Progress in the construction of IPS telescope in the Meridian Project

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China is currently in the process of constructing the Chinese IPS telescopes for solar and heliospheric studies [1][2], with an anticipated completion date in May of this year. The primary IPS telescope consists of three cylindrical antennas measuring 140 m by 40 m, situated at a radio astronomy observation site. Additionally, there are two 30m dish antennas located in two nearby counties, each approximately 200 km away.

The cylindrical antenna of this telescope operates at frequencies of 327MHz and 654MHz, featuring a 40MHz adjustable bandwidth and dual-line polarization. The 30m dish antennas function at three different frequencies—327MHz, 654MHz, and 1.4GHz—equipped with dual-line polarization capabilities. The cylinder antennas boast a sky zenith angle of 60 degrees, enabling them to observe thousands of radio sources, while the dish antennas have the capacity to scan sources across the entire sky.

The IPS telescope is expected to play a crucial role in providing valuable information about solar wind and solar eruptions, offering insights into their impact on the Earth's environment. This paper will delve into a detailed introduction of the telescope's hardware, along with an overview of the construction process and preliminary observation results.

Figure 1. The parabolic cylinder antenna of IPS telescope

References

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