

ACE-ENA Research Activities

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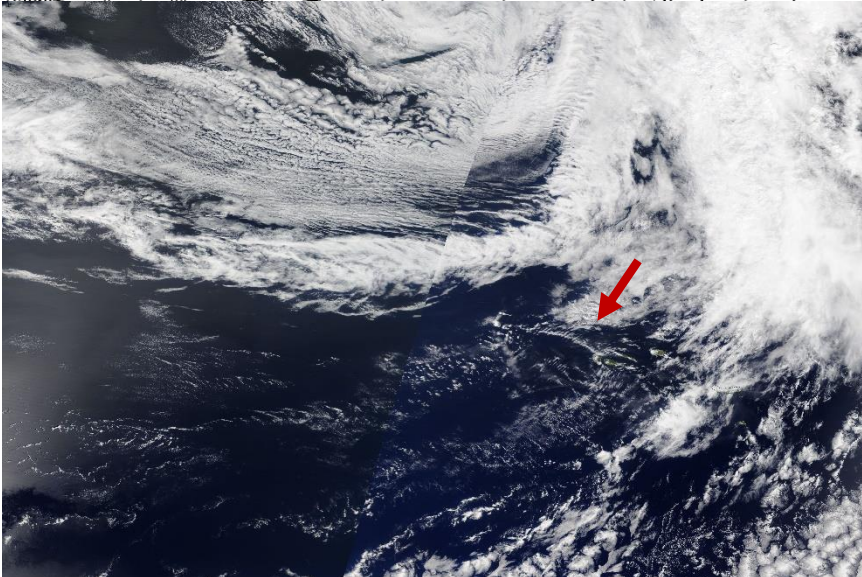
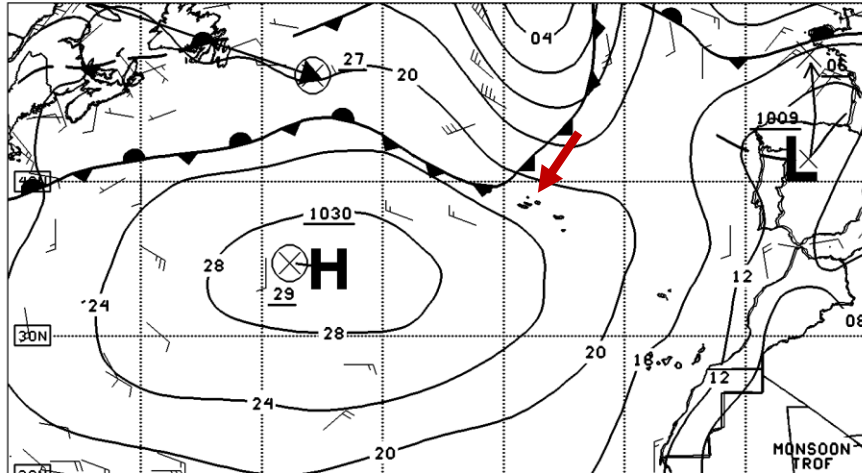
- Summer 2017 ENA (Results from Summer 2016/2017)
- Doppler Lidar, Cloud Radar (KAZR), Laser Ceilometer, Wind Profiler, Surface Meteorology, MODIS (primary tools)
- Macroscale
 - Fronts and Stratocumulus
 - Mesoscale Organization
 - Shear?
- Microscale
 - Turbulent Kinetic Energy (TKE): Summer 2016/2017
 - Role of drizzle in the TKE profile
 - Turbulence Master Length Scale (Poster)

