

**Criterion IV: Infrastructure and Learning Resources**

4.1.1 The Institution has adequate infrastructure and physical facilities for teaching – learning, viz., classrooms, laboratories, computing equipment, etc.

**Space Science Group**

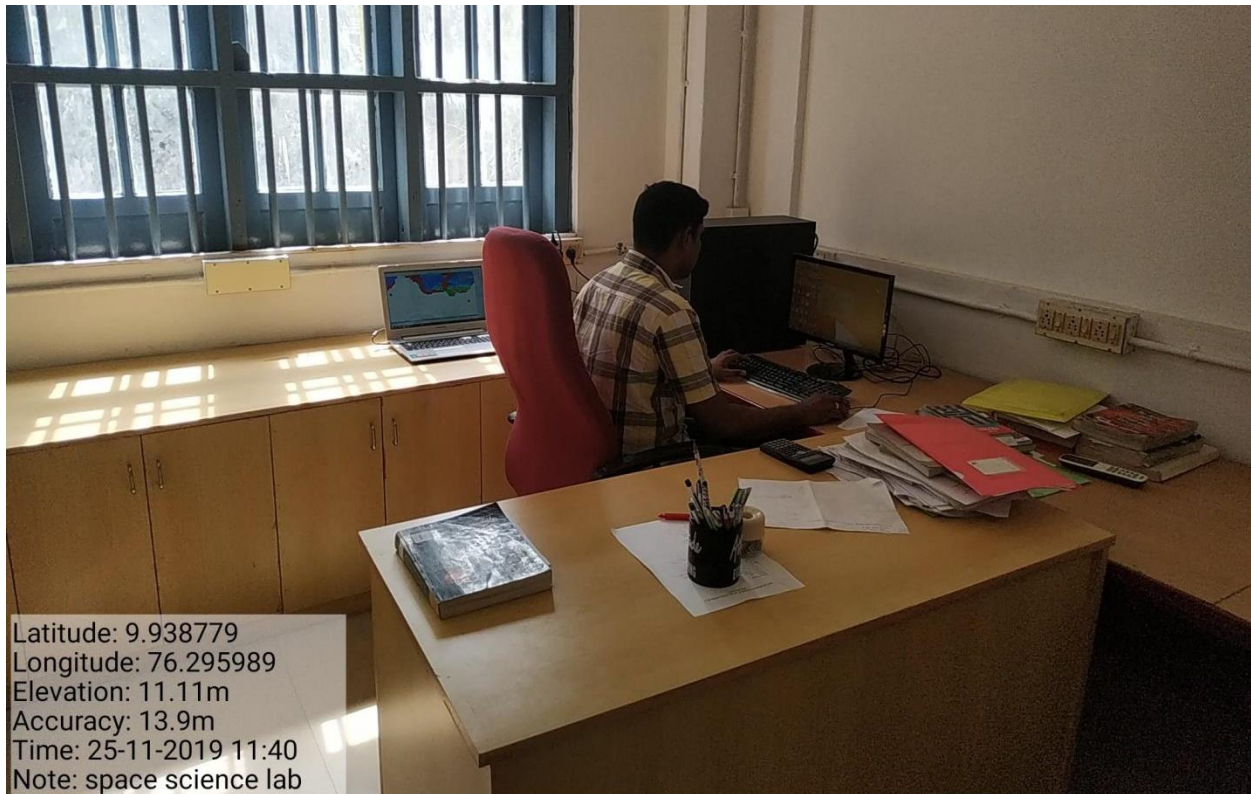


The Space Science Group (SSG) undertakes scientific research problems concerning the connection (Coupling) between Sun and Earth with emphasis on Space Weather and Plasma processes, using multitude of experimental (both ground and space based)



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platforms. The outputs from these studies provide corrections (which are more relevant over magnetic dip equatorial regions like Kerala, due to the unique electrodynamics of equatorial ionosphere) to the GPS signals with the help of ionospheric modeling, thereby enabling the 'operational forecasting' and has societal applications. In fact, the work encompasses the themes of international programs like NASA's Living with a Star (LWS) and Climate and Weather of the Sun-Earth System (CAWSES) very well. Further, it helps in the fundamental understanding of our space, which is useful in context of safety of spacecrafts (satellites and rockets) and astronauts. In short, the wide gamut of activities of SSG would help not only to improve the reliability of communication/navigation systems, but also unravel many of the unresolved scientific problems in the realm of solar terrestrial research.



Latitude: 9.938779  
Longitude: 76.295989  
Elevation: 11.11m  
Accuracy: 13.9m  
Time: 25-11-2019 11:40  
Note: space science lab



Fig 2.4: PolaRxS Receiver

### System Details

Septentrio, a leading provider of accurate and reliable receivers launched a Global Navigation Satellite System (GNSS) receiver for precise scientific and geodetic applications- the PolaRx. This new receiver in the PolaRx product line is developed specifically to support the most demanding applications for the earth science community offering a select range of advanced features which enable maximum accuracy and functionality.

