

## **SESSION: (A6) Ocean initialization and processes**

### **(A6-01)**

#### **Impact of ocean observation systems on ocean analyses and subseasonal forecasts**

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We evaluate the relative merits of different ocean observation systems (moored buoys, Argo, satellite, XBTs, and others) by their impact on ocean analyses and subseasonal forecast skill. Several ocean analyses were performed where different ocean observation platforms were withheld from the assimilation in addition to one ocean analysis where all observations were assimilated. We then use these ocean analyses products for initializing a set of subseasonal forecasts to evaluate the impact of different ocean analyses states on the forecast skill. We use the European Centre for Medium-Range Weather Forecasts (ECMWF) ensemble prediction system for the twenty-year sub-seasonal hindcast experiments. Results from these hindcast experiments will be presented to highlight changes in the ocean analyses states and their impact on the forecast skill of the MJO, monsoon intraseasonal oscillations, atmospheric rivers as well as global temperature and precipitation.

Coupled air-sea interaction processes relevant to intraseasonal variability (e.g. the MJO, MISO, atmospheric blocking) in the earth's climate system are inadequately represented in regional and global coupled models. These inaccuracies could be related to either poor parameterization of model physics or insufficient model resolution to resolve the critical processes. New efforts in observations, process understanding, and translation into weather and climate models are necessary for improvements in simulation and prediction of the intraseasonal variability and associated weather events. We will discuss the merits of different ocean observation platforms in this context and also future observation and model improvement pathways.