Deutscher Wetterdienst
Host of GRUAN Lead Centre

Wolfgang Kusch

Deutscher Wetterdienst

Bundesministerium
für Verkehr, Bau
und Stadtentwicklung

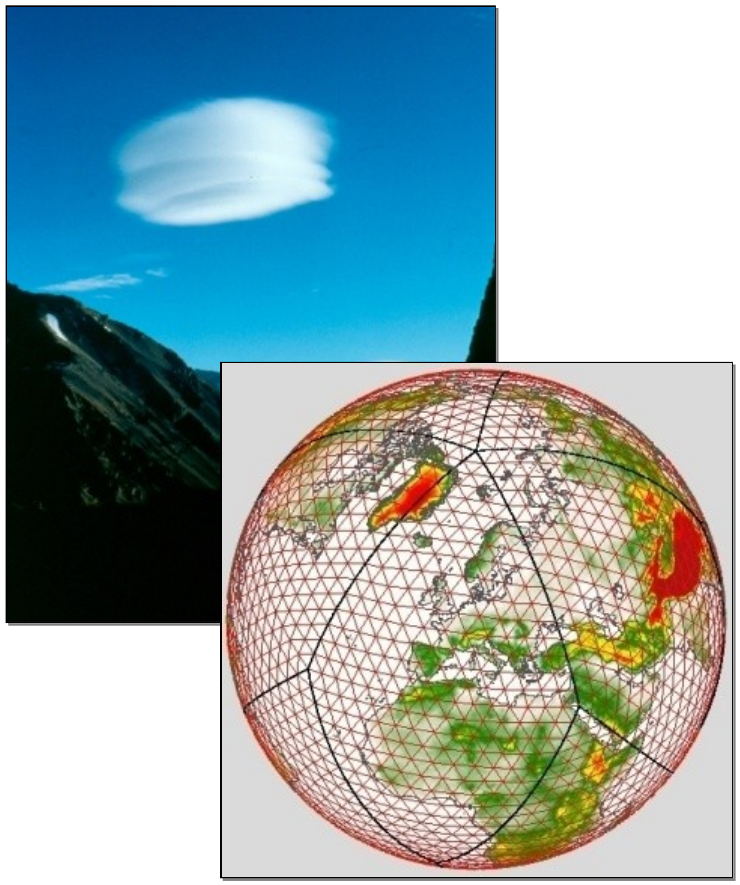
Federal Minister
Tiefensee

The Deutscher Wetterdienst is a scientific-technical authority under the responsibility of the Federal Ministry of Transport, Building and Urban Affairs (BMVBS).

