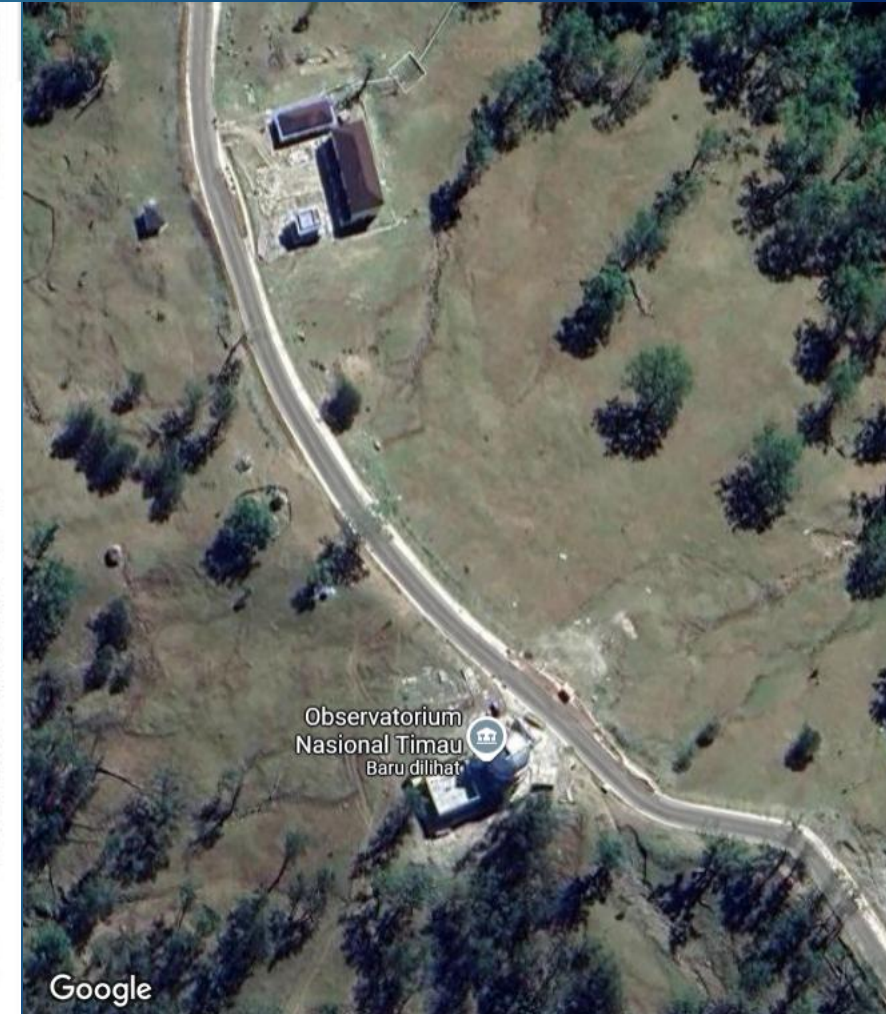




Current Progress of 380 cm Telescope and Future Research Plan in Timau National Observatory

