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# Iodine oxide in the global marine boundary layer: inorganic versus organic sources

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In the last decades iodine has been object of increasing interest in atmospheric chemistry due to its link to the oxidizing capacity of the atmosphere, the $NO_x$ and $HO_x$ partitioning and the formation of ultra-fine particles. Recently laboratory and numerous fieldwork efforts have been carried out trying to assess the sources and sinks of reactive iodine in the open marine environment.

Within the framework of the Malaspina expedition, in 2010-2011 the Spanish research vessel Hesperides circumnavigated the world aiming at investigating the biogeochemistry, physical oceanography and microbiological biodiversity of the oceans from a multidisciplinary approach. During that 7-months campaign throughout the Atlantic, Indian and Pacific oceans, a MAX-DOAS system was deployed, along with a surface ozone instrument, in order to monitor the geographical distribution of relevant reactive iodine compounds such IO. Complementing this extensive dataset with results from previous works in the Eastern Pacific Ocean, we show not only the ubiquity of iodine oxide in the open marine boundary layer (MBL) ranging between 0.3-1 pptv levels, but also provide what is- to our knowledge- the most comprehensive global map of the of IO and $O_3$ distribution in the subpolar MBL. Ultimately, by means of a photochemical model, we will address the contribution of inorganic and organic iodine sources to the measured levels of IO.