

Combining ground-based remote sensing and balloon-borne profile measurements in Lindenberg (Richard-Aßmann-Observatory) for IASI-Validation: Methods, availability, and accuracy

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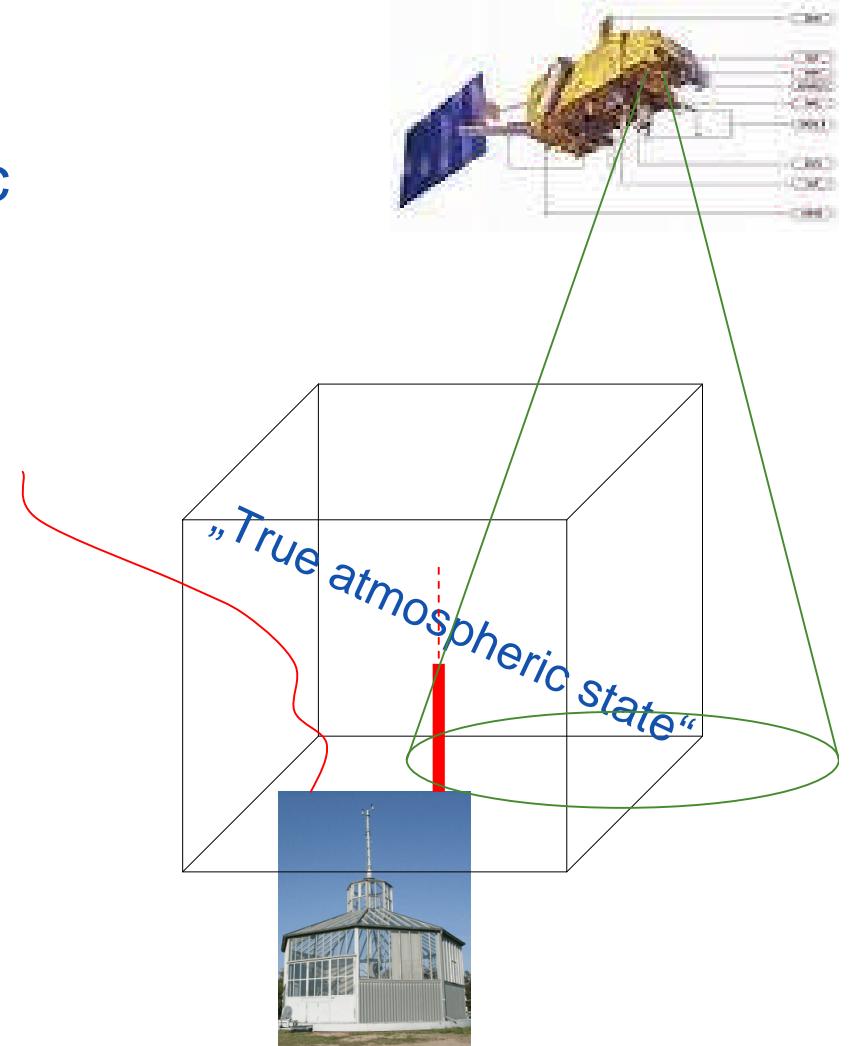
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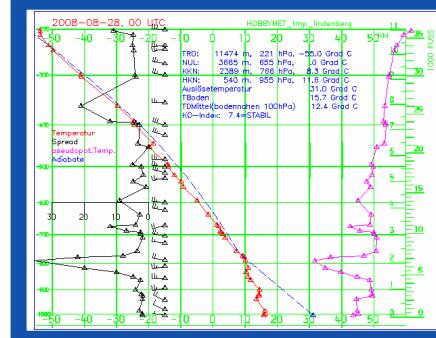
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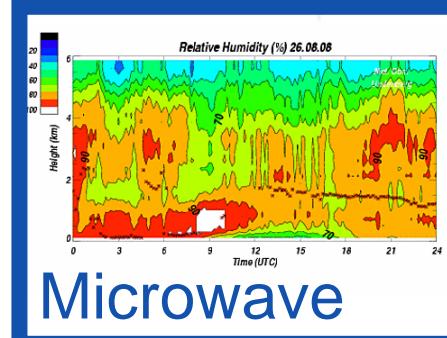


