



OPERA
OCEAN PREDICTION
ENHANCEMENT IN
REGIONS OF AFRICA



Welcome address

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Managing Director

South African Environmental Observation Network (SAEON)



Funded by
the European Union



UN DECADE
COLLABORATIVE
CENTRE



2021
2030 United Nations Decade
of Ocean Science
for Sustainable Development



**MERCATOR
OCEAN**
INTERNATIONAL

NRF-SAEON observations from science to policy

Ocean Prediction Enhancement in Regions of Africa

SAEON Egagasini Office
08 April 2025



science & innovation

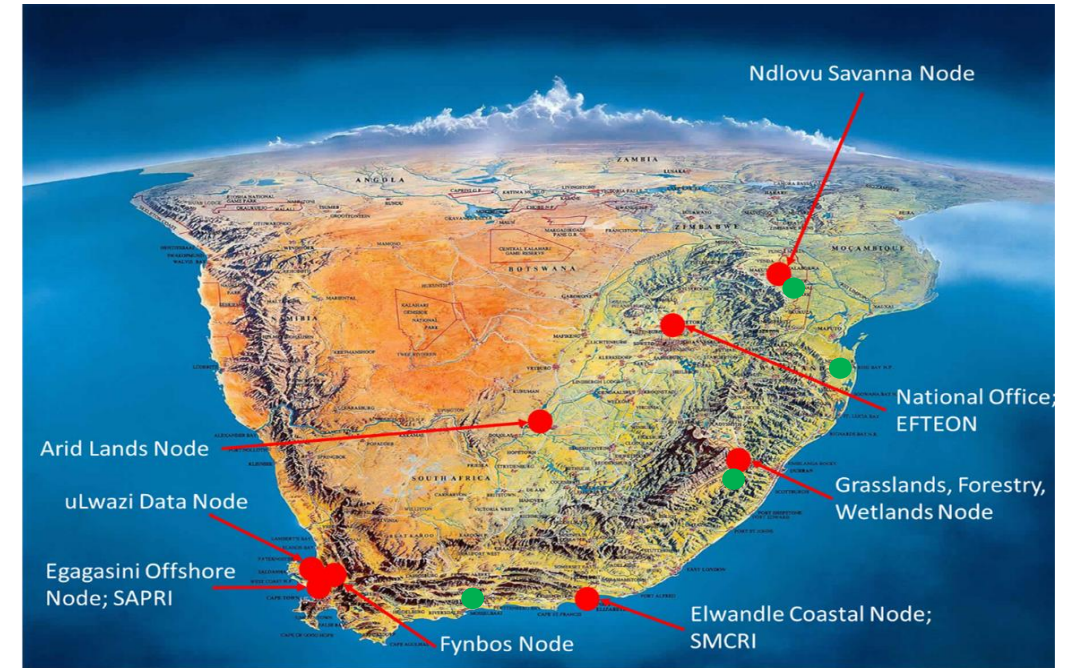
Department:
Science and Innovation
REPUBLIC OF SOUTH AFRICA

