

Newsletter

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LATEST ANNOUNCEMENT

ITP has moved to its new building!

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NEWS

CAS Vice President DING directs attention towards ITP's development

Chinese Academy of Sciences (CAS) Vice President DING Zhongli paid two visits to ITP at the beginning of 2012. The first was on Feb. 7, shortly after ITP's move into the new building in Beijing. During the visit, Ding advised on four areas for ITP to concern itself with in promoting amiable coexistence with other research institutes: developing a friendly working environment, intensifying cooperation with relevant institutes, encouraging and valuing scientific spirit and independent thinking and questioning, and promoting tolerance and acceptance for diverse cultures and personalities.

In mid-March, Ding made a second visit to ITP, this time accompanied by several delegates from CAS Bureau of Personnel and Education, CAS Bureau of Science and Technology for Resources and Environment, and CAS Communist Party Committee at Beijing. The aim of the visit was to evaluate ITP's development over the past five years. During the evaluation meeting, ITP director YAO Tandong reported on ITP's achievements, as well as potential obstacles for further progress. Ding praised ITP's development since its establishment, and expressed his desire for ITP staff to devote more attention to research subject cultivation, and better serving regional development in Tibet in an effort promote China's Tibetan Plateau research.



CAS academician CHENG advises on ITP's academy



CAS academician Prof. CHENG Guodong, Executive Director of NSFC Department of Earth Sciences, visited ITP on March 26, 2012. Prof. YAO Tandong first briefed him on ITP's capacity building, infrastructure construction, scientific research and international cooperation.

Being aware of ITP's development over the past few years, Prof. Cheng expressed his approval of its vigor and vitality. Four further suggestions were also proposed for helping ITP continue its course of development:

Firstly, considering the unique geographical status of the Tibetan Plateau, ITP should aim to answer some key science questions in earth system sciences;

Secondly, the Third Pole Environment (TPE) program should be further promoted by pooling more financial support from NSFC, and by joining hands with distinguished research groups at home and abroad;

Thirdly, ITP should engage in a holistic development of research disciplines by supporting unique disciplines to the Plateau;

Fourthly, camaraderie in academic research on the Tibetan Plateau should be cultivated, and a uniform perspective should be adopted in laying out research strategies, thus elevating the general research level of China's Tibetan Plateau research.

TPE glacier monitoring efforts highlighted in Nature

The journal Nature recently reported on TPE's research efforts. The article, appearing in the news section of Nature, acknowledges the need for increased monitoring and outlines some of TPE's latest efforts:

"The 46,000 or so glaciers in the region — known as the Third Pole — supply water to some 1.4 billion people in southern and central Asia, and although many climate studies suggest that the ice is disappearing fast, not all measurements are so dire. Now, the TPE programme, an international effort to assess the effect of climate change in the region, aims to get some answers by monitoring 25 of the glaciers..."

The article by Jane Qiu appears in Vol. 334 of Nature (5 Apr 2012, p. 19).



SCIENTIFIC ACTIVITIES

Glacier mass balance on the Third Pole reviewed for further development

From February 19 to 21, 2012, a group of scientists from China, India, Nepal, Japan and Pakistan gathered at Guangzhou, China, to review glacial mass balance on the Third Pole and plan for further development in glacial mass balance monitoring. They were called upon by CAS academician Prof. YAO Tandong to participate in the Glacier Mass Balance Working Group Workshop for the TPE jointly chaired by Prof. Yao, Dr. Pradeep Mool of the International Centre for Integrated Mountain Development (ICIMOD) and Shresth Tayal of the Energy and Resources Institute (TERI).

Participants of the workshop assessed the latest research results in glacier mass balance on the Third Pole, proposing 25 glaciers as candidate to construct flagship stations. Data-sharing platform within the TPE was also among the major concerns of the participants. The workshop finally harvested a general consensus and several





basic guidelines for data-sharing among the participants. The workshop report was thoroughly discussed and later drafted jointly by all participants.



Updates on key research programs

Kick-off meeting held for NSFC-funded key program "Multi-phase transition of water in the Third Pole earth system and its impacts"

The kick-off meeting for NSFC-funded key program "Multi-phase transition of water in the Third Pole earth system and its impacts" was held at ITP on June 6, 2012. Over 60 people, including officials from the NSFC and CAS and professors of participating institutions, were present at the meeting.

