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“IT WAS VERY EXCITING IN THOSE DAYS.  
WE WERE EXPLORERS.”

Marie-Tharp [1920-2006], Oceanographer

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**GEOMAR Lecture Hall West [R.54 | Düsternbrooker Weg 20, 24105 Kiel**

## Air-Sea Feedbacks: The Changing Impacts of Marine Halogens on the Atmosphere



**The halogens chlorine, bromine and iodine are chemical elements that play a fundamental role in the Earth’s atmosphere and are associated with a range of environmental issues.**

In addition to their role in stratospheric chemistry, it emerged several decades ago that halogens also play a role in the chemistry of the troposphere, as indicated from the observation of sudden decreases in surface ozone in the Arctic during spring. More recently, it has been shown that halogens have a pervasive impact on atmospheric chemistry across the world’s oceans. The majority

of halogen-related surface ozone destruction is attributable to iodine chemistry, the main source of which is believed to be inorganic iodine emitted from the air-sea interface. This reaction also directly removes O<sub>3</sub> from the atmosphere, representing a negative feedback mechanism for tropospheric ozone. This presentation discusses advances made in understanding the chemistry and exchange of halogenated gases across the ocean surface and the subsequent and potentially changing impacts on the atmosphere.