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Sharing Small Resources and Making Joint Efforts for the Improvement of Climate Prediction Model in South Korea

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While dynamical seasonal prediction models offer many benefits, it is challenging for most National Hydrological and Meteorological Services (NMHSs) to develop and operate their own expensive models. Given the limited human and computing resources in South Korea's modeling communities, increasing our capacity to share small resources and generate joint efforts for a better climate prediction system is thus essential. The Korean Meteorological Administration (KMA) adopted the Global Seasonal Forecasting System version 6 (GloSea6) from the United Kingdom Met Office (UKMO), and has been operating the prediction system for the real-time climate forecasting since 2022 March. The domestic and multi-institutional efforts are currently underway to advance the prediction system in collaboration with academic societies and the APEC Climate Center (APCC), which is a research partner of the KMA. By motivated by great needs for joint collaborative system between academy, research institute and organization, and NMHSs, as well as strengthened strategy of operationalization, we have once recalled the research-to-operation (R2O) process and finally invented the R2O structure customized for the dynamical prediction and modelling environments in South Korea (K-R2O). K-R2O represents technically sound and unique process from research and development to operation through testbed which individual components are carried out by different parties. The role of testbed and framework of standard verification for model development identified in K-R2O is highlighted. Lesson learned and further guidance for K-R2O are also discussed for many NMHSs facing similar situation to South Korea.