

Final project report

Project ID: 2002/6.7
Title: Study of the vertical profile and size distribution marine aerosols in the Ross Sea by means of a depolarization LIDAR and in-situ instruments

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Duration: 2 years
Assigned funding: €60.000,00

Activities and results

In the first year of activity, an Aerosol Optical Sizer (OPS) for coarse aerosol sizing-counting was developed and tested at IFAC. An automatic LIDAR, already used on board the ITALICA ship in 2002, was implemented with a depolarisation channel. The LIDAR software was refurbished and a new aluminium frame for the use of the LIDAR inside ships was built. Meteo instruments (including Humicap and sonic anemometers), a GPS, and a sea-sky webcam were tested and prepared for outdoor use on the ship ITALICA. A Differential Mobility Analyzer (Grimm) was also prepared for its use on board the ship. All these instruments were connected to the same PC; a special care was devoted to the harmonization of the software of the different instruments in view of an automatic operation of the aerosol station.

In the second year of the project, all the above instruments were installed on board the ITALICA ship and used in the 4 February - 4 March 2004 Antarctic campaign. The instruments were also used during the NZ-Italy travel (4 - 26 March 2004). The entire campaign gave 50 days of measurements 24/24h. In 65% of these days, the totality of the instruments did work properly.

Products

A – papers in scientific magazines

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B – book chapters

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C - proceedings of international conferences

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D – proceedings of national meetings and conferences

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E – thematic maps

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F – patents, prototypes and data bases

1. Optical Particle Sizer (IFAC)
2. Depolarization LIDAR for ship-borne application (IFAC)

G – exhibits, organization of conferences, editing and similar

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Programma Nazionale di Ricerche in Antartide (PNRA)

H - formation (PhD thesis, research fellowships, etc.)

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Research units

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Date: 15 Ottobre 2008
