Eureca4A/OA++ ship coordination meeting at DKRZ at Hamburg

Meteor** [Kinne]: **18.01.2020 (ab Bridgetown/Barbados) - 03.03.2020 (an Ponta Delgada/Azoren)
Merian** [Karstensen]: **18.01.2020 (ab Bridgetown/Barbados) - 20.02.2020 (an Bridgetown/Barbados)
+ BCO + aircraft (HALO, ATR, …) + other ships (Ron Brown, Atalante, …)

FEBRUARY 19

	introduction	
9:00 – 9:10	**welcome and logistics**	***S. Kinne, A. Gruber, W. Schubotz***
9:10 – 9:20	**pictures (brief self-introductions)**	***ALL***
9:20 – 9:30	**goals of the workshop**	***J. Karstensen***
9:30 – 10:00	**EUREC4A_overview (the big picture)**	***S. Speich***
10:00 – 10:30	***coffee break***	
	***main objectives and science questions* (space / time / properties)**	
10:30 -10:40	**objectives_atmos (clouds, met environment)**	***S. Kinne***
10:40 -10:50	**objectives_subcloud (mass, energy and momentum)**	***S. Speich***
10:50 -11:00	**objectives_ocean (surface heterogeneity, sub- and mesoscales)**	***J. Karstensen***
	secured infrastructure	
11:00 – 11:20	**already_there (HALO, ATR-42, BCO, satellites)**	***H. Schulz, M. Klingebiel, A. Hansen***
11:20 – 11:30	**EUREC4A_meteor**	***S. Kinne***
11:30 – 11:40	**EUREC4A_merian**	***J. Karstensen***
11:50 – 12:00	**cloud_kite**	***G. Bagheri***
12:00 – 12:10	**ocean_biology**	***W. Mohr***
12:10 – 12:20	**water_isotopes**	***S. Speich***
12:20 – 12:30	**autonaut_seaglider**	***K. Heywood***
12:30 – 12:40	**IOPAN_contrib**	***J. Piskozub***
12:40 -14:00	***lunch*** *(take your favorite colleagues to a local restaurant)*	
	pending efforts	
14:00-14:20	**EUREC4A_OA_atalante**	***S. Speich***
14:20-14:40	**ATOMIC_atmos**	***C. Fairall***
14:40-15:00	**ATOMIC_ocean**	***C. Fairall***

observational needs by modeling

15:00- 15:20 **transregion_project** ***A. Griesel***

15:00- 15:20 **transregion_surface** ***J. Carpenter***

15:00- 15:20 **ICON_needs** ***C. Stephan***

15:20 - 15:50 ***coffee break***

15:50 – 17:30 **observational strategies (common / comparable elements)** ***ALL***
- **calibration / intercomparisons**
- **cloud lifetime**
- **mesoscale eddies**
- **synoptical scale air motions**
- **daily cycles**

19:00- ***common dinner*** at restaurant Schopenhauer https://restaurant-schoppenhauer.de

choices:
- Roast beef with vegetables and potatoes
- Wild salmon fillet with vegetables and roasted potatoes
- Mediterranean vegetable pan

please e-mail your preferred choice to Angela.Gruber@mpimet.mpg.de

FEBRUARY 20

9:00 - 9:15 **quick review of yesterday**

9:15 - 10:45 **discussions in 2 subgroups ('atmos' / 'ocean&ocean-atmos')**
what are the (and your) major science objectives/ questions ?
how to coordinate ship platforms for maximum benefit ? (time / space)

10:45 - 11:15 ***coffee***

11:15 - 12:00 **German ship (Meteor and Merian) pre-planning**
scheduling / space leitstelle@ifm.uni-hamburg.de ***A. Gerriets***
review of logistics (needs and possibilities)
review of space (on ship, on slots)

12:00 - 13:30 ***lunch*** *(take your favorite colleagues to a local restaurant)*

14:00 - 14:30 **ocean_summary** **summary of ocean discussions**
14:30 - 15:00 **atmos_summary** **summary of atmospheric discussions**
15:00 - 15:30 **next steps (review action items, next meetings/telecons)**

15:30 – 16:00 ***coffee break***

preliminary science slot assignment *(based on received feedback)*

meteor

(28 slots)

science lead	Hamburg	1 slot (stefan)
water vapor radar	U.of U/JPL	2 slots (jay and JPLtechn.)
radar/ microwave/spectrometer	Leipzig	2 slots (heike and alex)
raman-lidar/sun-photo/co2&Ferry	MPI-M	3 slots (Ludwig, Peter, tbd)
radio-s./precip-radar/camera/eddy	UNI-HH	1 slot (tbd) radiosonde by dwd
cloudkite /CCN ?	MPI-DS	4 slots [& CCN instructions] (tbd, tbd, tbd, tdb)
UAV	Warsaw	3 slots (tbd, tbd, tbd)
seaglider and autonaut	East Anglia	2 slots for recovery and other tasks (tbd, tbd)
isotopic measurements	LMD	1 slot (tbd)
MAX-DOS (for ship)	MPI-C	1 slot (tbd)
aerosol fluxes & in-situ	IOPAN	6 slots (jacek, tbd, tbd, tbd, tbd, tbd)
microbiology	MPI-MB	2 slots (wiebke, miriam)

