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Predictability of the Indian Ocean and North Atlantic European circulation anomalies during early winter

Muhammad Adnan Abid¹, Fred Kucharski¹, and Franco Molteni²

¹The Abdus Salam International Centre for Theoretical Physics, Earth System Physics, Trieste, Italy
(madnanabid@gmail.com)

²European Centre for Medium-Range Weather Forecasts, Reading, United Kingdom

In the current study, we analyzed the predictability of the tropical Indian Ocean precipitation anomalies and the North Atlantic European (NAE) circulation anomalies during the boreal early winter season using the ECMWF System-5 seasonal (SEAS5) prediction dataset. The observational analysis show that the boreal Autumn Indian Ocean dipole (IOD) conditions are the pre-courser for the early winter precipitation anomalies in the Tropical Western-Central Indian Ocean (TWCIO) region, which is well represented in the ECMWF-SEAS5 prediction system. Moreover, the ECMWF-SEAS5 skillfully predicts the Indian Ocean (IO) precipitation anomalies with some biases during the early winter. These biases tend to weaken the IO teleconnections to the NAE Region during the boreal early winter, mimicking the prediction skill of the NAE circulation anomalies. Furthermore, the positive TWCIO heating anomalies tend to favor the above normal Surface Air temperature (SAT) conditions over the NAE region, indicating to the mild early winter conditions over the region. The ECMWF-SEAS5 system shows a significant prediction skill of the surface temperature anomalies over the NAE region.