Deliverable D8.1: Intermediate Report on Access to the ECAC infrastructure

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The European Centre for Aerosol Calibration, ECAC, consists of 3 installations, the World Calibration Centre for Aerosol Physics (WCCAP), the Aerosol Chemical Speciation Monitor Calibration Centre (ACMCC), and the European Reference Laboratory for Air Pollution (ERLAP). The ECAC represents a facility for calibrating and testing new instrumentations within the European Aerosol community and beyond. The main goals of the ECAC are the quality-assurance of physical, optical and chemical in-situ measurements as well as the capacity building to perform high-quality physical, optical and chemical in-situ aerosol characterization. These aims are achieved through the organization of instrument intercomparison and calibration workshops, round-robin tests and on-site intercomparison with reference instruments.

Access to ECAC

ECAC-WCCAP

The first call for access via TNA was launched in July 2015. Since then, 35 calibration- and intercomparison workshops have been carried out, addressing the following instruments: (1) Absorption Photometer, (2) Condensation Particle Counter, (3) Mobility Particle Size Spectrometer, (4) Integrating Nephelometer and (5) Extinction Monitor. There was also the possibility to apply for On-Site Intercomparison.

For TNA, a total of 94 applications were received and reviewed. All proposals met the evaluation criteria. Due to technical problems or other liabilities only 2 applicants could not attend the workshop. 89 out of 92 were EU-members and 3 non-EU-members. 331 out of 605 RWDs have been used until the end of February 2017. 91% of the applications were related to universities and research institutes and 9% were from the private/public sector. Regarding the participants: 33% were female and 67% male.

Beside the TNA, the WCCAP received also national requests for calibration. In total, 153 calibrations have been requested. All applicants attended the workshops. The work done for these calibration and intercomparison workshops equals 501 RWDs. 56% of the applications came from universities or research institutions and 39% from the public sector. SMEs accounted for 4% of the calibration participants. The numbers of instruments related to the individual workshops as well as the used RWDs are listed in Table 1.

Table 1: overview of participated instruments related to the single workshops

Workshop related to…	**No. of instruments**		**No. of RWD**	
	TNA	National	TNA	National
Absorption photometer	24	7	96	28
Condensation Particle Counter	23	83	46	166
Mobility Particle Size Spectrometer	21	29	84	116
Integrating Nephelometer	17	4	68	16
Extinction Monitor	3	/	12	
CCNC	3	1	15	5

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On-Site Intercomparison	1	17	10	170

ECAC-ACMCC

The call for the TNA was launched in October 2015. A total of 18 applications were received and reviewed. All proposals met the evaluation criteria. Due to technical problems or other liabilities 2 applicants could not attend the workshop. The choice to perform two back to back intercomparison workshops was driven to meet the need to accommodate all applicants during a short period, as well as to compare the newer model of the ACSM instrument (the Time of Flight ACSM (ToF-ACSM)) with the traditional model. All participants were EU-members. 75% of the proposals have been from universities and research institutes and 25% from the private/public sector. Related to the participants: 53% of them were female, 47% male. Altogether the ACMCC provided 160 RWD. This was nearly 3 times as much as expected at the beginning of ACTRIS-2.

Similar to the WCCAP, the ACMCC was open to national requests. Within the performed intercomparison, 1 application came from a French national facility from the research sector.

ECAC-ERLAP

The Call for TNA was launched in November 2015. A total of 24 applications were received and evaluated by the reviewer panel. All proposals met the requirements of the scientific criteria. Up to now 2 round-robin-tests were carried out, the third one will be completed by the end on April 2017. All participants were EU-members or related to associated countries. 75% of the proposals came from universities and research institutes and 25% from the private/public sector. Related to the participants: 54% of them were female, 46% male. To date, ERLAP provided an access of 36 RWD out of the 60 RWD planned for the entire duration of the project.

Quality of the data

The quality of data within the ECAC is related to the conditions of the instruments, which took part in the workshops. Therefore we provide here an overview about the percentage of systems, which passed and failed the requirements of the calibration- and intercomparison workshops (for TNA, figure 1, and for national requests, figure 2).

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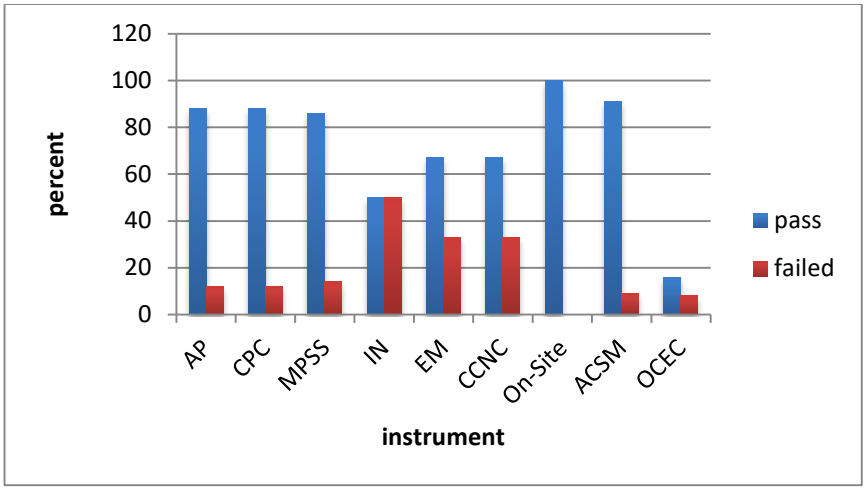

Figure 1: TNA - percentage of instruments which passed/failed the workshops

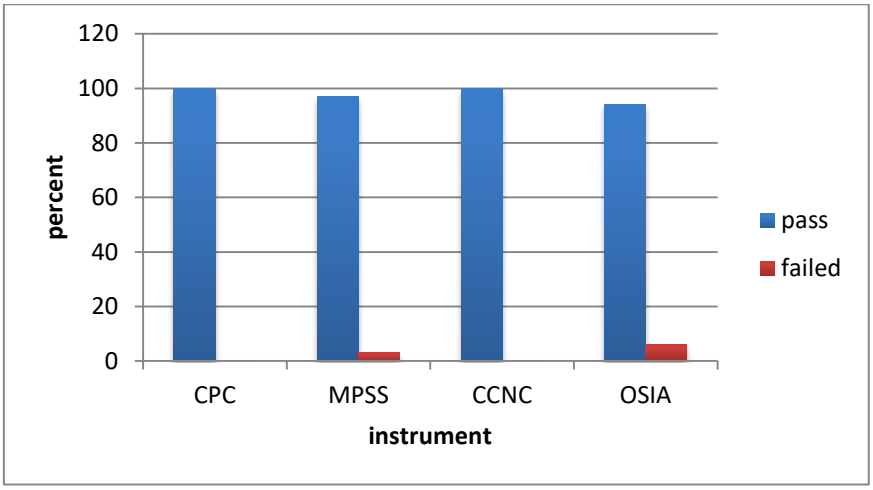

Figure 2: national – percentage of instruments which passed/failed the workshops

For more information, we also show an overview about the conditions of the systems before (pre-status) and after the workshops (final status). A system was in ´good condition´ when it met the requirements of the "normal" working condition. This means e.g. complete hardware, running software, no need to change parts of the instruments, no significant deviations related to the reference instrument etc. The term ´poor conditions` refers e.g. to missing hardware, need to change parts of the instruments, significant deviations related to the reference instruments, etc.

