

INTERNATIONAL COLLOQUIUM ON EQUATORIAL AND LOW LATITUDE IONOSPHERE

<https://carnasrda.com/icelli/>



Pierre Cilliers, South African National Space Agency, Hermanus

Highlights of the Colloquium



- Excellent breadth and depth of coverage of the proposed topic
- High quality of the presentations – as evidenced from the appreciation expressed in the chats
- Punctuality of keeping to the programme
- Flexibility of dealing with mishaps due to internet troubles
- Excellent response to questions from the participants
- Kind interaction with presenters and participants
- Prompt responses to requests and questions posted in the chats
- Strong focus on training and equipping young researchers in Space Science
- Many invitations and opportunities for collaboration!



Space Weather impacts on Geodesy

Pierre Cilliers, PrEng, PhD

Stefan Lotz, PhD

South African National Space Agency (SANSA), Hermanus

IAG Symposium Commission 4: Positioning and Applications
5-8 September 2022

Welcome to Space Weather at SANSA

SANSA Space Science is host to the only Space Weather Regional Warning Centre in Africa which operates as part of the International Space Environment Service (ISES). The Space Weather Centre provides an important service to the nation by monitoring the sun and its activity to provide information, early warnings and forecasts on space weather conditions. The space weather products and services are required primarily for communication and navigation systems, in the defence, aeronautics, navigation and communication sectors.

Current Conditions

2022-09-23 08:13

Solar wind speed:	N/A km/s
IMF Bz:	-6.4 nT
Hermanus T-index:	47
Hermanus K-index:	3
Hermanus hmF2:	232.968 km
Hermanus foF2:	7.500 MHz
Dcx Index:	12.3 nT



SANDIMS is the repository of all Geomagnetic, Ionospheric and Magnetospheric data gathered from SANSA Space Science's instrumentation network.

Instrumentation Network

Instruments in the network are grouped into the above three classes, and further sub-classed by **Instrument Type**, each of which is represented by one or more **Instrument Models**. Specific instruments so classified are the **Field Instruments** of the network, which extends throughout **South Africa** and **Namibia**, as well as **Gough** and **Marion** islands in the southern oceans and the **SANAE IV** research base in Antarctica. The SANDIMS Metadata Model includes GPS location, manufacturer and Principal Investigator information, as well as technical parameters of the instruments (most importantly sampling interval) and their

antennae. Metadata associated with a data bundle may be exported and shared using NASA's DIF v10.0 interchange format.

Search and Download Facility

The metadata are searchable by instrument site, type and sampling interval. Datasets are archived per Field Instrument, File Type and Processing Level and may be filtered by date ranges. Data selected for download is compressed and bundled and made available via an FTP site with a temporary login.



Instrumentation in Africa

Current Partners:



Zimbabwe

Zimbabwe National Geospatial and Space Agency (ZINGSA)



Namibia

Ministry of Mines and Energy (MME)



Nigeria

University of Lagos (UNILAG)



Uganda

Busitema University (BU)



Ethiopia

Bahir Dar University



Kenya

Pwani University (PU)
Kenyan Space Agency (KSA)



South Africa

- South African National Space Agency (SANSa)
- National Geospatial Information (NGI) TRIGNET



Gabon

L'Agence Gabonaise d'Etudes et d'Observations Spatiales (AGEOS).



