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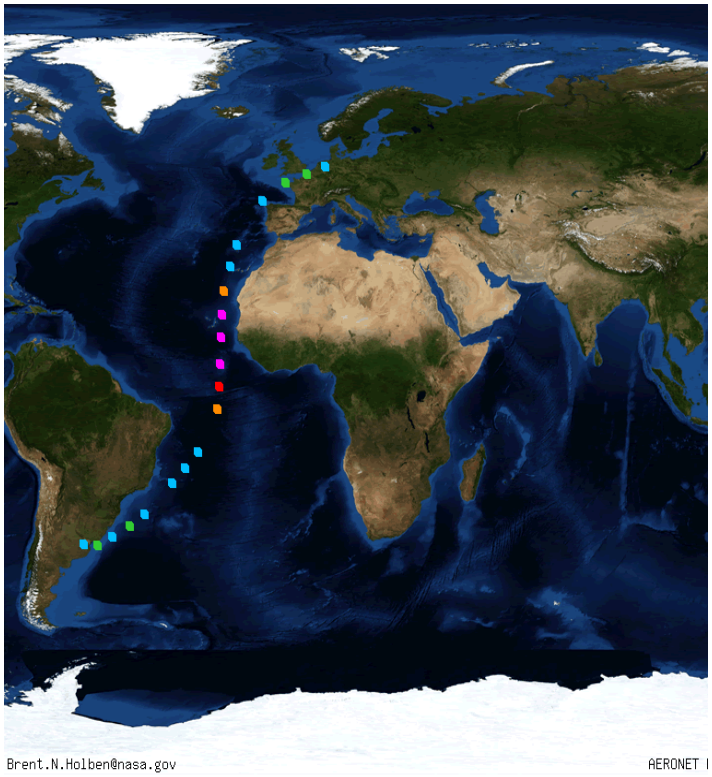
Short Cruise Report
SO 259-3

Emden – Buenos Aires
17.12.2017 – 09.01.2018

Chief Scientist: Stefan Kinne
Captain: Oliver Meyer



Objectives

During the transit from Emden to Buenos Aires atmospheric data of aerosol, trace-gases and clouds were collected with the purpose to provide needed reference data over oceans for global modeling and satellite remote sensing. Aerosol amount and size as well as trace-gas column amounts and their lower altitude concentrations were sampled with different handheld sun-photometers and MAX-DOAS instruments. Cloud properties of cover, inhomogeneity and base altitude were extracted by a continuously operating thermal camera. As a result latitudinal cross-sections over the Atlantic for all these atmospheric properties were obtained to add to the data collected on the previous 259-2 cruise. In addition, bathymetric data collected outside of EEZs during 259-2 and during 259-3 cruise were prepared for integration into the database of the Seabed 2030 initiative.

Narrative

The RV Sonne left Emden in the morning of December 17, 2017 for initial tests of new and upgraded equipment in the North Sea. After a brief stop at Brest (from 11am to 5pm) on December 20, where the technical staff left the ship, we continued southward. During the voyage to Buenos Aires three Argo floats, which were picked up at Brest, were deployed. Buenos Aires was reached in the morning of January 09, 2018.

The encountered aerosol properties are accessible via the web of the Marine Aerosol network: https://aeronet.gsfc.nasa.gov/new_web/cruises_new/Sonne_17_3.html

The encountered cloud properties during the transit leg are summarized via hourly averages of the cloud-cover as function of cloud base altitude in the Figure below.

