



GTANSW Conference  
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# HAZARDS AND SPATIAL TECHNOLOGIES



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The technology of “where”!

# What are Spatial Technologies?

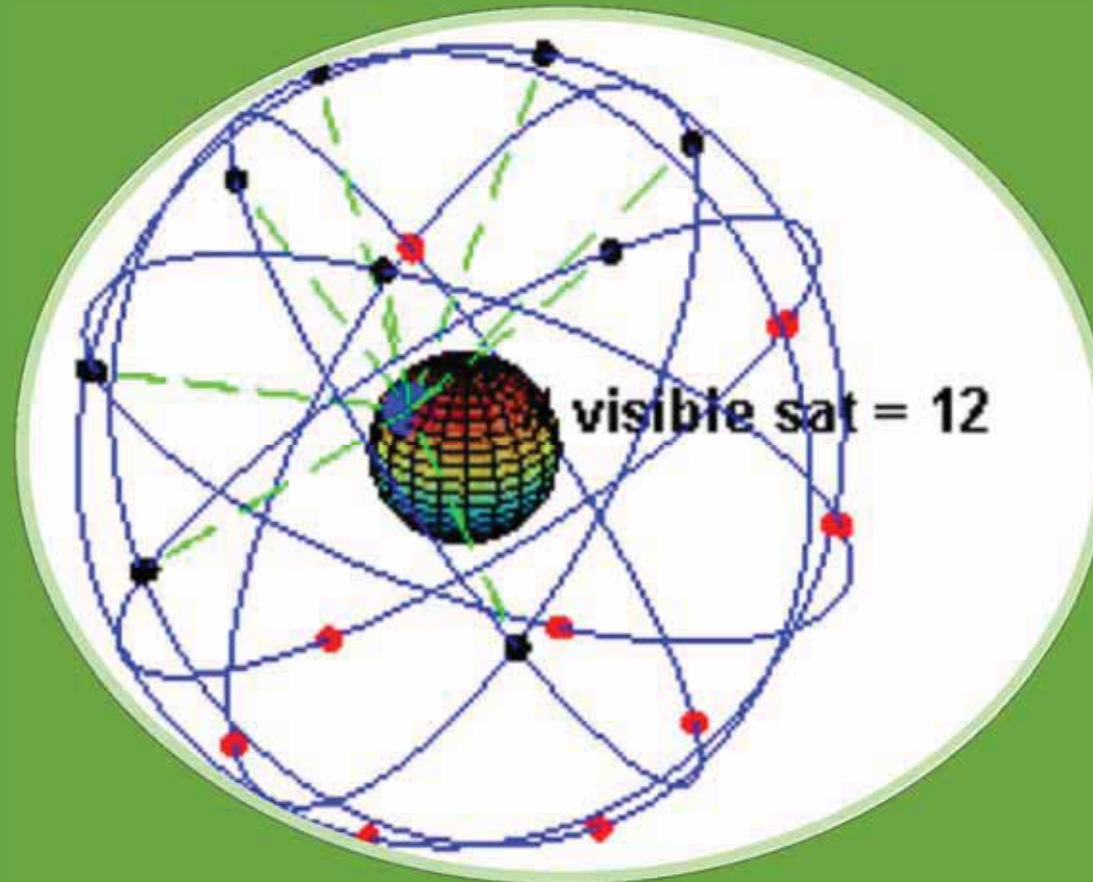
Spatial  
Technologies

Examples

Teaching



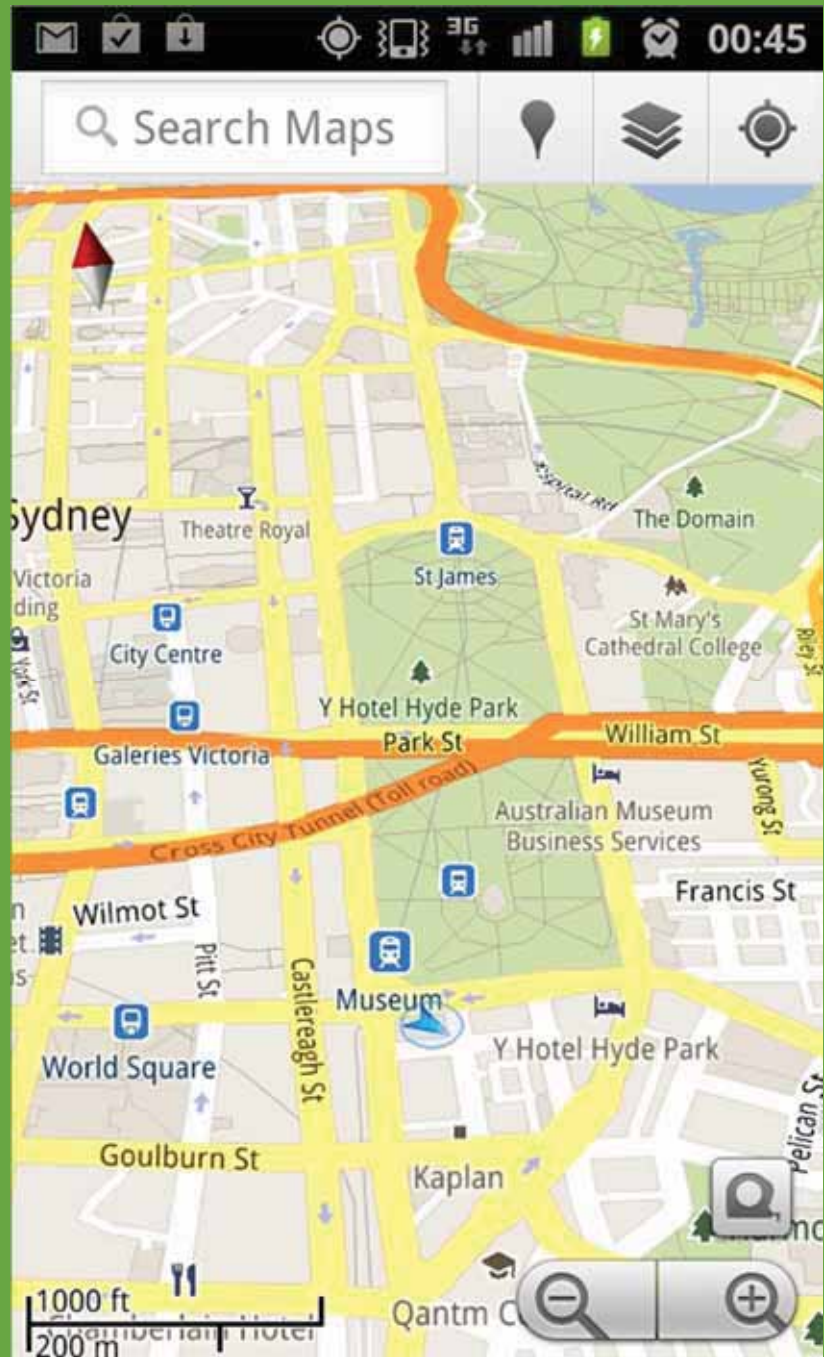
# GPS



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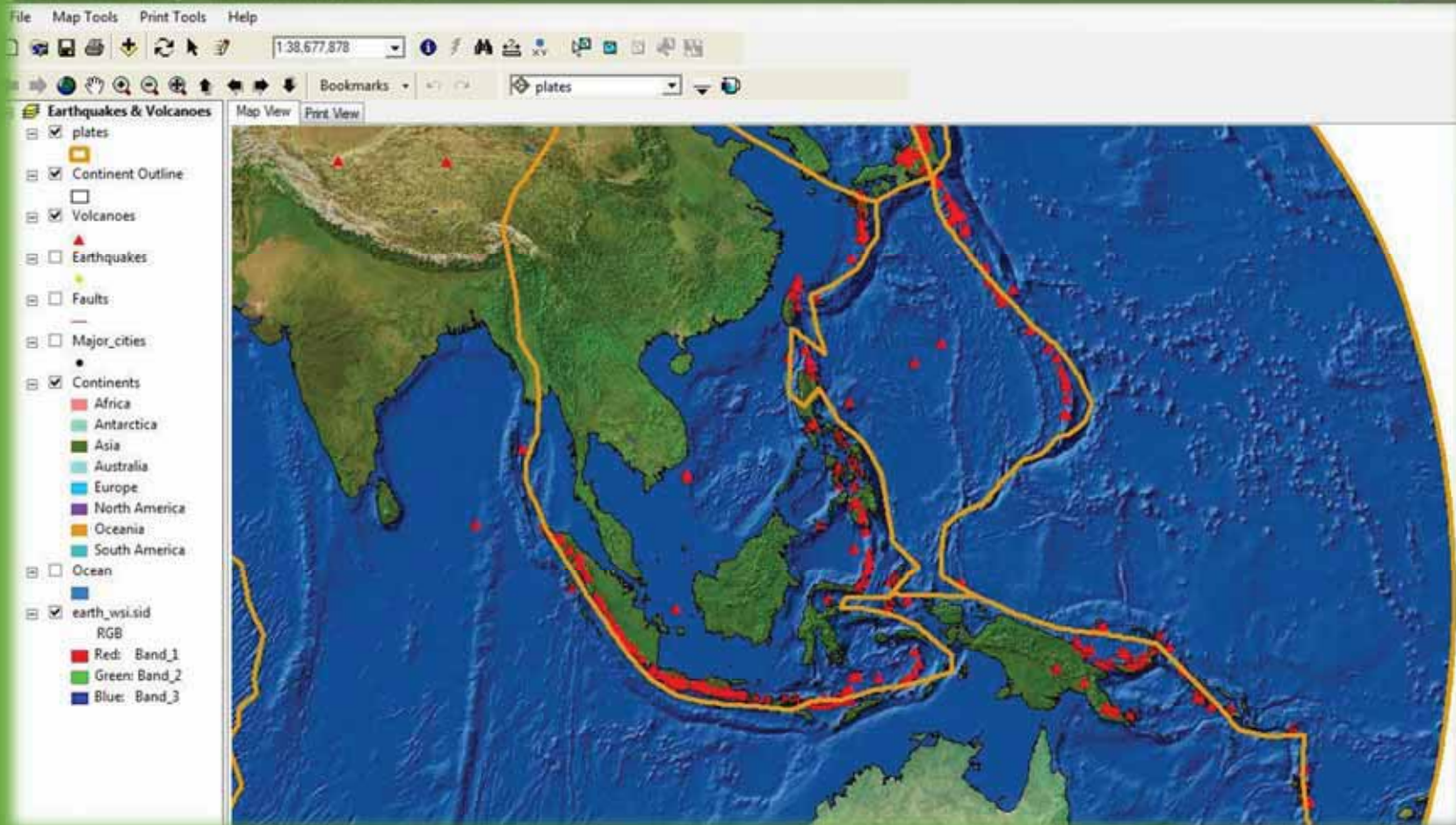
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Examples

