Southern Africa Regional Network Report

Overview


ZAMBIA
ANGOLA
BOTSWANA
NAMIBIA
SOUTH AFRICA
MOÇAMBIQUE
SAFNET Update
AFIS News
Regional Projects:
• MESA
• UNDP GEF Fynbos
• Landsat 30 year BA

Validation of satellite active fire data sets using coincident prescribed fire opportunities in Kruger National Park

17th – 31st August 2014
Skukuza, Kruger National Park, South Africa

Navashni Govender, Wilfrid Schroeder, Louis Giglio, Bob Kremans, Gernot Ruecker, Olaf Frauenbergen, Martin Wooster, Mark Dejong, Bruce Main, Ronan Paugam, Evan Ellicott and Anja Hoffmann

Results and Recommendation

- This field campaign **brought together key national**, regional and international fire researchers, remote sensing researcher and management personal from various southern African countries, to share, contribute, teach and learn from each other, in order to improve the quality and availability of remote-sensing observations of forests and land cover at regional and global scales, which is a key objective for GOFC/GOLD

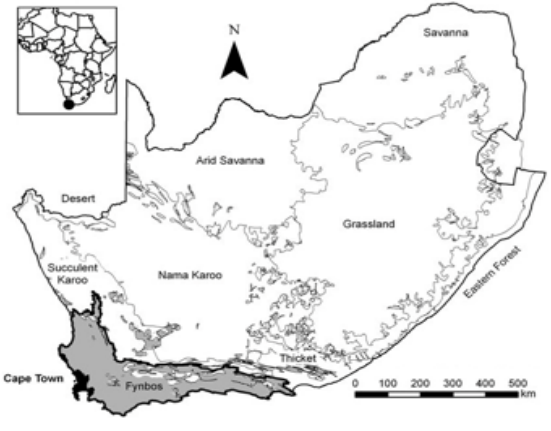
- The event **contributed to increase scientists' capacity to utilize and produce the data needed for research and resource management**, and foster regional and international networks of scientists. The regional fire delegates were introduced to the various technologies and protocols and were able to network with the local and international remote sensing fire researchers.

- The following recommendations were given by the regional scientists:
  - Opportunity for more validation campaigns in other regions and landscapes in Africa
  - Continue to develop standardized validation protocols
  - Requirements for local to regional support for data collection points.

FYNBOSFIRE

The GEF FynbosFire Project

The Global Environment Facility Special Climate Change Fund granted US$3.5m to South Africa for a four-year project to implement integrated fire management programmes in the Fynbos biome. This project aims to reduce the risk to life, the economy and the environment caused by unwanted wildland fires associated with climate change.



