

CEOS WGCV Plenary # 46 – DLR Agency Presentation

Virtual Meeting, July 15th, 2020

Albrecht von Barga (DLR)



Knowledge for Tomorrow



Cal/Val activities – brief [incomplete] survey

- Cal/Val activities related to National and European missions
 - TerraSAR-X (13 yrs in operation), TanDEM-X (10 yrs in operation), **EnMAP**, Merlin
 - **Aeolus**, Sentinel-5P (project incl. TCCON and NDACC stations), [BIOMASS, EarthCare, Copernicus]

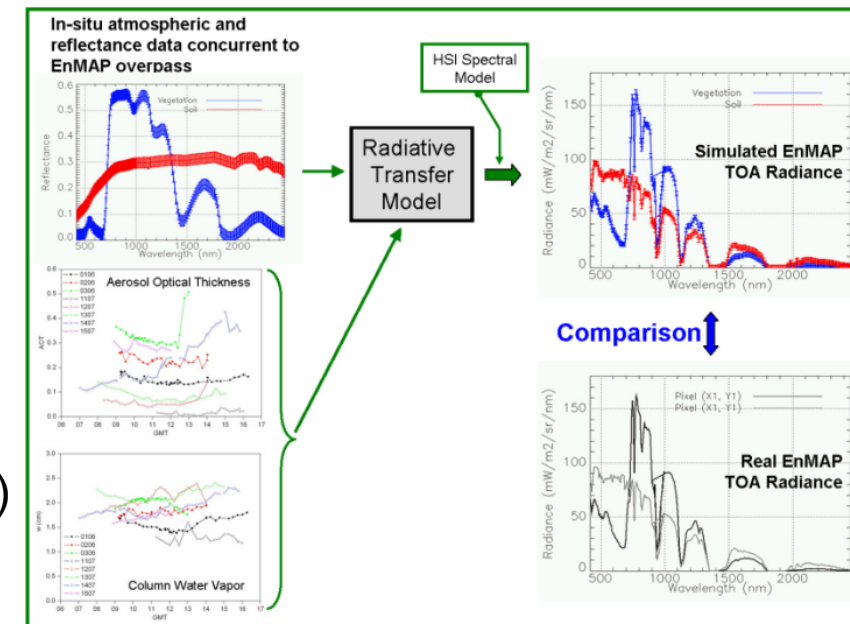
Influence of COVID-19 studied making use of Sentinel 5P and GOME-2

https://www.dlr.de/content/en/articles/news/2020/02/20200505_effect-of-the-coronavirus-on-air-quality-is-now-visible.html
- Cal/Val activities related to topics
 - In 2018 inventory study about National validation capabilities (presented in 2018, update in 2022)
(=> contribution to networks: TERENO, TCCON, NDACC, IAGOS, and others)
 - National projects (selection / examples):
 - PermASAR (https://www.dlr.de/content/en/articles/news/2018/3/20180914_thawing-arctic-radar-view.html) DLR in coop with CCMEQ
 - Atmospheric Correction over Sea-Ice (https://www.researchgate.net/publication/331275774_Application_of_Sentinel-2_MSI_in_Arctic_Research_Evaluating_the_Performance_of_Atmospheric_Correction_Approaches_Over_Arctic_Sea_Ice) CAU Kiel