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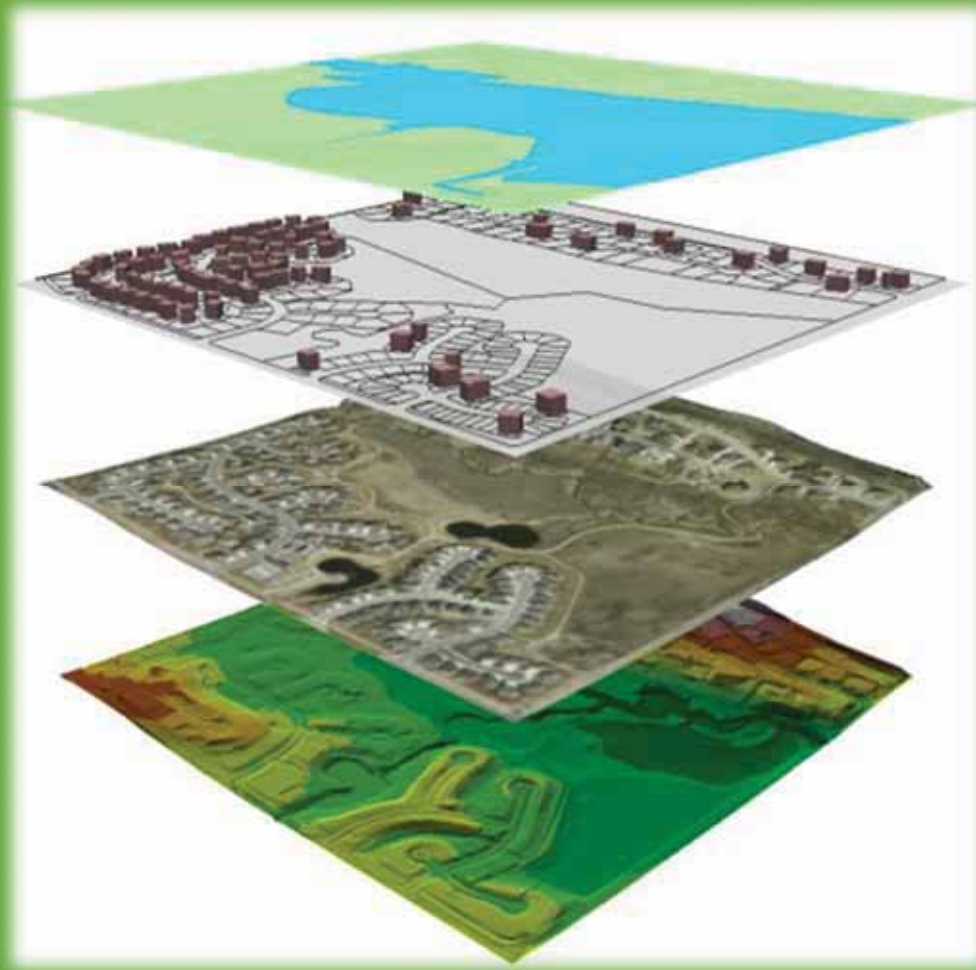
# GIS



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# Remote Sensing



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"In many cases, successful emergency response starts with a map. The question of "where" is fundamental to assessing risks, planning for hazards, responding effectively to incidents, deploying resources and assisting communities to recover." Spatial Vision, 2011.

