Continuous Long-Term Measurements of OVOCs at Mace Head, Ireland

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Measurements of OVOCs, focussing particularly on methanol, acetone and acetaldehyde, have been collected at Mace Head over a twelve month period. A pre-concentration system coupled to a gas chromatograph mass spectrometer (GC-MS) has been developed to continuously measure these compounds in the field and has been stationed at Mace Head since May 2008. While the prevailing winds are predominantly from the west, bringing in clean air from over the Atlantic, Mace Head is also affected by pollution events as a result of air streams that pass over North West Europe, the UK and Ireland. These events can be seen by marked increases in the levels of the OVOCs being measured. By applying a Lagrangian trajectory model and looking at correlations with anthropogenic markers such as CO it has been confirmed that the air samples containing these elevated levels are anthropogenic in origin. As OVOCs have both primary and secondary emission sources, understanding these pollution events can provide important information on the sources of OVOCs in the troposphere as well as the transport of these and other OVOC compounds over large distances. This information can potentially be used to improve the accuracy of regional models developed for the North West European and UK region.