



## Observation and modeling of the cloud electrical activity during HyMeX

J.-P. Pinty (1), S. Coquillat (1), J.-M. Martin (1), S. Prieur (1), E. Defer (2), W. Rison (3), P. Krehbiel (3), and D. Rodeheffer (3)

(1) Laboratoire d'Aérodynamique, University of Toulouse, Toulouse, France (pinjp@aero.obs-mip.fr), (2) LERMA, Observatory of Paris, Paris, France (eric.defer@obspm.fr), (3) New Mexico Tech, Socorro, NM 87801, USA (rison@ee.nmt.edu)

The PEACH (Projet en Electricité Atmosphérique pour la Campagne HyMeX) project is the Atmospheric Electricity component of the HyMeX (Hydrology in the Mediterranean Experiment) experiment aiming at documenting the lightning activity and electrical state of thunderstorms over the Mediterranean Sea. During SOP1.1 (Special Observation Period; September-October 2012), records of the New Mexico Tech Lightning Mapping Array (LMA) were used to locate and to characterize the 3D lightning flashes over South-Eastern France at high resolution. These data were completed by observations provided by several European operational lightning detection networks. Other research instruments such as induction rings (to measure the charge of the raindrops), electric field meters and high-speed video cameras were also deployed to monitor the electrical characteristics of parent thunderclouds. All these observations are used to document the evolution of the storm electrical activity during the SOP in conjunction with microphysics and kinematics measurements available from many ground-based radars and airborne sensors. We will present a short overview of the PEACH project. We will discuss some of the recorded cases. We will also introduce some results of the modeling project based on the use of an explicit electrical module which was developed in the 3D cloud-resolving mesoscale model MesoNH.