Legal Basis: law on the DWD 11 November 1952, re-enacted 10 September 1998,

amendment by Article 5 of the Act to improve preventive Flood Control in 2005

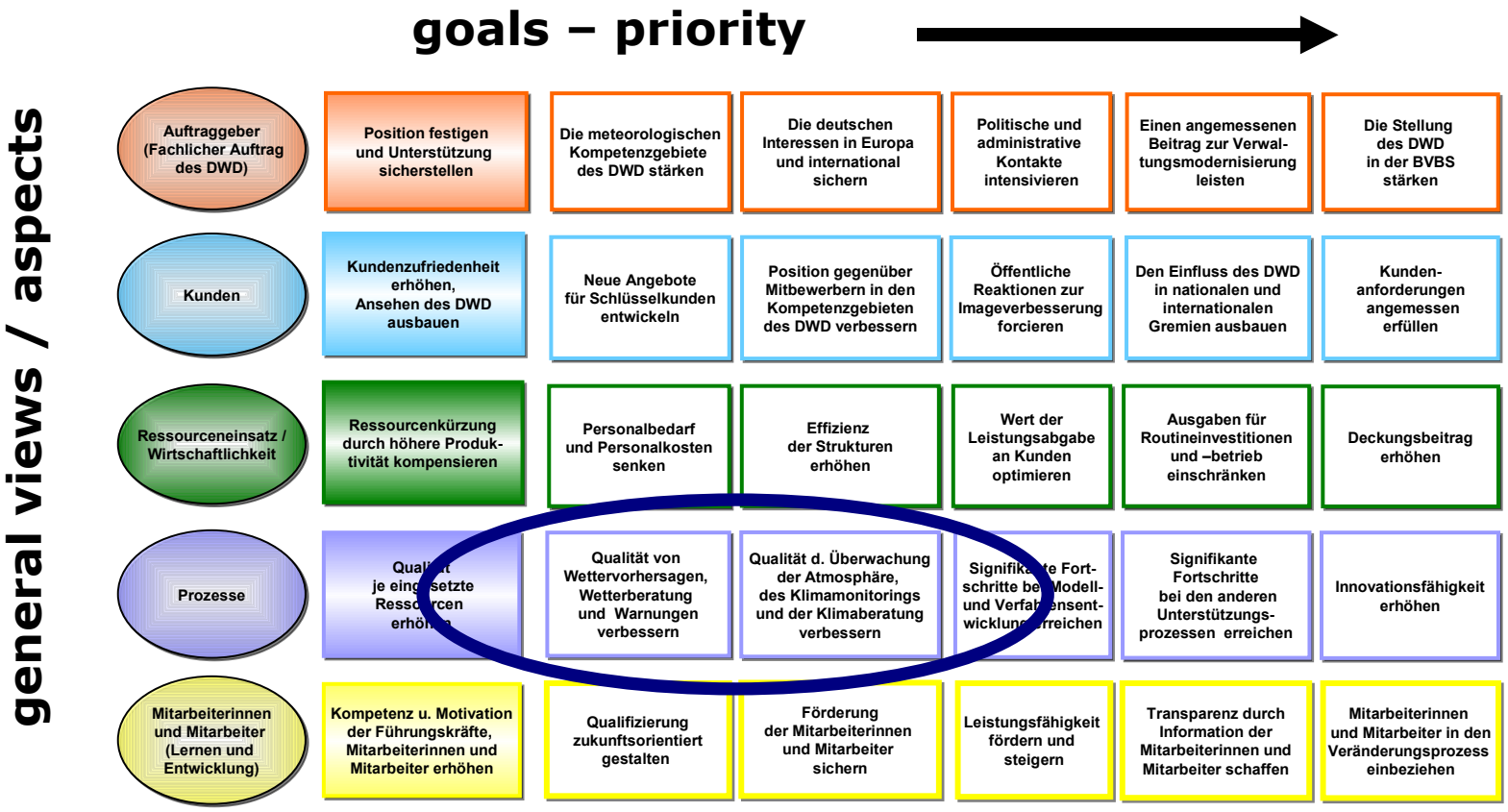
Aims and Potentials of the DWD



- Reference for Meteorology in Germany
- National Responsibility for Climate Monitoring
- Scientific partner for universities and institutes
- Capable partner in international co-operation

strategic goals until 2015

➔ applying balance score cards and strategic cards



09/2006

Die beiden jeweils links stehenden Ziele sind „Muss-Ziele“

DWD strategy (2007-2015) approved by BM Tiefensee in November 2007

➔ improved quality of weather prediction

- single-voice principle (model dev.➔ forecast ➔ warning)
- development / improvement of numerical weather prediction models for short-range forecast
- operation of a meteorological network
- development / use of appropriate warning systems
- …

➔ improved longterm atmospheric observation - climate monitoring

- monitoring at representative climate stations (*only at surface*)
- process oriented climate monitoring – physical processes / Lindenberg; chemical processes / Hohenpeißenberg (*at surface and in the atmosphere*)
- monitoring using meteoroligical satellites (*mostly TOA information*)
- …

----- processes -----

➔ in (near) future strengthening of research and development

climate monitoring at DWD

***Dept. climate monitoring*:**	national climate data centre (NKDZ) satellite application facility on climate monitoring (CM-SAF) GCC – marine climat. database
***Dept. hydrometeorology*:**	GPCC GSN-coordination
Obs. Hohenpeißenberg:	GCOS / GAW Dobson calibration center
Obs. Lindenberg:	GCOS / GSN, GUAN, GRUAN, BSRN WCRP / CEOP, BALTEX, GVaP, GABLS RA VI radiation calibration centre

Meteorological Observatory Lindenberg
Richard Aßmann Observatory (MOL-RAO)

- **radiation** (Lindenberg since 1905; Postdam since 1893)
- **aerology** (since 1905)
- **ground based remote sensing** (since 1992)
- **energyflux / ABL measurements** (since 1995)

Measurements 1905-1932 at Aeronautical Observatory Lindenberg

Am Aeronautischen Observatorium Lindenberg (1914—1931)
mit Fesselaufstiegen erreichte Höhen in m