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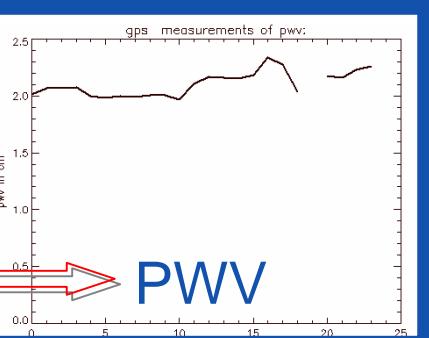
Ozone
sounding
(ECC)



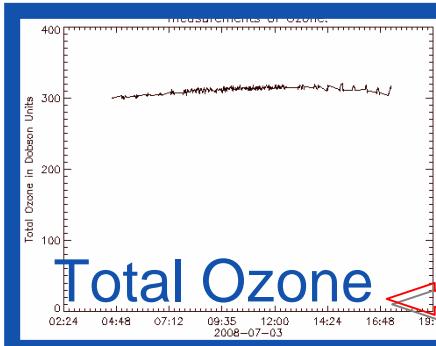
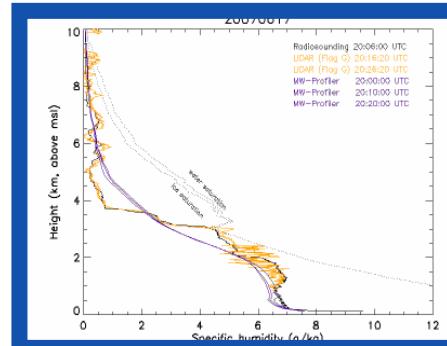
Microwave



GPS PWV



Lidar



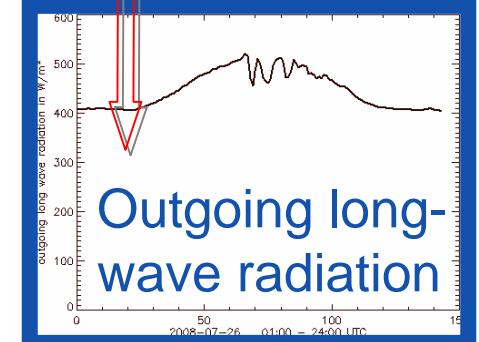
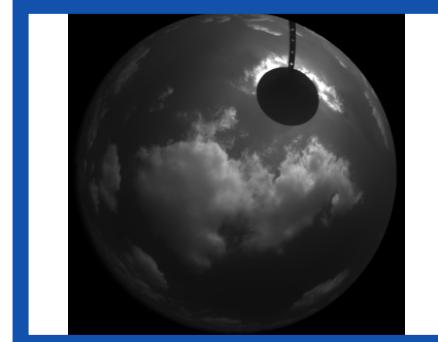
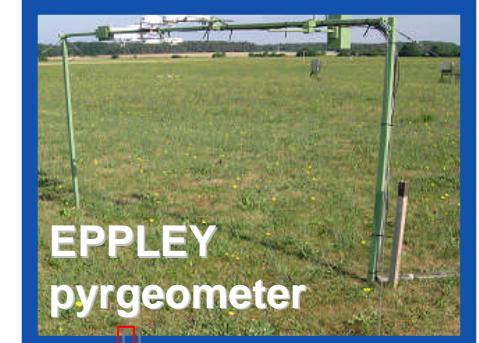
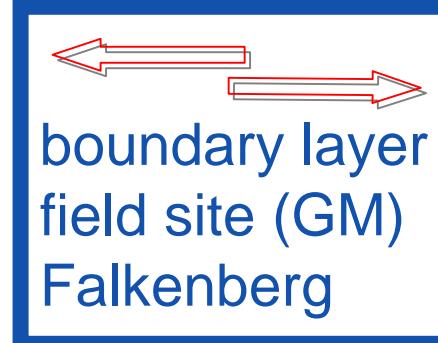
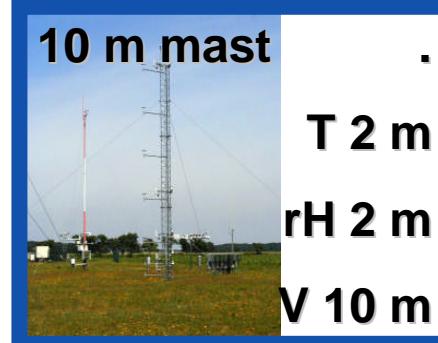
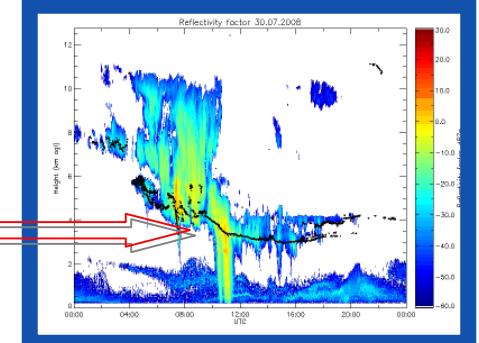
Total Ozone



