

SANSA

SPACE SCIENCE

Space Weather Products & Services

Since the early nineties the Sun and its daily activity has had a significant impact on humanity and in particular on modern technology. Space weather as a concept and as a new research area was born. Today it is a hot topic around the world and has become increasingly important to society, industry and national security.

The impact of space weather socially and economically requires that we are aware of and ideally able to pre-empt the consequences of space weather events, by means of efficient warning and prediction systems.

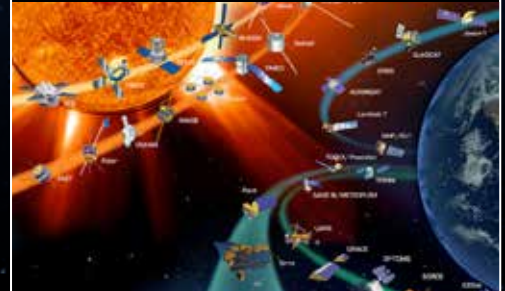
An extreme space weather event or solar superstorm is a potentially high-impact, low-probability natural hazard. Due to a growing awareness of the potential consequences of extreme space weather, governments in numerous countries now consider this as an element of national risk assessment.

Superstorms may have detrimental effects to the power grid, satellites, avionics, and aircraft over polar regions, High Frequency (HF) radio communication, mobile telephones and GPS systems, to name a few. Solar superstorms have consequently been identified as a risk to the world economy and society.

Did you know?

FACT

Space weather may impact technological systems such as satellites, power grids, avionics and radio communication.



learn more at www.sansa.org.za

PROTECTING TECHNOLOGY ON EARTH AND IN SPACE

Did you know?

FACT

SANSA Space Weather Centre is 1 of 17 international space weather warning centres and is the only one in Africa.



learn more at www.sansa.org.za

What We Do

The South African National Space Agency (SANSA) is host to the only Space Weather Regional Warning Centre in Africa and operates as part of the International Space Environment Service (ISES). SANSA's Space Weather Centre provides an important service to the nation by monitoring the Sun and its activity, providing space weather forecasts, warnings, alerts, and environmental data on space weather conditions to government and private-industry users in Africa.

- Real-time forecasting and monitoring of space weather to reduce and mitigate the risk of the impact of space weather on technology, critical infrastructure and human activities.
- Provide tailored information/data for space weather-related requirements, such as HF propagation forecasts, to clients.
- Facilitate communication and service co-ordination regarding space weather, particularly during periods of enhanced solar activity and in the event of extreme space weather activity.
- Promote understanding of space weather and its effects among users, researchers, the media and the general public.

What we offer

Space weather products and services are required primarily for communication and navigation systems, in the defence, aeronautics, navigation and communication sectors.

The Space Weather Centre offers products and services to both the general public and clients.

Client Support

SANSA provides support by means of the provision of space weather information and training. The purpose of this information is its use to protect a wide range of systems and technologies that may be affected by space weather. These include:

- HF radio systems, such as communication and surveillance systems
- Geophysical exploration, power systems and long pipelines
- Satellite, spacecraft and airline operations



science
& technology

Department:
Science and Technology
REPUBLIC OF SOUTH AFRICA

In Service of Humanity



PRODUCTS & SERVICES

Space Weather Training Courses



SANSA Space Weather Centre offers training courses in space weather, its impact on technological systems and HF radio propagation as well as on how to generate your own frequency predictions.

Courses are tailored to suit client requirements and are hosted at SANSA in Hermanus or at a venue convenient to the client.

The training provides a basic understanding of space weather, its importance and how to mitigate space weather effects.

Solar and Geomagnetic Activity Indices

SANSA produces daily and weekly Smoothed Sunspot Numbers (SSN) and Effective Geomagnetic Activity Index (Qe) data for a period of 103-days. SSN and Qe are indices required as inputs to HF propagation software. These indices are required to generate their own frequency predictions.

-  3-day prediction of SSN and Qe
-  103-day and 7-day average predictions

Daily Space Weather Bulletin

SANSA space weather forecasters generate a daily forecast of space weather conditions every working day.






**SANSA IS THE LEADING EXPERT
IN SPACE WEATHER IN AFRICA
AND PROVIDES TAILORED
SOLUTIONS FOR SPECIFIC
SPACE WEATHER
REQUIREMENTS.**

High Frequency Predictions



The Space Weather Centre provides daily and weekly High Frequency (HF) prediction graphs for different signal paths. Special frequency predictions are also available on request up to two months in advance.

Plots of Signal-to Noise Ratio (SNR), Take-off Angle and Maximum Usable Frequency (MUF) vs. Time are available.

-  Weekly and daily predictions for general paths
-  Specific daily predictions
-  Special frequency predictions

T-Index Predictions

SANSA produces daily T-indices and weekly averages for a period of 55-days. The T-index is the ionospheric index that indicates the highest frequencies that will be reflected from regions in the ionosphere. This index is an input parameter of HF propagation software.

-  3-day T-Indices
-  55-day T-Indices and weekly averages





Space Weather Warnings and Alerts

SANSA Space Weather Centre provides alerts and warnings about the impact of space weather events such as:

- Coronal hole high-speed solar wind streams
- Coronal Mass Ejections (CMEs)
- X-ray solar flares
- Geomagnetic storms
- Ionospheric storms
- HF fadeout



Space Weather Communication Services

-  Publicly available on the SANSA Space Weather Website
-  Available on the SANSA Space Weather Website to clients only
-  Available via Email to clients only
-  Available via SMS to clients only

To find out more about SANSA Space Weather products and services
or to discuss your specific requirements please contact us.

Email: spaceweather@sansa.org.za | Tel: +27 (0)28 312 1196 ext 2764 | Website: <http://spaceweather.sansa.org.za>
SANSA Space Science, Hospital Road, Hermanus 7200, South Africa