The Fynbos Biome

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

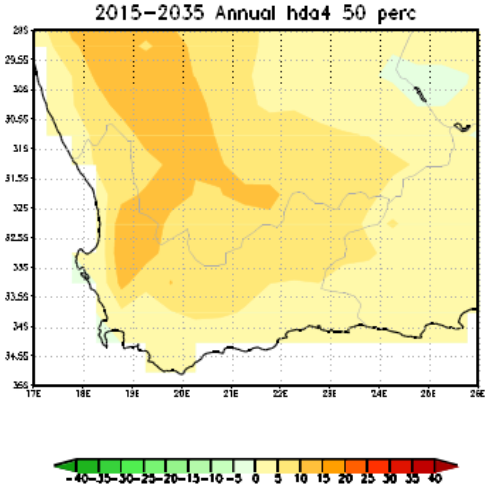
KISHUGU
FOR THE GREATER GOOD

UNDP

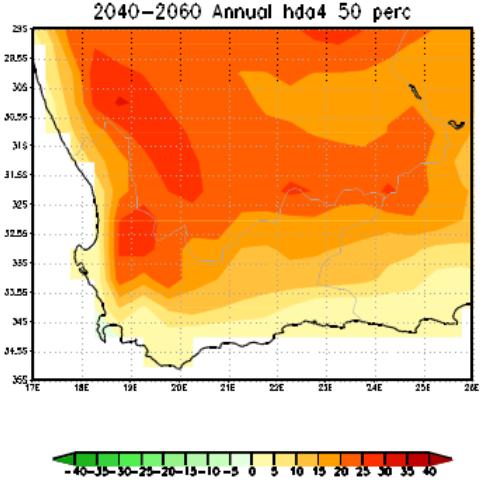
gef

CLIMATE CHANGE AND WILDFIRE RISK AT A LANDSCAPE SCALE

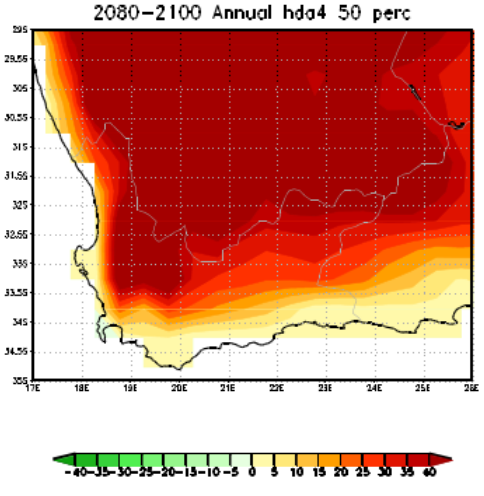
2015 - 2035



2040 - 2060



2080 - 2100



Model projected changes in the number of days per year when the FFDI value is rated as high, very high or extreme (FFDI > 12), for different future time-slabs, relative to the baseline period the 1961-1990. For each time-slab, median ensemble

Wildfire

Overview

African Union – European Development fund project

Covering each of the 5 African economic regions

The products generated and distributed by the Wildfire service can be used to:

Define the fire season

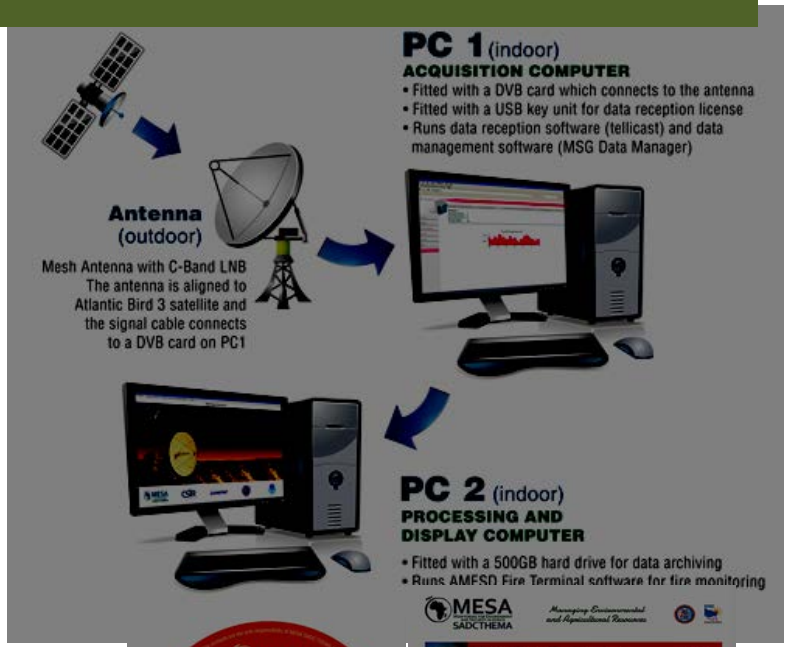
Assess the likelihood of fire occurring

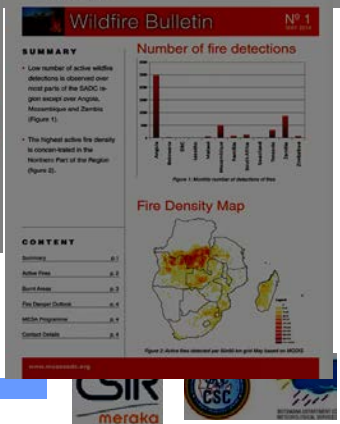
Determine fire suppression response and resources

