

**P71 Satellite cloud assimilation and preprocessing stratocumulus cloud fields based on mixed-layer theory in WRF**

**Yang, Handa** and Jan Kleissl, *University of California, San Diego*

In an effort to improve WRF forecasts of marine layer stratocumulus lifetime and spatial coverage over coastal southern California, a preprocessing method based on satellite cloud data assimilation and mixed-layer theory was developed. The method involves starting two simulations simultaneously: one using satellite-derived cloud cover, and one with an initial guess of liquid cloud water derived from mixed-layer theory. After fifteen minutes, the resulting water vapor and liquid water fields are merged before resuming for the duration of the simulation.

The performance of this preprocessing scheme was evaluated over the month of June, 2013 against satellite-derived global horizontal irradiance (GHI). Four configurations were run: two isolating each simulation, one combination run, and one standard WRF run as control. Of the four simulations, the combination run showed the lowest mean absolute error at the coastline and farther inland, but highest error over the ocean. Overall, a clear improvement in the prediction of both spatial coverage and lifetime of stratocumulus was achieved.