

Séminaire 24 Fevrier 2012 11h /Seminar February 24th 2012 11h

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Sujet/Subject: Evaluation of the CONCEPTS Global Ice-Ocean Prediction System.

Présentation/Presentation: Anglais / English

Lieu/Room: Salle des vents (Dorval)

wiki: https://wiki.cmc.ec.gc.ca/wiki/RPN_Seminars

iweb: <http://web-mrb.cmc.ec.gc.ca/mrb/rpn/SEM/>

web: <http://collaboration.cmc.ec.gc.ca/science/rpn/SEM/index.php>

Abstract

We present results from the 1/4 degree resolution global ice-ocean prediction system being developed as part of CONCEPTS (Canadian Operational Network of Coupled Environmental Prediction Systems), in collaboration with the French operational ocean forecasting centre Mercator-Océan. This system has been running routinely at the Canadian Meteorological Centre since December 2010 producing weekly analyses and 10 day ice-ocean forecasts using the NEMO modeling system and the Mercator assimilation system. The Mercator data assimilation system is a multi-variate reduced-order extended Kalman filter that assimilates sea level anomaly, sea surface temperature (SST) and in situ temperature and salinity observations. Ice fields are initialized using Canadian Meteorological Centre (CMC) daily ice analyses. Here, we present an evaluation of the global prediction system with a focus on the forecast skill of SST and sea ice concentration. An evaluation of SST forecasts using AVHRR satellite observations and the CMC SST analyses demonstrates a significant improvement over persistence and anomaly persistence in many regions. Results point to the marginal ice zone (MIZ) as the most difficult region to constrain adequately. Despite SST errors in the MIZ, verification of ice forecast skill against NOAA IMS analyses shows that the system provides a clear improvement as

compared to persistence and is able to capture a number of rapid freeze-up events. However, the system demonstrates a tendency to overestimate ice cover due to excessive ice formation and a lack of land-fast ice. Finally, current and future developments to improve the forecasting system are discussed.