## Real Life Examples

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Examples

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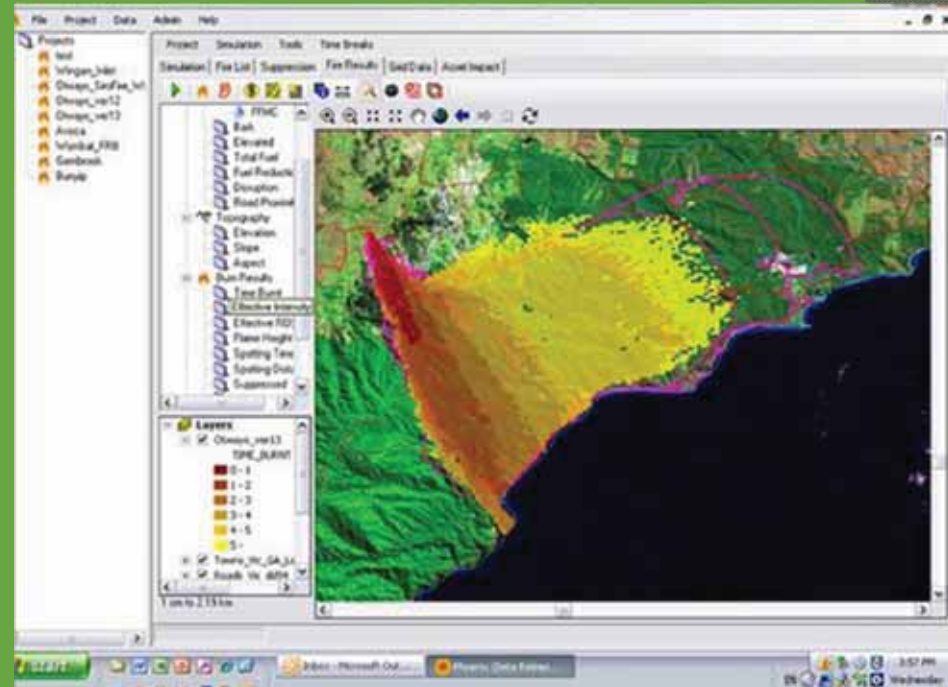
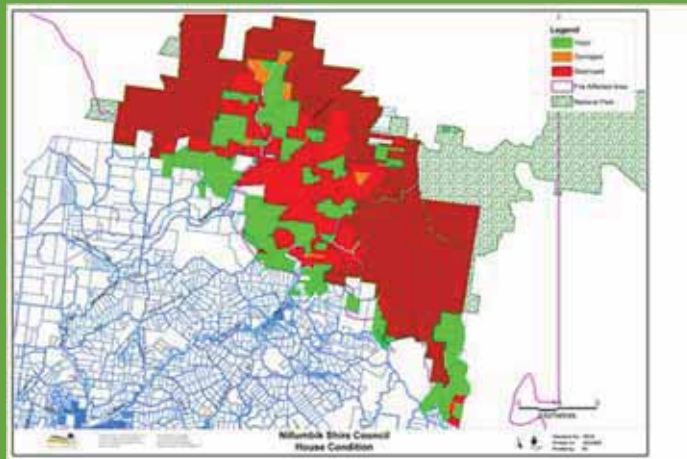