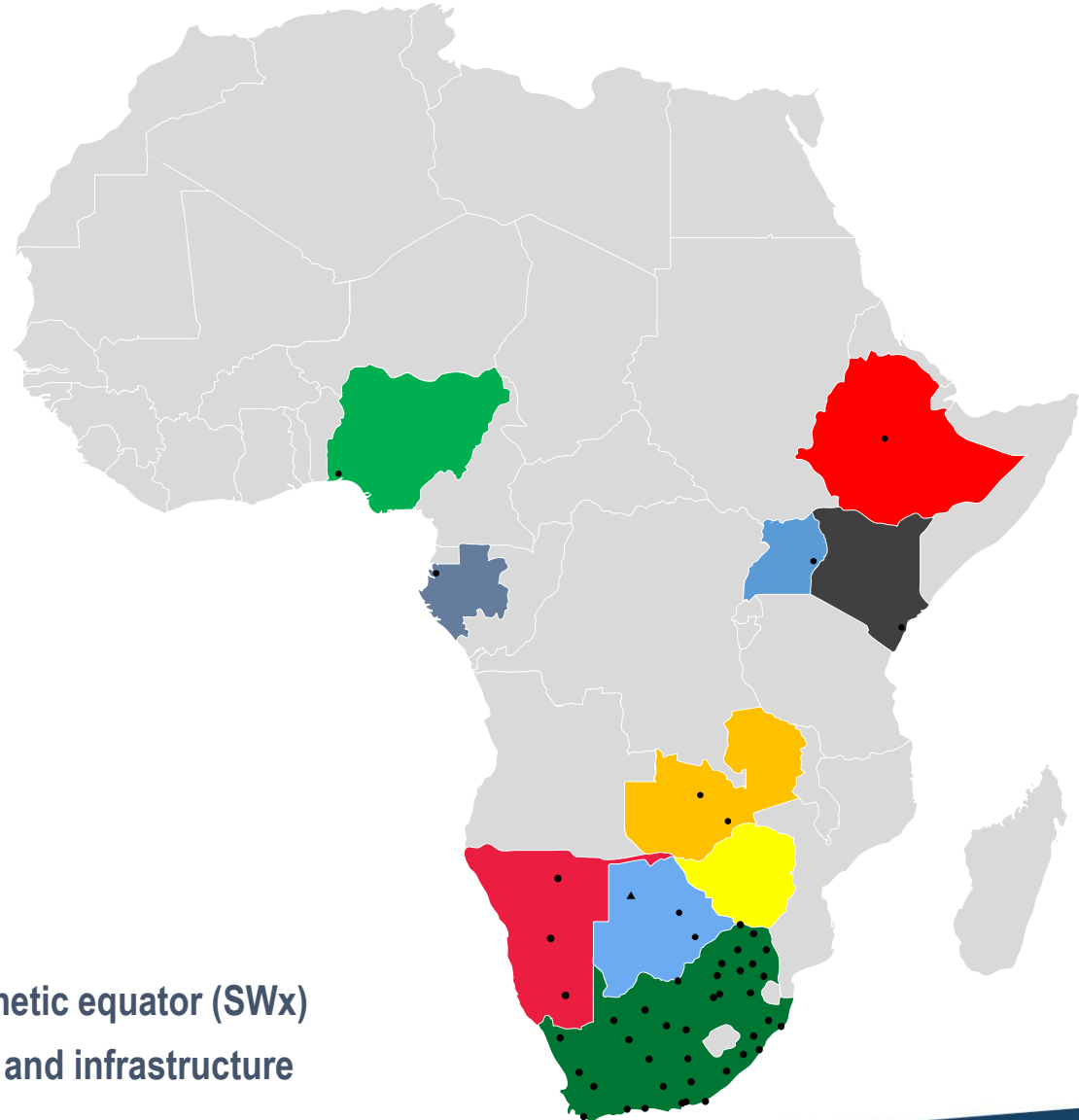
Zambia

Kwame Nkrumah University (KNU)



Botswana

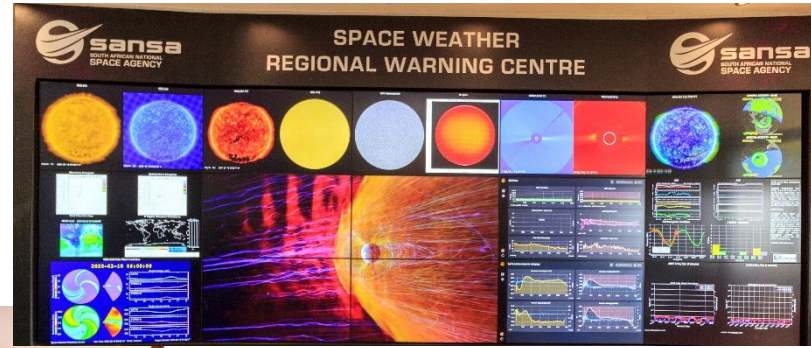
Botswana International University of Science and Technology (BIUST)



More to come!

Focus is currently on the SADC region (SBAS + SWx) and the magnetic equator (SWx)

Focus is currently on the deployment of GNSS stations as the cost and infrastructure requirements offer the best value in terms of the outputs gained.