Issue or cancel burn permit

Plan and conduct controlled burning, etc

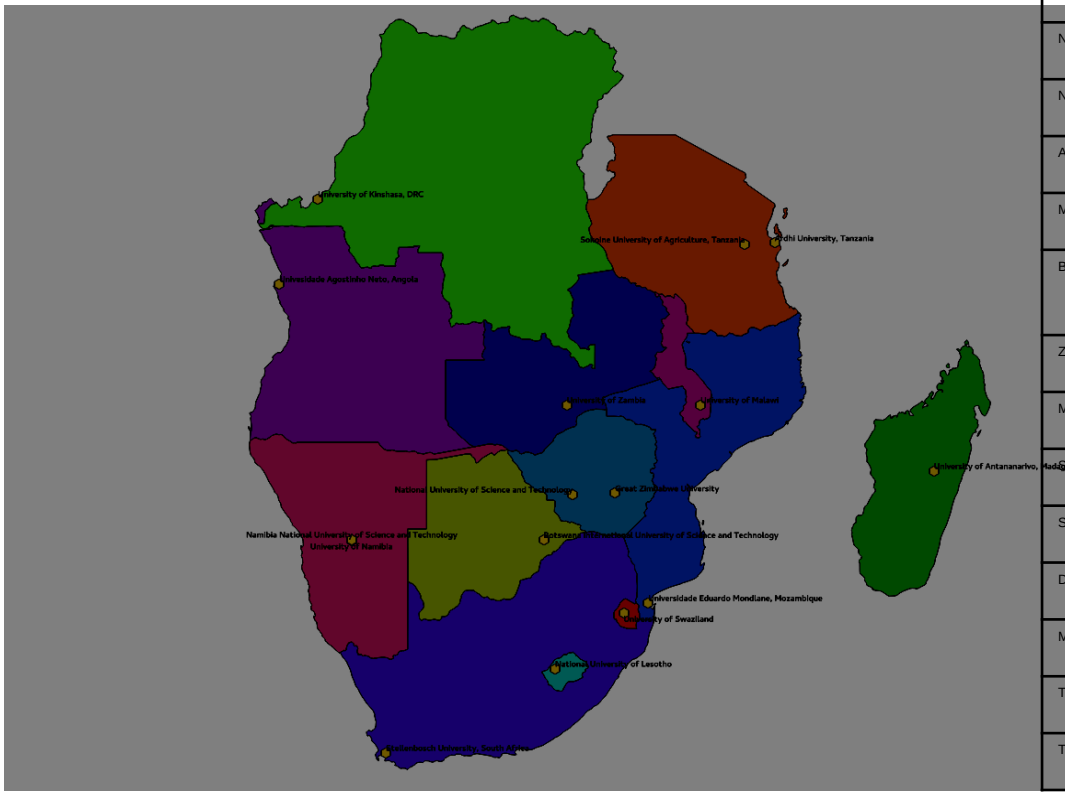
The Wildfire service includes a capacity building component which is aimed at training users of the Wildfire Service in the interpretation, use and generation of Wildfire bulletins in support of informed decision making.