Jahr	mit Drachen			mit Fesselballonen		
	Anzahl	max. Höhe	mittl. tägl. Höhe	Anzahl	max. Höhe	mittl. tägl. Höhe
1914	778	6200	3340	454	8000	3668
1915	701	5610	3517	439	5500	[illegible]
1916	755	7500	3998	400	9200**	4332
1917	720	8240	4025	360	[illegible]	4160
1918	703	[illegible]	3661	312	3990	2869
1919	601	9750*	3811	182	5334	2484
1920	697	6700	3306	91	3950	2427
1921	711	5710	2968	30	2560	1867
1922	697	5860	2880	—	—	—
1923	630	4720	2560	55	4080	1677
1924	410	4660	2800	203	3260	2089
1925	456	4470	2488	166	4270	2462
1926	431	5403	2551	203	4788	2384
1927	461	4708	2535	222	4219	2182
1928	508	4260	2321	320	4070	2309
1929	703	5705	2308	220	4175	2567
1930	640	5865	2553	233	4421	2594
1931	609	5772	3030	142	4131	2385
1914–1931	11211			4032		

World Record

kites & balloons

*) 1. 8. 1919 9750 m Abreißer

**) 26. 9. 1916 9200 m!

!! ~ 850 launches per year / 2.3 per day !!

