

# Assessment of Precipitating Marine Stratocumulus Clouds in E3SMv1

## Objective

- Evaluate the physical parameterizations of E3SMv1 with the combination of advanced ARM observations and LES from the MAGIC field campaign.

## Key Accomplishments

- E3SMv1 SCM realistically represents the evolution of clouds and PBL structure during the stratocumulus-to-cumulus transition.
- E3SMv1 produces an unrealistically small sub-cloud precipitation fraction, an unrealistic double-peak in the vertical profiles of precipitation mass, and drizzle that evaporates too close to the surface.
- An overly long microphysics timestep and an unrealistic parameterization of precipitation fraction are the main causes.

