

# **Long range air pollution transport towards Eastern Africa as observed from Mt.Kenya GAW station**

**S. Henne** (1), J. Klausen (1), J.M. Kariuki (2), B. Buchmann (1)

(1) Empa, Materials Science and Technology, Air Pollution/Environmental Technology, Dübendorf, Switzerland, (2) Kenya Meteorological Department, Nairobi, Kenya  
(stephan.henne@empa.ch / Phone: +41 44 823 46 28)

The WMO/GAW station Mt. Kenya is located in Eastern Africa on the equator at an elevation of 3678 m a.s.l. In this otherwise data sparse region surface carbon monoxide (CO) and ozone (O<sub>3</sub>) have been monitored continuously since 2002. In this paper we present data from 2002 to 2005.

During night-time the Mt. Kenya GAW station is situated within the middle troposphere, well above the more polluted atmospheric boundary layer. Therefore, the station is well suited to analyse long range transport of air pollutants towards Eastern Africa.

The influence of local air pollutant emissions versus long range transport towards the site is analysed. Clustering of backward trajectories is used to identify major source regions. The site is influenced by easterlies throughout most of the year. Furthermore the passage of the intertropical convergence zone (ITCZ) and the associated monsoon circulations cause distinctly different air masses to reach to the site. During the northern hemispheric winter, flow towards Eastern Africa is predominantly from the North-East and during the northern hemispheric summer, south-easterlies prevail. During the transitional seasons flow is directly from the Indian Ocean.

The largest CO concentrations are monitored during the northern hemispheric winter and can be attributed to emissions in India and the Arabic Peninsula, followed by long range transport in the middle troposphere over the Indian Ocean towards Eastern Africa. A second maximum in CO concentrations is observed during northern hemispheric summer and can be ascribed to biomass burning emissions in southern Africa.