

B07-O27

ROLES OF DIFFERENT FACTORS IN SHAPPING ARCTIC OCEAN HYDROGRAPHY AND CIRCULATION

Andrey Proshutinsky (Woods Hole Oceanographic Institution, United States)

Mary-Louise Timmermans (Yale University, United States)

Eiji Watanabe (Tokyo University of Marine Science and Technology, Japan)

Jiayan Yang (Woods Hole Oceanographic Institution, United States)

Richard Krishfield (Woods Hole Oceanographic Institution, United States)

John Toole (Woods Hole Oceanographic Institution,)

Elena Golubeva (Institute of Computational Mathematics and Mathematical Geophysics, Russian Federation)

Gennady Platov (Institute of Computational Mathematics and Mathematical Geophysics, Russian Federation)

Christophe Herbaut (Université Pierre et Marie Curie, France)

Marie-Noelle Houssais (Université Pierre et Marie Curie, France)

Jinlun Zhang (University of Washington, United States)

Bill Williams (Fisheries and Oceans Canada, Institute of Ocean Sciences, Canada)

aproshutinsky@whoi.edu

Observations and model results are examined to investigate how wind and thermal forcing shape features of the Arctic Ocean hydrography (distributions of water temperature and salinity) and circulation. The influence of individual forcing mechanisms on the circulation and hydrographic fields cannot be easily determined based solely on observational data because measured water temperature and salinity distributions reflect the combined effects of many factors in the atmosphere-ice-ocean Arctic climate system. Through numerical modeling, however, it is possible to assess the relative roles of wind and thermal forcing on ocean circulation and major hydrographic features. We demonstrate this based on 2003-2014 observations in the Beaufort Gyre of the Arctic Ocean and targeted numerical experiments conducted by several modeling teams (employing different Arctic Ocean regional models) coordinated under the Arctic Ocean Model Intercomparison Project (AOMIP) and Forum for Arctic Modeling and Observational Synthesis (FAMOS) activities.