



Application of Sub-seasonal to Seasonal(S2S) Data for River Flood Risk Forecasting using LSTM Technique

Seungsoo Lee and Gayoung Kim

APEC Climate Center, Climate Application Team, Busan, Korea, Republic Of (seungsoo_lee@apcc21.org)

Over the last few decades, meteorological and climate predictability using weather and climate models has been steadily improving. On the contrast, sub-seasonal time scale forecasts between weather and climate models have shown that an empty space in the construction of the seamless numerical forecasting system. Due to its high spatial and temporal resolution, it cannot be used immediately in hydrological or other application fields. In the meteorological / climatic field, efforts are being made to increase the predictability and availability of the weather and climate data by extending the season forecast information to the sub-seasonal time scale from 2 weeks to 2 months. As the result, the Subseasonal-to-Seasonal Project (S2S project) jointly conducted by the World Weather Research Program (WWRP) and the World Climate Research Program (WCRP) of the World Meteorological Organization (WMO) was started in 2013.

In this study, we evaluated the accuracy of S2S forecast data, which is increasing in recent importance and interest of seamless weather and climate forecast information, and evaluated its applicability to disaster area, especially change of water elevation in river based on Long-Short-Term Memory (LSTM) Technique. As the result of the study, if the LSTM model is constructed by using the S2S prediction data and the river water elevation, the river flood risk can be grasped in terms of disaster preparedness. However, since the R^2 value is very low from the 2nd day due to the limit of predictability of rainfall within the S2S forecast data itself, it is necessary to develop the accuracy improvement method of the S2S forecast data based on the ensemble technique in the future.