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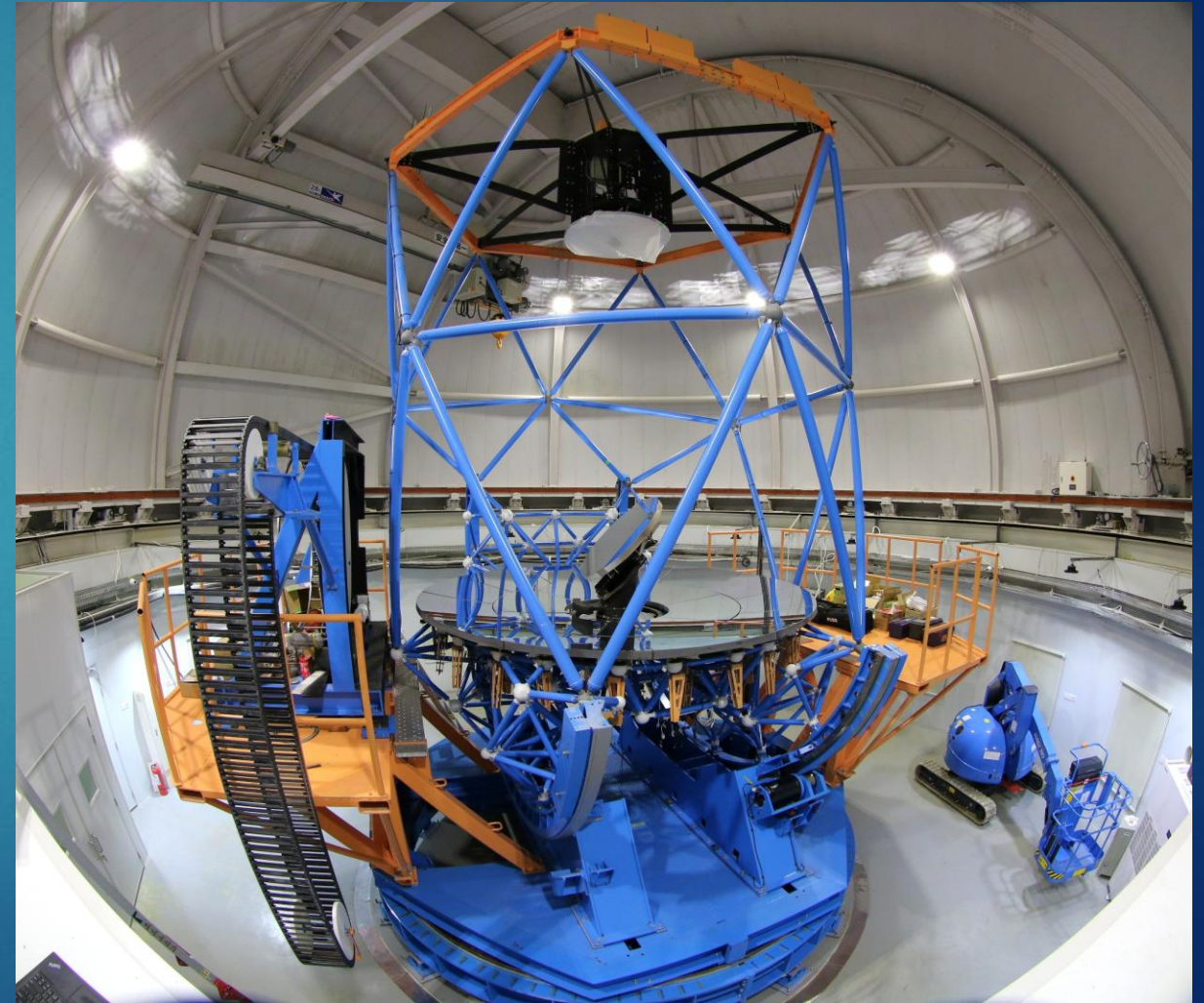
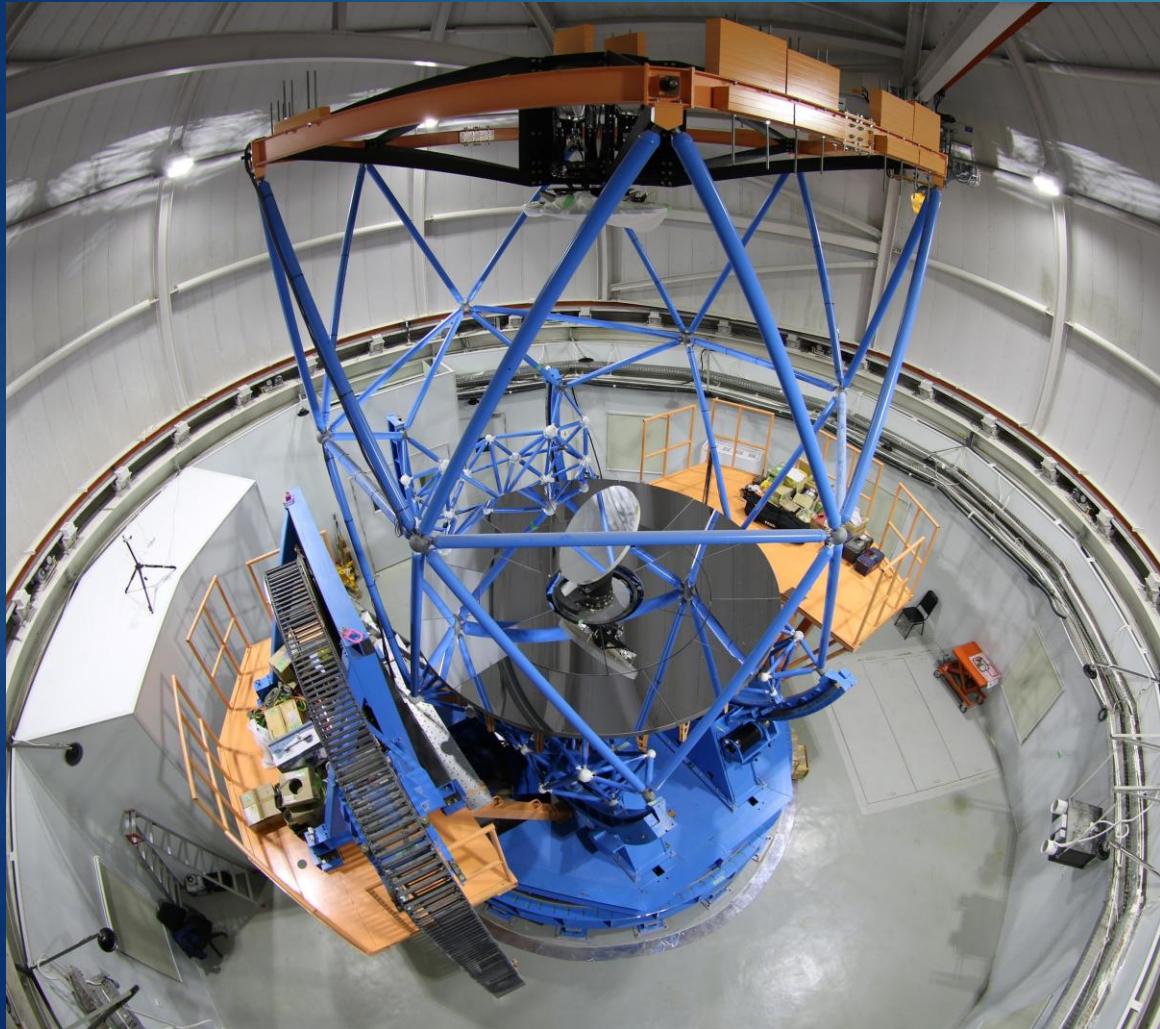
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North camera



