

TRACE-DUST: Chemical and isotopic properties as tracers of airborne particles collected from the Estarreja and Provence OHMs :

Implications to exposure and human health risk assessment

Toxic concentrations of potentially harmful elements in ambient air can lead to (1) hazardous impact of airborne PM in the health of the population and (2) contamination of water supplies, edible crops and human food supply.

Estarreja and Provence regions are impacted by industrial activities, road traffic and growing urbanization and their air quality degradation is a major issue in terms of health risks and environmental impact. Exposure to PM has been associated with respiratory symptoms, decreased lung function, worsening of asthma and the development of chronic bronchitis. Considering that dust is the most important contributor for nonpoint source pollutants to aquatic and terrestrial systems, dust deposition data is relevant information to assess potential impacts on humans and ecosystems.

This multi-proxy study aims at correlating dust origin (using isotopes “fingerprints”) and physicochemical dust properties, to potential risks (magnitude of exposure and bioavailability) in terms of human health and environmental effect.