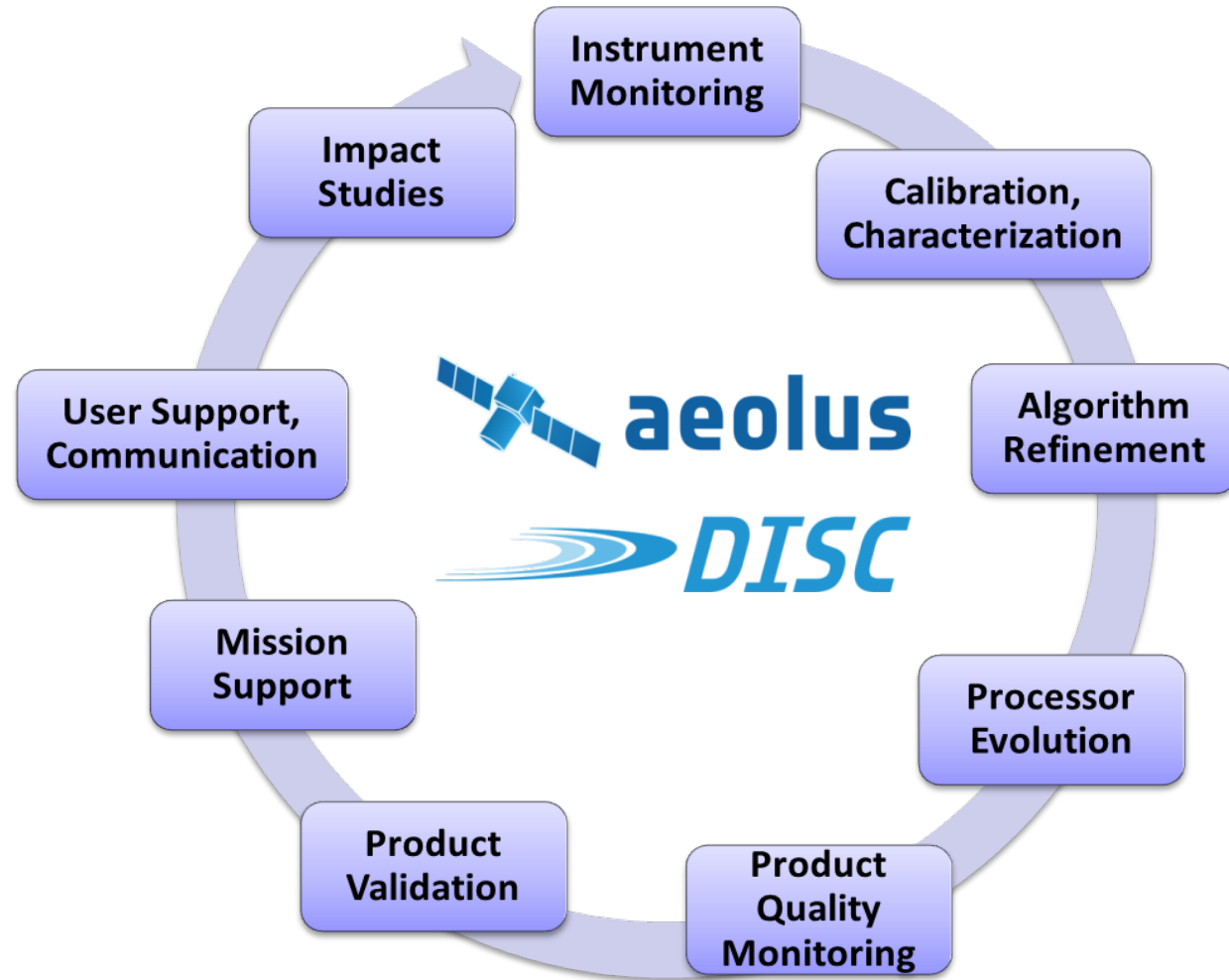


EnMAP – Validation

- EnMAP will be launched in 2022
- EnMAP Product Validation Plan (PVP)
 - Validation of the EnMAP radiance and reflectance data products (Level 1B, Level 1C and Level 2A)
 - First Version of the PVP under the lead of GFZ (German Research Centre for Geosciences)
 - Under review
- For each of the three user product types, a series of parameters defining the quality of the data will be evaluated by means of a series of ground-based and scene-based methods during both commissioning and operations
- Lead team Cal/Val activities:
 - GFZ (Sabine Chabrillat, sabine.chabrillat@gfz-potsdam.de)
 - CSIRO (Cindy Ong, cindy.ong@csiro.au)
 - NASA JPL (Rob Green, robert.o.green@jpl.nasa.gov)
- Contact Persons:
 - Science PI: Sabine Chabrillat (sabine.chabrillat@gfz-potsdam.de)
 - Cal Val Group within the ENSAG: Luis Guanter (lguanter@fis.upv.es)
 - Mission Exploitation Program: Anke Schickling (anke.schickling@dlr.de)



