

U.N./ Russian Federation Workshop on GNSS Applications - Embrace Space Weather Program/INPE -

National Institute of Space Research

Presenter:

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Ministry of External Relations - Itamaraty**



PROGRAMA DE
ESTUDO E
MONITORAMENTO
BRASILEIRO DO
CLIMA
ESPACIAL



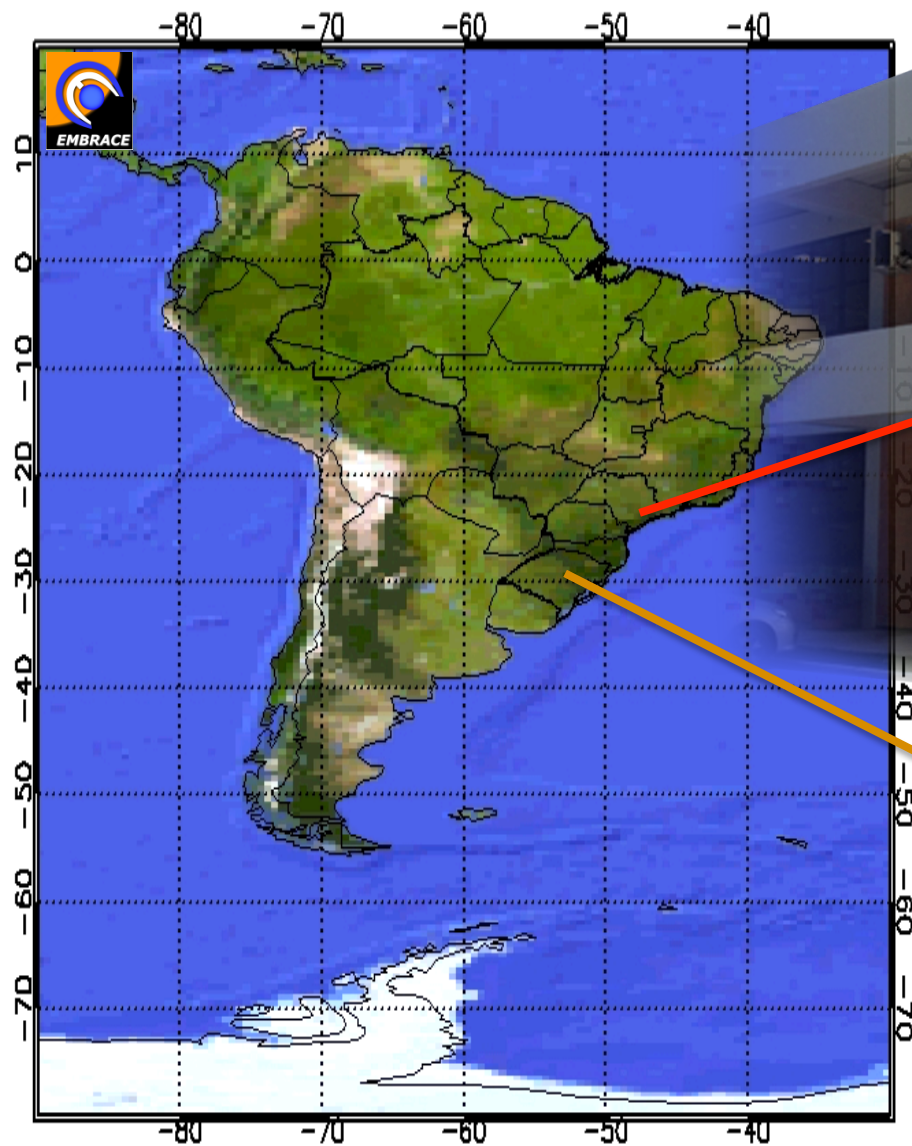
(Brazilian Space Weather
Survey and Monitoring
Program)

