Technology

New Findings of Ancient Settlements along Silk Road

By integrating remote sensing and conventional technologies, researchers from the International Centre on Space Technologies for Natural and Cultural Heritage (HIST), Institute of Remote Sensing and Digital Earth (RADI) under CAS have discovered five ancient city remains in northern China's Gansu Province, along an important section of the artery of the Silk Road from Guazhou (Anxi) to Shazhou (Dunhuang).

One of the most fruitful archeological studies in a single survey along the Hexi Corridor, investigation into their scales and forms is underway. Other findings included 13 housing ruins of two villages, one section of an ancient canal, traces of an ancient road, and one site of an ancient ceramic kiln. A preliminary study shows the city remains belong to Han to Wei and Jin dynasties (206 BC–598 BC).

"The discoveries were made by using a variety of data and information, ranging from remote sensing images, historical literature to archeological records, and by integrating space information technology and field trips", said Prof. WANG Xinyuan, a scientist from HIST, RADI.

Remote sensing technology has an advantage for archeological research on the Silk Road's Guazhou-Shazhou Section where hardly any surface disturbance could be caused in a desolate Gobi desert, according to Prof. WANG.

Based on a prejudgment of potential sites using remote sensing data acquired from medium-high resolution satellites and GPS-based space analysis, which were "laboratory work", Prof. WANG and his colleagues made precise identification of those sites' locations with GPS while another team of scientists and archeologists made field trips for investigation and verification.

Remote sensing technology has become an increasingly important tool for archaeological studies. It gives archeologists a unique opportunity to detect impacts which are often invisible to the naked eye. Meanwhile, micro remote-sensing techniques allow non-destructive studies of historical sites without digging. Remote sensing techniques used in archaeological investigation include aerial photography (via sensors, scanners, radars) and satellite images. They have already played an important role in the survey of Angkor Wat in Cambodia, pyramids in Egypt and the Mausoleum of the First Qin Emperor in China.

HIST, hosted by and based at RADI, is a category-II centre under the auspices of UNESCO. It is the world's first UNESCO institution for world legacy research using space technology. Officially launched on July 24, 2011, HIST is also the first UNESCO centre applying space technologies to the monitoring and conservation of world natural and cultural heritage sites.