



Photo: Carla Staver, Yale University

Southern Africa Fire Network (SAFNET)

Famously known as the “fire continent”, Africa is home to more than two thirds of the world’s fires. These fires not only release greenhouse gases, but when not properly managed, they result in widespread destruction of property and livelihoods. Using earth observation data to better understand the wildfire patterns and processes and support decision making across the Southern Africa region can greatly benefit people and ecosystems.

Objectives and priorities

The Southern African Fire Network fosters collaborative efforts in fire monitoring and management across Southern Africa. Major activities include collaborative research and training on the use of remote sensing and other geospatial information technology to achieve more effective and appropriate fire management policies and practices in southern Africa. **Essentially the Network serves as a link, contact and support for the Southern African fire management community and researchers.**

Accomplishments

Since its inception in 2000, SAFNET has convened wildfire researchers and the practitioner community from across the region to share new discoveries in wildfire science, foster cooperation, and advance dialogue.

There have also been collaborative research initiatives conducted with universities from abroad, thereby encouraging north-south cooperation in areas of wildfire science. This has led to the establishment of joint regional and international fire science projects and validation sites.

The network has also increased researchers’ exposure to state-of-the-art satellite-based fire monitoring products and methodologies to calculate fire emissions and biomass estimates for fuel monitoring.

Recent papers by SAFNET members include:

Chanza, N., Chigona, A., Nyahuye, A., Mataera-Chanza, L., Mundoga, T., & Nondo, N. (2019). Diagnosing barriers to climate change adaptation at community level: reflections from Silobela, Zimbabwe. *GeoJournal*. doi.org/10.1007/s10708-018-9890-3

Ribeiro, N., Ruecker, G., Govender, N., Macandza, V, Pais, A, Machava, D, Chauque, A, Lisboa, Sa, N, & Bandeira, R. (2019). Interactions between landscape and fire frequency in relation to structure and botanical composition of savanna ecosystems. *Ecology and Evolution*. 9(14):8253-82649. [doi: 10.1002/ece3.5400](https://doi.org/10.1002/ece3.5400)

Donaldson, J. E., Archibald, S., Govender, N., Pollard, D., Luhdo, Z., & Parr, C. L. (2018). Ecological engineering through fire-herbivory feedbacks drives the formation of savanna grazing lawns. *Journal of Applied Ecology*. doi.org/10.1111/1365-2664.12956

“Without SAFNET, Kruger National Park would be using a very different methodology to map and monitor fires.”



Navashni Govender is Senior Manager, Conservation Management, at the iconic Kruger National Park, in South Africa. Involved with the Southern Africa Fire Network (SAFNET) since its early days, and now a member of the network's Steering Committee, she shared her insights on the network's broader impact.

What have been the major impacts of SAFNET in the region, in your view?

I have been participating in SAFNET's activities since 2002. Initially the group came together around a remote sensing burnt area validation project in Southern Africa that brought in experts from the United States. The project introduced cutting edge tools and technologies to the region, including the tools based on MODIS and Landsat information. Currently we are using MODIS information at Kruger National Park to map our fires. Without SAFNET and the introduction to MODIS, the park would be using a very different methodology, which would not be as effective. MODIS suits our requirements for cost effectiveness as well as spatial and temporal resolution. Many SAFNET members have also participated in GOF-C-GOLD mapping and GIS trainings. All the knowledge and resources gained during trainings and network meetings is brought back to each of their institutions and work environments, creating a positive impact all across the region.

What is the role of fire in Kruger National Park?

Fire is a very important driver of land-use change, biodiversity, and socio-economics in Southern Africa, and it is very often seen as a contributor to carbon emissions. However, in the region, including in Kruger National Park, fire must be recognized as an important

resource and management tool needed to maintain the tree-grass balance of Savanna ecosystems. We map and monitor our fires through remote sensing, using tools developed in collaboration with the University of Maryland, thanks to the GOF-C-GOLD program.

What are the main benefits of being a SAFNET member?

In my day-to-day work, being a member of SAFNET is a precious opportunity to connect with experts from the region and around the world, working in other fields – not only fire, but also land use – and other types of institutions, including the government, ministries, and organizations.

The SAFNET network is well established, with active connections and, since 2008, a Steering Committee to drive its activities. The support we receive from START to bring together the network's members every two years is crucial to ensure that we keep connected and up-to-date with latest science and technologies.

In 2018, we hosted a field validation course in Kruger National Park, and we used this opportunity to also organize a training and field data collection course to support satellite validation of fire detections and mapping. Researchers from within and outside the region were very excited to learn and share about satellite fire data validation in Kruger, a site where we can burn and monitor large areas thereby providing an ideal study field.

Fires detected by MODIS and VIIRS in May 2020. Image produced through the Global Forest Watch platform.