<http://www2.inpe.br/climaespacial/portal>

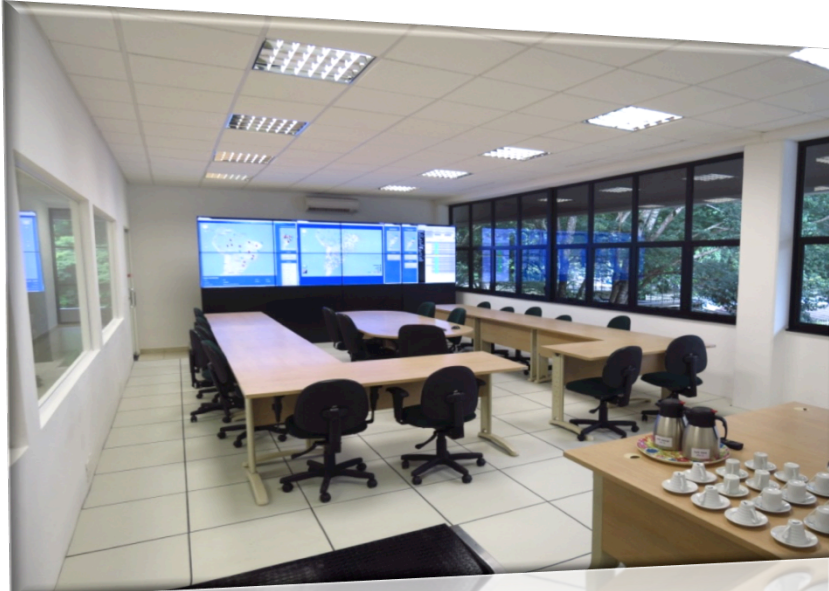


AIMS:

- **Monitor space weather phenomena**
- **Spread awareness of the effects of space weather**
- **Since 2007**
- **Provide real-time information / forecasts**
- **EMBRACE operates as a Regional Warning and Alert Center for Space Weather**
- **Member of International Space Environment Services (ISES)**
 - **GNSS**
 - **Communications**
 - **Power grids**
 - **Flight safety**
 - **Satellites**



