



Astronomy in Uzbekistan: general overview

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A night sky with the Milky Way galaxy visible over a mountain range. The sky is dark blue and black, filled with numerous stars. The Milky Way is a bright, hazy band of light stretching across the center of the image. In the foreground, there are dark, silhouetted mountains and some foliage on the right side. A faint red dotted line is visible in the upper right quadrant of the sky.

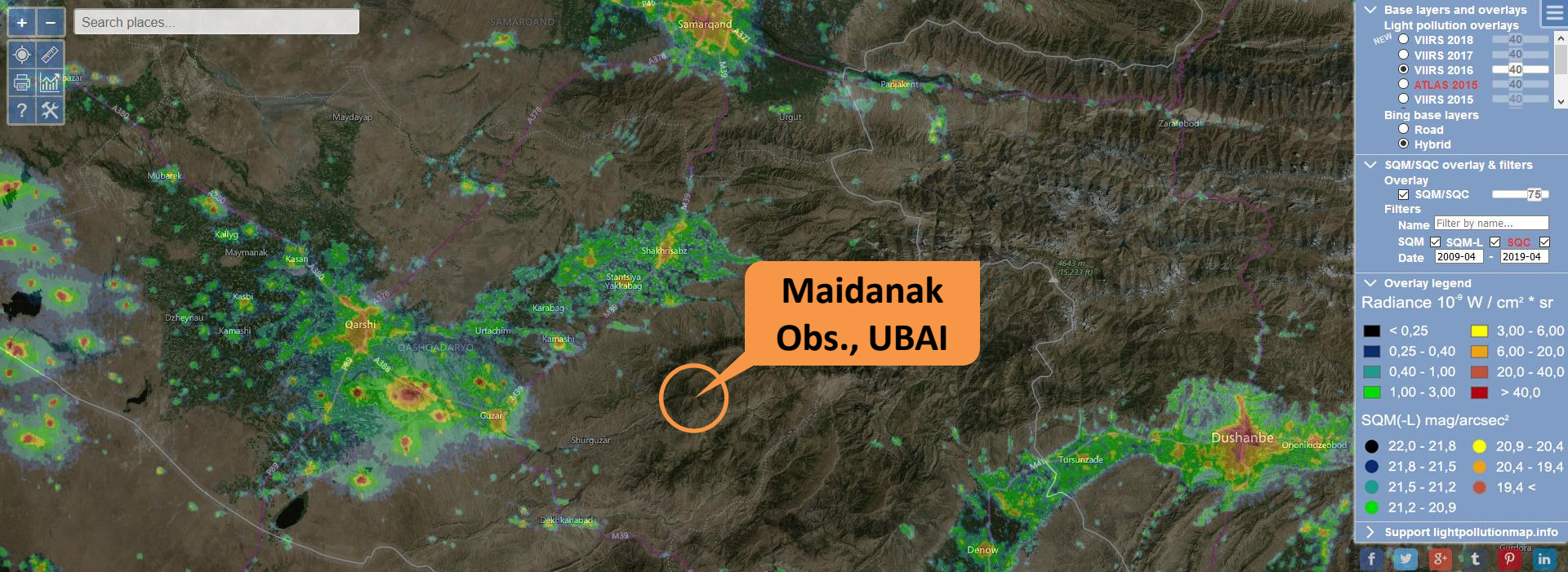
On the territory of Uzbekistan two astronomical facilities exist. These are Maidanak observatory in operation and Suffa Radio Observatory under construction.

Very good atmospheric conditions complimentary to Chili, the Hawaii, the Canary etc. The most favorable site for observation in very wide longitude belt;

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- Far from big cities, no light pollution, the sky background is very dark. Inside the mountain area, such conditions can last for long time;
- Unlike peaked sites, Mt. Maidanak has a big enough space for holding dozens of telescopes!

Advantages of Mt. Maidanak (cont-d)

- Elevation is only 2700m, comfortable for human being!
- Very dry. It can hold also radio telescopes;
- Low wind (5 m/s). It is good for seeing, for installation big dish radio telescopes and for comfort of human being;
- Accessibility of the site during last two years is improved a lot (simplification of visa regime, fast train to Samarkand and Kitab – city base of MAO, mobile, Internet etc.).

Unsolved problems and difficulties

- No big facilities yet installed (1,5 m and less)
- Observing programs limited only with optical observation (no infrared);
- No spectroscopy;
- 60 km mountain part of the road is not in good condition;
- Sometimes power failure (mostly in the winter time) happens;
- Living conditions need improvement (mostly water supply).

