



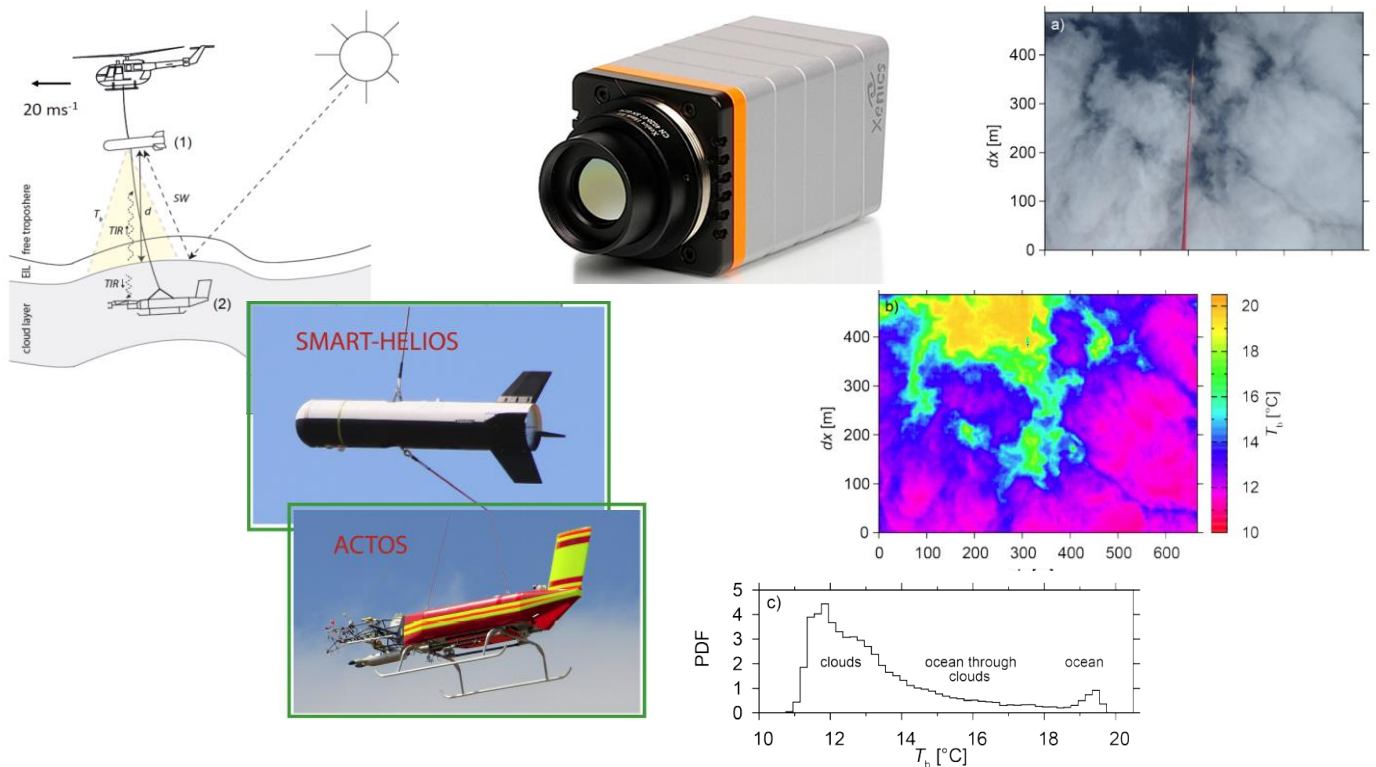
Topic for Master Thesis

Seminar topic: Research & Methods



Group Atmospheric Radiation

Solar and IR-Imaging of Stratocumulus at the Acores



- Master Thesis:**
- Analysis of camera measurements of stratocumulus
 - Comparison of IR-images of brightness temperature and solar observations with a digital camera
 - Quantification of cloud inhomogeneities from both spectral ranges
 - Identification and quantification of 3D radiative effects
- Sem. Research:**
- climatology of stratocumulus
 - cloud top processes linked to cloud inhomogeneities
 - cloud top entrainment of dry air
 - cloud top cooling
 - 3D radiative processes
- Sem. Methods:**
- helicopter-borne cloud observations: IR and solar cameras
 - parameters to quantify the cloud inhomogeneity
 - advantage of imaging observations compared to hemispherical radiometer (Pyranometer, Pyrgeometer)

Anmeldung eines Themas für ein/e

Forschungsseminar
Methodenseminar
Masterarbeit (bitte eines oder mehrere ankreuzen)

Thema	Solar and IR-Imaging of Stratocumulus at the Acores
Datum	available from 23. Juni 2020
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Zweitgutachter	Prof. Dr. Andreas Macke, TROPOS
Kurzbeschreibung:	<p>Master Thesis:</p> <ul style="list-style-type: none"> - Analysis of camera measurements of stratocumulus during the Helicopter campaign Acores - Comparison of IR-images of brightness temperature and solar observations with a digital camera. - Quantification of cloud inhomogeneities from both spectral ranges - Identification and quantification of 3D radiative effects <p>Sem. Research:</p> <ul style="list-style-type: none"> - climatology of stratocumulus - cloud top processes linked to cloud inhomogeneities <ul style="list-style-type: none"> - cloud top entrainment of dry air - cloud top cooling - 3D radiative processes <p>Sem. Methoden:</p> <ul style="list-style-type: none"> - helicopter-borne cloud observations: IR and solar cameras - parameters to quantify the cloud inhomogeneity - advantage of imaging observations compared to hemispherical radiometer (Pyranometer, Pyrgeometer)
Literatur:	<p>Wood, R., 2012: Stratocumulus clouds. Q. J. R. Meteorol. Soc., 140, 2373 – 2423, doi:10.1175/MWR-D-11-00 121.1.</p> <p>Jakub, F., and B. Mayer, 2017: The role of 1-D and 3-D radiative heating in the organization of shallow cumulus convection and the formation of cloud streets. Atmos. Chem. Phys., 17, 13 317–13 327, doi:10.5194/acp-17-13317-2017.</p> <p>https://home.uni-leipzig.de/~strahlen/acores_wiki_doku/doku.php?id=start</p>