The Aeolus Data Innovation and Science Cluster DISC



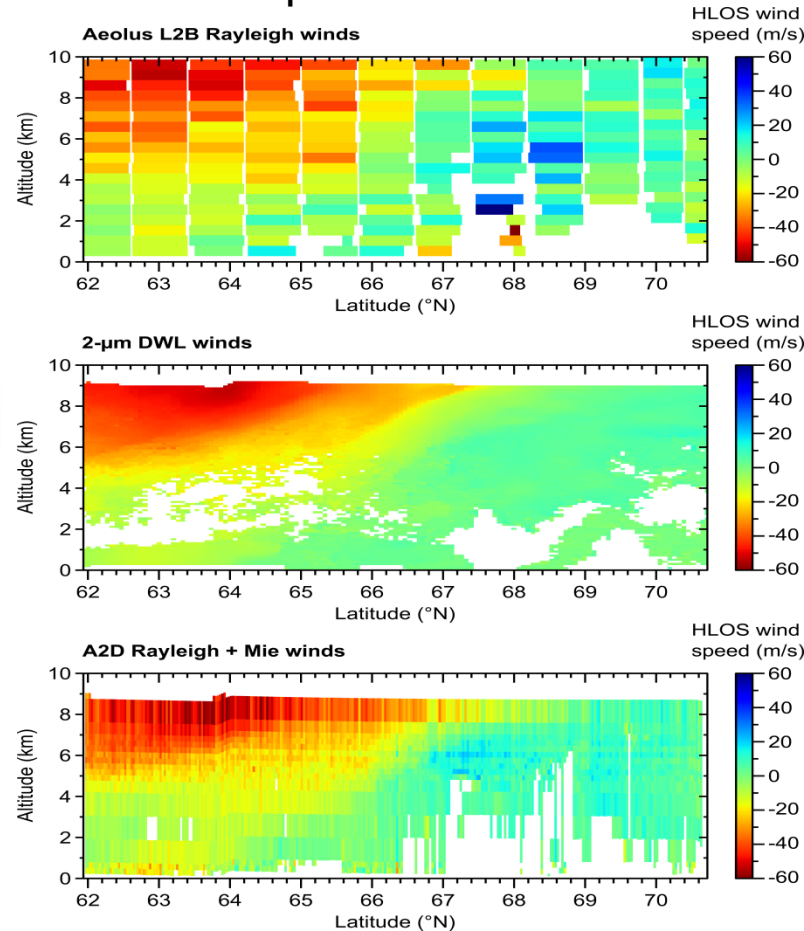
Koninklijk Nederlands
Meteorologisch Instituut
Ministerie van Infrastructuur en Milieu



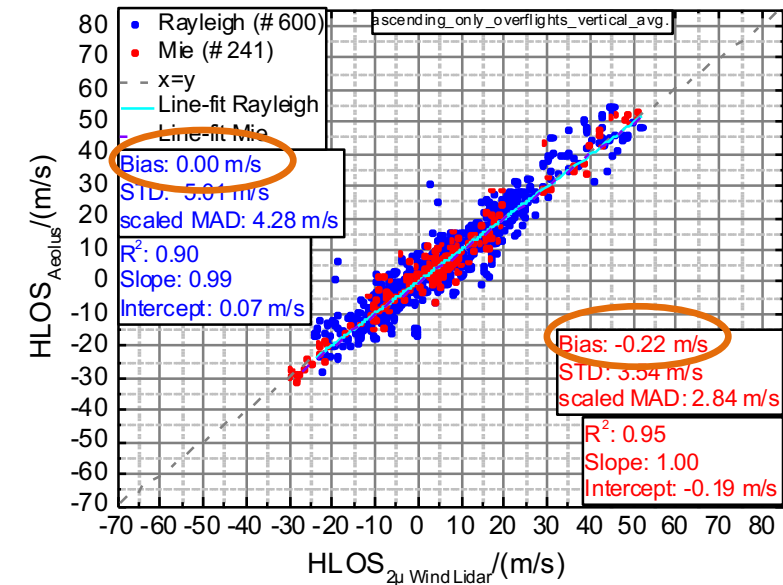
3 airborne validation campaigns with DLR Falcon



