GRAPE
GNSS RESEARCH AND APPLICATION FOR POLAR ENVIRONMENT
WWW.GRAPE.SCAR.ORG

SCAR Activities
Poster Session
KLCC, Kuala Lumpur, Malaysia

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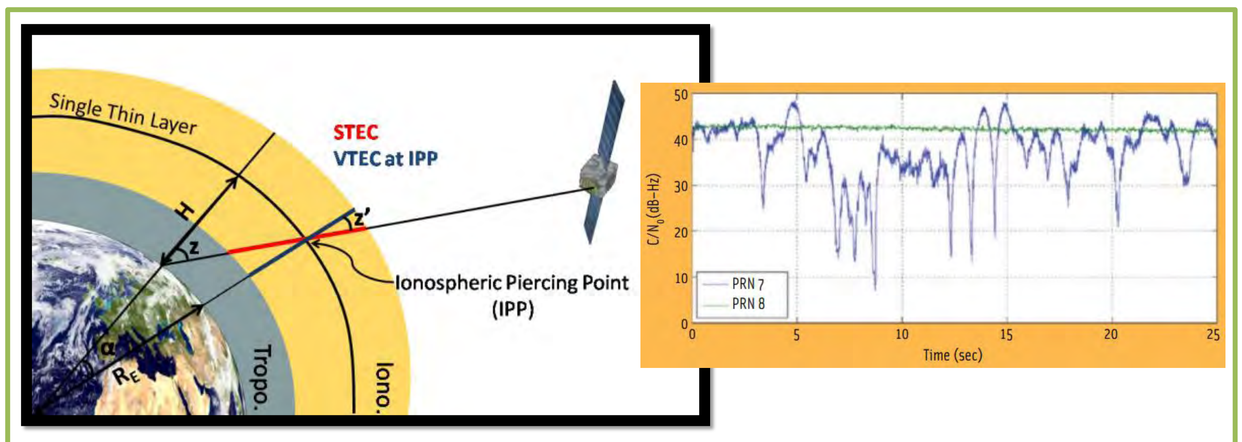
GRAPE is a joint SSG Physical Science and Geoscience Expert Group. It was born in 2012 at the SCAR OSC in Portland and includes the former Action Group "GPS for Weather and Space Weather Forecast". **GRAPE is dealing with the monitoring of neutral and ionized atmosphere at bi-polar latitudes** with the scope of **investigating the atmospheric response to solar activity and its effects on GNSS based systems and applications.** The main goal is to continue to intensify the international efforts to build and coordinate a robust network of collaborations able to answer a variety of **weather and space weather related needs through ad hoc data sharing and models development**.

GRAPE MAIN OBJECTIVES

•Create and maintain distributed **networks** of specialized **GPS/GNSS** Ionospheric Scintillation and TEC Monitors
• Identify and quantify mechanisms that cause **scintillation** and control **interhemispheric** differences, asymmetries and commonalities
• Develop **ionospheric** scintillation climatology, tracking and mitigation **models** to improve prediction capabilities of **space weather**.
• Retrieve **tropospheric PWV** for input to **weather forecast** models and to develop **regional PWV climatology** for atmospheric sensing in remote areas.

