



## **GIRAFE, a campaign forecast tool for anthropogenic and biomass burning plumes**

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GIRAFE (reGIONAL ReAl time Fire plumEs, <http://girafe.pole-ether.fr>, [alain.fontaine@obs-mip.fr](mailto:alain.fontaine@obs-mip.fr)) is a forecast tool supported by the French atmospheric chemistry data centre Ether (CNES and CNRS), build on the lagrangian particle dispersion model FLEXPART coupled with ECMWF meteorological fields and emission inventories.

GIRAFE was used during the CHARMEX campaign (Chemistry-Aerosol Mediterranean Experiment <http://charmex.lscce.ipsl.fr>) in order to provide daily 5-days plumes trajectory forecast over the Mediterranean Sea. For this field experiment, the lagrangian model was used to mimic carbon monoxide pollution plumes emitted either by anthropogenic or biomass burning emissions. Sources from major industrial areas as Fos-Berre or the Po valley were extracted from the MACC-TNO inventory. Biomass burning sources were estimated based on MODIS fire detection. Comparison with MACC and CHIMERE APIFLAME models revealed that GIRAFE followed pollution plumes from small and short-duration fires which were not captured by low resolution models. GIRAFE was used as a decision-making tool to schedule field campaign like airborne operations or balloons launching.

Thanks to recent features, GIRAFE is able to read the ECCAD database (<http://eccad.pole-ether.fr>) inventories. Global inventories such as MACCITY and ECLIPSE will be used to predict CO plumes trajectories from major urban and industrial sources over West Africa for the DACCIWA campaign (Dynamic-Aerosol-Chemistry-Cloud interactions in West Africa).