For the WCCAP, the states of the systems before and after the calibration and intercomparison workshops sorted by instrument types are shown in Table 2. Altogether, for TNA, 79% of the instruments at the WCCAP passed the final calibration and intercomparison tests and met the requirements of ACTRIS and GAW. Only 21% did not pass these requirements.
Related to the national facilities, 97% of the applicants passed the final calibration and intercomparison tests and met the requirements of ACTRIS and GAW. Only 3% failed.

Table 2: overview of pre-status and final-status of the systems related to the single instrument types

	Pre-status	Final status

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	Good conditions [%]		Poor conditions [%]		Passed [%]		Failed [%]	
	TNA	National	TNA	National	TNA	National	TNA	national
Absorption Photometer	45		55		88		12	
Condensation Particle Counter	61	100	39	/	88	100	12	/
Mobility Particle Size Spectrometer	57	93	43	7	86	97	14	3
Integrating Nephelometer	33	50	67	50	50	50	50	50
Extinction Monitor	100	/	/	/	67	/	33	/
CCNC	67	100	33	/	67	100	33	/
On-Site Intercomparison	100	82	/	18	100	94	0	6

Related to TNA, 90% of the instruments at ACMCC showed ´good conditions´ within the pre-tests at the beginning of the workshops. Only 10% showed larger deviations. After the calibration and intercomparison 91% of all instruments passed the requirements and only 9% failed.
The instrument of the national applicant was in good condition at the beginning of the workshop. It also passed the requirements.

For the round-robin tests steered by ERLAP, OC&EC analyzers access the calibration facility remotely only, therefore the shape of the instruments can not be assessed. Taking into account the uncertainty of the method, 1/3 of the instruments did not pass the inter-laboratory comparisons successfully in 2016. More details about the participants' performance can be provided if the results obtained for each round robin test are discussed separately.

For more information about the instruments, which already took part in the calibration and intercomparison workshops, have a look at the individual reports of the ECAC. These reports can be found under http://www.actris-ecac.eu/reports.html.

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Installation	Amount of Access	Acronym	Title/Workshop	Reporting Period	Amount of Access	Objectives	Description of work
total ECAC	331	92			331		
WCCAP	331	92				206	
ERLAP	0	0					
ACMCC	0	0					
Installation	Amount of Access	Acronym	Title/Workshop	Reporting Period	Amount of Access	Objectives	Description of work
w	4	AP-2015-1-1	Absorption Photometer - AP-2015-1-1	RP1	4	First of all quality assurance. The calibrates instrument will be used as a reference instrument at the station.	In preparation for the workshop the multi-wavelength absorption reference system, consisting of a three wavelength nephelometer (Aurora4000) and three extinction monitors (CAPS), was calibrated. Furthermore, reference photometers of type MAAP and AE33 were compared to the absorption reference system for ambient air. During the workshop the customer instruments undergo an inspection. If necessary, instrument sensors were calibrated and measurement cells were cleaned. Measurements for comparing customer instruments to the absorption reference system and reference photometers were done before and after inspection. Results

							of the instrument statuses were provided to the PIs/users.
w	4	AP-2015-1-2	Absorption Photometer - AP-2015-1-2	RP1	4	The calibrated instrument will be needed to allow intercomparisons at the belgian site.	In preparation for the workshop the multi-wavelength absorption reference system, consisting of a three wavelength nephelometer (Aurora4000) and three extinction monitors (CAPS), was calibrated. Furthermore, reference photometers of type MAAP and AE33 were compared to the absorption reference system for ambient air. During the workshop the customer instruments undergo an inspection. If necessary, instrument sensors were calibrated and measurement cells were cleaned. Measurements for comparing customer instruments to the absorption reference system and reference photometers were done before and after inspection. Results of the instrument statuses were provided to the PIs/users.

w	4	AP-2015-1-3	Absorption Photometer - AP-2015-1-3	RP1	4	First of all to assure the proper function of the instrument. Further it is a new instrument -so to address the correct performance of the instrument.	In preparation for the workshop the multi-wavelength absorption reference system, consisting of a three wavelength nephelometer (Aurora4000) and three extinction monitors (CAPS), was calibrated. Furthermore, reference photometers of type MAAP and AE33 were compared to the absorption reference system for ambient air. During the workshop the customer instruments undergo an inspection. If necessary, instrument sensors were calibrated and measurement cells were cleaned. Measurements for comparing customer instruments to the absorption reference system and reference photometers were done before and after inspection. Results of the instrument statuses were provided to the PIs/users.
w	4	AP-2015-1-4	Absorption Photometer - AP-2015-1-4	RP1	4	First of all to assure the proper function of the instrument. The last intercomparison was 2 years ago.	In preparation for the workshop the multi-wavelength absorption reference system, consisting of a three wavelength nephelometer (Aurora4000) and three extinction monitors (CAPS), was calibrated. Furthermore, reference photometers of type MAAP and AE33 were compared to the absorption reference system for ambient air. During the workshop the customer instruments undergo an inspection. If necessary, instrument sensors were calibrated and measurement cells were cleaned. Measurements for comparing customer instruments to the absorption reference system and reference photometers were done

							before and after inspection. Results of the instrument statuses were provided to the PIs/users.
w	4	AP-2015-1-5	Absorption Photometer - AP-2015-1-5	RP1	4	Calibration is needed to assure correct atmospheric measurements.	In preparation for the workshop the multi-wavelength absorption reference system, consisting of a three wavelength nephelometer (Aurora4000) and three extinction monitors (CAPS), was calibrated. Furthermore, reference photometers of type MAAP and AE33 were compared to the absorption reference system for ambient air. During the workshop the customer instruments undergo an inspection. If necessary, instrument sensors were calibrated and measurement cells were cleaned. Measurements for comparing customer instruments to the absorption reference system and reference photometers were done before and after inspection. Results of the instrument statuses were provided to the PIs/users.

