



## Fire and Plume Monitoring in the MACC Project

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The European project MACC (Monitoring Atmospheric Composition and Climate) is developing and providing a set of atmospheric environmental services in preparation for operational GMES services. The services monitor the atmospheric composition by assimilating observations into global and regional models of the atmospheric aerosol, reactive gas and greenhouse gas abundances. This consistent description of, amongst others, the occurrence, transport and composition of large biomass burning plumes is well suited to infer information on the global fire distribution and behavior in a top-down approach. A complementary service in MACC provides open fire emission rates for several chemical species with a bottom-up approach: Global fire activity maps are derived from satellite-based observations of burnt areas, hot spots and fire radiative power and the emission rates are subsequently calculated from these maps. They are currently used as first guess during the atmospheric data assimilation. The products are now publicly available in real time and retrospectively starting from 2003. Combining top-down and bottom-up approaches will yield new quantitative information on the evolution of the global fire distribution in terms of intensity and fire types as well as emissions. We present and compare selected fire and atmospheric products.