**College Park, MD; September 4-6, 2024**

Global drought early warning system for food security: current status and Challenges

Li Xu[1,2]  Miliaritiana Robjhon[1,2]  Yutong Pan[2] ,  Wassila Thuaw[1] and Yun Fan[1]
1. Climate Prediction Center, NOAA/NWS/NCEP, College Park, Maryland
2.ERT LLC., Laurel, Maryland

Correspondence to: Dr. Li Xu, 5830 University Research Court, NOAA/NWS/NCEP/Climate Prediction Center, College Park, MD;
E-mail: Li.Xu@noaa.gov.

Drought is a major focus of the Climate Prediction Center (CPC) International Desks (ID) for the global Famine Early Warning Systems Network (FEWS Net).  Objective drought monitors and accurate subseasonal-to-seasonal (S2S) drought forecasts are essential for drought early warning system (DEWS) for food security. To address United States Agency for International Development (USAID) and other international stakeholder's needs, NOAA CPC international desk (ID) has been actively conducting research and development to improve its global drought monitor and forecast products and capability.  Currently, in the CPC we have established a near real-time drought monitor system cover the whole globe based on the different drought aspects, i.e., meteorological drought, agriculture drought and hydrological drought. However, the capability for drought forecast is still relative weak and need further ongoing development, in particular the probabilistic S2S drought outlooks. Current objective drought forecasts are heavily relying on dynamical model NCEP GEFSv12 and NMME forecast, and the drought forecast skills are limited by the performance of current forecast systems. Based on the GEFSv12 forecast, we have developed the objective drought forecast, including Standardized Precipitation indies (SPIs), Standardized Precipitation-Evaporation Indices (SPEIs) and Evaporative Demand Drought Indices (EDDIs). These drought monitor and forecast products consist of the key components of CPC global drought service capability.  In this presentation, we will discuss current major issues and challenges we use the NCEP S2S forecast system. For any improving in future S2S forecast systems, i.e. GEFSv13 and SFS, will be greatly advance the global drought early warning capability at CPC.