



# The Low-latitude Ionospheric Sensor Network (LISN)

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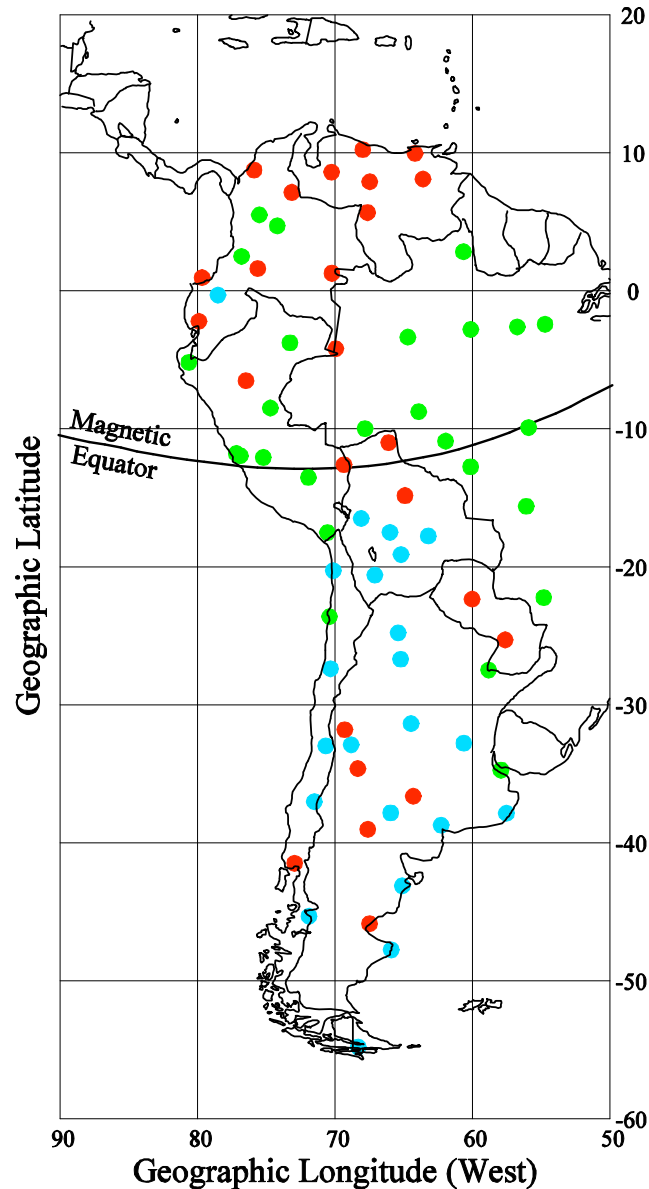


