



Global Isostatic Adjustment and ITRF solutions

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It is well known that Glacial Isostatic Adjustment (GIA) leads to vertical crustal motions up to 20 mm/year, mostly in Northern America and Europe and Antarctica regions. We show here that the GIA is the primary signal that can be observed in different ITRF vertical velocity solutions. We then investigate different GIA models and used them as a geophysical quality assessment of ITRF solutions. We show that ITRF2008 solution presents vertical velocities more coherent with all the models than ITRF precedent solutions, and that the differences between ITRF2005 and ITRF2000 can be largely explained by uncertainties in the ITRF2000 vertical velocity estimations. However, recent studies, based on space gravity observations, have shown differences between a few recent GIA models mostly due to the way the GIA rotational feedback is modeled. We investigate the contribution of space geodetic techniques and ITRF solutions to better understanding the GIA processes.