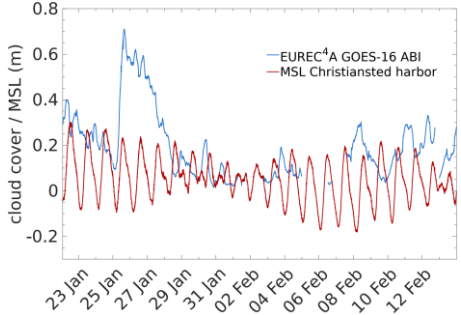


Anmeldung eines Themas für ein/e

Forschungsseminar **X**
Methodenseminar **X**
Masterarbeit **X** (bitte eines oder mehrere ankreuzen)

Thema Datum	Influence of alternating tidal currents on the tropical marine atmospheric boundary layer 17.07.2023
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Zweitgutachter	Johannes Quaas, j.quaas@rz.uni-leipzig.de
Kurzbeschreibung :	<p>Previous studies have identified a diurnal cycle of large-scale vertical motion that is strongly connected to the diurnal cycle in the development of marine trade-wind cumulus clouds (Vial et al., 2019). However, the question what mechanism drive or what factors can possibly have an influence on the diurnal variation in marine trade-wind cumulus cloud cover is still open. Preliminary analysis (figure) suggests the potential influence of tidal currents on the marine tropical atmospheric boundary layer. The gravitational forces of the Earth, the Moon, and the Sun manifest themselves in the tidal movements of the sea. The currents related to high and low tides are proposed to act as a driver for an intermittently unstable boundary layer (Ghasemi et al., 2018). Further investigation is required to test whether or not this mechanism is dominant.</p> 
Literatur:	<p>Vial, J., Vogel, R., et al. (2019). A new look at the daily cycle of trade wind cumuli. J. Adv. Model. Earth Syst., 11, 3148-3166, https://doi.org/10.1029/2019MS001746</p> <p>Ghasemi, A., Klein, M., et al. (2018). Mean flow generation by an intermittently unstable boundary layer over a sloping wall. J. Fluid Mech., 853, 111-149, https://doi.org/10.1017/jfm.2018.552</p>