



## **Black carbon measurements at global atmosphere watch Bukit Kototabang during forest fire episodes in Sumatera**

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Biomass burning plays an important role in atmospheric composition and chemistry. Fires occurring close to populated areas severely impact air quality, which in turn affect millions of inhabitants. The biomass burning in the Southeast Asia region anthropogenic is a regular and major activity every years. The aerosol emissions produced by these activities represent a large burden for the ambient air. Within the widely dispersed biomass burning plumes, the ambient aerosol concentrations reach very high values. These concentrations are not only relevant for public health, but they also influence the regional radiative forcing of the atmosphere. Black carbon is highly influential to climate change due to its strong ability in both the absorbing the sunlight coming directly and reflecting it from the Earth's surface and particles in the air. In terms of radiative forcing, black carbon is a major contributor to climate change after CO<sub>2</sub>. Black carbon measurement during fire episodes at Global Atmosphere Watch Station Bukit Kototabang is located in the island of Sumatera, Indonesia. Black carbon measurement using aethalometer that have basic principle measurement of the changes in light attenuation through an aerosol-loaded filter (Lambert-Beer's law). Black carbon measurements performed using a photometric type instrument allows not only the determination of an eBC mass concentration, but also for the determination of relevant aerosol optical properties. Based on the analysis, measurement of black carbon shows eBC and PM<sub>10</sub> reaching their peaks in mid-March 2014 and October 2015, biomass burning were the dominant force in contributing to the high aerosol concentration in the air. The measured black carbon levels are fairly representative to depict the air quality in Sumatera, particularly during the forest fires.