Professor YAO Tandong, PI of the program, delivered a welcome speech. "We are delighted that the program has been chosen as an NSFC-funded key program. This shows that the work of our research team is recognized on the government level."

The meeting aims to clarify scientific questions, promote integration of different fields under the framework of the program and discuss detailed plan for program implementation. For this purpose, Professor Yao encouraged scientists from various fields at the meeting to offer suggestions.

In his congratulation speech, SONG Changqing, deputy director of the Division of Earth Science NSFC, emphasized the importance of the program and highly appraised the integrated, comprehensive and systematic research methods.

As member on the academic committee of the program, professor CHEN Deling, member of the Royal Swedish Academy of Sciences and former director of ICSU, gave a lecture entitled "Evolution of Climate Science", in which he introduced the definition of climate science, its evolution and the challenges that it faces.

PI of different research groups of the program then respectively introduced the scientific tasks and implementation plans of their research. Scientists at the meeting evaluated the research focus, potential challenges and research methods of the different sub-programs. The following suggestions were proposed at the meeting: 1) to focus on regional diversity of the Third pole region; 2) to place emphasis on the observation of key parameters (such as snow and ice albedo, surface radiation, precipitation etc.), and the planning of observation programs (short-term and long-term, regular and intensive, manual and automatic, etc.); 3) to differentiate modern observations from historic records, and to distinguish the findings based on statistical methods from that based on a dynamic basis; 4) to place emphasis on observation of the precipitation gradient (precipitation and stable isotopes) at different altitudes; to pay attention to the observation of water isotopes



in large rivers and the research of the diversity of lake water sources; 5) to focus on the spatial and time scale of the model; 6) to strengthen cooperation with countries on and around the Third Pole region and expand the research contents; and 7) to strengthen database construction.

National Key Scientific Research Project-"A Study of Variations of Climate Systems on the Tibetan Plateau, Their Mechanisms and Influences on East Asian Region"

Spearheaded by ITP professor MA Yaoming, and with participating scientists from ITP, Cold and Arid Regions Environmental and Engineering Research Institute (CAREERI), Institute of Atmospheric Sciences (IAS), Institute of Geographic Sciences and Natural Resources Research (IGSNRR), Institute of Mountain Hazards and Environment (IMHE) and Center for Earth Observation and Digital Earth (CEODE), the National Key Scientific Research Project on Global Change "A Study of Variations of Climate Systems on the Tibetan Plateau, Their Mechanisms and Influences on East Asian Region" has made great progress since its inception in September, 2010. With the goal of studying land-atmosphere interactions and land surface process changes, the project accomplished a comprehensive monitoring of the Qiangtang Plateau and Southern Tibetan region July-August, 2011. Data and samples obtained from the monitoring laid solid foundation for further research of land surface process of the TP and remote sensing inversion scale.

The project also focuses on the study of solar radiation variations during the past decades in China. Scientists found that the solar radiation variation pattern on the TP is greatly different from that of the rest of China. Solar radiation in the region increased during the 1960s and dropped in the 70s and 80s, with the level of radiation decline dramatically higher than the average level of China. Observations from the research also refuted the theory of solar radiation on TP being "initially declined and increased afterwards". The project also studies the changes in temperature on the TP and their influences on the climate in surrounding areas, especially on precipitation on southern and eastern slopes of the plateau.

National Key Scientific Research Project- "Structure of Crust and Mantle in the Northern Tibetan Plateau and the Process of Dynamics"

In a recent evaluation by the NSFC, the National Key Scientific Research





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Project “Structure of Crust and Mantle in the Northern Tibetan Plateau and the Process of Dynamics”, with ITP Prof ZHAO Junmeng as the chief scientist, has been recognized for outstanding research. The project, which was initiated in 2010 with participation of both Chinese and German scientists, has made great progress in the past two years.