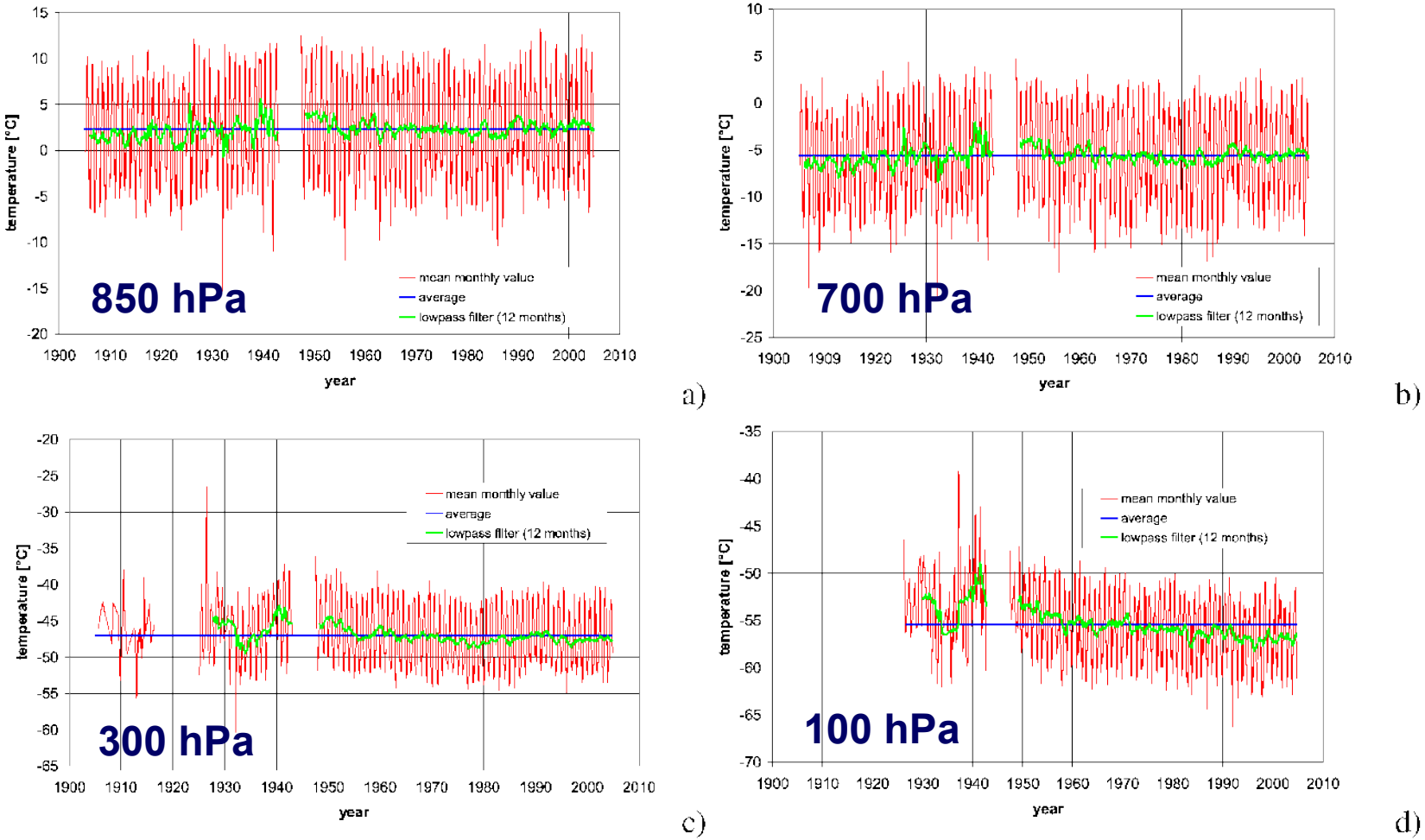
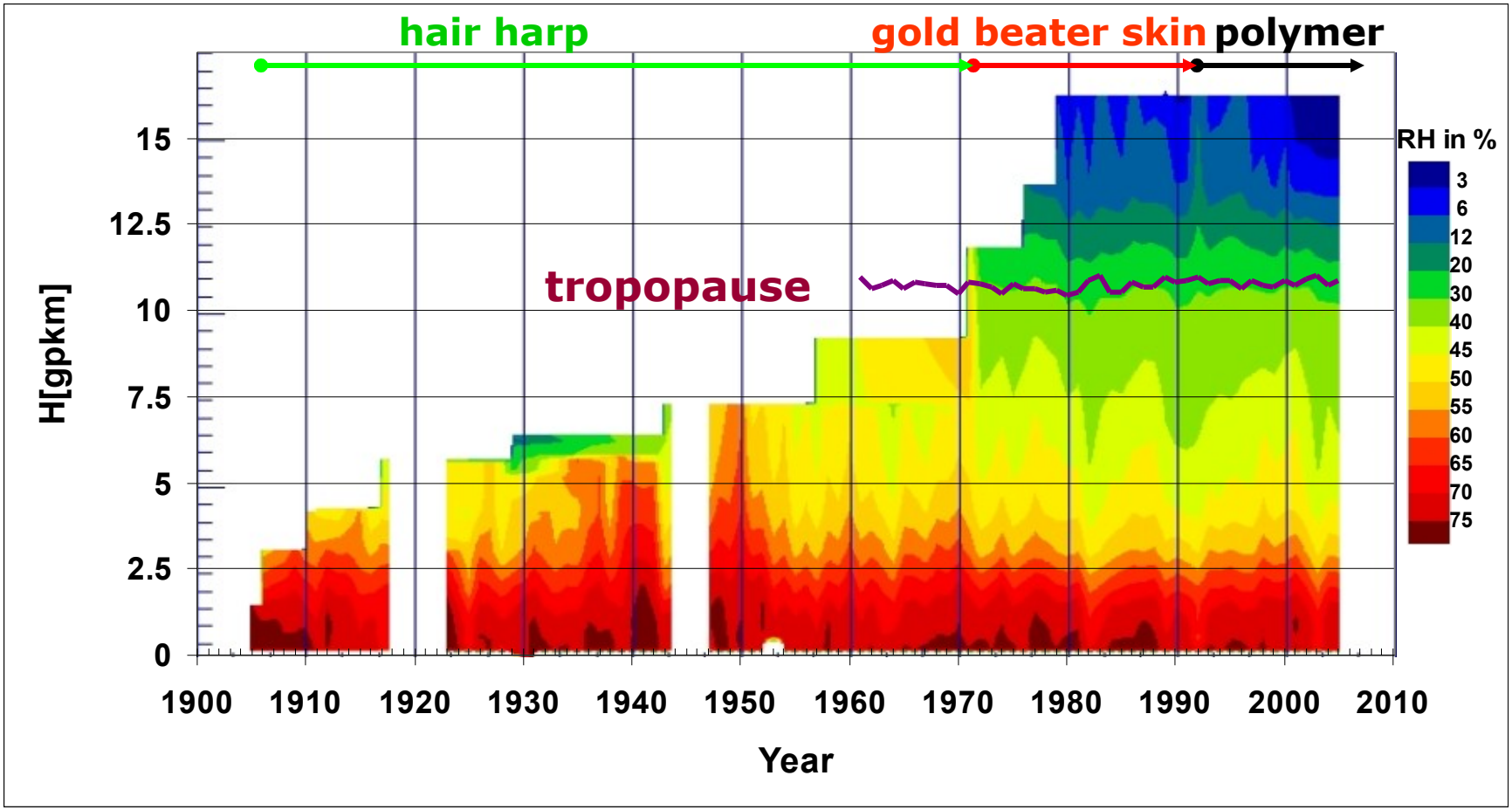


Figure 7: Monthly mean temperature at Lindenberg Observatory 1905–2005. Only months with at least 3 individual ascents available per month were entered. a) Temperature at 850 hPa, b) Temperature at 700 hPa, c) Temperature at 300 hPa, d) Temperature at 100 hPa.

