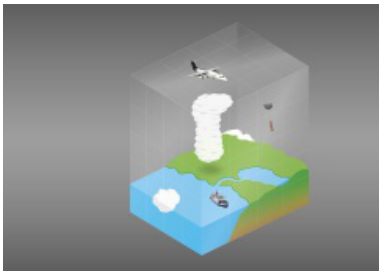

Contribution ID: **39** Type: **Oral presentation**

Atmospheric River Reconnaissance to Improve Forecasts: Needs, Approach and Underlying Science

Wednesday, 12 June 2019 09:30 (30 minutes)

The Atmospheric River Reconnaissance project "AR Recon"formulated a targeting method focused on AR landfall prediction on the U.S. West Coast, where AR landfall position forecast errors at 1-4 days lead time range from 200-400 km on average (Wick et al. 2013, DeFlorio et al. 2018), and can contribute to significant errors in extreme precipitation forecasts (e.g., Ralph et al. 2010, 2011). The recent addition of moist processes in an adjoint method concluded that errors in the location and characteristics of ARs offshore as the leading source of initial condition error for landfalling storm forecasts on the west coast (Doyle et al. 2014; Lavers et al. 2018; Reynolds et al. 2019). These forecast errors impact water decisions in the West, including those associated with mitigating flood risk and drought (http://cw3e-web.ucsd.edu/firo/).

The AR Recon project is a multi-year, interagency, cooperative effort to collect unique dropsonde observations in and around ARs off the U.S. West Coast to improve AR-landfall-associated weather forecasts during the cool season. It has collected data with multiple aircraft in 3 ARs in February 2016 (two Air Force C-130s), 6 ARs in January-February 2018 (involving a mix of two Air Force C-130s, and NOAA's G-IV), and 6 ARs in February 2019 (used two Air Force C-130s). In 2019, AR Recon also supported the deployment of additional drifting buopys, with surface pressure sensors, in the northeast Pacific. Additionally, airborne GPS met observations have been made in some cases (Haase).

Global modeling centers (NCEP, US Navy, ECMWF), and regional modelling efforts (COAMPS; West-WRF) have teamed up to collaborate. An AR Data Assimilation and Modeling Steering Committee (the co-authors of this abstract) has brought together diverse expertise and substantial institutional capacity to carry out the collaboration.

This presentation will present a status report on data collection and analysis.

Primary authors: RALPH, Marty (Scripps Institution of Oceanography, University of California); TALLAPRAGADA, Vijay (NOAA/NCEP); DOYLE, Jim (Navy Research Laboratory); DAVIS, Chris (National Center for Atmospheric Research); PAPPENBERGER, Florian (ECMWF); SUBRAMANIAN, Aneesh

Presenter: TALLAPRAGADA, Vijay (NOAA/NCEP)

Session Classification: Tropical and extra-tropical dynamics - Chair: Andreas Schäfler

Track Classification: Workshop: Observational campaigns for better weather forecasts