

1. INTRODUCTION

This work presents the development of SIGMACast to manipulate data and images integrated with the GEONETCast-Americas System. The integration SIGMACast / GEONETCast is part of a multi-institutional project for reception and transmission of environmental data of providers (e.g. European Organization for the Exploitation of Meteorological Satellites – EUMETSAT, US National Oceanic and Atmospheric Administration – NOAA, China Meteorological Administration - CMA). The GEONETCast is a global system of dissemination of environmental information's, low cost, which transmits data from meteorological and environmental satellites, in-situ data, products and services of Global Earth Observation System of Systems (GEOSS).

2. THE GEONETCAST

Transmission occurs through commercial communication satellites using its broadcasting capacity, providing information in nearly real time. The standard used in transmission is the Digital Video Broadcasting - Satellite (DVB-S). The GEONETCast Americas network is the western component of GEONETCast, which aims to allow better dissemination, application and exploitation of environmental data and products for various areas of social benefits established by the Group on Earth Observations (GEO), including agriculture, energy, health, climate, weather, mitigation of the effects of disasters, biodiversity, water resources and ecosystems. The system has a lower cost than buying a conventional station to satellite data reception. It also allows the dissemination of information throughout the satellite constellation and associated environmental products. Due the satellite communication, the reception of data is independent of the internet, which makes it especially useful in providing access to environmental data in areas where coverage of the Internet is limited or non-existent. Institutions that have GEONETCast receiving stations, can receive various environmental data and satellite images from different providers, thus forming a large repository (Figure 1).

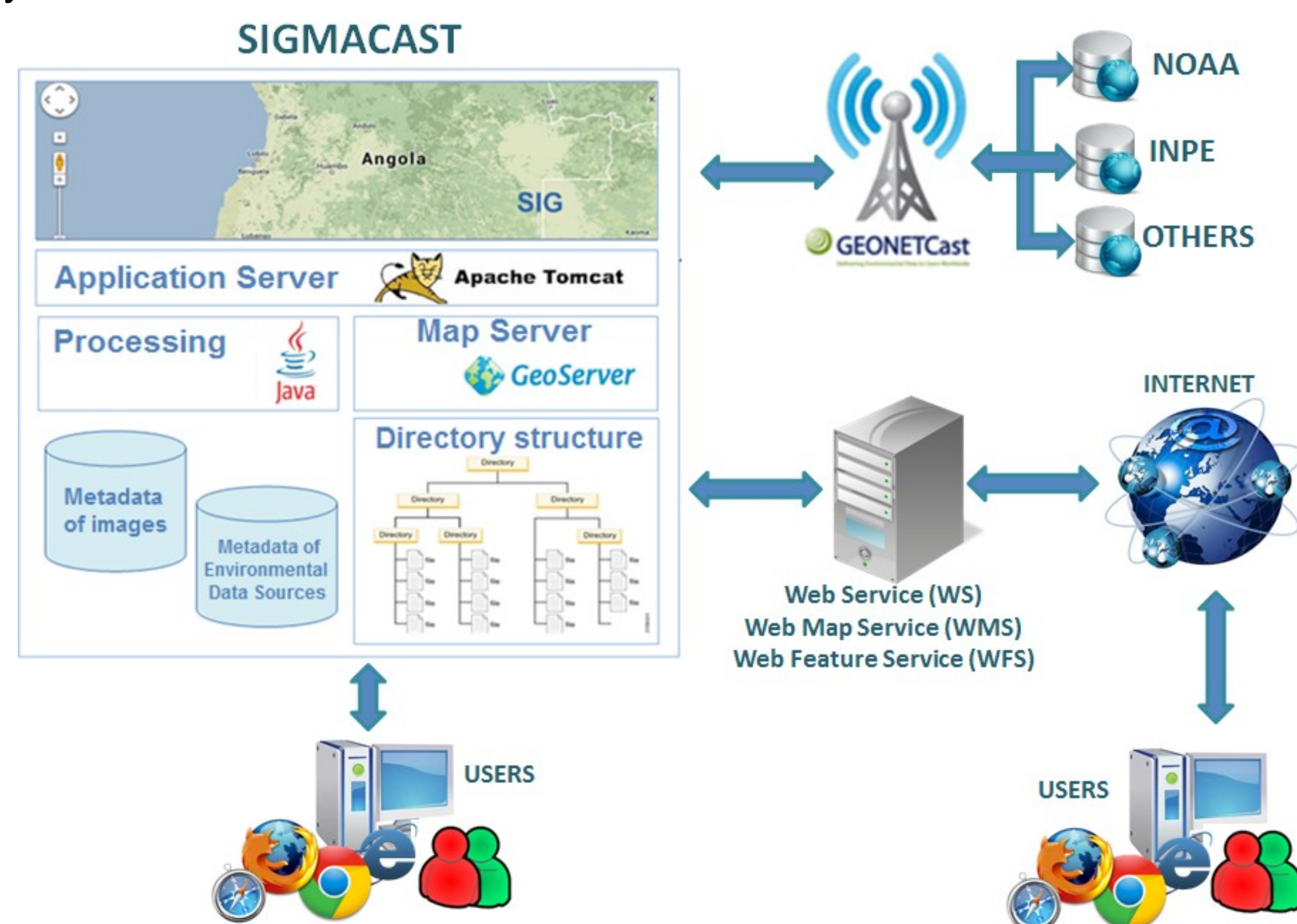


Figure 1 – GEONETCAST

3. THE SIGMACAST

The SIGMACast (Figure 2) is a web application for organize and manipulate the repository and it allow viewing and analysis of remote sensing products from the atmosphere. The application makes use of Geographic Information System (GIS) technologies and it allows analysis and publication of spatial data, vector and dynamic applications maps.