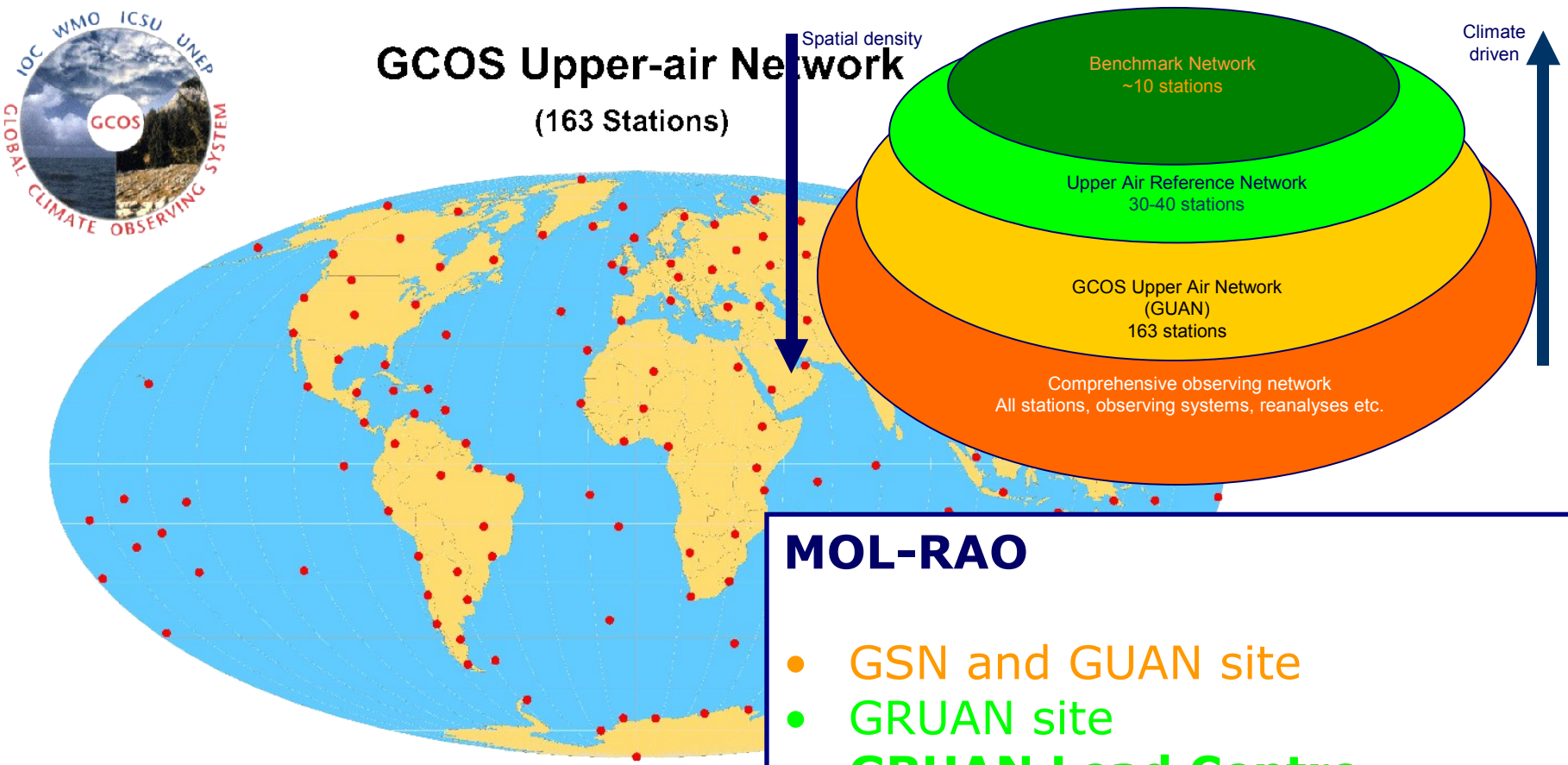
Humidity Profile Lindenberg / corrected:



MOL-RAO highlights (2008)

- 103 years of vertical profiling (kites/balloons, radiosondes, remote sensing)
- **since 1919**: world record holder reaching an altitude of 9750 m with a meteorological kite
- 103 years of radiation measurements (115 years in Potsdam)
- 61 years of radiosounding (daily / in total more than 94000 sondes)
- 34 years of ozone sounding (weekly: about 2000 sondes in total)
- 22 years of aerosol optical depth (continuous)
- 16 years of tropospheric windprofiling (continuous)
- 13 years of ABL measurements (continuous)
- 11 years of microwave profiling (continuous)
- 6 years of cloud radar use (continuous)

Deutscher Wetterdienst



GSN: 1003 stations / 128 countries

MOL-RAO

- GSN and GUAN site
- GRUAN site
- **GRUAN Lead Centre (selected April 2007)**
- *GUAN Benchmark* site ?

