

Africa, wildfires and climate change

UNFFS/DESA SDG Pavilion event at UNFCCC COP26

8 November 2021

Presenter: Riaan van den Dool

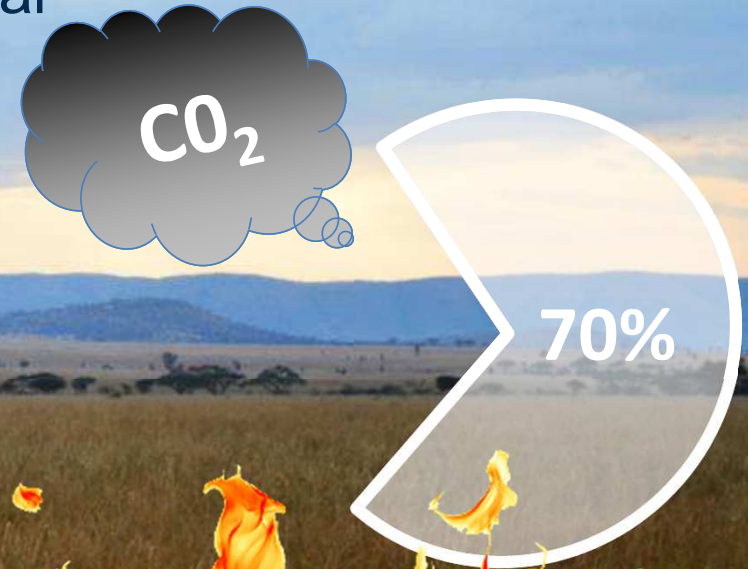
Council for Scientific and Industrial Research (CSIR)

South Africa



Africa, the fire continent

- 400 million hectares burns globally every year ¹
- 70% in savannas and grasslands ¹



¹ UN Department of Economic and Social Affairs Policy Brief No. 111
Photo credit: <https://svs.gsfc.nasa.gov/10832>

