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The MACC Fire Products

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This presentation gives an overview of the global fire emission monitoring products that have so far been developed in the projects GEMS "Global and regional Earth-system (Atmosphere) Monitoring using Satellite and in-situ data" and MACC "Monitoring Atmospheric Composition and Climate". The products are available either in real time with a time lag of about six hours or retrospectively starting in 2003. One line of products is based on the "Global Fire Emissions Database" (GFED) inventory. Another is based on satellite-based fire radiative power (FRP) observations that are routinely available in real time. The FRP products that are based on the geostationary Meteosat-9 observations, which are produced at the EUMETSAT LandSAF, resolve the diurnal variation of open fires in Africa and Southern Europe. The FRP products derived by MACC from geostationary GOES observations do the same for the Americas. The FRP products derived by NASA/NOAA from the polar orbiting MODIS observations provide complementary global coverage in roughly one day and serve as transfer standard between the different geostationary observations. All FRP products are merged in MACC to provide a consistent global map of fire activity, from which emission rates of various species are derived. The emission rates are subsequently used as lower boundary conditions for the atmospheric composition modeling in other parts of MACC. The products are also available to the public.