

[Interactive
Comment](#)

Interactive comment on “Inferred basal friction and surface mass balance of North-East Greenland Ice Stream using data assimilation of ICESat-1 surface altimetry and ISSM” by E. Larour et al.

S. A. Khan

abbas@space.dtu.dk

Received and published: 13 May 2014

This is a very interesting and well written paper. Hopefully it will be published in its final version soon. However, I have a minor comment regarding your correction on elevation changes.

Page 2344 line8-10: "Elevation changes were corrected to remove the effect of vertical crustal motion due to Glacial Isostatic Adjustment (GIA) and variations of firn compaction rates in 2003–2009."

[Full Screen / Esc](#)

[Printer-friendly Version](#)

[Interactive Discussion](#)

[Discussion Paper](#)



Please note that the correction for elastic vertical crustal motion (due to present-day ice loss) is in general much larger than GIA. The elastic rates are typically few cm/yr, while GIA rates are few mm/yr (e.g. see Bevis et al., 2012; Khan et al., 2010).

To solve the problem, I have uploaded two data files for northeast Greenland. They simply contain rates of elastic vertical crustal motion during 2003-2006 and 2006-2009. Rates are given in mm/yr on a 5x5 km grid and computed as described by Khan et al (2010). Feel free to use the data without any restrictions.

To access data use the following link: <ftp://ftp.space.dtu.dk/pub/abbas/TCD/>

References:

Khan, S. A., L. Liu, J. Wahr, I. Howat, I. Joughin, T. van Dam, and K. Fleming (2010), GPS measurements of crustal uplift near Jakobshavn Isbræ due to glacial ice mass loss, *J. Geophys. Res.*, 115, B09405, doi:10.1029/2010JB007490.

Bevis, M., et al. (2012), Bedrock displacements in Greenland manifest ice mass variations, climate cycles and climate change, *Proc. Nat. Acad. Sci.*, 109(30), 11944–11948, doi:10.1073/pnas.1204664109.

Best regards Shfaqat Abbas Khan DTU Space, Denmark

Interactive comment on *The Cryosphere Discuss.*, 8, 2331, 2014.

[Full Screen / Esc](#)[Printer-friendly Version](#)[Interactive Discussion](#)[Discussion Paper](#)

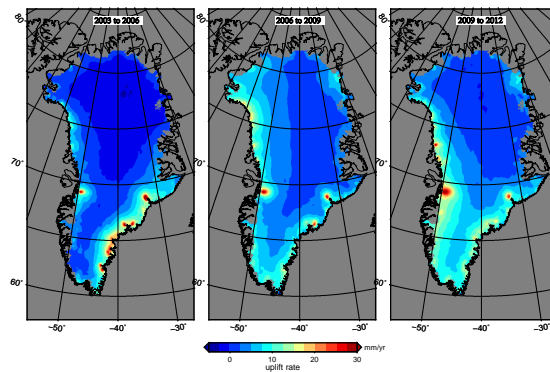
[Interactive
Comment](#)

Fig. 1. Elastic uplift rates in mm/yr

[Full Screen / Esc](#)[Printer-friendly Version](#)[Interactive Discussion](#)[Discussion Paper](#)