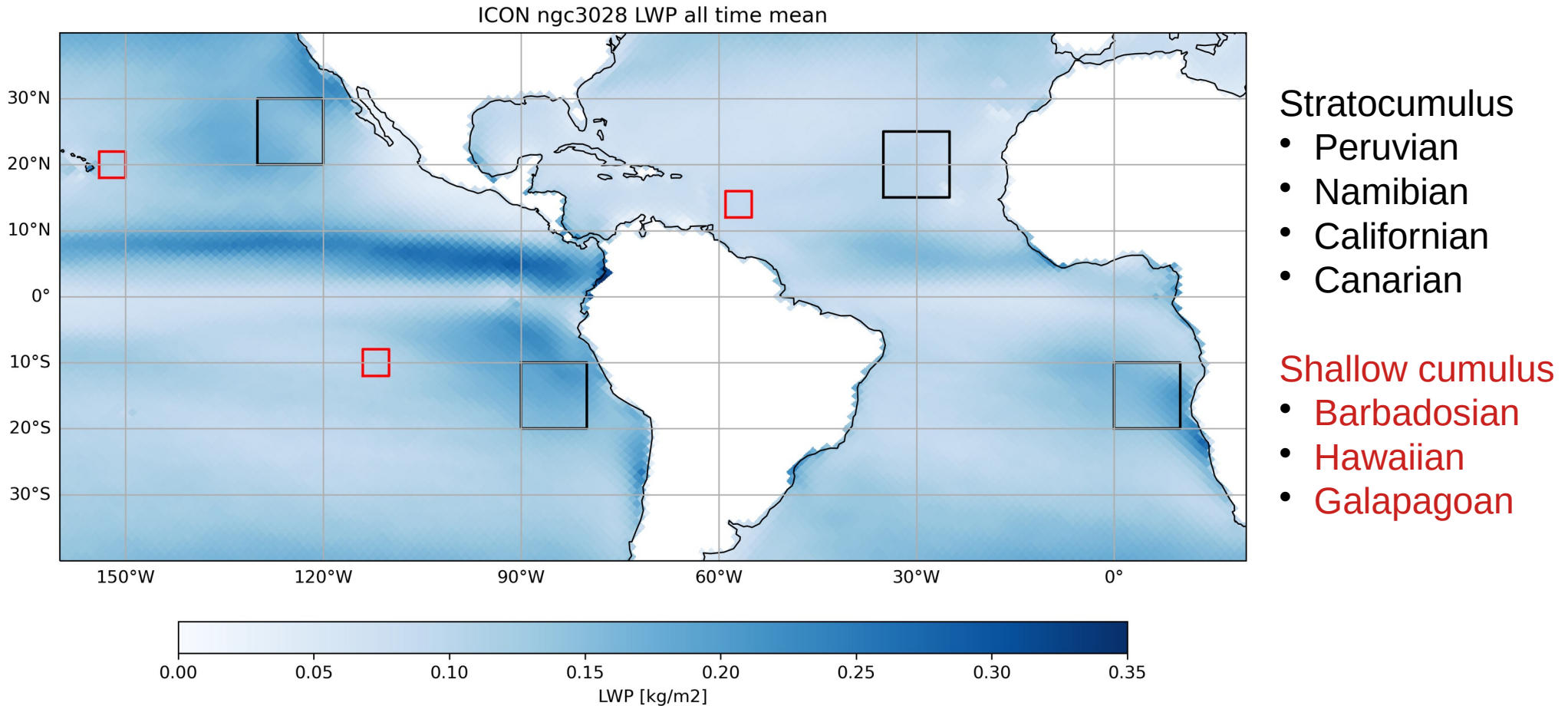
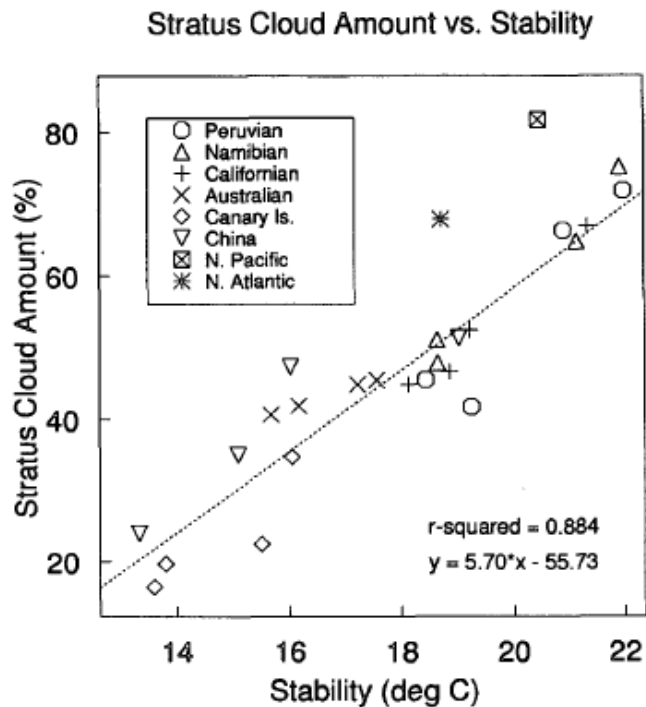


