Observation Research on Land Surface Processes of the Tibetan Plateau based on the Field Stations Network

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The field observation stations are constructed according to the needs of scientific development and national strategies. An observation network composed of multi-stations is a platform with observation standard, fully cooperation and data sharing, which is able to perform the long term observations for land surface processes and environmental changes in high-cold areas. It sustains the integration research of earth system sciences, the responses and effects of key areas to global changes, and quantitative identification of human activities to environmental changes. The High-cold region Observation and Research Network for Land surface processes & Environment of China (HORN), integrating 17 stations belong Chinese Academy of Sciences, is performing long term observations and researches to the land surface processes including glaciers, permafrost, lakes, alpine ecosystem in the high-cold regions of China. Through the construction of standard observation index system, coordination of observation instruments, integration and sharing of observation data, HORN has obviously promoted the station-level observation abilities, and acted important supporting roles in the studies of earth system and resources and environment sciences on the Tibetan Plateau. A great of international level scientific results have been achieved based upon the station observation data. These data has also provided reliable scientific basis for the decision-making of regional economic and social development. Results of observation research provide data for discovering regulations of climatic change and water resource transformation in the source areas of great rivers, reasonably using water sources, elucidating ecosystem structures and service functions, constructing eco-safety barriers, understanding the occurrence mechanism of natural hazards, and promoting sustainable development for regional economy and society.