

xabier.pedruzobagazgoitia@wur.nl

## 1. The problem

- Stratocumulus clouds (StCu) recurrently appear in South Western Africa in the night-morning, transitioning to clear skies, convective clouds or remaining in the afternoon (*Linden et al.*, 2015). The mechanisms remain not well understood.
- Although large scale phenomena clearly influences the synoptic situation, local effects are key on cloud transitions.
- To investigate the main local drivers, focusing at Aim: surface, for the evolution and breakup of the stratocumulus.
- **Method:** We use the Dutch Atmospheric Large Eddy Simulation, DALES (Heus et al., 2010) to represent a case inspired in one-day measurements during the DACCIWA campaign (*Knippertz et al.,* 2015).

## 2. Research strategy

- 1. Set up of idealized LES simulation of stratocumulus thinning and break up with prescribed surface fluxes.
  - Obtain a night StCu deck in equilibrium a)
  - b) Add factors creating the StCu breakup
- 2. Analysis/quantification of main factors driving the rise in cloud base and thinning of stratocumulus deck.
- Sensitivity analysis on impact of surface heterogeneities 3. (different surface flux patches, interactive vegetation).

# 3. Final research questions

- What are the main drivers for stratocumulus layer and its thinning under these conditions?
- Does surface (heterogeneity) influence the timing of the breakup? Do direct and diffuse radiation play a role?
- Is wind shear critical for the maintenance of the stratocumulus deck?





- for StCu (weak subsidence)