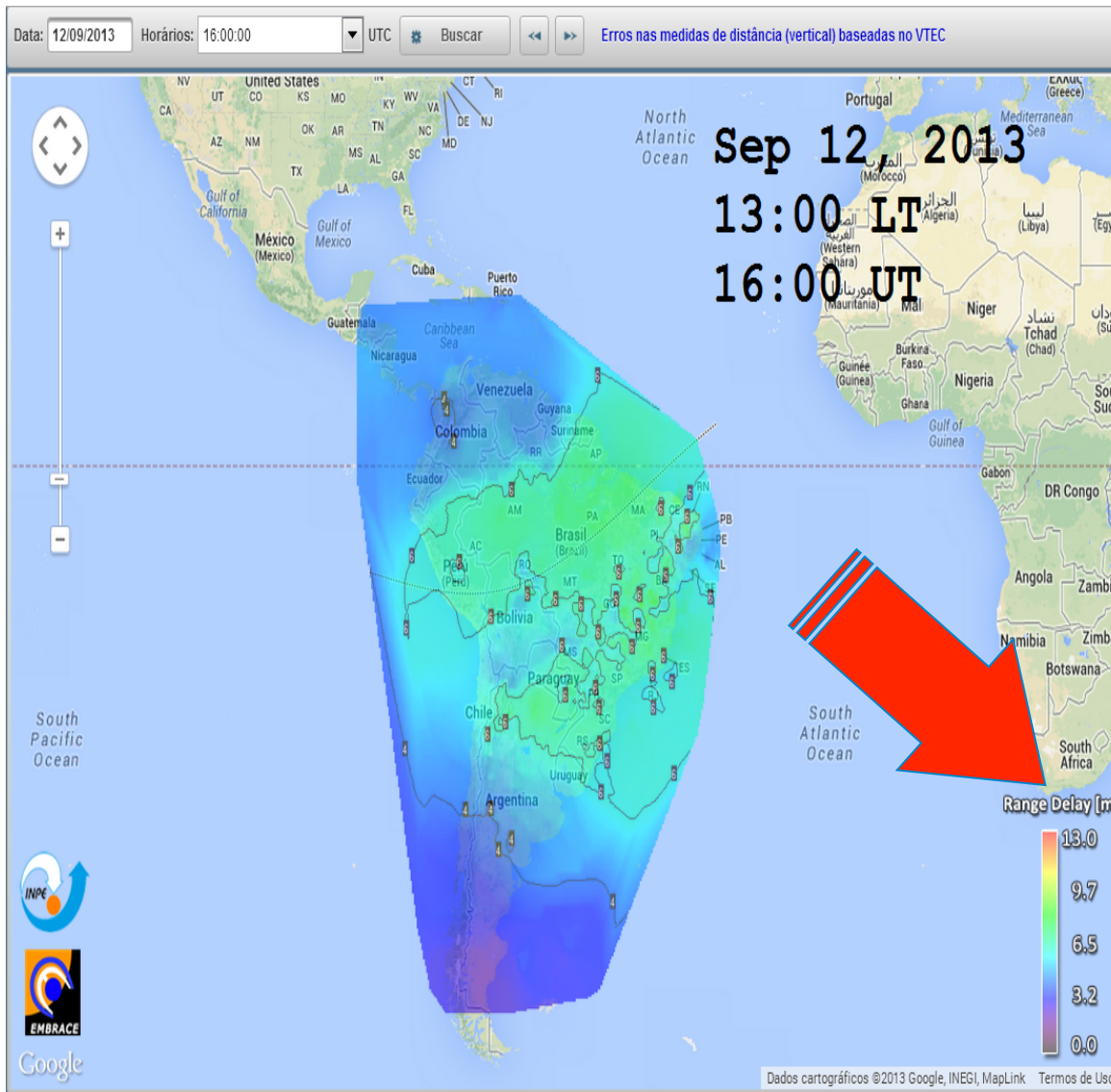
Data Processing Center