2007



Member of ISES
(Space Weather
Community)

2010



Space Weather Regional
Warning Centre for Africa

2018



Space Weather Regional
Warning Centre Upgrade

2022



24/7 Operational
Space Weather
Centre



Operationalise Space Weather

Provide 24/7 operational space weather services to the African region by November 2022

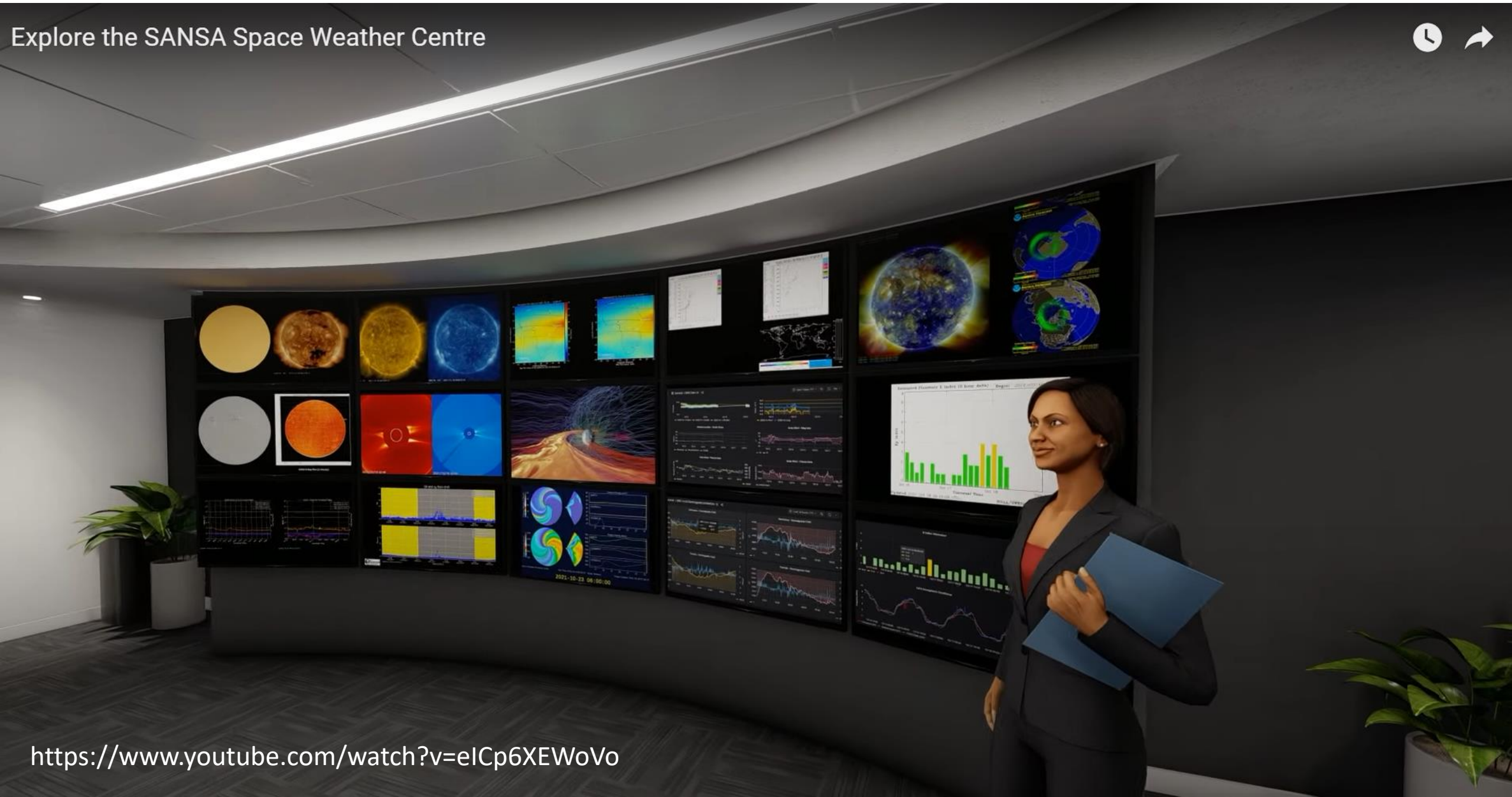
- ✓ develop capability
- ✓ derive economic benefit
- ✓ provide a national platform
- ✓ ensure credibility
- ✓ fill the expertise gap
- ✓ provide quality services
- ✓ contribute to the knowledge economy
- ✓ create opportunities & partnerships
- ✓ increase the value proposition of space science

Explore the SANSA Space Weather Centre



<https://www.youtube.com/watch?v=eICp6XEWoVo>

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Thank you for your kind attention



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