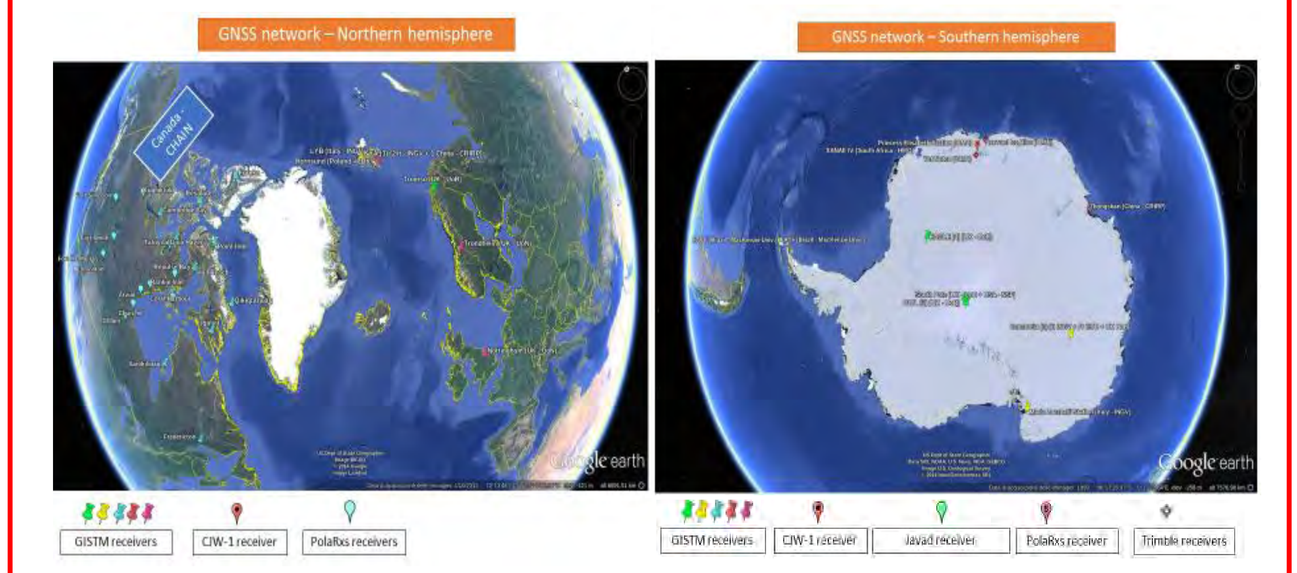


If the em signal meets the irregularities of the ionosphere this can «scintillate» producing loss of lock with the satellite and reducing accuracy of positioning

EXPERIMENTAL MEASUREMENTS

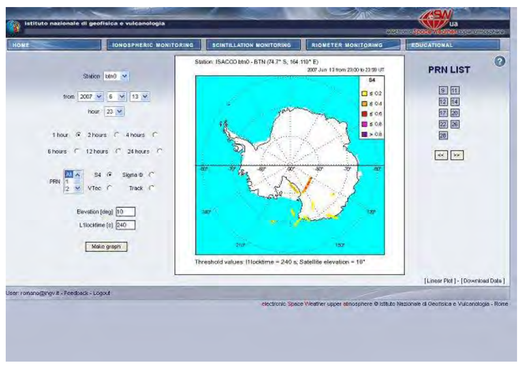
GNSS receivers for Total Electron Content (TEC) and Scintillation

- High frequency sampling (50 Hz)
- Multi frequency/constellation (GPS, GALILEO, GLONASS)
- Data are available VISIT THE GRAPE WEB!



THE NETWORK

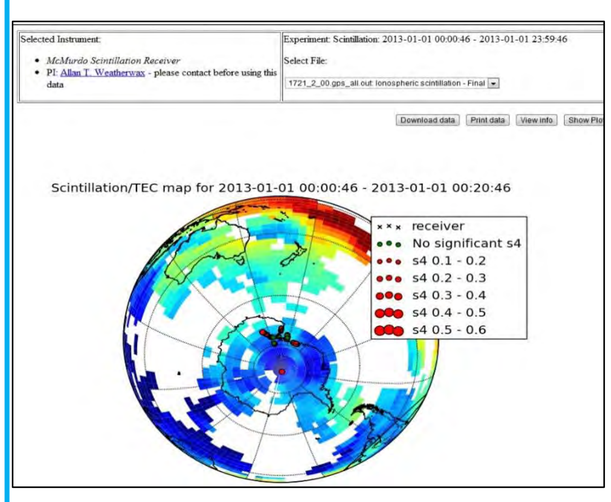
- Several GNSS stations managed by several GRAPE teams.
- Each team organised its own data management systems
- Several algorithms and data analysis tools have been developed among the GRAPE community

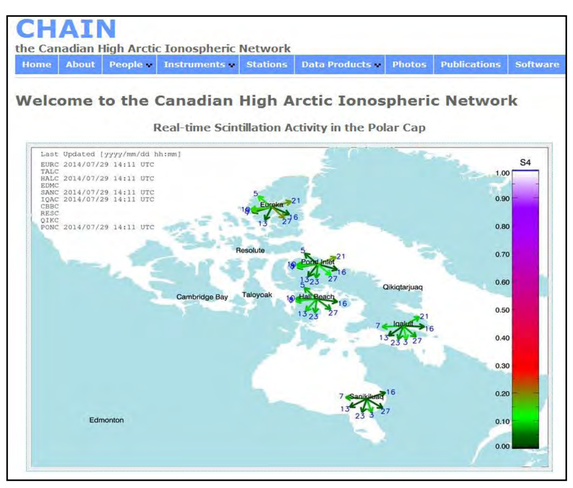


THE DATA

Data from the network are available.
Examples from:

