

The logo for ACTRIS CCRES features a blue arc at the top. A vertical teal line descends from the center of the arc to a teal circle that forms the letter 'O' in 'ACTRIS'. Three other teal circles of varying sizes are positioned above the arc to the right. The text 'ACTRIS' is in teal and 'CCRES' is in dark blue.

ACTRIS CCRES

Microwave radiometer calibration
and SOP
Bernhard Pospichal & CCRES-DE team

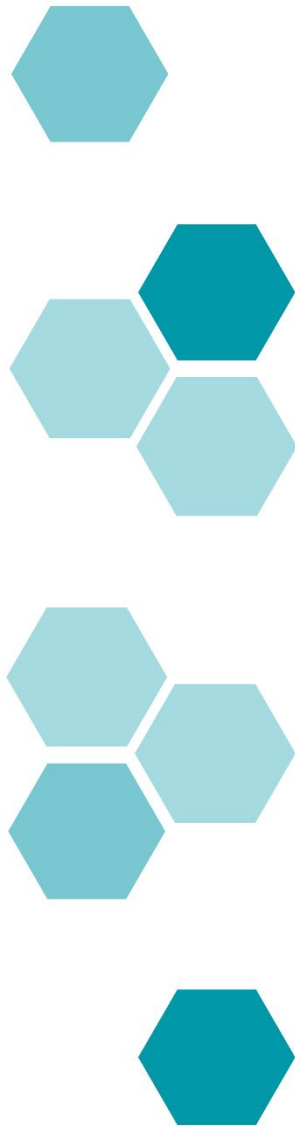
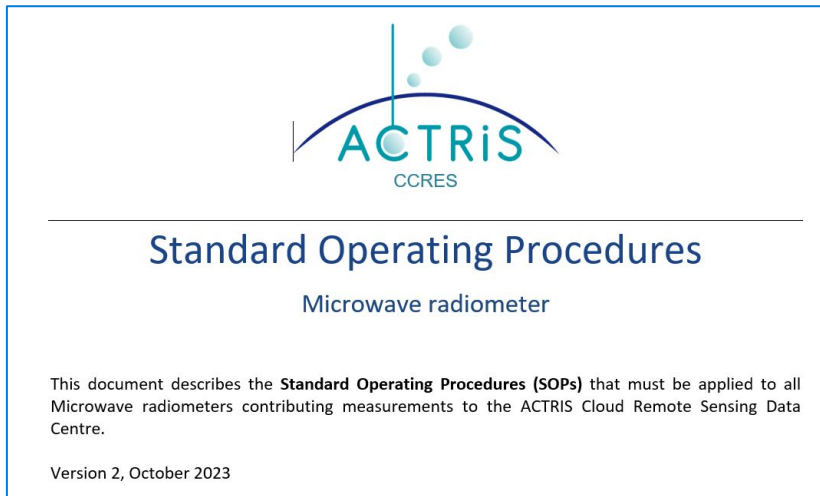
CCRES Workshop, Heraklion – Oct 26th, 2023



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Objectives

- New version of Standard operation procedures (SOP) for MWR (Microwave radiometer) in ACTRIS available
- Calibration guidelines for absolute (liquid nitrogen) calibrations for ACTRIS stations (necessary for labeling process)



ACTRIS MWR SOPs

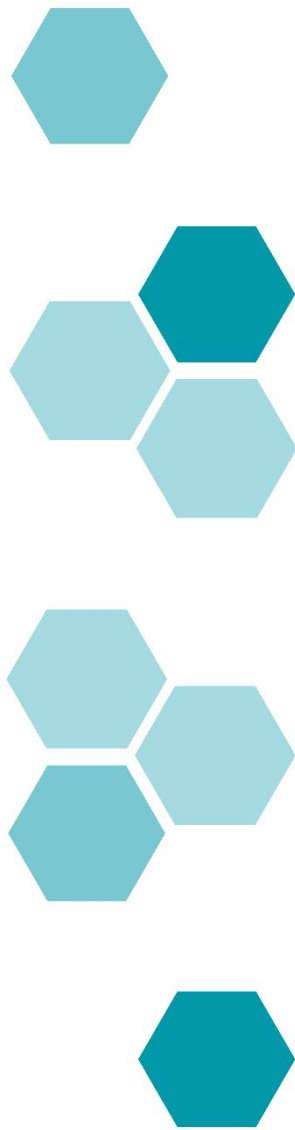
Supported instruments:

- All MWR with capabilities to observe cloud liquid water path (LWP)
- Minimum 2-channel radiometer (23/31 GHz)
- Optimum 2 frequency bands (22-31, 51-58 GHz)
- Currently all instruments in ACTRIS Cloudnet are from one manufacturer (RPG Radiometer Physics)



Relevant points for MWR operation

- Location
- Calibration: automatic and Liquid nitrogen (LN2)
- Data types / Housekeeping data
- Operation modes / Scan strategy
- Data QA/QC
- Maintenance
- Log book
- Link to general CCRES SOPs
- Link to other networks (e.g. E-Profile)



Scan strategy & Link to E-Profile

- General ACTRIS Scan strategy:
 - minimum 50% vertical pointing observations per hour
- For MWR: At least 1 boundary layer scan for temperature profiles every 30 min (duration about 100 seconds), usually 1x every 15 min.
- If performing (azimuth)scans with radar and MWR:
 - Always scan at the same time to maximize common vertical pointing availability
- E-Profile: More frequent scanning required – 1 profile every 10 minutes
 - Should be consistent with first point (above)
 - More frequent data transmission desired (10 min vs. 1 hr)
 - No other strict requirements for E-Profile!



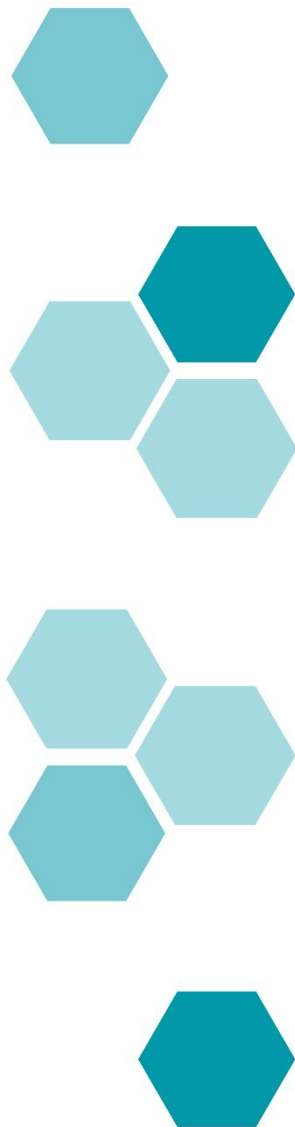
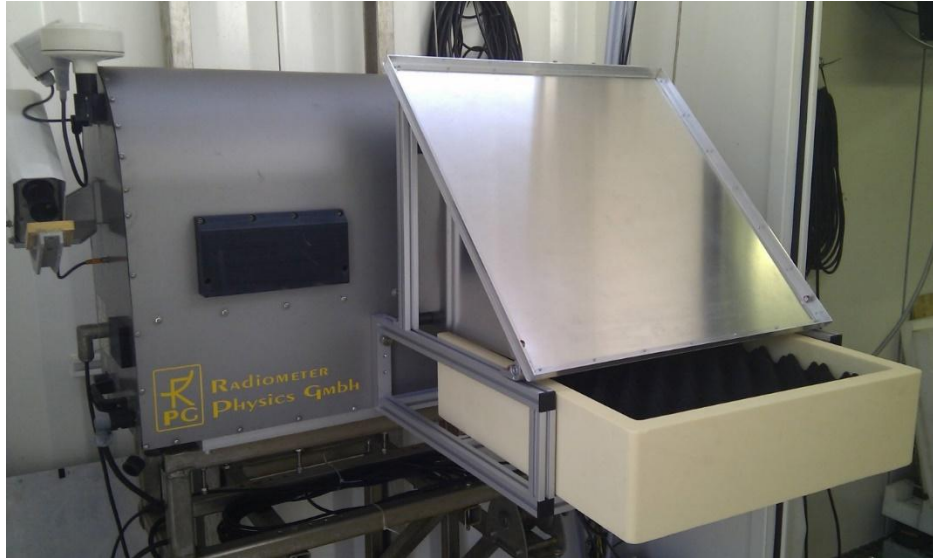
MWR calibration

- Document describing liquid nitrogen (LN2) absolute calibration process for RPG radiometers now available
- Labelling process (Step 1b): At least perform two subsequent LN2 calibrations with an interval of about 6 months



MWR calibration

- Updated calibration target (PT-V2) available since 2021, facilitating calibration (no need to turn LN2 target anymore, less LN2 required)



Summary

- SOPs and calibration document available
- Log-book to be implemented
- Data processing, QA/QC monitoring in progress (see earlier talk by Tobias Marke)





Thank you