Models of cloud-topped mixed layers under a strong inversion

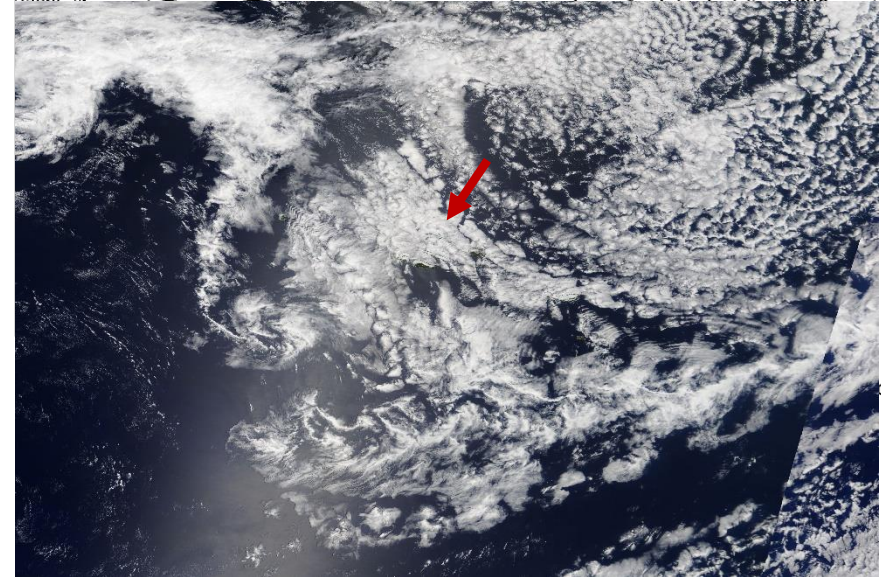
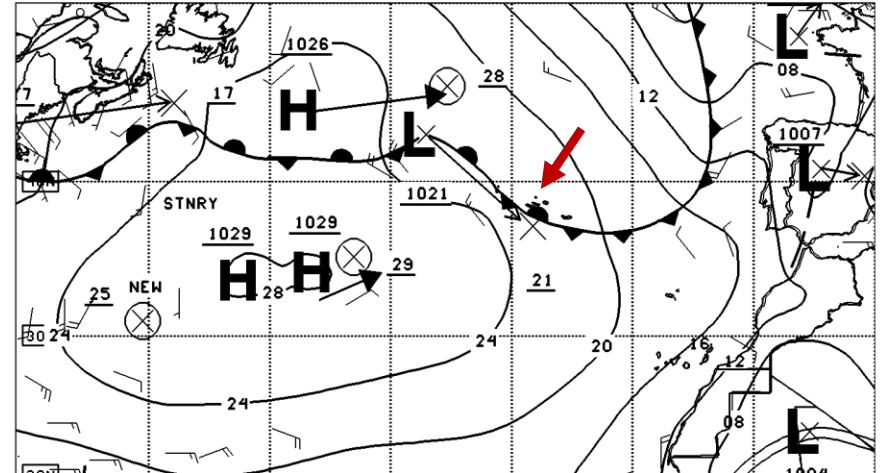
D. K. Lilly July 1968

