

### Deliverable D2.17: Fourth report on technical upgrades and QA activities at EARLINET and Cloudnet stations

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This report summarizes the status of ACTRIS aerosol and cloud profiling stations during the fourth year of the ACTRIS-2 project. A map of EARLINET and Cloudnet stations is shown in Fig. 1. Station IDs are related to the full station names in Tab. 1. Reporting sheets summarizing the status of instrumentation, data delivery, upgrades, and performed quality checks of all EARLINET and Cloudnet stations are provided in Sec. 1 and 2, respectively. Sec. 3 gives an overview on the required QA tests for EARLINET stations.



Fig. 1: Map of EARLINET and Cloudnet stations. Orange: combined EARLINET/Cloudnet stations, yellow: Cloudnet stations, green: permanent EARLINET stations, dark yellow: non-permanent stations, white: joining EARLINET stations.

EARLINET	permanent stations				
an/ARR	Andoya	at/ATZ	Athens	ba/BRC	Barcelona
be/COG	Belsk	bu/INO	Bucharest	ca/CBW	Cabauw
cl/PUY	Clermont-Ferrand	co/UCC	Cork	ev/EVO	Evora
gp/GAR	Garmisch-Partenkirchen	gr/GRA	Granada	is/IPR	Ispra
ku/KUO	Киоріо	la/LAQ	L'Aquila*	lc/SAL	Lecce
le/LEI	Leipzig	II/LLE	Lille	lm/LIM	Limassol
ma/MDR	Madrid	mi/MAS	Minsk	na/NAP	Naples
oh/HPB	Obs. Hohenpeissenberg	pl/SIR	Palaiseau	po/POT	Potenza
py/PAY	Payerne	ro/RME	Rome	sf/SOF	Sofia
sp/SPL	Saint Petersburg	th/THE	Thessaloniki	wa/WAW	Warsaw
EARLINET	non-permanent stations				
du/DUS	Dushanbe	me/MEL	Melpitz	ni/NCL - ct/CTN	Nicolosi/Catania
EARLINET	joining stations**				
ak/AKY	Antikythera	bg/BGD	Belgrade	bj/BUJ	Burjassot
cj/CLJ	Cluj-Napoca	lp/LMP	Lampedusa		
Cloudnet stations					
са	Cabauw	ch	Chilbolton	gr	Granada
hy	Hyytiälä	ju	Jülich	ke	Kenttärova
le/pu	Leipzig/Punta Arenas***	In	Lindenberg	mh	Mace Head
mu	Munich	pl	Palaiseau	ро	Potenza
SC	Schneefernerhaus				

\* Station currently not active

\*\* Stations which have applied for EARLINET but which are not yet fully integrated

\*\*\* Same Cloudnet equipment applied at different locations

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### Section 1

# **EARLINET Station Reports**

### Period: April 2018 – March 2019

### Summary

- **Regular observations:** Regular measurements following the EARLINET schedule have been performed at 22 out of 30 permanent stations. Several stations could not operate continuously during the reporting period, because of technical problems (2 stations), ongoing upgrades or reconstruction of the system (2 stations) and operation of the system at an external field site (1 station). Two stations were not and one station not permanently operated because of lack of personnel.
- **QA tests:** QA tests were performed at 21 out of 30 permanent stations and four joining/non-permanent stations.
- **Data submission:** 17 out of 22 permanent stations that performed regular measurements submitted the data to the database on a regular basis. Pending data submission was due to changes in the database that were not yet considered in the SCC procedures. This situation is overcome meanwhile.
- Use of Single Calculus Chain (SCC): The SCC is increasingly used in the network. 21 of the permanent stations and 2 joining stations reported regular use of the SCC. The SCC training workshop at the end of 2018 improved the situation considerably.
- Handbook of Instruments (Hol): The Hol is up-to-date for 26 out of 30 permanent stations as well as for 3 joining stations. Recent updates are reported as major reason for missing data in the Hol.
- **Upgrades:** Upgrades, reconstruction and modifications to systems were reported by 11 permanent stations. The upgrades comprise new lasers, new measurement channels and other improvements.

Station	Andoya (ARR)	Period: 01/04/2018 - 31/03/2019
Measure	ments have been regularly perfo	rmed
O Yes	No No	
Commen	t:	
Due to las installed i	er malfunction, no measurements n 2019 with adjustments and QA o	s have been performed in the period. New laser was ongoing.
Internal	quality checks have been perform	ned
O Yes	💽 No	
Commen	t:	
Quality ch	ecks ongoing with new laser. Cor	npleted by end of Q2-2019
Data hav	e been regularly submitted to th	e database
O Yes	<ul><li>No</li></ul>	
Commen	t:	
Data hav	e been evaluated with the Single	e Calculus Chain
• Yes	O No	
Commen	t:	
Active use	er of SCC	
Handboo	k of Instruments is up-to-date	
• Yes	O No Chee	cked on:
Commen	t:	
Will be up	dated when new laser is in full op	eration
Upgrades	s and status changes during the r	eporting period, other comments
The eviating lager evident foiled early in 2019. Attempts to repair the lager did not lead to a solution		
and in De and qualit	cember 2018, a new laser was in: y assurance tests are being perfo	stalled for the tropospheric lidar. In March-April adjustments rmed, with update of the HOI.

Station Athens (ATZ)	Period: 01/04/2018 - 31/03/2019	
Measurements have been regularly per Yes No Comment: Measurements have been regularly per conditions (rain, clouds, snow) enabled	erformed formed. However, during fall-winter 2018-2019, bad weather us to perform very few measurements.	
Internal quality checks have been per Yes No Comment:	formed	
Data have been regularly submitted to Yes No Comment:	o the database	
Data have been evaluated with the Sin Yes No Comment:	ngle Calculus Chain	
Handbook of Instruments is up-to-dat Yes No Comment:	e Checked on: 2018/04/25	
Upgrades and status changes during the reporting period, other comments		
Since November 2018, a new funding project has been established at NTUA, through the Greek research Project PANACEA, to support ERIC/ESFRI activities.		
PANACEA aims to upgrade the 2 lidar systems of NTUA (the stationary and the mobile ones) with new detection channels as follows: stationary system (EOLE): upgrade with an additional depolarization channel (532 nm) and semi-automatization of the lidar measurements mobile system AIAS: upgrade with an additional detection channel at 1064 nm.		

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Station	Barcelona (BRC)	Period: 01/04/2018 - 31/03/2019
Measure	ments have been regularly perf	ormed
• Yes	O No	
Commen	t:	
Internal	quality checks have been perfor	med
• Yes	O No	
Commen	t:	
Commen		
Data hay	e been regularly submitted to t	he datahase
Common	+.	
	<del>.</del> .	
Data have	been uploaded to the database. The o the database vet, because of the i	ast set of inversions 2016-2018 has been processed, but not accompatibility between the actual SCC V5 products and the
database e	entry format. SCC developpers and c	latase people should solve the problem during next March.
Data hav	e been evaluated with the Singl	e Calculus Chain
• Yes	O No	
Commen	t:	
All our da	ta are now processed with the S	CC.
Handboo	k of Instruments is up-to-date	
Yes	🔘 No Che	ecked on: 2019/02/27
Commen	t:	
Upgrade	and status changes during the	reporting period, other comments
A new no	arization-sensitive channel at 35	5 nm has been added to the Barcelona FARI INFT/LIPC
system. It	is now a 3beta + 2alpha + 2delta	a + 1WV system. The system is operating correctly in this
configura	ion since 23 Oct. 2018.	, , , , , , , , , , , , , , , , , , ,
1		

Station Be	lsk (COG)		Period: 01/04/2018 - 31/03/2019
Measurements	have been regula	rly performed	
O Yes	💽 No		
Comment:	-		
We stopped me	surements due to u	pgrade of the system.	
Internal quality	y checks have been	performed	
• Yes	O No		
Comment:	Ŭ		
Data have hee	n regularly submitt	ed to the database	
Comment:			
We are submitti	ng data to SCC dat	abase waiting for sync	hronization between SCC and ERLINE I
ualabase.			
			•
Data have beer	n evaluated with th	he Single Calculus Cha	in
• Yes	O No		
Comment:			
Handbook of Ir	nstruments is up-to	o-date	
O Yes	💽 No	Checked on:	
Comment:			
LIDAR is under	reconstruction. Ha	ndbook will be updated	l when upgrade will be finished.
Upgrades and s	status changes dur	ing the reporting perio	od, other comments
1			

Station Bucharest (INO)	Period: 01/04/2018 - 31/03/2019
Measurements have been regularly performed	
• Yes No	
Comment:	
Internal quality checks have been performed	
• Yes No	
Comment:	
Data have been regularly submitted to the databas	e
• Yes No	
Comment:	
We are now waiting for the updated version of the da	tabase. This version will accept the new
Theformat of the SCC.	
Data have been evaluated with the Cingle Colorius	Chain
	Chain
Comment	
The data has been regularly submitted to the SCC.	
Handbook of Instruments is un-to-date	
$\bigcirc$ Yes $\bigcirc$ No Checked on:	2019/03/15
Comment:	
Since the handback of Instruments is now incorporate	ad in the SCC all information is up to date
	ed in the SCC all mornation is up to date.
Upgrades and status changes during the reporting	period, other comments
No upgrades to report	

Station	Cabauw (CBW)	Period: 01/04/2018 - 31/03/2019
Measure	ments have been regularly perfor	med
○ Yes	No No	
Commen	t:	
Eunding	roblems and therefore staffing St	idente were involved, but net ell were conchle of
contributi	nd to the observations	dents were involved, but not all were capable of
Internal	nuality chacks have been perform	ad
		eu
Ores	. NO	
Commen	t:	
Funding p	problems and therefore staffing.	
Data hav	e been regularly submitted to the	database
O Yes	No	
Commen	t:	
There was	s no data to submit.	
Data hav	e been evaluated with the Single	Calculus Chain
O Yes	No No	
Commen	t:	
Funding r	oroblems and therefore staffing	
r anang p		
Handboo	k of Instruments is un-to-date	
		red on: 2018/04/01
Common	+. O NO Check	
Commen	ι.	
Upgrade	s and status changes during the re	porting period, other comments
Software upgrades in the instrument control software were performed towards improved remote		
control of	the lidar in order to be able to perfe	orm more observations.

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Station Clermont-Ferrand (PUY)	Period: 01/04/2018 - 31/03/2019
Measurements have been regularly performed	
• Yes No	
Comment:	
Internal quality checks have been performed	
• Yes • No	
Comment:	
Data have been regularly submitted to the database	
• Yes No	
Comment:	
	In
Comment:	
comment.	
Handbook of Instruments is up-to-date	
• Yes • No • Checked on: 2015	9/03/04
Comment:	
Upgrades and status changes during the reporting perio	od, other comments
1. The optical part of the lidar has been moved from the re-	oof of our building to a room just below. So
The telescope and the laser has been installed on an opti	cal board.
The acquisition PC has been change, but the old acquisit	ion software has been reinstalled on the new
system. The measurements had to stop for this work from 2. Lots of other works on the building in order to host the	a April to end of June 2018.
with no major consequence on the configuration, but that	needed to stop measurement from
September to the end of November.	(Spectra Physics) in replacement of our old
CFR400 (Quantel). The acquisition software has been up	graded to control this new laser.