Midway, June 19, 2008

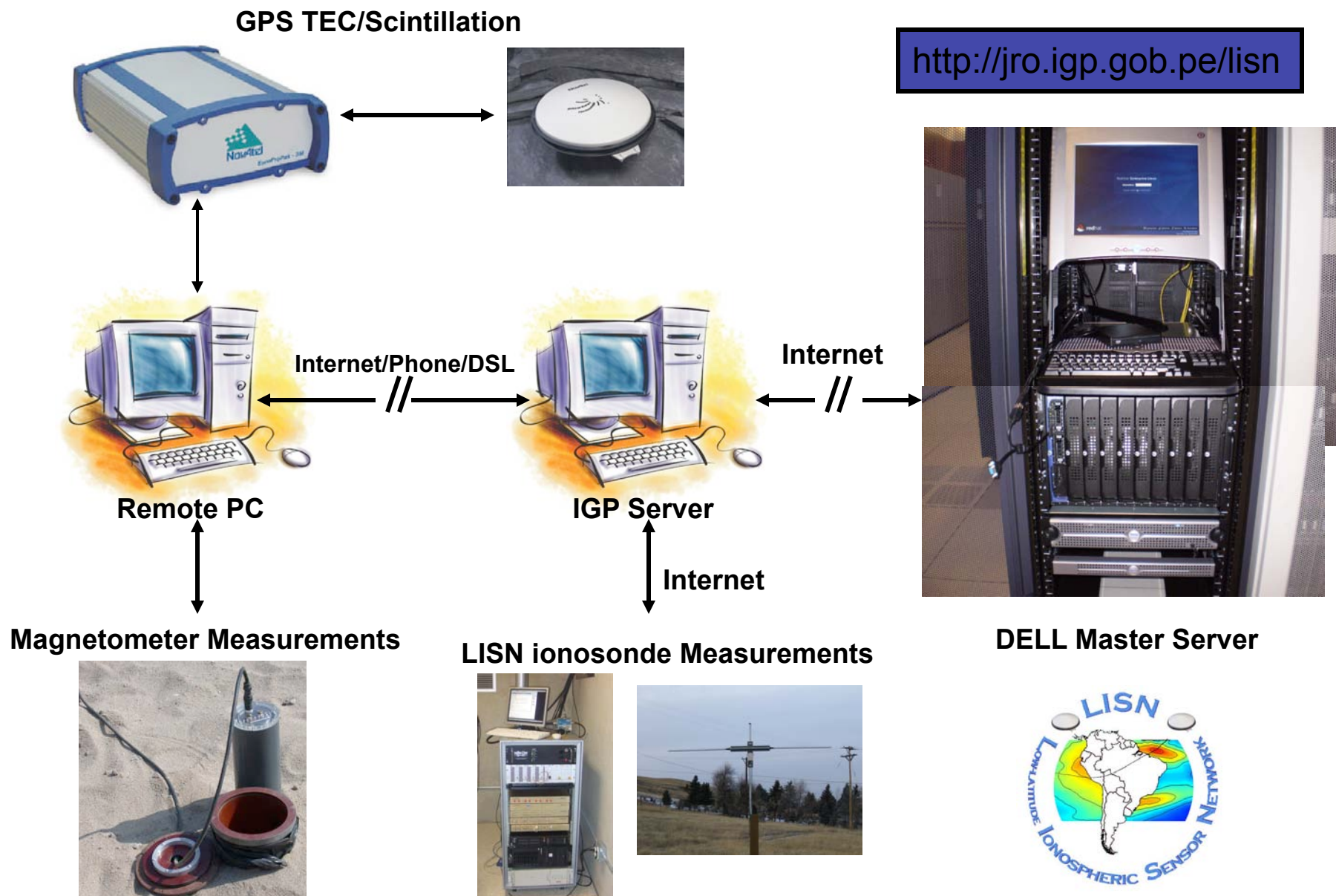
# LISN Objectives

- To install and manage the first Distributed Observatory in South America. LISN will install 40 GPS, 5 magnetometers, and 5 ionosondes; together with existing GPS will consist of 70+ GPS.
- To **nowcast** the state of the Low-latitude ionosphere in terms of TEC, S4 scintillation index, TEC depletions, bottomside F- and E-region densities, and magnetic fields.
- Address science questions regarding the role of E and Es layers on inhibiting ESF. Causes of the longitudinal variability of the low-latitude ionosphere. Do Gravity Waves seed plasma bubbles? Inputs to ion-neutral coupling studies.

# Location of Present and Future GPS receivers and Ionosondes



# LISN - Data Flow Diagram







## FIRST LOW - LATITUDE IONOSPHERIC SENSOR NETWORK WORKSHOP

Lima, 1-9 August 2007

[Versión en Español]

HOME

Communications

Local Information

- ▶ Venue
- ▶ Lodging
- ▶ Weather
- ▶ Transportation
- ▶ Other Information

Activities

- ▶ Schedule

LISN

The workshop is to instruct scientist, engineers, and students from South America on how to employ GPS receivers and ground-based magnetometers, to diagnose the state and variability of the low-latitude ionosphere, on how to install and operate state-of-art sounders (dynasonde), and simultaneously to make know the latest techniques of E and F region sounding. The attendees are all participating in the LISN Project. The workshop will provide software tools to analyze, proces and display TEC and scintillation values measured by GPS receivers. It is also the purpose of this workshop to describe the advantages of networking different iunstruments to increase the science yield. The workshop will be held at Jicamarca Radio Observatory located near Lima in Peru.

The First Low-latitude Ionospheric Sensor Network workshop has the objective exchange of the technicals procedures, instrumentation and modelling of the Ionsphere, scientific, technical issues will be discussed, and training in the areas of remote sensing, instrumentation and data processing will be provided to assistants. In the context the content of the Workshop is:

Overview of the [LISN](#) Project.

Investigations of the low-latitude ionosphere.

Studies of low-latitude scintillations.

GPS receivers, installation, calculation of TEC and scintillations.

Magnetometers and their use for ionospheric studies.

Description of dynasonde hardware and software.

Processing of dynasonde measurements.

Data assimilation using LISN instruments.







Name	Task	Description
C. Brunini	STEC CALVAL	DATA behavior Collocated rxs + Synthetic data
C. Brunini M. Mosert	Topside Improvement	Multi-instrument + Model comparison, Improvement, Topside TEC -> Topside Ne
M. Mosert E. Silvestre	Ionospheric climatology	Ionosonde, GPS variability indexes
M. Mosert E. Silvestre	Ionospheric Weather	Param. Variability, storms, irregularities
M. Mosert B. Nava	Validation of empirical models	Nequick, IRI, regional models (foF2, TEC)
C. Carrano E. de Paula	Improve Scintillation Specification	Scintill. Along B, TEC? Improve bubble models from site to site? E-region Ne vs. ESF seeding?
E. Silvestre B. Nava	Data Assimilation	Nequick, Physics model
C. Valladares	Data handling/Policy	
J. Chau, J. Villalobos	Training	
J. Chau, R. Woodman	LISN Ionosonde Research	E region measurements
C. Valladares	Funding actions	

