

VERTIKO - UBAS
Progress report 2003

The year 2003 was dominated by the special measurement campaign MORE II, which took place from May to October at the anchor station Tharandt. Compared to the first advection experiment MORE I (Sep./Oct. 2001), the experimental setup of this second campaign was much more expensive. Three 30 m high towers have been erected at a horizontal distance of about 70 meters from the anchor station. A vertical profile of CO₂ and H₂O was measured at each tower at heights of 0.5, 2, 8, 20 and 30 m a.g.l. The turbulent fluxes of momentum and sensible heat were measured at all three towers by ultrasonic anemometers at heights of 2.5 and 31 m a.g.l. At the anchor station, an additional wind profile (measurement heights 2, 8, 18, 26, 33 m) and temperature profile (measurement heights 0.5, 1, 2, 8, 18, 26, 33 m) have been installed. The experiences made during the first experiment helped a lot to improve the experimental setup of MORE II. All horizontal gradients of CO₂ and H₂O were therefore measured by the same infrared gas analyzer (IRGA) and the sampling times have been adjusted. The 2 m level at each tower was measured by each of the three IRGAs separately. This allows to adjust the vertical profiles afterwards. The wind profile at the anchor station consisted of two separated profiles exposed to NW and SE, respectively, to prevent from tower effects. All IRGAs were carefully calibrated every week. A first glimpse at the data set confirms the excellent quality of the measurements. First results will be presented in April 2004 at the EGU general assembly in Nice.

The results from the MORE I campaign have been presented in April 2003 at the EGU general assembly in Nice and in December 2003 at the BIOMET conference in Dresden. A paper titled "The influence of advection on the short term CO₂ budget in and above a forest canopy" by C. Feigenwinter, C. Bernhofer and R. Vogt has been submitted to Boundary Layer Meteorology and will appear in 2004.