Site Protection in China

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Personnel scale ~4200

Universities

Chinese Astronomical Society

Member ~3154

IAU member 530
Observatories and facilities of NAOC
Five-hundred-meter Aperture Spherical Telescope

Large Sky Area Multi-Object Fiber Spectroscopic Telescope
Discoveries of new pulsars and FRBs

- More than 5000 hr each year
- New Pulsars
  - 400+ new pulsars discovered
- FRBs

Nature’s Top 10 Scientific Discoveries of 2020

Open to the world since 31 March 2021
LAMOST: a powerful machine for Milky Way sciences

- Li-rich Giants discovered (Nature Astronomy);
- 700+ refereed papers published with citations more than 7000;
- ~40% of the published papers are from international collaborators
Sky brightness (as of 2011)
Actions to protect sites for optical astronomy

• Create Dark Sky protection standard with organizations of central government

• Work with the local government

• Go to the west sites of China!
Ngari (Ali) Prefecture of Tibet

Ali Observatories

Himalaya Mountains

Indian Ocean

5100 m!
A new site in Lenghu
Deng et al. 2021 Nature 596 353

The site at Dome A
Ma, Shang et al. 2020 Nature 583 771
Radio Astronomy (RA) facilities in China
Actions to protect sites for radio astronomy

- Develop Electromagnetic Compatibility (EMC) methods of radio telescopes
- Carry out the study on Radio Frequency Interference (RFI) mitigation technology
- Establish Radio Quiet Zones (RQZs) around radio telescopes
- Form a RA protection group based on the observatories
- Join in the activities of protection dark and quiet sky
- Continue RA spectrum protection cooperation with ITU-R WP7D, IUCAF, RAFCAP etc.
RFI measurements & mitigation

RFI monitoring systems

TMRT RFI HTS filter  FAST EMC solutions  NSRT EMC solutions
Radio Quiet Zones (RQZs)

- FAST radius \( \leq 30 \text{ km} \) (2013)
- FAST airspace restriction zone radius \( \leq 30 \text{ km} \) (2017)
Summary

• Actively build new sites for optical astronomy
• Continue EMC & RFI mitigation study, and Establish & maintain RQZs
• Work with the government to create standards and regulations
• Engage with the international community to join efforts