



Thermally driven flow pattern in the Dead Sea Valley: observations and model results

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The Dead Sea Valley in the close vicinity of the Eastern Mediterranean is characterised by its unusual orography and particular atmospheric, hydrologic and geologic conditions. In autumn 2006, long-term measurements of meteorological parameters have been started. In this frame, the diurnal and seasonal variability of flow pattern in the lower troposphere and especially in the boundary layer are analysed and the variation of atmospheric stratification and stability parameters is investigated.

During an initial intensive measurement period in October 2006, three 24 h-series of vertical profiles of wind, temperature and humidity have been recorded based on radio soundings reaching from -400 m to the tropopause. Additionally, the components of the energy balance of the earth's surface have been measured, and synoptic data are available.

Below sea level, a complex superposition of thermally induced slope winds, valley winds, sea-breeze circulation and synoptic scale flow can be found. Case studies including all available data but focussed on the radio soundings will be discussed. It is shown by observation and KAMM-simulation that due to the high changes of soil and sea temperature and their diurnal variability, thermally driven wind systems develop in the Dead Sea valley, which strongly modify atmospheric stability.