## Improved analysis fields in the Arctic Ocean with the Meteorological Research Institute data assimilation system (MOVE).

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The Multivariate Ocean Variational Estimation (MOVE) system for the global ocean, developed in the Meteorological Research Institute, has been improved in order to better describe the seasonal to interannual variability in the Arctic Ocean. The reproduction of the ocean fields by the MOVE system is investigated focusing on the Arctic Ocean. The preliminary result shows that the biases in the temperature and salinity fields as seen in the free simulation (without data assimilation) are much reduced in the data assimilation system. For example, the mean temperature and salinity values at 300 m depth, where the Atlantic water dominates, become colder (by about 1 K) and saltier (by about 0.15 psu) by the assimilation, and comparable to the values in the World Ocean Atlas 2009. In the surface layer, the negative bias in the salinity field is halved by the assimilation, although there still remains the negative bias (about 0.5 psu) in the Pacific sector. Former studies have often reported the existence of a similar bias in coarse resolution models. The wintertime sea ice distribution is also improved by the assimilation. This may be attributed to the improvement in the temperature and salinity structure in the upper Arctic Ocean as described above. We are planning to use the sea ice concentration data for the data assimilation in addition to the temperature, salinity, and sea surface height observation data. We will show, at the presentation, the improvement in the variability, as well as the mean fields, in the Arctic Ocean by the data assimilation system.