



New developments in GFAS for climate applications

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The Global Fire Assimilation System (GFAS) provides the biomass burning emissions which are used to assess and forecast their impact on the local and regional air quality, climate and the carbon cycle. GFAS is currently using fire radiative power (FRP) satellite observations from the MODIS and SEVIRI instruments and provides hourly global emission fluxes at a horizontal resolution of 0.1 deg. The recent developments in GFAS include the FRP assimilation with representation of the fire diurnal cycle, and improving the temporal resolution from daily to hourly. An update from the existing version of GFAS to a new version: GFAS-CLIM is underway to generate a new data set for climate applications. The new version has an improved spatial resolution of 0.05 deg, and for a further improvement in the FRP accuracy, the change from a Kalman filter to the Kalman smoother is planned. Kalman smoother provides an option of using the retrospective information for filling in the observation gaps, and is not possible in a real time system. With these new developments, we aim towards developing a sufficiently long time series for climate analyses, which also is in close agreement with the Global Climate Observing System (GCOS) Essential Climate Variable (ECV) requirements for frequency, resolution and uncertainty characterisation.