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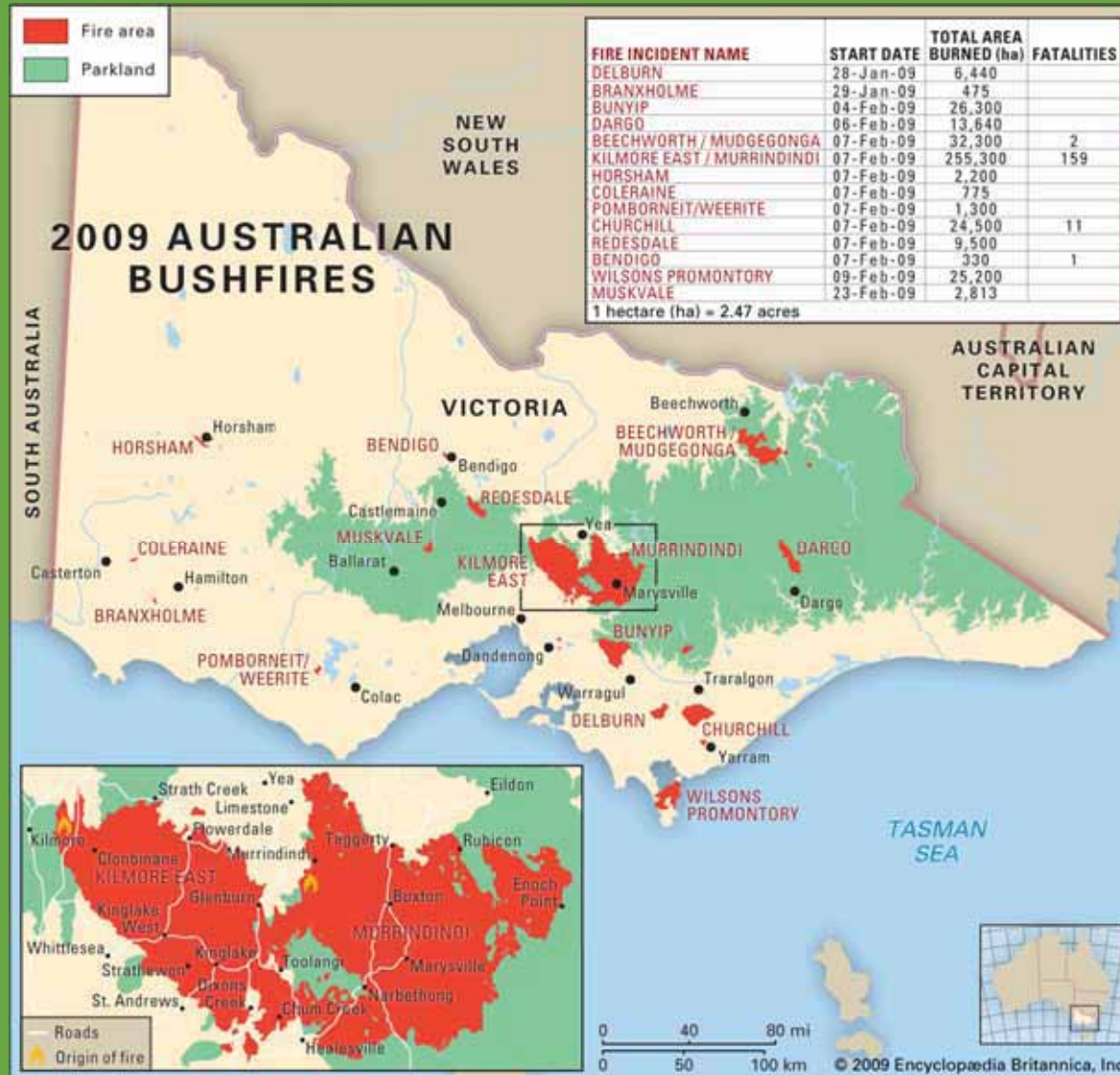
# Black Saturday



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Examples

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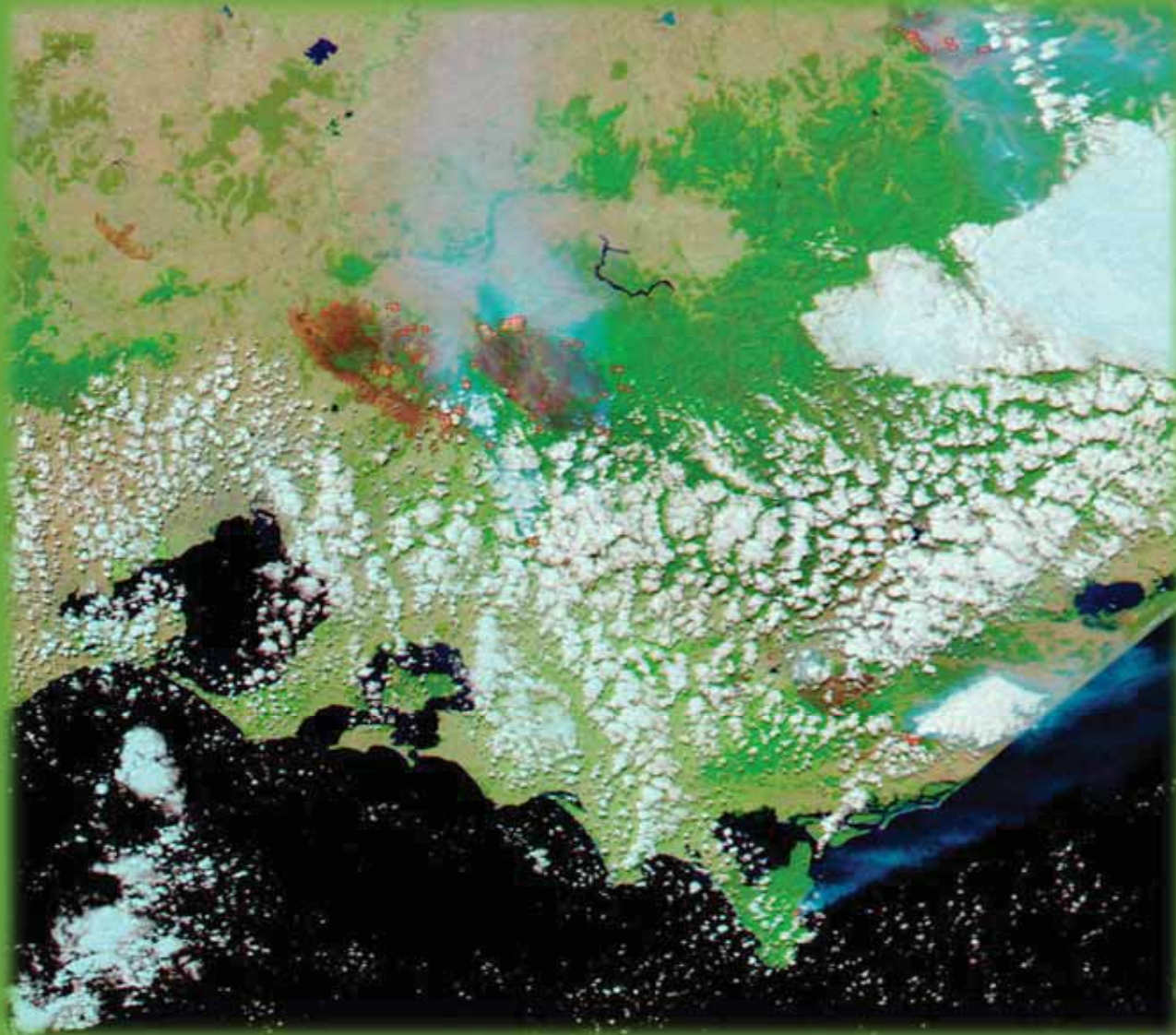


