

Delayed impacts of western Indian Ocean SST on wintertime precipitation in East Asia

Sunyong Kim¹, Jong-Seong Kug², and Jin Ho Yoo¹

¹Climate Analytics Department, APEC Climate Center (APCC)

²School of Earth and Environmental Sciences, Seoul National University

The observational analyses show that the western Indian Ocean warming in December is responsible for the precipitation increase over East Asia in January with a 1-month lag. It is found that the significant zonally-elongated precipitation anomalies exist over East Asia in January, when we consider western Indian Ocean SST only in December independent of ENSO. In association with the western Indian Ocean warming in December, the positive precipitation anomalies over the equatorial Indian Ocean clearly persist until January. The anticyclonic circulation anomalies over the Arabian Sea, as a result of the Gill-type response, may act as a source of teleconnection to East Asia through a Rossby wave propagation. Therefore, the resultant anticyclonic anomalies over East Asia can be favorable conditions for the precipitation anomalies in January due to the southerly wind anomalies on the western side of the associated circulation patterns.

Key words: Indian Ocean, East Asian climate, Teleconnections