Third Pole Environment Programme (TPE): A new Base for the Study of Atmosphere-Land Interaction over the Tibetan Plateau and surrounding area

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As a unique geological and geographical unit, the Third Pole area (the Tibetan Plateau and nearby surrounding area) dramatically controls climatic and environmental changes in China, Asia and even in the Northern Hemisphere. Supported by the Chinese Academy of Sciences and some international organizations, the Third Pole Environment (TPE) Porgramme is now implementing. Firstly the background of the establishment of the TPE, the establishing and monitoring plan of long-term scale of the TPE and six comprehensive observation and study stations will be introduced. Then the preliminary observational analysis results on atmosphere-land interaction will also been shown. The study on the regional distribution of land surface heat fluxes of paramount importance over heterogeneous landscape of the Third Pole area. A parameterization methodology based on satellite and in-situ data is described and tested for deriving the regional surface heat fluxes over heterogeneous landscape of the whole Tibetan Plateau area. Eight images of MODIS data and four images of AVHRR data were used in this study for the comparison among winter, spring, summer and autumn and the annual variation analysis. The derived results were also validated by using the ‘‘ground truth’’ measured in the stations of the Tibetan Observation and Research Platform (TORP). The results show that the derived regional surface heat fluxes in four different seasons over the Tibetan Plateau area is in good agreement with the ground measurements. The results from AVHRR were also in agreement with MODIS, with the latter usually displaying a higher level of accuracy.