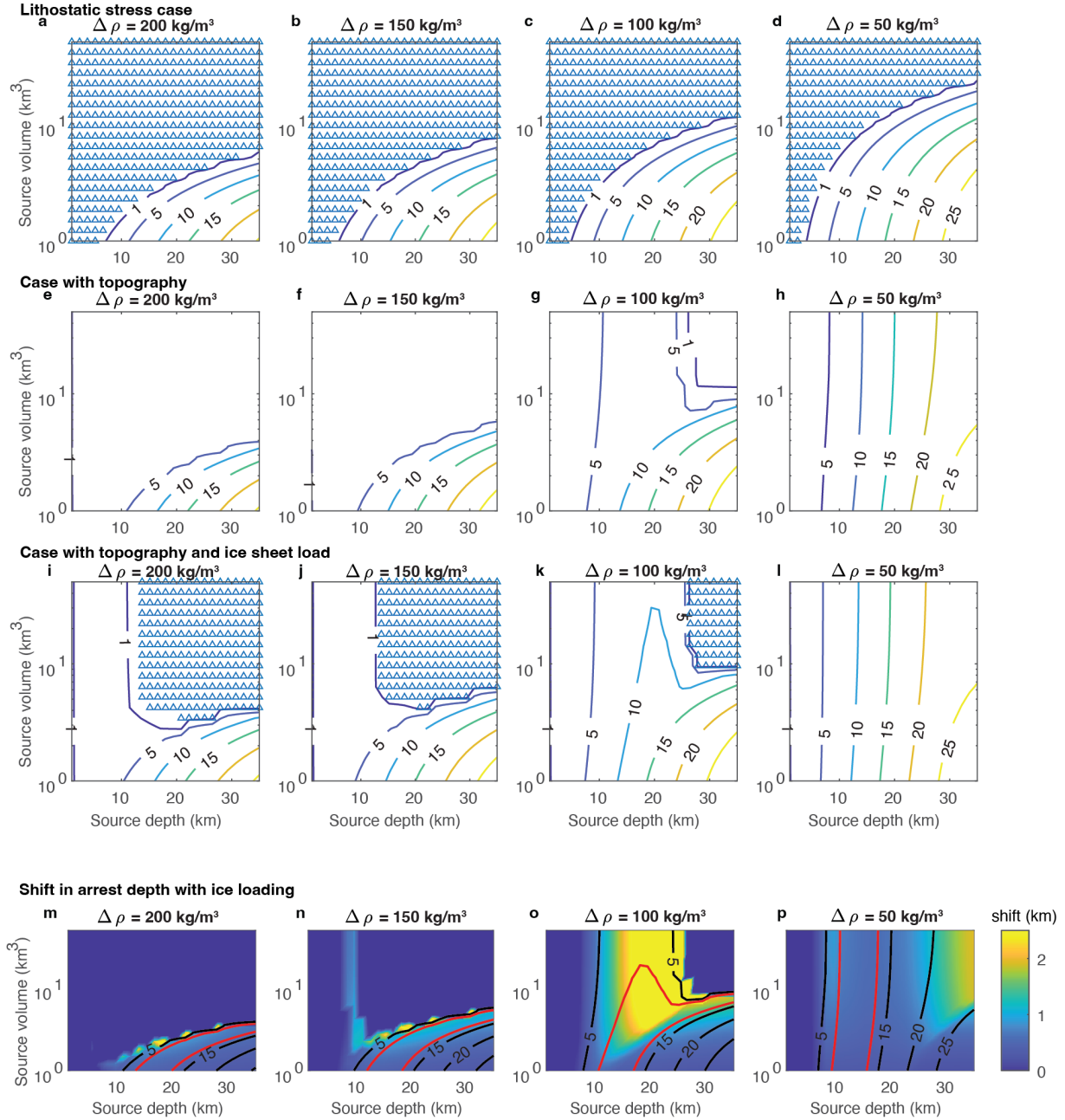


Fig. S1: Dike model results for strike direction 63° from north.



a-l, Dike arrest depths in km below msl shown as colored and labeled contours, plotted as a function of source depth and source volume for different crust-magma density contrasts ($\Delta\rho$). Dikes that erupt are shown as open blue triangles. **m-p**, Shift in dike arrest depth in km (positive downward) shown in blue-to-yellow colors as a function of source depth and source volume. Black curves are contours of arrest depths (in km) under ice-free conditions, with red lines representing storage depths at Mocho-Choshuenco (7-13 km) during the pre-LGM period. Parameters used: dike strike = N63, $\mu = 10$ GPa, $r = 1.5$ m, $\Delta P_{crit} = 20$ MPa.