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THE WORLD DATA CENTRE (WDC) FOR SOLAR-TERRESTRIAL SCIENCE (STS) OF AUSTRALIA

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In 2014 the former IPS Radio and Space Services was restructured into Space Weather Services (SWS) and Space Weather Networks (SWN). The World Data Centre (WDC) for Solar-Terrestrial Science (STS) is a part of and operated by the Australian Bureau of Meteorology's SWS. The WDC for STS operates in Sydney, New South Wales, Australia.

The Australian Bureau of Meteorology's SWS is the Australian national space weather agency. It was established in 1947 and originally called the Ionospheric Prediction Services (IPS). It operates the Australian Space Forecast Centre (ASFC), and is a Regional Warning Centre (RWC) for space weather under International Space Environment Service (ISES). Around 1998 IPS was invited to host a World Data Centre based on its existing data holdings. In 2008, the World Data Centre system was reformed and a new ICSU World Data System (WDS) was established in 2009. The SWS (IPS) remains a member of ICSU WDS.

The SWS WDC for STS has an extensive collection of solar-terrestrial physics data obtained from field instruments in Antarctica, islands surrounding Australia, mainland of Australia and New Zealand, the oldest data being ionospheric recordings dating back to the 1930s. Archived datasets include raw and clean ionogram data, scaled hourly ionospheric data, monthly ionospheric medians of foF2 and M(3000)F2 data, magnetometer data, riometer data, cosmic ray data, solar images, solar radio spectrograph data, solar radio flux data, ionospheric scintillation data, imaging riometer data and FEDSAT data. Those data collected in the Australasian and Antarctic region flow into the SWS WDC at Sydney, mostly in near real time. These data provide a basis for developing space weather reports for Australasia and Antarctica. The majority of the archived data are available to domestic and international clients online.

In addition to the data obtained by SWS in the Australasian area and Antarctica, the WDC for STS also archives data from other countries and organisations, such as China, Germany, Japan, Pakistan, NGDC of NOAA, Physical Oceanography Distributed Active Archive Centre (PODAAC), Jet Propulsion Laboratory (JPL) of NASA, and SuperDARN. Most of these archived data are available by request.

The SWS adopt and implement an open data policy. The main points of the policy include:

- Preliminary SWS data will be released in real time or as soon as practicable.
- Where the data are not verified for quality, there must be a warning associated with the data.
- Data are provided in a standard format if one exists or in an easily accessible format. The format and general information about the dataset are to be available on the SWS website.
- SWS WDC is operated for the benefit of the domestic and international scientific community.
- SWS WDC provides data to scientists in any country free of charge, on an exchange basis, or at the cost of copying and sending the requested data.

Data sharing is the practice of making data used for scholarly research available to other investigators. In the past decades, SWS has established data sharing relationships with a few peer organizations. SWS have exchanged scaled ionospheric data with the China Research Institute of Radiowave Propagation (CRIRP) for over 30 years. SWS have been providing space weather data to the Space Physics Interactive Data Resource (SPIDR) since its establishment. Since 2014, SWS have also provided cosmic ray data to the Neutron Monitor Database (NMDB) with python scripts. The NMDB is located in the Kiel University, Germany.

This presentation will introduce the SWS, the datasets of solar-terrestrial physics archived within the WDC for STS, the open data policy and data sharing.