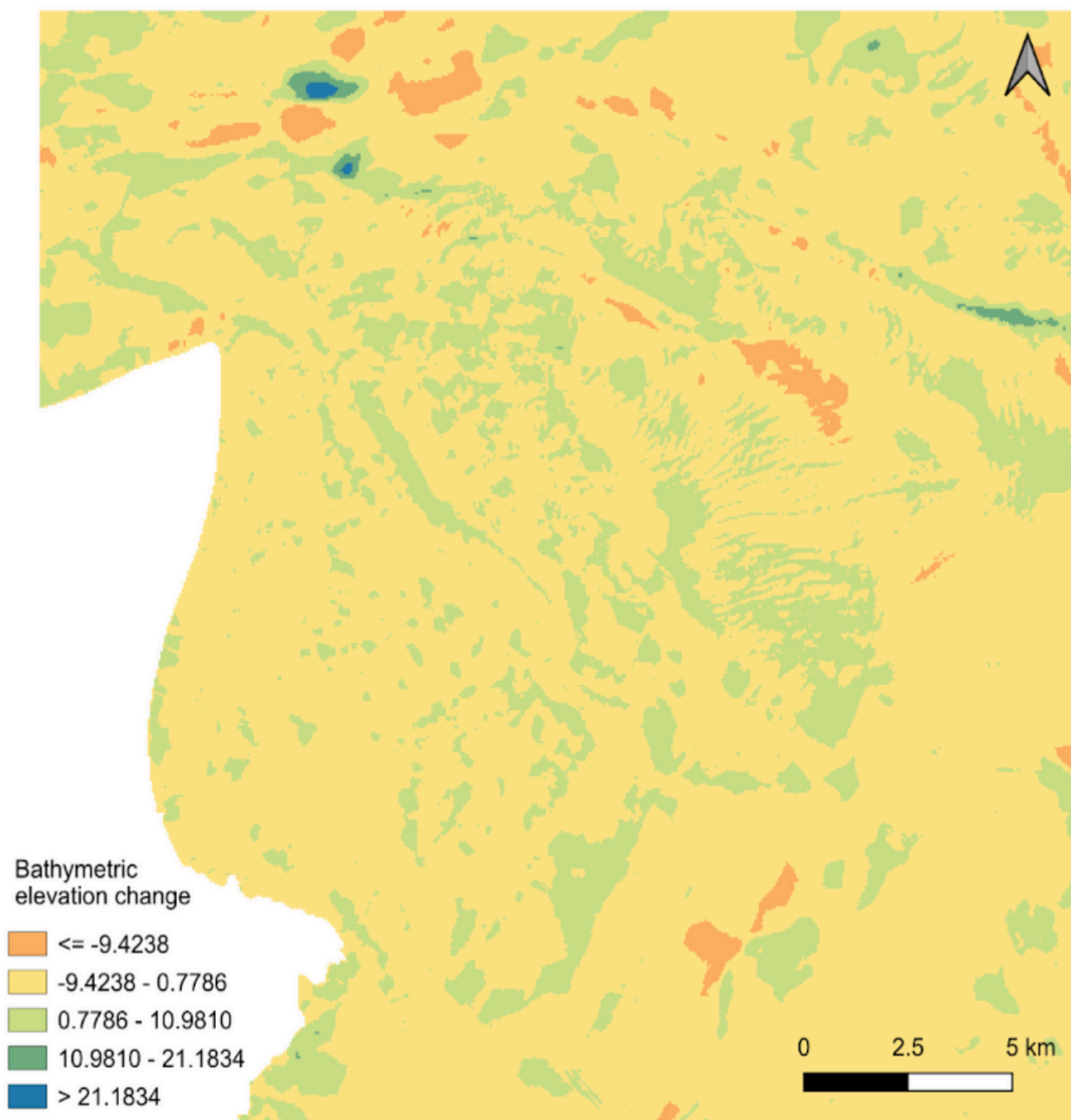
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The project analyses long-term seabed change in Ramsey Bay, Isle of Man, between 1881 and 1990 using GIS-based interpolation of historical bathymetric surveys, DEM differencing, and transect analysis. The results reveal spatially structured patterns of erosion and deposition concentrated within offshore sandbanks, indicating sediment redistribution and sandbank migration rather than uniform seabed change. Overall, the findings suggest that Ramsey Bay operates near dynamic equilibrium, with strong tidal forcing driving continuous internal reworking of sediment over centennial timescales.

