VERTIKO - UBAS
Progress report 2001

In the initial phase of the project the extensive MAP-Riviera data set (steep woody slope) was sighted and a quality control was performed. It is shown that this extraordinary, high quality and high resolution data set is well suited to reach one of the main goals of the VERTIKO-UBAS project, namely the parametrization of the turbulent fluxes in complex terrain, and thus very promising results can be expected by further analysis.
From the beginning of September until October 11th, the special measurement campaign MORE-1 took place at the Ankerstation Tharandt. The aim of the experiment was the quantitative recording of the horizontal advection of CO_2. Profiles of CO_2 concentrations and atmospheric turbulence were measured at the edges of a triangle with a sidelength of about 50 m. In addition to the permanent measurements of the Institute of meteorology and hydrology of the TU Dresden (TUD), two additional CO_2-profiles with 6 levels (0.1, 0.3, 0.5, 1.0, 2.0, 8.0 und 26.0 m) and the turbulent fluctuations of the wind vector and the temperature at two levels (0.5 und 2.0 m) were measured. To compare the independent measurements at the three edges to each other, an additional gas multiplexer was operated for the simultaneous measurement of the CO_2 concentrations at all the three edges at the 2 m and 26 m level. The three gas multiplexer operated by the University of Basel have been developed and realized especially for this experiment and will eventually be operated in further VERTIKO campaigns. Six ultrasonic anemometers/thermometers (2 CSAT 3, Uni Basel; 2 Gill R2, IMK Karlsruhe, 1 Gill R2, Uni Basel; 1 Gill HS, Uni Basel) were operated for turbulence measurements. Turbulent CO_2 fluctuations were measured additionally by a open-path LI-COR 7500 (TUD). All turbulent measurements were acquisitioned simultaneously with a sampling rate of 20 Hz by the EC-data acquisition system of the University of Basel. CO_2 concentration measurements were performed by three infrared gas analysers of type LI-COR 6262 (1 University of Basel, 2 University of Padua). Additionally to the permanent CO_2 measurements of TUD, more than 400 meters of PE-tubes have been mounted. Likewise, a SODAR (Scintec FAS64, Uni Basel) was operated in the near surroundings of the Ankerstation. Despite the explicit test character of the experiment and initial technical problems, a complete data set of 15 consecutive days is available, which is currently analysed. More details of the experimental setup and first results will be published in one of the next VERTIKO newsletters.
For the intercomparison of radiation instruments from September and October in Melpitz a pyranometer CM21 (Kipp & Zonen) and a pyrgeometer (PIR Eppley) was provided by the University of Basel.