

## **Interactions between El Niño and intraseasonal air-sea interactions in the tropical Pacific Ocean**

Kyla Drushka<sup>†</sup>;

<sup>†</sup> LOCEAN / IPSL, France

Leading author: [kyla.drushka@locean-ipsl.upmc.fr](mailto:kyla.drushka@locean-ipsl.upmc.fr)

Many observational and modeling studies suggest that intraseasonal atmospheric variability has a strong influence on the development of the El Niño-Southern Oscillation (ENSO). However, there is a large diversity in the representation of this intraseasonal variability and its effects on the ocean in coupled general circulation models, which limits our ability to understand and predict El Niño. While previous studies have linked variations in the western and central Pacific Ocean to El Niño, there are many open questions about the feedbacks between intraseasonal and ENSO variability in the eastern Pacific. In this study, we use in situ and satellite observations to investigate the influences of intraseasonal wind and heat flux variability on the predictability of the coupled ocean-atmosphere system in the tropical eastern Pacific Ocean. Measurements from Argo profiling floats reveal the signature of intraseasonal atmospheric variations in the upper ocean. We quantify the interannual and intraseasonal variations of heat and momentum fluxes into the ocean. By comparing the atmospheric forcing and ocean response in the western/central Pacific Ocean with the eastern Pacific, we suggest a relationship between the background state of the tropical Pacific and the response of the coupled system to intraseasonal variability. Finally, the impacts of intraseasonal heat and momentum fluxes in the eastern Pacific on ENSO are evaluated using a simple model experiment.