Station	Cork	(UCC)	Period: 01/04/2018 - 31/03/2019
Measure	ments ha	ave been regularly performed	
O Yes		No No	
Commen	t:	0	
Laser failu	ure, tests	and repair: October 2017 - November 3	2018
Man powe	er: No sta	aff to operate Lidar from August 2018	
Internal	quality cl	hecks have been performed	
O Yes		No .	
Commen	t:	9	
The lidar y	was out o	of order during this period	
Data hav	e been r	egularly submitted to the database	
O Yes		No	
Commen	t:	<b>e</b>	
No data m	neasured	from end October 2017 However supr	plementary data from 2012-2017 have been
submitted	in the pa	ast year.	
Data hav	e been e	valuated with the Single Calculus Chair	1
• Yes		O No	
Commen	t:	<b>e</b>	
Data from	n July 201	12- October 2017 have been evaluated v	with the newest version of the SCC.
Data nom			
Handboo	k of Inst	ruments is up-to-date	
• Yes		No Checked on:	
Commen	t:	•	
Upgrades	s and sta	tus changes during the reporting perio	d, other comments
l asor faili	ira tasts	and repair: October 2017 - November (	2018
Man power: No staff to operate lidar for the foreseeable future.			
Status she	ould be c	hanged to grey (dormant)!	

Station Evora (EVO)	Period: 01/04/2018 - 31/03/2019		
Measurements have been regularly performed            • Yes          Comment:			
The measurements were performed with all the 6 since 17July, then due to problems in the 1064 ch the IR channel.	available channels from the beginning of the period annel, the measurements were carried out without		
Internal quality checks have been performed Yes No Comment:			
The quality checks measurements were obtained	(molecular and telecover test).		
Data have been regularly submitted to the data Yes No Comment:	base		
Data for selected events were submitted to the da procedure for the automatic submission of the SC	itabase. We are working to use the implemented C processed data.		
Data have been evaluated with the Single Calcu	lus Chain		
• Yes • No Comment:			
We have still some problems regarding the depole	arization products, but we are solving them.		
Handbook of Instruments is up-to-date			
• Yes • No Checked o Comment:	n: 2019/03/15		
Upgrades and status changes during the reporting period, other comments			
We are still fighting with the problem of the 1064 or required for the calibration of the depolarization cl	channel, in addition we finally did the measurement nannel in order to obtain the calibration coeff.		
Data have been evaluated with the Single Calculus Chain <ul> <li>Yes</li> <li>No</li> </ul> Comment:         We have still some problems regarding the depolarization products, but we are solving them.         Handbook of Instruments is up-to-date <ul> <li>Yes</li> <li>No</li> <li>Checked on: 2019/03/15</li> <li>Comment:</li> </ul> Upgrades and status changes during the reporting period, other comments         We are still fighting with the problem of the 1064 channel, in addition we finally did the measurement required for the calibration of the depolarization channel in order to obtain the calibration coeff.			

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Station Garmisch (GAR)	Period: 01/04/2018 - 31/03/2019
Measurements have been regularly performed	
• Yes • No	
Comment:	
Internal quality checks have been performed	
Ves No	
Comment:	
Data have been regularly submitted to the datab	ase
$\bigcirc$ Yes $\bigcirc$ No	
Comment:	
Data have been evaluated with the Single Calcul	us Chain
🔘 Yes 💿 No	
Comment:	
Data are from ozone DIAL.	
Handbook of Instruments is up-to-date	
O res O No Checked on	
	and the second
(retirement) this effort had to be postponed.	ew procedure is required: due to limited time
Upgrades and status changes during the reportin	g period, other comments
The measurements with the ozone DIAL will be dis	continued after February 2019 due to lack of
funding (loss of permanent position); continuation of funding.	of work including HSRL could start with additional
The free-tropospheric and stratospheric aerosol so Schneefernerhaus high-altitude station (UFS) with from 2012-2015 have recently been evaluated and	unding was resumed in 2017 at the nearby excellent data quality. The data of the old container submitted to the data base.

Station Granada (GRA)	Period: 01/04/2018 - 31/03/2019
Measurements have been regula	arly performed
• Yes • No	
Comment:	
Internal quality checks have bee	en performed
• Yes • No	
Comment:	
Data have been regularly submit	tted to the database
Comment:	
We focused our effort in impleter	nenting the SCC procedures for our station. We got it by early March
	inting to the database the new format helicul4.
Data have been evaluated with	the Single Calculus Chain
Ves No	
Comment:	
All elastic and depolarization prof	iles are retrieved by SCC. Raman profiles are still pending on
Implementation in SCC.	
Handbook of Instruments is up-	to-date
• Yes • No	Checked on:
Comment:	
Upgrades and status changes du	ring the reporting period, other comments

Station Ispra	a (IPR)	Period: 01/04/2018 - 31/03/2019
Measurements h	ave been regularly	r performed
• Yes	🔘 No	
Comment:		
Internal quality of	checks have been p	erformed
• Yes	∩ No	
Comment:	<b>U</b>	
Data have been	rogularly submittor	to the database
Commont		
comment:		
Data submitted til	I Sept. 2018. Inter-c	comparison with MUSA suggest possible issues affecting the
process data from	aman channeis. wa h Oct. 2018	alting for input from LICal to reprocess data till Sept. 2018 and
	1000.2010.	
Data have been	evaluated with the	Single Calculus Chain
• Yes	O No	
Comment:		
Handbook of Ins	truments is up-to-c	late
• Yes	🔘 No	Checked on: 2019/03/13
Comment:	-	
Minor changes m	ade (filters' OD)	
in the shariyes m		
Upgrades and sta	atus changes during	g the reporting period, other comments
(Damaged) omige		ad from 28 May 2018
(Damaged) emiss		a nom zo May 2010.
1		

Station Kuopio (KUO)	Period: 01/04/2018 - 31/03/2019
Measurements have been regularly performed	
🔿 Yes 💿 No	
Comment:	
The lidar system has been in a one-year campaign February 2019. Campaign measurements in UAE h Kuopio will be back in operation by the end of Marc	in United Arab Emirates (UAE), March 2018 - ave been continuous. The system is now back in h 2019.
Internal quality checks have been performed	
• Yes • No	
Comment:	
For the campaign period, yes.	
Data have been regularly submitted to the databa	ase
🔘 Yes 💽 No	
Comment:	
No EARLINET measurements during the period.	
Data have been evaluated with the Single Calculu	is Chain
Yes 💽 No	
Comment:	
Single cases have been tested for the old system b We are ready, if asked, to submit data to SCC for the system/channels still have to be implemented in SC	ut no comprehensive performance has been done. ne old system only at the moment. The new CC.
Handbook of Instruments is up-to-date	
Yes • No Checked on:	
Comment:	
The HOI is valid for the system prior the upgrade, u process.	ntil 2017. For the new system, the HOI update is in
Upgrades and status changes during the reporting	g period, other comments
The system has returned to Kuopio (March 2019) a (March 2018 - February 2019).	fter a one-year campaign in United Arab Emirates,

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Station L'Aquila (LAQ)	Period: 01/04/2018 - 31/03/2019
Measurements have been regularly performed	
🔿 Yes 💿 No	
Comment:	
Please see comments below.	
Internal quality checks have been performed	
O Yes O No	
Comment:	
Please see comments below.	
Data have been regularly submitted to the databa	se
Comment:	
Please see comments below.	
Data have been evaluated with the Single Calculus	s Chain
🔘 Yes 💿 No	
Comment:	
Please see comments below.	
Handbook of Instruments is up-to-date	
Yes • No Checked on:	
Comment:	
Please see comments below.	
Upgrades and status changes during the reporting	period. other comments
a UV Raman Lidar (355+387+407) These data are a	urements at LAQ in 2018 during the test phase of available but not in the database. This UV Raman
Lidar is now operative (two measurements per day)	in La Palma (Canary Islands) for the CTA
experiment (www.cta-observatory.org) at the Observ	vatorio del Roque de los Muchachos (ORM,
A new Raman lidar (3+2) in LAQ is still in its prelimin	nary stage of construction.

Station Lecce (SAL)	Period: 01/04/2018 - 31/03/2019
Measurements have been regularly performed	
• Yes No	
Comment:	
No	
Comment:	
Internal quality shocks have not been performed due to	the lack of personnel
Internal quality checks have not been performed due to	the lack of personnel.
Data have been regularly submitted to the database	
• Yes No	
Comment:	
Data have been evaluated with the Single Calculus Cl	nain
• Yes No	
Comment:	
Until now only a few measurements have been analyze	d by using SCC.
Handbook of Instruments is up-to-date	
• Yes • No Checked on:	
Comment:	
Upgrades and status changes during the reporting pe	riod, other comments

Station Leip	ozig (LEI)	Period: 01/04/2018 - 31/03/2019
Measurements h	nave been regularly	performed
• Yes	🔘 No	
Comment:	•	
Internal quality	checks have been p	erformed
• Yes	🔘 No	
Comment:	-	
Data have been	regularly submitted	t to the database
O Yes	💽 No	
Comment:	-	
Data uploaded ur	ntil end of August 20	18. After that period focus on SCC upload. Further uplaod to DB
when netcdf form	at from SCC output	is Earlinet DB compatible.
Data have been	evaluated with the	Single Calculus Chain
• Yes	🔘 No	
Comment:		
Handbook of Ins	truments is up-to-d	late
• Yes	🔘 No	Checked on:
Comment:		
Upgrades and status changes during the reporting period, other comments		
Three lidar svster	ms have been used	for EARLINET measurement in Leipzig:
PollyXT_Oceane	t, PollyXT_LACROS	, Polly_1v2. For all, QA test have been performed and data was
uploaded as state	ed above. Currently	only Polly_1v2, which is a single-wavelength Raman lidar, is
avaliable at Lelpz	.ıy.	

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Station	Lille (LLE	Ξ)	Period: 01/04/2018 - 31/03/2019
Measure	ments have be	en regularly perf	ormed
• Yes		١o	
Commen	t:		
We made (which wo	e regular measu orks 24/7) was :	irements when the showing the prese	e weather was favorable and when our Low Power LiDAR ence of a layer. 94 days of measurements since 01/04/2018.
Internal	quality checks	have been perfor	rmed
O Yes		No	
Commen	it:		
We shoul We will do	d do it but our l o it in Septemb	∟idar was moved er when it will retu	for a campaign during the 1st semester of 2019. ırn back to LOA.
Data hav	e been regular	ly submitted to t	he database
🔵 Yes		١o	
Commen	it:		
Because w and this fo we expect	ve use SCC and rmat is not accep a big improvmer	actually, we can't se oted by the Earlinet it of it, otherwise thi	end data to Earlinet, the format from SCC product file has changed processing. SCC is still very heavy for operating as a real network- s will always yield a less submitted data than actually measured.
Data hav	e been evaluat	ted with the Sing	le Calculus Chain
• Yes		١o	
Commen	t:		
We proce We need centralize	essed with SCC to do it by an a ed data submise	, 2 nights (06/04/ utomatic way this sion through AER	2018 and 02/07/2018) and 1 day (02/07/2018). year (see French initiative to setup automatic and S).
Handboo	ok of Instrumer	nts is up-to-date	
• Yes		No Ch	ecked on:
Commen	it:		
Upgrade	s and status ch	anges during the	reporting period, other comments
	PSS test in De	cember-lanuary (	2019 before to leave for our campaign

Station Lim	assol (LIM)	Period: 01/04/2018 - 31/03/2019
Measurements	have been regularly p	performed
O Yes	• No	
Comment:	Ŭ	
Limited person p is running.	ower. Only under inter	resting atmospheric conditions and special cases Limassol lidar
Internal quality	checks have been pe	rformed
Comment:	<b>O</b> NO	
No changes to the Calibration and c	ne system since April 2 dark signal measureme	2017 when the last quality checks have been performed. ents are performed regularly together with the measurements.
Data have been	regularly submitted	to the database
O Yes	💽 No	
Comment:	-	
Only published o	lata have been submit	ted to the database.
Data have been	evaluated with the S	ingle Calculus Chain
• Yes	🔿 No	
Comment:	Ŭ	
Handbook of In	struments is up-to-da	te
• Yes Comment:	O No	Checked on: 2018/10/01
Upgrades and s	tatus changes during	the reporting period, other comments
No upgrades or	status changes.	

