FOREWORD

In August 2004 the National Centers for Environmental Prediction (NCEP) implemented a new seasonal prediction system, called the Climate Forecast System (CFS) that marked a turning point in several ways. First, it systematized the operational, real-time prediction of seasonal climate using coupled general circulation models (GCMs) of the global atmosphere, world oceans, and land surface. The system was based on the operational numerical weather prediction model then in use at NCEP and the NOAA ocean GCM developed by the Geophysical Fluid Dynamics Laboratory (called the Modular Ocean Model or MOM). Importantly, it was also based on a set of retrospective forecasts that were made with the CFS to test and calibrate the prediction system. Second, the data from the retrospective forecasts were made freely and publicly available to the research community. This large data set became an invaluable tool for climate prediction research. The CFS model and the retrospective forecast data set became resources made available by NCEP through the Climate Test Bed (CTB). Third, it coincided with a new strategy put in place by the Center for Ocean-Land-Atmosphere Studies to de-emphasize the ongoing development of its own climate model in favor of the adoption of National models in use for climate prediction and climate change projection. The CFS was therefore a natural choice to be used for prediction and predictability research by COLA scientists.

As a result, a large group of scientists, both at NCEP and at COLA, began analyzing and experimenting with the CFS as a prediction system and research tool. In the course of discussions in early 2007 between COLA and NCEP, it became clear that an exchange of research results and findings would be highly beneficial to both groups and perfectly consistent with the goals of the CTB, so a joint CTB-COLA seminar series was established in Fall 2007. During 2007-2008 period, monthly seminars were held at both NCEP (by COLA scientists) and COLA (by NCEP scientists). The seminar series generated a great deal of interest at both centers and resulted in a rich and valuable exchange of information and insights about seasonal prediction in general and the CFS in particular. The outcomes have included a number of technical reports and peer-reviewed publications as well as concrete advice to the model developers and forecasters that has informed the next generation of the CFS. Recent climate prediction advances at NCEP, including implementation of the CFS, and CTB activities (such as the development of consolidation tools with CFS) have contributed to significant and sustained increases in the skill of CPC official seasonal outlooks. Activities such as this seminar series will help to ensure continued improvements in the outlooks.

We would like to thank the many individuals who made this seminar series possible through their voluntary contributions, notably Mel Gelman and Muthuvel Chelliah at NCEP and Stacey Whitlock at COLA, as well as the scientists who prepared and delivered the seminars that are summarized in this volume. We believe that this very successful inaugural joint seminar series will lead to an annual program of scientific and technical presentations among the operational and research centers of the Washington metro area. During FY09 we anticipate that the series will expand to include several CTB science priorities, including CFS improvements, evaluation of multi-model ensembles, and development of climate forecast products. Consequently, the series will build on the CTB concept to accelerate the transition of research results into operational climate services by NOAA as well as provide a robust support base for the ongoing climate research being conducted by COLA and other groups.

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