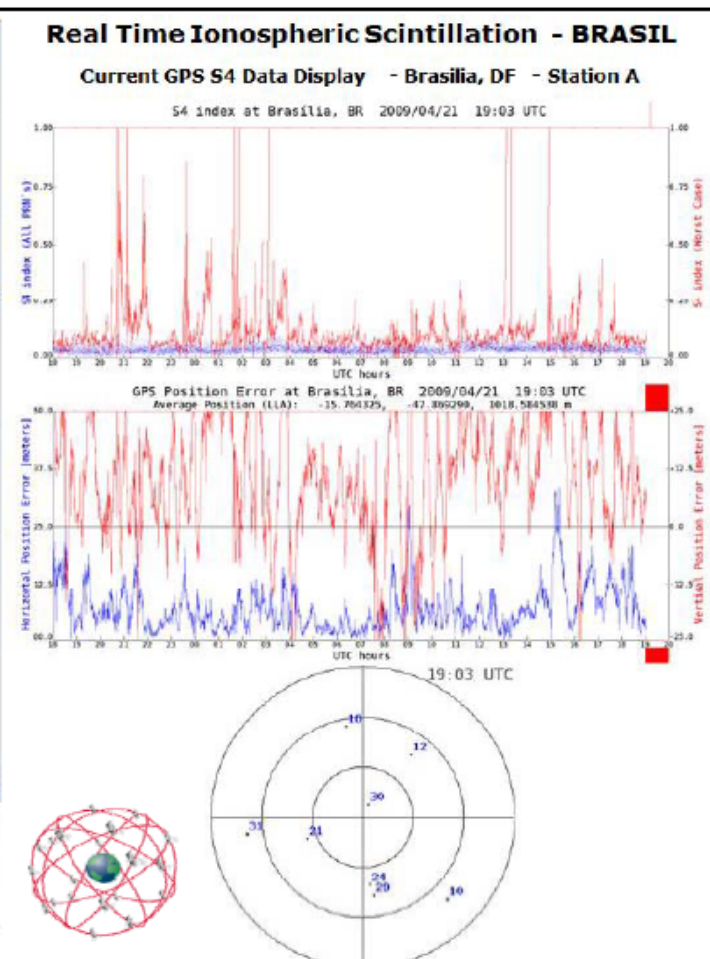
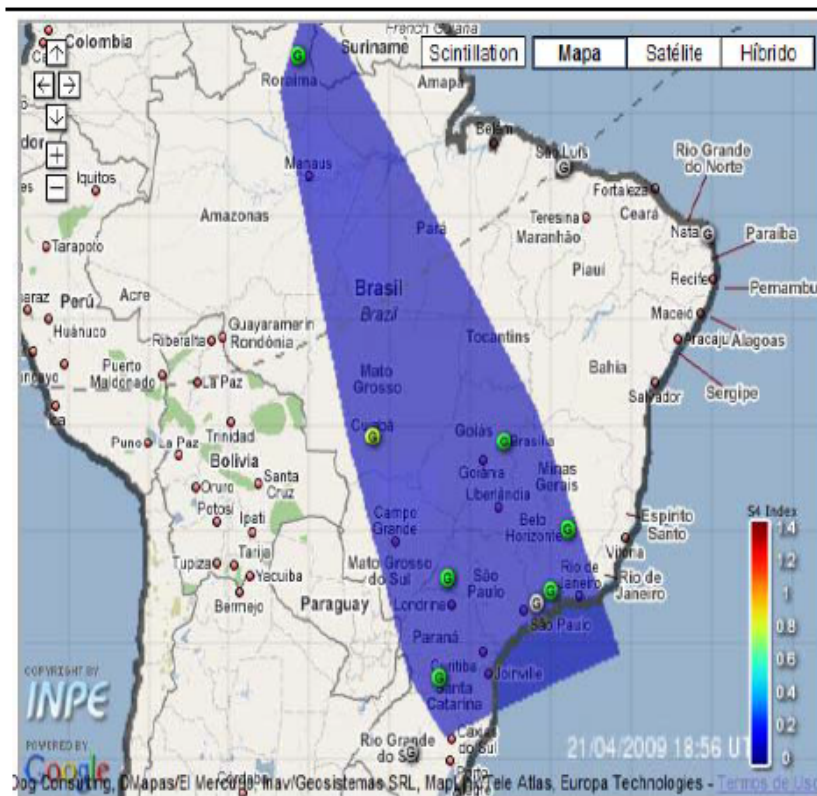


