Description of Files Contained in this Repository

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Please note that these scripts and model output are in the format of the Ice-sheet and Sea-level System Model (ISSM). For handling, you can download and install ISSM pre-compiled binaries from this website: issm.jpl.nasa.gov/download/

Model output:

- Helheim_11points_pump_heal – SHAKTI-ISSM simulation with pumping and healing cycle imposed at 11 extraction sites
- Helheim_refined_pump_heal – SHAKTI-ISSM simulation with pumping and healing cycle imposed at confluence site

Matlab scripts to run ISSM/SHAKTI:

- runme_Helheim_inversion_geoe.m – Set up model domain, invert for friction coefficient (requires additional data)
- runme_Helheim_shaktiissm_startfrominversion_clean_geoe.m – Run SHAKTI-ISSM simulation for winter spin-up (reads in self-contained Helheim_refined_inversion.mat as starting point)
- runme_geoe_Helheim_pumping_healing.m – Run transient simulation with pumping and healing cycle of extraction
- runme_geoe_round.m – Set up and run SHAKTI simulation on round domain

Supporting data:

- Helheim_refined_inversion.mat – Initial model setup of Helheim Glacier (includes all necessary ice geometry and velocity data)
- Helheim_refined_winter_1to2yr.mat – Winter spin-up at Helheim Glacier with mesh refined around confluence site (use as starting point for pumping and healing simulation)

Plotting scripts:

- plot_geoe_pumping_healing.m
- plot_geoe_pump_heal_spatial.m