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w	4	AP-2016-1-6	Absorption Photometer - AP-2015-1-6	RP1	4	Calibration is needed to assure correct atmospheric measurements.	In preparation for the workshop the multi-wavelength absorption reference system, consisting of a three wavelength nephelometer (Aurora4000) and three extinction monitors (CAPS), was calibrated. Furthermore, reference photometers of type MAAP and AE33 were compared to the absorption reference system for ambient air. During the workshop the customer instruments undergo an inspection. If necessary, instrument sensors were calibrated and measurement cells were cleaned. Measurements for comparing customer instruments to the absorption reference system and reference photometers were done before and after inspection. Results of the instrument statuses were provided to the PIs/users.
w	4	AP-2016-1-7	Absorption Photometer - AP-2015-1-7	RP1	4	Transport of black carbon (BC) into high Arctic latitudes is controversially discussed due to the climate sensitivity of this region. Models assessing the Arctic BC effect underestimateBC loading close to the surface, and over-estimate it aloft. Constraining BCtransport into the Arctic from Europe is difficult due to potential systematic deviationsof measurements on BC induced	In preparation for the workshop the multi-wavelength absorption reference system, consisting of a three wavelength nephelometer (Aurora4000) and three extinction monitors (CAPS), was calibrated. Furthermore, reference photometers of type MAAP and AE33 were compared to the absorption reference system for ambient air. During the workshop the customer instruments undergo an inspection. If necessary, instrument sensors were calibrated and measurement cells were cleaned. Measurements for comparing customer

						aerosol absorption at Nordic monitoring stations.These potential deviations are due to related instrumentation endemic to the Nordiccountries. To constrain BC transport from central Europe into the Arctic, it is prerequisiteto connect the instruments monitoring aerosol absorption in the Nordic countriesto European and GAW standards. This project will establish this connection forBirkenes station, Norway, in a collaboration between ACTRIS, GAW, and EMEP.	instruments to the absorption reference system and reference photometers were done before and after inspection. Results of the instrument statuses were provided to the PIs/users.
w	2	CPC-2015-1-1	Condensation Particle Counter - CPC-2015-1-1	RP1	2	Instrument used to monitor aerosols in the Mediteranean especially ship emissions in Malta-Sicily straits where more than 65,000 ships per annum transit - it is mandatory that the instruments work correct	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
w	2	CPC-2015-1-2	Condensation Particle Counter - CPC-2015-1-2	RP1	2	Calibration and training of the responsible person (there was a change in personell responsibility. The new person have no experience yet.	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test

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w	2	CPC-2015-1-3	Condensation Particle Counter - CPC-2015-1-3	RP1	2	The instrument is working under worst conditions at a coastal station. There it is exposed to high levels of sea salt, a very oxidative environment. The instrument suffered from this environment. It does not work properly. We already tried troubleshooting with the company but cannot find the problem. So we need help in diagnosis and repairation of the instrument.	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
w	4	MPSS-2015-1-1	Mobility Particle Size Spectrometer - MPSS-2015-1-1	RP1	4	The instrument is used to monitor aerosols in the Mediteranean, especially ship emissions in the Malta-Sicily straits where more than 65,000 ships per annum transit. So it is mandatory that the instruments work correct.	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
w	4	MPSS-2015-1-2	Mobility Particle Size Spectrometer - MPSS-2015-1-2	RP1	4	Calibration and training of the responsible person (there was a change in personell responsibility. The new person have no experience yet.	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
w	4	MPSS-2015-1-3	Mobility Particle Size Spectrometer - MPSS-2015-1-3	RP1	4	The instrument is working under worst conditions at a coastal station. There it is exposed to high levels of sea salt, a very oxidative environment. The	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test

						instrument suffered from this environment. It does not work properly. We already tried troubleshooting with the company but cannot find the problem. So we need help in diagnosis and repairation of the instrument.	
w	2	CPC-2015-2-1	Condensation Particle Counter - CPC-2015-2-1	RP1	2	The instrument is working at a GAW station, doing continuous measurements. Within this framework it is mandatory to take part in the calibration workshop.	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
w	4	IN-2015-1-1	Integrating Nephelometer - IN-2015-1-1	RP1	4	Calibration is needed to assure correct atmospheric measurements.	Reference instruments, three extinction monitors (CAPS) and the reference nephelometer (Aurora4000), were calibrated and cross checked before the workshop. Customer nephelometers and extinction monitors undergo an inspection and calibration check. If necessary, instruments were recalibrated and cleaned. The instruments were compared to the reference instruments before and after inspection using ambient air and ammonium sulphate. Reports of the instrument statuses were provided to the PIs/users.

w	4	IN-2015-1-2	Integrating Nephelometer - IN-2015-1-2	RP1	4	The spectral aerosol scattering coefficient is part of the core observation list of the WMO GAW aerosol programme because it is essential for quantifying the direct aerosol climate effect, and contains information on the total aerosol load (relevant for air quality) and the particle size distribution (relevant to quantify the indirect aerosol climate effect). After an upgrade in 2009, Birkenes station has monitored the full core set of GAW aerosol near-surface parameters, and now has a record long enough for considering trends in atmospheric aerosol properties. Birkenes is located in the outflow of Central Europe and inflow into the higher Arctic, a highly climate sensitive region. Despite quality control following GAW / ACTRIS standards, the integrating nephelometer measuring aerosol light scattering at Birkenes hasn't been compared to GAW central standards. This will confirm comparability of	Reference instruments, three extinction monitors (CAPS) and the reference nephelometer (Aurora4000), were calibrated and cross checked before the workshop. Customer nephelometers and extinction monitors undergo an inspection and calibration check. If necessary, instruments were recalibrated and cleaned. The instruments were compared to the reference instruments before and after inspection using ambient air and ammonium sulphate. Reports of the instrument statuses were provided to the PIs/users.

						Birkenes aerosol scattering data with other stations in the network for reliable trend assessments.	
w	4	IN-2015-1-3	Integrating Nephelometer - IN-2015-1-3	RP1	4	The instrument is working at a GAW station. It is operating since 2012 and was never intercompared yet.	Reference instruments, three extinction monitors (CAPS) and the reference nephelometer (Aurora4000), were calibrated and cross checked before the workshop. Customer nephelometers and extinction monitors undergo an inspection and calibration check. If necessary, instruments were recalibrated and cleaned. The instruments were compared to the reference instruments before and after inspection using ambient air and ammonium sulphate. Reports of the instrument statuses were provided to the PIs/users.
w	4	IN-2015-1-4	Integrating Nephelometer - IN-2015-1-4	RP1	4	The instrument is working at a GAW station. It is operating since 2010. The last intercomparison was in 2013.	Reference instruments, three extinction monitors (CAPS) and the reference nephelometer (Aurora4000), were calibrated and cross checked before the workshop. Customer nephelometers and extinction monitors undergo an inspection and

							calibration check. If necessary, instruments were recalibrated and cleaned. The instruments were compared to the reference instruments before and after inspection using ambient air and ammonium sulphate. Reports of the instrument statuses were provided to the PIs/users.
w	4	IN-2015-1-5	Integrating Nephelometer - IN-2015-1-5	RP1	4	The instrument is part of a new station (since Jan 2015). Long term nephelometer measurements will be one of the strong assets of this station and thus quality assurance and data should be ensured.	Reference instruments, three extinction monitors (CAPS) and the reference nephelometer (Aurora4000), were calibrated and cross checked before the workshop. Customer nephelometers and extinction monitors undergo an inspection and calibration check. If necessary, instruments were recalibrated and cleaned. The instruments were compared to the reference instruments before and after inspection using ambient air and ammonium sulphate. Reports of the instrument statuses were provided to the PIs/users.
w	4	IN-2015-1-6	Integrating Nephelometer - IN-2015-1-6	RP1	4	We are part of the ACTRIS network. We would like to improve our knowledge.	Reference instruments, three extinction monitors (CAPS) and the reference nephelometer (Aurora4000), were calibrated and cross checked before the workshop. Customer nephelometers and extinction monitors undergo an inspection and calibration check. If necessary, instruments were recalibrated and cleaned. The instruments were compared to the reference instruments before and after inspection using ambient air and ammonium sulphate. Reports

