

Interactive comment on “Do crustal deformations observed by GPS in Tierra del Fuego (Argentina) reflect glacial-isostatic adjustment?” by L. Mendoza et al.

L. Mendoza et al.

lmendoza@fcaglp.unlp.edu.ar

Received and published: 27 December 2010

Response to the Comments from the Referee:

After the submission of this manuscript for its consideration in TCD the cited manuscript in GJI has been accepted for its publication (ref. GJI-S-10-0206.R1); the results presented there involve GPS observations performed until the year 2008.

At present, unpublished new results involving GPS observation from 2009 and 2010 are available to be included in a final manuscript intended for TC. This new results are very important to assess the confidence of the new estimated vertical velocities, because for the GPS sites in the area under investigation the amount of observations

C1400

have been increased between 30% and 50%.

While the methodology and GPS processing strategies used to analyse the new data are the same as the ones described in GJI-S-10-0206.R1, and hence they need not to be addressed in so great detail again, a new approach to handle the time-correlation of the observations time series, and its impact on the final error estimates, has been implemented, based on works from Zhang et al. 1997, Williams 2003 and Williams et al. 2004.

The significant increase in the data amount, and also the newly implemented error handling approach, will surely impact on the interpretation of the new results.

All the Detailed Comments from the Referee could be addressed in a final manuscript intended for TC. In particular our current analysis rely on GPS observations only but: 1) since 2010 GPS+GLONASS observations has been registered on selected sites; 2) gravimetric observations in the area under investigation are also on the way.

At the moment its was not possible to separate the contributions of GIA and tectonics on the observed vertical rates; the new observations could lead to a most refined interpretation of both processes in the area under investigation.

Interactive comment on The Cryosphere Discuss., 4, 1635, 2010.