Deutscher Wetterdienst

GRUAN Lead Centre (start at 1. February 2008)

Holger Vömel
head
coordination of GRUAN network activities

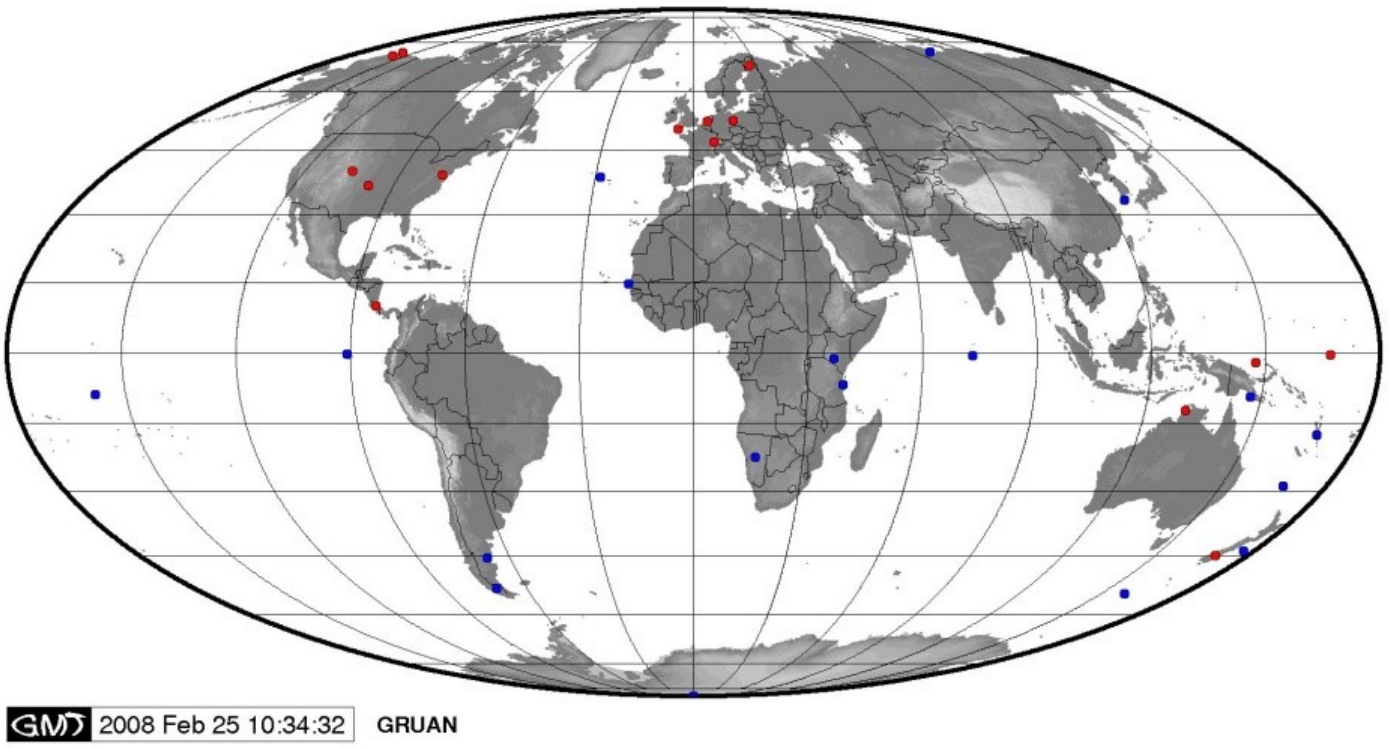
Franz Immler
scientist
training, education and research

Michael Sommer
scientist
data management incl. re-analysis

Marion Fiedler
technician / secretary

Horst Dier
scientist
GRUAN site manager

Deutscher Wetterdienst



- **initial GRUAN sites**
- **potential GRUAN sites**

thank you for your attention!