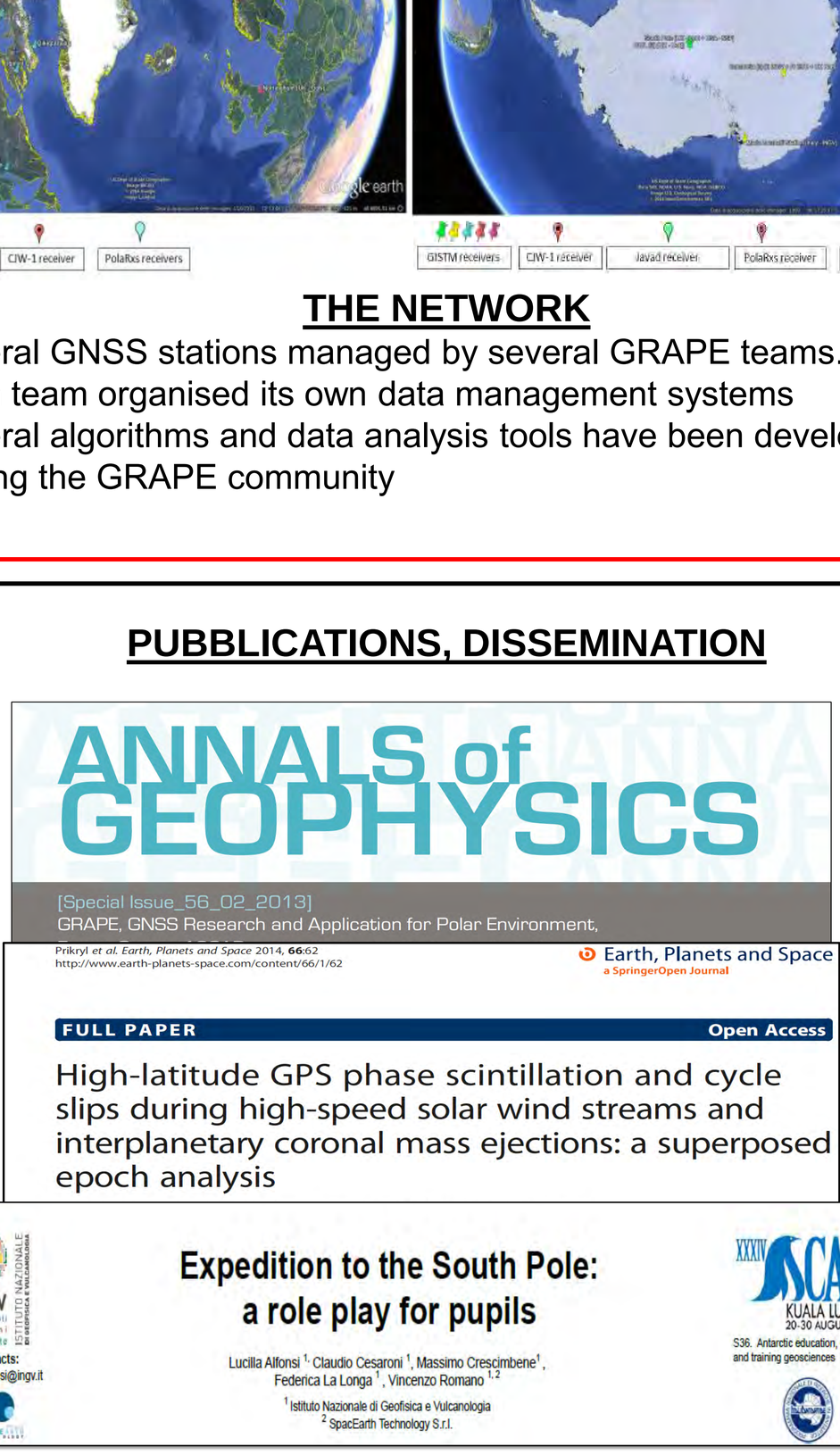
- www.eswua.ingv.it
- http://cedar.openmadrigal.org
- http://chain.physics.unb.ca/chain/





List of participants available at: www.grape.scar.org/participants.html

PUBBLICATIONS, DISSEMINATION



List of the pubblications is available at: www.grape.scar.org/resources.html