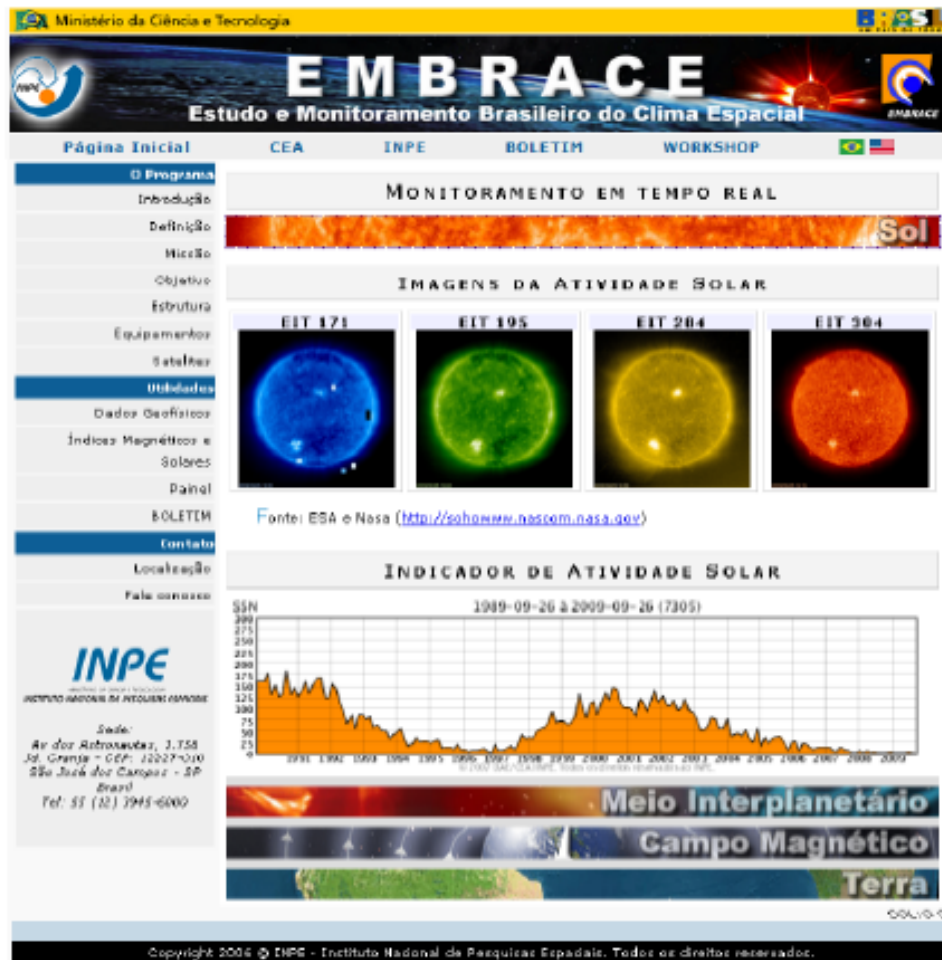
TEC Map of South America



TEC Map Error Map







Solar Images

Solar Index



Community of Users:
Public Sector
Air Traffic Authority
Universities
IBGE

Private sector
AGCO
Azul Airlines
EMBRAER
Petrobras
Furnas