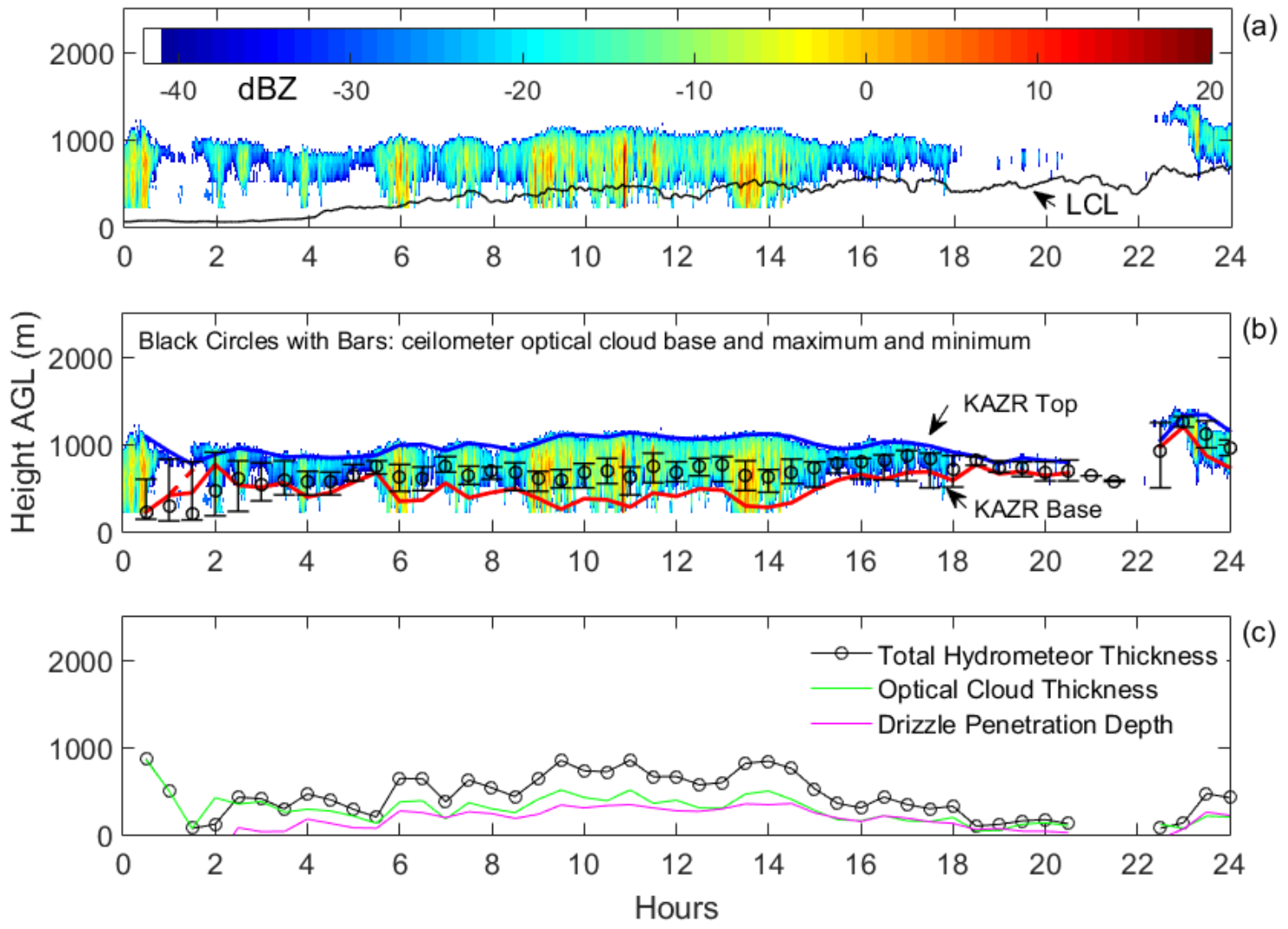
“In a sense the model only pushes the problem back one step and substitutes the question of origin of the cloud layer which must be present at the time subsidence commences. This original cloud layer might be a remnant of the frontal disturbances that frequently pass through the Gulf of Alaska in summer, or it may simply be produced from evaporative moistening of a previously clear mixed layer”

July 17, 2017 15Z



July 18, 2017 15Z

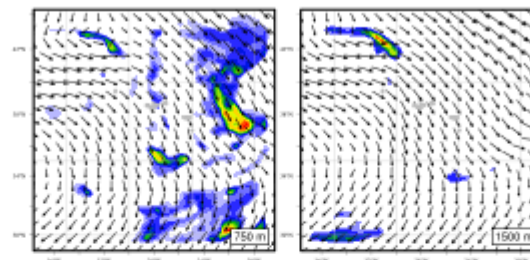




Fronts and Stratocumulus

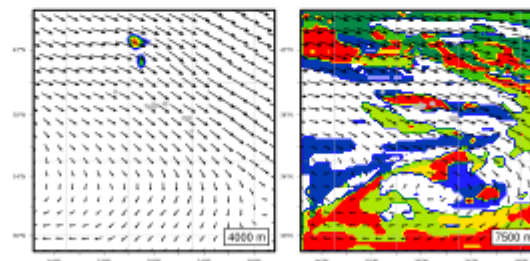
- July 18, 2017
- WRF Simulations
- coarse domain, 1900 km x1900 km, with a grid size of 20 km (ENA center)
- Boundary: NCEP GFS 0.25 Degree from UCAR Research Data Archive
- Next Step: WRF LES RU Supercomputer

