

COPUOS SCIENTIFIC AND TECHNICAL SUBCOMMITTEE: 2023
SIXTIETH SESSION (9 FEBRUARY 2023)
BRAZIL, ITEM 10 – “SPACE WEATHER”

MISTER CHAIR, DISTINGUISHED DELEGATES

GOOD MORNING/AFTERNOON.

The Brazilian National Institute for Space Research (INPE), an institution of the Ministry of Science, Technology and Innovation of Brazil, recognizes that, in the near future, it is likely that the problems created by space weather phenomena, which today already affect the efficiency of socioeconomic sectors, will be large enough with potential to affect the planet with high value in financial losses, in addition to a long period recovery. This is an international concern expressed in the formulation of the Guidelines for the Long-Term Sustainability of Outer Space Activities (LTS), in particular B.6 and B.7 (and the Thematic Priority 4: International Framework for Space Weather Services for UNISPACE+50).

Since 2008, INPE holds the EMBRACE program, of the first Regional Warning Centre, that has a goal for the coming years of deepening research and its use in the protection of the country's technological infrastructure and of improvements in global coordination, in line with the discussions of specialists from that institution in the group of specialists ("Expert Group on Space Weather – EGSW") of the “United Nations Committee on the Peaceful Uses of Outer Space – COPUOS”.

In this sense, a goal was proposed to promote cooperation with other centers in the area of space weather in the Strategic Plan of INPE for the period of 2022-2026:

- M-13.6: Promote interagency collaboration for the development of regional and global Space Weather Alert Centers.
 - INDICATOR/EXPECTED OUTCOME: Two (2) bilateral and one (1) multilateral partnership with space weather service provider organizations promoted.

This goal has already been achieved in 2022 with the signing of a cooperation agreement to form a league (All4Space) for the cooperation of four institutions in Latin America (Argentina, Brazil, Chile and Mexico).

In terms of bilateral cooperation, INPE established in 2010 a cooperation with the National Space Science Center, an Institution of the Chinese Academy of Science, and created under the auspicious of this cooperation a Joint Laboratory for Space Weather which is celebrating its 10th Anniversary in 2024.

Recently, focusing also in bilateral cooperation within the region, INPE visited three Universities in Argentine that had participated with INPE in the space weather effort to shield the society.

At the Federal University of Tucumán, INPE discussed the possibility of using ionogram analysis system developed by them at INPE. The group of researchers at Tucuman showed interest in participating in the Space Weather analysis discussions held weekly at EMBRACE Program of INPE in virtual meetings.

At the University of La Plata, INPE negotiated the use of the Total Electron Content map production system of the ionosphere developed by La Plata's group (the current best technique) at the EMBRACE website. La Plata group also shows interest in participating in the Space Weather analysis discussions held at EMBRACE Program.

At the University of Buenos Aires, INPE discussed the extension of the agreement already existent for the exchange of data and methods for the space weather service seeking to encourage the possibility of exchanging young researchers between the two organizations. Also, UBA shown interest in participating, with their group of researchers, in the discussions and analyzes of Space Weather carried out weekly at INPE.

In accordance with the actions taken by INPE to promote this goal, we still had three deliveries:

- Participation of the head of INPE's Space Weather Division in the discussion forums for the construction of the international coordination proposal between COSPAR-WMO-ISES, as one the co-chairs of the COSPAR International Panel (PSW) and the co-leadership of the discussion group "International Space Weather Landscape";
- Technical training of a group of officers from the Integrated Aeronautical Meteorology Center (CIMAER) with procedures for operating space meteorology (designation of the space weather area for aviation) in civil aviation;
- Completion of the satellite for the binational SPORT mission (NASA/ITA/INPE) for research on space weather and global and Brazilian ionosphere disturbances.

At last, inside WMO Education and Training Programme (ETR) for developing the competency framework, INPE, as a Center of Excellence in meteorology (CoE), proposed a contribution in 2023 with WMO-CGMS Virtual Laboratory (VLAB) with training classes from Space Weather experts in terms of fulfil competency requirements needed for Space Weather forecasters, similar the training of the official in Brazil, as mentioned.

Thank you.