



Impact of intensive dust outbreaks on marine primary production as seen by satellites

Christos Papadimas (1,2), Nikos Hatzianastassiou (2), Nikos Mihalopoulos (1,3), and Maria Kanakidou (1)

(1) University of Crete, Environmental Chemical Processes Laboratory, Department of Chemistry, Heraklion, Greece (mariak@chemistry.uoc.gr), (2) Physics Department, University of Ioannina, Ioannina, Greece, (3) Institute for Environmental Research and Sustainable Development, National Observatory of Athens, Athens, Greece

The impact of intensive dust outbreaks from the African continent on the marine primary production of the Mediterranean sea is here investigated using MODIS satellite observations of atmospheric aerosol optical depth and chlorophyll-a in the seawater. Dust outbreak episodes in the area are detected based on aerosol relevant satellite observations over a 12-year period from 2003 to 2014. For a total of 167 identified episodes, correlations between aerosol optical depth and chlorophyll-a are investigated both on regional and on a pixel by pixel basis as well as for simultaneous or time-lagged satellite observations. The identified co-variations are thoroughly discussed in view of the impact of nutrient atmospheric deposition on the marine biology in the Mediterranean Sea ecosystem. This research has been co-financed by the European Union (European Social Fund – ESF) and Greek national funds through the Operational Program "Education and Lifelong Learning" of the National Strategic Reference Framework (NSRF) - Research Funding Program: ARISTEIA – PANOPLY (Pollution Alters Natural Aerosol Composition: implications for Ocean Productivity, cLimate and air qualitY) grant.