



## **Effects of tides on Riverine and Glacial freshwater transport in the Arctic Ocean.**

Maria Luneva (1), Yevgeny Aksenov (2), James Harle (1), and Jason Holt (1)

(1) National Oceanography Centre, Liverpool, Liverpool, United Kingdom (mane1@noc.ac.uk), (2) National Oceanography Centre, Southampton, Southampton, United Kingdom (yka@noc.ac.uk)

In this study we use a novel pan-Arctic sea NENO-shelf ice-ocean coupled model, to examine the effects of tides, river runoff and vertical mixing schemes on sea ice and the mixing of water masses. Several 20-year long (1990-2010) simulations were performed: with explicitly resolved tides and without any tidal dynamics, with climatology river runoff, Dai et al. ,2009 database and freshwater source from melting Greenland glaciers. We examine also three different turbulent closures structural functions, based on the k-epsilon version of the Generic Length Scale Model: by Canuto group (2001) and two by Kantha and Clayson (1994, 2004). The results have been compared with sea ice volume and concentration trends and temperature and salinity profiles from World Ocean Database . We compared the following characteristics: potential energy anomalies, depth of halocline, mixed layer depth , salinity at the subsurface layer.