

Morphology of the Maggia and Ticino/Verzasca river deltas

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The river deltas of the upper Lago Maggiore have been bathymetrically surveyed several times in the past 120 years in order to quantify the sediment input into the lake [1]. A recent (April/May 2009) survey using modern hydrographic equipment provides a new bathymetric model with a significantly improved resolution, allowing a closer inspection of the lake floor morphology. Some 30 km² in the Swiss part of the lake down to a depth of 250 m have been covered using a GeoAcoustics GeoSwath Plus 125 kHz interferometric sonar, combined with an inertial navigation system and RTK-corrected GPS positioning. The depth data have been combined into a regular grid with a cell size of 1 m. Images generated from this model (see Figure) show that the delta slopes of the river deltas are covered by shallow channels descending from the delta platform and a complex pattern of transverse sediment waves, presumably reflecting the dynamics of underflows from the Maggia, Ticino and Verzasca rivers. Some of these features, together with the geomorphology and the geology of the lake's surroundings, will be presented and discussed during the field trip on Lago Maggiore.

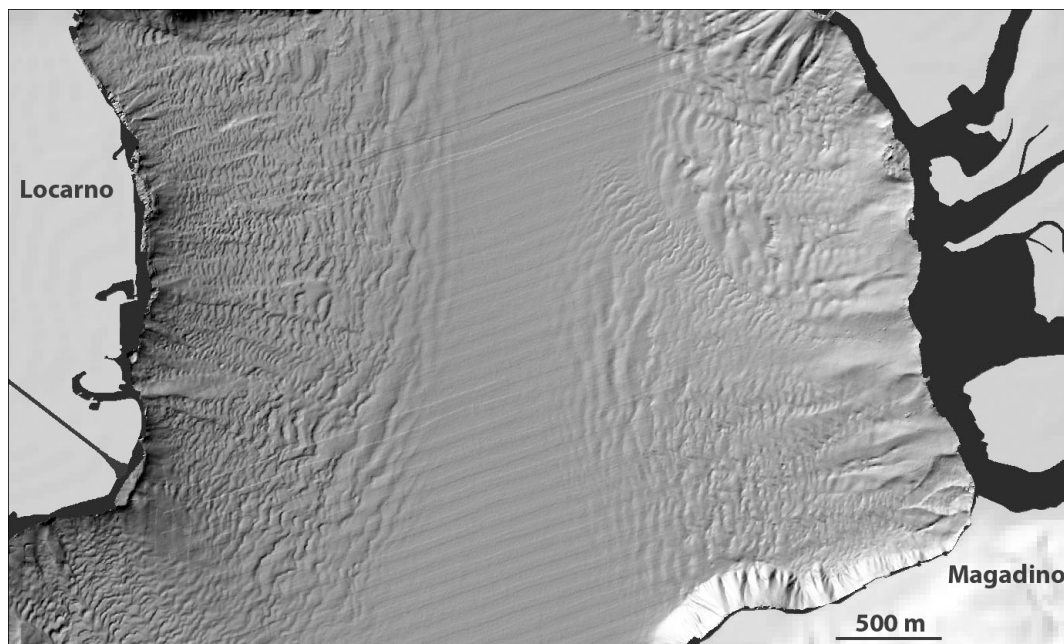


Figure: Shaded relief image of the upper Lago Maggiore between Locarno and Magadino. The dominant features on the delta slopes are transverse bedforms (sediment waves) and shallow channels on the upper slopes. Illumination is from the upper left corner.

[1] Lambert (1988) *Wasser, energie, luft* **80**, 21-28.