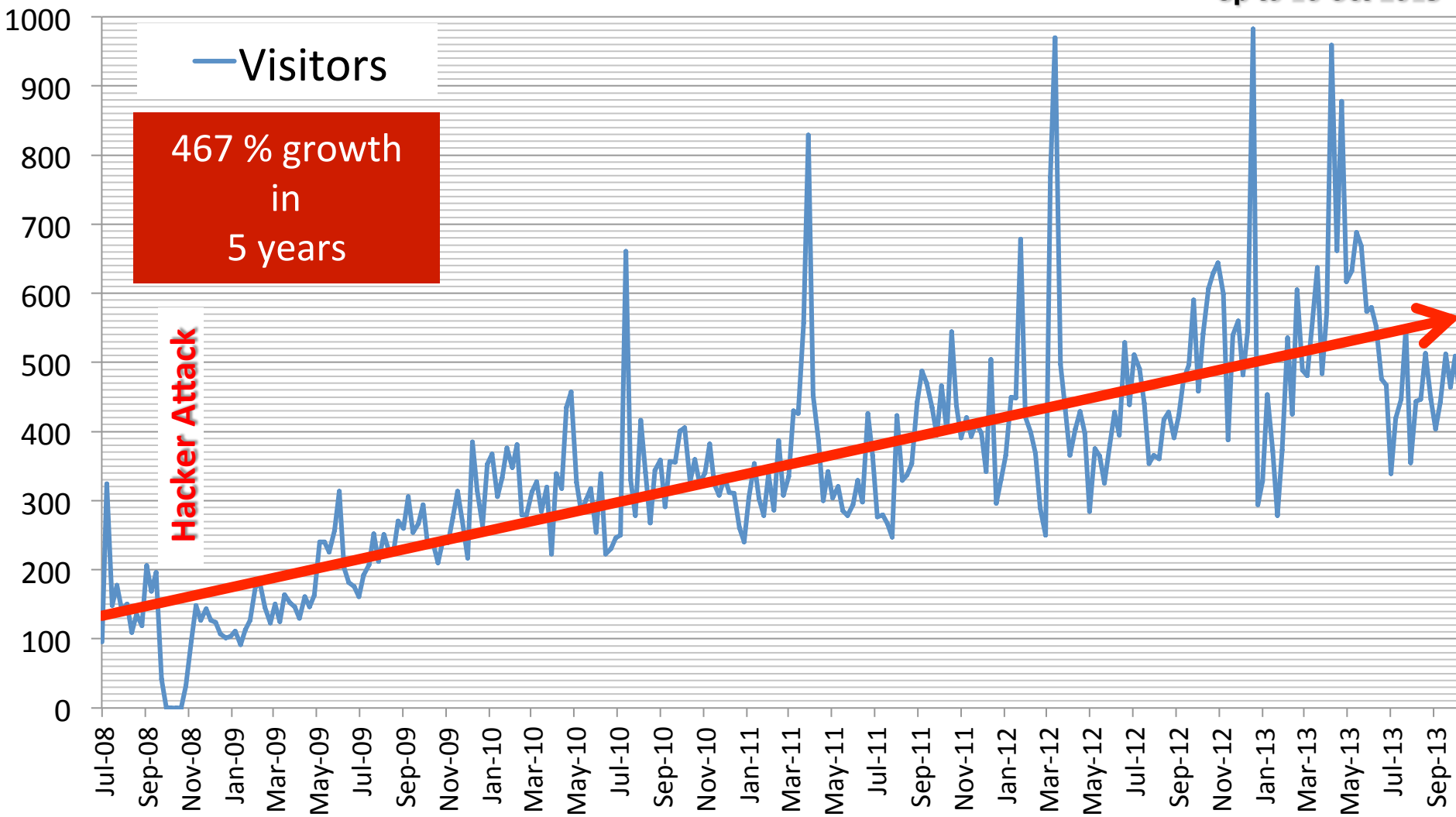
Growing number of visitors

www.inpe.br/climaespacial



Google Analytics

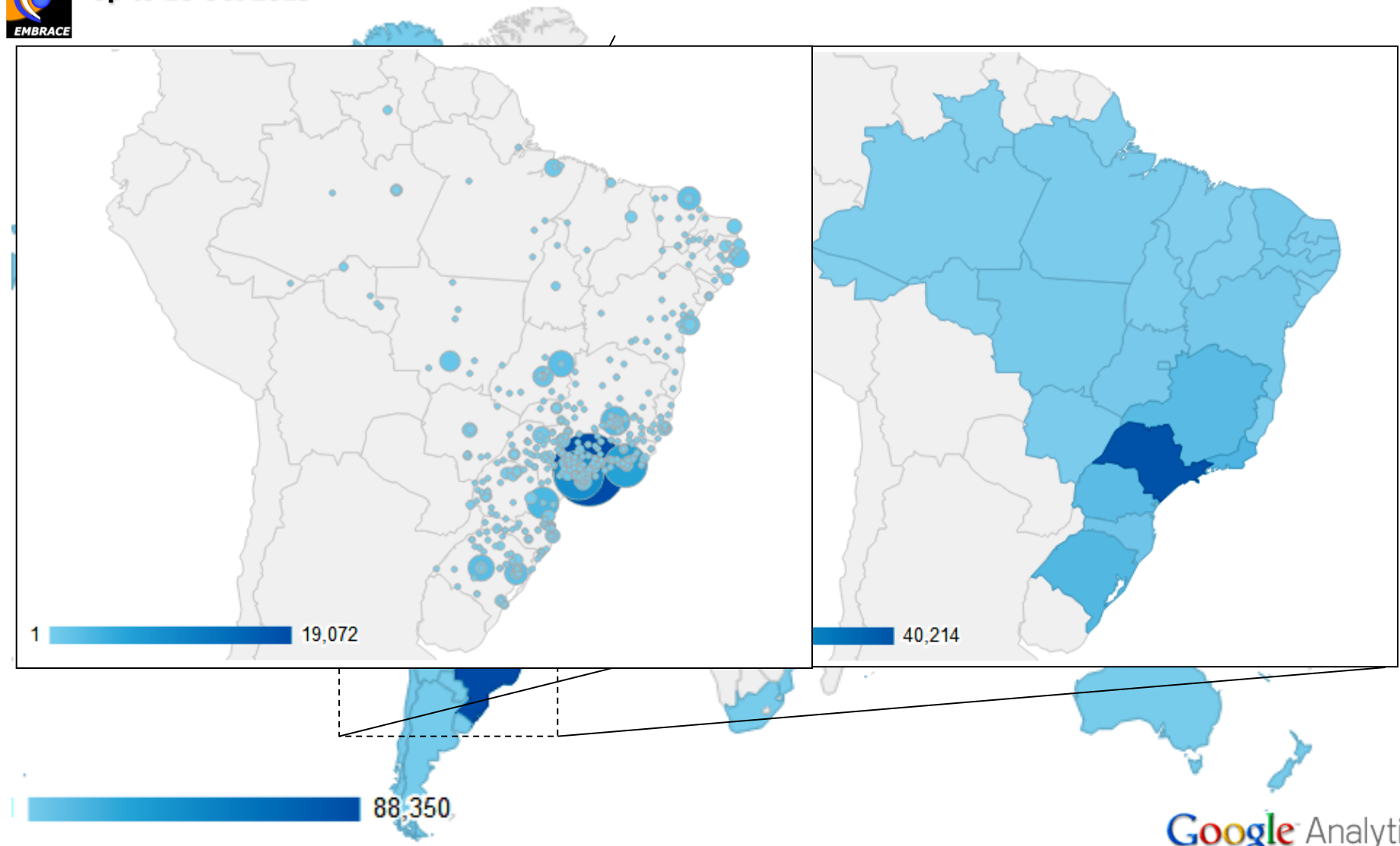
Up to 10 Oct 2013



Visitors from all the world

www.inpe.br/climaespacial

Up to 10 Oct 2013