							of the instrument statuses were provided to the PIs/users.
w	4	EM-2015-1-1	Extinction Monitor - EM-2015-1-1	RP1	4	The instrument is part of a new station (since Jan 2015). Long term nephelometer measurements will be one of the strong assets of this station and thus quality assurance and data should be ensured.	Reference instruments, three extinction monitors (CAPS) and the reference nephelometer (Aurora4000), were calibrated and cross checked before the workshop. Customer nephelometers and extinction monitors undergo an inspection and calibration check. If necessary, instruments were recalibrated and cleaned. The instruments were compared to the reference instruments before and after inspection using ambient air and ammonium sulphate. Reports of the instrument statuses were provided to the PIs/users.
w	4	EM-2015-1-2	Extinction Monitor - EM-2015-1-2	RP1	4	The Hyytiälä site is a ACTRIS TNA4 station for measuring ecosystem-atmosphere relations.	Reference instruments, three extinction monitors (CAPS) and the reference nephelometer (Aurora4000), were calibrated and cross checked before the workshop. Customer nephelometers and extinction monitors undergo an inspection and calibration check. If necessary, instruments were recalibrated and cleaned. The instruments were compared to the reference instruments before and after inspection using ambient air and ammonium sulphate. Reports of the instrument statuses were provided to the PIs/users.

w	10	OSIA-2016-1-1	On-Site Intercomparison - OSIA-2016-1-1	RP1	10	The Hyytiälä site is a ACTRIS TNA4 station for measuring ecosystem-atmosphere relations.	
w	2	CPC-2016-1-1	Condensation Particle Counter - CPC-2016-1-1	RP1	2	The calibrated instrument will be used as transfer standard for the verification of other CPCs and SMPS.	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
w	2	CPC-2016-1-2	Condensation Particle Counter - CPC-2016-1-2	RP1	2	The instrument is used within atmospheric measurements.	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
w	2	CPC-2016-1-3	Condensation Particle Counter - CPC-2016-1-3	RP1	2	The instrument is used within atmospheric measurements.	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
w	2	CPC-2016-1-4	Condensation Particle Counter - CPC-2016-1-4	RP1	2	There are 6 CPC´s around our site. We want to calibrate 2 of them in order to use them as reference instruments to calibrate the other 4 instruments against these two at the station. The aim is to find out how well they all perform.	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
w	4	MPSS-2016-1-1	Mobility Particle Size Spectrometer - MPSS-2016-1-1	RP1	4	The instrument is used within atmospheric measurements.	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
w	4	MPSS-2016-1-2	Mobility Particle Size Spectrometer -	RP1	4	This instrument is operating under ACTRIS. We use it as a reference to all our SMPS.	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if

			MPSS-2016-1-2				needed), calibration, final test
w	4	MPSS-2016-1-3	Mobility Particle Size Spectrometer - MPSS-2016-1-3	RP1	4	Collocated research infrastructure Kosetice - Kresin u. Pacova: vertical particle fluxes will be measured on the tower along with ground based SMPS measurements, Producing highest quality data and providing them into ACTRIS2 database is one of our key goals - calibration will help us to reach this goal	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
w	4	MPSS-2016-1-4	Mobility Particle Size Spectrometer - MPSS-2016-1-4	RP1	4	This instrument is working at SIRTA. It is used as an external calibrator for PM1.0. Therefore it is very important to have the best quality measurements.	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
w	4	MPSS-2016-1-5	Mobility Particle Size Spectrometer - MPSS-2016-1-5	RP1	4	The aim of this project is to certify the excellent performance and assurance the quality of the acquired data of the MPSS operated by UoC at the station	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
w	4	MPSS-2016-1-6	Mobility Particle Size Spectrometer - MPSS-2016-1-6	RP1	4	There are 6 CPC´s around our site. We want to intercompare 1 of them in order to investigate how good the results are. Further we want to compare all the other instruments again this calibrated one.	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test

w	4	AP-2016-1-1	Absorption Photometer - AP-2016-1-1	RP1	4	The instrument is working at a GAW station. It does continuous aerosol measurements. So sending the instrument to the intercomparison is mandatory.	In preparation for the workshop the multi-wavelength absorption reference system, consisting of a three wavelength nephelometer (Aurora4000) and three extinction monitors (CAPS), was calibrated. Furthermore, reference photometers of type MAAP and AE33 were compared to the absorption reference system for ambient air. During the workshop the customer instruments undergo an inspection. If necessary, instrument sensors were calibrated and measurement cells were cleaned. Measurements for comparing customer instruments to the absorption reference system and reference photometers were done before and after inspection. Results of the instrument statuses were provided to the PIs/users.
w	4	AP-2016-1-3	Absorption Photometer - AP-2016-1-3	RP1	4	The instrument is part of a new station (since Jan 2015). Long term absorption measurements will be one of the strong assets of this station and thus quality assurance and data should be ensured.	In preparation for the workshop the multi-wavelength absorption reference system, consisting of a three wavelength nephelometer (Aurora4000) and three extinction monitors (CAPS), was calibrated. Furthermore, reference photometers of type MAAP and AE33 were compared to the absorption reference system for ambient air. During the workshop the customer instruments undergo an inspection. If necessary, instrument sensors were calibrated and measurement cells were cleaned. Measurements for comparing customer

							instruments to the absorption reference system and reference photometers were done before and after inspection. Results of the instrument statuses were provided to the PIs/users.
w	4	AP-2016-1-4	Absorption Photometer - AP-2016-1-4	RP1	4	This instrument is a new instrument at the Norunda station. We want to ensure that the new measurement site/instrument fulfills the ACTRIS/GAW standards. So the instrument needs to be tested and certified.	In preparation for the workshop the multi-wavelength absorption reference system, consisting of a three wavelength nephelometer (Aurora4000) and three extinction monitors (CAPS), was calibrated. Furthermore, reference photometers of type MAAP and AE33 were compared to the absorption reference system for ambient air. During the workshop the customer instruments undergo an inspection. If necessary, instrument sensors were calibrated and measurement cells were cleaned. Measurements for comparing customer instruments to the absorption reference system and reference photometers were done before and after inspection. Results of the instrument statuses were provided to the PIs/users.