Station Madr	id (MDR)	Period: 01/04/2018 - 31/03/2019
Measurements ha	ave been regularly performed	
• Yes	O No	
Comment:	-	
Internal quality cl	hecks have been performed	
• Yes	O No	
Comment:	<b>.</b>	
Data have been re	egularly submitted to the database	
• Yes	O No	
Comment:	-	
Data have been e	valuated with the Single Calculus Chair	n
• Yes	O No	
Comment:	0	
Handbook of Inst	ruments is up-to-date	
• Yes	No Checked on:	
Comment:	-	
Upgrades and sta	tus changes during the reporting perio	d, other comments

Station	Minsk (MAS)	Period: 01/04/2018 - 31/03/2019
Measure	ments have been regularly	performed
• Yes	🔘 No	
Commen	t:	
Regular r	neasurements with MSTL-2	lidar system are carried out in Minsk.
We stopp	ed works with LRM-lidar due	e to laser breakdown.
Internal	quality checks have been p	erformed
• Yes	O No	
Commen	t:	
Data hay	e been regularly submitted	to the database
Yes	∩ No	
Commen	t.	
commen		
Data hay		Single Calculus Chain
		Single Calculus Chain
Ores	. No	
Commen	t:	
Regular r	neasurements are processe	d with in-house software.
Handboo	k of Instruments is up-to-d	ate
Yes	🔘 No	Checked on:
Commen	t:	
Upgrade	s and status changes during	g the reporting period, other comments
We have	manufactured additional lid	ar equipment modules and will transform the MLR-mobile lidar
into an au	tomated lidar with two recei	ving systems located in a container, to provide lidar observations
at the Be	arussian Antarctic station. V	Ve use a new diode-pumped laser without a water cooling
system. V	ve expect to complete the re	eaesign of the lidar in April 2019.

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Station	Naples (NAP)	Period: 01/04/2018 - 31/03/2019
Measure	ments have been regularly perform	ed
O Yes	• No	
Commen	t:	
Measuren	nent were performed but not with reg	ularity because of many technical problems.
Internal	quality checks have been performed	
O Yes	💽 No	
Commen	t:	
Internal q	uality check were not performed due	to technical problems.
Data hav	e been regularly submitted to the da	atabase
• Yes	O No	
Commen	t:	
Data were	e partially submitted to the database.	
Data hav	e been evaluated with the Single Ca	lculus Chain
O Yes	No	
Commen	t:	
Regular n	neasurement were processed using c	ur software. We are planning to process our data with
SCC as s	oon as possible.	
Handboo	k of Instruments is up-to-date	2016/03/18
• Yes	. O No Checked	10n: 2010/03/18
Commen	t:	
Ungrade	s and status changes during the rend	orting period other comments
opgidde		
Recently, updated a	the laser source and the acquisition lass soon as possible.	board have been replaced with news. HOI will be
	·	

Station Hohenpeissenberg (HPB)	Period: 01/04/2018 - 31/03/2019
Measurements have been regularly performed	
• Yes • No	
Comment:	
Internal quality checks have been performed	
• Yes No	
Comment:	
Data have been regularly submitted to the database	
• Yes • No	
Comment:	
	•
Data have been evaluated with the Single Calculus Cha	lin
• Yes O No	
Comment:	
Handbook of Instruments is up-to-date	
• Yes • No Checked on:	
• Yes • No Checked on:	
• Yes No Checked on: Comment:	
• Yes • No Checked on: Comment:	
• Yes • No Checked on: Comment:	
• Yes • No Checked on: Comment:	
<ul> <li>Yes</li> <li>No</li> <li>Checked on:</li> <li>Comment:</li> <li>Upgrades and status changes during the reporting period</li> </ul>	od, other comments
<ul> <li>Yes</li> <li>No</li> <li>Comment:</li> <li>Upgrades and status changes during the reporting period</li> </ul>	od, other comments
<ul> <li>Yes</li> <li>No</li> <li>Checked on:</li> <li>Comment:</li> <li>Upgrades and status changes during the reporting period</li> </ul>	od, other comments
<ul> <li>Yes</li> <li>No</li> <li>Checked on:</li> <li>Comment:</li> <li>Upgrades and status changes during the reporting period</li> </ul>	od, other comments
<ul> <li>Yes</li> <li>No</li> <li>Checked on:</li> <li>Comment:</li> <li>Upgrades and status changes during the reporting period</li> </ul>	od, other comments
<ul> <li>Yes</li> <li>No</li> <li>Checked on:</li> <li>Comment:</li> <li>Upgrades and status changes during the reporting period</li> </ul>	od, other comments
<ul> <li>Yes</li> <li>No</li> <li>Checked on:</li> <li>Comment:</li> <li>Upgrades and status changes during the reporting period</li> </ul>	od, other comments
<ul> <li>Yes</li> <li>No</li> <li>Checked on:</li> <li>Comment:</li> <li>Upgrades and status changes during the reporting period</li> </ul>	od, other comments

Station	Palaiseau (SIR)		Period: 01/04/2018 - 31/03/2019
Measurer	ments have been regular	ly performed	
Yes	O No		
Comment			
90 days in	cluding 50 complete nigh	t	
Internal o	wality checks have been	nerformed	
		performed	
Comment			
Data have	e been regularly submitte	ed to the databa	se
OYes	● No		
Comment			
Due to sta	tus changes during 2018	, in April, August	and Spetember, data needs to be closely
anarysea			
Data have	been evaluated with th	e Single Calculus	Chain
• Yes			
Comment			
Following	training session, IPRAL v	vas completely de	efined in SCC. many days have been
submitted	and work is still ongoing	to valdate SCC o	utput
Handbool	k of Instruments is up-to	-date	
• Yes	<b>O</b> No	Checked on:	september 2018
Comment			
HOI was c	hecked and completed d	uring the latest A	CTRIS Intercomparison 18 in september 2018
Upgrades	and status changes duri	ng the reporting	period, other comments
	-		
- April 201	8. Near Range telescope	was checked an	d corrected by Gordien Strato company and near
- Augut 20	18. Near Range WSU ali	gnment was che	cked by Raymetrics support and enhanced using a
camera. W	/SU poositioning was opt er 2018, Intercomparison	imized i IC18 was perfor	med. Alignement of the entire suystem was
checked a	nd corrected using came	ra and telecover.	Calibration of polarized channels was performed.
Opumizati	on of channel signals was		

Station	Potenza (POT)	Period: 01/04/2018 - 31/03/2019		
Measure	ments have been regularly pe	rformed		
• Yes	O No			
Commen	t:			
Measurer campaign during Au	Measurements have been regularly performed except in correspondence of two lidar intercomparison campaigns (ISPLI18 and THELI18, held in 2nd half of July and September 2018 respectively) and during August 2018, due to a laser failure that was solved in the first half of September 2018.			
Internal	quality checks have been perfo	ormed		
Yes	🔘 No			
Commen	t:			
Data hav	e been regularly submitted to	the database		
O Yes	No			
Commen	t:			
Data (mo	re than 40 until today) have bee	en not vet uploaded to the database because they have been		
analysed	with the last version of SCC. The	herefore, due to data format compatibility reasons, they will be		
uploaded	as soon as the new version of	the database will be made available.		
Data hav	e been evaluated with the Sin	gle Calculus Chain		
• Yes	O No	-		
Commen	t:			
Handboo	k of Instruments is up-to-date	1		
• Yes	O No C	hecked on: 2019/03/12		
Commen	t:			
	-			
Upgrade	s and status changes during th	e reporting period, other comments		
At the her	ninning of July 2018 MUSA has	s been equipped with a stand-alone batch consisting in high		
quality wi	ndows for transmitted and colle	cted radiation, automated hatch with rain sensor, and blower		

Station Payerne (PAY)	Period: 01/04/2018 - 31/03/2019
Measurements have been regularly performed	
• Yes No	
Comment:	
Internal quality checks have been performed	
• Yes • No	
Comment:	
Data have been regularly submitted to the database	
Ves Vivo	
comment.	
Data have been evaluated with the Single Calculus Ch	ain
Yes O No	
Comment:	
The data from Payerne's lidar system has not yet been a	adapted to the required format for the Single
	ionins.
Handbook of Instruments is un-to-date	
• Yes • No Checked on:	
Comment:	
Upgrades and status changes during the reporting per	riod, other comments
In February 2018 we have installed the new laser sourc	e LPY7864G-30 manufactured by Litron Laser
pulse energy of 450 mJ.	of 2J and emitted wavelength at 355 nm with

<u> </u>	
Station Rome (RME)	Period: 01/04/2018 - 31/03/2019
Measurements have been regularly performe	ed
• Yes • No	
Comment:	
Internal quality checks have been performed	
Ves Vivo	
comment:	
Data have been regularly submitted to the da	atabase
• Yes • No	
Comment:	
We started to submit some test data in January submitted in the next weeks.	y 2019. All data from June 2016 to date will be
Data have been evaluated with the Single Ca	leulus Chain
Comment:	
The SCC winter school at Potenza in December	ar and the EUNADICS campaign allowed fiving the
errors that we had when uploading data to SCC	C. We will finally upload all the acquired measurements.
Handbook of Instruments is up-to-date	
• Yes • No Checked	d on: 2019/03/15
Comment:	
Upgrades and status changes during the repo	orting period, other comments
The addition of a polarized channel at 532 nm	is on going. We are now testing the final configuration.

Station	Sofia	(SOF)	Period: 01/04/2018 - 31/03/2019
Measure • Yes Commen	<b>ments ha</b> t:	<b>ve been regulari</b> No	y performed
Explanatio	on: Meası	irements were pe	rformed all the time, when weather conditions were appropriate.
Internal of Yes Commen	<b>quality ch</b> t:	ecks have been   O No	performed
Explanatio	on: Last q	uality check was	made on 04 February 2019.
Data hav • Yes Commen	<b>e been re</b> t:	gularly submitte	d to the database
All data of	f our mea	surements was s	ubmitted to the database.
Data hav	e been ev	aluated with the	Single Calculus Chain
O Yes		💽 No	
Commen	t:		
We used our own software systems for data processing. But we noticed our lidars are configured in the SCC system and soon we will start using SCC for data evaluation.			
Handboo	k of Instr	uments is up-to-	date
• Yes Commen	t:	O No	Checked on: 2019/02/15
Upgrades	s and stat	us changes durir	g the reporting period, other comments
Upgrades of both lidar systems are forthcoming in 2019. Precisely, we will perform an upgrade of the edifice where the lidars are placed. We will inform the community later.			

