



## **Transport and Evolution of aerosols over the Mediterranean basin during the ChArME<sub>x</sub>-ADRIMED campaign using Flexpart**

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The Mediterranean Basin is impacted by air masses having different origins and chemical composition. During the ChArME<sub>x</sub>-ADRIMED (The Chemistry-Aerosol Mediterranean Experiment) campaign, the origin and evolution of air masses measured at Cap Corse (Corsica) and for selected airborne observations were modelled and compared to in-situ observations. The Lagrangian Particle Dispersion Model Flexpart was used to study transport time and trajectories followed by these air masses.

Results of the back trajectory analysis show that the western part of the Mediterranean Basin can be subjected to multiple sources simultaneously, particularly dust from Sahara, Africa and emissions from the European continent. A first analysis was conducted by selecting coastal regions surrounding the Mediterranean Basin to find the principal sources by period. The results clearly show episodes of dust and European emissions. A second analysis, using a uniform grid over the study region, shows the path of air masses, their transport time and changes in altitude. These results show that the influence of the Pô Valley, French and Spanish Mediterranean coasts are major sources at the beginning of the campaign, whereas air masses coming from North Africa are found during the dust episode and coming from Northern and Eastern Europe at the end of the campaign. These back trajectory simulations, combined with the ground and airborne observations, provide important insight in assessing the sources and evolution of aerosols.