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Atmospheric Chemistry and Physics Discussions



# *Interactive comment on* "Coastal zone production of IO precursors: A 2-dimensional study" *by* "L. J. Carpenter et al."

**L. J. Carpenter et al.**

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We would like to thank the referee for their careful comments. The points raised are dealt with below:

1) IO after sunset. We hadn't spotted this one. The peak after sunset on the 14 Sept (2.5-2.7ppt) is actually below the detection limit of this period of 3.3-4.6 ppt. The Heidelberg group went back to their field log-book and found the note that in the evening of Sept 14, there was "extremely variable visibility", which should explain the quick change in the detection limit. Text has been added to explain this fact.

2) The presence of a "baseline" of organoiodine concentrations was meant to demonstrate the presence of local sources, not offshore sources. I.e., photolysis has no time to deplete the local emissions of CH2I2 to a zero concentration. The text has been modified to make this point clearer. As for enhanced production of halocarbons during rehydration, we measured this at Mace Head but found there was little or no ef-



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fect on halocarbons. However, this was a one-off experiment on one particular species of seaweed.

3) An attempt has been made to make the arguments and assumptions of the model studies less circular. Essentially, rather than using a pair of fluxes to "match the measurements", and then independently verifying the fluxes employed, the low water tidal flux, as estimated from seaweed emissions, was used regardless of the match. The degree of correlation between modelled and measured [CH2I2] is then shown by the r2 values of 0.89 (coastal + offshore), 0.78 (offshore only) and 0.75 (coastal only) - this has been included in the text. Please see Author Comment to referee # 2, points (9) and (11), for a full explanation.

Technical points:

4) Ln 4, pg 198. NONO should be HONO - text has been corrected.

5) Caption Fig 1. Text has been corrected.

6) Use of lux is the correct unit for photopic flux.

7) We have maintained the use of pptv, as this is explained in the text and is the most common unit in atmospheric studies.

8) Text has been added to the Figure captions to explain abbreviations such as TH etc.

9) This figure is no longer included, because the resolution of the model has been improved to 2m (see point (10) to referee #2).

10) This indeed should be NO3 (and was in our original paper!) We believe it is a mistake introduced in typesetting.

11) We have replaced dy with dz.

12) This figure has been replaced with one showing CH2I2 levels in ppt.

13) The Cox paper is now sorted correctly.

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Interactive comment on Atmos. Chem. Phys. Discuss., 1, 193, 2001.