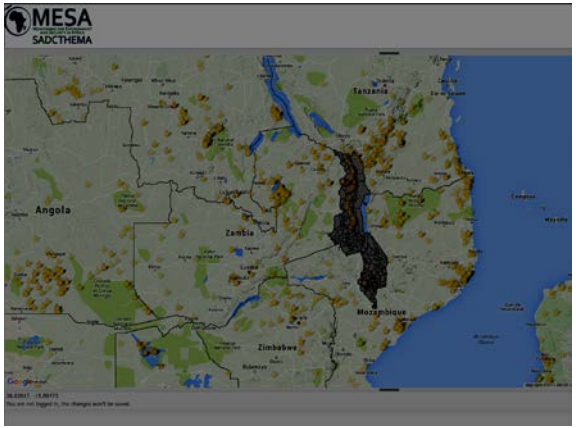
Wildfire

MESA Wildfire terminals at Universities



Country	Beneficiary	Town
Zimbabwe	Great Zimbabwe University (GZU)	Masvingo
Lesotho	National University of Lesotho (NUL)	Roma
Zambia	University of Zambia (UNZA)	Lusaka
Namibia	University of Namibia (UNAM)	Windhoek
Namibia	Namibia National University of Science and Technology	Windhoek
Angola	Univesidade Agostinho Neto (UAN)	Luanda
Madagascar	University of Antananarivo (IOGA)	Antananarivo
Botswana	Botswana International University of Science and Technology (BIUST)	Palapye
Zimbabwe	National University of Science and Technology (NUST)	Bulawayo
Mozambique	Universidade Eduardo Mondlane (UEM)	Maputo
South Africa	Stellenbosch University (SUN)	Stellenbosch
Swaziland	University of Swaziland (UNISWA)	Luyengo
DRC	University of Kinshasa (UNIKIN)	Kinshasa
Malawi	University of Malawi, Chancellor College (UNIMA)	Zomba
Tanzania	Sokoine University of Agriculture (SUA)	Morogoro
Tanzania	Ardhi University	Dar es Salaam

Wildfire

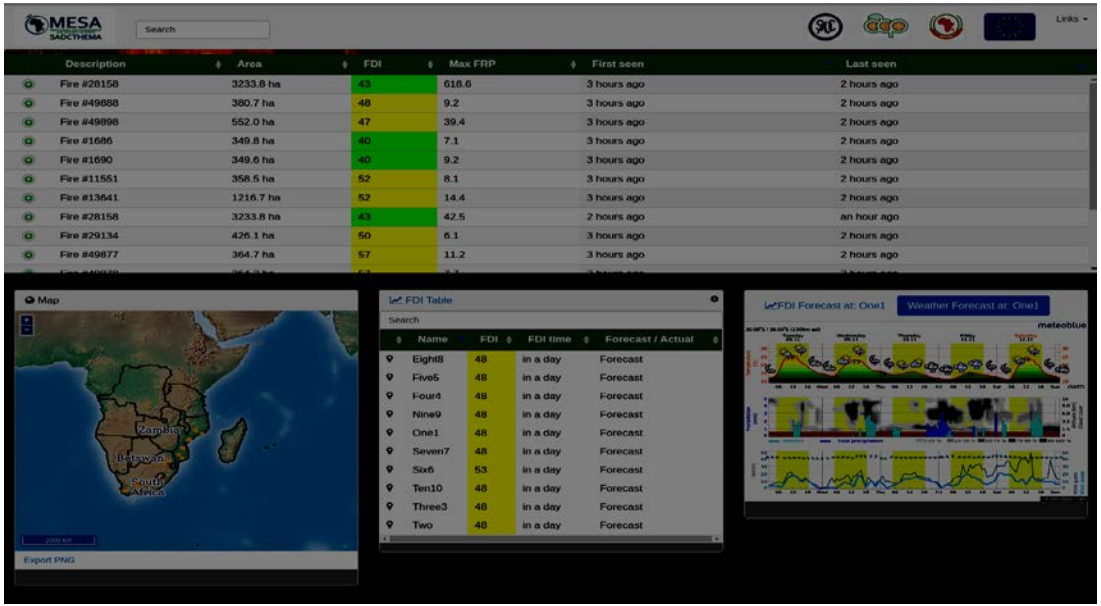


MESA Wildfire dashboard

Table showing fire information
Fire events rather than fire pixels
Fire danger (current and predicted)
Map showing context of a fire
Filter, sort fires in the table

MESA Wildfire viewer

Map showing active fires
Zoom in to areas with fire
Data stored in local database
Accessible to users on the local network



