Editor's note

In 1961, the Global Network Isotopes in Precipitation (GNIP) was operated by the IAEA in collaboration with WMO, and over 500 stations across the globe participated in this program. The initial objective of this program was the systematic collection of isotope data in precipitation to provide the basic isotopic data for the use of basic environmental isotopes in the hydrology within the scope of hydrological and geochemical cycle and water resources management. During the implementation of the program the close relationship between precipitation isotopes and air temperature was found. This finding was subsequently used in the paleoclimate study, and air temperature change had been reconstructed from isotopes in the ice sheets. Meanwhile, precipitation isotopes were also used to verify and improve atmospheric circulation models.

There are 30 GNIP stations in China, mostly in central and eastern China. However, there were only a few studies related to precipitation isotopes in China prior to 1980. With the progress of the ice core study on the Tibetan Plateau since the middle of 1980s, the understanding of present precipitation isotopes has been necessary. Therefore, the Chinese scientists initiated the Tibetan Plateau Network for Isotopes in Precipitation (TNIP) program and collected isotopic data at over 20 stations. This program aimed at understanding the climatic significance of precipitation isotopes in local climate and providing scientific basis for the ice core isotopic reconstruction in the Tibetan Plateau. Also, this program was found very useful for the study of monsoon activities, moisture transport and hydrological cycle on the plateau, because all these processes influence not only the isotopic fractionation but also the isotopic records in sediments through the inland hydrological cycle and biochemical cycle. Therefore, all these should be reconsidered in the study of the isotopic records from ice core, lacustrine sediment, and even as an altimeter in the uplift of the plateau. To meet the new challenge and demand, the TNIP program was developed into a new program—China Network of Isotopes in River and Precipitation (CNIRP). Recently, the Multi-program “The Ancient Tibetan Plateau Altitude Research” initiated by the Chinese Academy of Sciences focused on the water isotopes as an altimeter in the uplift of the Tibetan Plateau.

The 5 papers in this issue of *Chinese Science Bulletin* report the latest progress in the TNIP, CNIRP and “The Ancient Tibetan Plateau Altitude Research” Program. Their contents cover the isotopic change in the present processes occurring on the Tibetan Plateau, especially the isotope changes in atmospheric processes, lake processes and river processes. It should be pointed out that the special topic in this issue highlights the interaction between monsoon system and westerly system and their influence on precipitation isotope, and expands the precipitation isotope research to a continental scale interaction with Asian monsoon circulation.

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doi: 10.1007/s11434-009-0520-9