



High-speed networking: tackling Indonesia's wildfires

Major wildfires bring devastation, loss of life and damage to property and the environment. Tackling them effectively requires an accurate flow of up-to-date information on fire movements and dangerous hotspots. Huge volumes of complex satellite and weather data must be captured, analysed and shared quickly. Only high-speed data networking can ensure that the right information gets to the right people in time to make a real difference.

Burning Indonesia: much more than just a national disaster

Indonesia has the world's third largest area of tropical rainforest after the Amazon and Congo basins and suffers fires every year. These are most fierce when El Niño creates drought and windy conditions, an increasingly common occurrence.

The 1997/98 wildfires alone spewed as much carbon into the atmosphere as the entire planet's biosphere removes from it in a year. The fires, which destroyed nearly 5 million hectares of forest, released as much as 2.5 gigatonnes of CO₂ – the primary greenhouse gas – significantly fuelling global warming. Wildfires scorching Indonesia often also blanket neighbouring countries in a choking haze, adding to regional pollution, causing severe long-term health problems and wreaking havoc on transportation.

FireWatch Indonesia: mitigating the impact of fire

Providing accurate and readily accessible information to all who need to know is the first step in reducing the number of outbreaks and in improving how they are tackled. TEIN3, the high-speed research and education Internet network for Asia-Pacific, plays a crucial part in providing an effective solution where protection agencies have only limited access to costly bandwidth.

FireWatch Indonesia is a collaborative project that aims to reduce the impact of wildfires, limiting their spread into Indonesia's forest and peatland habitats.

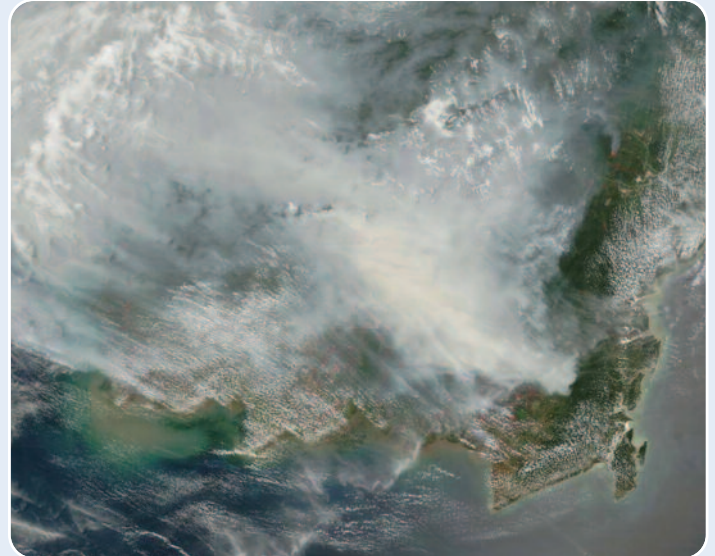


Image courtesy of NASA

Satellite image of smoke from fires in Kalimantan, Indonesia

Wildfires – taking their toll

- Loss of homes, livelihoods and incomes
- Increase in pollution and health hazards
- Decline of forests, vegetation and bio-diversity
- Decline in sunlight and air quality
- Loss of wildlife and habitats
- Surge in climate change and global warming
- Increase in pests and diseases
- Decline in agricultural productivity

Indonesia's Ministry of Forestry, Ministry of Environment and LAPAN, Indonesia's Space Agency, are working with the Australian Government's international aid and development agency, AusAID, and Western Australia's Landgate FireWatch team to provide near-real time monitoring, using data collected by two satellites that regularly cross Indonesia.

The data is first transferred to a ground station and then sent via



AARNet and INHERENT, the research and education networks of Australia and Indonesia respectively, to key civil protection agencies in Indonesia. TEIN3, the regional backbone network, creates the interconnection between the two national counterparts.

In October 2009 Indofire, an online tool that detects and monitors forest fires, was launched. The satellite data appear on the Indofire website within an hour. It includes mapping information which allows forestry officers to see where the fires have started, track their speed and identify hotspots.

Removing the bottleneck

Until recently, it has been challenging to deliver high volumes of satellite and FireWatch Australia data to institutions in Indonesia with limited access to bandwidth. TEIN3 network has now removed that bottleneck. As a result, the very large amounts of data can now be delivered effectively to protection agency sites across Indonesia.

Indofire will help save lives and livelihoods, and cut damaging greenhouse gas emissions. It will also help us detect hotspots and fires to improve our carbon sequestration. We truly appreciate our partners' expertise and the funding support from AusAID, TEIN3 and our own INHERENT that has made this possible.

*Israr Albar,
Officer responsible
for Indofire,
Ministry of Forestry,
Indonesia*



The launch of the Indofire site was the result of over four years of work with our Indonesian counterparts. It provides an advanced method of detecting active fires in near-real time and communicating this information to provincial centres within one hour of satellite overpass. Without research networks, this would never have been possible".

*Richard Smith,
Systems Architecture
Consultant,
Landgate, Australia*



FireWatch Indonesia networking partners

- FireWatch Australia - receives satellite imaging data from NASA
- AARNet, the Australian Research and Education Network - carries the FireWatch Australia data through its TEIN3 access link to the TEIN3 Point of Presence (PoP) in Singapore
- TEIN3 - manages the traffic between Indonesia and other TEIN3 members and to global research and education networks
- INHERENT - carries the data from the TEIN3 Singapore PoP and delivers it to the FireWatch Indonesia sites
- FireWatch Indonesia agencies - Ministry of Forestry, Indonesia's Space Agency (LAPAN) and Ministry of National Education

TEIN3 – the research and education network for Asia-Pacific

- the third generation of the Trans-Eurasia Information Network
- dedicated high-capacity IP network for the research and education communities across Asia-Pacific
- provides direct connectivity to GÉANT and a gateway for global collaboration for over 40 million users in Asia-Pacific
- supported by €12m EU-funding until 2011

For more information:

TEIN3: www.tein3.net

AARnet: www.aarnet.edu.au

INHERENT/ITB: www.itb.ac.id

IndoFire: <http://indofire.dephut.go.id>

DANTE: www.dante.net

EC: http://ec.europa.eu/europeaid/index_en.htm



EU-funded project