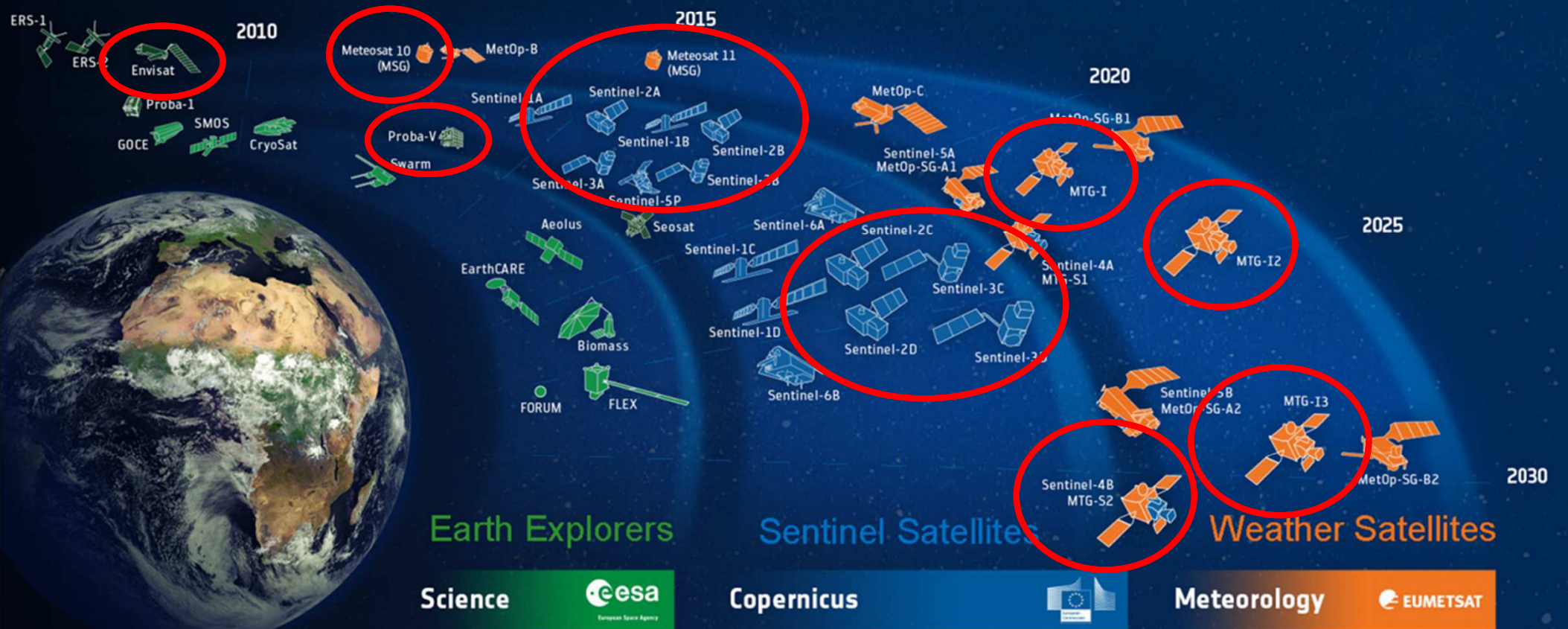
Video



<https://svs.gsfc.nasa.gov/4945>

European satellite missions

 Wildfire related



<https://doi.org/10.1186/s13717-020-00255-4>

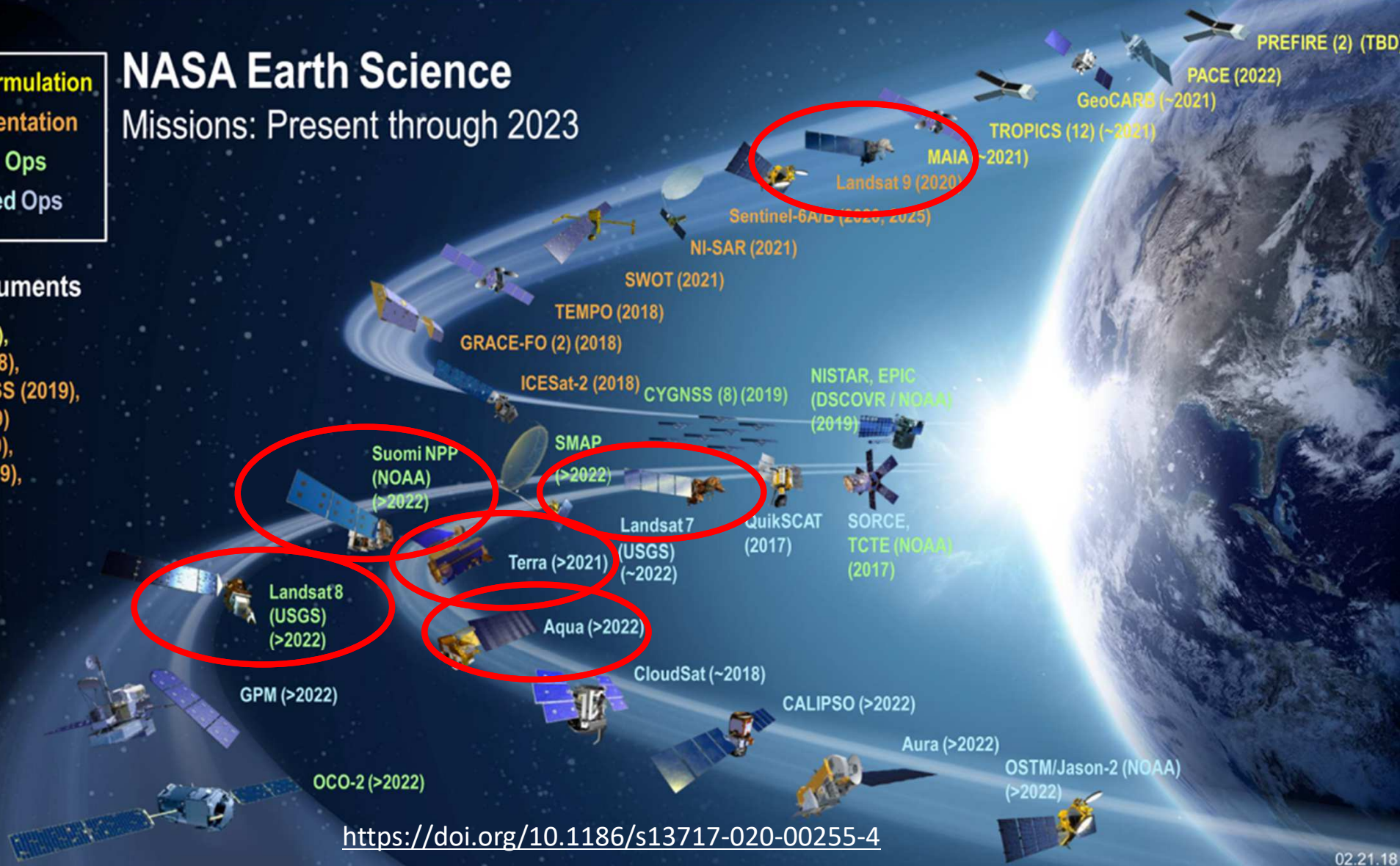
NASA Earth Science

Missions: Present through 2023

- (Pre)Formulation
- Implementation
- Primary Ops
- Extended Ops

ISS Instruments

- EMIT (2023),
- DESI (2018),
- ECOSTRESS (2019),
- GEDI (2019)
- HISUI (2019),
- OCO-3 (2019),



<https://doi.org/10.1186/s13717-020-00255-4>

CSIR's Advanced Fire Information System (AFIS)

Before a fire (prepare):

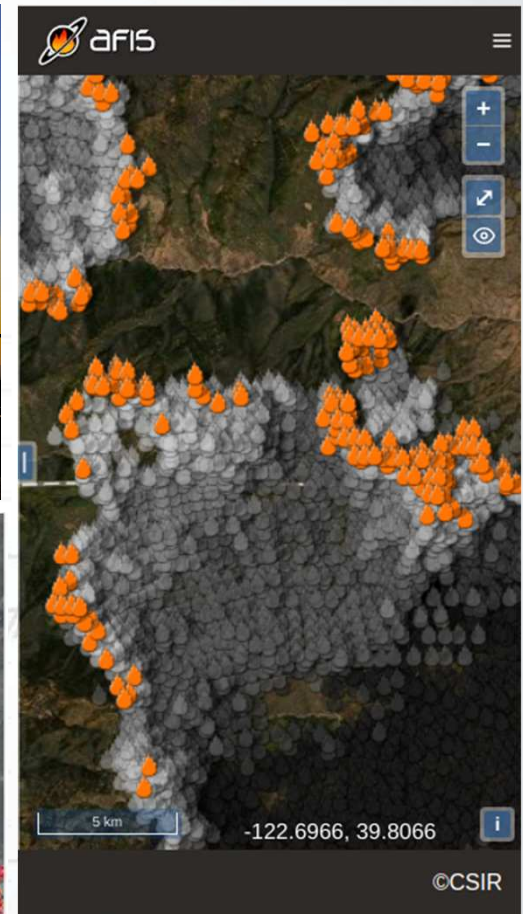
- Fire danger forecast
- Wildfire risk mapping
- Seasonal fire weather

During a fire (respond):

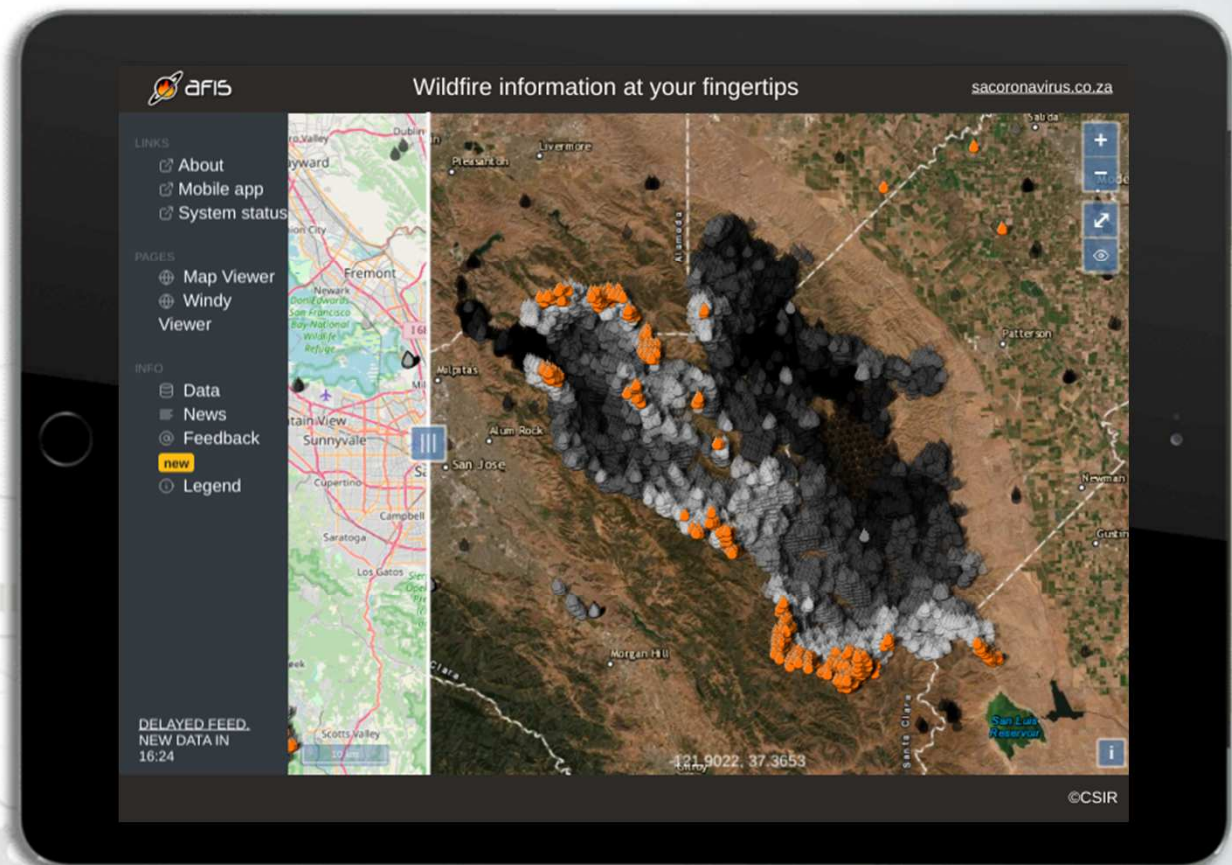
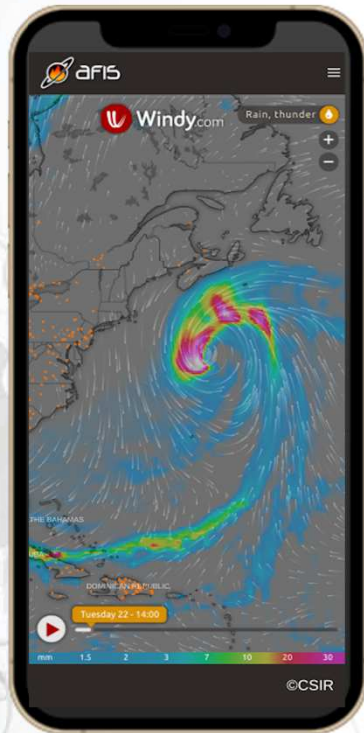
- Detect fires with satellites
- Early warning alerting
- Monitor fires in progress
- Fire spread modeling