Project staff conducted intensive seismological monitoring in Kol Hil Mountain of the northern Tibetan Plateau, Kunlun Mountain, Qaidam Basin, Qilian Mountain of the Northeastern Tibetan Plateau and obtained high-quality, valuable seismological data. The project also developed new models and simulations for research, such as an Array Receiver Function in cooperation with researchers from Massachusetts Institute of Technology (MIT) and Cornell University.

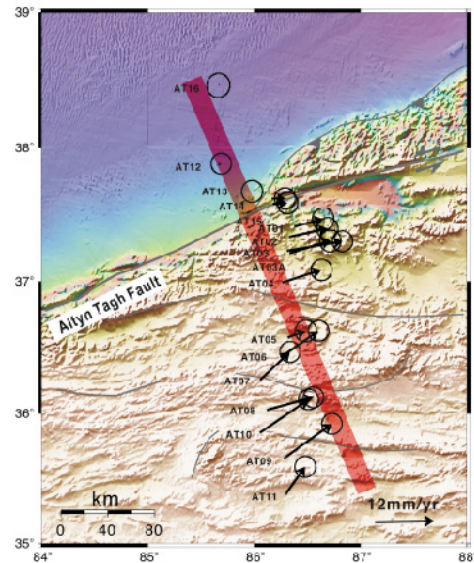
The project gathers scientists from different countries and institutions to work for an international collaborative research program entitled “ANTILOPE”. Scientists involved in this project come from Chinese, American and German institutions, such as MIT, Cornell University, New Mexico State University, Free University Berlin etc.

Initial research results of the project have been published in various journals and a book entitled “Dynamics Conditions in the Northern Tibetan Plateau” is forthcoming.

NSFC key program-“Relation between Karakurom-Arkin strike slip faulting and Tibetan Plateau north-south extensional normal faulting: from observation to modeling”

The duration of this NSFC key program is from 2011 to 2014. At the initial stage, the research group led by Prof. HE Jiankun went to the north-south extensional transect from Arkin to Mt Kunlun and to Hol Xil. The expedition is aimed at acquiring extensive and accurate GPS measurements. So far, 18 locations have been measured within the ITRF2008 ground measurement framework.

Preliminary analysis of the GPS measurements clarified the left-sided slip rate as $8.6 \pm 2 \text{ mm/yr}$ for a the large scale strike slip faulting around 86°E . It also found that for over 1000km from 86°E to 94°E , the slipping rate of the Arkin fault remains stable at $\sim 10 \text{ mm/yr}$. These results not only confirm the projection that the geological measurement of the slipping rate of the Arkin fault is over 10 times larger than the GPS measurements indicate, but also suggest a similarity of the Tibetan Plateau intra-continental crustal deformation with the rigid block system between large-scale slipping faults. In-depth analysis is ongoing, with further indication and significance for continental crustal deformation dynamics forthcoming.



Distribution of those GPS sites from the southern Tarim, Arkin fault, and Mt Kunlun to Hol Xil.

“Integrated Field Expedition to Resource-Scarce Areas on the Tibetan Plateau” Received Support from MOST

A basic science research project “Integrated Field Expedition to Resource-Scarce Areas on the Tibetan Plateau”, which was initiated by ITP with partner institutions IGSNRR, IMHE and Institute of Botany, was approved by the Ministry of Science and Technology

(MOST). The project, with 13,550,000 RMB in funding from MOST, will last from April, 2012 to March, July 2013. ITP professor ZHU Liping has been designated as chief scientist.

The project targets relatively under-researched areas in Qiangtang and Sanjiangyuan (source areas for the Yangtze, Yellow and Lancang Rivers). Major activities include: collecting and studying hydrological samples and data from the target areas, including information of lakes, glaciers, rivers etc., surveying soil and vegetation coverage, and surveying plant communities and diversity.

Data and samples obtained from this project will improve our knowledge of the interactions of multi-spheres in these previously under-researched areas and advance our research of the land surface process on the Tibetan Plateau and the Asian Monsoon mechanism.

Water status in China discussed in SETORS



Forum of Water Status, Problems and Sustainability in China was held in Southeast Tibet Observation and Research Station for the Alpine Environment (SETORS) on May 19, 2012. The forum acknowledged and highlighted the importance of Plateau hydrology and water resources research in water resources research in China.