Software:

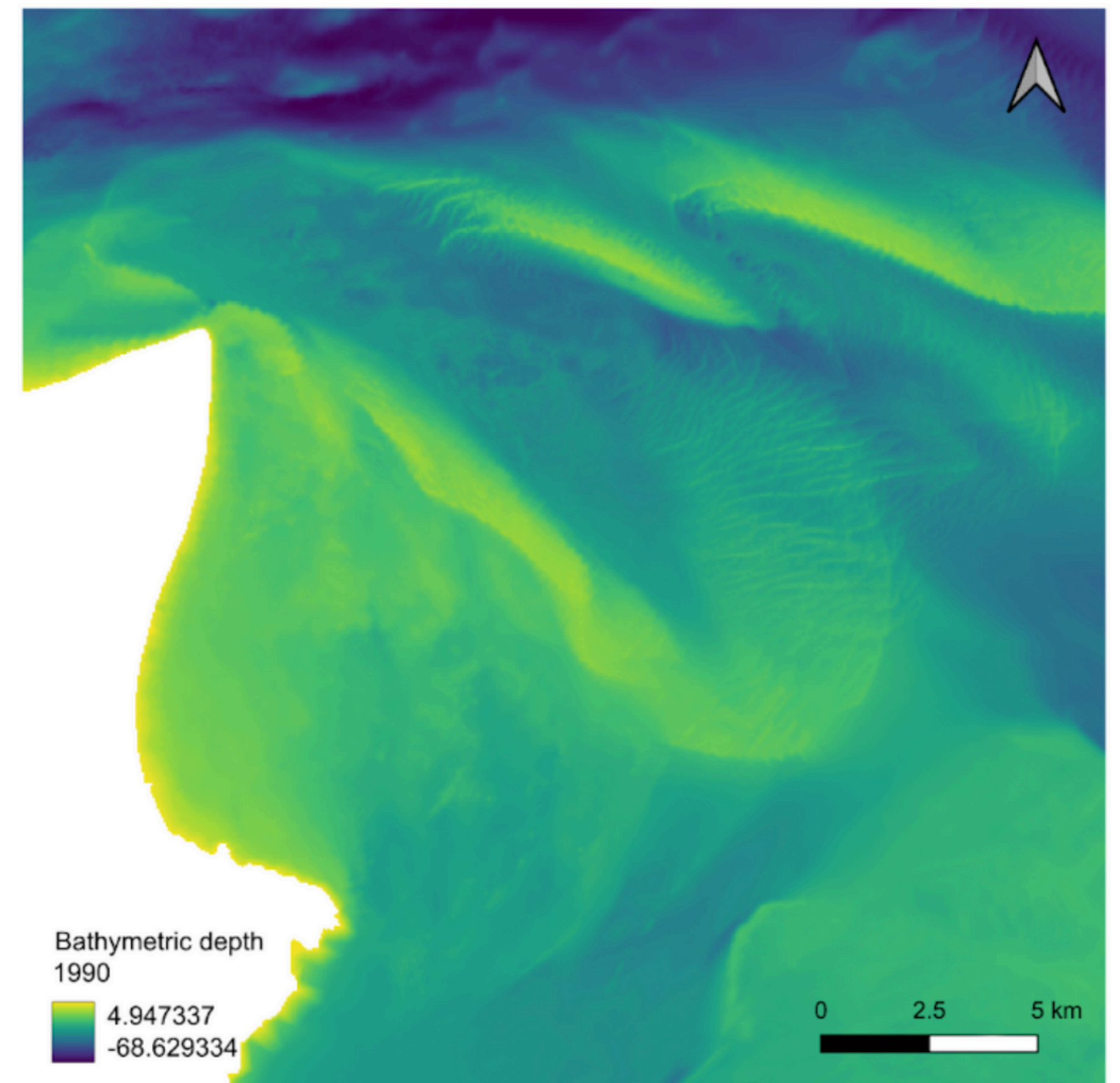