merian

(22 slots)

science lead	GEOMAR	1 slot (johannes)
modeling	Nils Bohr	1 slot (tbd)
CTD profiling	GEOMAR	6 slots (tbd,tbd,tbd,tbd,tbd,tbd)
Microbiology	MPI-MB	4 slots (gaute)
isotopes	LMD ?	1 slot (tbd)
radar/microw/disdrom.	Cologne	1 slot (claudia)
radio-s, precip-radar, X-band?	UNI-HH	2 slots (tbd,tbd)
ceilom./sun-photo/ cameras	MPI-M	1 slot (tbd)
Cloud-kite	MPI-DS	4 slots [& CCN instructions], (tbd,tbd,tbd.tbd)

METEOR / MERIAN instrument PIs (main contacts)

both ships

cloudkite group	eberhard.bodenschatz@ds.mpg.de (, gholamhossein.bagheri@ds.mpg.de)
Radiosondes	felix.ament@uni-hamburg.de
Cloud camera/ Ceilo	Friedhelm.Jansen@mpimet.mpg.de
sun-photometer	Stefan.Kinne@mpimet.mpg.de
Ocean Biology	wmohr@mpi-bremen.de

merian only

CTD /water samples	jkarstensen@geomar.de
Radar, Cologne (MER)	cacquist@meteo.uni-koeln.de (Claudia Acquistapace)

meteor only

CTD /water samples	piskozub@iopan.gda.pl
Radar, Leipzig	heike.kalesse@uni-leipzig.de
Lidar, Hamburg	Ludwig.worbes@mpimet.mpg.de
VAP Radar, JPL	Matthew.D.Lebsock@jpl.nasa.gov
UAV	Szymon.Malinowski@fuw.edu.pl
Autonaut, seaglider	k.heywood@uea.ac.uk
aerosol in-situ	piskozub@iopan.gda.pl
CO2 fluxes	peter.landschuetzer@mpimet.mpg.de
spectrometer DOAS	Steffen.Doerner@mpic.de

satellite RS	akio.hansen@uni-hamburg.de
atmos modeling	Raphaela.vogel@mpimet.mpg.de
ocean modeling	carsten.eden@uni-hamburg.de
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link to aircraft	hauke.schulz@mpimet.mpg.de

ship infrastructure	leitstelle@ifm.uni-hamburg.de

EUREC^{4}A … what is it about?

EUREC^{4}A, the Field Study, is a French-German initiative in support of the World Climate Research Programme's Grand Science Challenge on Clouds, Circulation and Climate Sensitivity. EUREC^{4}A will take place between 20 January and 20 February 2020 with operations based out of Barbados.

EUREC^{4}A's core measurements are designed to test hypotheses related to the interplay between clouds, convection and circulation and their role in climate change. To do so EUREC^{4}A will build on a decade of measurements in the tropical Atlantic; measurements initiated with the establishment of the Barbados Cloud Observatory (BCO) in 2010, and continued with two aircraft campaigns, NARVAL in December 2013, and NARVAL2, in August 2016, with the German High Altitude Long Range research Aircraft HALO.

The core, and presently supported, measurements will focus on quantifying how cloud amount in shallow cumulus layers responds to changes in the large-scale environment, how shallow clouds contribute to convective aggregation, and test retrievals of cloud and atmospheric properties. Through international cooperation during EUREC^{4}A complementary objectives will be explored (e.g. ocean mixing processes, processes influencing convective organization, dynamics of the Atlantic Tropical Convergence Zone).

A complementary component of EUREC^{4}A is high resolution modeling also in support of field operations. These simulations include a 300m nest over the western Atlantic and a yet finer (50-100 m) simulation nest over the area of flight operations over the western Atlantic. The nucleus for the Field Study involves the deployment of two research aircraft HALO and ATR), the BCO ground site, an array of research vessels (including METEOR and MERIAN), a new generation of sophisticated satellite remote sensing and state-of-the-art turbulence-resolving modelling.

workshop participants

Leitstelle Hamburg (2 persons) German ship scheduling
2 persons
leitstelle@ifm.uni-hamburg.de (Andrea, no dinner)
leitstelle@ifm.uni-hamburg.de (Karsten, no dinner)

Johannes Karstensen (science lead German **MERIAN**)
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Stefan Kinne (science lead German **METEOR**)
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Sabrina Speich (science lead of proposed French **ATALANTE**)

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Ocean Biology
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CO2 fluxes
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CCN instrument
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UAV
Szymon.Malinowski@fuw.edu.pl (not attending)
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CTD water samples
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cloud camera, ceilometer, sun-photometer

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