Dome camera down



East camera



South camera



Timau National Observatory of Indonesia (TNOI)



Current Status:

- All mirrors have been installed (M1 and M3 in March 2025).
- Mirror setting will be done in the end of September 2025.
- Optika will be installed in the end of September 2025
→ Engineering First Light.
- Scientific First Light is expected by the end of 2025.
- NIRCα will be installed in 2026.
- Research projects are expected to be started in 2026B (domestic and collaboration partners).

Available Observing Time at TNOI

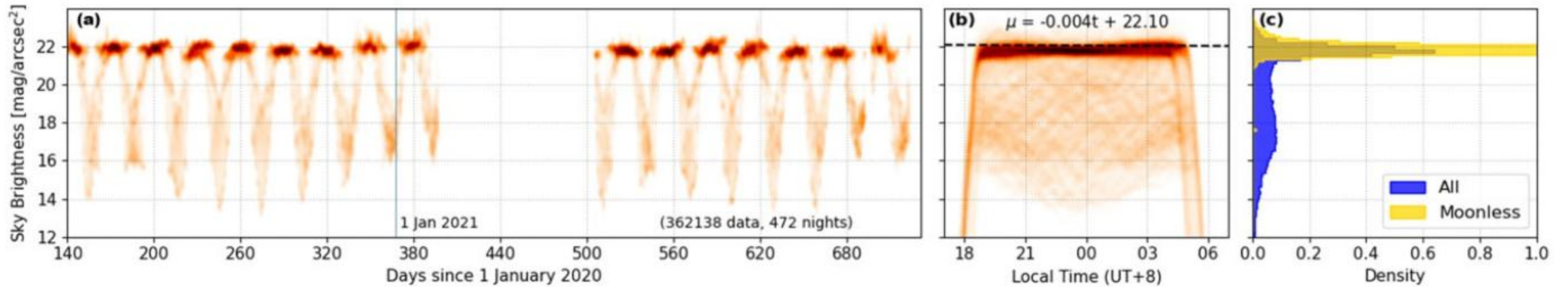


Figure 2. Density plot of the sky brightness over Timau as a function of the number of days since 2020 January 1 (panel a) and as a function of the local time (panel b). One-dimensional distribution of the sky brightness is also presented (panel c).

