UNIVERSITÄT LEIPZIG
Faculty of Physics and Earth Sciences

Remote sensing of clouds with SMART-HALO

UNIVERSITÄT LEIPZIG

Institute for Meteorology

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current status:

- mounting for SMART-HALO optical inlets ready for assembly

- „radiometric" calibration by end of May

- instrument checkup at Enviscope begin of June

Requirements and constrains:

- passive remote sensing -> **daytime** measurements

- **avoid** low solar elevation (15°)   (08.08.: 06:50 – 17:15 AST[*])

          (31.08.: 06:55 – 17:05 AST[*])

- cabin temperature (T < 30°C)

- ## Preferred flight pattern:

  - straight legs (min. 5 minutes)
    - -> covering several ECMWF IFS gridpoints (9 km)
  - no / minimum spirals, turns or circles
  - **above** clouds (at least 500 ft)
  - coordination with satellite overpass

[*]AST = Atlantic Standard Time (UTC-4)

- Calibration (flight):

  - radiation box (for downward Irradiance)

    - 4 x 2 min legs
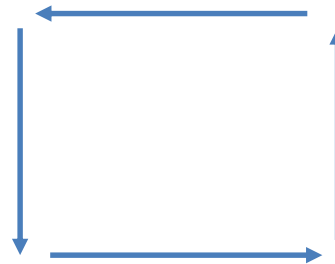
  - ground calibrations (~1 h, between flights)

- ## References:

  - ECMWF- Atmospherics Physics (http://www.ecmwf.int/en/research/modelling-and-prediction/atmospheric-physics)

  - ECMWF - Detailed information of implementation of IFS cycle 41r2 (https://software.ecmwf.int/wiki/display/FCST/Detailed+information+of+implementation+of+IFS+cycle+41r2)

  - ECMWF IFS DOCUMENTATION - Cy40r1 (http://www.ecmwf.int/sites/default/files/elibrary/2014/9204-part-iv-physical-processes.pdf)

  - Morcrette, J.-J., Mozdzynski, G., Leutbecher, M.: A Reduced Radiation Grid for the ECMWF Integrated Forecasting System, Mon. Weath. Rev., 2008