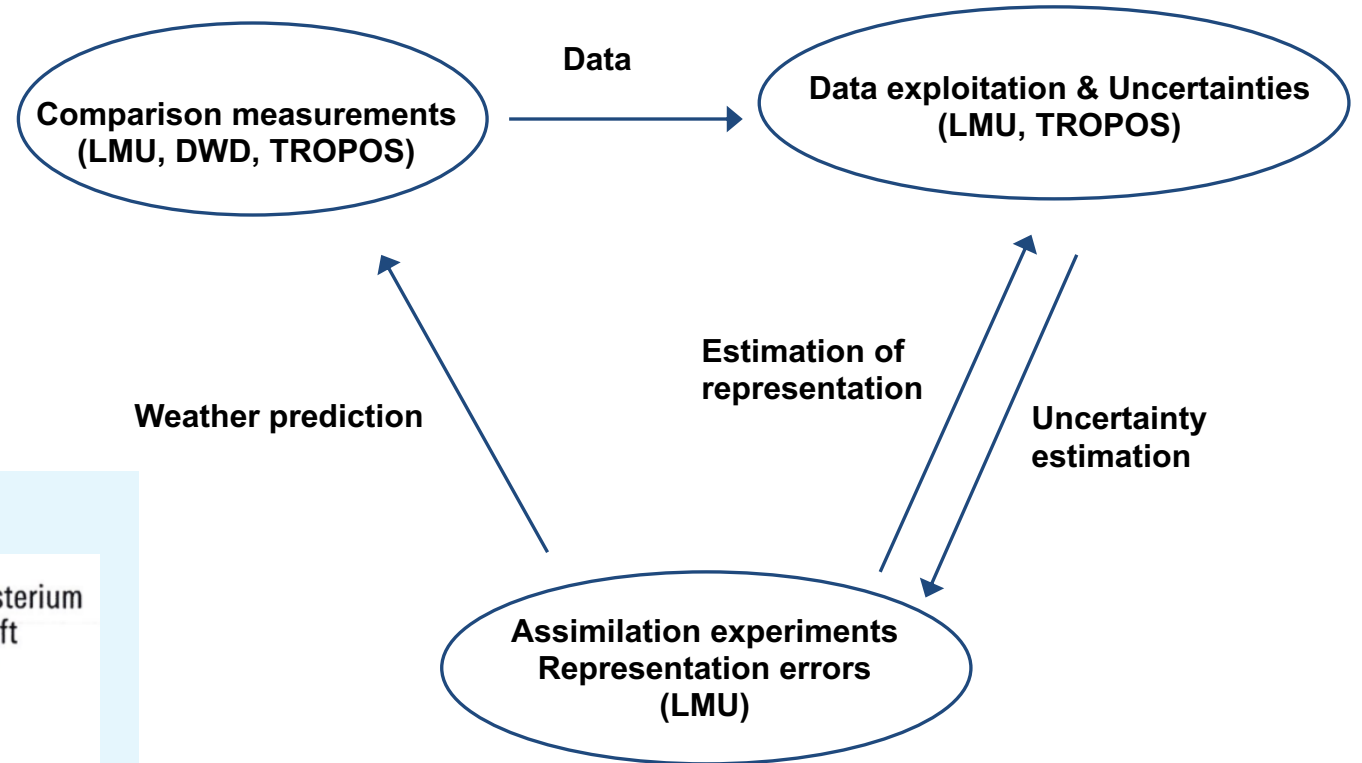
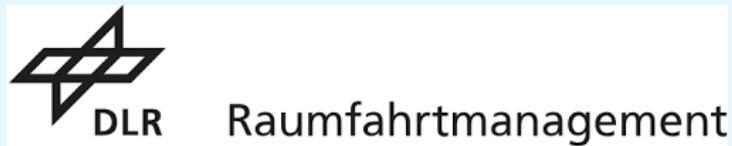
Aeolus, 2- μ m wind lidar and ALADIN airborne demonstrator from 16 September 2019