Available Observing Time at TNOI

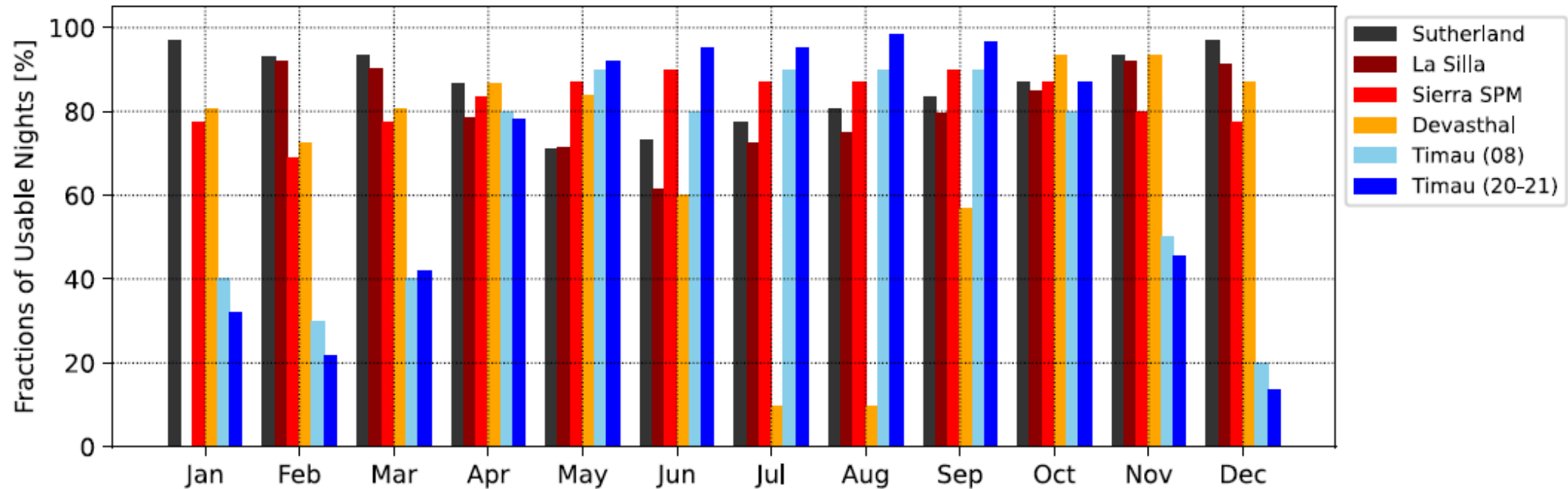


Figure 10. The percentages of usable nights at Timau and some other astronomical sites. Timau (20–21) is from the current study, Timau (08) data is from Hidayat et al. (2012), La Silla is