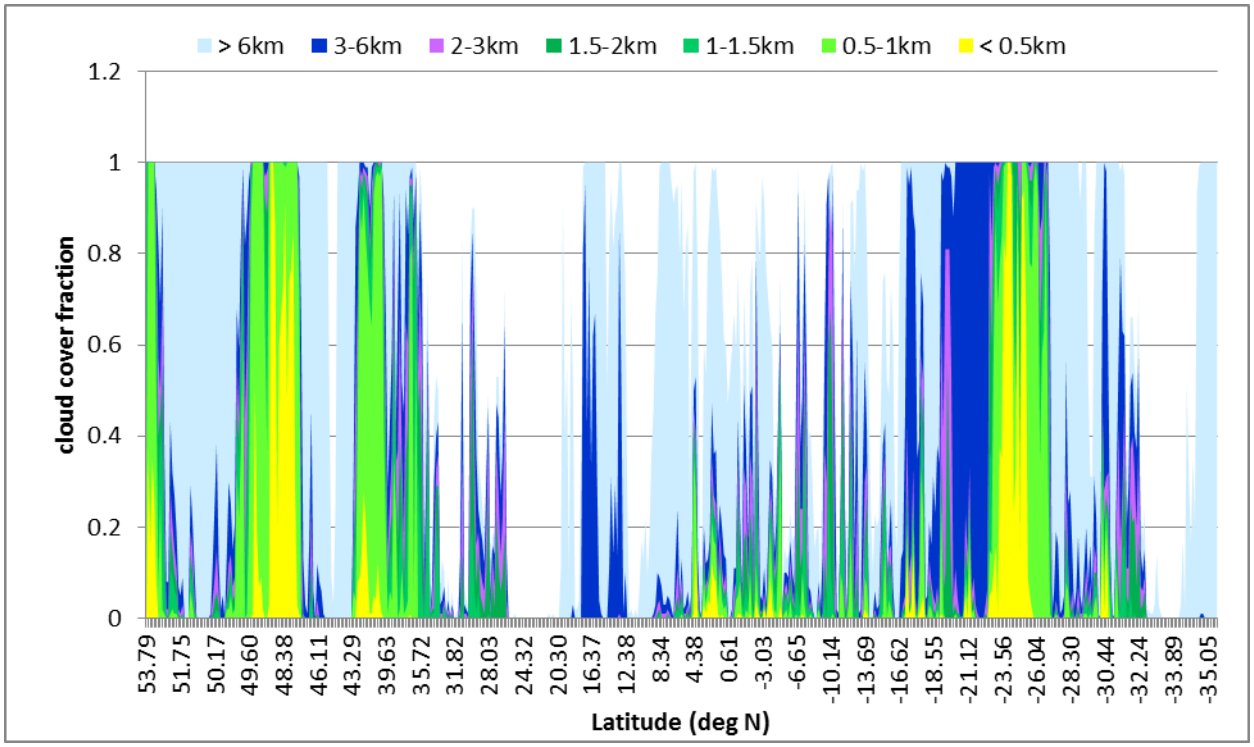


Figure Cloud cover data as function of latitude from thermal camera images based on hourly averages of the Atlantic SO259-3 crossing. Low altitude clouds (as observed by a ground observer) are in green (and if very low in yellow), mid-level clouds are in blue and high clouds are in light blue. White indicates cloud-free.

Acknowledgements

We scientists thank the entire crew and captain Oliver Meyer for their support, knowledge, advice and humor. The food during the entire trip was irresistible. Thus, our special thanks go to the cooks. The trip was unique in the sense that it covered Christmas day and New Year's Day. We thank the crew for making us part of these events and we thank the Briese agency for including us scientists in the distributions of their Xmas gifts. We are also grateful to the funding agencies and (DFG, MPI-Met) and the coordinating agencies (Leitstelle and FJZ – and here especially Doreen Rössler) that gave us the opportunity to join this Atlantic transit.

Teilnehmerliste / Participants

principal investigator / leitender Wissenschaftler

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Station list

three ARGO floats (which were picked up in Brest) were deployed

deployment location	***date***	***float-number***
24deg/32min N 20deg/26min W	Dec25, 2017	float AI2600-16FR115
02deg/30min S 21deg/46min W	Dec30, 2017	float AI2600-17EU011
14deg/13min S 27deg/56min W	Jan01, 2018	float AI2600-17EU012