Celebrating 25 Years of Research, Innovation, Impact and Partnerships



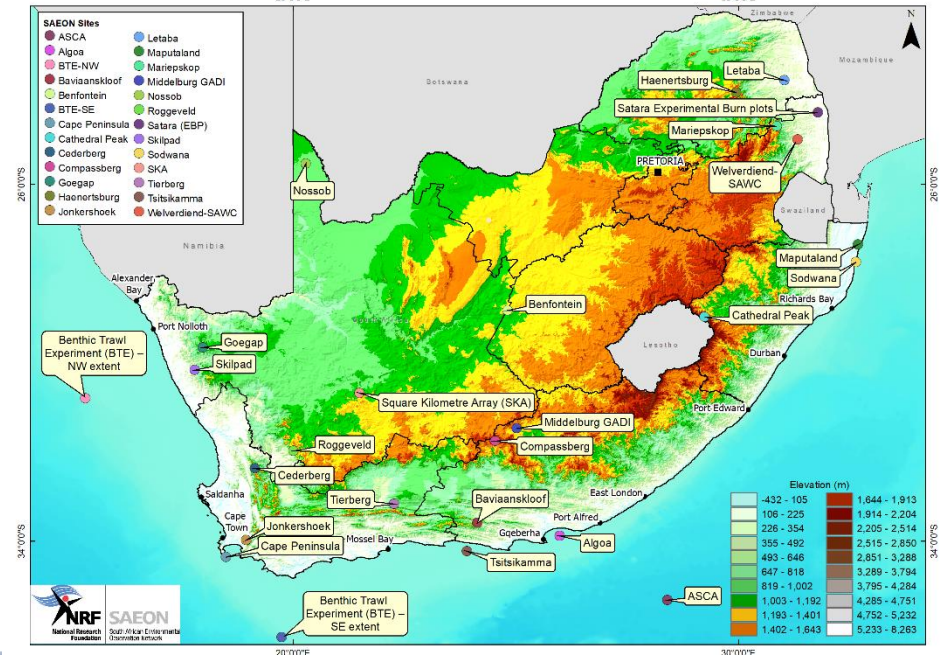
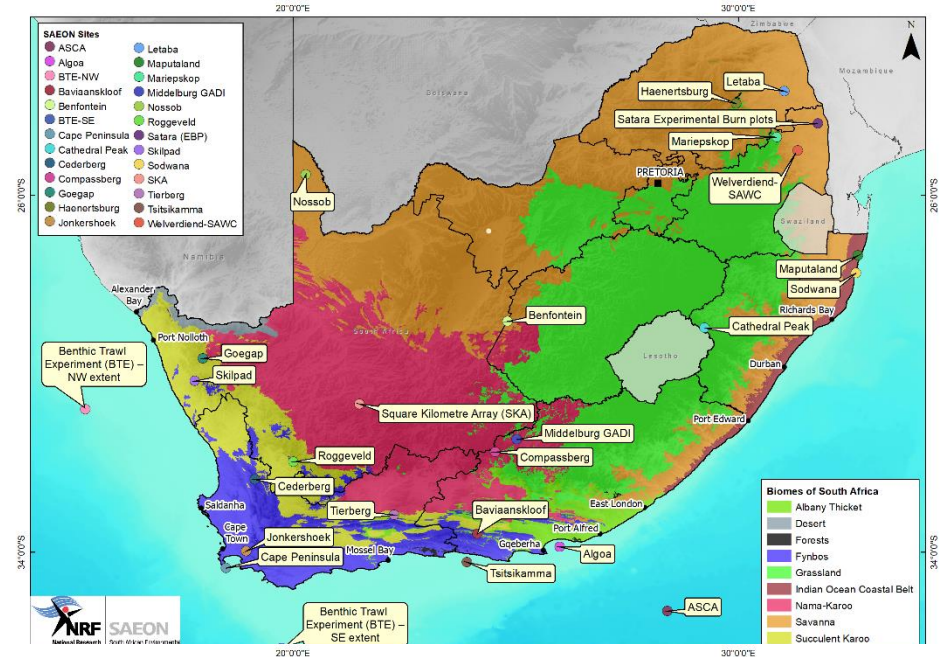
South African Environmental Observation Network offices

- Vision: World Class Environmental Platforms for a Sustainable Society
- Seven nodes & National office
- Terrestrial Sciences: Ndlovu, Grasslands, Arid-lands & Fynbos
- Marine Sciences: Elwandle & Egagasini
- uLwazi: Dedicated ICT & data node



SAEON's Landscapes

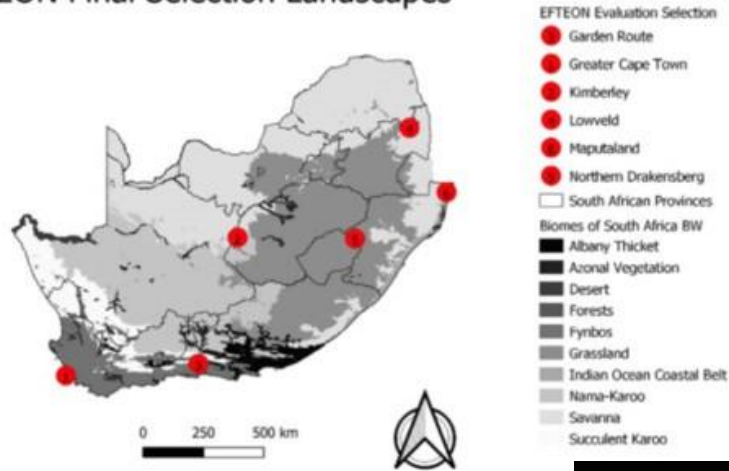
- “Localised” Country wide coverage
- Multidisciplinary and multi-scaled
- Well positioned to facilitate multi-institutional research and catalyze Global Change Science
- Living laboratories; hands on learning



