

An Overview of HyMeX SOP1 Atmospheric Electricity Observations

Lightning Occurrence Relative to Meteorology Session

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The PEACH (Projet en Electricité Atmosphérique pour la Campagne HyMeX) project is the Atmospheric Electricity component of the decadal HyMeX (Hydrology cycle in the Mediterranean Experiment) project. PEACH aims at measuring and analyzing the lightning activity and electrical state of thunderstorms over the Mediterranean Sea for the HyMeX Community. During the SOP1 (Special Observation Period 1; September-November 2012), records of four European operational lightning detection networks (ATDNET, UKMO; EUCLID; LINET, nowcast; ZEUS, NOA) and the NMT Lightning Mapping Array were used to document the total lightning activity over South-Eastern France. Other research instruments such as electric field sensors (ALDIS; LA; NMT), video cameras (ALDIS; ONERA), micro-barometer and microphone arrays (CEA) were deployed to characterize the properties of the lightning flashes as well as the electrical state of parent thunderclouds. All these observations are used to describe the evolution of the electrical activity during the life cycle of SOP1 storms in conjunction with microphysics and kinematics description of the parent storms as derived from ground-based radar, ground-based and airborne in situ observations. Cloud models (WRF; MESO-NH with electrification and lightning schemes) are used to interpret the observational-based results.

We will first present an overview of the observations collected during the SOP1. Results of flash-scale, storm-scale and regional-scale analysis will then be discussed. We will also introduce some of the products that will be made available to the HyMeX Community. Finally we will discuss on the next steps of the PEACH project.

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