



Saharan dust input to the Mediterranean. Comparison of field data with SeaWiFS satellite outputs for five years (1998 – 2002).

M.D. Loye-Pilot (1), R. Santoleri (2), R. Sciarra (2)

(1) Plateforme Environnement, Ecole Normale Supérieure, Paris, France (loye@canoe.ens.fr),

(2) Istituto di scienze dell'Atmosfera e del Clima – CNR, Rome, Italy (r.santoleri@isac.cnr.it)

The Saharan dust is an important component of the Mediterranean atmosphere, being the main buffering agent of the regional atmospheric acidity, the dominant source of terrigenous particulate matter for the Mediterranean open sea and having a potential impact on the open sea fertility and the regional radiative budget. As its production, transport and deposition is linked to meteorological processes, Saharan dust events magnitude and frequency are related to climatic change.

Saharan dust plumes over the Mediterranean Sea during the period 1998-2002 was monitored by daily SeaWiFS images. Dust identification has been carried out by visual inspection of true colour images. Moreover SeaWiFS Aerosol Optical Thickness at 670 nm has been used to derive the Integrated Dust Load. The Mediterranean Sea was partitioned in 18 main zones and the presence of dust in each zone has been catalogued day by day for the entire examined period. The information retrieved by the cataloguing allowed to define the space-time distribution of dust throughout the years examined.

Field deposition was monitored at a coastal site in the North-West of Corsica during the same period and a calendar of dust plumes occurrence and dust deposition was independently established.

The comparison made between dust plumes catalogues obtained from SeaWiFS images and from field data shows a very good accordance between the two types of dust plumes monitoring. SeaWiFS images are an excellent tool to monitor dust transport over the Mediterranean. However dust deposition is not well retrieved from SeaWiFS

products due to the importance of wet deposition (at least in the Western Mediterranean), the main dust fall events corresponding to wet deposition with very cloudy situations.

This comparison shows that the field monitoring before SeaWiFS launching allows to extend the period of observation and the establishment of decadal variations.

The link of these decadal variations with climatic variations and climate change is discussed.