

Robust aerosol indirect effects inferred from remotely-sensed marine stratocumulus cloud properties acquired during VOCALS

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One wealth of the VOCALS field experiment in the southeast Pacific stratocumulus region is a unique dataset on cloud properties acquired through a suite of airborne remote sensors. This includes a lidar, a cloud radar and a radiometer providing cloud liquid water paths. All are valuable individually, but in combination form a powerful suite capable of extending aircraft assessments of aerosol-cloud-precipitation impacts beyond what can be done with in-situ measurements. The cloud liquid water path dataset also allows for the statistically-robust examination of thin clouds, which cloud radars and satellites have difficulty characterizing. For this presentation the new cloud liquid water path dataset is described, compared to adiabatically-derived values, and aerosol indirect effects - co-variations with cloud liquid water path, precipitation, and cloud albedos - are assessed. In keeping with the theme session, comparisons to similarly-derived satellite properties will be made to opine on satellite assessments but done on larger spatial scales.