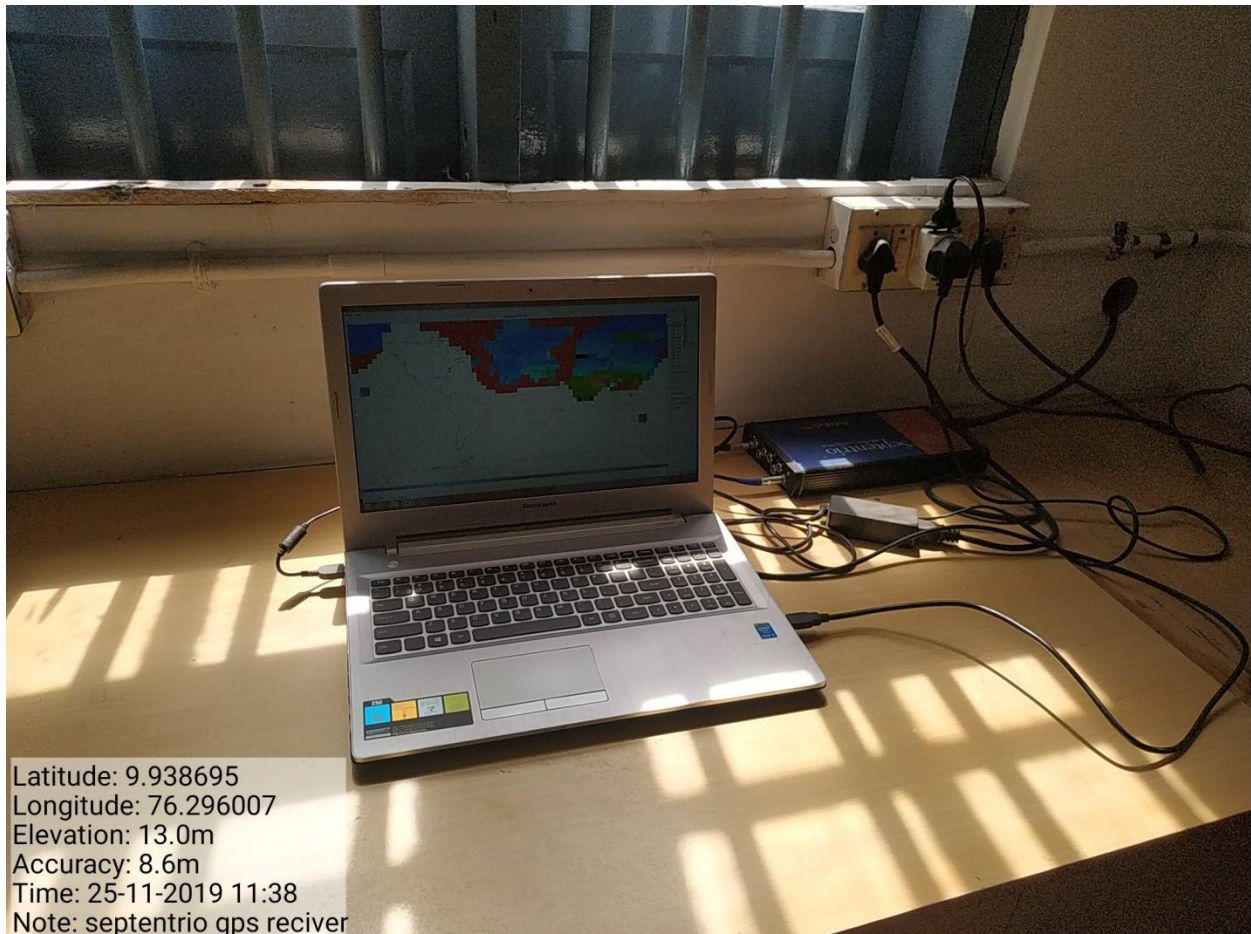
### GPS Receiver

The PolaRxS is a multi-frequency multi- constellation receiver dedicated to ionospheric monitoring and space weather applications. The receiver generates and outputs 50 Hz phase and amplitude samples for all visible satellites and frequency bands. These samples are logged on a host PC in hourly files using the provided RxLogger graphical interface. At the end of every hour, TEC and scintillation indices are computed for all visible satellites and logged as comma delimited ASCII records.

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**Key features**

- Tracks all visible GNSS signals
- High precision, low noise measurements
- Unique interface monitoring
- Powerful web interface and logging tools
- Rugged housing and multiple interfaces
- Up to 8 independent logging sessions
- Logging both internally and to an external device



GPS Receiver



Antenna

### GPS Antenna

The current GPS receiver uses a specially designed spherical (cone antenna) with a diameter of ~40 cm and a height of ~15 cm. It is fixed at the roof top. The location is chosen in such a way that any interference effects of high power antennae or towers and also multipath reflections due to any obstacles, is completely avoided.