ITP Prof. YAO Tandong was invited to introduce the state of water issues on the Tibetan Plateau and surrounding regions. Titled “Multi-phase transition of water in the earth system on the Third Pole and its environmental impacts”, Prof Yao highlighted the TPE research program. He informed participants of TPE’s recent, heightened emphasis on regional water issues. The impact of global warming on multi-phasic transitions of water was of particular note in Prof Yao’s presentation. Yao additionally shared major research approaches for these issues.

Distinguished hydrologists and engineers in attendance included CAS academician LIU Changming, Profs. YU Jingjie and LIU Suxia of the Institute of Geographical Sciences and Natural Resources Research, Prof. CHEN Jianyao of the Sun Yet-Sen University, Prof. WANG Hongrui of Beijing Normal University, Drs ZHAO Weimin and WANG Yu of Yellow River Conservancy Commission of the Ministry of Water Resources.

The Hydrology Bureau of Tibet Autonomous Region also showed strong support for this forum. Dr. GONG Tongliang, deputy director of the bureau, attended the forum and delivered a key-note speech.



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INTERNATIONAL COOPERATION

Lonnie Thompson wins Award for International Scientific Cooperation of the CAS for 2011

Lonnie Thompson, foreign member of the CAS and deputy director of the ITP academic advisory committee, was recently recognized with an award for International Scientific Cooperation of the CAS for 2011.

Prof. Thompson has been engaged in ice core palaeoclimatology since the 1970s and his cooperation with Chinese glaciologists dates back to 1984. For nearly three decades, he has been actively involved in cultivating young, scientific talents in China, making use of joint

field expeditions, and televised video web-cam devices, as well as inviting young Chinese scholars to work and learn in his lab. His cooperation with Chinese scientists has resulted in the development of a mature research team for China-based ice core study, as well as numerous high-impact papers in top-level journals such as Science, Geophysical Research Letters, Journal of Geophysical Research.



Cooperation established with Kyrgyz Republic Institute of Geology

Invited by ITP Prof. DING Lin, Prof. Sakiev Kadyrbek, Director of the Institute of Geology, National Academy of Sciences of the Republic of Kyrgyzstan (better known as the Kyrgyz Republic Institute of Geology, KRIG) visited ITP March 13-16, 2012.

Academic exchanges, including a presentation entitled "Ophiolites and eclogite rocks of the Tianshan" by Prof. Sakiev were held. He also discussed with ITP scientists the potential for locating GPS equipment and broad-band seismographs in the field.



Both sides agreed to jointly study tectonic deformation of the Pamir-Tianshan structures and conduct environmental studies in the region. At the end of the exchanges, ITP director Prof. YAO Tandong and KRIG director Prof. Sakiev signed an MoU to ensure smooth cooperation as both institutes move forward.



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TIBETAN PLATEAU OBSERVATION AND RESEARCH PLATFORM (TORP) ACTIVITIES

NAMORS improves upon scientific observation platform

Nam Co Monitoring and Research Station for Multisphere Interactions (NAMORS) is engaged in the integrated observation of multiple spheres, including the cryosphere, hydrosphere, atmosphere and ecosystem. It has long conducted fix-site observation of the atmosphere, glacier mass balance, lakes, permafrost, and vegetation. All in situ observation data has served to enhance academic research, understanding of glaciers and lake-basin catchment hydrology under global changes. There are currently over 30 observation projects operating at the station. However, given an increasing observation and monitoring demand, there is a need to improve current capabilities. Thus, under the auspices of the CAS and ITP, the atmospheric observation field is being expanded, and new observation fields are being established for lake and ecosystem observations, as well as for alpine environment greenhouse experiments.

ITP's Nagri station establishes hydrological observation network

ITP's Nagri station is focusing their latest research on the hydrological observation of lakes and rivers, with an aim of understanding water cycle variation in the region under global warming. A hydrological observation network has been established and is centered on the Bangongco River Catchment, where the Nagri station is located. Observation conducted in this network includes the monitoring of lake level changes and the run-off variation of rivers, lakes and underground water. Data acquired from this network will aid in understanding the spatial and temporal features of regional hydrological variation and water resource distribution, thus further explaining the relationship between climate change and water resource variations.