



## **Study on the Tibet Plateau climate system change and mechanism of its impact on East Asia**

Yaoming Ma (1), Zeyong Hu (2), Lide Tian (1), Fan Zhang (1), Anmin Duan (3), Kun Yang (1), Yili Zhang (4), and Yongping Yang (1)

(1) Institute of Tibetan Plateau Research, Chinese Academy of Sciences, Beijing, China (ymma@itpcas.ac.cn, +86 10 6284-9886), (2) Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences, Lanzhou, China, (3) Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China, (4) Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, Beijing China

As the Third Pole of the earth, the Tibet Plateau is an important water source of Asia. The 10 major rivers in China and abroad developed from the Tibet Plateau and provide living and production water for 1/3 of the world's population in East Asia and South Asia. The powerful dynamic and thermal effects of the Tibet Plateau significantly affect the East Asian climate pattern, the process of the Asian monsoon and Northern Hemisphere atmospheric circulation. Global change influences the processes of Hydrosphere and Cryosphere on the Tibetan Plateau, changes the ecosystem and environment within the plateau, and affects the socio-economic development and living condition of people in the region. In addition to that, through atmospheric circulation and water cycle, global change directly impacts water security and nature disaster protection in East Asia and surrounding nation. In order to answer the scientific questions on the Tibet Plateau climate system change and mechanism of its impact on East Asia, a Chinese National Key Program for Developing Basic Sciences was launched in 2010. The program plans to focus on the interaction of "Water - Cryosphere - Atmosphere - biology", treat the Tibet Plateau multisphere as a climate system, and investigate mechanisms of its development and effects on East Asia under the influence of global change. The launching back ground, key scientific questions, scientific objectives, main research contents and the new progresses of the program will be introduced in this paper.