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w	4	AP-2016-1-5	Absorption Photometer - AP-2016-1-5	RP1	4	Monte Cimone - MAAP since 04/2007, in 2012 an AE31 was added - Calibrationin order to assure the good quality of the data set.	In preparation for the workshop the multi-wavelength absorption reference system, consisting of a three wavelength nephelometer (Aurora4000) and three extinction monitors (CAPS), was calibrated. Furthermore, reference photometers of type MAAP and AE33 were compared to the absorption reference system for ambient air. During the workshop the customer instruments undergo an inspection. If necessary, instrument sensors were calibrated and measurement cells were cleaned. Measurements for comparing customer instruments to the absorption reference system and reference photometers were done before and after inspection. Results of the instrument statuses were provided to the PIs/users.
w	4	AP-2016-1-6	Absorption Photometer - AP-2016-1-6	RP1	4	Monte Cimone - MAAP since 04/2007, in 2012 an AE31 was added - Calibrationin order to assure the good quality of the data set.	In preparation for the workshop the multi-wavelength absorption reference system, consisting of a three wavelength nephelometer (Aurora4000) and three extinction monitors (CAPS), was calibrated. Furthermore, reference photometers of type MAAP and AE33 were compared to the absorption reference system for ambient air. During the workshop the customer instruments undergo an inspection. If necessary, instrument sensors were calibrated and measurement cells were cleaned. Measurements for comparing customer

							instruments to the absorption reference system and reference photometers were done before and after inspection. Results of the instrument statuses were provided to the PIs/users.
w	2	CPC-2016-2-7	Condensation Particle Counter - CPC-2016-2-7	RP1	2	A new DMPS has been built for the measurement site in Norunda. A CPC is part of it. To ensure that the new measurement fulfill the ACTRIS/GAW standards the instrument needs to be tested and certified.	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
w	2	CPC-2016-2-8	Condensation Particle Counter - CPC-2016-2-8	RP1	2	A new DMPS has been built for the measurement site in Norunda. A CPC is part of it. To ensure that the new measurement fulfill the ACTRIS/GAW standards the instrument needs to be tested and certified.	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
w	4	MPSS-2016-2-5	Mobility Particle Size Spectrometer - MPSS-2016-2-5	RP1	4	A new DMPS has been built for the measurement site in Norunda. To ensure that the new instrument fulfill the ACTRIS/GAW standards the instrument needs to be tested and certified.	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test

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w	2	CPC-2016-3-6	Condensation Particle Counter - CPC-2016-3-6	RP1	2	The CPC is part of the DMPS instrument, which will participate in the workshop "MPSS-2016-3". The CPC is owned by University of Helsinki. The instrument has been in operation continuously at the K-puszta station since 2011. The CPC as part of the DMPS system was last calibrated in 2013. The CPC will be running in the K-puszta station after the calibration workshop. At the K-puszta station many new particle formation events occur, the DMPS system including the CPC instrument is used to study these events. The particle number concentration is also monitored with the DMPS system, as there is no other condensation particle counter available at the station.	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
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w	4	MPSS-2016-3-7	Mobility Particle Size Spectrometer - MPSS-2016-3-7	RP1	4	We are part of the ACTRIS network. We would like to improve our knowledge.	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
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w	2	CPC-2016-4-1	Condensation Particle Counter - CPC-2016-4-1	RP1	2	We would like to get the CPC calibrated and in good conditionts be able to compare it also with other CPCs at the station.	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
w	2	CPC-2016-4-2	Condensation Particle Counter - CPC-2016-4-2	RP1	2	The instruments needs to be evaluated in order to continue measurements at the DEM-GAW measurement station in Athens.	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
w	2	CPC-2016-4-3	Condensation Particle Counter - CPC-2016-4-3	RP1	2	In order to increase the understanding from our technician of the SMPS system it would help us greatly if he can participate in the intercomparison exercise at TROPOS and learn there the calibration and instrument intercomparison procedures	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
w	2	CPC-2016-4-4	Condensation Particle Counter - CPC-2016-4-4	RP1	2	Our SMPS started to behave in unpredictable ways in the last months. We feel that a routine check would be in order to avoid any kind of unnecessary downtime.	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
w	2	CPC-2016-4-5	Condensation Particle Counter - CPC-2016-4-5	RP1	2	We would like to get the CPC calibrated and in good conditionts be able to compare it also with other CPCs at the station.	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
					0		

w	4	MPSS-2016-4-1	Mobility Particle Size Spectrometer - MPSS-2016-4-1	RP1	4	We would like to get the CPC calibrated and in good conditionts be able to compare it also with other CPCs at the station.	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
w	4	MPSS-2016-4-2	Mobility Particle Size Spectrometer - MPSS-2016-4-2	RP1	4	The instruments needs to be evaluated in order to continue measurements at the DEM-GAW measurement station in Athens.	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
w	4	MPSS-2016-4-3	Mobility Particle Size Spectrometer - MPSS-2016-4-3	RP1	4	In order to increase the understanding from our technician of the SMPS system it would help us greatly if he can participate in the intercomparison exercise at TROPOS and learn there the calibration and instrument intercomparison procedures	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
w	4	MPSS-2016-4-4	Mobility Particle Size Spectrometer - MPSS-2016-4-4	RP1	4	Our SMPS started to behave in unpredictable ways in the last months. We feel that a routine check would be in order to avoid any kind of unnecessary downtime.	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
w	4	IN-2016-1-3	Integrating Nephelometer - IN-2016-1-3	RP1	4	Within the framework of ACTRIS we send our instrument to the mandatory ECAC intercomparison workshop.	Reference instruments, three extinction monitors (CAPS) and the reference nephelometer (Aurora4000), were calibrated and cross checked before the workshop. Customer nephelometers and extinction monitors undergo an inspection and

							calibration check. If necessary, instruments were recalibrated and cleaned. The instruments were compared to the reference instruments before and after inspection using ambient air and ammonium sulphate. Reports of the instrument statuses were provided to the PIs/users.
w	4	IN-2016-1-4	Integrating Nephelometer - IN-2016-1-4	RP1	4	Our instrument had a shutter failure in 2014 and since then the data has been rather noisy, giving strange values at certain periods. Since 2 months ago the instrument seems to be operating in good conditions but we urgently need to certify this and analyze previous data in detail with experts, and learn from them	Reference instruments, three extinction monitors (CAPS) and the reference nephelometer (Aurora4000), were calibrated and cross checked before the workshop. Customer nephelometers and extinction monitors undergo an inspection and calibration check. If necessary, instruments were recalibrated and cleaned. The instruments were compared to the reference instruments before and after inspection using ambient air and ammonium sulphate. Reports of the instrument statuses were provided to the PIs/users.
w	4	IN-2016-1-5	Integrating Nephelometer - IN-2016-1-5	RP1	4	We are part of the ACTRIS network. We would like to improve our knowledge.	Reference instruments, three extinction monitors (CAPS) and the reference nephelometer (Aurora4000), were calibrated and cross checked before the workshop. Customer nephelometers and extinction monitors undergo an inspection and calibration check. If necessary, instruments were recalibrated and cleaned. The instruments were compared to the reference instruments before and after inspection using ambient air and ammonium sulphate. Reports

