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ABSTRACT BODY:

Gravity change rate of tectonic signals of mountains

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The tectonic signal in mountain ranges interferes with the hydrologic and glacier signal, the latter being important for climate studies. We have found that the observed uplift recorded by GPS leads to gravity change rates that are comparable in magnitude to the expected glacial or hydrologic signal for the Alps (Chen et al., 2018). Here we take this study a step further, considering different mountain ranges including the Tibet Himalaya. For the Tibet Himalaya we consider also glacier and hydrologic masses. The tectonic question is to what extent the gravity change rates can give us constraints on the deeper density levels of the mountain range. The models are compared to the observed gravity change rates from satellite derived solutions, so as to draw conclusions on the detectability of the signals and on effectively observed signatures.