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SPACE WEATHER MONITORING AND FORECASTING IN SOUTH AMERICA: PRODUCTS FROM THE USER REQUESTS TO THE DEVELOPMENT OF REGIONAL MAGNETIC INDICES AND GNSS VERTICAL ERROR MAPS

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On August 2007 the National Institute for Space Research started a task force to develop and operate a space weather program, which is known by the acronym Embrace that stands for the Portuguese statement “Estudo e Monitoramento Brasileiro de Clima Espacial” Program (Brazilian Space Weather Study and Monitoring program). The main purpose of the Embrace Program is to monitor the space climate and weather from sun, interplanetary space, magnetosphere and ionosphere-atmosphere, and to provide useful information to space related communities, technological, industrial and academic areas. Since then we have been visiting several different space weather customers and we have hosted two workshops of Brazilian space weather users at the Embrace facilities. From the inputs and requests collected from the users the Embrace Program decided to monitor several physical parameters of the sun-earth environment through a large ground base network of scientific sensors and under collaboration with space weather centers partners. Most of these physical parameters are daily published on the Brazilian space weather program web portal, related to the entire network sensors available. A comprehensive data bank and an interface layer are under development to allow an easy and

direct access to the useful information. Nowadays, the users will count on products derived from a GNSS monitor network that covers most of the South American territory; a digisonde network that monitors the ionospheric profiles in two equatorial sites and in one low latitude site; several solar radio telescopes to monitor solar activity, and a magnetometer network, besides a global ionospheric physical model. Regarding outreach, we publish a daily bulletin in Portuguese with the status of the space weather environment on the Sun, in the Interplanetary Medium and close to the Earth. Since December 2011, all these activities are carried out at the Embrace Headquarter, a building located at the INPE's main campus. Recently, we have release brand new products, among them, some regional magnetic indices and the GNSS vertical error map over South America.

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