							of the instrument statuses were provided to the PIs/users.
w	4	IN-2016-1-6	Integrating Nephelometer - IN-2016-1-6	RP1	4	We are part of the ACTRIS network. We would like to improve our knowledge.	Reference instruments, three extinction monitors (CAPS) and the reference nephelometer (Aurora4000), were calibrated and cross checked before the workshop. Customer nephelometers and extinction monitors undergo an inspection and calibration check. If necessary, instruments were recalibrated and cleaned. The instruments were compared to the reference instruments before and after inspection using ambient air and ammonium sulphate. Reports of the instrument statuses were provided to the PIs/users.
w	4	IN-2016-1-7	Integrating Nephelometer - IN-2016-1-7	RP1	4	The instruments needs to be evaluated in order to continue measurements at the DEM-GAW measurement station in Athens.	Reference instruments, three extinction monitors (CAPS) and the reference nephelometer (Aurora4000), were calibrated and cross checked before the workshop. Customer nephelometers and extinction monitors undergo an inspection and calibration check. If necessary, instruments were recalibrated and cleaned. The instruments were compared to the reference instruments before and after inspection using ambient air and ammonium sulphate. Reports of the instrument statuses were provided to the PIs/users.

w	4	EM-2016-1-1	Extinction Monitor - EM-2016-1-1	RP1	4	The instruments needs to be evaluated in order to continue measurements at the DEM-GAW measurement station in Athens.	Reference instruments, three extinction monitors (CAPS) and the reference nephelometer (Aurora4000), were calibrated and cross checked before the workshop. Customer nephelometers and extinction monitors undergo an inspection and calibration check. If necessary, instruments were recalibrated and cleaned. The instruments were compared to the reference instruments before and after inspection using ambient air and ammonium sulphate. Reports of the instrument statuses were provided to the PIs/users.
w	2	CPC-2016-5-1	Condensation Particle Counter - CPC-2016-5-1	RP2	2	The instrument has been repaired and requires the evaluation of its performance to be carried out, which includes the reevaluation of the CPC.	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
w	2	CPC-2016-5-2	Condensation Particle Counter - CPC-2016-5-2	RP2	2	Participating in the CPC lab intercomparison is highly needed to join the QA/QC ACTRIS program and fulfill the QA/QC procedures.	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
w	2	CPC-2016-5-4	Condensation Particle Counter - CPC-2016-5-4	RP2	2	-	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
w	2	CPC-2016-5-5	Condensation Particle Counter - CPC-2016-5-5	RP2	2	We want to improve our knowledge.	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test

w	2	CPC-2016-5-6	Condensation Particle Counter - CPC-2016-5-6	RP2	2	Producing highest quality data and providing them into ACTRIS2 database is one of our key goals. Offered TNA to a calibration centre will help us to reach this goal.	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
w	4	MPSS-2016-5-1	Mobility Particle Size Spectrometer - MPSS-2016-5-1	RP2	4	The instrument has been repaired and requires the evaluation of its performance to be carried out.	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
w	4	MPSS-2016-5-2	Mobility Particle Size Spectrometer - MPSS-2016-5-2	RP2	4	We want to improve our knowledge.	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
w	4	MPSS-2016-5-3	Mobility Particle Size Spectrometer - MPSS-2016-5-3	RP2	4	Producing highest quality data and providing them into ACTRIS2 database is one of our key goals. Offered TNA to a calibration centre will help us to reach this goal.	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
w	4	MPSS-2016-5-4	Mobility Particle Size Spectrometer - MPSS-2016-5-4	RP2	4	Participating in the CPC lab intercomparison is highly needed to join the QA/QC ACTRIS program and fulfill the QA/QC procedures. Our SMPS acquisition system also needs to be improved (upgrade of PC due to regular memory fault).	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
w	4	MPSS-2016-5-6	Mobility Particle Size Spectrometer -	RP2	4	-	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if

			MPSS-2016-5-6				needed), calibration, final test
w	4	AP-2016-2-1	Absorption Photometer - AP-2016-2-1	RP2	4	The participation of the instrument is required to fulfill the QA within the ACTRIS guidelines.	In preparation for the workshop the multi-wavelength absorption reference system, consisting of a three wavelength nephelometer (Aurora4000) and three extinction monitors (CAPS), was calibrated. Furthermore, reference photometers of type MAAP and AE33 were compared to the absorption reference system for ambient air. During the workshop the customer instruments undergo an inspection. If necessary, instrument sensors were calibrated and measurement cells were cleaned. Measurements for comparing customer instruments to the absorption reference system and reference photometers were done before and after inspection. Results of the instrument statuses were provided to the PIs/users.
w	4	AP-2016-2-2	Absorption Photometer - AP-2016-2-2	RP2	4	The CLAP is an important instrument at the station, as there is no other instrument available for the measurement of the aerosol absorption properties. QA is highly recommended.	In preparation for the workshop the multi-wavelength absorption reference system, consisting of a three wavelength nephelometer (Aurora4000) and three extinction monitors (CAPS), was calibrated. Furthermore, reference photometers of type MAAP and AE33 were compared to the absorption reference system for ambient air. During the workshop the customer instruments undergo an inspection. If necessary, instrument sensors were calibrated

							and measurement cells were cleaned. Measurements for comparing customer instruments to the absorption reference system and reference photometers were done before and after inspection. Results of the instrument statuses were provided to the PIs/users.
w	4	AP-2016-2-3	Absorption Photometer - AP-2016-2-3	RP2	4	The Aethalometer AE-33 is measuring since 2013 at Montsec and it has been never inter-compared with other aethalometers operating within the same networks. In order to provide data from this aethalometer to GAW, an intercomparison is mandatory.	In preparation for the workshop the multi-wavelength absorption reference system, consisting of a three wavelength nephelometer (Aurora4000) and three extinction monitors (CAPS), was calibrated. Furthermore, reference photometers of type MAAP and AE33 were compared to the absorption reference system for ambient air. During the workshop the customer instruments undergo an inspection. If necessary, instrument sensors were calibrated and measurement cells were cleaned. Measurements for comparing customer instruments to the absorption reference system and reference photometers were done before and after inspection. Results of the instrument statuses were provided to the PIs/users.

