

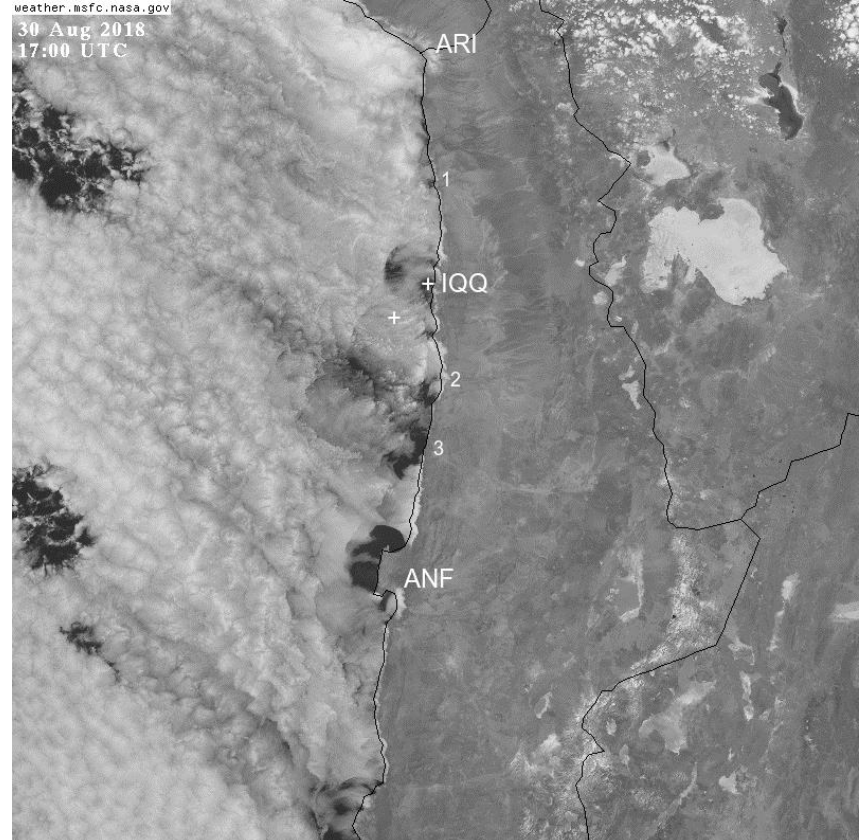
30 Aug 2018
17:00 UTC

The connection of Stratocumulus Clouds at the West Coast of South America to environmental parameters.