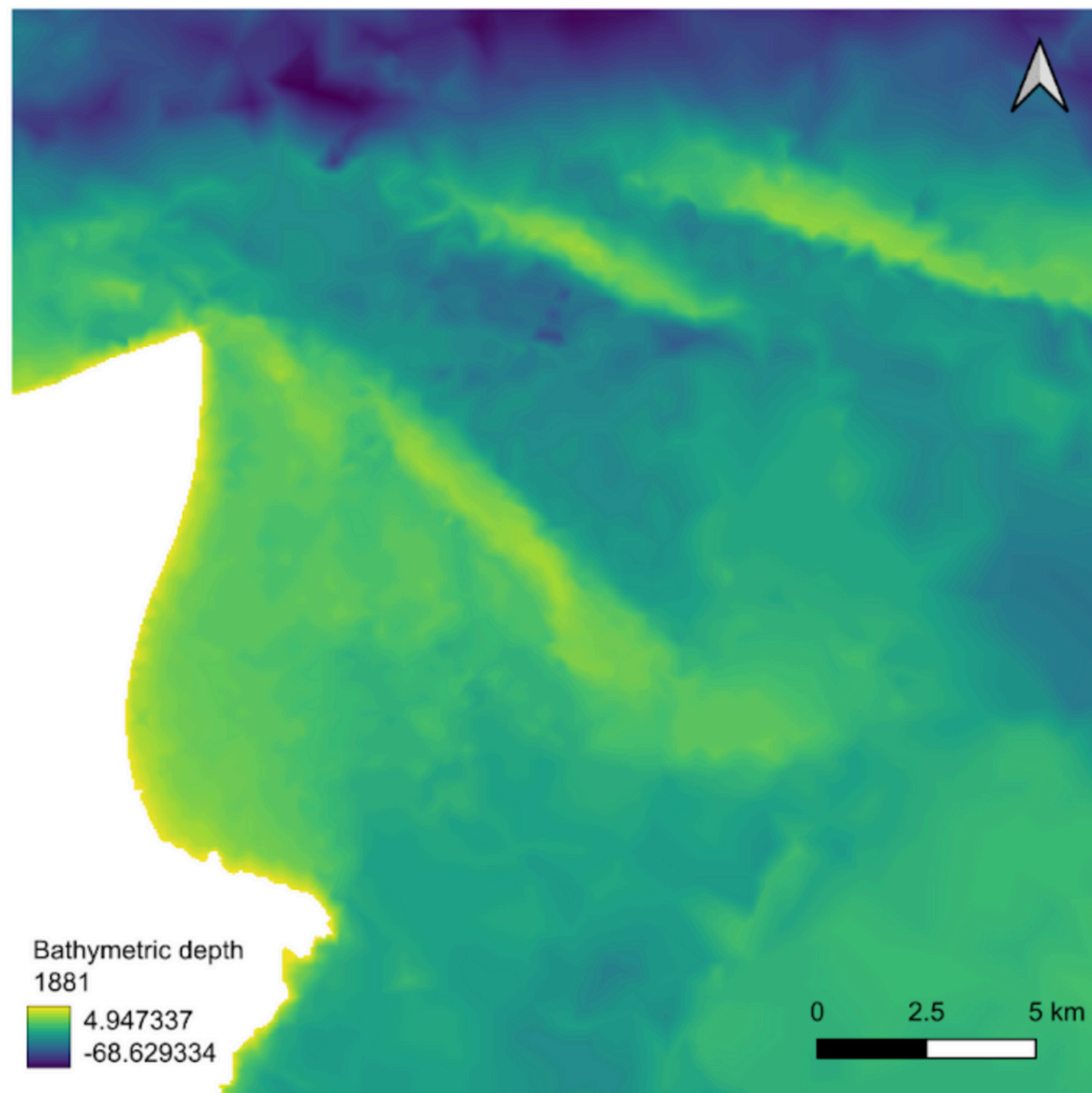
QGIS, R/RStudio, (Microsoft Excel)