After a fire (report):

- Burned area mapping
- Burned area statistics
- Seasonal reporting



CSIR's Advanced Fire Information System (AFIS)



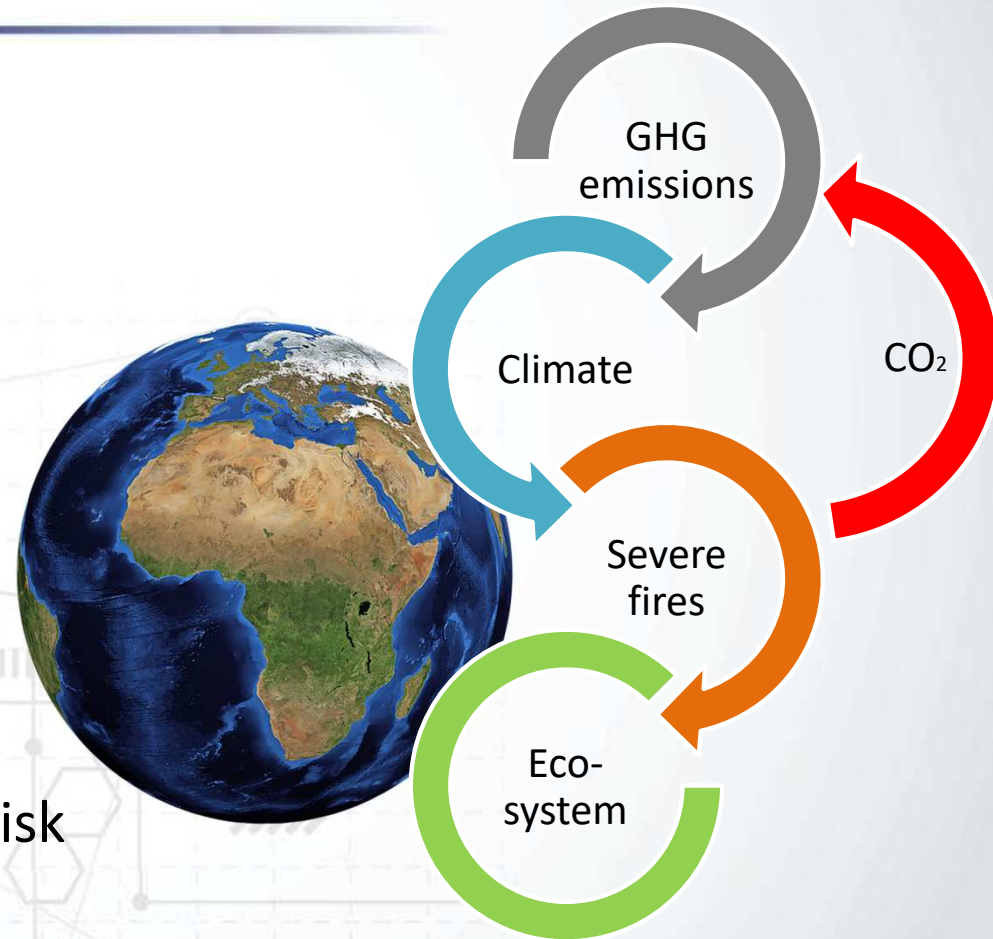
[Android: Google Play Store](#)

[iOS: Apple App Store](#)

