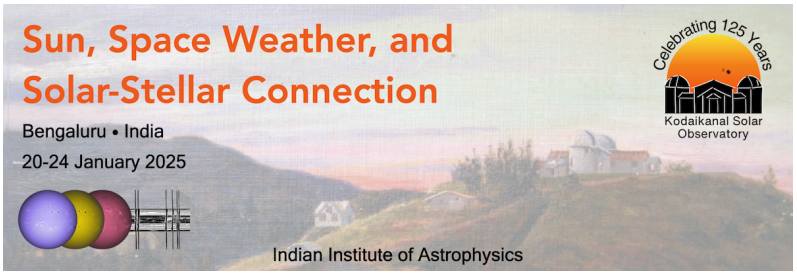

Contribution ID: **207** Type: **Invited talk**

Radio eyes for the Sun, Heliosphere and Ionosphere: Status and plans for the LOFAR2.0 era.

The Low-Frequency Array (LOFAR) has established itself as a formidable instrument in the field of solar physics and space weather, providing a unique vantage point for observing the Sun, heliosphere, and ionosphere. As we transition into the LOFAR2.0 era, this abstract outlines the current status and future plans for leveraging LOFAR's capabilities, and the LOFAR IDOLS (Incremental Development of LOFAR Space-weather) project. LOFAR's current work in solar physics involves high-resolution imaging and dynamic spectral analysis, enabling detailed observations of solar radio bursts and other coronal heliosphere and ionosphere phenomena. These observations are critical for understanding the mechanisms behind solar activity and improving our predictive models of space weather events. The LOFAR IDOLS station, a dedicated space-weather science facility, has been instrumental in advancing this work. It currently provides continuous monitoring of the ionosphere and Sun, tracking disturbances that can affect space wetaher on Earth, but also the astronomical observations of LOFAR itself. The LOFAR2.0 upgrade promises to enhance these capabilities significantly. Plans include improving the sensitivity and spatial resolution of the array, and the simoultaneus observations in LBA and HBA, which will allow for even more precise and broad imaging and tracking of solar phenomena. This will enable researchers to dissect the fine structures within the solar corona and track the development of space weather events with greater accuracy. Furthermore, the LOFAR IDOLS project is set to continue observation during the period of transition to LOFAR2.0 enabling us to test the monitorning capabilities.
In conclusion, the LOFAR2.0 era opens a new opportunity for solar and space weather research. With the ongoing work and future plans for the LOFAR IDOLS station and LOFAR2.0 observations, we are preparing to gain deeper insights into the Sun's influence on our space environment and to develop more robust forecasting capabilities for space weather phenomena.

Contribution Type

Theme

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