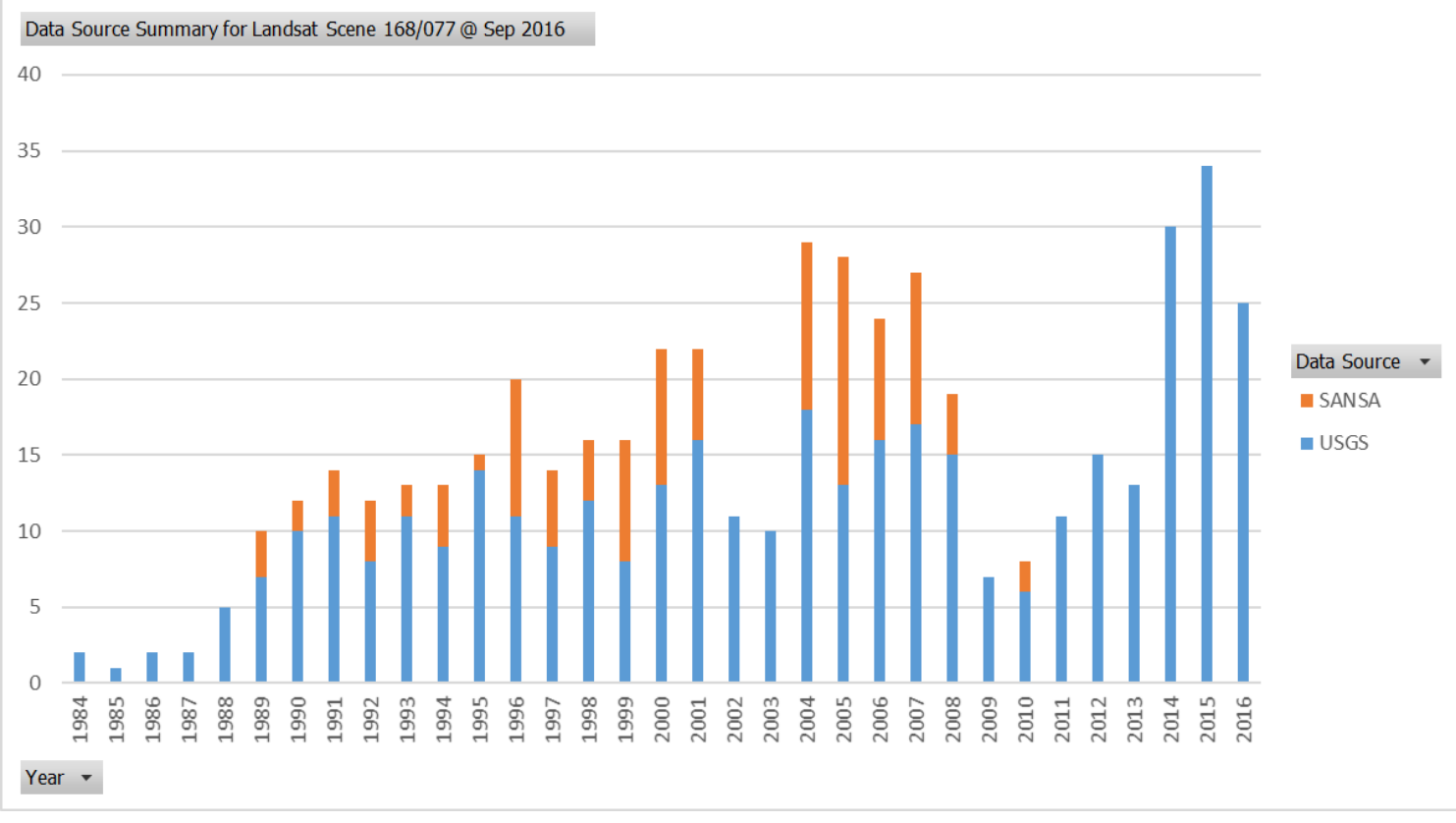
Processing a long term Landsat historical burnt area dataset for South Africa

- Processing Landsat TM, ETM+ and OLI from 1987 – 2016
- Collaboration with the Queensland Department of Science, Information Technology and Innovation (DSITI) - Dan Tindell and Lisa Collett

