



OCEANET-Atmosphere - The Autonomous Measurement Container

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OCEANET-Atmosphere is a joint venture project of IFM-GEOMAR and IFT to study the mass and energy transfer of ocean and atmosphere by introducing a special measurement container, which is suitable to perform a large spectrum of atmospheric underway measurements on offshore research vessels and cargo ships.

The container combines state-of-the-art measurement devices and connect them to its own computer network to realize a comprehensive system for remote sensing. A Raman-lidar measures marine and anthropogenic optical aerosol properties by analyzing the elastic signal and the vibration-rotation Raman signal of nitrogen. Our passive microwave radiometer determines the integrated water vapor and the liquid water path of the atmospheric column, as well as vertical temperature and humidity profiles. Carbon dioxide is measured high-frequent. Turbulence measurements are performed by means of a sonic anemometer. In combination with fast humidity sensors the fluxes of momentum, latent and sensible heat are derived. An automatic full sky imager monitors the state of the cloudy sky. A selection of standard meteorological devices measure air temperature, humidity, wind velocity, wind speed and downward shortwave and longwave radiative fluxes. The GPS sensors register navigational data. For an almost real time monitoring of a data subset our telemetry system is sending short hourly data reports via satellite.

OCEANET-Atmosphere is set up to improve the quantity and the quality of atmospheric data sets on inter-continental oceanic transects, where the previous data base is still weak. A first research mission has been performed onboard RV Polarstern at ANT XXVI/1.