Cloud Water Mixing Ratios: 2017-07-18_18:00:00



750 m

1500 m

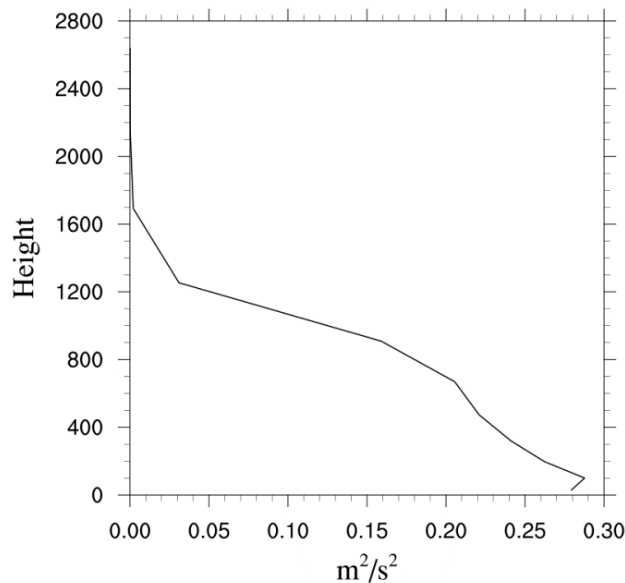


4000 m

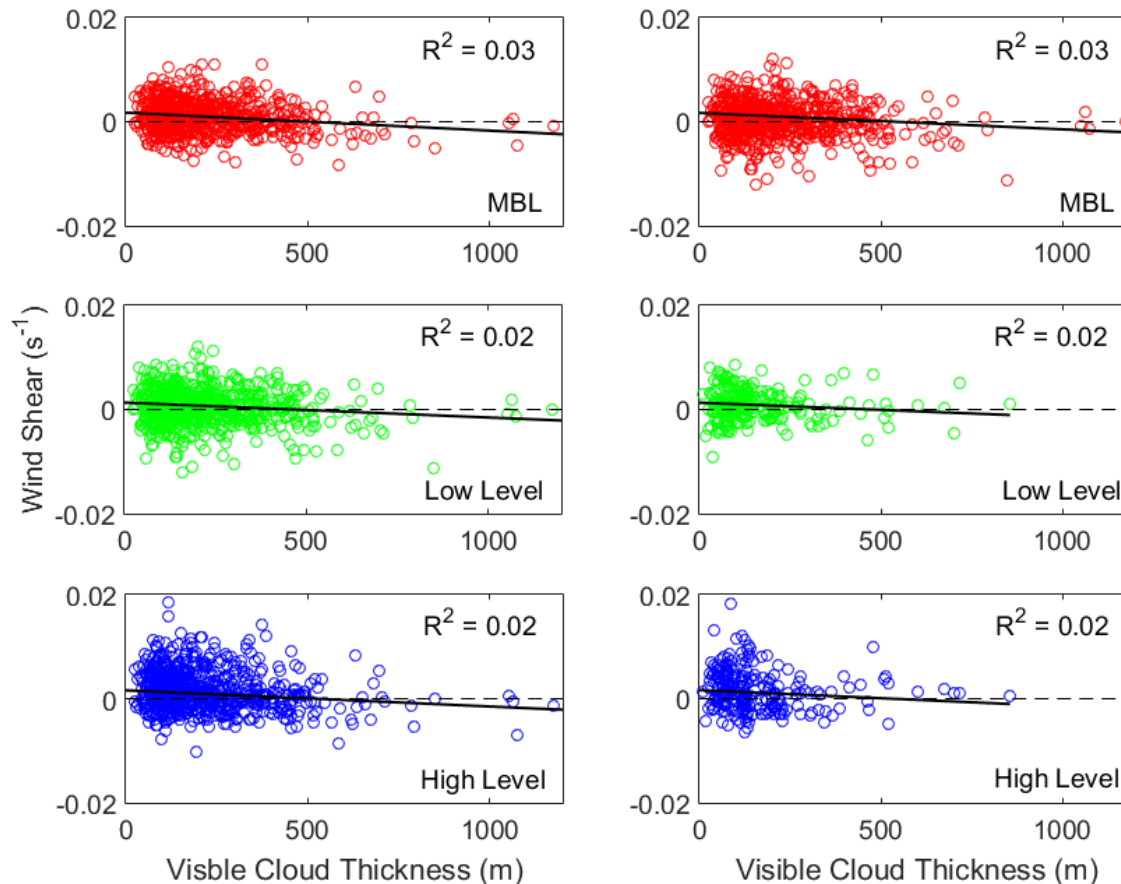
