

Overview of the Propagation of Intra-Seasonal Tropical Oscillations (PISTON) Field Program

*Eric D Maloney¹

1. Colorado State University Fort Collins

The boreal summer intraseasonal oscillation (BSISO) is associated with propagation of convection and associated large-scale circulation anomalies across the north Indian Ocean and South China Sea (SCS). Both eastward and northward propagation is observed, which contrasts with the primarily eastward propagation of the boreal winter MJO. The BSISO produces prominent variability in winds and precipitation in the Philippines Archipelago and other parts of the Maritime Continent (MC), although is also associated with other non-local effects such as active and break cycles of the south and east Asia monsoons, modulation of tropical cyclones in various parts of the tropics, and teleconnections to midlatitudes. The BSISO has been poorly simulated by climate and weather forecasting models, which limits the ability to forecast the various impacts of the BSISO.

This presentation will describe the upcoming Propagation of Intra-Seasonal Tropical Oscillations (PISTON) Field Program that will feature an observational campaign during the late summer of 2018 in the South China Sea. The goal of PISTON is to forge a better understanding of the multiscale, air-sea, and land-atmosphere interaction processes that regulate BSISO propagation and intensity, develop an observational dataset to benchmark model simulations of the BSISO, and use these models and observations to address the overarching PISTON hypotheses related to the multiscale atmosphere-ocean-land interactions of the BSISO. The observational campaign will entail about two months of shipborne measurements from the *R/V Thomas G. Thompson* off the West Coast of Luzon that will sample the northward-propagating BSISO and interactions with offshore-propagating convective disturbances and the upper ocean. A hierarchy of modeling tools will be employed in PISTON including large-eddy models, cloud-system-resolving models (CSRMs) that span local to regional domains, and climate simulations, forecasts, and reforecasts of global models. PISTON field observations and high-resolution models will foster process understanding that leads to improved model and predictions.

Keywords: Intraseasonal, Boreal Summer , Propagation