Effects of events of strong winds on ocean currents around Iceland

Sæunn Halldórsdóttir[1], Haraldur Ólafsson[1], Jón Ólafsson[1,2], Halldór Björnsson[3] and Einar Örn Ólason[1]. saeunnh@hi.is
1) University of Iceland, 2) Marine Research Institute, 3) Icelandic Meteorological Office

Ocean currents around Iceland are simulated with the ocean current model MOM (Modular Ocean Model). Experiments are carried out where the flow is forced by constant winds blowing from different directions during periods of 10 days. The simulations reveal considerable impacts of such events on the currents and the temperature of the coastal waters. Strong winds from the SE give strong warming to the NW of Iceland, while most other wind directions give cooling to the NE of Iceland. These effects can be explained by advection and vertical mixing and by the impact of bathymetry on the currents. The relative impact of these factors is highly dependent on the wind direction.