from Cavazzani et al. (2020), while the Sutherland, Devasthal, and Sierra San Pedro Martir are from ERA5 reanalysis by Ningombam et al. (2021).

Available Observing Time at TNOI

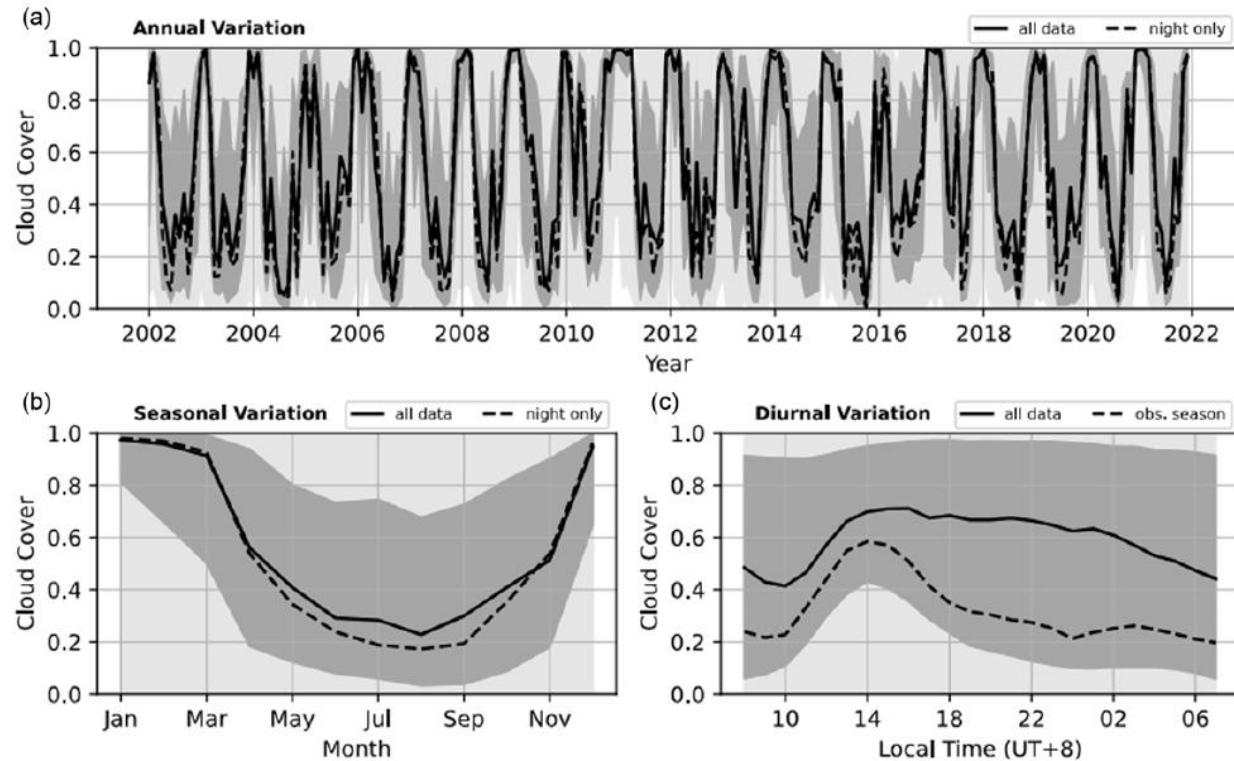
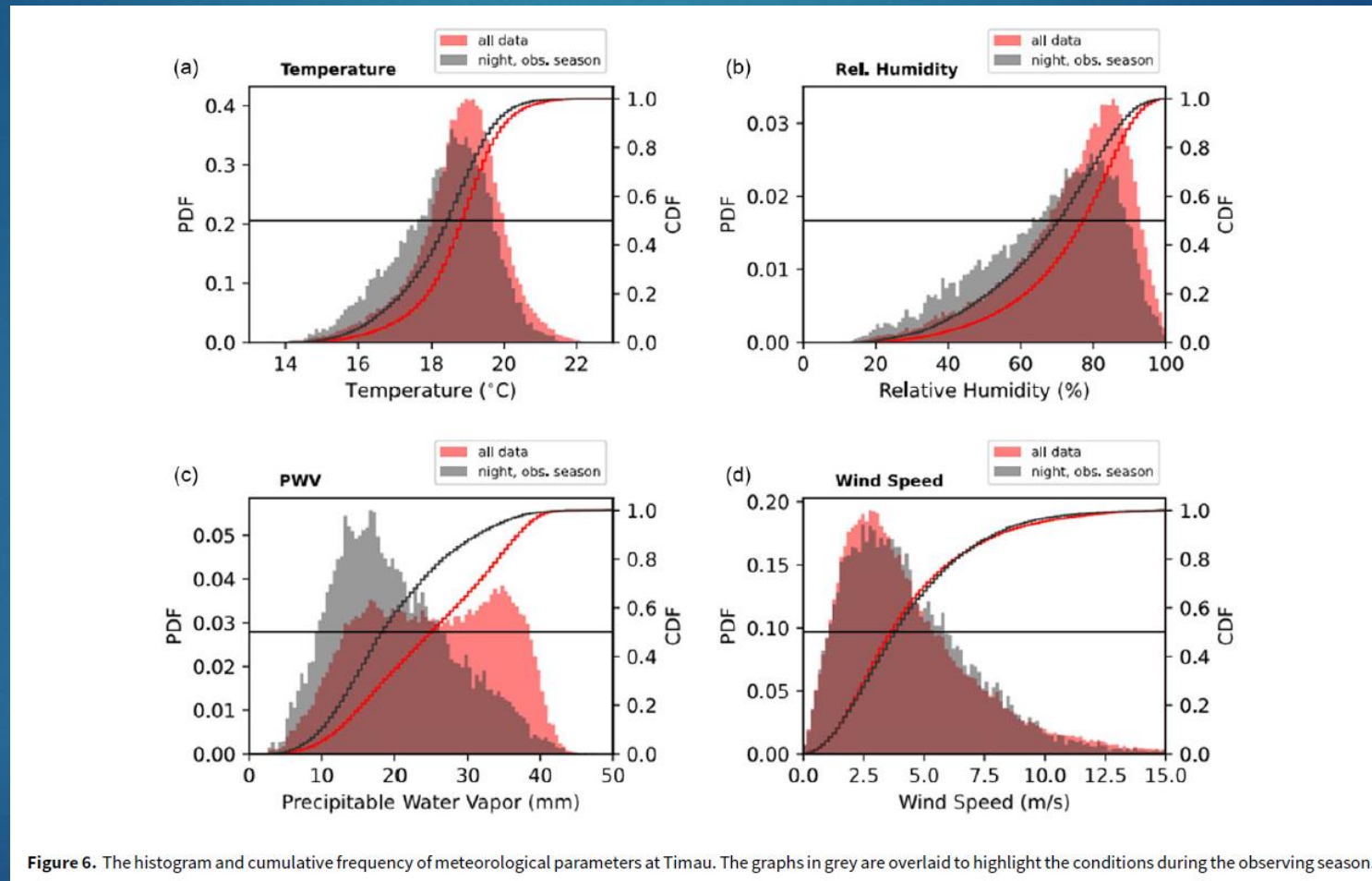