<https://viewer.afis.co.za>

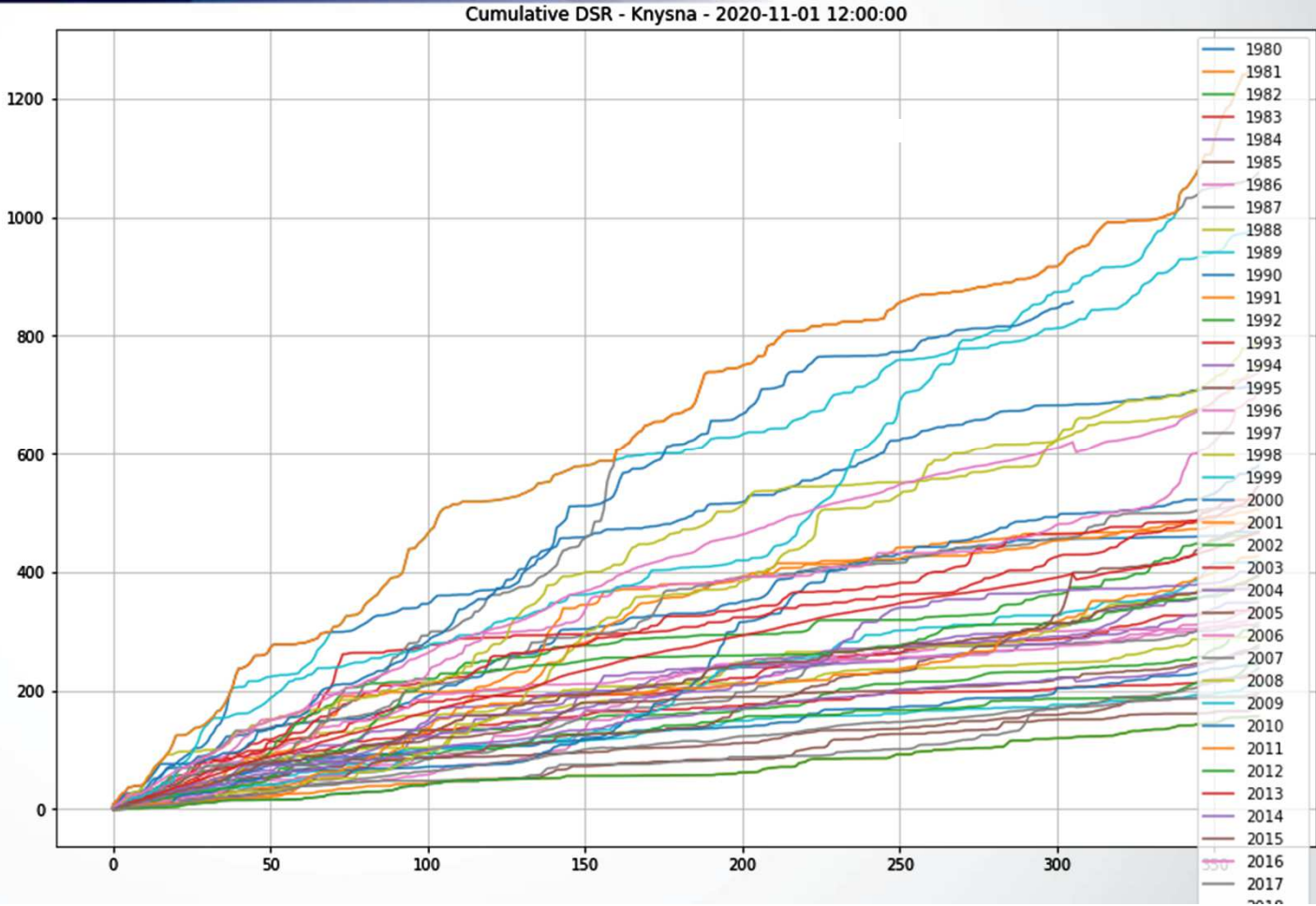
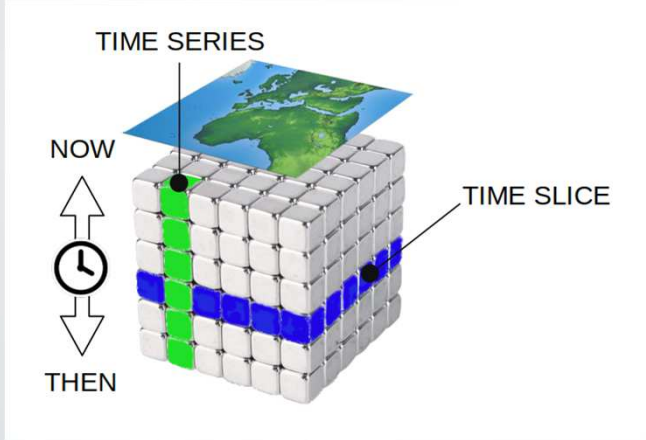
Mutual reinforcement: climate change, wildfire

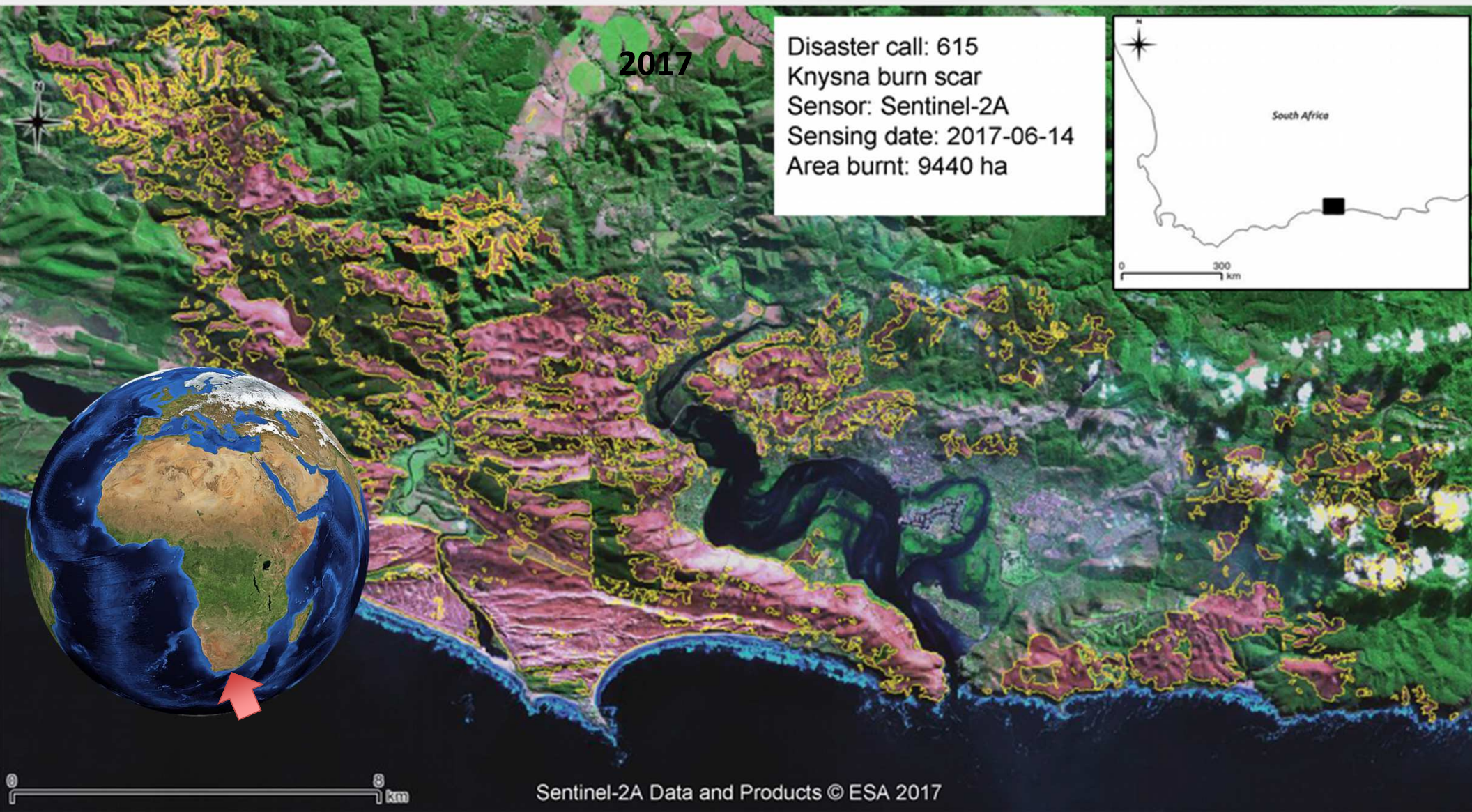
- Build up of Greenhouse Gasses
- More severe fire weather/climate
- Increased occurrence of large and more severe fires
- More Greenhouse Gasses
- Ecosystem under pressure
 - Ecosystem and human lives at risk