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w	4	AP-2016-2-4	Absorption Photometer - AP-2016-2-4	RP2	4	The Aethalometer AE-33 is measuring since 2012 at Montseny and it has been never inter-compared with other aethalometers. In order to provide data from this aethalometer to ACTRIS and GAW, an intercomparison is mandatory.	In preparation for the workshop the multi-wavelength absorption reference system, consisting of a three wavelength nephelometer (Aurora4000) and three extinction monitors (CAPS), was calibrated. Furthermore, reference photometers of type MAAP and AE33 were compared to the absorption reference system for ambient air. During the workshop the customer instruments undergo an inspection. If necessary, instrument sensors were calibrated and measurement cells were cleaned. Measurements for comparing customer instruments to the absorption reference system and reference photometers were done before and after inspection. Results of the instrument statuses were provided to the PIs/users.
w	4	AP-2016-2-5	Absorption Photometer - AP-2016-2-5	RP2	4	Participating in the Absorption Photometer lab intercomparison is highly needed to join the QA/QC ACTRIS program and fulfill the QA/QC procedures.	In preparation for the workshop the multi-wavelength absorption reference system, consisting of a three wavelength nephelometer (Aurora4000) and three extinction monitors (CAPS), was calibrated. Furthermore, reference photometers of type MAAP and AE33 were compared to the absorption reference system for ambient air. During the workshop the customer instruments undergo an inspection. If necessary, instrument sensors were calibrated and measurement cells were cleaned. Measurements for comparing customer

							instruments to the absorption reference system and reference photometers were done before and after inspection. Results of the instrument statuses were provided to the PIs/users.
w	4	AP-2016-2-6	Absorption Photometer - AP-2016-2-6	RP2	4	-	In preparation for the workshop the multi-wavelength absorption reference system, consisting of a three wavelength nephelometer (Aurora4000) and three extinction monitors (CAPS), was calibrated. Furthermore, reference photometers of type MAAP and AE33 were compared to the absorption reference system for ambient air. During the workshop the customer instruments undergo an inspection. If necessary, instrument sensors were calibrated and measurement cells were cleaned. Measurements for comparing customer instruments to the absorption reference system and reference photometers were done before and after inspection. Results of the instrument statuses were provided to the PIs/users.
w	4	IN-2016-2-2	Integrating Nephelometer - IN-2016-2-2	RP2	4	Periodical intercomparison with reference instruments can be a very useful procedure to assure the proper functioning of the instrument. In this sence, the Nephelometer TSI-3563	Reference instruments, three extinction monitors (CAPS) and the reference nephelometer (Aurora4000), were calibrated and cross checked before the workshop. Customer nephelometers and extinction monitors undergo an inspection and

						operating at UGR station under ACTRIS guidelines should participate in this intercomparison exercise organized by ACTRIS2.	calibration check. If necessary, instruments were recalibrated and cleaned. The instruments were compared to the reference instruments before and after inspection using ambient air and ammonium sulphate. Reports of the instrument statuses were provided to the PIs/users.
w	4	IN-2016-2-3	Integrating Nephelometer - IN-2016-2-3	RP2	4	Participating in the Absorption Photometer lab intercomparison is highly needed to join the QA/QC ACTRIS program and fulfill the QA/QC procedures.	Reference instruments, three extinction monitors (CAPS) and the reference nephelometer (Aurora4000), were calibrated and cross checked before the workshop. Customer nephelometers and extinction monitors undergo an inspection and calibration check. If necessary, instruments were recalibrated and cleaned. The instruments were compared to the reference instruments before and after inspection using ambient air and ammonium sulphate. Reports of the instrument statuses were provided to the PIs/users.
w	4	IN-2016-2-4	Integrating Nephelometer - IN-2016-2-4	RP2	4	This instrument will be used during the ACTRIS-ACSM intercomparison at ACMCC. Therefore it is very important to have a checked and calibrated instrument.	Reference instruments, three extinction monitors (CAPS) and the reference nephelometer (Aurora4000), were calibrated and cross checked before the workshop. Customer nephelometers and extinction monitors undergo an inspection and calibration check. If necessary, instruments were recalibrated and cleaned. The instruments were compared to the reference instruments before and after inspection using ambient air and ammonium sulphate. Reports

							of the instrument statuses were provided to the PIs/users.
w	4	IN-2016-2-5	Integrating Nephelometer - IN-2016-2-5	RP2	4	This instrument will be used during the ACTRIS-ACSM intercomparison at ACMCC. Therefore it is very important to have a checked and calibrated instrument.	Reference instruments, three extinction monitors (CAPS) and the reference nephelometer (Aurora4000), were calibrated and cross checked before the workshop. Customer nephelometers and extinction monitors undergo an inspection and calibration check. If necessary, instruments were recalibrated and cleaned. The instruments were compared to the reference instruments before and after inspection using ambient air and ammonium sulphate. Reports of the instrument statuses were provided to the PIs/users.
w	4	IN-2016-2-6	Integrating Nephelometer - IN-2016-2-6	RP2	4	The long-term aerosol program of optical properties started in January 2006 and continues at present time. With the quality assurance obtained after the intercomparison at ECAC, the objective will be to continue the characterization of the aerosol properties in the region, after the 11-year dataset at El Arenosillo, with emphasis on the properties of desert dust aerosol and synergy with passive and actice	Reference instruments, three extinction monitors (CAPS) and the reference nephelometer (Aurora4000), were calibrated and cross checked before the workshop. Customer nephelometers and extinction monitors undergo an inspection and calibration check. If necessary, instruments were recalibrated and cleaned. The instruments were compared to the reference instruments before and after inspection using ambient air and ammonium sulphate. Reports of the instrument statuses were provided to the PIs/users.

						remote sensing instruments.	
w	4	IN-2016-2-7	Integrating Nephelometer - IN-2016-2-7	RP2	4	-	Reference instruments, three extinction monitors (CAPS) and the reference nephelometer (Aurora4000), were calibrated and cross checked before the workshop. Customer nephelometers and extinction monitors undergo an inspection and calibration check. If necessary, instruments were recalibrated and cleaned. The instruments were compared to the reference instruments before and after inspection using ambient air and ammonium sulphate. Reports of the instrument statuses were provided to the PIs/users.
w	5	CCNC-2016-1-1	Cloud Condensation Nuclei Counter-CCNC-2016-1-1	RP2	5	A CCNC has been measuring continuously since January 2008 at the Jungfraujoch, Switzerland. This 8-year dataset provides valuable information on the absolute values, temporal variability and SS dependence of the CCN concentration. We are able to investigate the seasonal variation of the CCN concentration and to get insights into the link between CCN activity and associated key	

						aerosol properties such as number size distribution and chemical composition.	
w	5	CCNC-2016-1-2	Cloud Condensation Nuclei Counter-CCNC-2016-1-2	RP2	5	Our CCNC has been operated in polydisperse and monodisperse mode. To maintain these high quality long term CCNC measurements is considerably important and relevant to aerosol science as they develop the understanding of the interactions of ecosystem, atmospheric particles and climate. Offered TNA to a caliberation centre will help us to maintain these extremely importnat measurements and further on assist Postdocs PhD students whom work with the CCNC measurements.	
w	5	CCNC-2016-1-4	Cloud Condensation Nuclei Counter-CCNC-2016-1-4	RP2	5	We would like to participate in this workshop as we are new to the field of CCNC meas-urements and would like to perform our measurements in accordance with the ACTRIS standards in the future.	