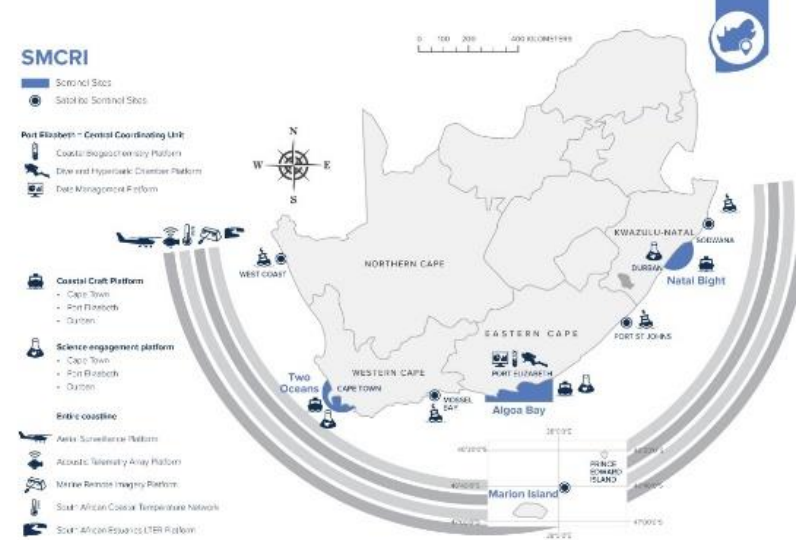
EFTEON, SMCRI and SAPRI areas of operation

The Expanded Freshwater and Terrestrial Environmental Observation Network

EFTEON Final Selection Landscapes

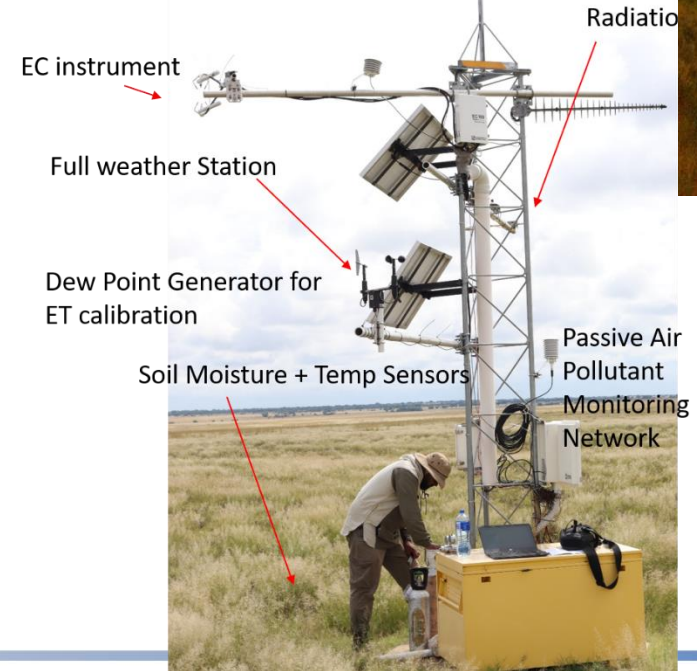
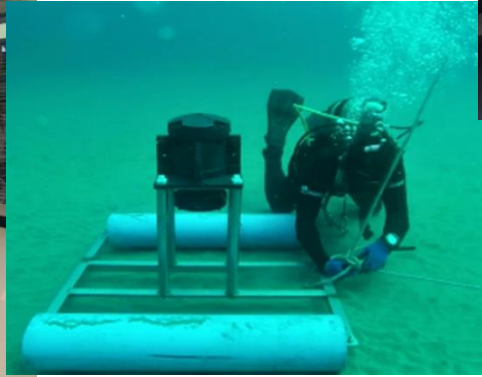


