



## Establishment of an atmospheric observatory for trace gases and atmospheric oxygen in Namibia

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Continuous, high-precision measurements of greenhouse and other biogeochemically significant atmospheric gases help to establish a global baseline and create important data for the study of atmospheric transport, biogeochemical fluxes, and human emissions. Also, they can validate models and ground- and space-based remote sensing and complement airborne atmospheric measurements.

There are currently few such facilities on the African continent. To reduce this gap in the global observational system, we are establishing an atmospheric observatory at Gobabeb, Namibia. Continuous measurements of the atmospheric  $O_2/N_2$  ratio and biogeochemical trace gases ( $CO_2$ ,  $CH_4$ ,  $N_2O$ ,  $CO$ ) will be accompanied by a regular flask sampling program. Our observatory also represents an opportunity to forge partnerships with local and global scientific organizations.

The site is well located to study the natural and anthropogenic gas fluxes on the southern subtropical African continent, and the air-sea gas fluxes of the nearby Benguela Current system off the Namibian coast. This current system drives one of the four major eastern-boundary upwelling ecosystems, creating zones of intensive primary production that influence the budgets of atmospheric gases via air-sea exchange. Another feature of interest is the large biomass burning region in central and southern Africa. An analysis of HYSPLIT air mass back trajectories from Gobabeb indicate that the dominant origin of air at the site is from one of these two areas.

On-site installation of the standalone measurement system, which is installed in a 20' container, is scheduled for the first half of 2012. We present here the detailed setup of the system and first performance data.