

Ocean Acidification and the Effects on Marine Trace Gas Production

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Trace Gases and Ocean Acidification

Ocean Acidification affects phytoplankton physiology, many species of which have been found to produce a range of trace gases.

Trace gases such as DMS and various halocarbons are important for:

1. Climate regulation (CLAW Hypothesis?)
2. Cycling of different elements from the sea back to the land
3. Tropospheric ozone regulation

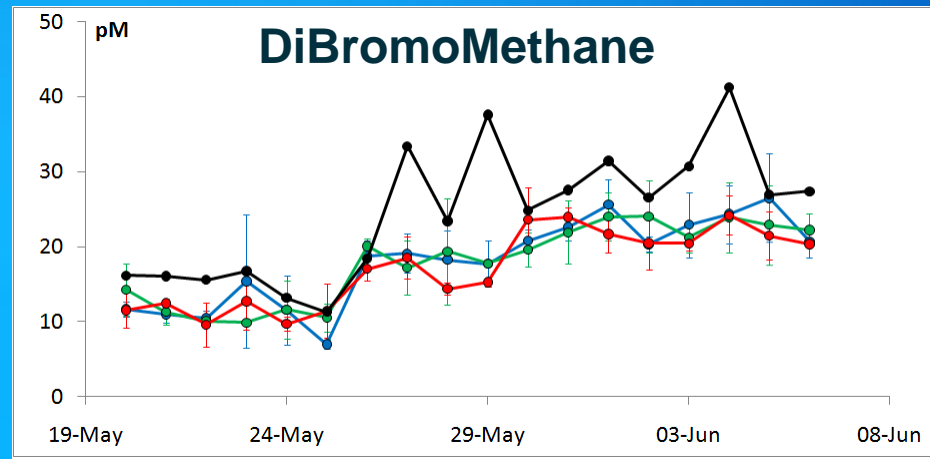
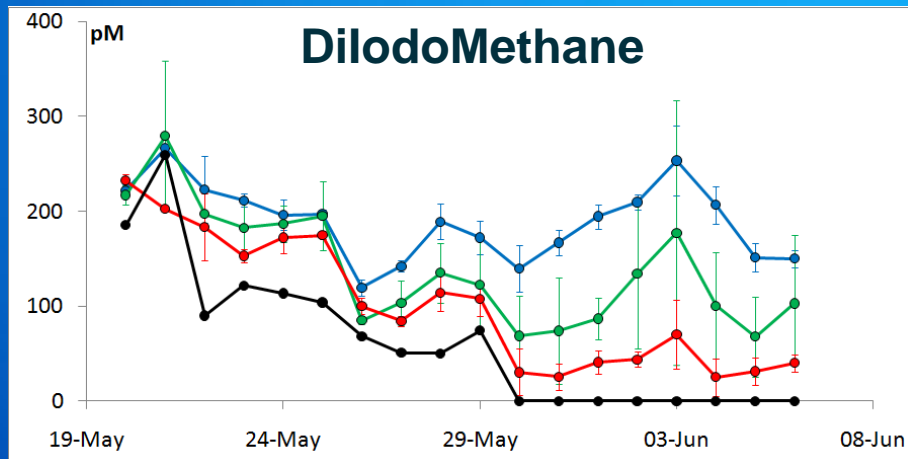
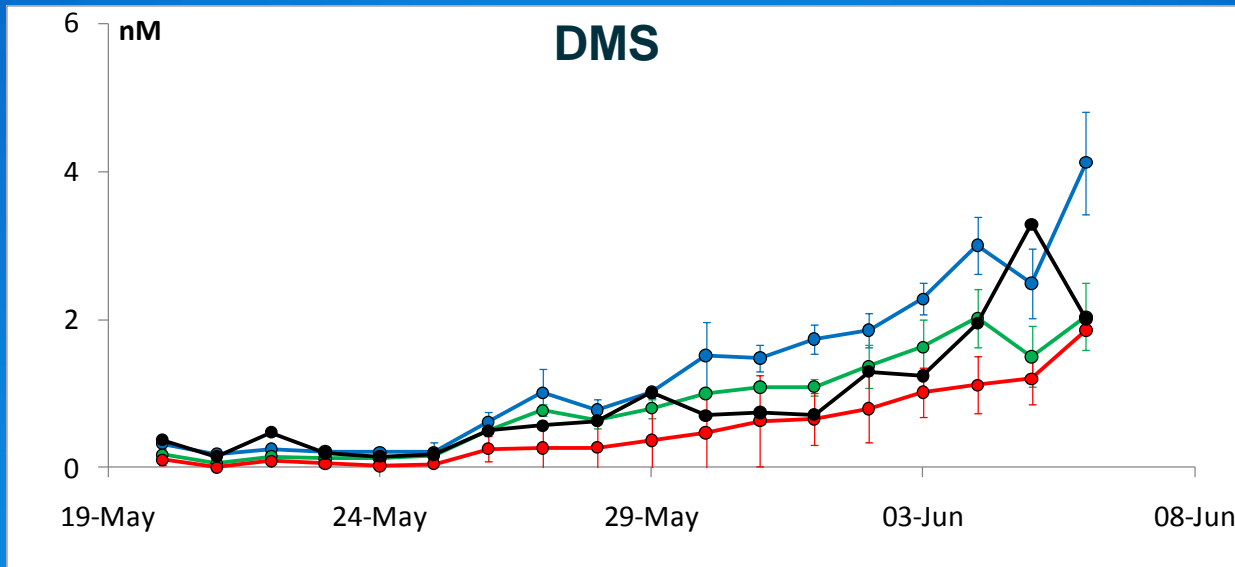
SOPRAN 2 Mesocosm Experiment, Norway 2011

Nine mesocosms covering a range of ρCO_2
Water samples collected, purged and
analysed daily by GC-MS:

- DMS
- Bromocarbons
- Iodocarbons



Trace Gas Analysis



Conclusions

1. DMS showed significantly reduced concentration in increased ρCO_2 mesocosms.
2. Iodocarbon concentrations were lower in the high ρCO_2 mesocosms
3. Changes within the bromocarbons are small and no significant difference was seen between mesocosms.
4. As a key climate gas, DMS is getting increasing interest. Relatively little is known about halocarbon production and removal from marine systems.