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Source: NASA Earth  
Observatory

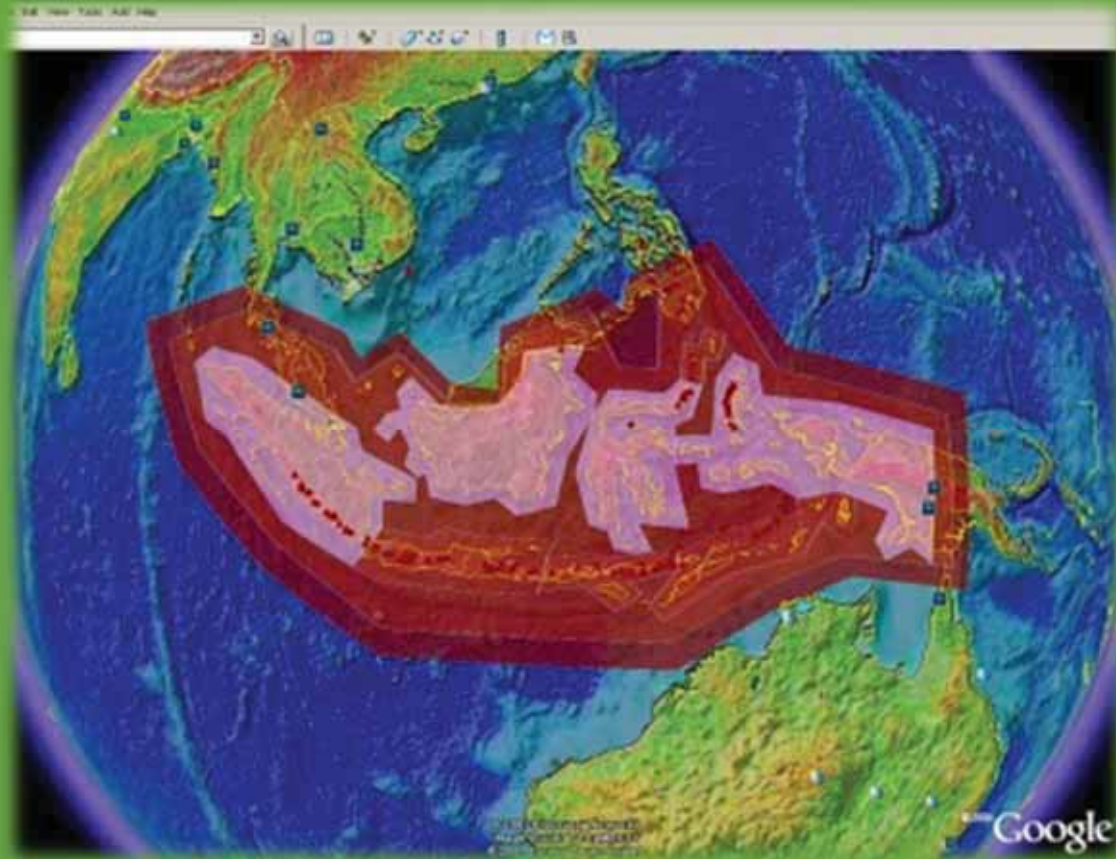
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# Earthquake Monitoring



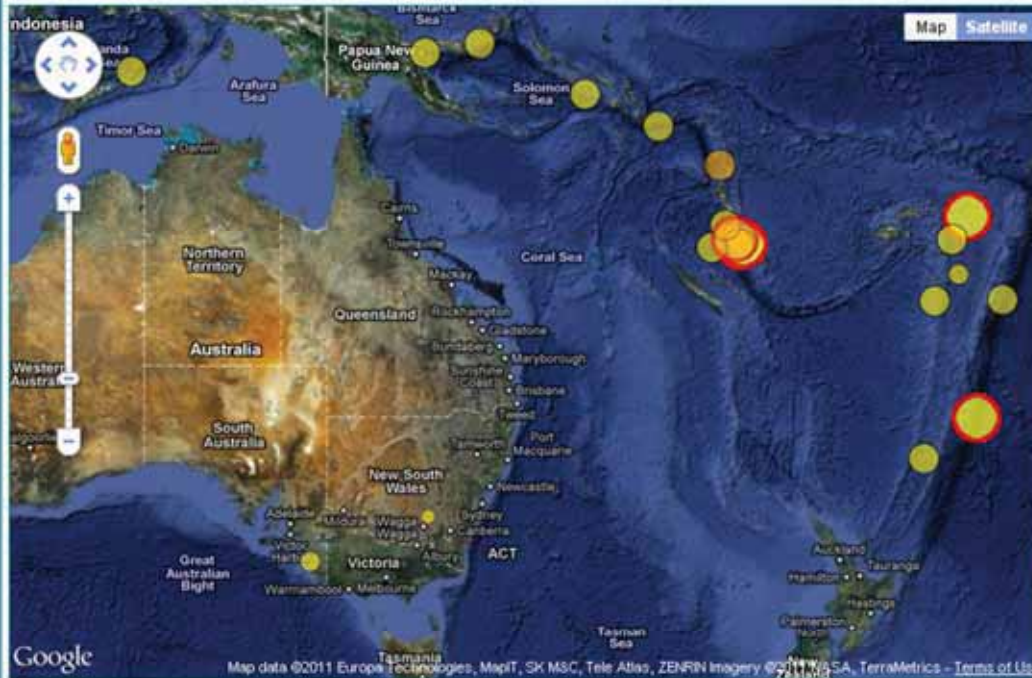
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Earthquakes @ Geoscience Australia