Station Saint Petersburg (SPL)	Period: 01/04/2018 - 31/03/2019
Measurements have been regularly performed	
• Yes No	
Comment:	
Internal quality checks have been performed	
Comment:	
	00 D
vere waiting for answer from volker. The letter was s	sent on 20 December 2018.
Data have been required, submitted to the database	
Data have been regularly submitted to the database	2
Ves O No	
Comment:	
Data have been evaluated with the Single Calculus	Chain
🔘 Yes 💿 No	
Comment:	
We are in contact with Guiseppe, upload the test data	to the SCC, tuning all parameters for the correct
calculation in SCC.	
Handbook of Instruments is up-to-date	
• Yes • No • Checked on:	
Comment:	
We sent our bandbook to Volker 29 March 2018 and a	also we filled out the form in SCC, but it is not
displayed on the website, we wrote a letter to Giusepp	be to understand why this happens.
Upgrades and status changes during the reporting p	eriod. other comments

Station Thessaloniki (THE)	Period: 01/04/2018 - 31/03/2019
Measurements have been regularly performed	
• Yes No	
Comment:	
Internal quality checks have been performed	
• Yes • No	
Comment:	
comment.	
Data have been regularly submitted to the database	
Commente	
Comment:	
	-
Data have been evaluated with the Single Calculus Ch	ain
• Yes No	
Comment:	
Handbook of Instruments is up-to-date	
• Yes • No • Checked on:	
Comment:	
Upgrades and status changes during the reporting per	iod, other comments
The system was intercompared with Potenza's lidar duri	ng September 2018

Station Warsaw (WAW) Period: 01/04/20	18 - 31/03/2019		
Measurements have been regularly performed			
Yes No			
Comment:			
During the reporting period, 24h/7days measurements were performed with exc availability. There is lack of data in period 4 - 27 Feb 2019, due to a technical is currently this problem is solved.	eptionally high data sue with the laser;		
Internal quality checks have been performed			
• Yes • No			
Comment:			
All required QA test were performed during the Intercomparison Campaign, which took place 13 - 25 June 2018 at Remote Sensing Lab in Warsaw. Performance of PollyXT-UW lidar was compared to POLIS-6 reference lidar. Data were evaluated by V.Freudenthaler. All tests were successfully passed.			
Data have been regularly submitted to the database			
Yes No			
Comment:			
Curently data up to 31 Dec 2017, have been manually evaluated and uploaded to the EARLINET/ACTRIS Data Base. Starting from 2018, all profiles will be evaluated using SCC only. Currently we are facing issues with this automated retrieval.			
Data have been evaluated with the Single Calculus Chain			
• Yes • No			
• Yes • No Comment:			
Yes No Comment: The SCC channels and products for PollyXT-UW are defined. We developed a converter (MATLAB). The first data files were tested. The SCC data evaluation difficult than manual one.	new raw-to-SCC data was found more		
• Yes No Comment: The SCC channels and products for PollyXT-UW are defined. We developed and converter (MATLAB). The first data files were tested. The SCC data evaluation of difficult than manual one.	new raw-to-SCC data was found more		
<ul> <li>Yes No</li> <li>Comment:</li> <li>The SCC channels and products for PollyXT-UW are defined. We developed a reconverter (MATLAB). The first data files were tested. The SCC data evaluation of difficult than manual one.</li> <li>Handbook of Instruments is up-to-date         <ul> <li>Yes No</li> <li>Checked on: 2018/12/04</li> <li>Comment:</li> </ul> </li> </ul>	new raw-to-SCC data was found more		
<ul> <li>Yes</li> <li>No</li> <li>Comment:</li> <li>The SCC channels and products for PollyXT-UW are defined. We developed a reconverter (MATLAB). The first data files were tested. The SCC data evaluation of difficult than manual one.</li> <li>Handbook of Instruments is up-to-date         <ul> <li>Yes</li> <li>No</li> <li>Checked on: 2018/12/04</li> <li>Comment:</li> <li>HOL was checked and it is up-to-date</li> </ul> </li> </ul>	new raw-to-SCC data was found more		
<ul> <li>Yes No</li> <li>Comment:</li> <li>The SCC channels and products for PollyXT-UW are defined. We developed a converter (MATLAB). The first data files were tested. The SCC data evaluation of difficult than manual one.</li> <li>Handbook of Instruments is up-to-date         <ul> <li>Yes No</li> <li>Checked on: 2018/12/04</li> <li>Comment:</li> <li>HOI was checked and it is up-to-date.</li> </ul> </li> </ul>	new raw-to-SCC data was found more		
<ul> <li>Yes</li> <li>No</li> <li>Comment:</li> <li>The SCC channels and products for PollyXT-UW are defined. We developed a reconverter (MATLAB). The first data files were tested. The SCC data evaluation of difficult than manual one.</li> <li>Handbook of Instruments is up-to-date         <ul> <li>Yes</li> <li>No</li> <li>Checked on: 2018/12/04</li> <li>Comment:</li> <li>HOI was checked and it is up-to-date.</li> </ul> </li> <li>Upgrades and status changes during the reporting period, other comments</li> </ul>	new raw-to-SCC data was found more		
<ul> <li>Yes</li> <li>No</li> <li>Comment:</li> <li>The SCC channels and products for PollyXT-UW are defined. We developed a reconverter (MATLAB). The first data files were tested. The SCC data evaluation of difficult than manual one.</li> <li>Handbook of Instruments is up-to-date         <ul> <li>Yes</li> <li>No</li> <li>Checked on: 2018/12/04</li> <li>Comment:</li> <li>HOI was checked and it is up-to-date.</li> </ul> </li> <li>Upgrades and status changes during the reporting period, other comments</li> <li>All profiles starting form July 2016 are analyzed with additional use of the near-1532, 387, and 607.</li> </ul>	new raw-to-SCC data was found more		
<ul> <li>Yes</li> <li>No</li> <li>Comment:</li> <li>The SCC channels and products for PollyXT-UW are defined. We developed a product of the converter (MATLAB). The first data files were tested. The SCC data evaluation of difficult than manual one.</li> <li>Handbook of Instruments is up-to-date         <ul> <li>Yes</li> <li>No</li> <li>Checked on: 2018/12/04</li> <li>Comment:</li> <li>HOI was checked and it is up-to-date.</li> </ul> </li> <li>Upgrades and status changes during the reporting period, other comments</li> <li>All profiles starting form July 2016 are analyzed with additional use of the near-fis2, 387, and 607.</li> <li>The developed raw-to-SCC data PollyXT converter was given to the PollyXT Det TROPOS for further dissemination.</li> </ul>	new raw-to-SCC data was found more		
<ul> <li>Yes</li> <li>No</li> <li>Comment:</li> <li>The SCC channels and products for PollyXT-UW are defined. We developed a converter (MATLAB). The first data files were tested. The SCC data evaluation difficult than manual one.</li> <li>Handbook of Instruments is up-to-date         <ul> <li>Yes</li> <li>No</li> <li>Checked on: 2018/12/04</li> <li>Comment:</li> <li>HOI was checked and it is up-to-date.</li> </ul> </li> <li>Upgrades and status changes during the reporting period, other comments</li> <li>All profiles starting form July 2016 are analyzed with additional use of the near-f532, 387, and 607.</li> <li>The developed raw-to-SCC data PollyXT converter was given to the PollyXT DetTROPOS for further dissemination.</li> <li>Staff of the Remote Sensing Lab in Warsaw took an active part in the SCC Wint on 4-6 Dec 2018.</li> </ul>	new raw-to-SCC data was found more		

Station Dushanbe (DUS)	Period: 01/04/2018 - 31/03/2019
Measurements have been regularly perform	led
🔿 Yes 💿 No	
Comment:	
The lidar has been removed (back to German	y) in September 2016.
A new system will be installed in June 2019.	
Internal quality checks have been performe	d
O Yes O No	
Comment:	
Data have been regularly submitted to the	latahase
Comment	
Comment:	
Data have been evaluated with the Single C	alculus Chain
🔿 Yes 💿 No	
Comment:	
Handbook of Instruments is up-to-date	
Yes 💽 No Checke	ed on:
Comment:	
Upgrades and status changes during the rep	orting period, other comments
We play to install the new system in lune 201	
we plan to install the new system in June 201	9.

Station Nicolosi (NCL)	Period: 01/04/2018 - 31/03/2019		
Measurements have been regularly performed			
💽 Yes 🔘 No			
Comment:			
Measurements were regularly performed in Serra during ETNA eruptions.	La Nave (ETNA) with mobile lidar system AMPLE		
Internal quality checks have been performed			
• Yes • No			
Comment:			
Rayleigh Fit and Telecover Test have been perfor	med but not still sent.		
Data have been regularly submitted to the data	base		
• Yes • No			
Comment:			
Data were partially submitted to the database.			
Data have been evaluated with the Single Calcu	lus Chain		
🔿 Yes 💿 No			
Comment:			
Regular mesurements were processed using DALA software developed specifically for our system. We are planning to process our data with SCC as soon as possible.			
Handbook of Instruments is up-to-date			
Yes O No Checked o	n:		
Comment:			
Not vet but as soon as nossible			
Upgrades and status changes during the reporti	ng period, other comments		

Station Antikythera (AKY)	Period: 13/06/2018 - 31/03/2019		
Measurements have been regularly performed			
Comment			
Downtime periods: June 22 - August 26: Lidar system stays off due to laser power supply failure. November 4 - February 20 : Lidar system stays off due to laser head repair.			
Internal quality checks have been performed			
• Yes • No			
Comment:			
connent.			
Data have been regularly submitted to the database			
Ves 💽 No			
Comment:			
Since June 2018 we have faced many system-related to submit data to the SCC. We are planning to submit	problems and only recently we have been able to EARLINET database soon.		
Data have been evaluated with the Single Calculus C	hain		
💽 Yes 🖳 No			
Comment:			
Handbook of Instruments is un-to-date			
Ves No Checked on 2	019/03/13		
Commont:			
comment.			
Upgrades and status changes during the reporting p	eriod, other comments		

Station	Belgrade (BGD)	Period: 01/04/2018 - 31/03/2019
Measure	ments have been regularly perfo	ormed
• Yes	🔘 No	
Commen	t:	
We perfor as weathe conditions	med measurements according to r permitted. Measurements were and improvement of lidar alignm	EARLINET schedule and during dust intrusion episodes, not regularly performed during winter, due to poor weather ent.
Internal of	quality checks have been perform	med
• Yes	🔘 No	
Commen	t:	
Data hav	e been regularly submitted to th	ne database
O Yes		
Commen		
Developm	ent of in-house software for data	analysis is in progress. Selected measurement data were
processed	I using Raymetrics software, but	quality check is needed before data submission.
Data have	- he are a such as to deviate the Circul	
	e been evaluated with the Single	
O Yes		
Commen		
vve plan to Selected o	o start using SCC in near future. Jatasets were analyzed using SC	C as part of practice during SCC Winter School in
Potenza.	We also submitted to SCC data c	ollected as part of recent EUNADICS exercise.
Handboo	k of Instruments is up-to-date	
• Yes	🔵 No Che	cked on:
Commen	t:	
Upgrades	and status changes during the	reporting period, other comments
There wer	e no changes during the reportin	g period.
	5 5 1	

Station	Burjassot (BUJ)	Period: 01/04/2018 - 31/03/2019		
Measure O Yes Commen	ments have been regularly No t:	/ performed		
We have replaced the laser for the lidar system. We have problems with the alignment of the laser emission and reception. We have made progress but we are still working hard on it to solve it completely.				
Internal	quality checks have been p	performed		
O Yes	💽 No			
Commen	t:			
Data hav	e been regularly submitte	d to the database		
O Yes	No			
Commen	t:			
Data hav	e been evaluated with the	Single Calculus Chain		
O Yes	No			
Commen	t:			
Handboo	k of Instruments is up-to-o	date		
O Yes Commen	• No t:	Checked on:		
Most of th compone	e elements of the RMAN-5 nts of the receiving optics. \	10 are determined. However, we still lack information about some <i>Ne</i> are already working on this issue.		
Upgrade	s and status changes durin	g the reporting period, other comments		
We have Leospher requested	replaced the original laser e RMAN-510 lidar system i l funds to acquire a new lida	Fitan AC-50 by another of the same brand and model. Since the is not technically suppported anymore by Leosphere we have ar system.		