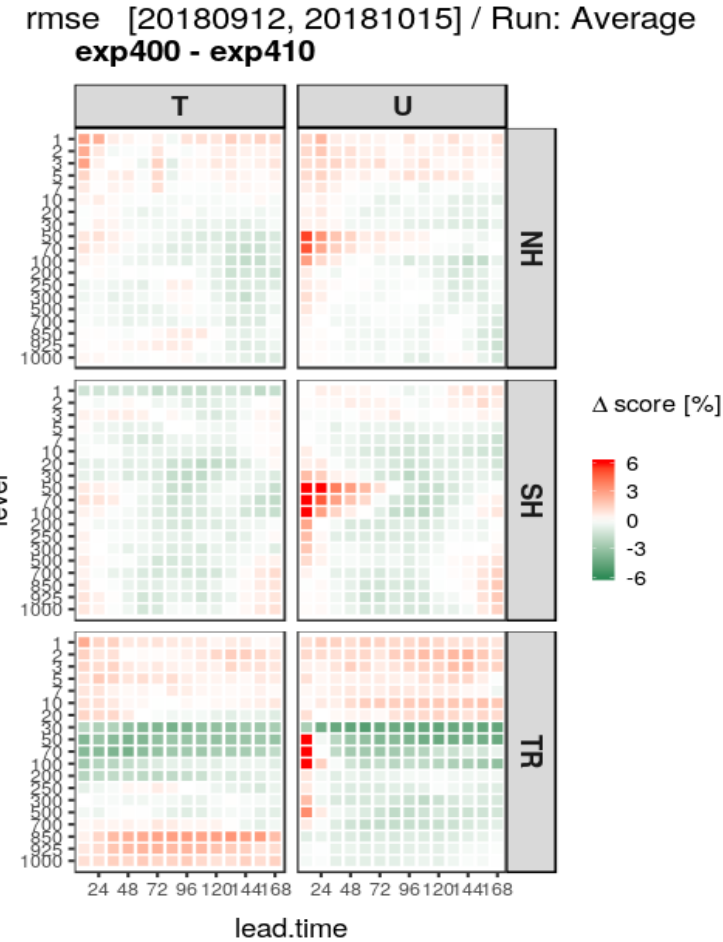
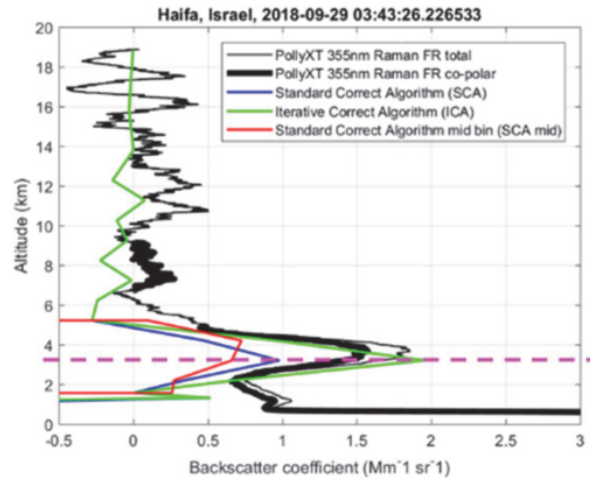
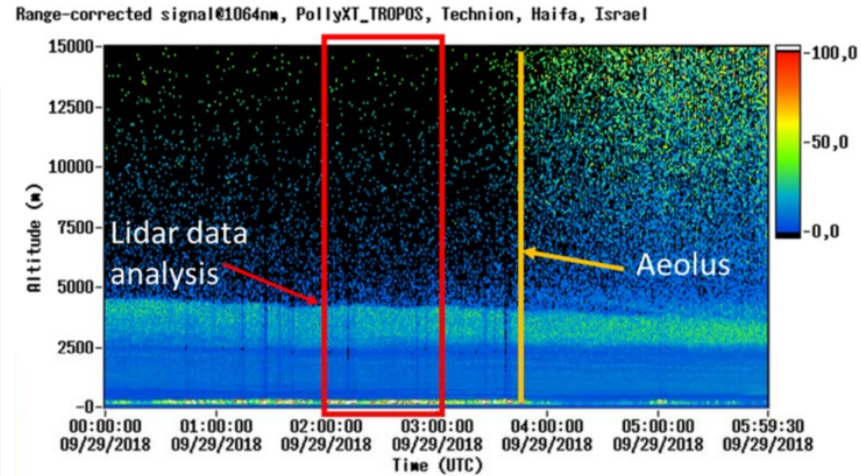
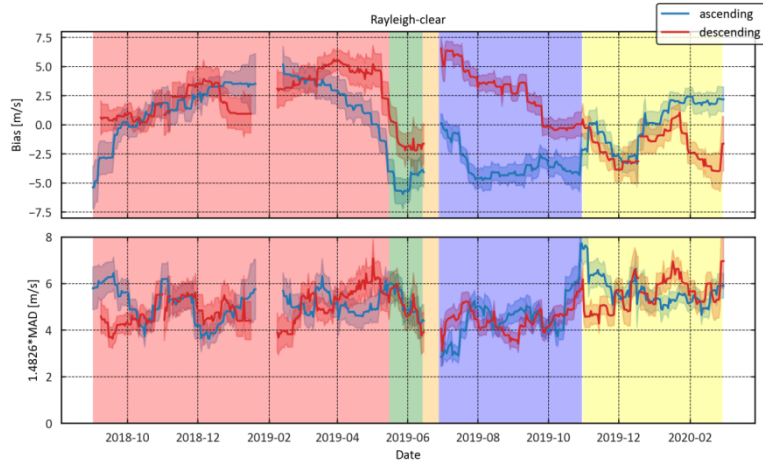
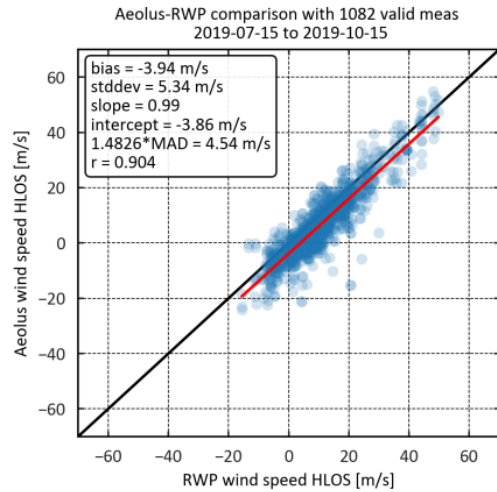
Comparison of Aeolus vs. 2- μ m wind lidar on DLR Falcon aircraft



