

Séminaire vendredi le 15 avril 2016 11:00 / Seminar Friday April 15th 2016
11:00h

Sujet/Subject: Performance of the GEPS-based monthly forecasting in 2014 and 2015

Langue/language : Anglais/English

Conférencier/Lecturer: Hai Lin (RPN)

Résumé/Abstract:

Dynamical monthly prediction at the Canadian Meteorological Centre (CMC) was produced as part of the seasonal forecasting system in the past two decades. A new monthly forecasting system, which is in operation since July 2015, has been set up based on the operational global ensemble prediction system (GEPS). This monthly forecasting system is composed of two components: 1) the real time forecast, where the GEPS is extended to 32 days every Thursday; 2) a 4-member hindcast over past 20 years, which is used to obtain the model climatology to calibrate the monthly forecast. Compared to the seasonal prediction system, the GEPS based monthly forecasting system takes advantage of the increased model resolution and improved initialization. The sea surface temperature (SST) anomaly is persisted from the previous month, which provide slowly-varying signal for the lower boundary of the atmospheric model.

Forecasts of the past two years (2014 and 2015) are verified. Analysis is performed separately for the extended winter (November to April), and the extended summer (May to October) seasons. Weekly averages of 2-meter air temperature (T2m) and 500-hPa geopotential height (Z500) are assessed. For Z500 in the Northern Hemisphere, limited skill can be found beyond week 2 (days 12-18) in summer, while in winter some skill exists over the Pacific and North American region beyond week 2. For T2m in North America, significant skill is found over a large part of the continent all the way to week 4 (days 26-32). The distribution of the wintertime T2m skill in North America is consistent with the influence of the Madden-Julian Oscillation, indicating that a significant part of predictability likely comes from the tropics.

In the second part of the talk, I will discuss the recommendations in the recently released U.S. National Academy of Science report “Next Generation of Earth System Prediction – Strategies for subseasonal to seasonal forecasts”. Hopefully it will help the development of our next generation monthly forecasting system.