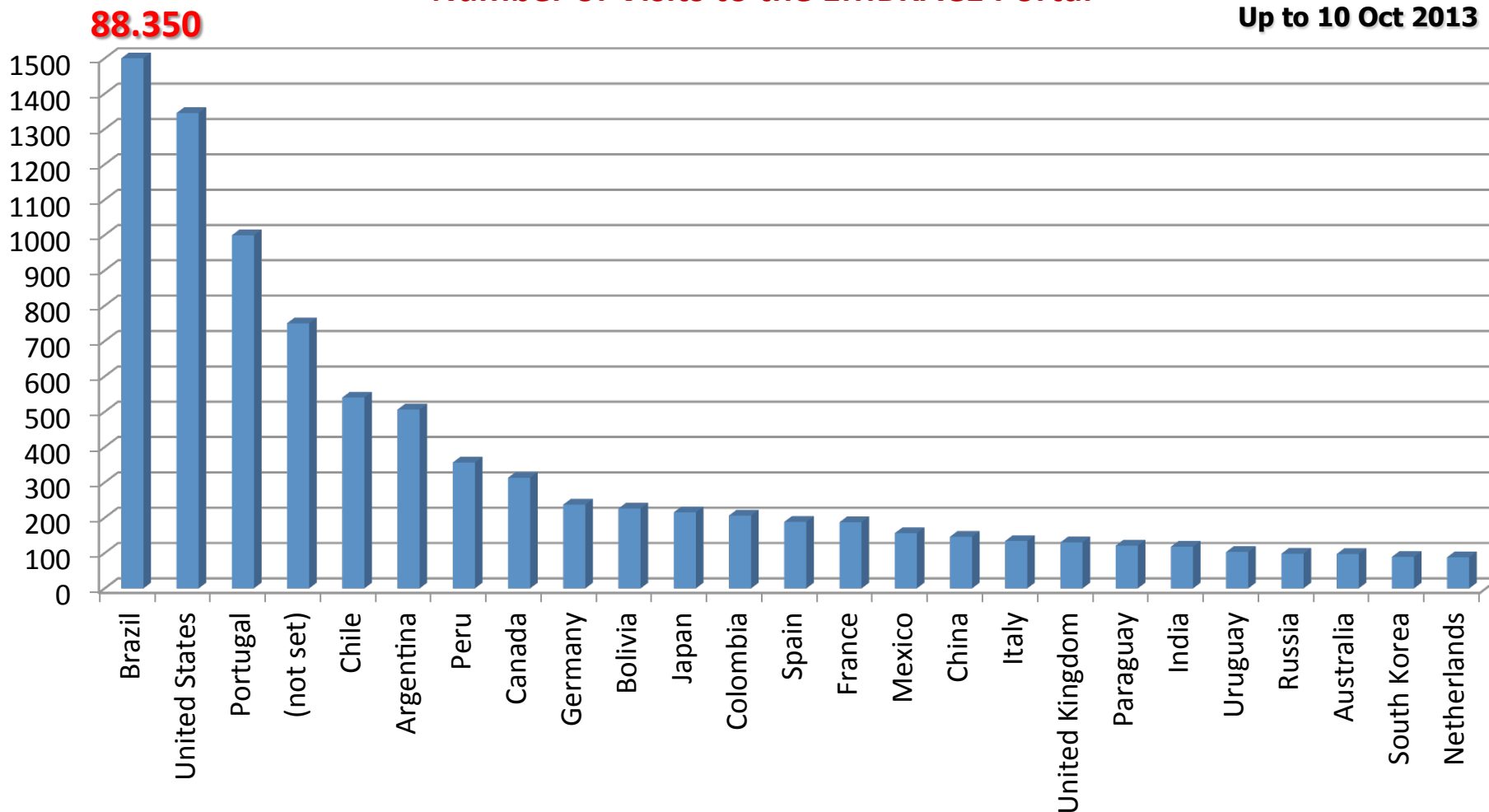


Breakdown by country

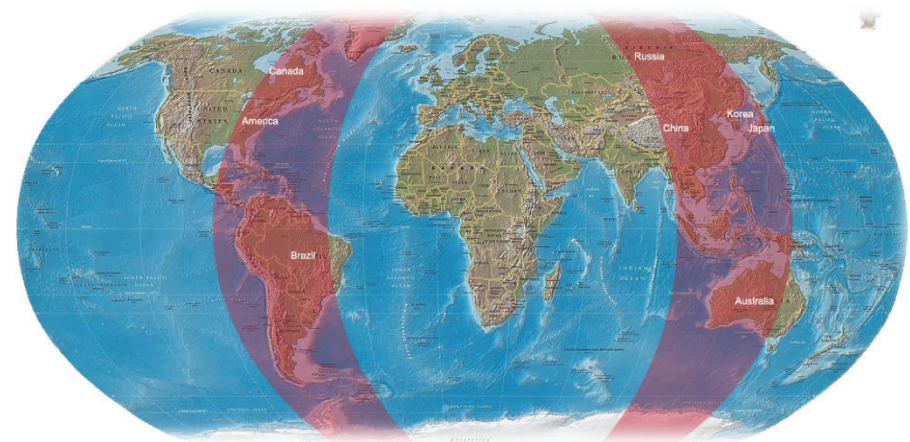
www.inpe.br/climaespacial

Number of Visits to the EMBRACE Portal

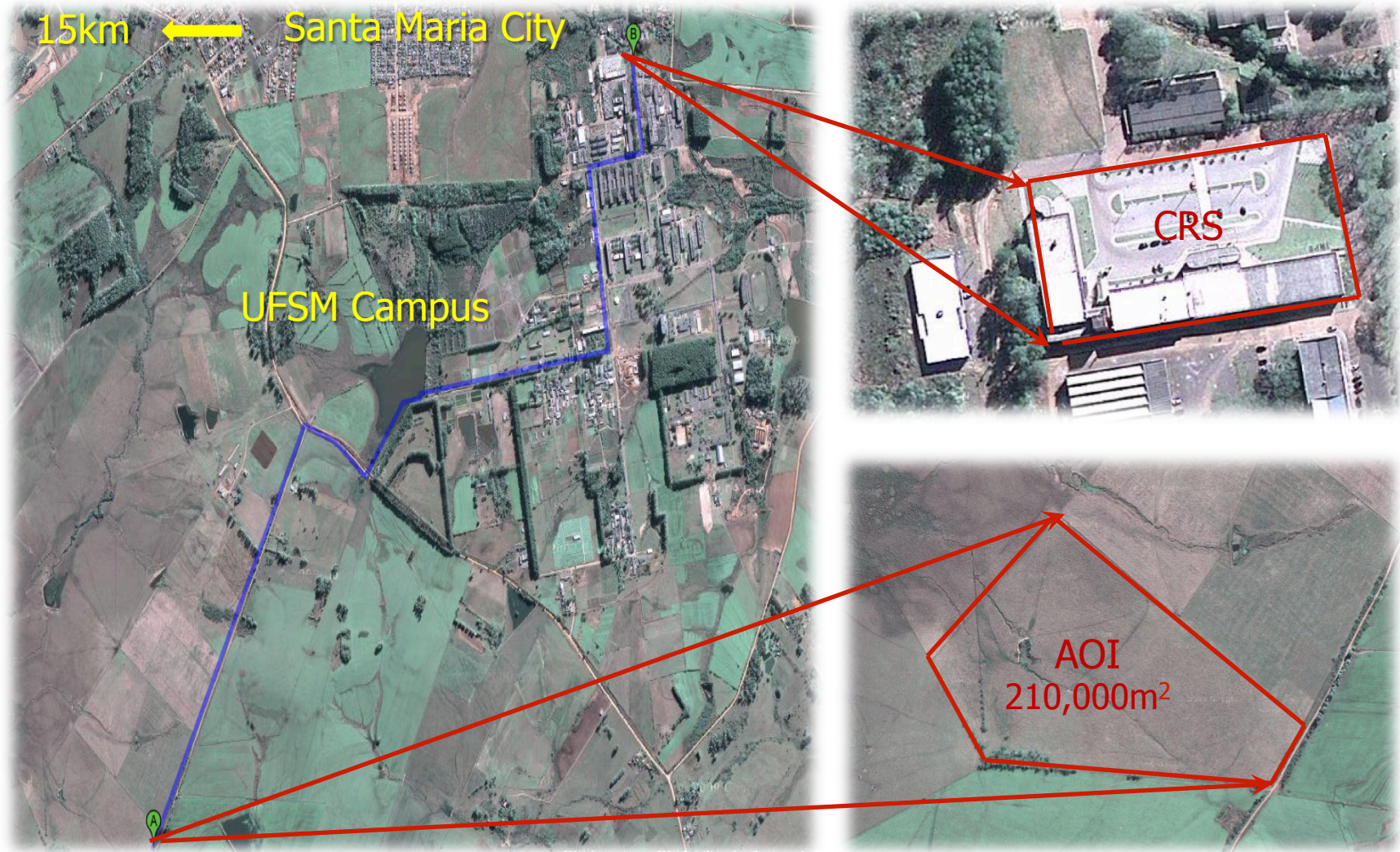
Up to 10 Oct 2013



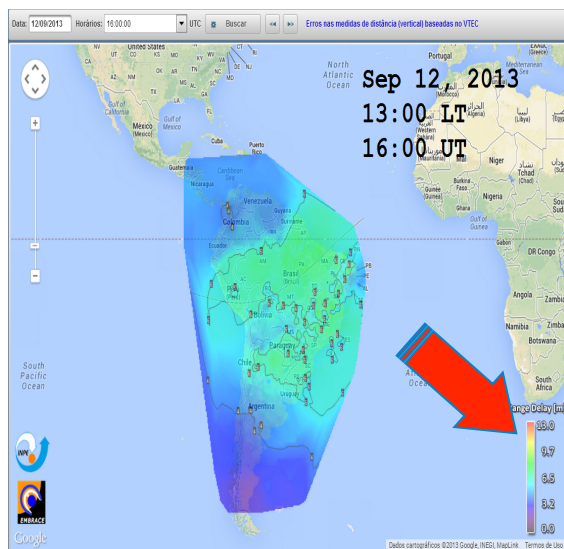
China-Brazil Joint Laboratory for Space Weather



New sensors and devices



Future developments



**Android app –
May/ 2015**

- **Information readily
available on
smartphones**





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Thank you!