EVAA – Experimental Validation and Assimilation of Aeolus observations



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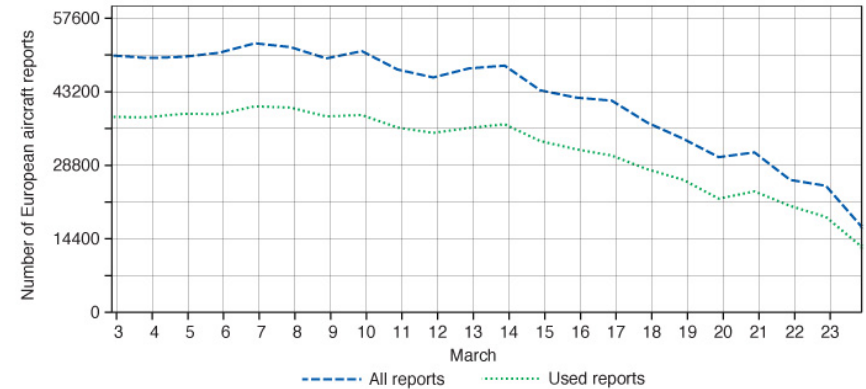
COVID-19 impact on weather forecasts

ECMWF

Drop in aircraft observations could have impact on weather forecasts

24 March 2020

Share



Number of aircraft reports over Europe received and used at ECMWF per day. Some reports are not used because they are near-duplicates, and a small proportion are rejected as poor quality. By 23 March there was a reduction of 65% in reports received compared to 3 March. Globally the reduction was about 42%.

Mitigating the impact

Other types of observations are likely to be less affected by the COVID-19 disruption than aircraft reports, and there may be some additional radiosonde launches to try to mitigate the lack of aircraft data.

Satellite data provide a lot of information on temperature and humidity fields, but less on wind fields. In January 2020, ECMWF started using wind information from the Aeolus satellite.

"The Aeolus results demonstrate that there is still plenty of room to improve wind initial conditions," says Lars Isaksen, the Head of the Actively Sensed Observations Group at ECMWF. "The Aeolus data will partly fill the gap due to fewer aircraft reports."

<https://www.ecmwf.int/en/about/media-centre/news/2020/drop-aircraft-observations-could-have-impact-weather-forecasts>

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Volker Lehmann (DWD)