A S T A N A
SEPTEMBER 10 - 11, 2017

ИСЛАМ ҰНТЫМАҚТАСТЫҒЫ ҰЙЫМЫНЫҢ БІРІНШІ
ҒЫЛЫМ ЖӘНЕ ТЕХНОЛОГИЯЛАР ЖӨНІНДЕГІ САММИТІ
АСТАНА, 2017 ЖЫЛҒЫ 10-11 ҚЫРКҮЙЕК

THE FIRST SUMMIT ON SCIENCE AND TECHNOLOGY
OF THE ORGANIZATION OF ISLAMIC COOPERATION
ASTANA, 10-11 SEPTEMBER 2017



LE PREMIER SOMMET POUR LA SCIENCE ET LA TECHNOLOGIE
DE L'ORGANISATION DE COOPERATION ISLAMIQUE
ASTANA, 10-11 SEPTEMBRE 2017

القمة الأولى لمنظمة التعاون الإسلامي
حول العلوم والتكنولوجيا
استانا، 10-11 سبتمبر 2017



**First Summit on Science and technology of the Organization of Islamic
Cooperation, Astana, 10-11 September 2017**

In the document prepared by COMSTECH to the First Summit of OIC on Science and Technology (Astana, Kazakhstan, 10-11 Sept. 2017) it was suggested to set up a 4m telescope in Samarqand in honor of Ulugh Beg.

Astronomy: There are no reasonably sized, functional astronomical telescopes in Member States, whereas this is one area where Muslim scientists made seminal contributions in the past. A ground-based 4m telescope using adaptive mirrors and laser “guide stars” can now provide the same or better resolution as the Hubble space telescope.

To draw the attention of the Islamic Ummah to the development of science and innovation in general was suggested to pay more attention to the development of astronomy.

As an example, it was proposed to install a 4-metre adaptive telescope in Uzbekistan, and to name it after Ulugh Beg.

OIC experts estimated, such telescope will cost about 50 M\$. As the funds were not allocated and for Uzbekistan this is an astronomical amount, it was suggested to ask for funding from Islamic Development Bank and Asian Development bank. But it didn't work.

In 2019, we visited 11 universities and astronomical centers in China in search of potential partners for collaboration on big telescope. The main obstacle to cooperation is the Maidanak infrastructure, which does not correspond to the world standards.

- Department of Astrophysics, Yunnan University
- Yunnan Astronomical Observatory of CAS
- Department of Astrophysics, Xiamen University
- Shanghai Astronomical Observatory
- Department of Astrophysics, Jiaotong University
- NIAOT of NAO CAS
- Department of Astrophysics, Nanjing University
- Department of Astrophysics, Beijing Normal University
- Department of Astrophysics, Tsing Hua University
- Department of Astrophysics, Beijing University
- National Astronomical Observatories of CAS

1) Part of the road from autoroute to Maidanak was repaired, but the mountain part of the road still needs to be reconstructed,

2) We have obtained a decision from the Government of Uzbekistan on the duty-free importation of scientific equipment for MAO for 20 years, starting from 2020.

3) We have installed Internet connection on Maidanak

4) For the first time, we were given funds to purchase astronomical equipment and we bought 3 CCD cameras from Andors, totaling \$ 500 000.

5) Funds have been allocated for the repairmen of the buildings, pavilions and replacement of electric cables.

The elections of the President of the Republic of Uzbekistan were to be held on October 24. At one of the meetings with voters I managed to inform Sh. Mirziyoyev about the state of the Maidanak Observatory. And he promised to assist in the development of the infrastructure of the MAO.



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MIRZIYOYEV

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On Oct. 24 Sh.M. Mirziyoyev was re-elected as the President of Uzbekistan. It gives us confidence and optimism that in the near future the infrastructure of the Maidanak observatory will meet international standards in all respects. Moreover, if we find partners who would like to install a large telescope on the Maidanak, I am sure that Uzbekistan will partially cover the costs of construction work.



Radio Astronomical Observatory
on the Suffa Plateau

70 m radio telescope RT-70



Radio Astronomical Observatory on the Suffa Plateau

The 70 m radio telescope RT-70 was developed as early as the 1980s as part of the Soviet astronomical network of big radio telescopes, functioning in submm range.

However, after the collapse of the Soviet Union in 1991, the construction works on the Suffa plateau were paused.