7500 m



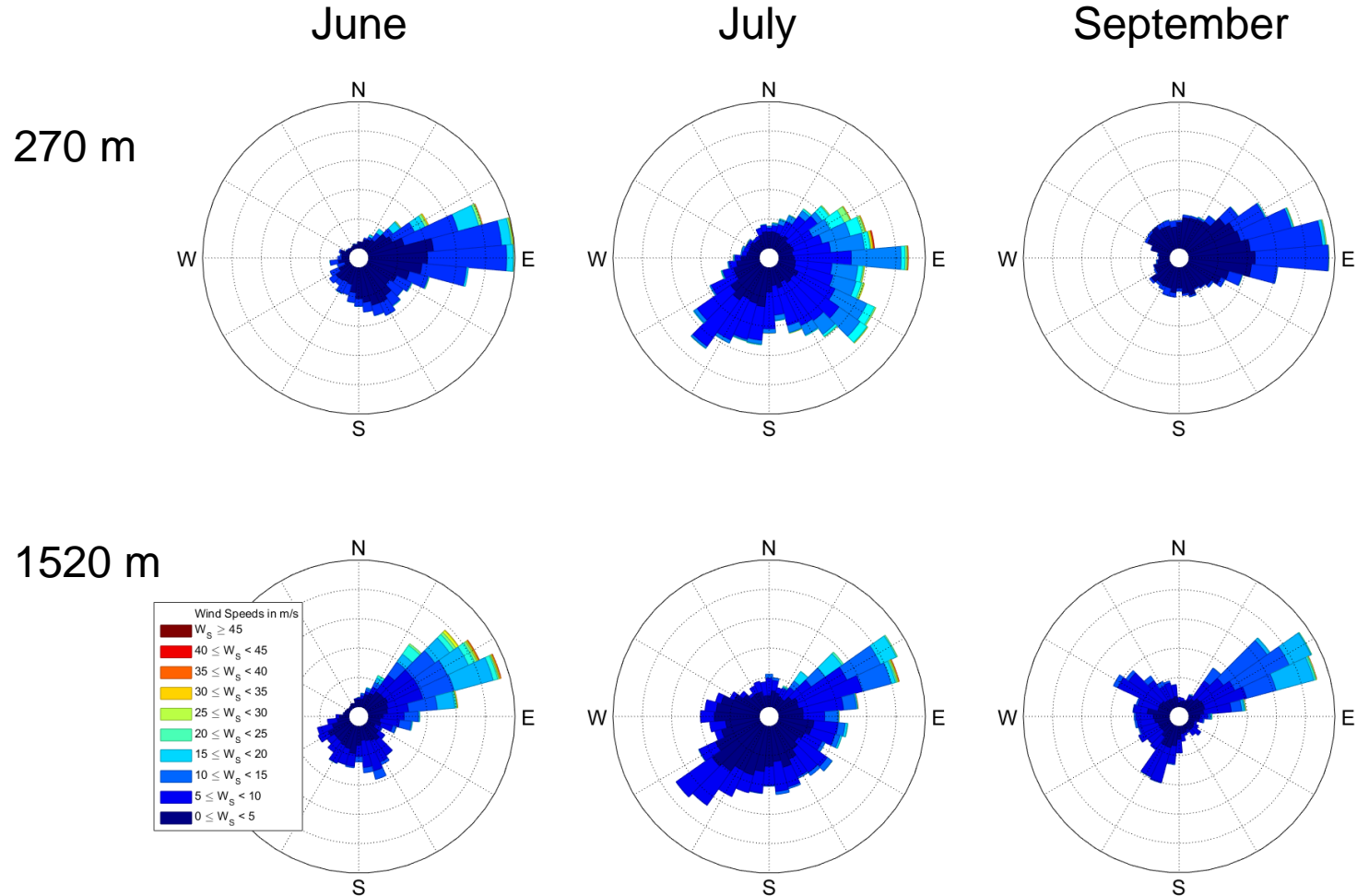
TKE: 2017-07-18_18:00:00



Is shear associated with changes in cloud structure at ENA in the summer.