# (1) Sensitivity of shallow clouds to the SGS turbulence model

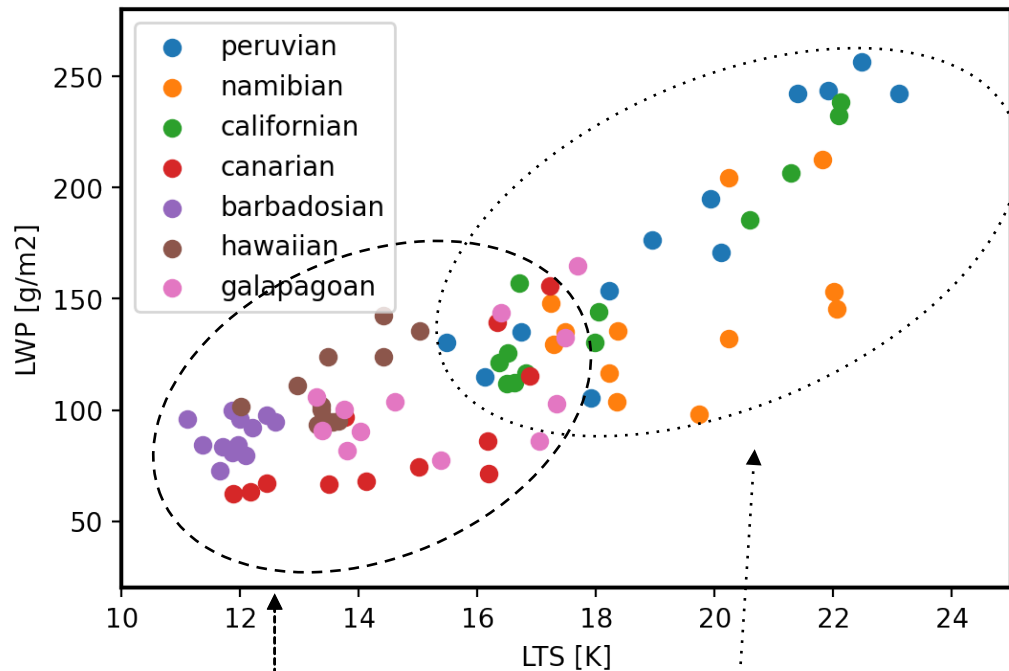


# (1) Sensitivity of shallow clouds to the SGS turbulence model

Climatology: Klein and Hartman 1993



ICON Cycle 3 ngc3028

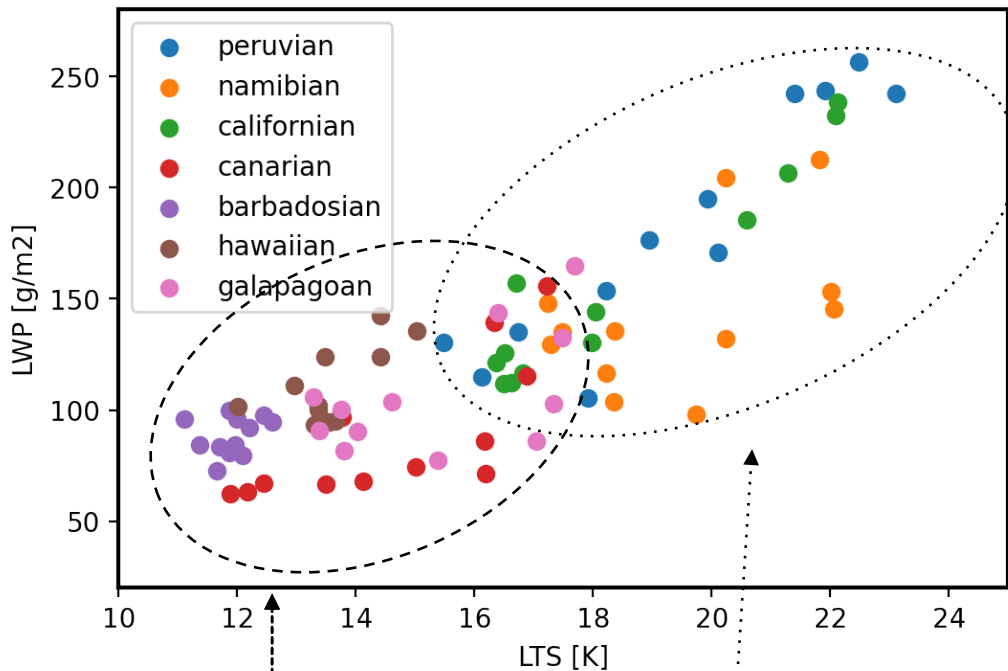


