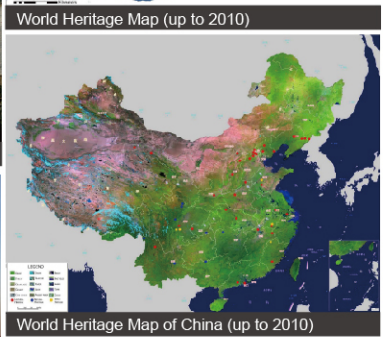




What is HIST ?

HIST is a category 2 centre under the auspices of UNESCO and a non-profit research and training institution focusing mainly on natural and cultural heritage sites by using space technologies. It was proposed to UNESCO by the Chinese Academy of Sciences (CAS) in May 2007 and approved by the 35th General Conference of UNESCO in October 2009. In June 2011, an agreement establishing HIST was signed by Irina Bokova, Director-General of UNESCO, and Bai Chunli, President of CAS. HIST's mission is to assist UNESCO's programmes and Member States that wish to receive such assistance on the use of applied space technologies for UNESCO's activities related to natural and cultural heritage, sustainable development, education, climate change and natural disasters. HIST will contribute to the execution of UNESCO's programmes by strengthening the capacity of UNESCO Member States. It will also contribute to facilitating and increasing technical cooperation amongst developing countries.



Objectives

2.1 Overall Objective

- Assist the Asian region by bringing the benefits of space technologies to UNESCO Member States wanting to use Earth observation from space in order to strengthen their UNESCO-related activities in the areas of management, conservation, presentation, documentation and sustainability, as applied to their cultural and natural sites.
- Reinforce the current capacity of Member States to make use of all data derived from satellite images to support the decision-making process for sustainable development and provide data support to assess climate change.
- Make all results available as new educational material to support the United Nations Decade of Education for Sustainable Development.

Effects of Climate Change in Asia

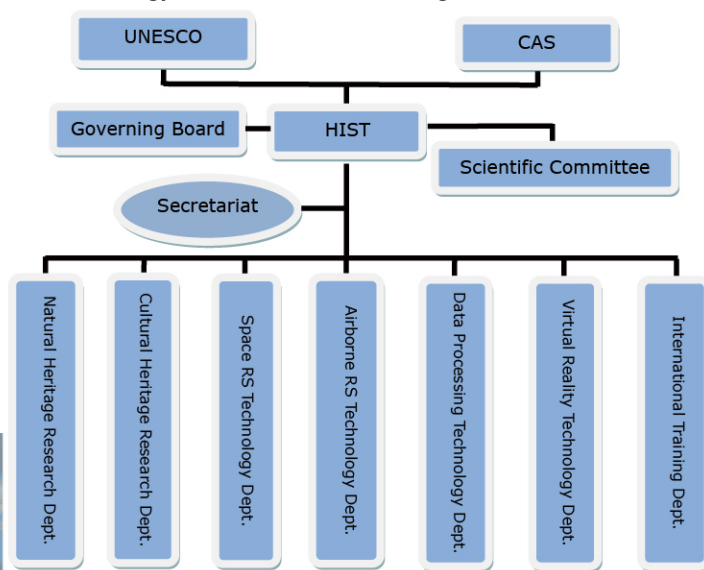
2.2 Specific Long-term Objectives:

- Participate in the development of operational methods for collecting and processing satellite data and deriving information for conservation authorities, decision-makers, and teachers in the areas surrounding UNESCO-inscribed sites.
- Increase public awareness of the importance of the conservation and sustainable use of UNESCO sites and on the use of satellite imagery to better understand the sites in their overall context—that is, not as individual elements, but as members of an entire ecosystem and of a whole cultural landscape.
- Promote and encourage the sharing of expertise, information and methods with UNESCO Member States and other UNESCO space partners to create a shared knowledge of information on the use of space technologies to support UNESCO activities.
- Provide overall support for UNESCO in strengthening the national and regional capacity for conservation and sustainable use and promoting applied results as educational material for teachers and students as support for the United Nations Decade on Education for Sustainable Development.
- Assist Member States, desiring to receive such assistance, by acquiring Earth observation data in the event of natural disasters using the “Disaster Monitoring Constellation” series of Chinese satellites.