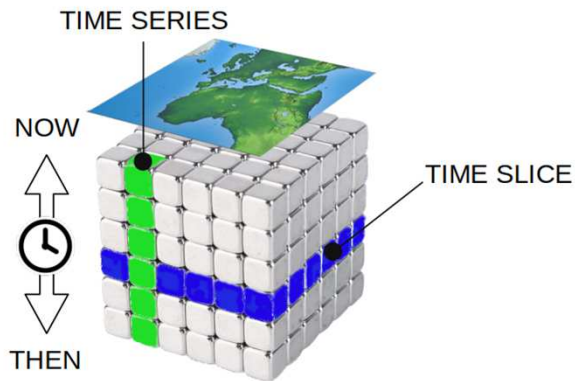
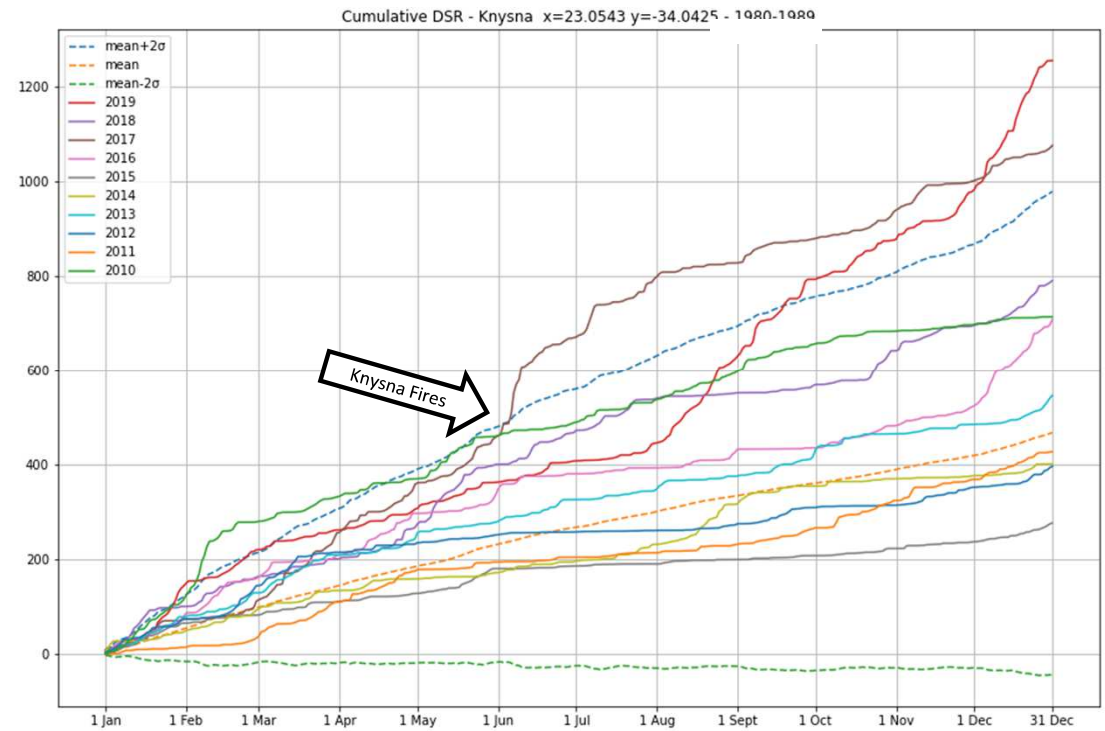
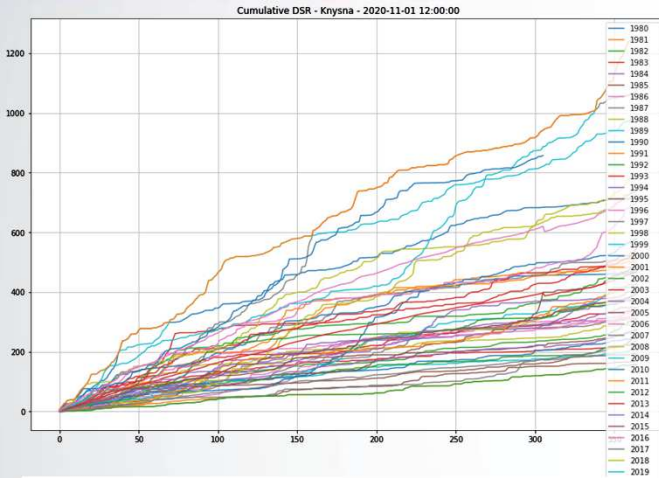
Fire Weather / Climate

