



## **Iodine-mediated ultrafine particle formation in the RHaMBLe Roscoff 2007 coastal experiment**

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In recent years the phenomenon of coastal ultrafine particle formation has been extensively observed at the NUIG Atmospheric Observatory at Mace Head on the Galway coast in the west of Ireland. The particle formation has been correlated with daytime low tide and it has been shown to result from the emission of molecular iodine from intertidal macroalgae.

Such coastal particle formation has not been extensively studied at any other location and the requirement to establish the generality of the mechanistic attribution to reactive iodine chemistry has motivated the coastal experiment reported here.

The coastal experiment in September 2007 was conducted within the Reactive Halogens in the Marine Boundary Layer (RHaMBLe) programme funded by NERC UK SOLAS. An extensive payload of instrumentation was deployed in Roscoff, Brittany, to characterise particle formation and reactive halogen chemistry at a location rich in intertidal macroalgae. Aerosol measurements included particle number concentration (>2 nm and > 10 nm diameter) and size distributions from 3 nm and particle fluxes by Eddy Correlation. Halocarbon concentrations were measured online by GC-MS and a Relaxed Eddy Accumulation system was deployed to measure halocarbon and molecular iodine fluxes. Optical absorption instruments were used to investigate the path integrated and in situ concentrations of iodine oxide radicals.

The first results from the RHaMBLe Roscoff 2007 field project will be presented, providing new insight into the coastal particle formation phenomenon. Significant differences between particle formation in Roscoff and Mace Head will be presented and discussed in terms of the differences in of the observed iodine chemistry.