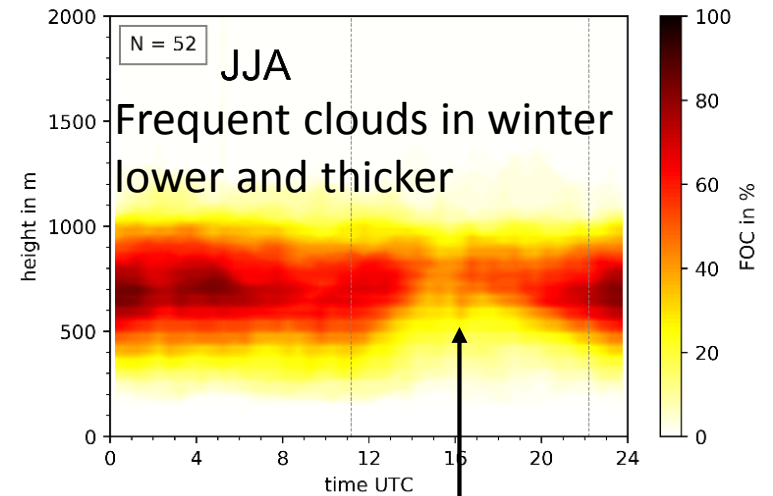
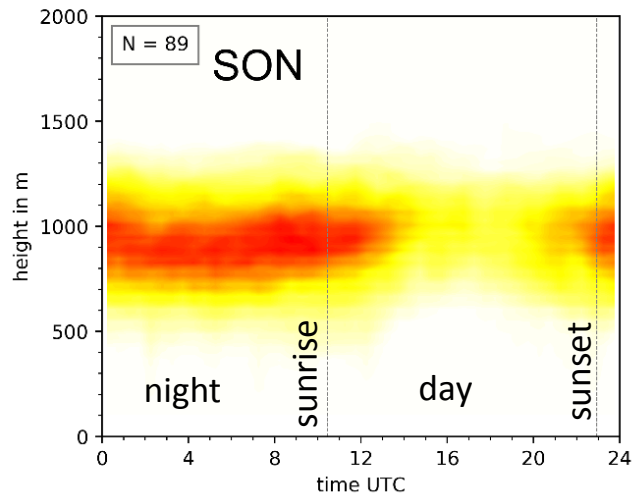
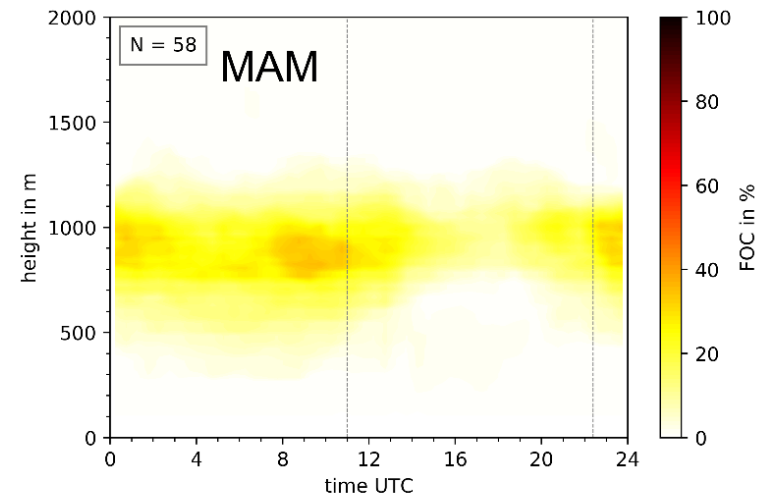
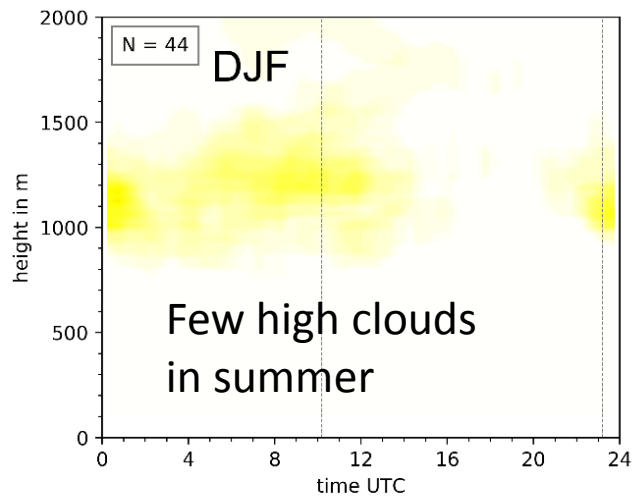
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Setup and processing

- One year of measurements
Mar 2018 – Mar 2019
- at Iquique Airport 20.5°S
W-Coast of South America
- Cloud radar (94 GHz)
- Doppler Wind Lidar
- Microwave radiometer
(14Channel 22GHz & 60GHz)
- Cloudnet algorithm
(Illingworth et al. 2007)
- Boundary layer classification
(Manninen et al. 2018)