Australia and region — Last 7 days



Map Satellite

Map legend  
Significant earthquake

- Age of Earthquake**
- Last 4 hours
  - Last 24 hours
  - Older
- Magnitude**
- 6-7.9
  - 5-5.9
  - 4-4.9
  - 3

Tools



Important

Read about the [limitations](#) of this data

Significant earthquakes

- M6.4 Vanuatu Islands.**  
Sydney time: 25 August 09:06  
UTC time: 24 August 23:06
- M7.0 Northern Peru.**  
Sydney time: 25 August 03:46  
UTC time: 24 August 17:46
- M6.1 Southwest of Sumatra, Indonesia.**  
Sydney time: 23 August 06:12  
UTC time: 22 August 20:12
- M6.0 Kermadec Islands Region.**  
Sydney time: 22 August 19:38

Key contacts

**Urgent emergency assistance in Australia**  
Phone: 000 (Triple Zero)

**Other assistance**  
State Emergency Service  
Phone: 132 500

**Tsunami information**  
Joint Australian Tsunami Warning Centre  
Phone: 1300 TSUNAMI  
or 1300 878 6264  
Web: [Visit JATWC Site](#)

**Check on someone overseas**  
[Department of Foreign Affairs and Trade](#)  
Within Australia: 1300 555 135  
From overseas: +61 2 6261 3305

**Earthquake information**  
Geoscience Australia  
Within Australia: 1800 655 739  
From overseas: +61 2 6249 9699  
Email: [earthquakes@ga.gov.au](mailto:earthquakes@ga.gov.au)

Earthquake activity

- Recent earthquakes  
In Australia, the region and the world.
- Report it  
Felt an earthquake? Seen damage?
- Search  
Search our earthquake database.
- Lists  
Of significant earthquakes.
- Notifications  
Be informed when earthquakes occur.

About earthquakes

The effects of an earthquake depend on many factors, such as the distance from the epicentre and the local ground conditions.

- What is an earthquake?
- What causes earthquakes?
- Where do Earthquakes occur?

Earthquake hazard

Find out about the hazards and risks that are caused by earthquakes in and around Australia.

- How do we model Exposure?
- How do we model Vulnerability?
- How do we estimate Risk and Impact?

Earthquake monitoring

Earthquakes are one of the natural hazards which Geoscience Australia monitors and assesses in order to inform risk mitigation and emergency management activities.

- Why we monitor earthquakes
- How we monitor earthquakes

Emergency management

Emergency Management is represented by a range of measures which have been designed for the management of risks to communities and to the environment.

- Prevention and Mitigation
- Preparedness

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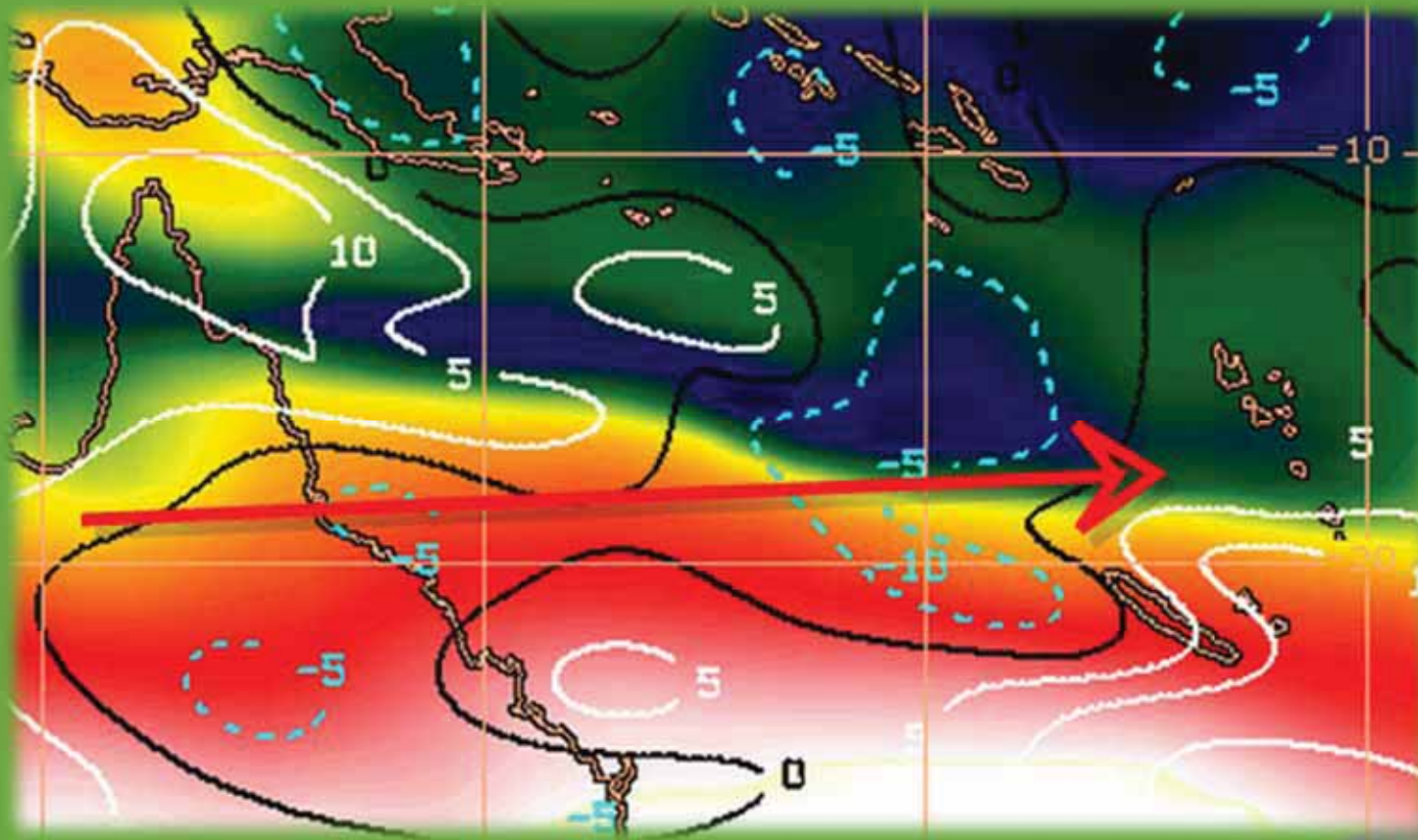
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Source: Geoscience Australia website, August, 2011.



