



Skill of Real-Time Operational Forecasts with the APCC Multi-Model Ensemble Prediction System for the Period of 2008-2015

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This paper assesses the real-time one-month lead forecasts of three-month (seasonal) mean temperature and precipitation on a monthly basis issued by the Asia-Pacific Economic Cooperation (APEC) Climate Center (APCC) for 2008-2015 (8 years, 96 forecasts). It shows the current level of the APCC operational multi-model prediction system performance. The skill of the APCC forecasts strongly depends on seasons and regions that it is higher for the tropics and boreal winter than for the extratropics and boreal summer due to direct effects and remote teleconnections from boundary forcings. The forecast skill for temperature is generally higher than that of precipitation. The APCC operational probabilistic forecasts during this period show a cold bias (underforecasting of above-normal temperature and overforecasting of below-normal temperature) underestimating a long-term warming trend. A wet bias is evident for precipitation, particularly in the extratropical regions. The skill of both temperature and precipitation forecasts strongly depends upon the ENSO strength. Particularly, the highest forecast skill noted in 2015/16 boreal winter is associated with the strong forcing of an extreme El Nino event. Meanwhile, the relatively low skill is associated with the transition and/or continuous ENSO-neutral phases of 2012-14. In general, the skill of the real-time forecasts is close to that of historical ones. The regions, featuring the high skill of seasonal forecasts, feature lower interseasonal variability of skill characteristics than the regions of low skill.