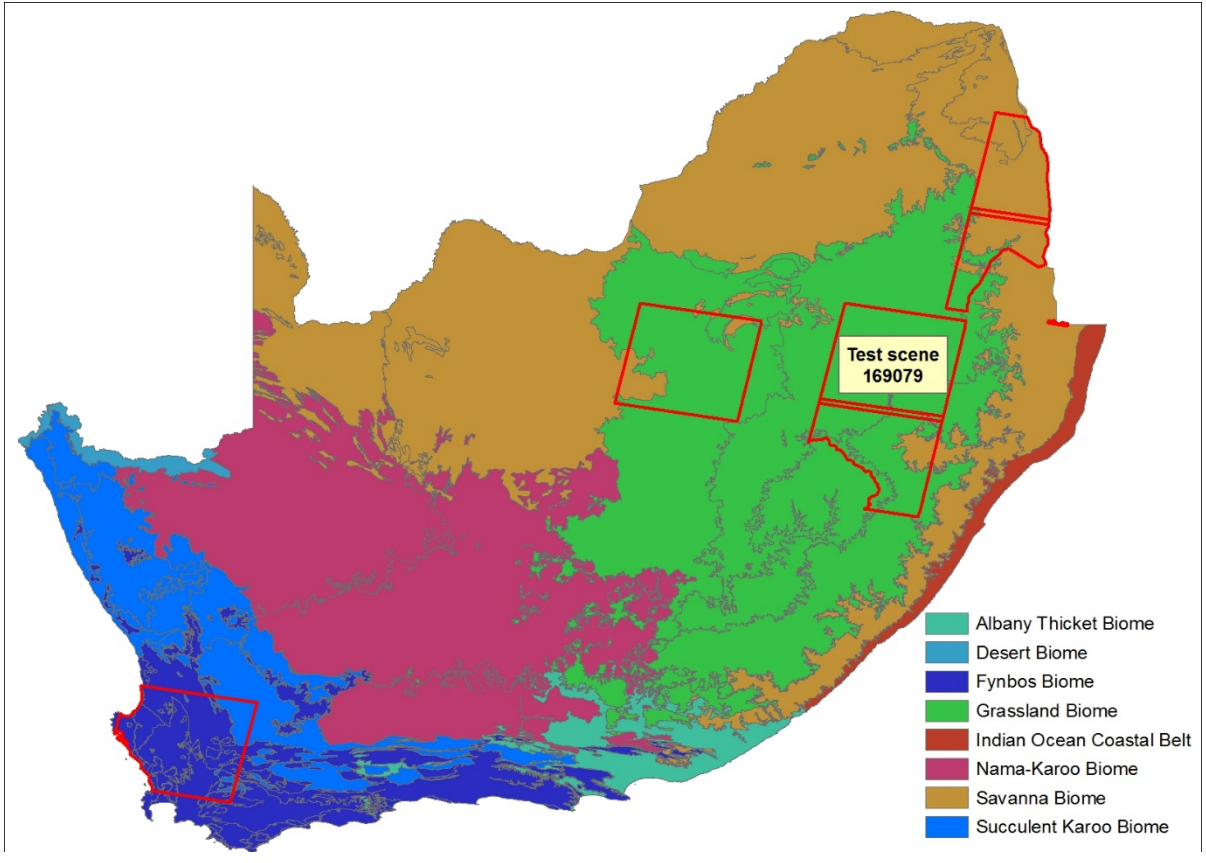
Algorithm summary

A pixel is mapped as burnt if there has been a **significant change in reflectance relative to the time series** due to the effects of fire e.g. Pixel values:0: no fire scar was detected during this period;1-12: month (of Landsat acquisition) when fire scar was first detected;254: crop/water masked (using Current Queensland Land Use Mapping) - no fire scar detection conducted;255: no data value.Note: fire scars may persist and continue to be detected for several months in the image time sequence.
Where there has been fire scar persistence or multiple fire scars recorded for a given pixel within the compositing year, the earliest month of detection is recorded.Data sets are 8 Bit GeoTiff with LZW compression and tiling (BigTIFF).