Cumulus regions

Stratocumulus regions

# (1) Sensitivity of shallow clouds to the SGS turbulence model

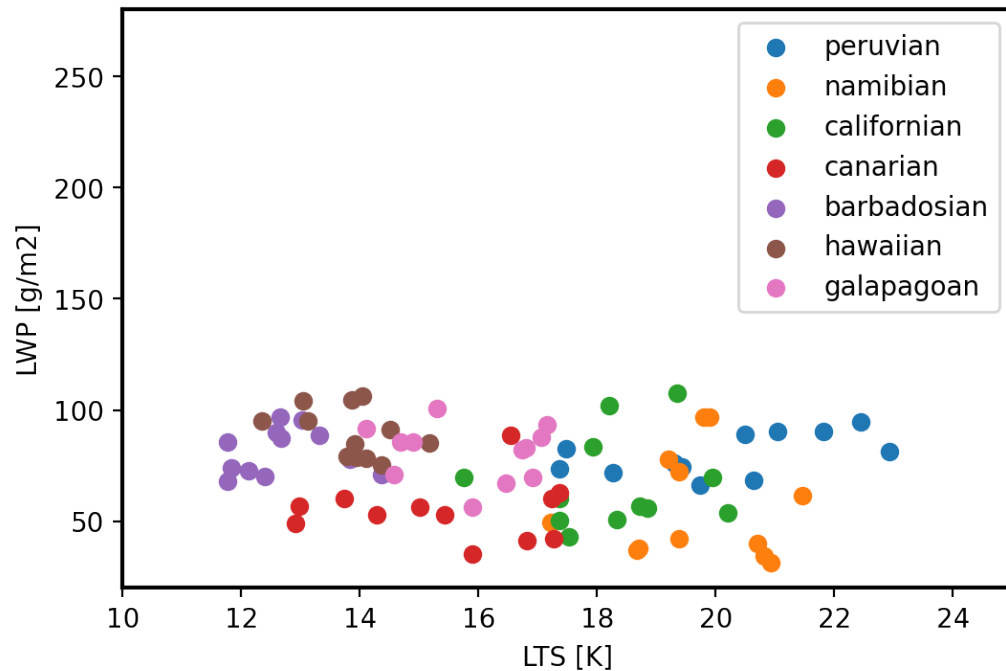
## Smagorinsky model



Cumulus regions

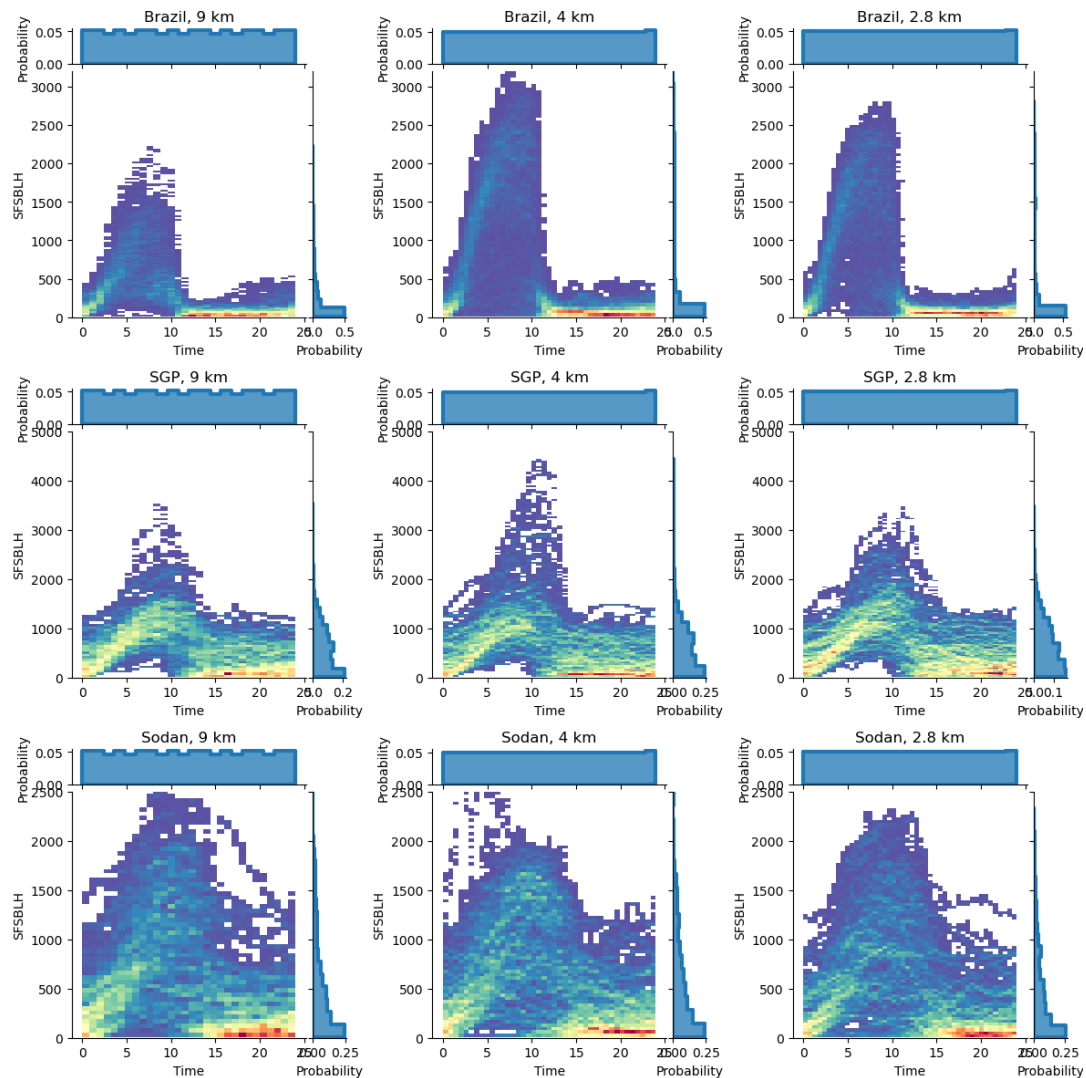
Stratocumulus regions