Station Cluj-Napoca (CLJ)	Period: 01/04/2018 - 31/03/2019
Measurements have been regularly performed	
• Yes No	
Comment:	
yes, since September 2018	
Internal quality checks have been performed	
💽 Yes 🔘 No	
Comment:	
QA still in discussion with Volker	
Data have been regularly submitted to the data	base
🔘 Yes 💿 No	
Comment:	
waiting for final QA approval from Volker	
Data have been evaluated with the Single Calcu	lus Chain
• Yes • No	
Comment:	
some problems persist with the SCC processing for	or 532 depol.
Handbook of Instruments is up-to-date	
Yes      No      Checked of	n: 2019/02/28
Comment:	
Upgrades and status changes during the reporti	ng period, other comments
removed beam expander	

### Section 2

# **Cloudnet Station Reports**

### Period: April 2018 – March 2019

### Summary

- **Stations:** There have been significant gaps in continuous operation at a number of sites due to instruments requiring repair. There are new stations in construction/testing, and datasets from several long-term field experiments in review. At least 10 stations also operate a Doppler lidar.
- Calibration: No standardised or regular calibration is performed for every instrument at every site.
  - Cloud radar no absolute calibration except for Palaiseau (fixed target) and Chilbolton (intercomparison with calibrated S-band radar). Most sites monitor transmit pulse and noise.
  - Ceilometer calibration performed using cloud or molecular techniques depending on system type (as also described in E-Profile guidelines); implemented at regular intervals at some sites. Some sites use intercomparison with Raman instruments.
  - MWR Almost all sites use standardised MWRNET/TOPROF procedures, with tip curves and liquid nitrogen. These procedures will be implemented at regular intervals and applicability of clear-sky LWP cross-check (Gaussiat et al., 2004) at all sites is being investigated.
- Model data: ECMWF model data standard at all sites, but provision for 'local' NWP model data is
  present (e.g., RACMO at Cabauw, ICON-EU at Lindenberg). Since model/radiosonde data are
  necessary for Cloudnet operation, but may not always be available, GDAS data is now available for
  every site. Other NWP model data is available for sites in specific domains: ICON-IGLO, HARMONIE
  (available from 3 Met Services), WRF. Model data is also available for EARLINET stations.
- **Processing up to date, NRT and transfer:** NRT operation requires reliable NRT transfer of model or radiosonde data. All sites have NRT capability (data for Mace Head, Palaiseau and Finnish sites processed at Cloudnet server), and Cloudnet processing in NRT is now expected for all sites.
- **Manual QC inspection:** Data at each site has been inspected for data quality issues, but this is not yet routine at all sites.
- **Suitability for publication:** Data at each site are suitable for specific publications (e.g. those written by members of the station), but not yet for wider dissemination (used by those not familiar with the specific dataset).

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Station Cabauw (ca)	Period: 01/04/2018 - 31/03/2019			
Instrumentation Date and		method of last calibration		
Cloud Radar No absolute calibr		ration, daily reading power and system noise figure		
Ceilometer/Lidar LD40 method O'C		Conner, CHM15K by E-Profile project		
Microwave Radiometer MWR failed to op		erate early 2018		
Rain Gauge/Disdrometer	unknown			
Doppler Lidar	unknown (Zephir)			
	Raman lidar Caeli, U	JV-lidar ALS450,TARA and IDRA radar, 200 m tower with		
otner ∪	T,q,visibility and win	T,q,visibility and winds, GHG, surface and soil instrumentation (calibration		
	method and dates: r	not applicable, unknown or according to instructions)		
Model data/radiosonde data a	vailable	Cloudnet processing up to date		
💽 Yes  🔿 No		🔿 Yes 💿 No		
Comment:		Comment:		
Radiosonde one daily ascent at daily RACMO model output	De Bilt at 0 UTC,	Likely not up to date, some modifications to local implementation had to be applied, e.g. LWP offset correction and raingauge data preprocessing		
NRT operation		Data transferred to server		
•				
Yes 💽 No		Ves No		
Ves O No Comment:		O Yes O No Comment:		
Ves No Comment: a NRT set-up is implemented bu	it not run	O Yes O No Comment: Post processing and data quality control remains		
Ves No Comment: a NRT set-up is implemented bu presently. Cloudnet processing v with RACMO model input. Offlin HARMONIE output and CHM15	it not run was run once daily e processing with // IV-lidar	O Yes O No Comment: Post processing and data quality control remains an issue to be solved before data will be transferred (some progress has been made over the past year, but due to limited resources		
Ves No Comment: a NRT set-up is implemented bu presently. Cloudnet processing v with RACMO model input. Offlin HARMONIE output and CHM15, Processed data manually inspe	It not run was run once daily e processing with /UV-lidar ected	Yes No Comment: Post processing and data quality control remains an issue to be solved before data will be transferred (some progress has been made over the past year, but due to limited resources Data suitable for publication		
Ves No Comment: a NRT set-up is implemented bu presently. Cloudnet processing v with RACMO model input. Offlin HARMONIE output and CHM15, Processed data manually inspe	It not run was run once daily e processing with /UV-lidar ccted	Yes       No         Comment:       Post processing and data quality control remains an issue to be solved before data will be transferred (some progress has been made over the past year, but due to limited resources         Data suitable for publication         Yes		
Ves No Comment: a NRT set-up is implemented bu presently. Cloudnet processing v with RACMO model input. Offlin HARMONIE output and CHM15. Processed data manually inspen Ves No Comment:	It not run was run once daily e processing with /UV-lidar c <b>ted</b>	Yes       No         Comment:       Post processing and data quality control remains an issue to be solved before data will be transferred (some progress has been made over the past year, but due to limited resources         Data suitable for publication         Yes       No         Comment:		
Ves No Comment: a NRT set-up is implemented bu presently. Cloudnet processing v with RACMO model input. Offlin HARMONIE output and CHM15 Processed data manually inspec Ves No Comment: Resources for manual inspection	It not run was run once daily e processing with /UV-lidar c <b>ted</b> n not available.	Yes       No         Comment:       Post processing and data quality control remains an issue to be solved before data will be transferred (some progress has been made over the past year, but due to limited resources         Data suitable for publication       Yes         Yes       No         Comment:       Absolute calibration (bias) of cloudradar uncertain, no MWR data since January 2018		
Ves No Comment: a NRT set-up is implemented bu presently. Cloudnet processing v with RACMO model input. Offlin HARMONIE output and CHM15 Processed data manually inspe Ves No Comment: Resources for manual inspection	It not run was run once daily e processing with /UV-lidar :cted	<ul> <li>○ Yes ○ No</li> <li>Comment:</li> <li>Post processing and data quality control remains an issue to be solved before data will be transferred (some progress has been made over the past year, but due to limited resources</li> <li>Data suitable for publication</li> <li>○ Yes ○ No</li> <li>Comment:</li> <li>Absolute calibration (bias) of cloudradar uncertain, no MWR data since January 2018</li> </ul>		
Ves No Comment: a NRT set-up is implemented bu presently. Cloudnet processing with RACMO model input. Offlin HARMONIE output and CHM15, Processed data manually inspe Ves No Comment: Resources for manual inspection	It not run was run once daily e processing with /UV-lidar ected n not available.	<ul> <li>Yes No</li> <li>Comment:</li> <li>Post processing and data quality control remains an issue to be solved before data will be transferred (some progress has been made over the past year, but due to limited resources</li> <li>Data suitable for publication         <ul> <li>Yes No</li> <li>Comment:</li> <li>Absolute calibration (bias) of cloudradar uncertain, no MWR data since January 2018</li> </ul> </li> </ul>		
<ul> <li>O Yes</li> <li>O No</li> <li>Comment:         <ul> <li>a NRT set-up is implemented bupresently. Cloudnet processing with RACMO model input. Offlin: HARMONIE output and CHM15.</li> </ul> </li> <li>Processed data manually inspection         <ul> <li>O Yes</li> <li>O No</li> <li>Comment: Resources for manual inspection</li> </ul> </li> <li>Upgrades and status changes d         <ul> <li>LWP offset correction for HATPH</li> </ul> </li> </ul>	It not run was run once daily e processing with /UV-lidar ected n not available.	<ul> <li>○ Yes</li> <li>○ No</li> <li>Comment:</li> <li>Post processing and data quality control remains an issue to be solved before data will be transferred (some progress has been made over the past year, but due to limited resources</li> <li>Data suitable for publication</li> <li>○ Yes</li> <li>○ No</li> <li>Comment:</li> <li>Absolute calibration (bias) of cloudradar uncertain, no MWR data since January 2018</li> <li>g period, other comments</li> </ul>		
<ul> <li>○ Yes</li> <li>○ No</li> <li>Comment:         <ul> <li>a NRT set-up is implemented bupresently. Cloudnet processing with RACMO model input. Offlin HARMONIE output and CHM15.</li> <li>Processed data manually inspection</li> <li>○ Yes</li> <li>○ No</li> </ul> </li> <li>Comment:         <ul> <li>Resources for manual inspection</li> </ul> </li> <li>Upgrades and status changes de LWP offset correction for HATPP Cabauw should be filtered for lot too many precipitation events.</li> </ul>	it not run was run once daily e processing with /UV-lidar ected n not available.	<ul> <li>○ Yes</li> <li>○ No</li> <li>Comment:</li> <li>Post processing and data quality control remains an issue to be solved before data will be transferred (some progress has been made over the past year, but due to limited resources</li> <li>Data suitable for publication</li> <li>○ Yes</li> <li>○ No</li> <li>Comment:</li> <li>Absolute calibration (bias) of cloudradar uncertain, no MWR data since January 2018</li> <li>g period, other comments</li> <li>mented and tested. The raingauge data from a data when used in the Cloudnet processing show consisting has been modified improved</li> </ul>		
<ul> <li>○ Yes</li> <li>○ No</li> <li>Comment:         <ul> <li>a NRT set-up is implemented bupresently. Cloudnet processing with RACMO model input. Offlin HARMONIE output and CHM15.</li> <li>Processed data manually insperies of Yes</li> <li>○ Yes</li> <li>○ No</li> </ul> </li> <li>Comment:         <ul> <li>Resources for manual inspection</li> </ul> </li> <li>Upgrades and status changes of LWP offset correction for HATPP Cabauw should be filtered for low too many precipitation events. Of mode-merging, coherent average</li> </ul>	It not run was run once daily e processing with /UV-lidar ected n not available. Iuring the reporting RO has been imple w values. Unfiltered Cloudradar postpro- ing correction and	<ul> <li>○ Yes</li> <li>○ No</li> <li>Comment:</li> <li>Post processing and data quality control remains an issue to be solved before data will be transferred (some progress has been made over the past year, but due to limited resources</li> <li>Data suitable for publication</li> <li>○ Yes</li> <li>○ No</li> <li>Comment:</li> <li>Absolute calibration (bias) of cloudradar uncertain, no MWR data since January 2018</li> <li>g period, other comments</li> <li>mented and tested. The raingauge data from the data when used in the Cloudnet processing show cessing has been modified, improved velocity de-aliasing. Period 2009-2017 has been</li> </ul>		
<ul> <li>○ Yes</li> <li>○ No</li> <li>Comment:         <ul> <li>a NRT set-up is implemented bupresently. Cloudnet processing with RACMO model input. Offlin HARMONIE output and CHM15.</li> <li>Processed data manually insperies of Yes</li> <li>○ Yes</li> <li>○ No</li> </ul> </li> <li>Comment:         <ul> <li>Resources for manual inspection</li> </ul> </li> <li>Upgrades and status changes of LWP offset correction for HATPP Cabauw should be filtered for low too many precipitation events. Of mode-merging, coherent average reprocessed with radar calibratic campaign (2014). Most of these</li> </ul>	It not run was run once daily e processing with /UV-lidar ected n not available. Iuring the reporting RO has been imple w values. Unfiltered Cloudradar postpro- ing correction and on adjusted to Meter data have not beer	<ul> <li>○ Yes</li> <li>○ No</li> <li>Comment:</li> <li>Post processing and data quality control remains an issue to be solved before data will be transferred (some progress has been made over the past year, but due to limited resources</li> <li>Data suitable for publication</li> <li>○ Yes</li> <li>○ No</li> <li>Comment:</li> <li>Absolute calibration (bias) of cloudradar uncertain, no MWR data since January 2018</li> <li>g period, other comments</li> <li>mented and tested. The raingauge data from that when used in the Cloudnet processing show cessing has been modified, improved velocity de-aliasing. Period 2009-2017 has been the radar operated at Cabauw during ACCEPT</li> </ul>		
<ul> <li>○ Yes</li> <li>○ No</li> <li>Comment:         <ul> <li>a NRT set-up is implemented bupresently. Cloudnet processing with RACMO model input. Offlin HARMONIE output and CHM15.</li> <li>Processed data manually inspection</li> <li>○ Yes</li> <li>○ No</li> </ul> </li> <li>Comment:         <ul> <li>Resources for manual inspection</li> </ul> </li> <li>Upgrades and status changes de LWP offset correction for HATPH Cabauw should be filtered for low too many precipitation events. Of mode-merging, coherent average reprocessed with radar calibratic campaign (2014). Most of these</li> </ul>	It not run was run once daily e processing with /UV-lidar cted n not available. Iuring the reporting RO has been imple w values. Unfiltered Cloudradar postpro- ing correction and on adjusted to Meter data have not beer	<ul> <li>Yes ● No</li> <li>Comment:</li> <li>Post processing and data quality control remains an issue to be solved before data will be transferred (some progress has been made over the past year, but due to limited resources</li> <li>Data suitable for publication         <ul> <li>Yes ● No</li> <li>Comment:</li> <li>Absolute calibration (bias) of cloudradar uncertain, no MWR data since January 2018</li> </ul> </li> <li>geriod, other comments         <ul> <li>mented and tested. The raingauge data from data when used in the Cloudnet processing show cessing has been modified, improved velocity de-aliasing. Period 2009-2017 has been is radar operated at Cabauw during ACCEPT in transferred yet.</li> </ul> </li></ul>		
<ul> <li>O Yes</li> <li>No</li> <li>Comment:         <ul> <li>a NRT set-up is implemented bupresently. Cloudnet processing with RACMO model input. Offlin HARMONIE output and CHM15.</li> </ul> </li> <li>Processed data manually inspection of the comment:         <ul> <li>Resources for manual inspection</li> </ul> </li> <li>Upgrades and status changes of LWP offset correction for HATPP Cabauw should be filtered for low too many precipitation events. Of mode-merging, coherent average reprocessed with radar calibratic campaign (2014). Most of these In 2018 the Ruisdael project was project will finance amongst other MWR).</li> </ul>	It not run was run once daily e processing with /UV-lidar ected n not available. Iuring the reporting RO has been imple w values. Unfiltered Cloudradar postpro- ing correction and on adjusted to Meter data have not been s accepted by the N er new instrumentar	<ul> <li>Yes ● No</li> <li>Comment:</li> <li>Post processing and data quality control remains an issue to be solved before data will be transferred (some progress has been made over the past year, but due to limited resources</li> <li>Data suitable for publication</li> <li>Yes ● No</li> <li>Comment:</li> <li>Absolute calibration (bias) of cloudradar uncertain, no MWR data since January 2018</li> <li>g period, other comments</li> <li>mented and tested. The raingauge data from 4 data when used in the Cloudnet processing show cessing has been modified, improved velocity de-aliasing. Period 2009-2017 has been k radar operated at Cabauw during ACCEPT in transferred yet.</li> <li>Aational Science Foundation. This infrastructure tion to operated at Cabauw (cloudradar, lidars,</li> </ul>		