Climate Data Store (CDS)
Climate data at your fingertips

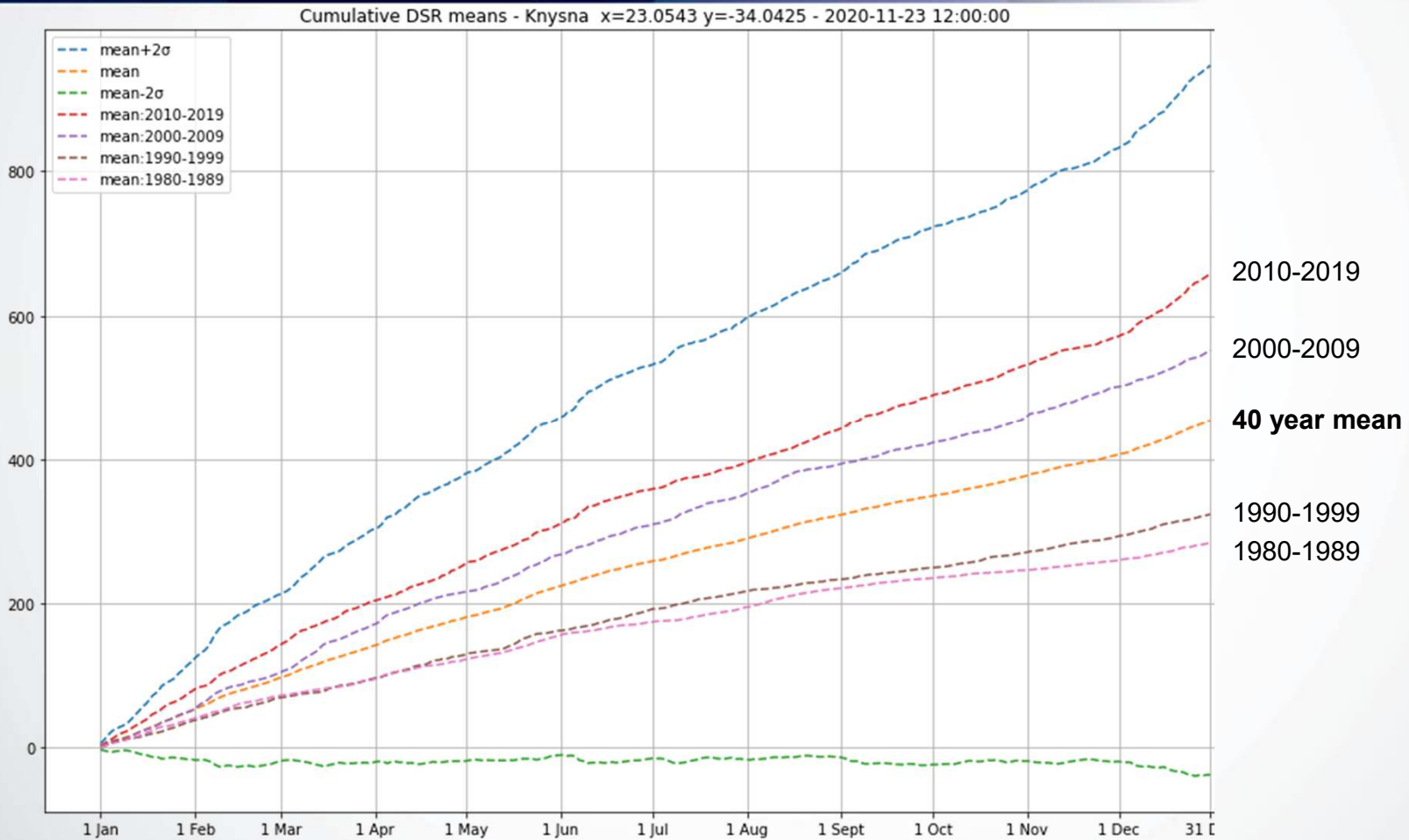




Cumulative Daily Severity Rating (cDSR)

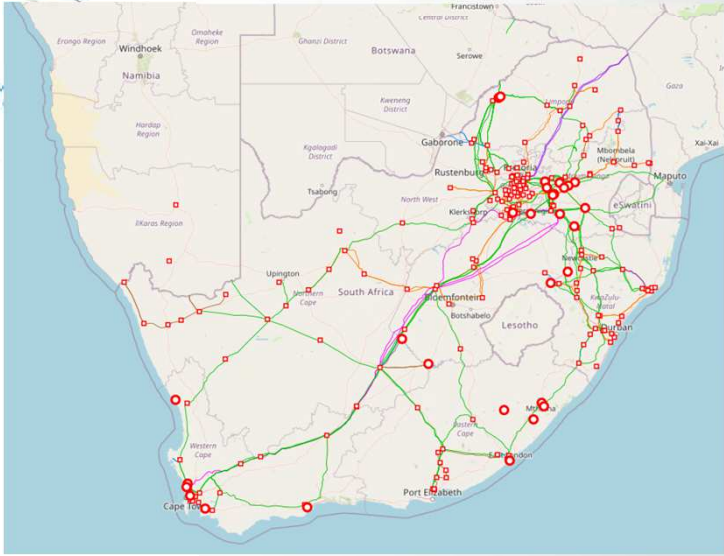
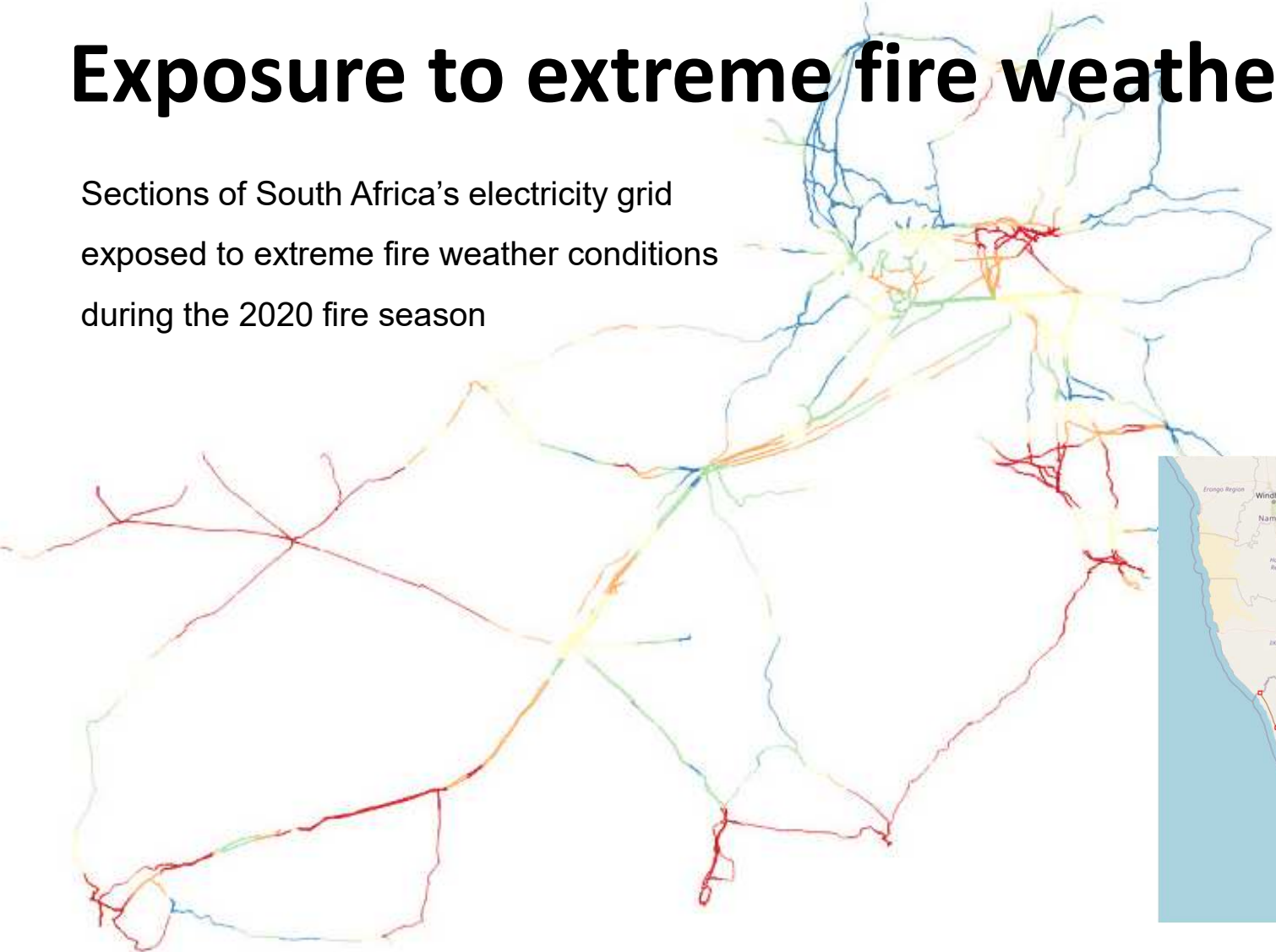