# Cyclone Tracking



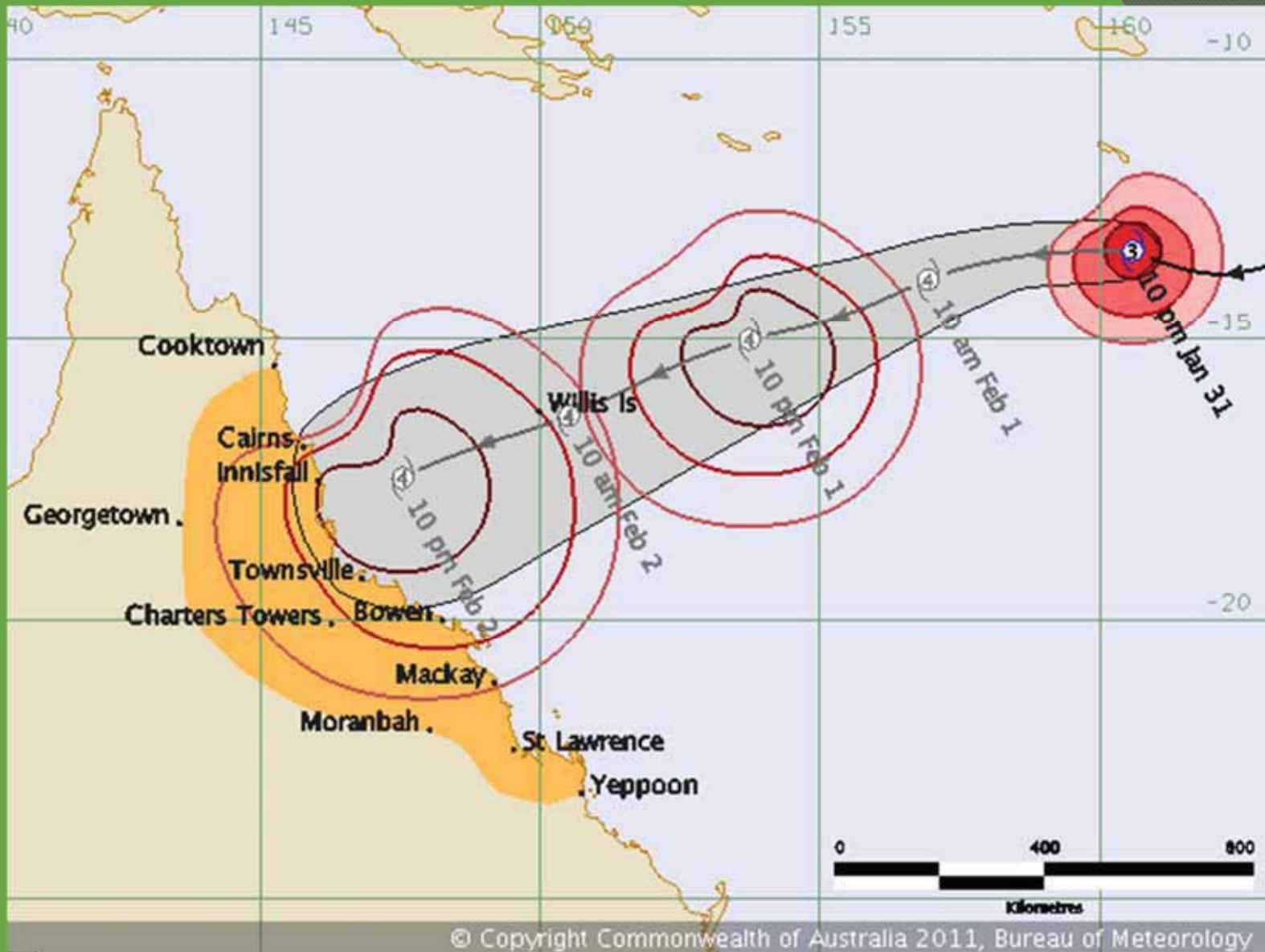
Source: 28storms.com

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# Supporting Materials

- Spatial technologies allow users to create a range of materials that can be used in the immediate and long-term response to the hazard
- Planning, infrastructure, landuse, demographics

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Get directions My places

Save to My Places

### Black Saturday

On February 7, 2009, vast swathes of the Victorian landscape were reduced to cinders when the Black Saturday bushfires swept across the state, killing 173 people, injuring hundreds more, and leaving thousands homeless.