w	4	AP-2016-3-6	Absorption Photometer - AP-2016-3-6	RP2	4	We would like to intercalibrate MAAP from our laboratory, which we will use later as our laboratory instrument for experiments and internal intercalibration of MAAPs used at field stations.	In preparation for the workshop the multi-wavelength absorption reference system, consisting of a three wavelength nephelometer (Aurora4000) and three extinction monitors (CAPS), was calibrated. Furthermore, reference photometers of type MAAP and AE33 were compared to the absorption reference system for ambient air. During the workshop the customer instruments undergo an inspection. If necessary, instrument sensors were calibrated and measurement cells were cleaned. Measurements for comparing customer instruments to the absorption reference system and reference photometers were done before and after inspection. Results of the instrument statuses were provided to the PIs/users.
w	4	AP-2017-1-3	Absorption Photometer - AP-2017-1-1	RP2	4	The Jungfraujoch (JFJ) is a GAW Global Atmosphere Watch Station and the continuous aerosol measurements are part of ACTRIS2. Within this framework we send our instru-ments to the mandatory ECAC intercomparison workshops.	In preparation for the workshop the multi-wavelength absorption reference system, consisting of a three wavelength nephelometer (Aurora4000) and three extinction monitors (CAPS), was calibrated. Furthermore, reference photometers of type MAAP and AE33 were compared to the absorption reference system for ambient air. During the workshop the customer instruments undergo an inspection. If necessary, instrument sensors were calibrated and measurement cells were cleaned. Measurements for comparing customer

							instruments to the absorption reference system and reference photometers were done before and after inspection. Results of the instrument statuses were provided to the PIs/users.
w	4	AP-2017-1-5	Absorption Photometer - AP-2017-1-5	RP2	4	The CAPS PMssa is a newly developed instrument sold by Aerodyne Research Inc. The CAPS PMssa combines the measurement of aerosol extinction and scattering within a single instrument, which means it holds great promise of becoming a single, standard instrument for atmospheric aerosol absorption measurements (extinction minus scattering). Intercomparison with other types of photoacoustic photometers (filter-based and photoacoustic) is essential for the continued development of the CAPS PMssa.	In preparation for the workshop the multi-wavelength absorption reference system, consisting of a three wavelength nephelometer (Aurora4000) and three extinction monitors (CAPS), was calibrated. Furthermore, reference photometers of type MAAP and AE33 were compared to the absorption reference system for ambient air. During the workshop the customer instruments undergo an inspection. If necessary, instrument sensors were calibrated and measurement cells were cleaned. Measurements for comparing customer instruments to the absorption reference system and reference photometers were done before and after inspection. Results of the instrument statuses were provided to the PIs/users.

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w	4	AP-2017-1-6	Absorption Photometer - AP-2017-1-6	RP2	4	The CAPS PMssa is a newly developed instrument sold by Aerodyne Research Inc. The CAPS PMssa combines the measurement of aerosol extinction and scattering within a single instrument, which means it holds great promise of becoming a single, standard instrument for atmospheric aerosol absorption measurements (extinction minus scattering). Intercomparison with other types of photoacoustic photometers (filter-based and photoacoustic) is essential for the continued development of the CAPS PMssa.	In preparation for the workshop the multi-wavelength absorption reference system, consisting of a three wavelength nephelometer (Aurora4000) and three extinction monitors (CAPS), was calibrated. Furthermore, reference photometers of type MAAP and AE33 were compared to the absorption reference system for ambient air. During the workshop the customer instruments undergo an inspection. If necessary, instrument sensors were calibrated and measurement cells were cleaned. Measurements for comparing customer instruments to the absorption reference system and reference photometers were done before and after inspection. Results of the instrument statuses were provided to the PIs/users.
w	4	AP-2017-1-7	Absorption Photometer - AP-2017-1-7	RP2	4	The CAPS PMssa is a newly developed instrument sold by Aerodyne Research Inc. The CAPS PMssa combines the measurement of aerosol extinction and scattering within a single instrument, which means it holds great promise of becoming a single, standard instrument for atmospheric aerosol absorption measurements (extinction minus	In preparation for the workshop the multi-wavelength absorption reference system, consisting of a three wavelength nephelometer (Aurora4000) and three extinction monitors (CAPS), was calibrated. Furthermore, reference photometers of type MAAP and AE33 were compared to the absorption reference system for ambient air. During the workshop the customer instruments undergo an inspection. If necessary, instrument sensors were calibrated and measurement cells were cleaned.

						scattering). Intercomparison with other types of photoacoustic photometers (filter-based and photoacoustic) is essential for the continued development of the CAPS PMssa.	Measurements for comparing customer instruments to the absorption reference system and reference photometers were done before and after inspection. Results of the instrument statuses were provided to the PIs/users.
w	4	AP-2017-1-8	Absorption Photometer - AP-2017-1-8	RP2	4	The PAX is a commercial instrument sold by Droplet Measurement Technologies. The PAX combines the measurement of aerosol absorption and scattering within a single instrument. The method of absorption measurement is photoacoustic spectrometry. Photoacoustic spectrometry is a promising technique because it is very sensitive to aerosol light absorption. Given this, it is possible that photoacoustic spectrometers will become standard techniques for aerosol absorption measurements in the future. Intercomparison with other types of photoacoustic photometers (filter-based and extinction minus scattering techniques) is essential for the continued development of the PAX.	In preparation for the workshop the multi-wavelength absorption reference system, consisting of a three wavelength nephelometer (Aurora4000) and three extinction monitors (CAPS), was calibrated. Furthermore, reference photometers of type MAAP and AE33 were compared to the absorption reference system for ambient air. During the workshop the customer instruments undergo an inspection. If necessary, instrument sensors were calibrated and measurement cells were cleaned. Measurements for comparing customer instruments to the absorption reference system and reference photometers were done before and after inspection. Results of the instrument statuses were provided to the PIs/users.

w	2	CPC-2017-1-2	Condensation Particle Counter - CPC-2017-1-2	RP2	2	In order to assure the good quality of the data set we ask to participate in the Condensa-tion particle Counter Laboratory intercomparison and calibration workshop that takes place at ECAC facility in Leipzig	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
w	2	CPC-2017-1-4	Condensation Particle Counter - CPC-2017-1-4	RP2	2	In spring 2017 we plan to study the dynamics of atmospheric aerosol vertical profile in the planetary boundary layer at a background locality. We will measure the dynamics of size distribution to detect NPF. Land-based data will be compared to airborne meas-urements to investigate the vertical distribution of NPF in the planetary boundary layer. The instrument is not operating in the frame of ACTRIS or GAW projects.	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test
w	4	MPSS-2017-1-3	Mobility Particle Size Spectrometer - MPSS-2017-1-3	RP2	4	In spring 2017 we plan to study the dynamics of atmospheric aerosol vertical profile in the planetary boundary layer at a background locality. We will measure the dynamics of size distribution to detect NPF. Land-based data will be compared to	1) preparation of the laboratory/reference instrument, 2) set-up of the participating instrument, 3) incoming test, cleaning (if needed), calibration, final test

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						airborne meas-urements to investigate the vertical distribution of NPF in the planetary boundary layer. The instrument is not operating in the frame of ACTRIS or GAW projects.	

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