



Halocarbon sources and emissions over the Western Pacific

Birgit Quack (1), Kirstin Krüger (1), Susann Tegtmeier (1), Elliot Atlas (2), Katja Grossmann (3), Markus Rex (4), Roland von Glasow (5), Roberto Sommariva (5), and Douglas Wallace (1)

(1) IFM-GEOMAR, Kiel, Germany (kkrueger@ifm-geomar.de, +49 (0)431 600-4062), (2) Rosenstiel School of Marine and Atmospheric Science, University of Miami, USA, (3) University Heidelberg, Heidelberg, Germany, (4) Alfred-Wegener-Institute für Polar und Meeresforschung, Potsdam, Germany, (5) University of East Anglia, Norwich, UK

Natural, short-lived halocarbons play a role in the tropospheric and stratospheric ozone budget. The tropical oceans are a known source of reactive iodine and bromine to the atmosphere in the form of iodinated and brominated very short lived substances (VSLS), as e.g. methyl iodide (CH_3I), bromoform (CHBr_3) and dibromomethane (CH_2Br_2), which contribute to tropospheric and stratospheric halogens. Elevated atmospheric concentrations above the oceans are related to oceanic supersaturations of the compounds, caused by photochemical and biological production. The tropical Western Pacific is of special interest since it is a largely uncharacterized region for the oceanic compounds and in certain regions a projected hot spot for their emissions and transport pathways through the free troposphere into the stratosphere.

From 9 to 25 October 2009 the IFM-GEOMAR (Kiel, Germany) conducted a cruise with RV Sonne in the tropical Western Pacific to investigate trace gas emissions on a 4030 nm (7,500 km) and 60 degrees latitude covering transit between Tomakomai (Japan, 42°N/ 141°E) and Townsville (Australia, 19°S/ 146°E). We will present highlights of the oceanic and atmospheric halogen (inorganic and organic compounds) and ozone measurements, as well as transport simulations of the organic compounds with the Lagrangian particle dispersion model FLEXPART, including the photochemical decay and the wash out of the VSLS source and product gases.