Mapping and data visualisation:

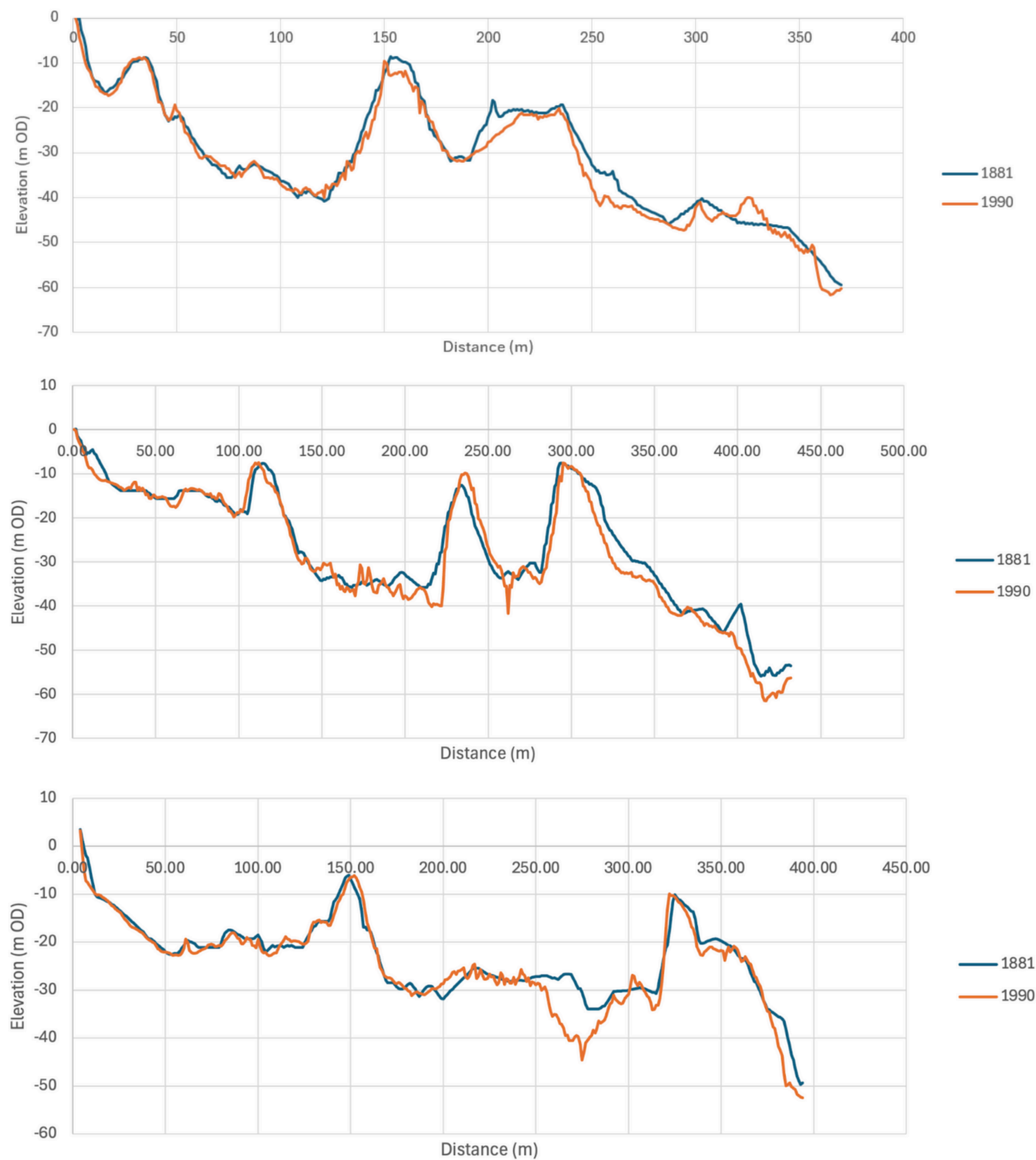


Spatial pattern of bathymetric elevation change in Ramsey Bay between 1881 and 1990, derived from DEM differencing of historical hydrographic surveys.





Bathymetric depth of Ramsey Bay in 1881 (left) and 1990 (right), showing changes in seabed morphology and sandbank structure over time derived from historical hydrographic surveys.



Bathymetric cross-shore profiles from Ramsey Bay comparing seabed elevation in 1881 and 1990. Differences between profiles highlight localised erosion and deposition associated with sandbank migration and seabed reworking over time.