Station Chilbolton (ch	)	Period: 01/04/2018 - 31/03/2019		
Instrumentation	Date and	method of last calibration		
Cloud Radar Intercomparison with 3		3GHz radar - 16/05/2018		
Ceilometer/Lidar CL51 monthly using st		tratocumulus method. Factory recalibration not specified		
Microwave Radiometer Tip curve for water pro		oducts 30/03/2018 (to be repeated soon).		
Rain Gauge/Disdrometer	Chilbolton tipping buc Monthly intercomparis	ket 25/10/18 using calibrated pump.Drop counting June 2013. cons of all rain sensors		
<b>D</b> oppler Lidar	Halo #118 monthly us	ing stratocumulus method. Factory recalibration not specified		
<b>√</b> Other	Broadband radiomete longwave October 20 Grimm optical particle April 2018.	rs CM21 whole sky shortwave October 2018, CG4 whole sky 18, CNR4 net flux shortwave and longwave December 2018. counter November 2018. Licor gas analyser approximately		
Model data/radiosonde data a	vailable	Cloudnet processing up to date		
• Yes • No		O Yes O No		
Comment:		Comment:		
Routine radiosonde at Larkhill, 30 km to west. Some radiosondes launched during campaigns (April 2018).		Substitution of 94GHz data to be explored for periods when 35GHz radar suffered outage. Processing of microwave radiometer data not up to date.		
NRT operation		Data transferred to server		
• Yes • No		• Yes No		
Comment:		Comment:		
Mostly true. Intermittent outages control problems (01-22 Nov 20 <sup>-</sup> from 03/03/2019 due to transmit	s due to radar 18), and no data ter fault.			
Durant data manually income	-4 - 4			
Processed data manually inspe	cted			
V Yes No		V Yes No		
Comment:		Comment:		
Some intermittent control problems with the 35GHz Copernicus radar, causing outages (01-22 Nov 2018). Radar transmitter fault means no data from 03/03/2019. However, some possibility to substitute 94GHz radar data.				
Some outage of microwave radio	ometer (before 31/0	07/2018) and (10/09/2018 to 16/10/2018).		

Station Granada (gr)	Period: 01/04/2017 - 31/03/2018	
Instrumentation Dat	e and method of last calibration	
Cloud Radar November	2018 - Liquid Nitrogen	
Ceilometer/Lidar Not calibra	ted	
Microwave Radiometer April 2018	- Liquid Nitrogen	
Rain Gauge/Disdrometer Installed or	n November 2018 ; not calibration after	
✔ Doppler Lidar		
Other		
Model data/radiosonde data available	Cloudnet processing up to date	
● Yes O No	Ves No	
Comment:	Comment:	
Radiosondes are launched at Granada static not regularly. Launches can be performed fo campaigns if required.	on but Due to campaigns where the radar was involved, r we accumulate a certain delay in the submission. We expect to be up to date by April 2019.	
NRT operation	Data transferred to server	
• Yes • No	• Yes O No	
Comment:	Comment:	
All instrumentation is continuously running. E submited to the CLOUDNET server in (D+1).	Data is The most part of the database is already in the cloudnet server.	
Processed data manually inspected	Data suitable for publication	
O Yes ⊙ No	Ves No	
Comment:	Comment:	
Upgrades and status changes during the re	porting period, other comments	
<ul> <li>The radar was installed on April 2018.</li> <li>From April 25th to July 27th 2018, the radar was deployed at SIRTA for a radar calibration campair</li> <li>From October 10th 2018 to 28th February 2019, the radar was deployed at JOYCE (Jülich) for a radar measurement campaign.</li> <li>From 1st to 15th February 2019, the radas was under reparation in RPG. A blower was replaced.</li> <li>Cloudnet operation was tested on the beginning of October 2018.</li> <li>From 20th March 2019, the radar is running at Granada station.</li> </ul>		

Station Hyytiälä (hy)		Period: 01/04/2018 - 31/03/2019	
Instrumentation	Date and	method of last calibration	
Cloud Radar	1 February 2019,	receiver LN2 calibration	
Ceilometer/Lidar			
Microwave Radiometer	1 February 2019,	LN2 calibration	
Rain Gauge/Disdrometer	Measurement consi measurements	stency is routinely checked by comparing to other	
✓ Doppler Lidar	last calibrated 201	8-08-09 using liquid cloud calibration method	
✓ Other	C-band Precipitati disdrometers	C-band Precipitation Doppler radar, several additional gauges and disdrometers	
Model data/radiosonde data a	available	Cloudnet processing up to date	
• Yes O No		Yes No	
Comment:		Comment:	
NRT operation		Data transferred to server	
💽 Yes 🔘 No		💽 Yes 🛛 No	
Comment:		Comment:	
		Cloud radar and MWR data are transferted to the	
		transfered.	
Processed data manually inspe	ected	Data suitable for publication	
• Yes • No		• Yes O No	
Comment:		Comment:	
Upgrades and status changes during the reporting period, other comments			

Station Jülich (ju)	Period: 01/04/2018 - 31/03/2019		
Instrumentation Date and	Date and method of last calibration		
Cloud Radar			
Ceilometer/Lidar			
Microwave Radiometer			
Rain Gauge/Disdrometer			
🖌 Doppler Lidar			
Other			
Model data/radiosonde data available	Cloudnet processing up to date		
Comment:	Comment:		
GDAS1, ICON Global, ECMWF	comment.		
NRT operation	Data transferred to server		
🔿 Yes 💿 No	💽 Yes 🔘 No		
Comment:	Comment:		
delay of 2 days (missing model data)	daily upload to FMI server		
Processed data manually inspected	Data suitable for publication		
• Yes No	• Yes • No		
Comment:	Comment:		
quicklook checks			
Ungrades and status changes during the reportin	g period other comments		
05/06/2018 MWR back on the roof			
04/06/2018 cloud radar: water spotted in the dish 10/10/2018 cloud radar installed on roof 11/10/2018 cloud radar: interference tests with MIRA-10 with low elevation scans that were not filtered out by cloudnet			
21/02/2019 Doppler lidar back on the roof			

Station Kenttärova (ke)	Period: 01/04/2018 - 31/03/2019	
Instrumentation Date and	method of last calibration	
Cloud Radar MIRA-35S - inter	nal calibration only	
Ceilometer/Lidar		
Microwave Radiometer		
Rain Gauge/Disdrometer		
Doppler Lidar		
Other		
	1	
Model data/radiosonde data available Ves  No Comment:	Cloudnet processing up to date Yes No Comment:	
NRT operation	Data transferred to server	
Comment:	Comment:	
Processed data manually inspected	Data suitable for publication	
Ves 💿 No	Yes 💿 No	
Comment:	Comment:	
Upgrades and status changes during the reporting	g period, other comments	
The cloud radar was operating at Hyytiälä during this period as part of a multi-frequency radar campaign and HyICE. The cloud radar suffered issues during summer 2018 due to a problem with the air conditioning and has not been working since.		