Fire Weather / Climate



Exposure to extreme fire weather

Sections of South Africa's electricity grid exposed to extreme fire weather conditions during the 2020 fire season



Measures to curb wildfire impact

- Comprehensive strategies for wildfire management
- Applying scientific and sound traditional knowledge
- Promoting a synergetic agenda for climate and forests
- Taking effective action at national level
- Involving people and stakeholders
- International collaboration

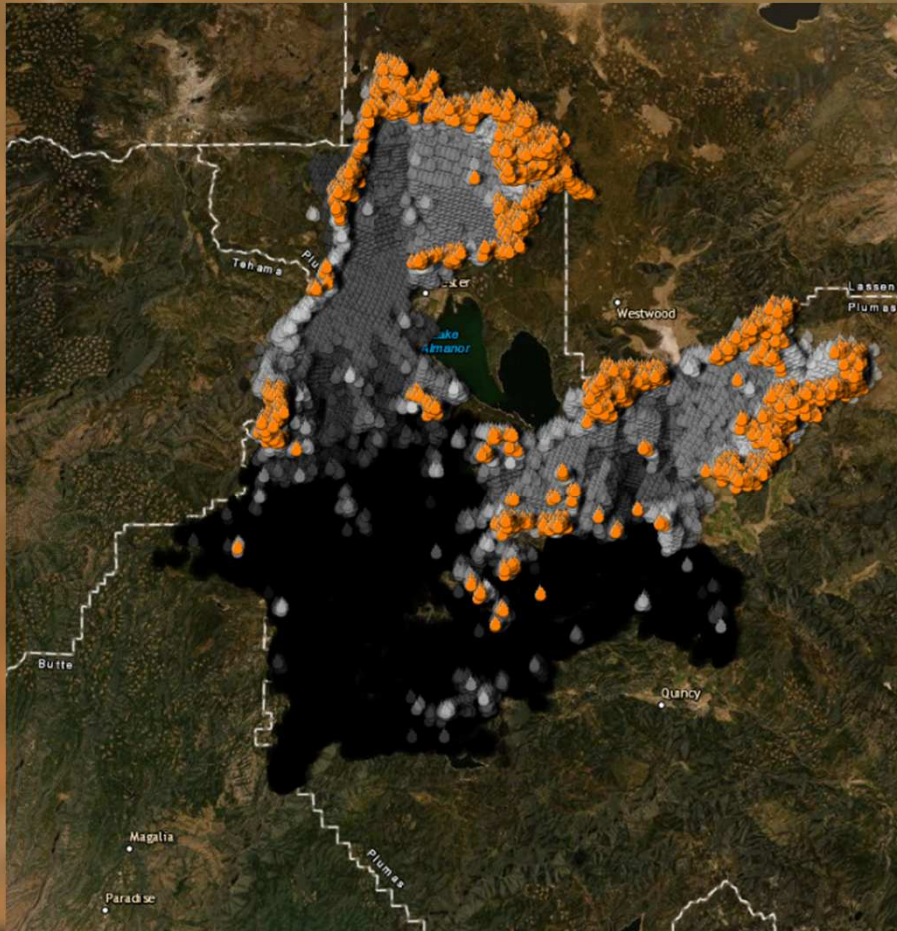


Carbon accounting

- Carbon accounting and offsetting mechanisms
- Opportunity to fund and support integrated wildfire management interventions?
- Examples in Australian savannas
- Can we do this in Africa?