Brewer

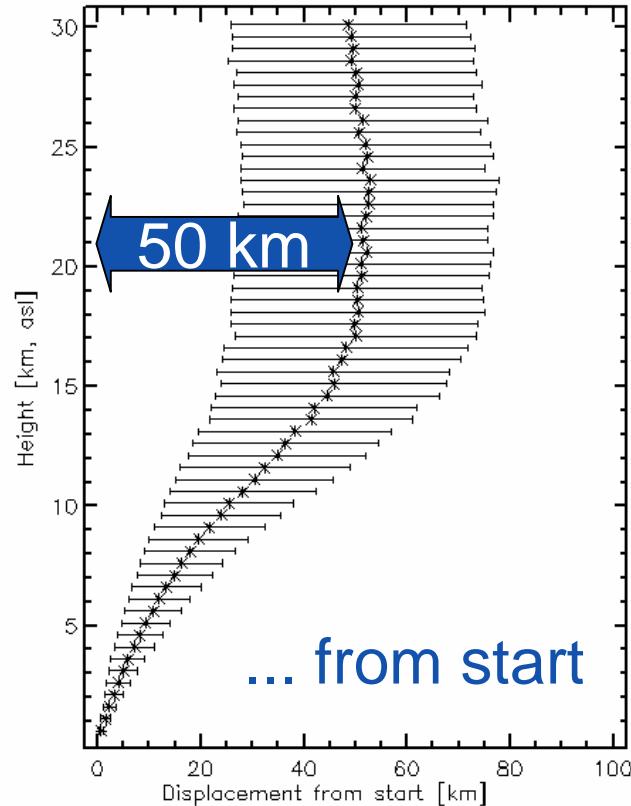
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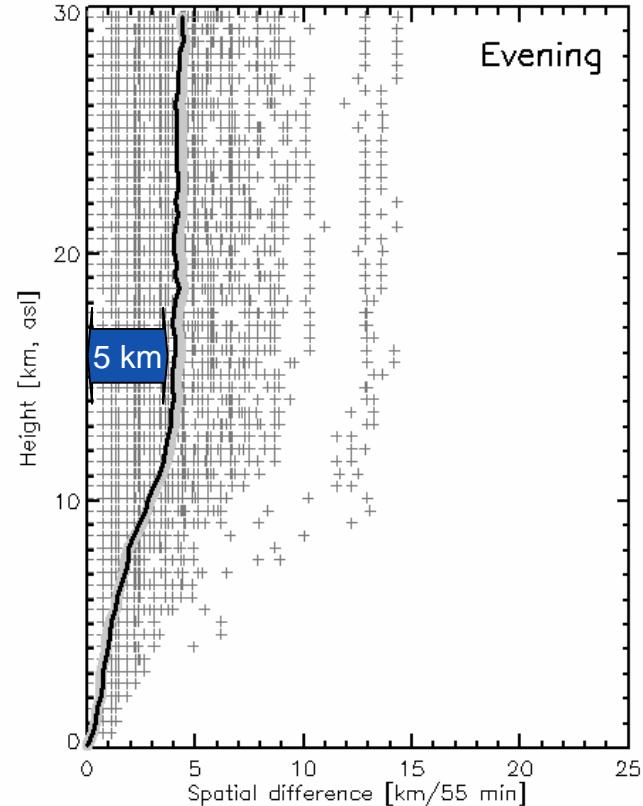


→ Accuracy of balloon-borne measurements

(1) Displacement of Radiosondes ...



