



## **Emissions of gases and aerosols resulting from biomass burning during the 1900-2003 period**

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A methodology to estimate emissions of gases and aerosols resulting from biomass burning has been developed. The method is based on the use of the GBA (Global Burned Areas)-2000 product, which provides burned areas for the year 2000. The amount of burned biomass for different types of vegetation is obtained using the GLC (Global Land Cover) vegetation map, as well as data on biomass density and on burning efficiency for each type of ecosystem. Emissions for the 1997-2003 period are then obtained using active fires from the ATSR (Advanced Thermal Scanning Radiometer) instrument, assuming that the amount of burned biomass obtained when using the GBA-2000 data is equal to the one obtained using active fires for 2000. Emissions for atmospheric gases and aerosols are then determined using emission factors from the compilation of Andreae and Merlet (Global Biogeochemical Cycles, 2001).

Biomass burning emissions for the 1900-1990 period are derived using the 1x1 degree fire history reconstruction of burned areas for the 20<sup>th</sup> century developed by Mouillot and Field (Global Change Biology, 2005). Emissions for the 1900-1990 period are then determined using the GLC vegetation map, and the same biomass density and burning efficiency as used for the 1997-2003 period. A scaling is finally applied to all decades, so that emissions obtained for the 1990 decade from the historical reconstruction are equal to the one obtained using satellite data for 1997-2003.

Distributions of emissions for different gases and particles will be discussed, and first evaluations of this new emissions inventory will be presented.