Figure 3. Time series plot showing annual (a), seasonal (b), and diurnal variation (c) of cloud cover at Timau site. The solid line marks the median value of the whole data while the dashed line is for the time-filtered data. The shaded area encompasses the interquartile range (percentile 25–75) of the temperature whereas the minimum to maximum range is lightly shaded.

Available Observing Time at TNOI



Available Observing Time at TNOI

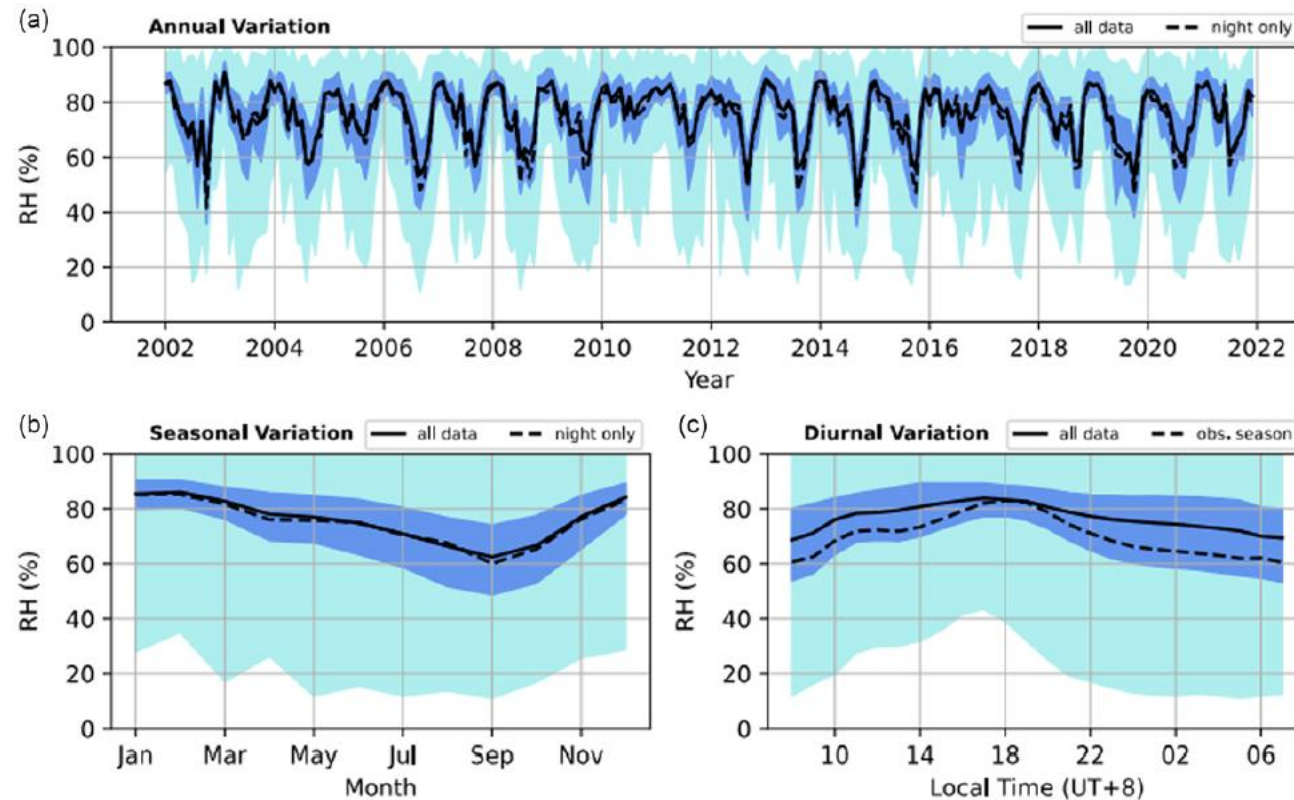


Figure 9. Same as Fig. 3, but for relative humidity.

Available Observing Time at TNOI

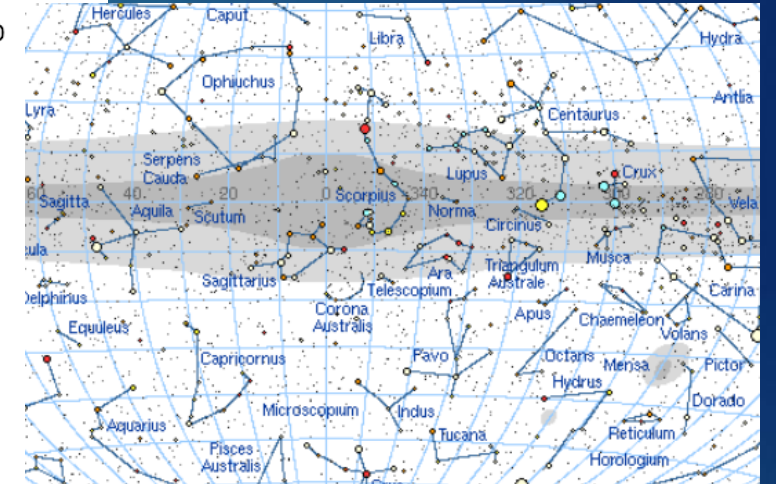
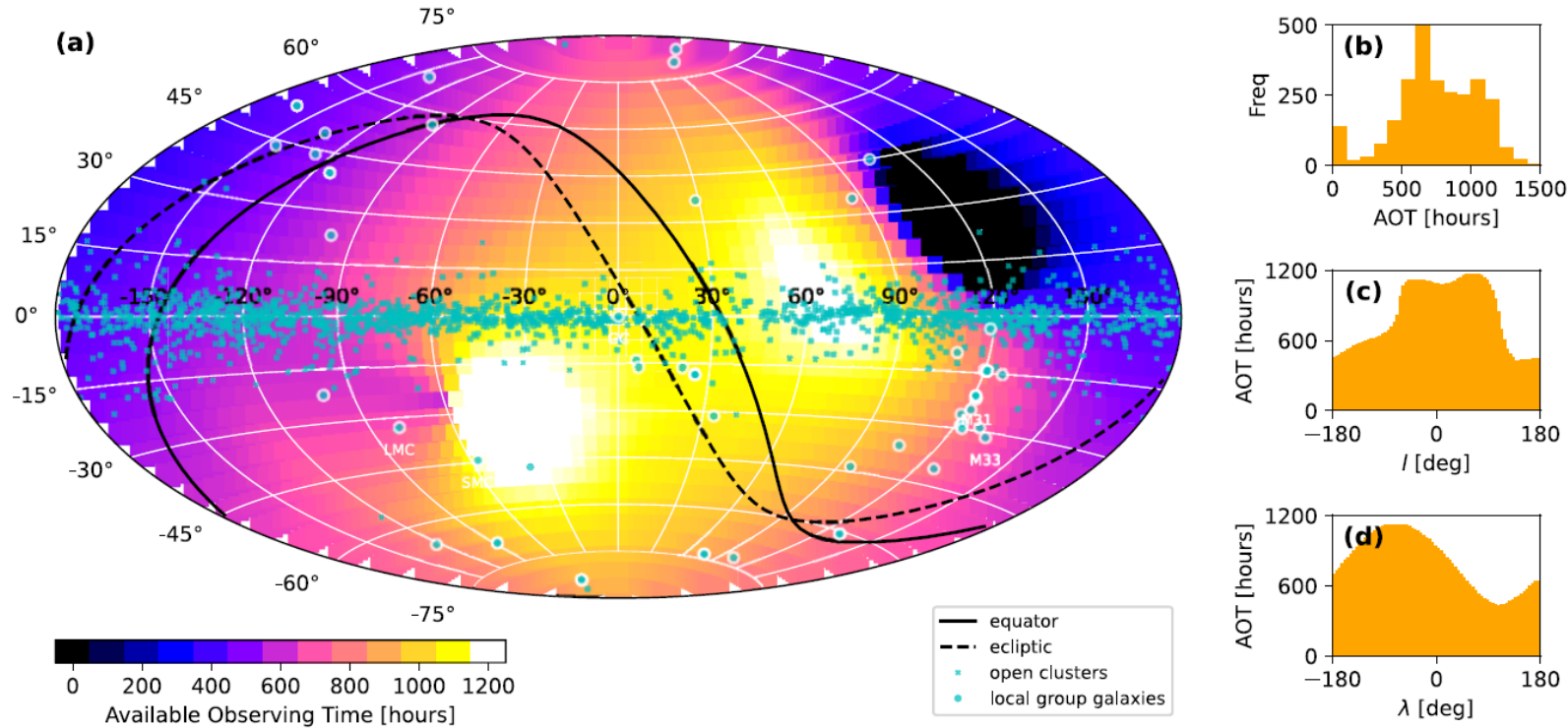


