

Interactive comment on “Reactive and organic halogen species in three different European coastal environments” by C. Peters et al.

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Received and published: 5 October 2005

The paper by Peters et al. reports on observations of halogen species using the DOAS and the GC method at three different coastal sites. It contains significant and new information on reactive halogen species in the marine boundary layer. The paper is in general clearly written and I recommend it for publication in ACP. However, the authors should address for some revisions/corrections as detailed below.

General comments:

- Sometimes the text is difficult to read because the authors did not introduce all acronyms before they are used the first time (e.g. GC/ECD) or they state them

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- more than once (e.g. RHS)
- It is a bit confusing that the authors sometimes refer to two campaigns (e.g. Abstract, l.16 Paragraph 4, DOAS data analysis, l. 13) but show results from three measurement sites.
 - Why is it possible to detect negative values of IO with error bars not crossing the zero line (e.g. in Figure 12, upper panel)? authors stated that they have not found a clear indication for BrO at every site and for OIO at Brittany and North Sea. This is in contradiction to Table 3 (e.g. OIO in Brittany 13.3 +/- 3.3 ppt). authors discuss in detail the differences of the Brittany and the Mace Head site with respect to the I2 results. Isn't it rather helpful to use additional meteorological parameters e.g. water and air temperature for the interpretation of the observations? These parameters would also substantiate statements like "since spring started late in that year" (3.1, l. 10).
 - The authors explain the high I2 levels in October in Mace Head with easterly winds only. But at least on October 7 and 8 there is no clear wind direction visible in Fig. 15. What is the wind speed on these days?
 - It would be nice to see a fit example of OIO.
 - Figure 9 shows the influence of tidal effects on VHOCS. The conclusions described in the last paragraph of 5.1 are quite unimpressive to me. What about error bars in that case? Is there any reasonable explanation for the outliers in the upper panel (short after sunset)? What does that mean? Please use the same axis limits in both panels.
 - What is the FWHM of the IO cross section by Hönninger? How does the cross section in its absolute value compares to more recent ones (e.g. Spietz et al.)?

Minor corrections/comments:

- Add the location (Brittany) to the description of the (sample) evaluation of IO (Par. 4, l. 14 and Figure 3).
- Add H₂O to the list of trace gases taken into account for the I2 retrieval (p. 6087, l. 1).
- The authors should add the temperature of the absorption cross sections used for the data analysis to Table 2.
- P. 6095, l. 3, organoiodine instead of organoiodine

Interactive comment on Atmos. Chem. Phys. Discuss., 5, 6077, 2005.

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