



## **Observation of marine boundary layer iodine oxide over the East China Sea from ship-based MAX-DOAS**

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In recent years, more and more studies showed that reactive halogen species can have an important influence on the chemistry of the lower and the free troposphere, especially in the marine boundary layer and costal area. However, the observation of iodine oxide (IO) in mid-latitude was rarely reported. In June 2017, we have carried out the ship-based Multi Axis Differential Optical Absorption Spectroscopy (MAX-DOAS) measurements during the campaign over the East China Sea area in the western pacific region. In this study, the spectral signature of IO was clearly detected by observing the vibrational absorption bands located in the wavelength region between 413 to 438 nm. It proved the presence of the IO in the marine boundary layer of East China Sea. The differential slant column density (DSCD) of IO at different elevations was used to investigate the potential IO sources and vertical distribution in the marine boundary layer. By extracting lowest part of the vertical information, the averaged ocean surface IO concentration was determined during the campaign, and further used in the modelling study. In addition, time series observations of IO and NO<sub>2</sub> Vertical Column Densities (VCDs) along the cruise were presented.