Structure

HIST, under the leadership of UNESCO and CAS, is composed of a Governing Board, a Scientific Committee and a Secretariat of seven departments: Natural Heritage Research, Cultural Heritage Research, Space Remote Sensing Technology, Airborne Remote Sensing Technology, Data Processing Technology, Virtual Reality Technology and International Training.



Supporting Institution

HIST is hosted and supported by the Center for Earth Observation and Digital Earth (CEODE) of CAS. As an institution noted for a combination of both scientific research and professional services, CEODE is committed to: high-quality operation of aerospace Earth observation systems and related data services; exploration of cutting-edge technologies for Earth observation and demonstrations of their applications; theoretical and technological research into key issues concerning Digital Earth and their integrated applications at the global, national and regional scales; and the establishment of a research platform for Digital Earth.



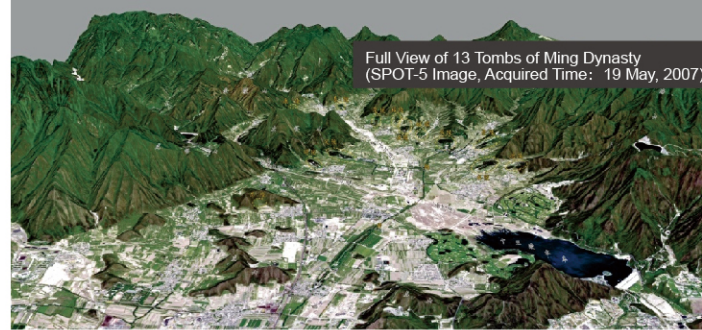
ARJ-21 Aircraft



Research and Training

5.1 Atlas

In collaboration with CEODE, HIST plans to publish a series of atlases of remote sensing for world heritage sites. The first published volume, the Atlas of Remote Sensing for World Heritage: China, covers the 40 UNESCO properties in China (the newly inscribed “West Lake of Hangzhou” is not included at this time). This is a very important document that will not only help decision-makers in the monitoring and conservation of UNESCO properties, but also serve researchers in comparing the properties’ past and present states.



Full View of 13 Tombs of Ming Dynasty (SPOT-5 Image, Acquired Time: 19 May, 2007)



Forbidden City (QuickBird Image, Acquired Time: Feb 2007)

5.2 Project

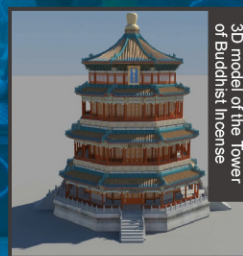
HIST has undertaken the “Compass Programme” initiated by the State Administration of Cultural Heritage - Fine Surveying and Mapping of Chinese Ancient Buildings” jointly with the Administrative office of the Summer Palace. The objective of the programme is to apply various technologies including laser-scanning, close-range photogrammetry, and 3D reconstruction and visualization to comprehensively record the current state and historical information of culturally significant structures with high precision based on deep analyses of existing advanced mapping technologies. By surveying, studying and verifying the Tower of Buddhist Incense in the Summer Palace, the programme is helping to solve key problems in fine-scale surveying, data organization and digitizing complex buildings significant to China's heritage.



Point clouds of the tower acquired by laser scanning



The design drawing based on laser scanning technologies

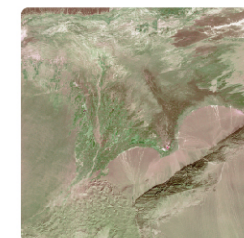


3D model of the Tower of Buddhist Incense

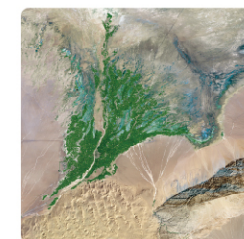
5.3 Training Workshops

In collaboration with the UNESCO Office in Beijing and the Chinese National Committee for the Man and Biosphere Programme, CEODE, the host of HIST, organized the 3rd EABRN-UNESCO Training Workshop on “Remote Sensing and GIS for Biosphere Reserve Management to Adapt to Climate Change” for specialists and managers of biosphere reserves from Russia, Mongolia, the Republic of Korea, the Democratic People's Republic of Korea, Japan and China in March, 2009.