Shallow Marine and Coastal Research Infrastructure

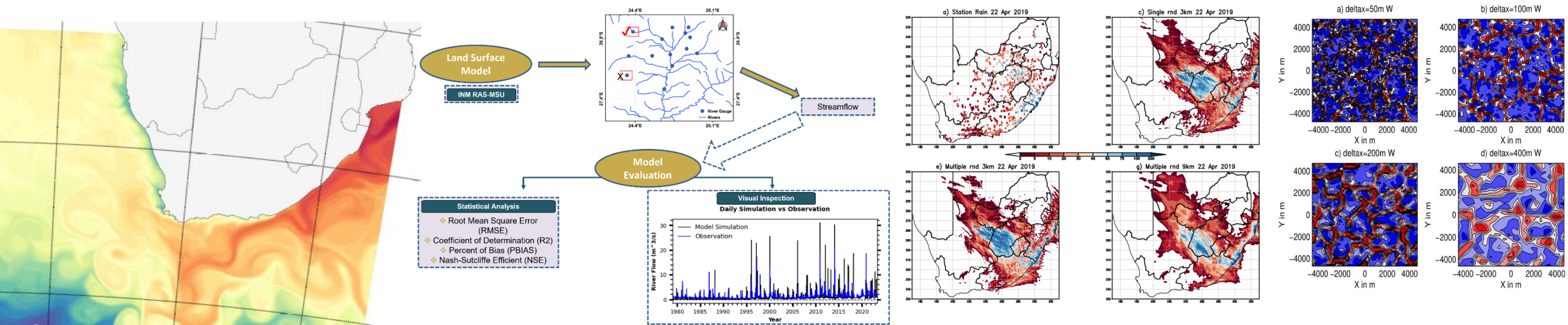


South African Polar Research Infrastructure

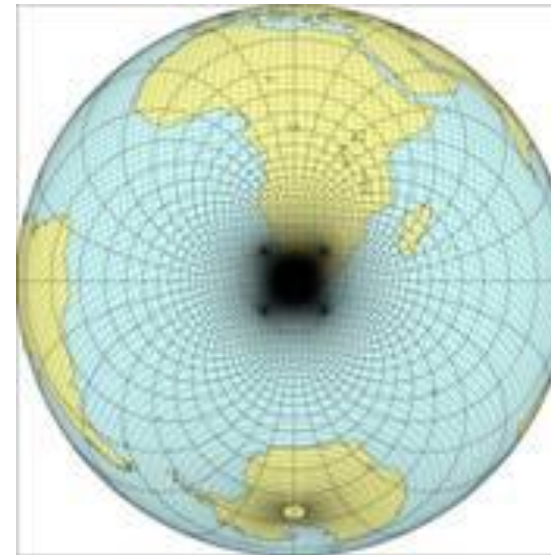
SAEON Equipment



Use SAEON Observations to improve models



Run models with high resolution on the SAEON landscapes
 Use landscapes to inform the development/improvement of models

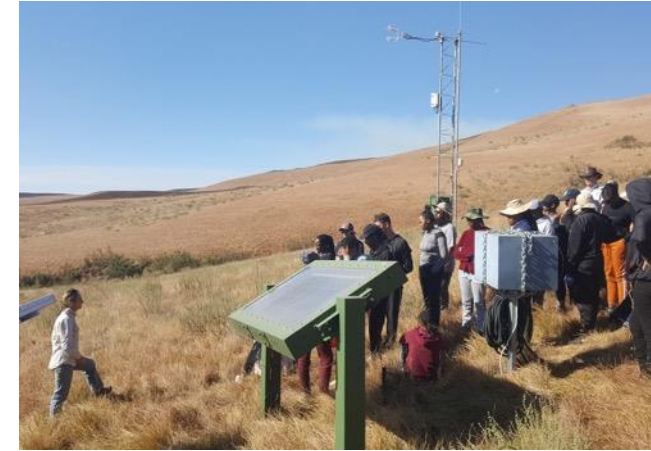


$$\frac{DV}{Dt} = -\frac{1}{\rho} \nabla p - f k \times V - g k + F$$

$$\frac{D\rho}{Dt} = -\rho \nabla \cdot V$$

$$c_p \frac{DT}{Dt} - \alpha \frac{Dp}{Dt} = 0 \quad \frac{D}{Dt} \equiv \frac{\partial}{\partial t} + \mathbf{v} \cdot \nabla$$

SAEON and hosted RI platforms are vital “living laboratories” for in situ capacity development



Socio Ecological Systems



- Engaging communities regarding impacts of climate change and landuse change on their livelihoods including water security



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Celebrating 25



Concluding Remarks

- Open Data Policy – data available to inform policy development
- Policy briefs – as part of a major KPI that SAEON leads
- Data should inform model verifications and development
- Ocean Modelling Advanced at SAEON
- Capacity to be build for modelling other components of the earth system

- We welcome OPERA

Thank you