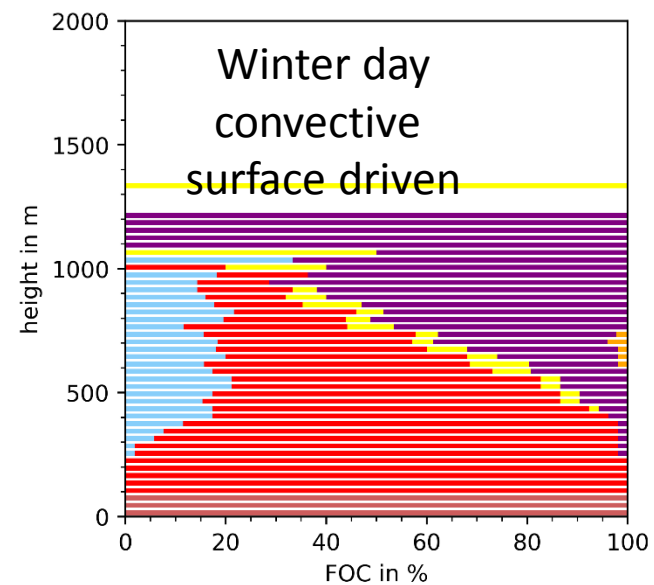
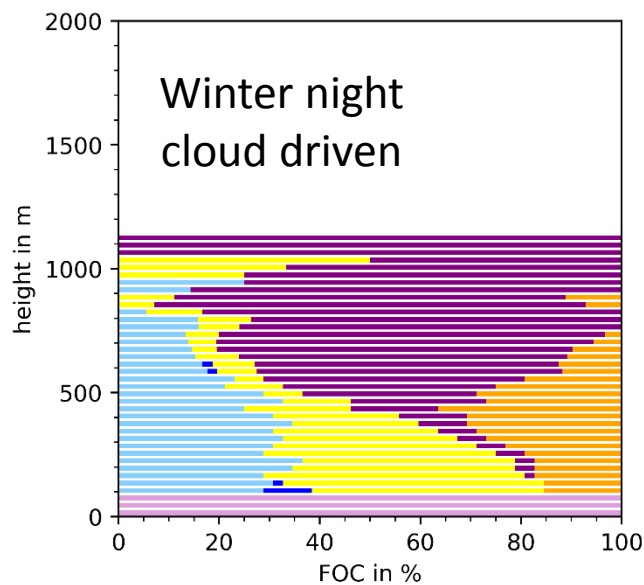
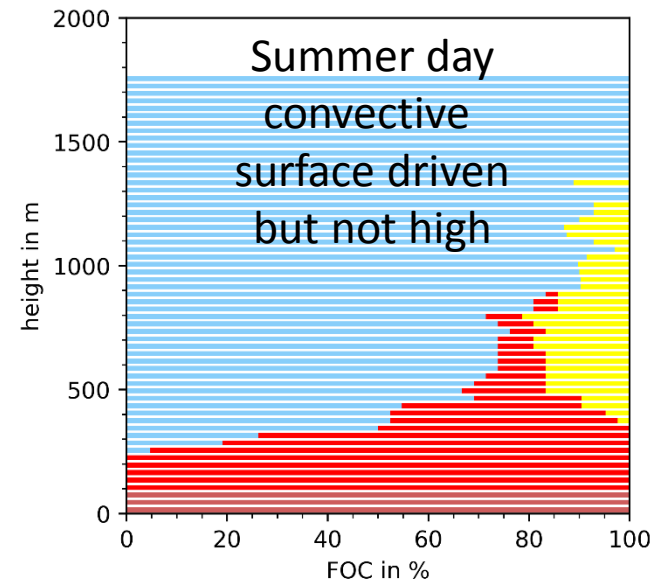
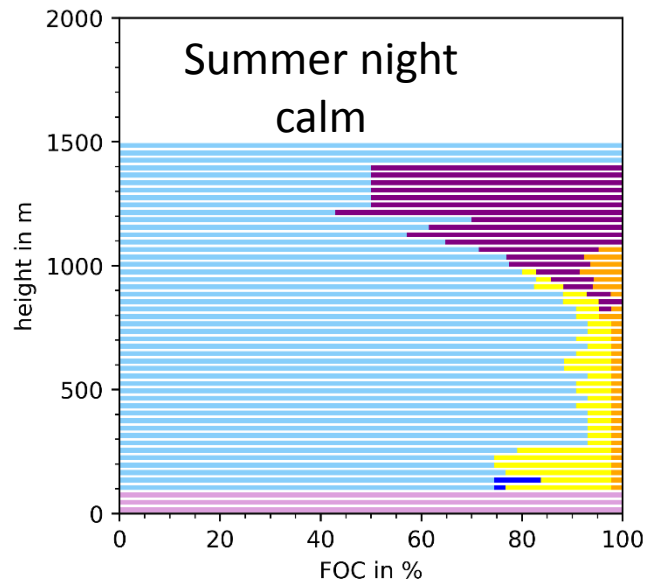


