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Improved long-range forecasts in South Korea through integrated forecast information

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We explored the objective methods to improve long-range forecasting through enhanced forecast skills and integrated forecast information. The objective process we used in this study includes the selection of monitoring factors for more reliable monthly seasonal forecasts. Therefore, we chose the three most significant monitoring factors, i.e., ENSO, snow cover over Eurasia Continent and Arctic sea ice. We first examined the effect and response of the monitoring factors on the boreal winter temperature in South Korea. To improve the information related to the ENSO in seasonal forecasting, the impact of the tropical precipitation which act as an oceanic ENSO forcing was investigated. As one of the important monitoring factors for boreal winter temperature prediction, we analyzed the availability of the index describing austral Eurasian snow cover. We also analyzed the usage of Arctic conditions for predicting monthly temperature for boreal winter. We then investigated how well the effect and response of the factors are simulated in the operational seasonal models. Finally, the link between observation-based monitoring factors and model-based prediction is proposed for objective forecasting.