Figure 11. The observability map for the Timau shows the AOT of sky segments in Galactic coordinate (panel a). The location of open clusters (Dias et al. 2021) and local group galaxies are indicated by crosses and circles. The number distribution of sky segments as a function of AOT is also provided (panel b). The average AOT of sky segments as a function of galactic longitude (l) and ecliptic longitude (λ) are provided in panels (c) and (d). The average values are from the segments within $\pm 30^\circ$ from the galactic equator or ecliptic.

Timau telescope ~ Seimei telescope

- ▶ Two Cameras: 3Optika dan NIRKA.
 - ▶ 3Optika for imaging and photometry has 3 bands:
g (450-530 nm), r (550-680 nm), and
i (700-820 nm).
FoV: 12' x 12'.
 - ▶ "NIRKA" (Near IR Camera) has 3 bands:
Y (~1020 nm), J (~1220 nm), and
H (~1530 nm).
FoV: 8.74' x 8.74'.



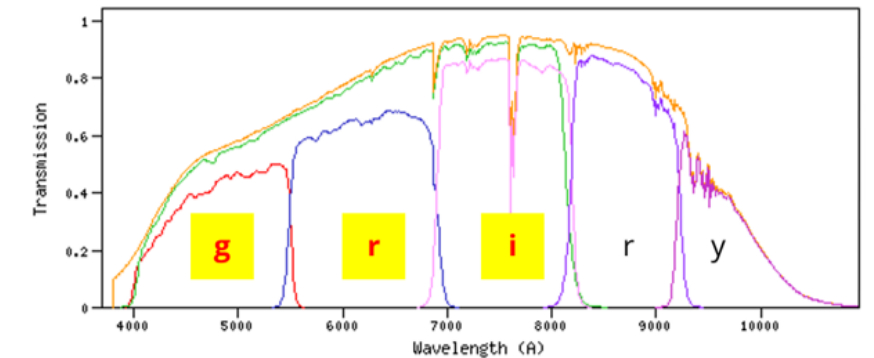
8,7' x
8,7'



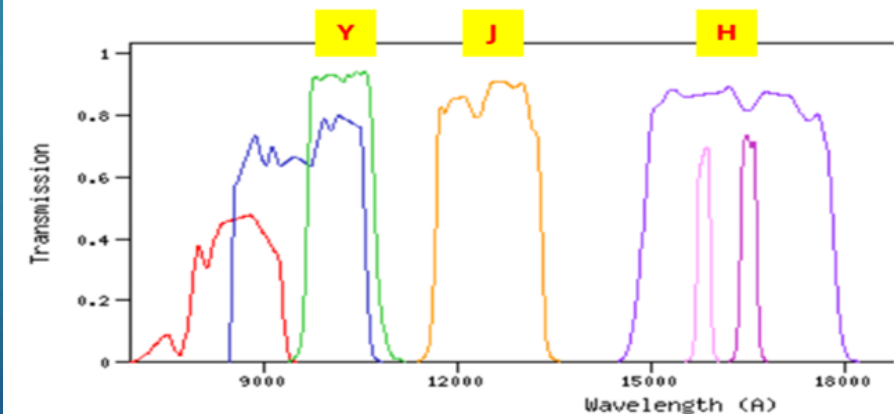
12' x
12'



