

# Oceanography Seminar

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### “Analysis of African Biomass Burning Aerosol Over the South East Atlantic and its Interaction with Stratocumulus Clouds during ORACLES 2016-2018”

During NASA ORACLES 2016-2018 airborne missions, biomass burning (BB) advected from the African continent out over the South East Atlantic was intensively studied to better understand the role of BB aerosol in the regional radiation budget but also to discern its effect from natural aerosol on underlying Stratocumulus (Sc) clouds in the marine boundary layer (MBL). Because of its particle size and vast quantities BB aerosol once entrained into the MBL are highly effective as cloud condensation nuclei (CCN) impacting cloud microphysical properties and as such the Sc deck's radiative budget.

This work identifies characteristic in-plume size resolved aerosol physiochemistry observed during the campaigns and compares these results to MBL aerosol observations and adjacent Sc cloud properties such as the cloud droplet number concentration.

Additionally, aerosol measurements were obtained in cloud using a Counterflow Virtual Impactor (CVI) inlet. Employing the CVI cloud droplets are inertially separated from the air and dried in-situ en-route to the aerosol instrumentation. This allows us to study particles that were actually activated in the clouds. These CVI data reveal episodic high supersaturation events activating particles in the Aitken mode range. The data also provide insight into mechanisms of precipitation scavenging suggesting the preferred removal of more hygroscopic aerosol in drizzling Sc clouds.

**Thursday November 15<sup>th</sup>, 2018 3:00p.m. MSB 114**

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<http://www.soest.hawaii.edu/oceanography/seminar.html>