FOC clouds vs time and height

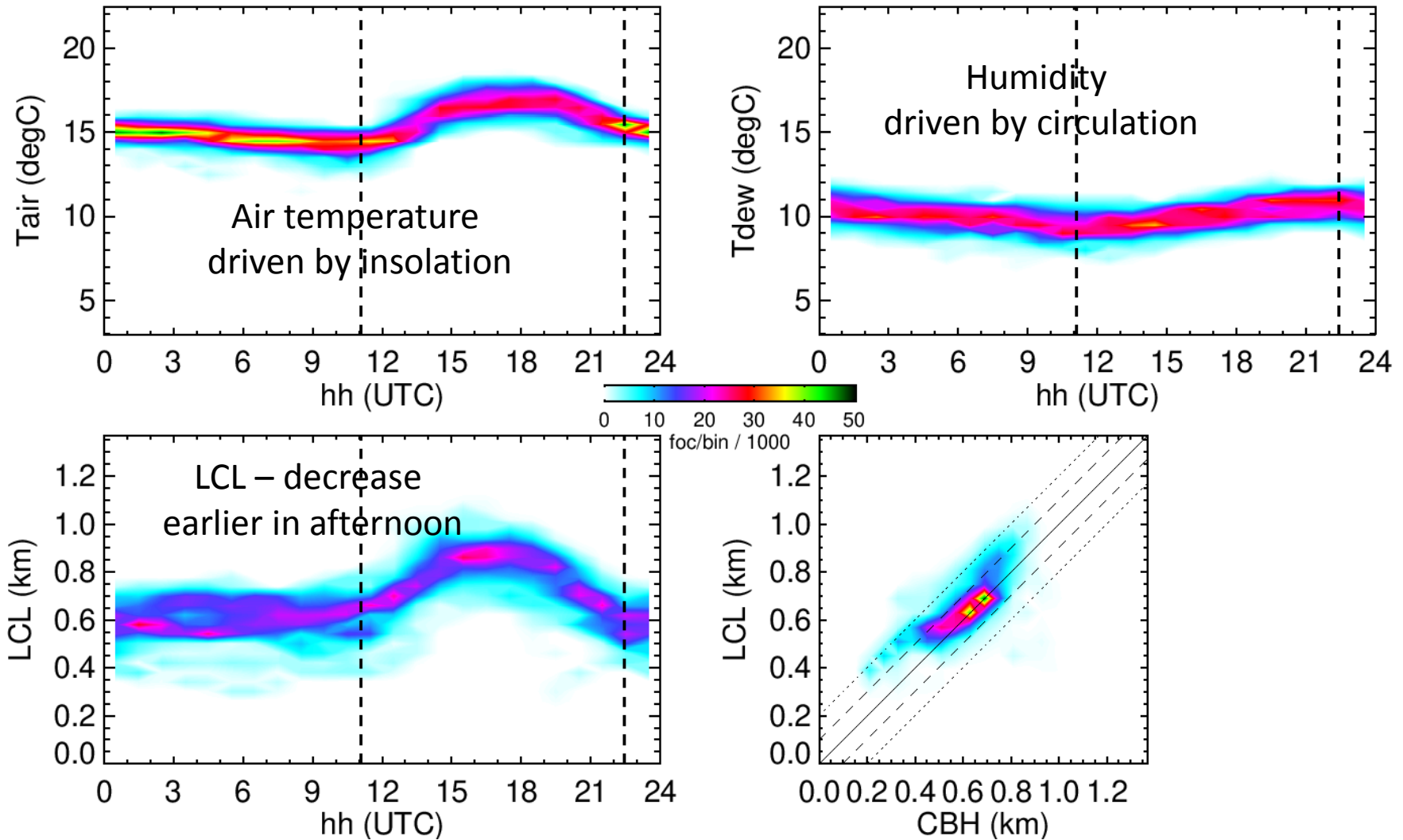


Gap around noon

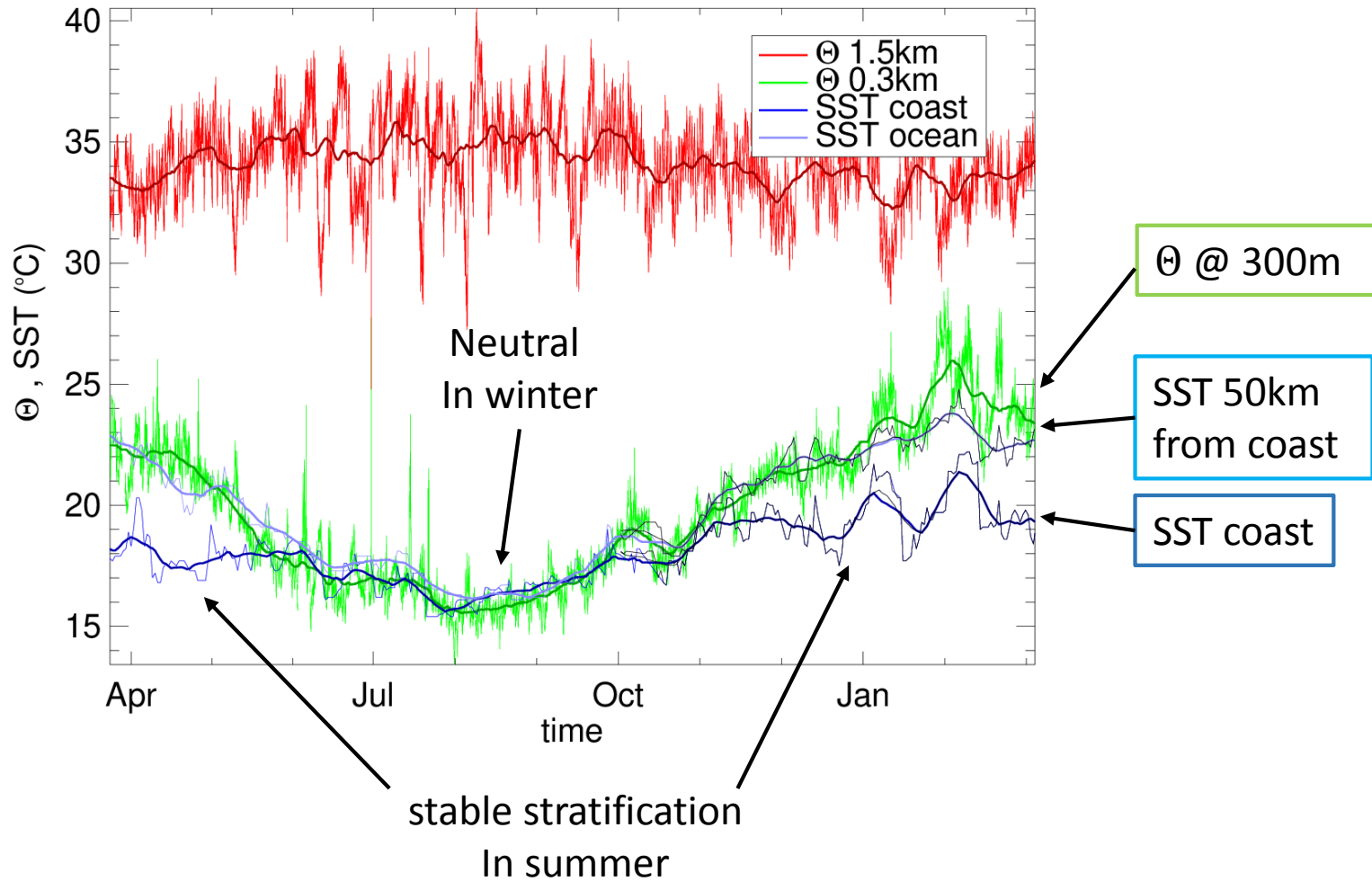
Turbulence structure of BL



Lifting condensation level



Air temperature and SST



summary

- Stratocumulus clouds reaching W coast of S-America show distinct annual and diurnal cycle
- Turbulence is especially in winter nights cloud driven (cloud top cooling) and in summer convection driven (surface warming)
- Noon gap is due to surface heating,
- afternoon clouds are result of moisture increase
- Reduced summer cloud occurrence coincides with stable stratification in the coastal BL (cold upwelling waters)

Schween et al., Life Cycle of Stratocumulus Clouds over one Year at the Coast of the Atacama Desert, ACPD 2022