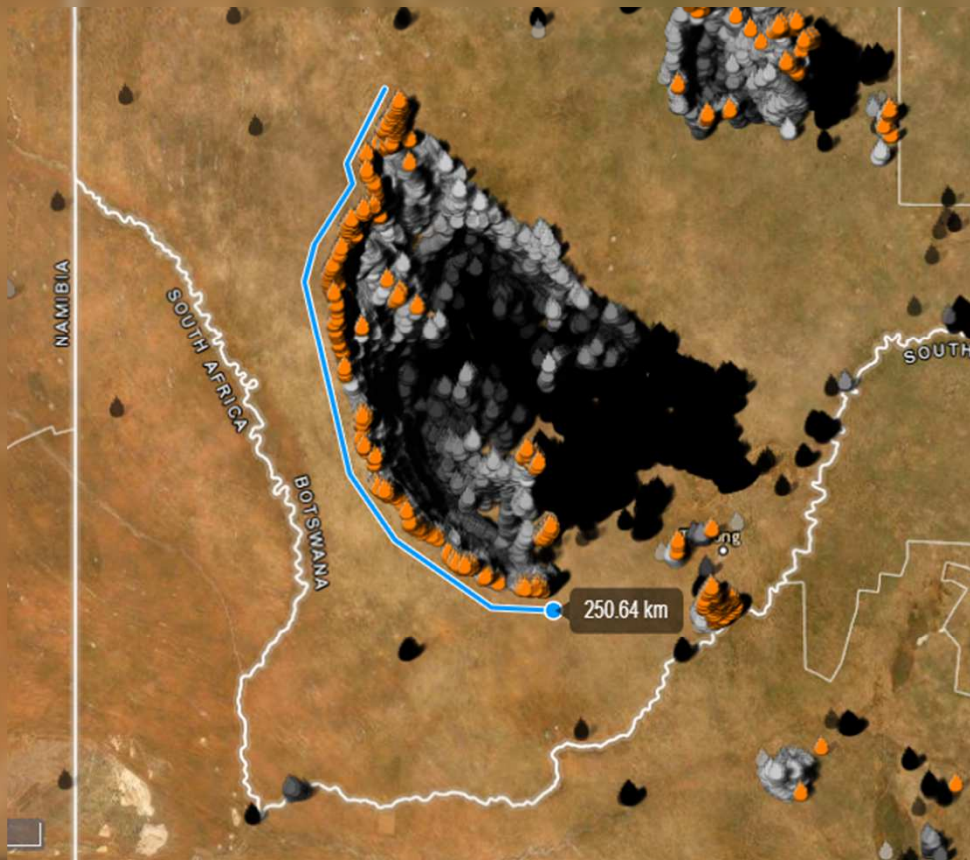
2021 Dixie Fire, California, USA



Started: 13 July 2021
Contained: 25 Oct 2021
Final size: 389,837 ha

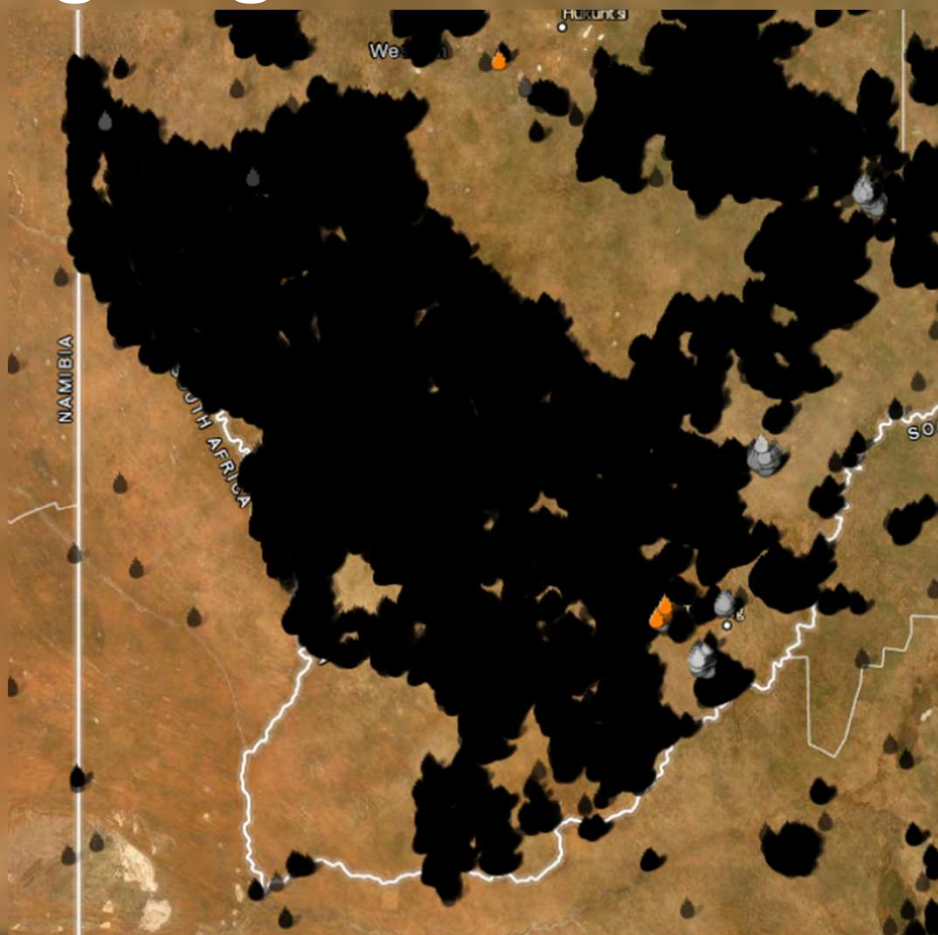
Largest non-complex
wildfire in California on
record

2021 Kgalagadi Fire, Botswana



← 2021-09-06 →

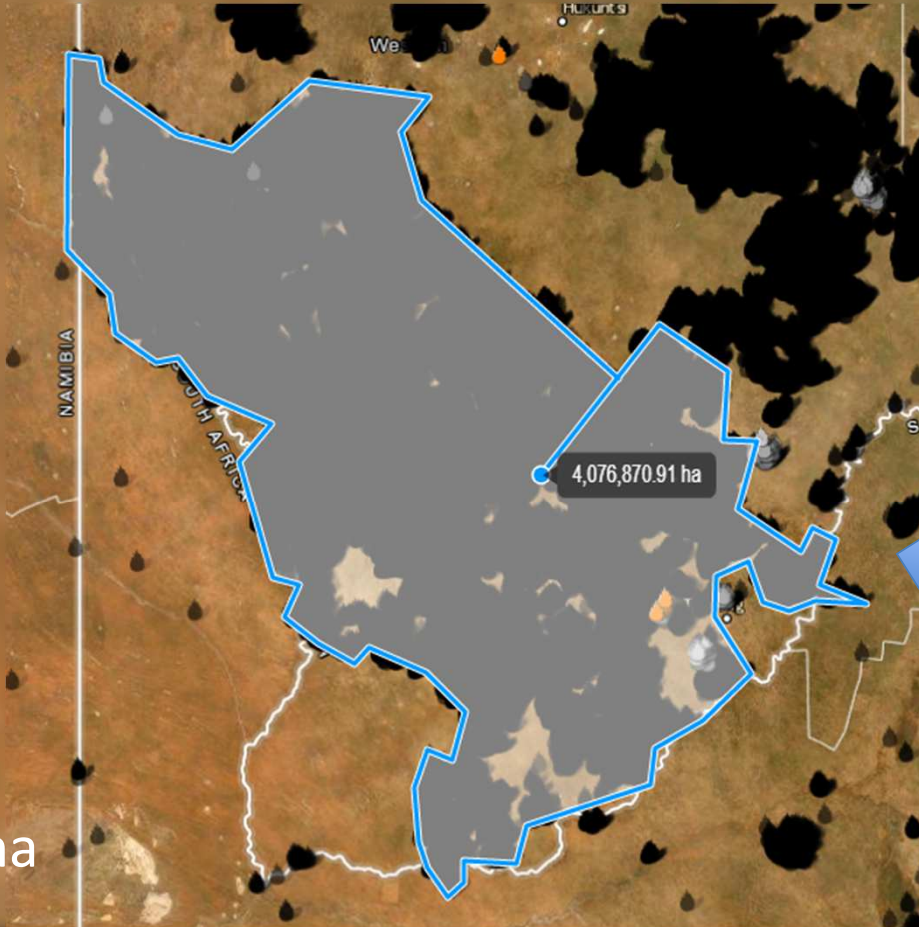
2021 Kgalagadi Fire, Botswana



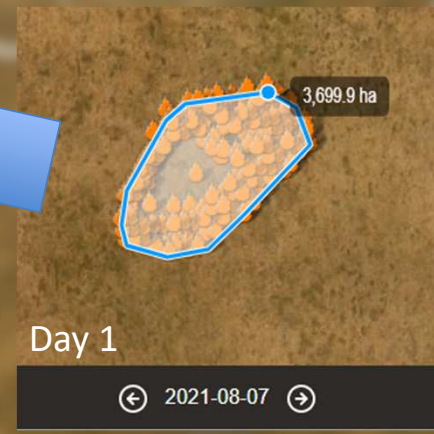
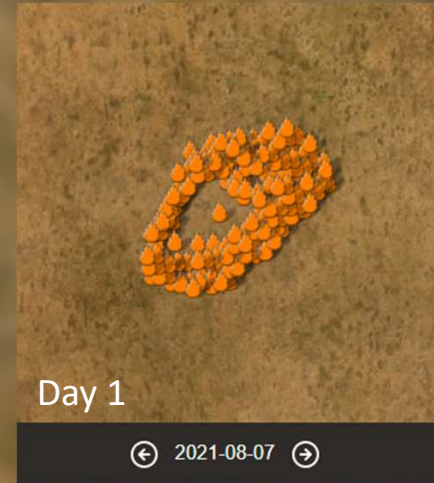
⏪ 2021-11-04 ⏩

2021 Kgalagadi Fire, Botswana

Final size:
4 000 000 ha



x 1000



Conclusion

In the African context:

- Fires are necessary for maintaining ecosystem health
- Satellite often provide the only recorded fire information
- Carbon accounting mechanisms can support fire management
- International relationships and collaboration are needed



END