Aerosol absorption profiling is crucial for radiative transfer calculations and climate modelling. Here, we utilize the synergy of lidar with sun-photometer measurements to derive the absorption coefficient profiles during the ACTRIS-2 campaigns held in Germany, Greece and Cyprus. The remote sensing techniques are compared with in situ measurements in order to harmonize and validate the different methodologies and reduce the absorption profiling uncertainties.

### REMOTE SENSING / IN SITU ABSORPTION FOR ACTRIS-2 JRA1 CAMPAIGNS

**Melpitz May-June 2016**

- Remote sensing retrieval (GARRLiC, lidar stand-alone (grey))
- Airborne in situ (CAPS-PMssa (grey), STAP, DWP)
- Surface in situ

**Athens Dec-Feb 2016**

**Cyprus May-June 2016**

### CONCLUSIONS

- The GARRLiC and airborne in situ measurements were not statistically different in Melpitz, where absorption and extinction coefficients were low.
- The lidar stand-alone and the GARRLiC retrievals agree for a case study in Athens.
- The comparison in Cyprus shows a constant discrepancy between GARRLiC and in situ, which is currently under investigation.

**Difficulties due:**

- Low AODs
- Insufficient lidar information in the overlap region
- Possible uncertainties in the airborne in situ sampling

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