

Minutes of the ACTRIS-2 JRA2 2nd WP Webex meeting

7th Decemeber, 2016 at 10-12 (GMT +1)

Present:

Leena Järvi, UHEL
Joonas Enroth, UHEL
Lucas Alados Arboledas, UGR
Holger Baars, TROPOS
Eiko Nemitz, NERC
Adela Holubova, CHMI
Vladimir Zdimal, CHMI
Ronny Engelmann, TROPOS
Arnoud Apituley, KNMI
Ewan O'Connor, FMI

Meeting opened at 10:11 am (GMT+1) by Leena Järvi.

Agenda:

1. Update on the three tasks in WP12

TASK 12.1 – In situ measurements

Status of current measurements:

Hyytiälä: New particle flux measurements have been currently running since April 2016. Data analysis in progress, but looks ok, and measurements are continuing.

Scottish moorlands: Some good data. The old CPC broke down, and new Brechtel CPC should be arriving soon (1 - 2 weeks). Measurements will continue after this.

Cabauw: In September measurements started as a part of CINDI-2. There is a sonic anemometer at 60 m with wind LIDAR measuring extinction.

Kosetice: Anemometer arrived in mid-October, and measurements started on the last week of October. The setup is an sonic anemometer along with TSI3775. Experienced some problems, now waiting to have a bit more data. Some issues with anemometer data recording.

Granada: 10 day olive orchid campaign done, now processing data. After that, the setup was moved to the city (3776 + anemometer, 56 m tower). Remote sensing data also from the olive orchid. Next attempt is to combine remote sensing data with the in-situ measurements, which would be supporting Task 12.3.

TASK 2 – Remote sensing

During BAECC campaign there was a normal and aerosol LIDAR in parallel, data analysis has begun.

Engelmann: Data exists from Polly and some combined measurements. No info on the stage of data evaluation.

O'Connor: Doppler LIDAR still needs work. Undergraduate student has made some interesting data analysis and some of the results were also presented in WP2 meeting in Barcelona.

TASK 3 – Comparing in situ tower and remote sensing.

Leena/Ewan: Based on preliminary work the wind Doppler and tower based look similar.

2. Intercomparison campaign to be held in Hyytiälä in spring 2017

- Instruments planned to be included (TSI3010, TSI3025/TSI3776, TSI3772, home-made UHEL CPC, Brechtel, OPC)
- Is there need to send instruments from the different sites involved in ACTRIS-2
- Status of lidars

We have possibility to have from UHEL TSI 3010, TSI 3776 (basically same as 3025), TSI3772 and a home-made CPC at UHEL.

Informal talks with Brechtel suggest they might be interested in sending a unit for the workshop. NERC has also a Brechtel CPC coming, which might come into question if we can't get one directly from Brechtel or its suppliers (Sweden or UK). Joonas will check the availability of the Brechtel instruments, and we can decide after that.

No need to send your instruments for the workshop if we already have a similar model at our use, if not, it would be good to have all possible models present. You can, however, send yours if you want to have comparison results for your unit. CHMI showed interest on sending their 3775 for the comparison campaign.

The CPC's should take part in ACTRIS CPC-intercomparison, as a calibration at Tropos will tell how well the instruments are working. The upcoming campaign will study more the properties of the CPC's rather than their operational performance.

Optical particle counters would be good to be included. They might be more useful for larger particles, and hence give better comparison point for Doppler LIDARS, and hence support nicely the comparison of in situ and remote sensing data (TASK 3).

UHEL will check if they have suitable OPCs present that could be used in the campaign. If none is available, then CHMI or Miikka Dal Maso (Tampere Technical University) might provide an OPC. Leena will first check the status of UHEL OPC, then contact other groups if needed. Eiko could provide data collection and analysis software for some OPCs. Preferentially at least two OPC's could be used, one looking at sub-1 micron sizes and the other one looking at larger particles.

These can also be asked from different groups measuring fluxes using OPC, e.g. Douglas Nilsson from Stockholm University or Otto Klemm from Germany. If the instruments come from non-ACTRIS groups, funding through TNA can be applied, but no possibility for ACTRIS members. The challenge here is that UHEL can have limited amount of instruments and might be difficult to fit several OPC's.

Code comparison

Analysis of the same data set, and the resulting differences due to different data analysis was previously planned to taken place in fall 2016. However, this was postponed to take place after the intercomparison campaign. Despite these changes it was now suggested that we should pick a week-long data set from Hyytiälä for instance, which would be analyzed by all participants with their EC calculation codes, and the results could be talked over and studied during the workshop in May. Possibility for a later comparison based on the data gathered during the intercomparison campaign.

Ewan: During the Hyytiälä intercomparison campaign there should be a Halo Doppler LiDAR available, but no multiwavelength instrument.

3. Measurement campaign in Kosetice in summer 2017

Idea: simultaneous tower and remote sensing conducted. Besides particle counters both Raman, and Doppler LiDARs present. OPC would also be beneficial. If OPC needed, TNA could be used for getting one from external groups and Eiko could participate to data analysis. Doppler LiDAR should be available from Ewan for Kosetice.

Doppler LiDAR requirements (300 W power), Raman LiDAR (6 – 10 kW). Supplied with airplane radar to shut of the laser, might be a good idea to contact local airport. Supplied in a standard 20 ft container.

Dates for Kosetice campaign:

Raman available from 15th of August, which would be fine also for Ewan's Doppler.

The campaign length should be ~ 4 weeks. Humidity should be low in September in Kosetice.

EAC will be also in September, to keep in mind, as this might cut the available work force.

4. Planned in-situ aerosol particle measurement workshop in early May

First invitation has been sent to ACTRIS mailing list. From the current version is missing the information regarding possible funding from TNA. Again, ACTRIS people can't get the TNA, but it is a possibility for outside groups. Leena will soon send a new version of the invitation, which should be circulated to potentially interested groups.

iLEAPS is aiming to work on standardization of non-CO₂ flux measurements. Our workshop might get iLEAPS badge and make it more global. Should be added to the iLEAPS website also.

Ewan: Calibration of the sonic anemometers should be discussed and studied at some point. All anemometers do not agree, and it would be good to know how much uncertainty there are in their data. During workshop also the codes for recording anemometer data could be looked at.

Tall tower in Hyytiälä records wind data from five different heights. The intercomparison campaign will not, however, be using the tall tower, but the new tower, which has the new particle flux installation done in April.

5. Granada meeting and mid-term review

Tuesday 21st of January, Leena will have a presentation about the progress in the work package. Please send info on interesting progress you have made or results gotten, that would be suitable for Leena's presentation.

These would be needed by mid-January, Leena will send a reminder email with a deadline later.

Composition flux:

In term of the work package, composition flux measurements need to be performed at three different sites.

In Hyytiälä there was a campaign measuring VOC fluxes with the PTR3-TOF in spring 2016.

There should be composition fluxes from Eikos site.

Let's find out if there could be mass spectrometers involved in the measurements during the intercomparison campaign in Hyytiälä. (CI-API-TOF, PTR3, AMS)? Leena will contact Tuukka, and inform what the status on UHEL side is.

Cabauw might have some REA data with composition measurements, but this needs to be confirmed.

Clear plans for doing the composition based fluxes are needed. Hyytiälä intercomparison campaign might be one option. Potentially also Kosticke summer 2017 campaign. Problem is that currently there are no sampling lines near the sonic anemometers. C-TOF-AMS would be, however, available from the time of the campaign from Holubova's group.

Ending words, and closure of meeting.

Meeting adjourned at 11:12 am (GMT+1).