The SIGMACast still has several features, including manipulation of raster and vector files, calculation of distance between points, possibility of crop in a specific region with several layers, possibility of handling various file formats (e.g. bufr, netcdf, hdf). The application was developed using technologies like Java, MongoDB database with geo-referencing resources, Apache Tomcat as the application server, GeoServer as map server, and OpenLayers for handling layers. Another possibility is the access products via Web Map Service (WMS) or Web Services.

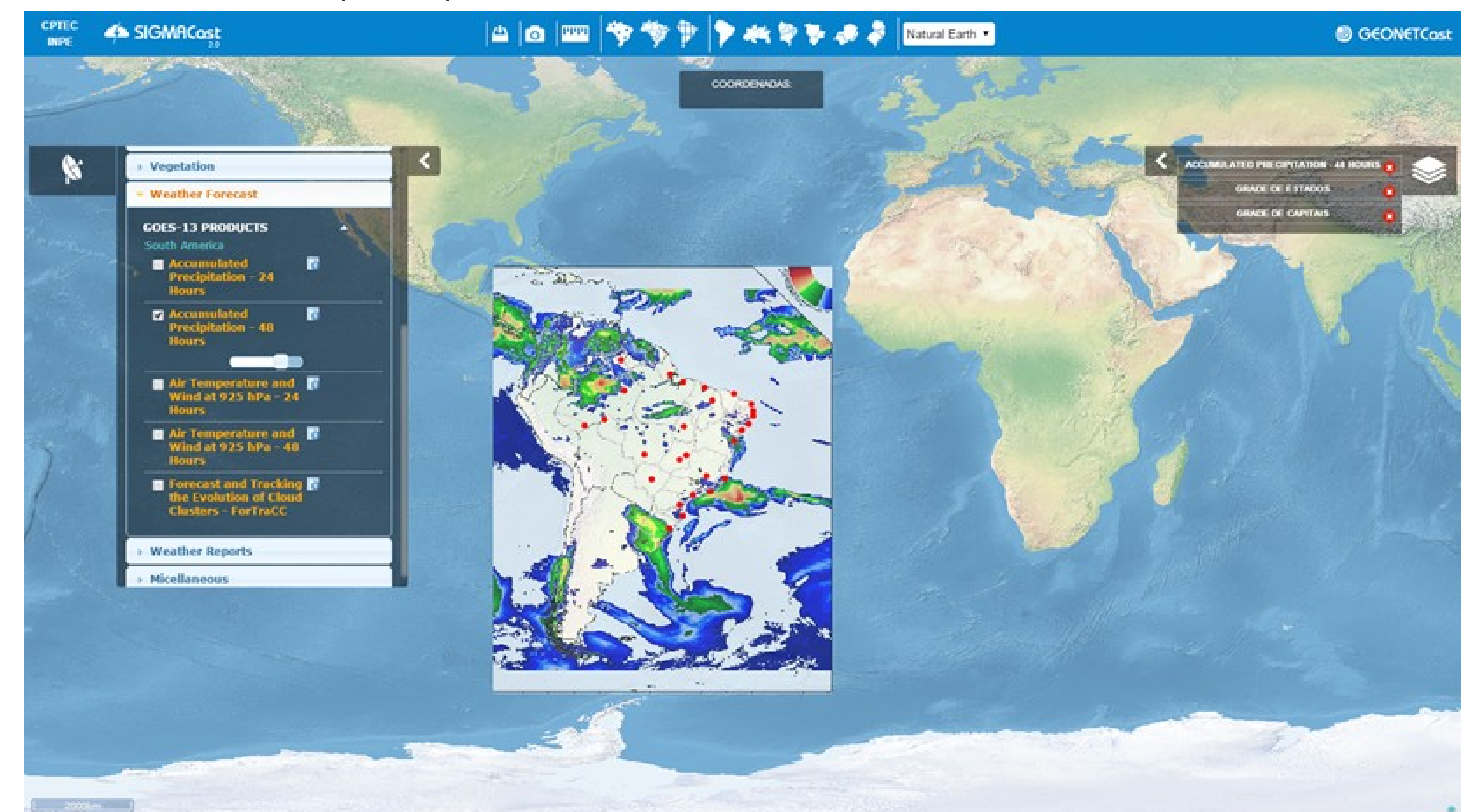


Figure 2 – SIGMACAST

4. CONCLUSION

This application becomes an important nowcasting tool, available for institutions and for the entire community of researchers and environmental data and satellite images users, and particularly in monitoring, detecting and preventing climate events.

5. REFERENCES

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