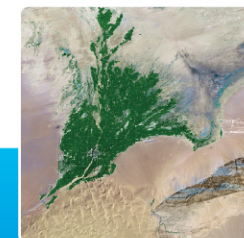
In April, 2011, also in collaboration with the UNESCO Office in Beijing and the Chinese National Committee for the Man and Biosphere Programme, HIST organized the 4th EABRN-UNESCO Training Workshop on “Remote Sensing and GIS for Biosphere Reserve Management” for the specialists and managers of biosphere reserves from the above six countries as well as from Iran and Indonesia.



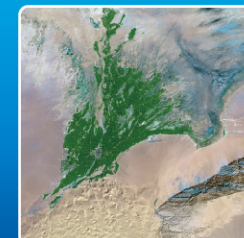
Mogao Caves (Mss Oct. 1976)



Mogao Caves (TM 1990)



Mogao Caves (TM Jul.2000)



Mogao Caves (TM Sep. 2007)



3th EABRN-UNESCO Training Workshop



Opening Ceremony of the 4th EABRN-UNESCO Training Workshop

6 Communication

In the course of preparing for the establishment of HIST, a number of high-level officials from both China and abroad visited the HIST offices, including Lu Yongxiang, Vice-Chairman of the Standing Committee of the Chinese People's Congress, Bai Chunli, President of CAS, Marcio Barbosa, Former Deputy Director-General of UNESCO, Francesco Bandarin, Assistant Director-General for Culture, and Gretchen Kalonji, Assistant Director-General for Natural Sciences .



Chronicle of Events

In 2001, while UNESCO launched the 'Open Initiative' with the Euro-pean Space Agency (ESA) to bring together space agencies to use space technologies to monitor UNESCO World Heritage sites, the Joint Laboratory of Remote Sensing for Archaeology (JLRSA) affiliated with the Chinese Academy of Sciences, Ministry of Education, and State Bureau of Cultural Heritage was also established with 10 stations in various provinces.

In 2002, the First Chinese Workshop on Remote Sensing for Archaeology was held in Beijing, China.

In 2003, the 216th Xiangshan Science Forum, with the theme of "Understanding Cultural Heritage from Space", was held in Beijing, China.

In 2004, the First International Conference on Remote Sensing for Archaeology was held in Beijing, China.

In 2005, the Chinese Academy of Sciences signed with UNESCO as a partner of the "ESA-UNESCO Open Initiative on the use of space technologies to support World Heritage".



In May, 2007, Lu Yongxiang, Former President of CAS, proposed to Koichiro Matsuura, Former Director-General of UNESCO, to establish in China a category 2 centre under the auspices of UNESCO and received a positive reply. Several months later, a feasibility study was undertaken by a group of UNESCO programme specialists led by Mario Hernandez.



In April, 2008, the 179th Session of the UNESCO Executive Board approved the report by the Director-General on establishing the International Centre on Space Technologies for Natural and Cultural Heritage (HIST) in Beijing, China, as a category 2 centre under the auspices of UNESCO.



In 2008, Guo Huadong was invited as a partner of the UNESCO space programmes to give a report on "Remote Sensing Monitoring and Analysis of the Wenchuan Earthquake".



In October, 2009, the report on establishing HIST was approved by the 35th General Conference of UNESCO.



In April, 2011, the establishment of HIST was officially ratified by the State Council of China. On 27 May, 2011, Irina Bokova, Director-General of UNESCO, signed an agreement establishing HIST on behalf of UNESCO. On 2 June, Bai Chunli, President of the Chinese Academy of Sciences (CAS), also signed the agreement on behalf of the Chinese Government.



On 20 June, 2011, the HIST Scientific Committee, composed of over 30 experts in space technologies and heritage research, was set up as the think-tank of HIST.

