Geophysical Research Abstracts
Vol. 15, EGU2013-2730, 2013
EGU General Assembly 2013

The deep atmospheric boundary layer and its significance to the stratosphere and troposphere exchange over the Tibetan Plateau

Xuelong Chen, Juan A. Añel, and Bob Su

Faculty of Geo-Information Science and Earth Observation of the University of Twente, Water resources, Enschede, Netherlands (chen24746@itc.nl)

In this study the depth of the atmospheric boundary layer (ABL) over the Tibetan Plateau was measured during a regional radiosonde observation campaign in 2008, and found to be deeper than indicated by previously measurements. Results indicate that during fair weather conditions on winter days, the top of the mixed layers can be up to 5 km above the ground (9.4 km above sea level). Measurements also show that the depth of the ABL is quite distinct for three different periods (winter, monsoon-onset, and monsoon seasons). Turbulence at the top of a deep mixing layer can rise up to the upper troposphere. As a consequence, as confirmed by trajectory analysis, interaction occurs between deep ABLs and the low tropopause during winter over the Tibetan Plateau.