

Effects of waves on ice shelves

Olga Sergienko

*AOS Program, Princeton University
201 Forrestal Road
Princeton, NJ, 08540*

Floating glaciers, ice shelves and ice tongues are in constant interaction with ocean. Traditionally, this interaction is considered in terms of the ocean thermodynamic effects - melting/refreezing on the floating ice base. This study focuses on mechanical effects of the ocean waves on ice shelves and floating glaciers. Effects of the long waves (wavelength is much larger than the water depth at the ice front) on the ice-shelf stress regime are investigated numerically and analytically. Magnitudes of the stresses induced by the ocean waves are in order of 10-15% of other glaciological stresses.