Station Leipzig (le)		Period: 28/04/2018 - 04/09/2018		
Instrumentation	Date and	method of last calibration		
Cloud Radar	Mira-35; calibration n/a; verti	cal alignment checked on 28 April 2018		
Ceilometer/Lidar	PollyXT; Lidar constant determined regularly using Sun-photometer or Raman method (Baars et al., 2017, AMT, https://doi.org/10.5194/amt-10-3175-2017)			
Microwave Radiometer	RPG HATPRO G2; 26 June	RPG HATPRO G2; 26 June 2018: Liquid N2 calibration, using new RPG calib. target		
Rain Gauge/Disdrometer	Optical disdrometer Parsivel	Optical disdrometer Parsivel-2. Horizontal alignment checked on 28 April 2018		
<b>V</b> Doppler Lidar	Doppler lidar Halo Photonics	Streamline. Vertical alignmented checked on 28 April 2018		
Other				
Model data/radiosonde data a	vailable	Cloudnet processing up to date		
Ves O No		• Yes • No		
Comment:		Comment:		
GDAS1 (used for processing), ECMWF		Some interruptions in the data stream occurred in the given period because maintenance work was performed on some days. Thus, data is not available for all days on the Cloudnet server.		
NRT operation		Data transferred to server		
• Yes • No		• Yes No		
Comment:		Comment:		
Processed data manually inspe	ected	Data suitable for publication		
• Yes No		• Yes No		
Comment:		Comment:		
Upgrades and status changes o	luring the reportin	g period, other comments		

(pu)	Period: 27	7/11/2018 - 31/03/2019	
Date and method of last calibration			
Mira-35; signal calibration n/a; vertical alignment checked on 27 November 2018 and is since then checked continuously using an internal sensor			
PollyXT; Lidar constant determined regularly using Sun-photometer or Raman method (Baars et al., 2017, AMT, https://doi.org/10.5194/amt-10-3175-2017)		neter or Raman method (Baars et al., 2017, AMT,	
RPG HATPRO G2; 04 Decer	nber 2018: Liquid N2 calibration,	using new RPG calib. target	
Optical disdrometer Parsivel-	2. Horizontal alignment checked o	on 27 November 2018	
Doppler lidar Halo Photonics regularly checked using an ir	Streamline. Vertical alignmented ternal sensor	checked on 27 November 2018 and since then	
Auxilliary instrumentation at Punta Arenas: - RPG 94-GHz cloud radar RPG-FMCW-94-DP (dual pol); MRR-PRO 24-GHz micro rain radar - All-sky camera; sun photometer; - radiation sensors for shortwave and longwave direct and diffuse downward broadband radiation fluxes - in-situ observations of aerosol number size distribution, CCN, INP on a 625-m hill, 15 km upwind of Cloudnet site			
vailable	Cloudnet processi	ng up to date	
	• Yes	Ô No	
	Comment:	0	
essing)			
	Data transferred t	o server	
	Yes	O No	
	Comment:		
cted	Data suitable for publication		
	• Yes	O No	
	Comment:		
<b>uring the reportin</b> Punta Arenas is on	g period, other com going and re-proces	<b>ments</b> ing might take place at some	
	(pu) Date and Mira-35; signal calibration n/a continuously using an internal PollyXT; Lidar constant deter https://doi.org/10.5194/amt-1 RPG HATPRO G2; 04 Decer Optical disdrometer Parsivel- Doppler lidar Halo Photonics regularly checked using an in Auxilliary instrumentation at F - RPG 94-GHz cloud radar R - Al-sky camera; sun photom broadband radiation fluxes - in-situ observations of aeros vailable essing) cted	(pu) Period: 2 Data and method of last calls Mira-35; signal calibration n/a; vertical alignment checked on 2 continuously using an internal sensor PolyXT; Lidar constant determined regularly using Sun-photor https://doi.org/10.5194/amt-10-3175-2017) RPG HATPRO G2; 04 December 2018: Liquid N2 calibration ( Optical disdrometer Parsivel-2. Horizontal alignment checked of regularly checked using an internal sensor Dopter lidar Halo Photonics Streamline. Vertical alignment checked of regularly checked using an internal sensor INTER OF Cloud and RPG-FMCVIA (a) Alsy camera; sun photometers: - radiation sensors for short and adiation fluxes INTER OF Cloud and RPG-FMCVIA (a) Alsy camera; sun photometer is readiation sensors for short and adiation fluxes INTER OF Cloud and RPG-FMCVIA (b) Ares Comment: (c) Area (c) Data transferred t (c) Yes Comment: (c) Data suitable for p (c) Yes Comment: (c) Mata suitable for p (c) Yes Comment: (c) Mata suitable for p (c) Yes Comment: (c) Mata Areenas is ongoing and re-process	

Station Lindenberg (In)	Period: 01/04/2018 - 31/03/2019	
Instrumentation Dat	te and method of last calibration	
Cloud Radar January/Febricollocated rac	uary 2019 parameter adjustment by Metek and comparison vs lars, total correction of radar constant by about 8 dBZ	
Ceilometer/Lidar		
MWP-3263A, LN2-calibratio	loaner unit from Radiometrics. In operations since end of August 2018. on: 02.08.2018	
Rain Gauge/Disdrometer		
Doppler Lidar		
Other		
Model data/radiosonde data available	Cloudnet processing up to date	
• Yes • No	• Yes No	
Comment:	Comment:	
COSMO/ICON-EU		
NRT operation	Data transferred to server	
• Yes • No	• Yes O No	
Comment:	Comment:	
once a day	once a day	
Processed data manually inspected	Data suitable for publication	
● Yes ○ No	• Yes No	
Comment:	Comment:	
	The comments below concerning the radar calibration issue should be considered. Please contact the PI (ulrich.goersdorf@dwd.de) before using the cloud radar data.	
Upgrades and status changes during the re	porting period, other comments	
Radiometer MP-3263A: problems with met senso LWP retrievals. Met sensor change in February 2	r (PTU) since November 2018 causing additional uncertainties in 019.	
Cloud radar: calibration issue in 2018, especially from June to December		
No cloudnet products available for: - 15.4., 17.6., (failed cloud radar); - 31.5., 17.12.18- 25.2.19 (maintenance/repair of cloud radar) - 20 24.10. (failed air conditioner of cloud radar) - 18.11. (failed air pressure system of cloud radar) - 17.4., 11., 12., 28.6., 13.,14.,15.8., 2026.9., 13.,18.10., 29.11., 1.3. (failed cloudnet processing)		

Station Mace Head (m	h)	Period: 01/04/2018 - 31/03/2019
Instrumentation	Date and	method of last calibration
Cloud Radar	none	
Ceilometer/Lidar	none	
Microwave Radiometer	LN calibration on	11/07/2018
Rain Gauge/Disdrometer		
Doppler Lidar	none	
Other		
Model data/radiosonde data a	vailable	Cloudnet processing up to date
• Yes • No		• Yes • No
Comment:		Comment:
no radiosonde available		processed data are up to date to previous day
NRT operation		Data transferred to server
• Yes O No		• Yes • No
Comment:		Comment:
		raw data are sent to Cloudnet server at FMI in
		NRT and processed there
Processed data manually inspe	cted	Data suitable for publication
O Yes O No		Yes No
Comment:		Comment:
		There is no data quality screening in place. There
		are gaps in the data set.
Upgrades and status changes d	uring the reporting	g period, other comments
- power cuts on 09/07/2018, 19/	09/2018, 26/01/201	9/ and 08/02/2019 caused some data gaps for all
instruments;		
- for the cloud radar, problems w	/ith the host PC (in a failure (07/05/20	June/July 2018), eventual replacement of the host 18) and repair (19/07/2018), and a failed hard disk
(30/12/2018) caused disruptions	in operation and d	ata gaps;
- some data gaps in the HATPR	O data were cause	d by problems with the host PC (from 27/11/2018 to
03/12/2018 and from 26/01/2019	9 to 05/02/2019)	

Station Munich (mu)	Period: 01/04/2018 - 31/03/2019							
Instrumentation	Date and method of last calibration							
Cloud Radar	Component wise calibration by manufacturer only, no routine calibration							
Ceilometer/Lidar	no calibration							
Microwave Radiometer	LN2 calibration on 21.3.2019							
Rain Gauge/Disdrometer								
Doppler Lidar								
Other								
Model data/radiosonde data a Yes O No Comment:	Vailable Cloudnet processing up to date Ves ONO Comment:							
NRT operation Yes  No Comment:	Data transferred to server Yes O No Comment:							
Processed data manually inspective Yes  No Comment:	Data suitable for publication <ul> <li>Yes</li> <li>No</li> </ul> Comment: <ul> <li>unclear, ask responsible scientists</li> </ul>							
Upgrades and status changes o	luring the reporting period, other comments							

Station Palaiseau (pl)		Period: 01/04/2018 - 31/03/2019						
Instrumentation	Date and method of last calibration							
Cloud Radar	BASTA FMCW, la	ast calibration May 2018						
Ceilometer/Lidar	Vaisala CL31 / Lu	uft CHM15K, last calibration spring 2016						
Microwave Radiometer	HATPRO, last LN2 calibration in February 2019							
Rain Gauge/Disdrometer	Parsivel disdrome	eter, installed in May 2018						
Doppler Lidar	Leosphere WLS7	0, last calibration spring 2015						
Other	IPRAL multi wave (sensible and late	e length lidar, surface turbulent heat fluxes ent), sodar, UHF radar, CL31 ceilometer						
Model data/radiosonde data a	available	Cloudnet processing up to date						
• Yes • • No		• Yes • No						
Comment:		Comment:						
Twice a day radiosonde, MODE Trappes Meteo-France site (20)	M M10 sensor, at m from SIRTA).							
NRT operation		Data transferred to server						
Yes No		• Yes • No						
Comment:		Comment:						
Processed data manually inspe	ected	Data suitable for publication						
Yes No		• Yes • No						
Comment:		Comment:						
Upgrades and status changes of	during the reporting	g period, other comments						