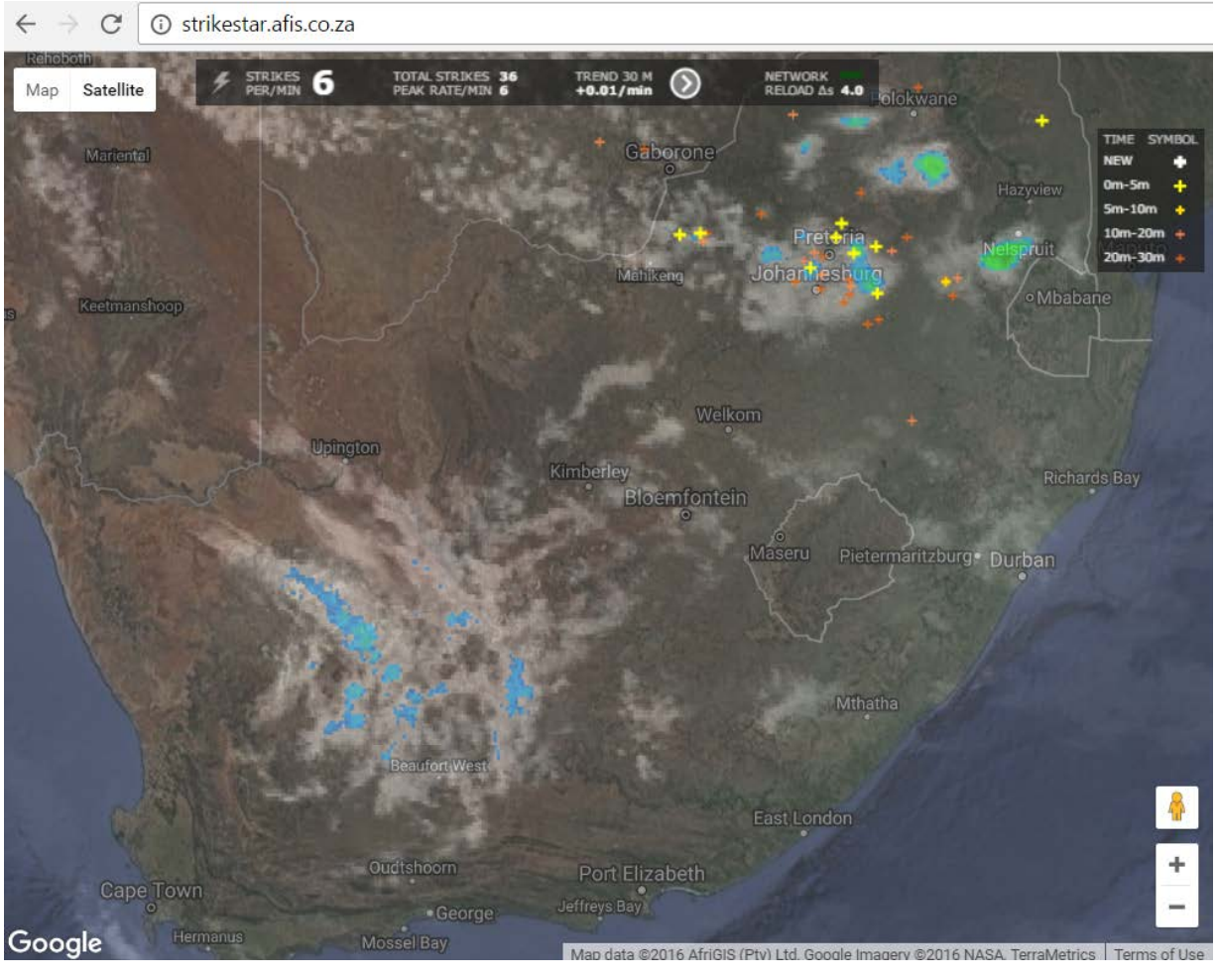
Goodwin, N. R., & Collett, L. J. (2014). Development of an automated method for mapping fire history captured in Landsat TM and ETM+ time series across Queensland, Australia. *Remote Sensing of Environment*, *148*, 206–221.



Validation sites



AFIS Lightning Detection Network



Real time Lightning detection

Integrated within the AFIS Premium service

Automated monitoring, detection and alerting of fires subsequent to lightning strikes