Validation Campaign
JJA 2007
2 ascents per overpass



⇒ Variability of temperature (causes)

- Turbulence

- Advection

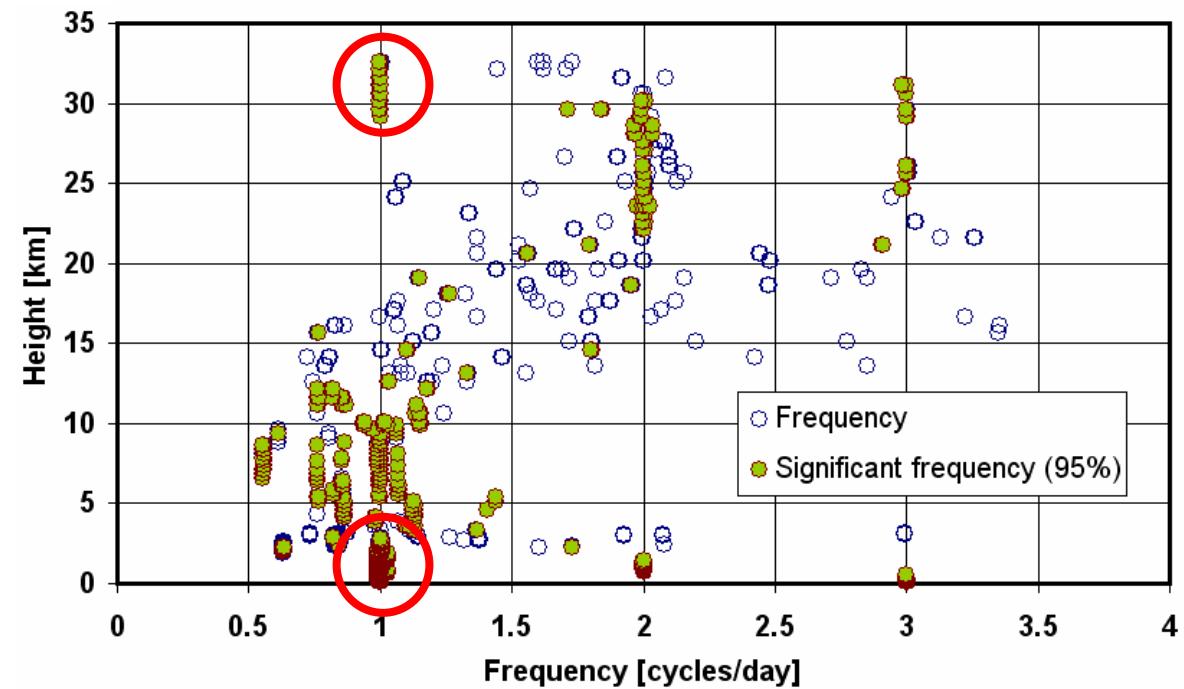
- Radiative heating / cooling

- 8 unevenly sampled radiosoundings per day

- spectrum investigation with Lomb-Scargle-Periodogram

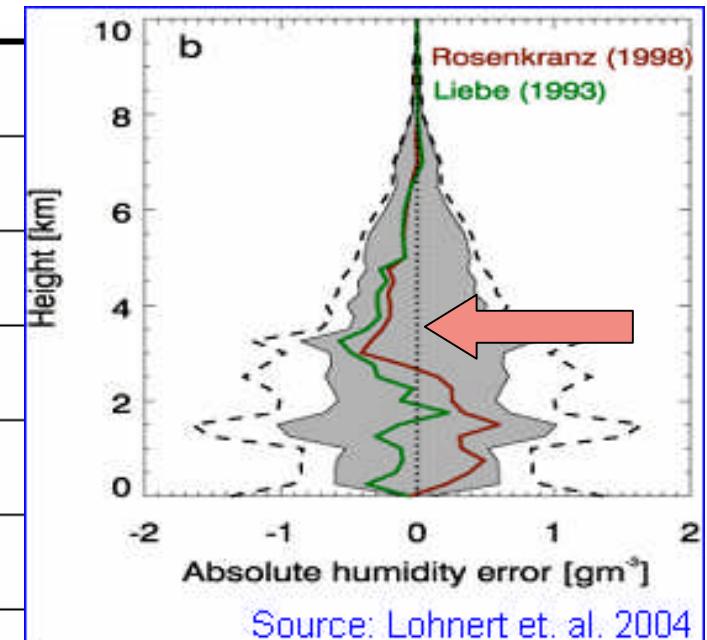
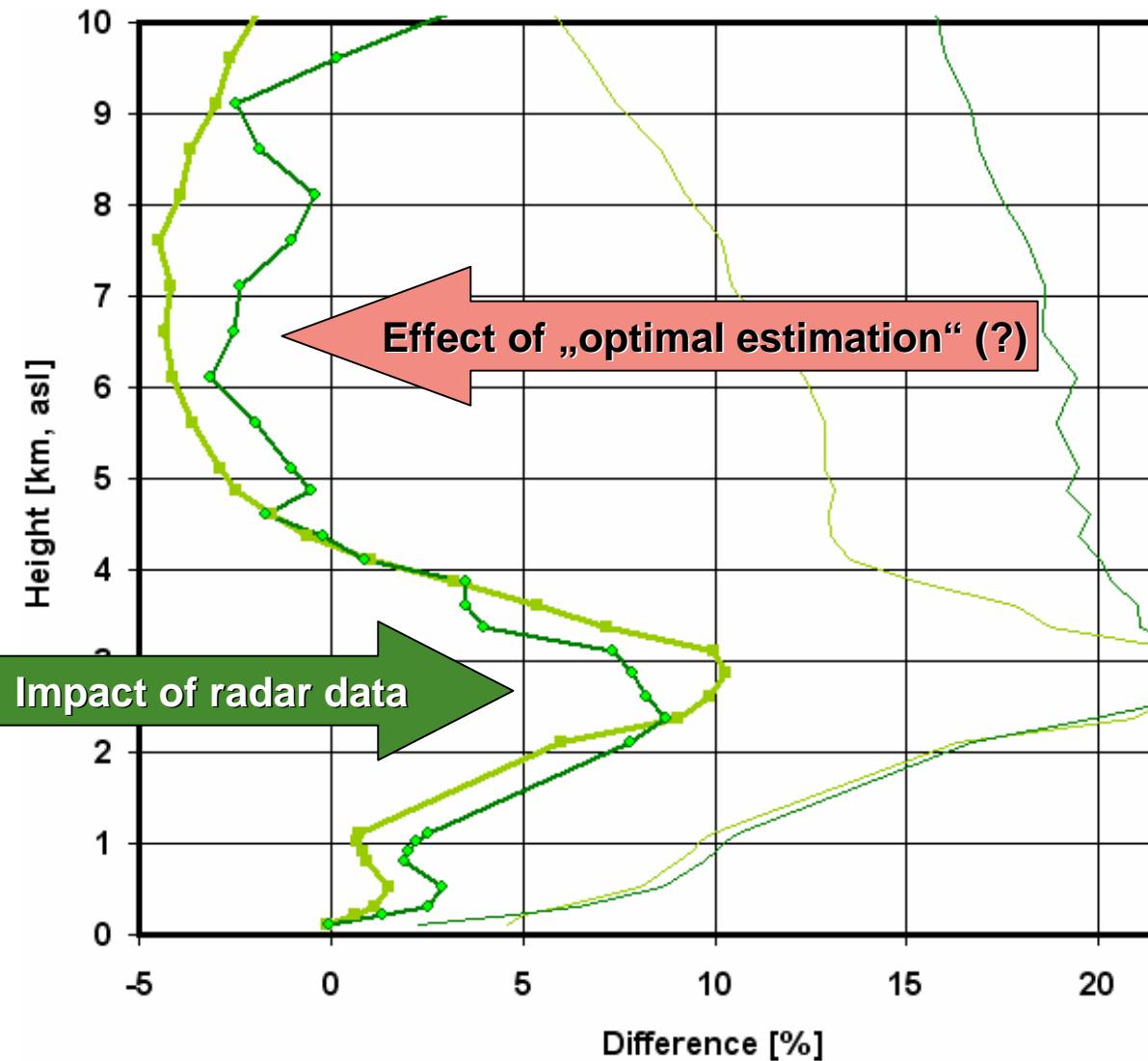
- Gravity waves

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Conclusions

- ⇒ There are comprehensive datasets for satellite validation since June 2007
- ⇒ Variable T- and highly variable rH-fields:
 - ⇒ additional measurements (aircrafts, drop-sondes, more remote sensing systems)
 - + - ⇒ long-term measurements (permanent evaluation)
- ⇒ Further development of the Integrated Profiling Technique?
- ⇒ Other techniques / methods to estimate best „Lindenberg Column“ in space and time?