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# BURNING ISSUE

## Collaborative effort to improve fire detection

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Power utility Eskom, in partnership with the Satellite Application Centre (SAC) of the Council for Scientific and Industrial Research (CSIR), has developed a fire-detection system known as the active fire information system (Afis) and said to be the first of its kind in the world.

Afis will allow Eskom to respond quickly to fires under transmission lines, which could reduce damage and power-supply disruptions.

Every year, people burn anything from 750 000 km<sup>2</sup> to 8,2 million square kilometres of forest and grassland around the world.

Sub-Saharan Africa has the highest frequency of fires in the world.

While wildfire is a natural phenomenon that forms part of the earth's environment, it is humans that start most fires, accidentally or deliberately.

Eskom transmission division corporate consultant **Hein Vosloo** says

that fires cause almost 20% of all transmission-line faults.

He adds that Eskom is now looking at assisting other role players by making Afis available to them.

The initial development cost of the system, now in its third year of operation, was R1-million.

"The launch of Afis was made possible by the Department of Agriculture's provision of funding for the acquisition of a resolution image spectroradiometer (Modis) direct-broadcast receiving station.

"The CSIR, in collaboration with the University of Maryland and the National Aeronautics and Space Administration, both in the US, had the expertise to develop the system," says CSIR remote-sensing specialist **Philip Frost**.

Eskom's research and strategy chief consultant, **Fabio Bologne**, says: "We are proud to have implemented this technology in the transmission division, and we are still

experimenting and improving the system."

The data received from Modis provides six-hourly updates on active fires for sub-Equatorial Africa. However, owing to the highly-dynamic nature of fires, Eskom required a more rapid update and this engendered an innovative idea to use a weather satellite for this purpose.

"Although the resolution was much coarser than that of Modis, fire reports could be generated every 15 minutes," says Bologne.

He states that any major fire that occurs within 2,5 km of a powerline is automatically reported to Eskom's National Control Centre (NCC) through a cellphone SMS.

The SMS will also be directed to field staff in the specific region of that fire.

The NCC then assesses the risk to the transmission system and, depending on the situation, temporarily switches out any lines that are threatened by the fire.

Field staff simultaneously activate fire-suppression teams, where available, and report the weather conditions and status of the fire.

A total of 3 235 fires were detected by Afis within the 2,5-km corridor in 2003, while 3 118 were detected in 2004. In 2005, a dramatic increase of 67% was recorded, with over 5 200 fires countrywide.

Bologne adds that, during the last few years, government launched a programme known as Working on Fire, aimed at alleviating poverty, creating jobs and developing skills.

This programme trains firefighters in the prevention and suppression of fires. To date, about 1 000 firefighters have been trained.

Future plans include expanding the programme to 200 bases with 5 000 firefighters.

Most of the programme's personnel were used in fighting the fires that ravaged the Cape Peninsula during December last year.

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