**Eastern Pacific Cloud Aerosol Precipitation Experiment (EPCAPE)**

**Studying Properties of Stratuscumulus Clouds Near San Diego**

Marine stratuscumulus clouds, like those that form off the California coast, occur where cold deep seawater rises to the ocean surface and cools the air. The northeastern Pacific Ocean is home to one of the most persistent stratuscumulus layers in the world, but long-term observations of these clouds are scarce. Coastal cities provide the unique opportunity to observe these clouds and to study the substantial effects that manmade aerosols (small particles in the air) have on their properties and processes.

A new field campaign led by Scripps professor Lynn Russell—the Eastern Pacific Cloud Aerosol Precipitation Experiment (EPCAPE)—will take place from February 2023 to February 2024 in northern San Diego, California. EPCAPE will explore aerosol indirect effects on stratuscumulus clouds to help improve their representation in earth system models. Researchers will also investigate how pollution from the nearby Los Angeles metropolitan area affects marine aerosols and, by extension, the clouds near San Diego.

During the EPCAPE campaign, ARM will collect atmospheric data with one of its mobile observatories on the Ellen Browning Scripps Memorial Pier and a scanning precipitation radar on Mount Soledad less than a mile inland.

Daily weather balloon (sonde) launches will assist researchers in characterizing the day-to-day cycle of coastal clouds. The launches will help characterize the transitions between daytime and nighttime cloud structure.

EPCAPE will provide measurements that characterize the extent, radiative properties, aerosol interactions, and precipitation of stratuscumulus clouds in the eastern Pacific across all four seasons. These observations will advance the fundamental understanding of climatically important stratuscumulus cloud cover in an accessible and economically important region of the world. Atmospheric data obtained during EPCAPE will be made freely available to all scientists.

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**Recent ARM Deployments**

**2019–2020 Central Arctic**

Multidisciplinary Drifting Observatory for the Study of Arctic Climate (MOSAiC)

**2021–2022 Houston, Texas**

Tracking Aerosol Convection Interactions Experiment (TRACER)

**2021–2023 Crested Butte, Colorado**

Surface Atmosphere Integrated Field Laboratory (SAI)

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