Analyse the turning of the wind with altitude:

* Compare wind profile with geostrophic wind, calculated from pressure gradients based on observations at neighbouring weather stations.
* Plot the angular deviation of the surface wind relative to the geostrophic wind (the cross-isobar flow angle) as a function of RO = G/(f \* z\_0), as in Garratt (1992) figure 12b? Or just use the geostrophic wind speed, as f \* z\_0 is constant.

Analyse the turning of the wind as a function of stability:

* Use dtheta/dz as a measure of the stability, taken either to be at the surface, or the average over the 200 m.
* Plot the angular deviation of the surface wind relative to the geostrophic wind as a function of the stability, maybe also considering the geostrophic wind speed

Extra:

* Analyse not only the turning of the wind, but also the change in wind speed.
* Analyse the BL wind shear (combi of changes in wind speed and direction) as a function of stability and geostrophic wind speed. This might give some interesting insight in the ability of thunderstorms to benefit from increased wind shear in the BL after sunset.

Other interesting features:

* Look at occurrence of inertial oscillations
* Look at occurrence of low-level jets

Update after appointment with Carleen:

* Divide data into categories and consider these separately. These categories can be based on the stability, or maybe warm/cold/no advection, or look at different radiation categories.

Or maybe consider the thermal wind in the lowest 200 m, because this influences the change in wind in the BL next to friction. This thermal wind might be determined from the ERA 5 reanalysis.

* We could consider per category for example a normalized wind profile in the boundary layer, where the geostrophic wind is used for normalization.
* We could also consider particular cases in which the wind profile in the BL is close to the Ekman spiral, and investigate under which conditions this occurs.