## modified Smagorinsky model

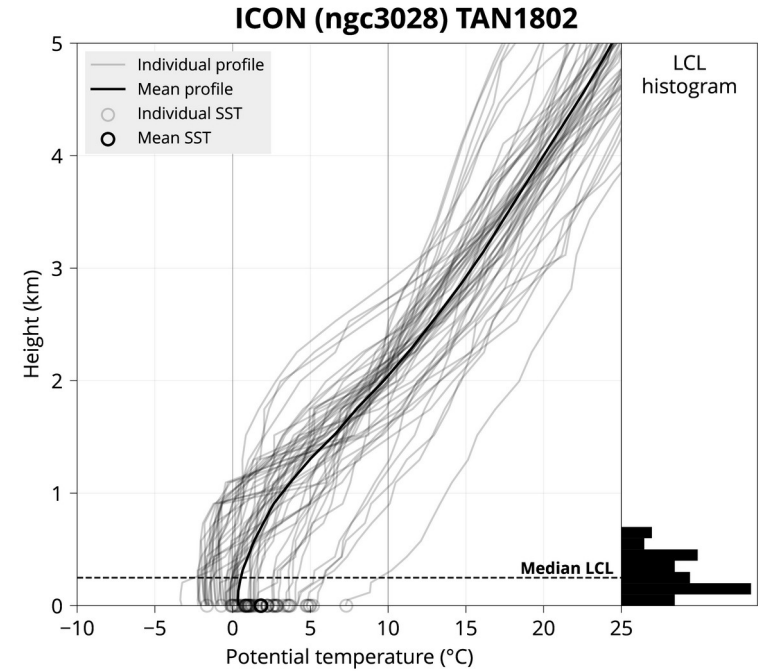
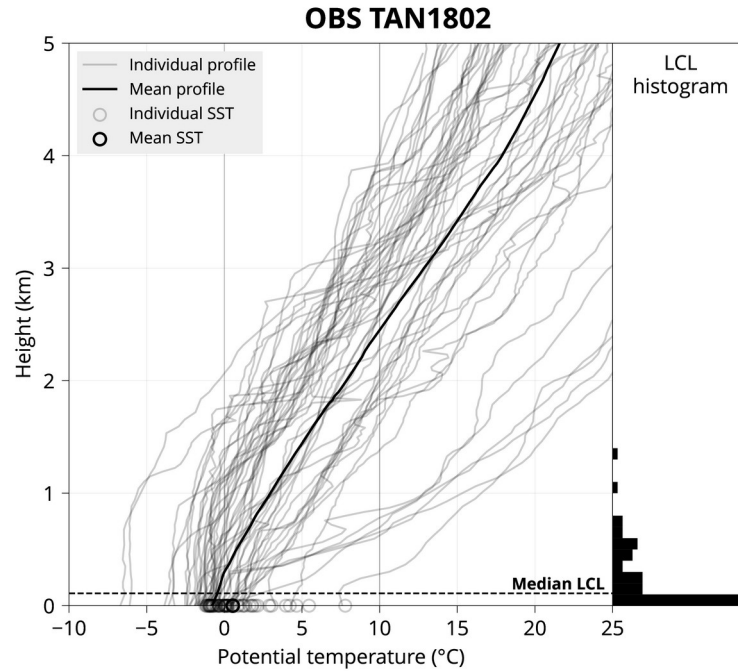
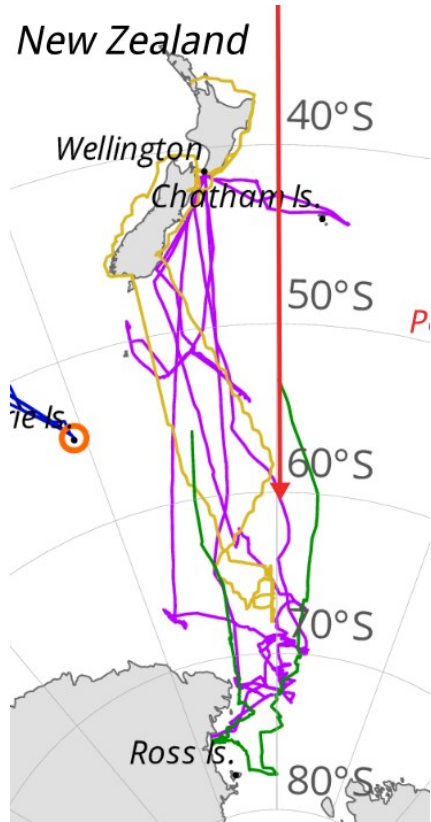


## (2) Sensitivity of BL height to model resolution

- PDF of the boundary layer height over land throughout the diurnal cycle
- Resolution matter for BL height in the tropics, but not in mid-latitudes
- IFS Cycle 2 DDH data



# (3) Southern Ocean BL clouds: ICON vs observations



- Mixed layer depth is larger in ICON
- Variability of potential temperature is smaller in ICON