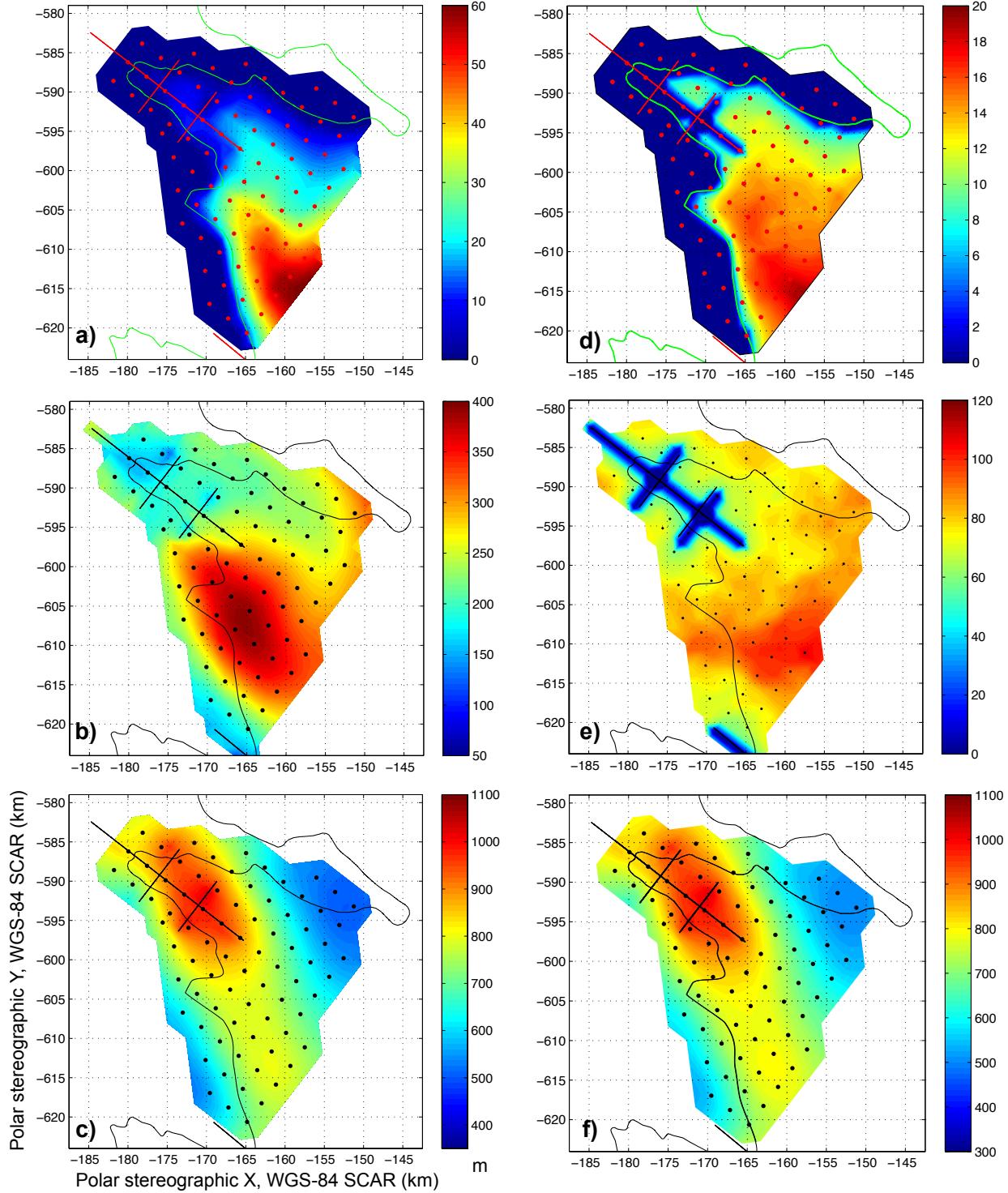
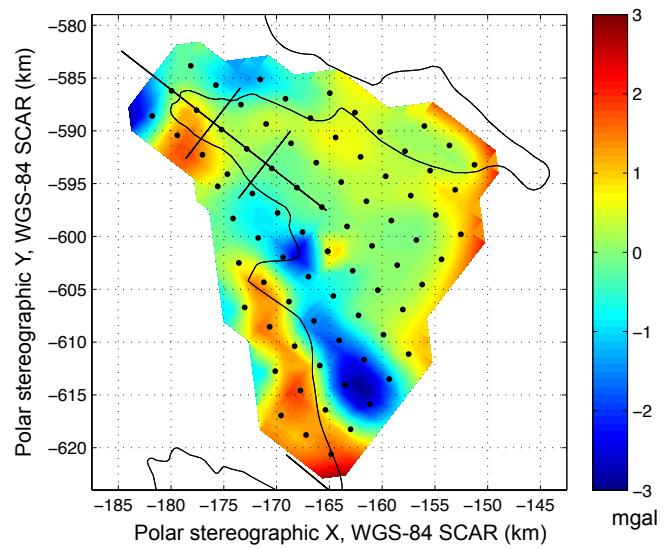


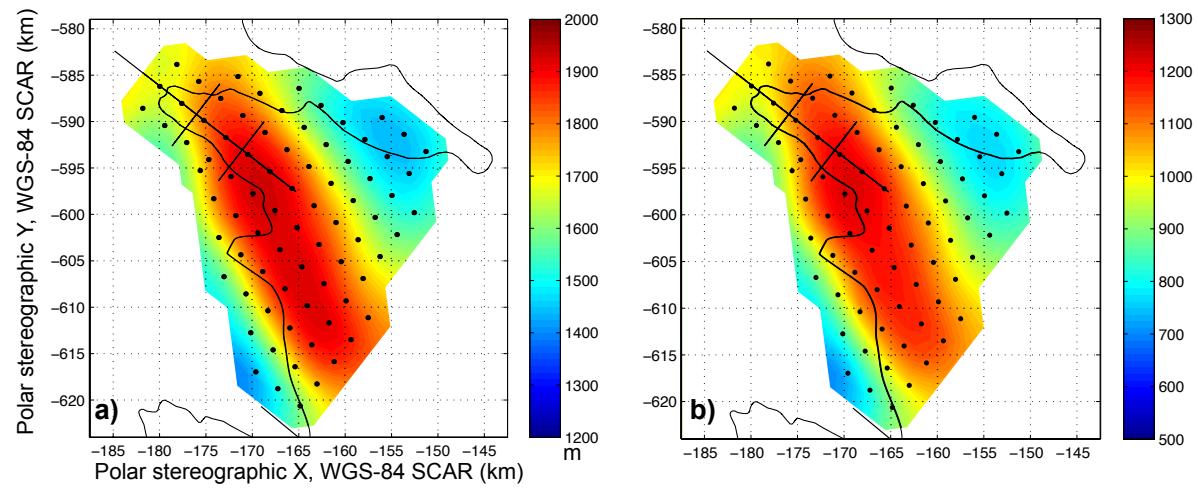
**Figure S1.** Relative gravity measured at the base station. Larger dots between 4 and 23 days since December 13, 2012 are single measurements at the start and end of each day's survey. Thin black line is the 5<sup>th</sup> order polynomial fit used for the drift correction.



**Figure S2.** Models of thicknesses of a) water column, b) upper sediment layer and c) lower sediment layer, with their  $2\sigma$  uncertainties in d) to f), respectively, without specifying a fault.



**Figure S3.** Misfit between observed and modeled free-air gravity anomalies, without specifying a fault.



**Figure S4.** a) Depth to the basement rock and b) total thickness of sediment (upper + lower layers, without specifying a fault).