

This data supports the Hermans et al. (2018) GRL article titled Reversal of the Direction of Horizontal Velocities Induced by GIA as a Function of Mantle Viscosity. Data used for the figures in the articles are presented and sorted in folders ordered by figure number.

Headers:

fig1.dat

Colatitude [deg] Horizontal Velocity for  $10^{19}$  to  $10^{23}$  Pa s (l.t.r.) [mm/yr]

fig2a-d.dat

Colatitude [deg] Horizontal & vertical velocities for  $10^{20}$  and  $10^{22}$  Pa s at various depths (indicated in filename)

fig2e.dat & fig2f.dat

Colatitude [deg] Stress for  $10^{20}$  and  $10^{22}$  Pa s for 4 kyr after last glacial maximum and present-day (l.t.r.) [Pa]

fig3a-f.dat

Colatitude [deg] Deformation in vertical and horizontal direction [m] (a-d) and horizontal velocities (e-f) for  $10^{20}$  and  $10^{22}$  Pa s at different timesteps, columns in the file are the different time steps

fig4a-b.dat: for  $10^{20}$  and  $10^{22}$  Pa s and colatitude 7 and 9 degree (as indicated in filename):

Horizontal deformation [m] Vertical deformation [m]

——supplementary figures——

incompressible\_normalMode.dat

Colatitude [deg] Horizontal Velocity for  $10^{20}$  to  $10^{22}$  Pa s (l.t.r.) [mm/yr]

compressible\_normalMode.dat

Colatitude [deg] Horizontal Velocity for  $10^{20}$  to  $10^{22}$  Pa s (l.t.r.) [mm/yr]

figS3a-c.dat

Colatitude [deg] Horizontal Velocity for  $10^{19}$  to  $10^{23}$  Pa s with intermediate viscosity steps as indicated in figures (l.t.r.) [mm/yr]

figS4a.dat

Colatitude [deg] Horizontal Velocity for  $10^{20}$  to  $10^{22}$  Pa s with decreasing ice radius over time (l.t.r.) [mm/yr]

figS4b.dat

Colatitude [deg] Horizontal Velocity for  $10^{20}$  to  $10^{22}$  Pa s with increased ice radius and thickness (l.t.r.) [mm/yr]

figS5b.dat

Colatitude [deg] Horizontal Velocity for  $10^{20}$  to  $10^{22}$  Pa s with intermediate viscosity steps as indicated in figures for stratified mantle (l.t.r.) [mm/yr]