

Southern African Fire Overview

SAFNet Steering committee

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Overview

- 1. 8th SAFNET meeting overview
- 2. AMESD project update
- 3. AFIS update (MODIS and WF_ABBA MSG Europe)
- 4. Fire Danger Index evaluation over Southern Africa









Is a regional network that fosters collaborative efforts in fire monitoring and management in southern Africa.

- has no secure funding; no salaries and is necessarily voluntary

Membership "topology" is like a flower

i.e., members are like petals - some come & go & some regrow

GOAL: To achieve more effective fire management policies and practices in southern Africa through the use of remote sensing and other geospatial technology.

PURPOSE: To enhance the use of information from field observations and remote sensing of fires for natural resource management in southern Africa.





The 8th SOUTHERN AFRICA FIRE NETWORK (SAFNet) WORKSHOP

Golden Gate National Park, South Africa: 6-8th May 2011

Fire Management and Research supported by 10 years of MODIS data

CONFERENCE REPORT

SPONSORS:



GOFC-GOLD









8th SAFNet meeting Golden Gate National Park







Country specific data sets

Each participant received a DVD with historical data clipped for their country Products included:

- 1. MODIS Active fires 2003 2011
- 2. MODIS BA 2003 2011
- 3. Spot VGT NDVI 1998 2011
- 4. Spot VGT DMP 1998 2011
- 5. MODIS Land cover
- 6. Software: Illwis







Needs and information gaps identified

- Integrating RS more cohesively into fire risk assessments
- Using RS to assist fire management decision making e.g., when to burn
- Cause of fire, fire type e.g. lightning V anthropogenic, "good" V "bad" fire, "crown" V "surface" fires
- Ongoing need for training
- Awareness and education of data and availability to be improved
- Data access via internet improving but difficult to distribute within region within country

• Help strengthen linkages between AMESD and SAFNet and fire stakeholders e.g. increase the participation of stakeholders at national AMESD meetings





Africa Monitoring of the Environment for Sustainable Development - AMESD

• EU – AU partnership

• A continental wide, pan-african project for the development of geo-information services









European Union 9th EDF

5 Regional Economic Communities (REC) CEMAC, ECOWAS, IGAD, IOC, SADC

+ ACP Secretariat

International partners (Eumetsat, JRC, WMO, UNEP, UNECA, FAO)





AMESD/AFIS Field Terminals installed





AMESD fire products

Product	Name	Frequency	Format	
Active Fire	ctive Fire MODIS Active Fire		ASCII	
	MSG Active Fire	Every 15 min	ASCII	
Fire Danger Index	Fire Weather Index	Daily (3 day	ASCII	
		forecast)		
	Lowveld FDI		ASCII	
Burned Area	MODIS BA raster	Monthly	Geotiff	
	Vegetation ConditionEvery 10 daysIndex		Geotiff	
Fuel condition	Day since last burn	Annual	Geotiff	
	Vegetation Productivity Index	Every 10 days	Geotiff	





Field Terminal software

Introduction

Active fire viewer Fire Danger Forecast Burned Area Estimate



Advanced Fire Information System (AFIS)

- New AFIS online viewer
- . New cell phone and email alert service
- Collaboration with the University of Dundee (Scotland) to include near real time MODIS fire information for Europe
- Integration of the WF_ABBA MSG fire product









Wildfire ABBA – MSG fire detection

The WildFire Automated Biomass Burning Algorithm

The WF_ABBA uses inputs consisting of geostationary satellite data, total precipitable water from numerical forecast models, and an ecosystem map, which are used to detect and characterize fires in near real-time, providing users such as the National Oceanic and Atmospheric Administration and the hazards community with high temporal and spatial resolution fire data. Today the WF_ABBA processes all data generated by GOES-10/- 11/-12, Meteosat-9, and MTSAT-1R, detecting fires within a satellite zenith angle of 80° (covering the better part of the visible hemisphere). The WF_ABBA algorithm requires a minimum 3.9 µm and 11 µm bands that meet certain performance requirements. However, for the new WF_ABBA version (Version 6.5), the algorithm does better if it has access to visible and 12 µm bands as well for the cloud mask.

http://www.ssec.wisc.edu/media/spotlight/ams2009/jp7.9_brunner.pdf







A quantitative evaluation of four FDI's for South Africa, using MODIS active fire and burned area data









Statistical analysis









Distribution of FDI for all days / fire days





Pixel ID	FDI type	Percentile shift	EDI_pred_range	FDI R squared	Bhattacharyya distance	Sum of ranks	Final Rank	Fire count
15782	Lowveld	36.83 (3)	0.32 (3)	0.022 (2)	438.53 (2)	17	2	206
15782	McArthur Grass	23.12 (4)	0.31 (4)	0.006 (4)	452.86 (3)	27	4	206
15782	McArthur Forest	51.77 (2)	0.42 (2)	0.017 (3)	454.88 (4)	19	3	206
15782	Canadian FWI	77.60 (1)	0.76 (1)	0.104 (1)	363.53 (1)	7	1	206

Which FDI performs the best in South Africa?



What is the correlation between Canadian FWI and Lowveld?

