

***LINKS BETWEEN MARINE BOUNDARY LAYER MACRO- AND MICRO-PHYSICAL  
PROPERTIES DURING THE AMF PT. REYES DEPLOYMENT***

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**ABSTRACT**

Pixel-level geostationary satellite cloud products from NASA Langley's Cloud and Radiation Research group are used in conjunction with surface-based observations from the ARM Mobile Facility and observations from the DOE Atmospheric Science Research Program's G1 research aircraft to investigate links between the macro-scale structure and microphysical properties of marine boundary layer (MBL) clouds observed during the taken during the Marine Stratus Radiation, Aerosol and Drizzle (MASRAD) Intensive Operational Period (July- 2005. For GCM-sized grids (300 km x 300 km) primarily containing marine boundary layer clouds (i.e., little to no contamination from other cloud types), we characterize the macro-scale cloud organization using cloud fraction and effective cloud diameter (Jensen et al. 2008), in addition to central tendencies and deviations of key microphysical properties including optical depth, liquid water path, and cloud particle effective radius. Aircraft in situ and surface remote sensing observations of cloud properties are put into a larger context via collocation with satellite observations. We relate the macro- and micro-physical cloud properties to visual identification and radiometric proxies of pockets of open cells within overcast stratocumulus throughout the diurnal cycle. We present relationships between satellite-, surface-, and aircraft-based observations of MBL cloud properties over the Pt. Reyes, California, region during the MASRAD IOP emphasizing the temporal and spatial variability on GCM-relevant scales. Jensen, MP, AM Vogelmann, WD Collins, GJ Zhang, and EP Luke. 2008. "Investigations of regional and seasonal variations in marine boundary layer cloud properties from MODIS observations." *Journal of Climate* 21(19), 4955-4973.

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