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A star party in the mountains

At the Hanle Dark Sky Reserve, India's first dark sky region, in eastern Ladakh, around the Indian Astronomical Observatory, taking in the twinkling sights up above

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The temperatures were subzero, and the conditions were unforgiving. We were elated and thrilled being outdoors all night.

At 4,300 metres above sea level, we felt it could have been the Everest Base Camp. In reality, we were at Hanle, in the Union Territory of Ladakh. The air is so thin at such altitudes that the oxygen level is less than 60% of what one is normally used to at sea level. Before getting here, we had to acclimatise ourselves for 48 hours in Leh, at an altitude of 3,500 m, before climbing up to Hanle.

It is definitely not for everyone. But it was certainly for us: we were a group of amateur astronomers invited by the Indian Institute of Astrophysics (IIA) to attend the HDSR Star Party, 2023, organised and conducted by the institute.

The Hanle Dark Sky Reserve (HDSR) is India's first dark sky region, and is centred on Hanle in eastern Ladakh, around the Indian Astronomical Observatory.

The HDSR preserves the dark skies by reducing light pollution in the surrounding areas, and uses these dark skies to promote astro-tourism as a means to further enhance socio-economic development in the area.

A dark sky is the night sky as nature meant for it to be: without any light pollution. Light from the human-made objects that we use – especially outdoor lighting sources – blocks our view of the stars and most celestial objects in the night sky.

Ironically, a dark sky lets you see better. From within a light-polluted city, we can typically see only a handful of stars. But from a dark site, we can see thousands in the same location of the sky.

Apart from stars, the Milky Way's galactic centre and its arms are clearly visible to the naked eye. We can also see several star clusters, nebulae and galaxies such as the Andromeda and the Triangulum.

Zodiacal light, a faint glow of diffuse sunlight scattered by interplanetary dust in the solar system; airglow, an optical phenomenon caused by faint emission of light in the earth's atmosphere; and gegenschein, a bright spot in the night sky centred on the antisolar point, caused by backscatter of sunlight by interplanetary dust; are also visible.

Venus can be so bright in the night sky that its light can cast shadows on the ground, just as moonlight does.

Though some of us astrophotographers were aware of the theories of these optical phenomena and the fact that we could see so many stars and celestial objects under the darkest of skies, it was still an overwhelming feeling to actually observe and experience them under the Bortle Class 1 skies of Hanle.

Stunning range: A long-exposure photograph of stars over the Hanle Dark Sky Reserve in Ladakh. AKASH ANANDH

The Bortle Scale helps amateur astronomers measure the night sky's brightness at a given location. The scale ranges from Class 1, the darkest skies available over the earth, through to Class 9, which denotes the pale, light-marred skies over the insides of cities.

A sense of thrill as well as caution filled the thin air under the dark skies of Hanle. Observing outdoors in these harsh conditions – with or without equipment – meant one had to be both strong-willed and careful. But it was worth every second as caution soon led to exhilaration and then wonder.

For us amateur astronomers, the three nights and days of the HDSR Star Party made for a great opportunity to observe pristine night skies. We could also connect with fellow amateur astronomers who had come from various parts of the country: they were experienced amateurs as well as young ones with starlit eyes.

We also got to rub shoulders with professional astronomers, exchanging ideas and information on all things astronomy, including the particulars of visual observation and the techniques of astrophotography, as well as share large telescopes and imaging equipment during the event. In all, it was an unforgettable experience.

Being the first dark sky reserve in the country, the HDSR is certainly a source of pride for India and will be a blueprint for other dark sites in other regions. And just as at Hanle, upcoming dark sky reserves can promote astro-tourism, which will help both amateur astronomers like us as well as local communities.

The star party is also highly likely to evolve into an annual event, and I am glad that I was part of the successful first edition this year. It was expertly and thoughtfully planned and conducted by Dorje Angchuk, who is the engineer in-charge at the Indian Astronomical Observatory in Hanle, and Niruj Mohan Ramanujam, head of the IIA SCOPE Section.

I believe the event was a great start to something big for casual stargazers, passionate amateur astronomers, and our space-loving country as a whole.

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