

English version:

Last Saturday, May 27, 2017, RV *Maria S. Merian* left her berth in Southampton and started her 64th cruise under cloudy skies and warm temperatures. There are several working groups aboard: one team each from the University of Bremen (IUP/MARUM) and the Federal Maritime and Hydrographic Agency (BSH) in Hamburg that both over the coming weeks will pursue physical investigations of the oceanic circulation and water mass exchange in the North Atlantic. These studies are funded by the German Federal Ministry of Education and Research (BMBF) in the framework of the RACE-II project. We are furthermore accompanied by two colleagues from the University of Alberta in Edmonton, Canada. Through a cooperation in the German-Canadian international research training group *ArcTrain* they will support our work and work together with two Bremen-based *ArcTrain* PhD students.

On behalf of the *Control Station German Research Vessels* (LDF) and the shipping company *Briese Research* a fourth scientific-technical team will calibrate the new shallow-water multi-beam echo-sounder *Kongsberg EM712* and the already installed deep-water multi-beam echo-sounder *Kongsberg EM122*. Both devices serve to accurately measure the ocean bathymetry. A conventional single-beam echo-sounder measures the water depth vertically and pointwise directly under the ship. A multi-beam system in contrast has typically 400 fan-shaped single beams and measures the water depth underneath the ship along a broad swath. The new *Kongsberg EM712* multi-beam system of *Maria S. Merian* was recently installed at the Emden shipyard. It has 800 single beams that result in a much higher resolution compared to previous systems. It is the present state-of-the-art and will set new standards for coming bathymetric surveys. It is only the third world-wide existing device and the first installed on a scientific vessel. When in Galway/Ireland on June 2nd, team 4 will leave *Maria S. Merian*, and the remaining Bremen scientists will embark.

After having arrived on the vessel on Thursday morning, we could not immediately start with unpacking the container and installing the labs, as the shipping containers were not yet accessible. Under sunny skies and warm summer temperatures, we caught up on everything the next day and installed the scientific laboratories and carried out necessary compass calibrations of acoustic current meters. We left Southampton on Saturday morning at 08:30 h local time, headed towards the southern exit of the English Channel and carried out all required safety training. While approaching the Irish shelf break the echo-sounder team already carried out noise level tests with the shallow-water *EM712* system, and the oceanographic groups prepared for their test station. On Sunday evening we deployed the water sampler at a water depth of 2000m and verified the proper functioning of all attached sensors (CTDO and LADCP). The CTDO-sensor-package delivers vertical profiles of conductivity (C, and thus salinity), temperature (T), pressure (and thus the depth of the respective measurements, D), and oxygen (O). The lowered Acoustic Doppler Current Profilers (LADCP) in turn provide vertical profiles of current velocity components. In addition to taking first water samples we furthermore verified proper functioning of instruments at high water pressure that are to be moored later on.

After finishing the test station, further tests to assess the underwater noise level continued. Afterwards we headed to the northwest to start the calibration of the shallow-water multi-beam system on top of Porcupine Bank to the west of Ireland. Present weather and sea conditions are very fine, which makes cruising very pleasant. Everybody is well, and we look forward to the coming weeks.

On behalf of all cruise participants

Dagmar Kieke