30' x
30'

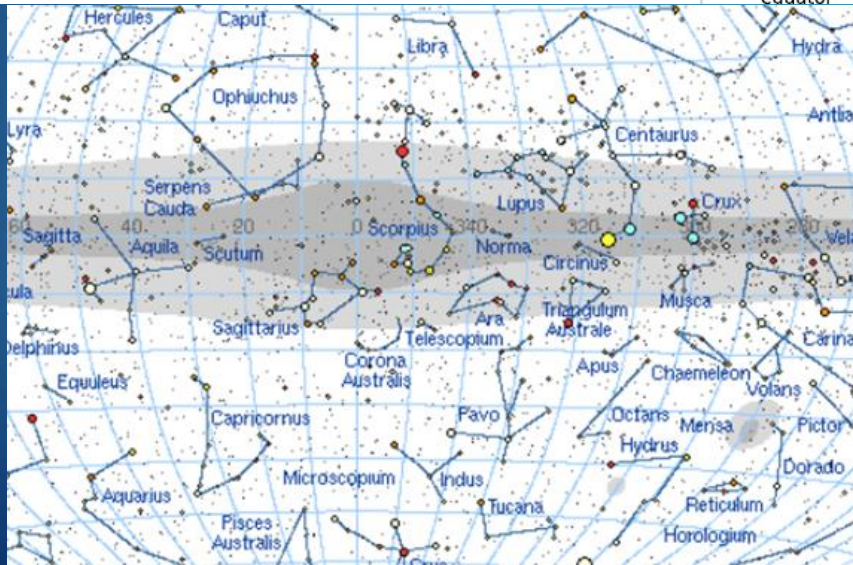
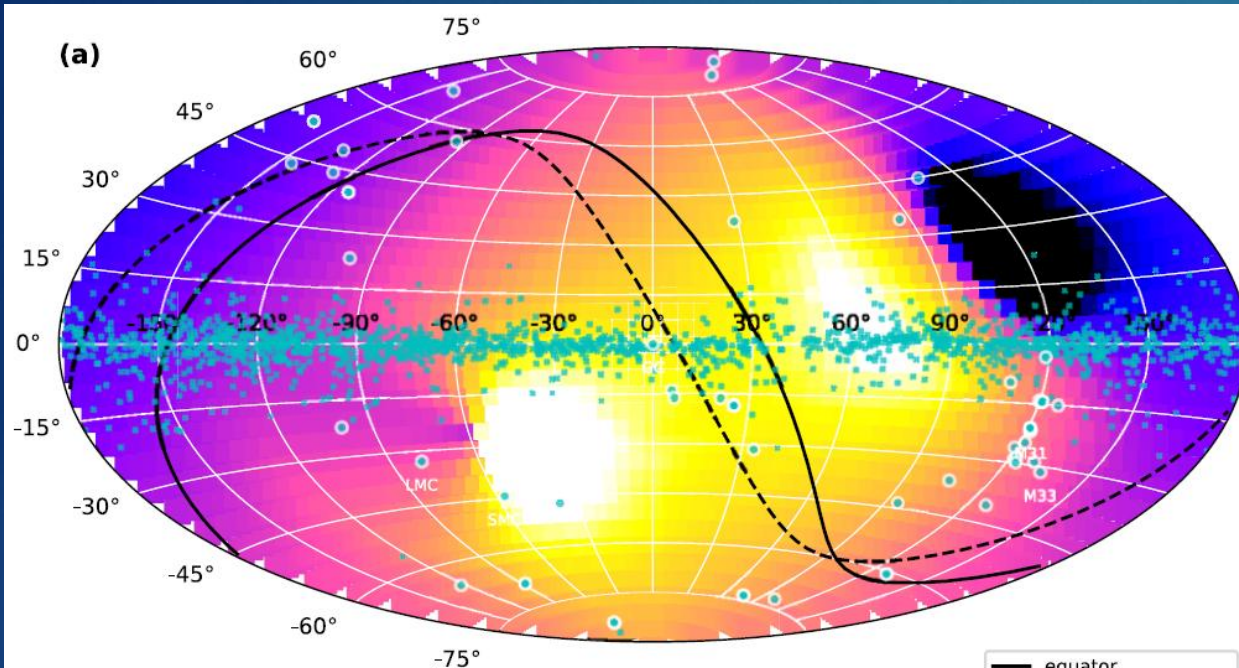


Transmisi filter kamera 3Optika



Transmisi filter kamera NIRKA

Future Research at TNOI



- ❖ Stellar astronomy:
 - Supernova
 - Late type stars flare
- ❖ Galactic astronomy
 - Star forming regions near the Galaxy Center
- ❖ Extra-galactic astronomy
- ❖ Planetary astronomy
 - Extrasolar planets
 - Asteroids
 - Comets