Station Potenza (po)	Period: 01/04/2018 - 31/03/2019							
Instrumentation	Date and method of last calibration							
Cloud Radar	Not calibrated							
Ceilometer/Lidar	CT25K: cloud calibration (15/01/2015); CHM15k calibration on MUSA EARLINET Reference lidar profiles (15/01/2015)							
Microwave Radiometer	TIP (17/05/2018); LN2 (18/05/2018)							
Rain Gauge/Disdrometer								
Doppler Lidar	Not calibrated							
Other								
Model data /radiocanda data av	ailable Cloudpat processing up to date							
Ves No	Cloudnet processing up to date     Ves    No							
Comment:	Comment:							
gdas1	Cloudnet processing up to 22/05/2018 due to the							
icon-iglo-12-23	failure of radar PC power supply and software. The Cloud Radar is currently under maintenance.							
NRT operation	Data transferred to server							
• Yes • No	• Yes O No							
Comment:	Comment:							
Processed data manually inspec	ted Data suitable for publication							
💽 Yes  🔿 No	Yes No							
Comment:	Comment:							
Not routinely, only for periods use studies or publications; consistent other instruments performed as w	ed for specific cy check with rell.							
Upgrades and status changes du	ring the reporting period, other comments							
HALO Photonics Doppler lidar ins	talled in March 2019							

Date and method of last calibration ent wise calibration by manufacturer only., no routine calibration pration
ent wise calibration by manufacturer only., no routine calibration pration
ration
ibration on 21.3.2019
Cloudnet processing up to date Yes No Comment:
Data transferred to server Yes No Comment:
Data suitable for publication
• Yes • No Comment: unclear, ask responsible scientists
e reporting period, other comments

# Section 3 EARLINET QA Tests

### Period: April 2018 – March 2019

The following table for the reporting period 2018/19 shows a list of all the channels of all active lidar systems, which are supposed to deliver lidar signal products to the EARLINET data base and which have to be quality assured every year with the QA measurements RF (Rayleigh fit), TC (telecover), and Dark (dark measurement for analog channels). A detailed description of these tests is provided in Deliverable D2.5. The left column of the table indicates station ID (see Tab. 1) and system name in case of several instruments at the same station. Tests that were delivered to LiCal for external inspection are marked in green. Grey boxes indicate not necessary QA measurements for lidar systems which did not deliver data to the EARLINET data base within the reporting period. The right-most column contains not so common channels and 1064-nm dark measurements in case no other analog channels are present. The channel/signal names are composed of the wavelength (in nm) and a two to four character short-cut with the following meaning:

#### 1st character

- f\_\_ = far-range telescope signal
- n\_\_\_ = near-range telescope signal
- x\_\_ = single-telescope signal
- d\_\_\_ = depolarization-telescope signal

#### 2nd character

- \_t\_ = total signal (no depolarization measurement)
- \_p\_ = parallel signal
- c = cross signal

#### 3rd character (optional)

- \_\_a = analogue signal
- \_\_\_p = photon counting signal
- \_\_g = analogue and photon counting glued signal (e.g. LICEL)

#### 4th character (optional)

- \_\_\_\_I = rotational Raman lower wavelengths
- \_\_\_h = rotational Raman higher wavelengths
- \_\_\_\_r = rotational Raman high and low wavelengths
- \_\_\_\_c = high spectral resolution Mie signals/center line

01.04.18	- 31.03.19	Ð									
2018 The channels are listed as mentioned in the HOI											
an	RF	355xt			387xt		532xc	532xp	607xt	1064xt	1064xt-dark
	TC	355xt			387xt		532xc	532xp	607xt	1064xt	
ak PollyXT	RF	355xt	355xc		387xt	532xt	532xc		607xt	1064xt	355depcal
NOA	TC	355xt	355xc		387xt	532xt	532xc		607xt	1064xt	532depcal
at	RF	355xt			387xt	532xt			607xt	1064xt	1064xt-dark
	TC	355xt			387xt	532xt			607xt	1064xt	
ba UPC_MRL	RF	355xt			387xt	532xt			607xt	1064xt	1064xt-dark
	TC	355xt			387xt	532xt			607xt	1064xt	532depcal
be	RF	355xt				532xt				1064xt	
	TC	355xt				532xt				1064xt	
	Dark	355xt				532xt				1064xt	
bg	RF	355xt			387xt						
	TC	355xt			387xt						
bu MILI	RF		355xc	355xp							
	TC		355xc	355xp							355depcal
bu RALI	RF	355xt			387xt		532xc	532xp	607xt	1064xt	1064xt-dark
	TC	355xt			387xt		532xc	532xp	607xt	1064xt	532depcal
ca near tele	RF	355nt			387nt	532nt			607nt	1064nt	1064nt-dark
	ТС	355nt			387nt	532nt			607nt	1064nt	
ca far tele	RF	355ft			387ft	532ft			607ft	1064ft	1064ft-dark
	тс	355ft			387ft	532ft			607ft	1064ft	
ca dep tele	RF						532dc	532dp			532depcal
	тс						532dc	532dp			·
ci	RF	355xt			387xt		532xc	532xp	607xt	1064xt	
,	тс	355xt			387xt		532xc	532xp	607xt	1064xt	532depcal
	Dark	355xt					532xc	532xp		1064xt	
со	RF					532xt			607xt		532depcal
	тс					532xp	532xc		607xt		
ev	RF	355xt			387xt	532xt	532xc		607xt	1064xt	
	тс	355xt			387xt	532xt	532xc		607xt	1064xt	532depcal
fi	RF	355xt	355xc		387xt	532xt	532xc		607xt	1064xt	355depcal
	тс	355xt	355xc		387xt	532xt	532xc		607xt	1064xt	532depcal
gp HSRL	RF	355xt				532xt				1064xt	532xtac
01	ТС	355xt				532xt				1064xt	532xtac
	Dark	355xt				532xt				1064xt	532xtac
gp HSRL	RF	313fta	313nta								313nta-dark
01	ТС	313fta	313nta								313fta-dark
gr LR321	RF	355xt			387xt		532xc	532xp	607xt	1064xt	1064xt-dark
-	тс	355xt			387xt		532xc	532xp	607xt	1064xt	532depcal
gr LR111	RF		355xc	355xp	387xt						
0	ТС		355xc	355xp	387xt						355depcal
is ADAM	RF	355xt			387xt		532xc	532xp	607xt	1064xt	1064ft-dark
	тс	355xt			387xt		532xc	532xp	607xt	1064xt	532depcal
ku	RF	355xt			387xt	532xt	532xc		607xt	1064xt	triggerdelay
	тс	355xt			387xt	532xt	532xc		607xt	1064xt	532depcal
la	RF	351xt			382xt						
	тс	351xt			382xt						
lc	RF	355xt			387xt	532xt			607xt	1064xt	1064ft-dark
-	тс	355xt			387xt	532xt	<b></b>		607xt	1064xt	· -
le MARTHA	RF	355xt			387xt	532xt	532xc	532xp	607xt	1064xt	
	тс	355xt			387xt	532xt	532xc	532xp	607xt	1064xt	532depcal
le Polly1v2	RF					532xt	532xc		607xt		
-	тс					532xt	532xc	532xRR	607xt		532depcal

le PollyXT_	RF	355xt	355xc		387xt	532xt	532xc		607xt	1064xt	355depcal
LACROS	ТС	355xt	355xc		387xt	532xt	532xc		607xt	1064xt	532depcal
le PollyXT_	RF	355xt	355xc		387xt	532xt	532xc		607xt	1064xt	355depcal
OCEANET	тс	355xt	355xc		387xt	532xt	532xc		607xt	1064xt	532depcal
ll LILAS	RF		355xc	355xp	387xt	530xt	532xc	532xp	1064xc	1064xp	355depcal
	тс		355xc	355xp	387xt	530xt	532xc	532xp	1064xc	1064xp	532depcal
	Dark								1064xc	1064xp	
Im	RF						532xc	532xp	607xt	1064xt	1064xt-dark
	тс						532xc	532xp	607xt	1064xt	532depcal
ma	RF	355xt			387xt	532xt			607xt	1064xt	
	ТС	355xt			387xt	532xt			607xt	1064xt	
	Dark	355xt				532xt				1064xt	
mi MSTL-2	RF	355xt			387xt		532xc	532xp	607xt	1064xt	
	ТС	355xt			387xt		532xc	532xp	607xt	1064xt	532depcal
	Dark	355xt					532xc	532xp		1064xt	
mi LMR-mob	RF	355xt			387xt		532xc	532xp	607xt	1064xt	
	TC	355xt			387xt		532xc	532xp	607xt	1064xt	532depcal
	Dark	355xt					532xc	532xp		1064xt	
mu POLIS	RF		355xc	355xp	387xt		532xc	532xp	607xt		355depcal
	ТС		355xc	355xp	387xt		532xc	532xp	607xt		532depcal
na MALIA high	RF	355xt			387xt		532xc	532xp	607xt		532depcal
Γ	ТС	355xt			387xt		532xc	532xp	607xt		
na MALIA low	RF	355xt					532xc	532xp			532depcal
Γ	ТС	355xt					532xc	532xp			
	Dark	355xt					532xc	532xp			
oh	RF	355xt			387xt	532xt	532xc		607xt	1064xt	
Γ	ТС	355xt			387xt	532xt	532xc		607xt	1064xt	532depcal
ру	RF	355xt			387xt						358xtgr
	ТС	355xt			387xt						358xtgr
pl IPRAL	RF	355xt			387xt			532xt			
near	ТС	355xt			387xt			532xt			
pl IPRAL	RF		355xc	355xp	387xt			532xt	607xt	1064xt	1064xt-dark
far	ТС		355xc	355xp	387xt			532xt	607xt	1064xt	355depcal
po MUSA	RF	355xt			387xt		532xc	532xp	607xt	1064xt	1064xt-dark
	TC	355xt			387xt		532xc	532xp	607xt	1064xt	532depcal
po PEARL	RF	355xt			387xt	532xt	532xc	532xp	607xt	1064xt	1064xt-dark
	TC	355xt			387xt	532xt	532xc	532xp	607xt	1064xt	532depcal
sf-CuBr	RF					510xt			578xt		
	TC					510xt			578xt		
sf-NdYAG	RF						532xt			1064xt	1064xt-dark
	ТС						532xt			1064xt	532xt-dark
sp	RF	355xt	355xc			532xt				1064xt	355depcal
Γ	ТС	355xt	355xc			532xt				1064xt	
	Dark	355xt	355xc			532xt				1064xt	
th	RF	355xt			387xt	532xt	532xc	532xp	607xt	1064xt	
	ТС	355xt			387xt	532xt	532xc	532xp	607xt	1064xt	532depcal
	Dark	355xt				532xt				1064xt	
wa	RF	355xt	355xc		387xt	532xt	532xc		607xt	1064xt	355depcal
		00000	000/10								

Legend	done	n.a.	not necessary	partial	RF = Rayleigh fit	TC = telecover

updatetd 26.04.19