High resolution Post Glacial Rebound over the European Alps

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We computed the post glacial rebound (PGR) over European Alps by implementing an ice model with both glaciation and deglaciation phase starting from a very realistic ice distribution. The latter is calculated on the basis of trim-line of the ice during the LGM (Last Glacial Maximum) and the real topography. In this way the ice thickness is maximum in correspondence of the valley and much thinner toward the top of the mountain. The deglaciation process is set between 21 and 15 kyr ago. The glaciation phase ended 26 kyr ago and it reasonably lasted three times more than the deglaciation phase. We chose to implement a linear behaviour with suitable accumulation and deglaciation rates. We used the high resolution technique and the Earth model as in Barletta et al. 2006, to calculate over the European Alps the uplift rate and the gravity anomaly contribution from all the ice elements. We also tested the sensitivity of the PGR results with respect to ice model and with respect to Earth model, layering in particular.