- A fresh impetus to complete the construction of the RT-70 telescope was given in 2018 during the visit of the Russian delegation led by V. Putin to Uzbekistan. Road map to complete the commissioning of radio telescope was signed. The Russian side covered all the costs of the telescope. And Uzbekistan will complete all infrastructural works.

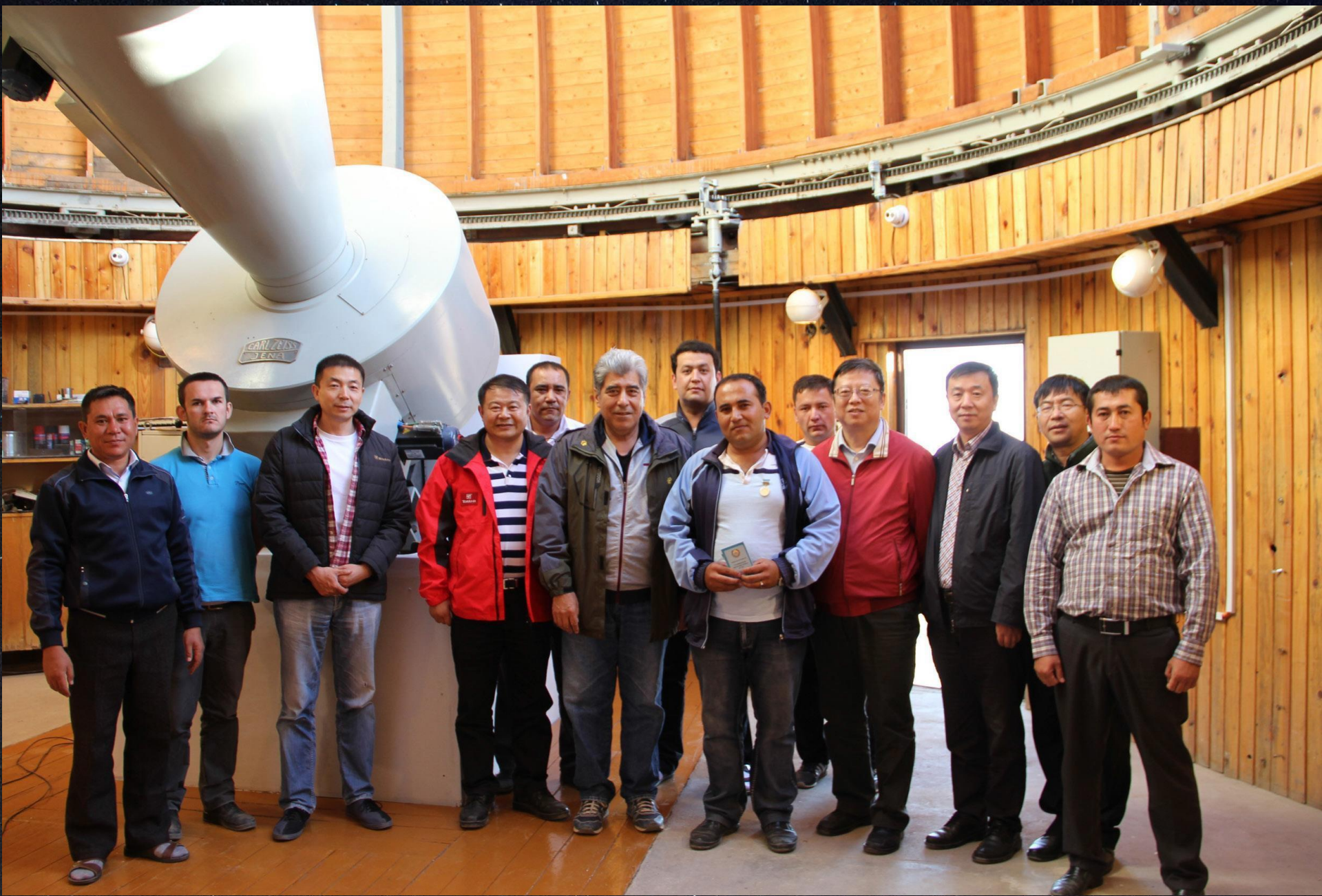


Installation of the Zeiss 1000 telescope

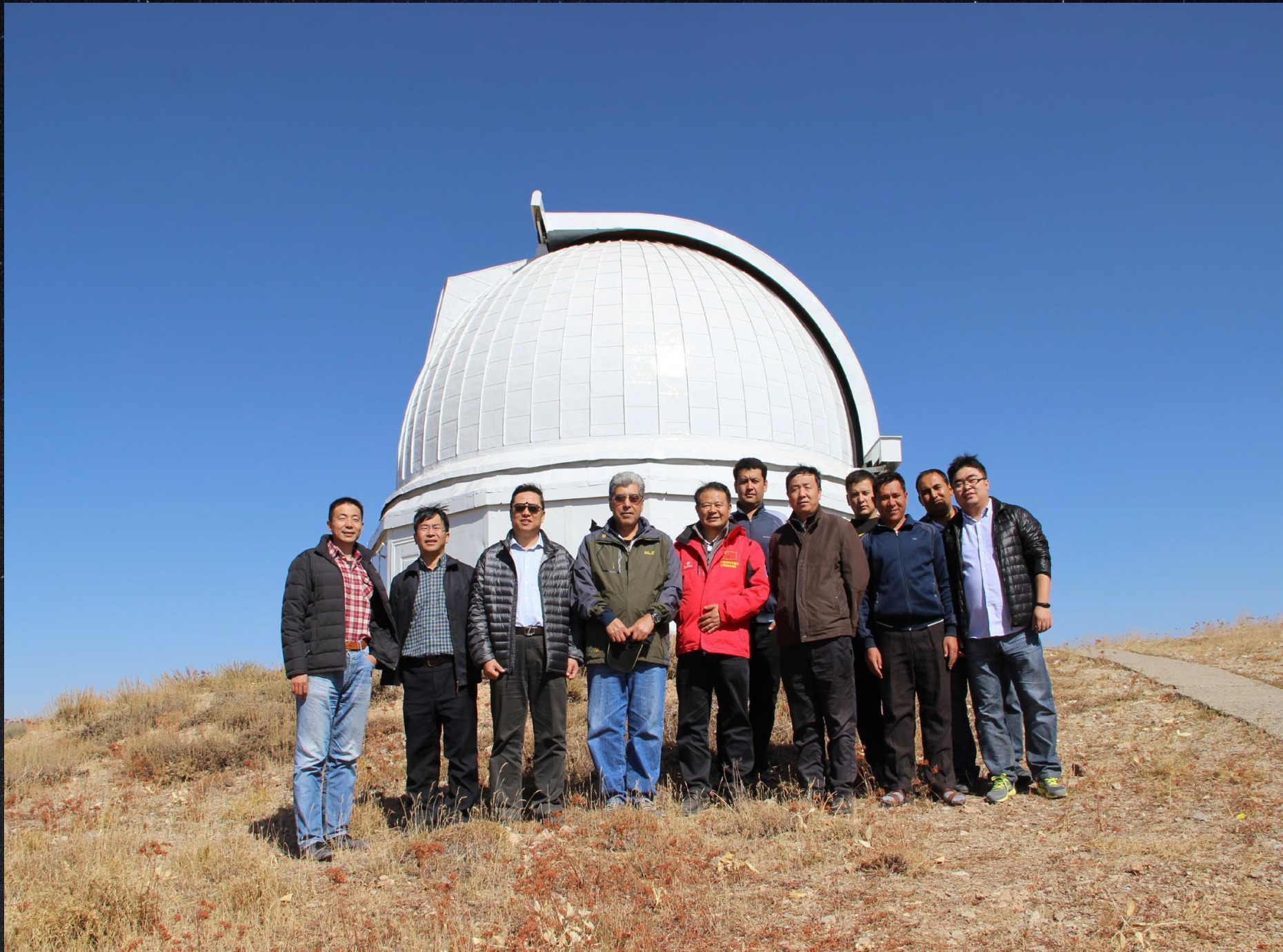
The Astronomical Institute plans to install the Zeiss 1000 telescope on the Suffa plateau, which is stored in warehouses now. We hope that specialists from NAOC, China and INASAN, Russia will actively join us in this project. The NAOC specialists in 2014-2018 updated a similar Zeiss 1000 installed at Maidanak. And Russian experts are developing a 1-meter telescope themselves. We are confident that the experience of our Chinese and Russian colleagues is a guarantee of success.

Upgrading of the Maidanak's 1-m telescope









We plan to use this telescope for monitoring of dangerous asteroids and space debris. Suffa's astroclimate is certainly not as upscale as Maidanak's, but it is quite suitable for 1 meter telescope. In addition, Suffa is twice as close to Tashkent, with only a stretch of mountain road which is about 15 kilometers.

Thank you for your attention