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# Qinghai to host advanced telescopes

### Site near Lenghu will enable scientists to make groundbreaking discoveries

By ZHANG ZHIHAO  
[zhangzhihao@chinadaily.com.cn](mailto:zhangzhihao@chinadaily.com.cn)

China is set to build its next generation of advanced astronomical telescopes near Lenghu town, Qinghai province, revitalizing an old oil town on the Qinghai-Tibet Plateau into a world-class site for stargazing.

Experts said Lenghu, meaning "cold lake", will complement the world's best astronomical sites in Chile, the Canary Islands, Spain, and Hawaii, United States. This will enable scientists to make more groundbreaking discoveries, especially those that require examining infrared wavelengths from distant celestial bodies.

Zhang Tao, vice-president of the Chinese Academy of Sciences, said a quality astronomical observatory site is an extremely valuable strategic resource for developing astronomy, space science and other key fields.

In recent years, China has invested heavily in space observations and astronomy, a frontier science that President Xi Jinping said can yield major original breakthroughs. The country now hosts a range of impressive astronomical instruments, including the world's largest radio telescope and most sensitive cosmic ray observatory.

However, one of the reasons why China is behind other scientific powerhouses in optical astronomy is because it lacks an ideal observa-

tion site to house these instruments, said Chang Jin, head of the National Astronomical Observatories of the Chinese Academy of Sciences.

"I believe the Lenghu observatory site will help our astronomers achieve breakthroughs in developing related technologies and conducting original scientific research," he said.

Deng Licai, a researcher at the NAOC, said scientists have been examining the conditions around Lenghu for over three years, and the findings were published in the *Journal Nature* this year, attracting evaluations from over 200 international peers.

"Lenghu's location is extremely important because other world-class astronomical sites are all located in the Western Hemisphere. So if a major astronomical event were to occur in that region during the day time, we would miss our chance to make a major scientific discovery," Deng said.

"For national basic research, this new location can solve a long-standing bottleneck issue that has been limiting the growth of our astronomy, planetary science, space science and other related fields," he added.

According to the *Journal Nature*, Lenghu is extremely dry, so less light from distant stars is deflected or absorbed by vapor, thus allowing telescopes to observe more details.

Lenghu also enjoys clear skies,



Various telescope projects are under construction in Lenghu, Qinghai province, as the site boasts favorable conditions for astronomical observation including clear skies and little vapor. PROVIDED TO CHINA DAILY



consistent air temperature and convenient transport infrastructure. The town is located at an altitude of 2,700 meters, but potential locations for observatories are between 4,200 and 4,500 meters.

Cai Zheng, an associate professor from Tsinghua University, said the university will build a 1.3 billion yuan (\$206 million) Multiplexed Survey Telescope near Lenghu. It will have a diameter of 6.5 meters

and take around seven years to complete.

"Our telescope hopes to make major original breakthroughs in dark matter and dark energy, gravitational wave astronomy, star formation and other frontier sciences," he said.

Kong Xu, a professor from the University of Science and Technology of China, said they are building a 2.5-meter-diameter telescope in the area, and it is set to complete installation and begin operation next year.

Cui Xiangqun, noted astronomer and an academician of the Chinese Academy of Sciences, said they plan to move the Large Sky Area Multi-Object Fiber Spectroscopy Telescope, dubbed LAMOST, to Lenghu in the next three years.

LAMOST is China's first major scientific instrument in astronomy

located in Xinglong county, Hebei province. Due to local economic growth, light pollution at the old site is starting to interfere with the performance of the instrument.

"The relocation and subsequent upgrades will greatly improve LAMOST's detection range and allow it to collect far more astronomical spectra and data," she said. Zhang Li, vice-governor of Qinghai province, said there are now nine different telescopes set to be built in Lenghu, with a total investment of over 2 billion yuan.

"We will expand pragmatic cooperation research with institutions and universities from home and abroad, and make Lenghu into a key hub for scientific discovery, education and uncovering the secrets of the universe," she said. "The 'cold lake' will not be cold and desolate anymore."