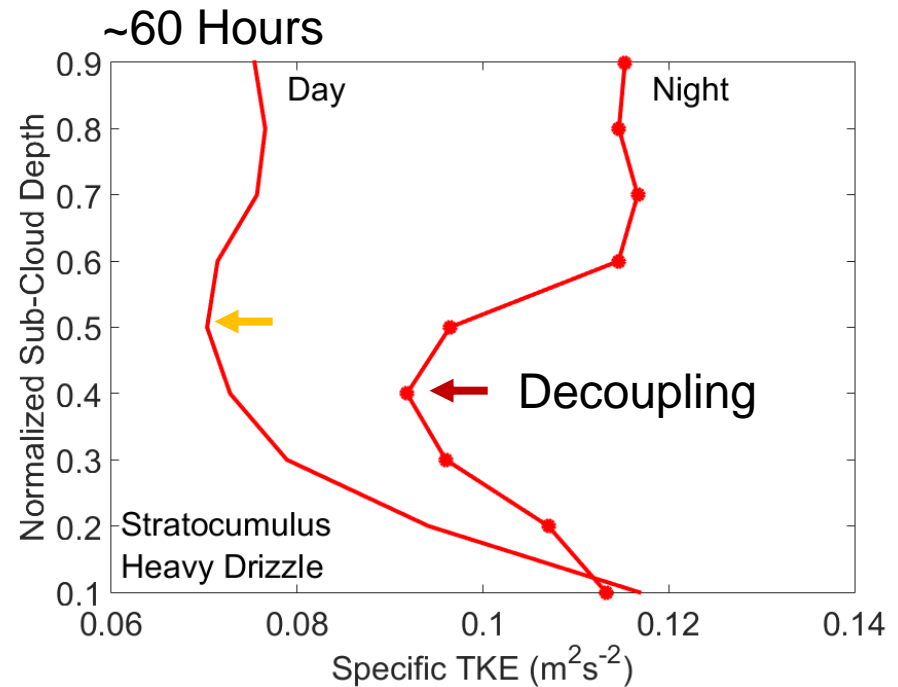
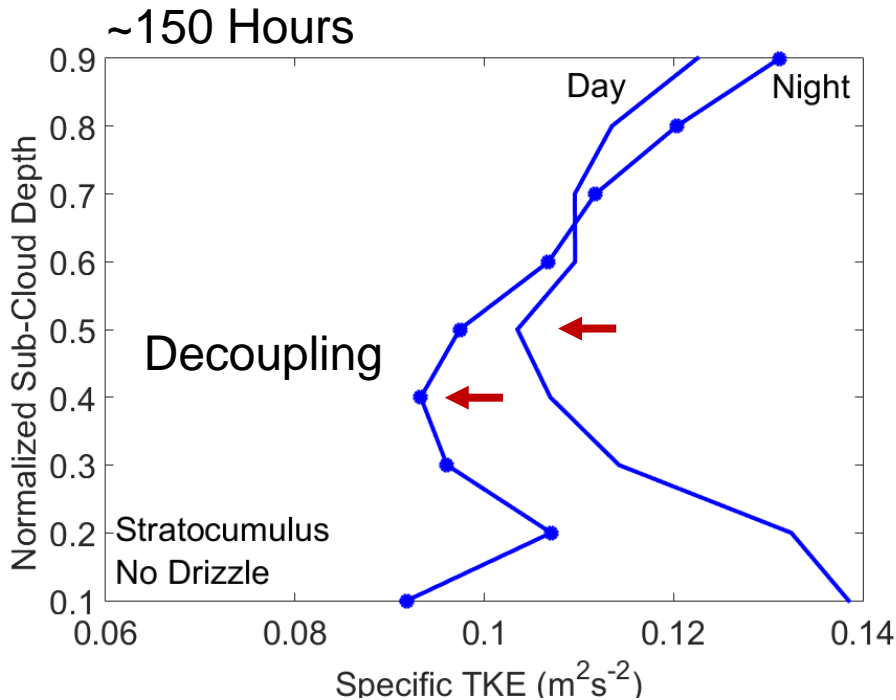


Evidently
Not!



Marine Boundary Layer Sub-Cloud Turbulent Kinetic Energy (TKE)-Single Layer Stratocumulus

Summer 2016 and 2017 (June-August)



Thanks to everyone who helped make ACE-
ENA possible!

