I CONVEGNO ISTITUTO DI SCIENZE POLARI

Biogenic aerosol: The ocean/atmosphere interaction

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The scientific problem



Activities

- -Acquisition of phytoplankton biomass time series through both on field and satellite measurements.
- -Determination of gaseous DMS in the atmosphere emitted by phytoplankton (in collaboration with KOPRI for the Arctic and with IGE for Antarctica.
- Determination of the ionic composition of the aerosol focusing on compounds of biogenic aerosol arising from DMS oxidation processes in the atmosphere (MSA and nssSO₄²⁻).
- Determination of organic compounds related to the presence of aerosol arising from phytoplankton (carbohydrates and L-amino acids), from bacteria (D-amino acids) and from lignin degradation, phytoplankton and biomass burning (methoxy phenols).
- Determination of the synoptic conditions, and calculation of backward trajectories to be associated with the collected samples, aiming at identifying source regions, transport pathways, and transit times in the atmosphere.



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Results





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Future developments

Long term series of primary and secondary biogenic aerosol in both polar regions.

Correlation of biogenic aerosol content with NPF and IN

Extend the measurements to atmospheric deposition of nutrients and oligoelements supply to the ocean primary productivity (by the collection and chemical measurements on snow deposition and sea water.



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