



Energy balance at ADVEX sites – how much energy is available?

U. Moderow , C. Bernhofer and the CE ADVEX Team

Technische Universität Dresden, Institute of Hydrology and Meteorology, Department of Meteorology, Germany (uta.moderow@forst.tu-dresden.de)

Recently within CarboEurope-IP (CE) the advection group ADVEX carried out extensive field campaigns at the CE sites in Ritten/Renon (Italian Alps near Bozen/Bolzano, 2005), Wetzstein (Thuringia, Germany, 2006) and Norunda (Uppland, Sweden, 2006). A similar experiment was performed at the CE site in Tharandt in 2003 (VERTIKO MORE2). At all ADVEX sites the same geometry, instrumentation and methodology for data acquisition and computation were used making the datasets more comparable than others. Although the ADVEX-experiments were primarily designed to get a deeper insight into advective fluxes of CO₂ the data also form a good basis to analyze the role advective fluxes for the energy balance. However, before evaluating the importance of these fluxes to close the energy balance it is necessary to estimate the accuracy and quality of the available energy data. As the measurements were not explicitly designed for the determination of the energy balance this has to be done with a limited set of data for comparison, reference and cross checking. An analysis of available energy (sum of net radiation, ground heat flux, and storage change) of these sites with differing topography is presented, a comparison is made, and distinct features are outlined.