Public - 2,592 views  
Created on Jan 29, 2010 By SBS Updated Feb 5, 2010

Rate this map Write a comment - KM



#### Horsham

Fire broke out on the western outskirts of Horsham shortly after 12 noon on Black Saturday. The blaze raged to the south of the town, destroying 68 homes and burning through 2,200 hectares of land...



#### Coleraine

A blaze broke out on farmland to the north-west of Coleraine at about 12.30 on February 7. The fire destroyed one house, and burned through 775 hectares of land, briefly threatening to spread into th...



#### Weente - Pombornit

Firefighters were called to a blaze west of Pombornit shortly after 1pm on Black Saturday. Roads were closed and trains canceled when the fire crossed the Geelong to Warrnambool railway line. Flames...



#### Bunyip State Park

Lightning sparked several fires in Bunyip State Park on the afternoon of Wednesday February 4. They were still burning by the end of the week, and in the early hours of Black Saturday, the blaze broke...



#### Churchill - Callignee - Hazelwood South

Witnesses reported seeing a fire in a blue gum plantation south-east of Churchill at 1.30pm on Black Saturday. The blaze - which is believed to have been deliberately set by an arsonist - raced through...



#### Bendigo

Fire crews were called to a blaze at Bracewell Street, on the outskirts of Bendigo, shortly after 4.30pm on Black Saturday. The blaze burned around homes and through scrubland, killing one person and...



#### Redesdale

Eye-witnesses spotted smoke and flames at Redesdale shortly after 3pm on Saturday February 7. Residents living nearby were warned to activate their fire plans, as the fire destroyed seven...

**Time to move on after fire**  
Last Updated by SBS on Feb 4, 2010

Landlady Sharon McCulloch fought hard to save her Kinglake pub from the Black Saturday bushfires, but a year on, she's preparing to leave it behind.

Directions Search nearby Save to map more ▾

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After Bushfires - www.ask.com - Get After Bushfires Find After Bushfires Ad

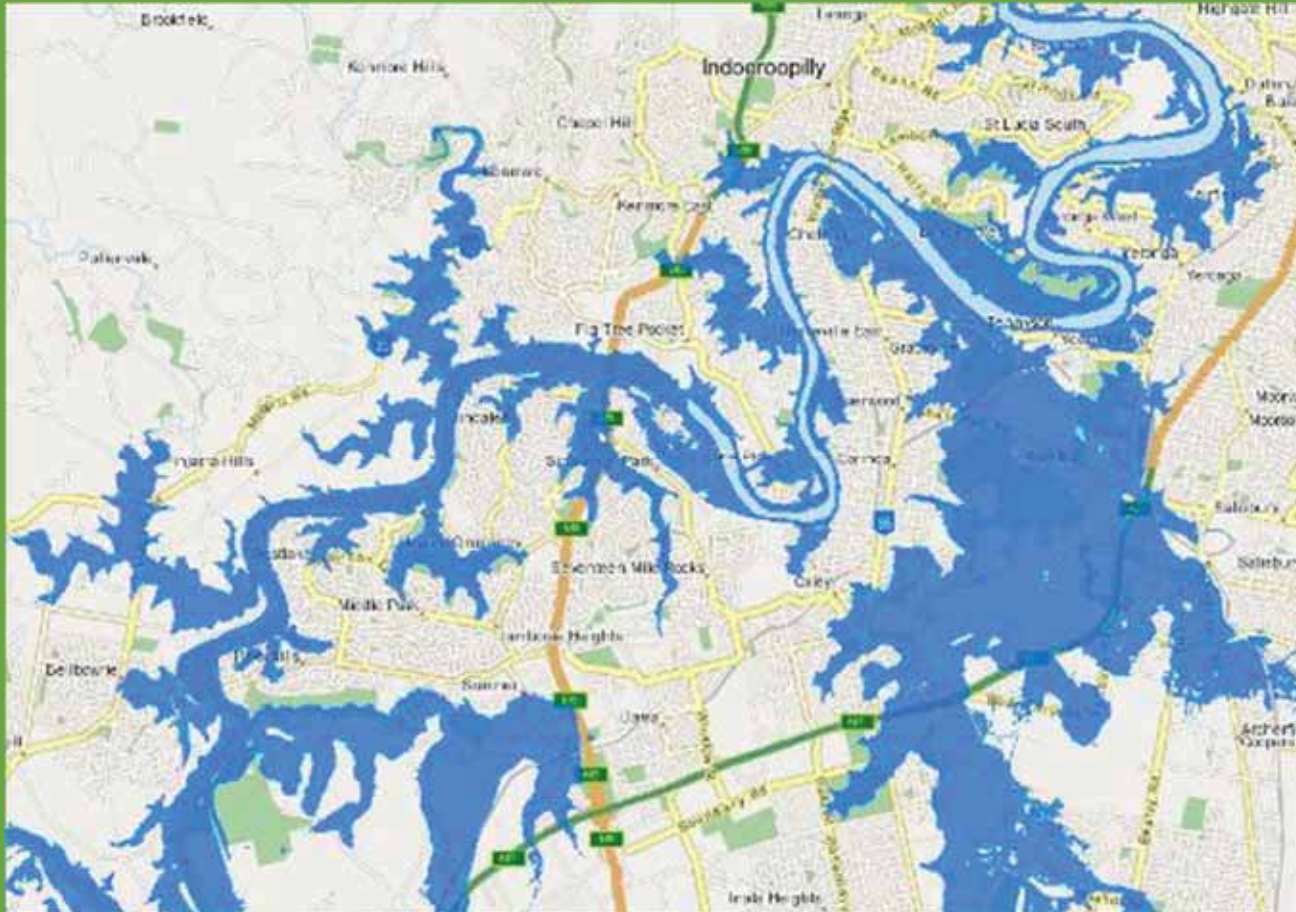
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Source: Google Maps and SBS

# Queensland Floods 2011



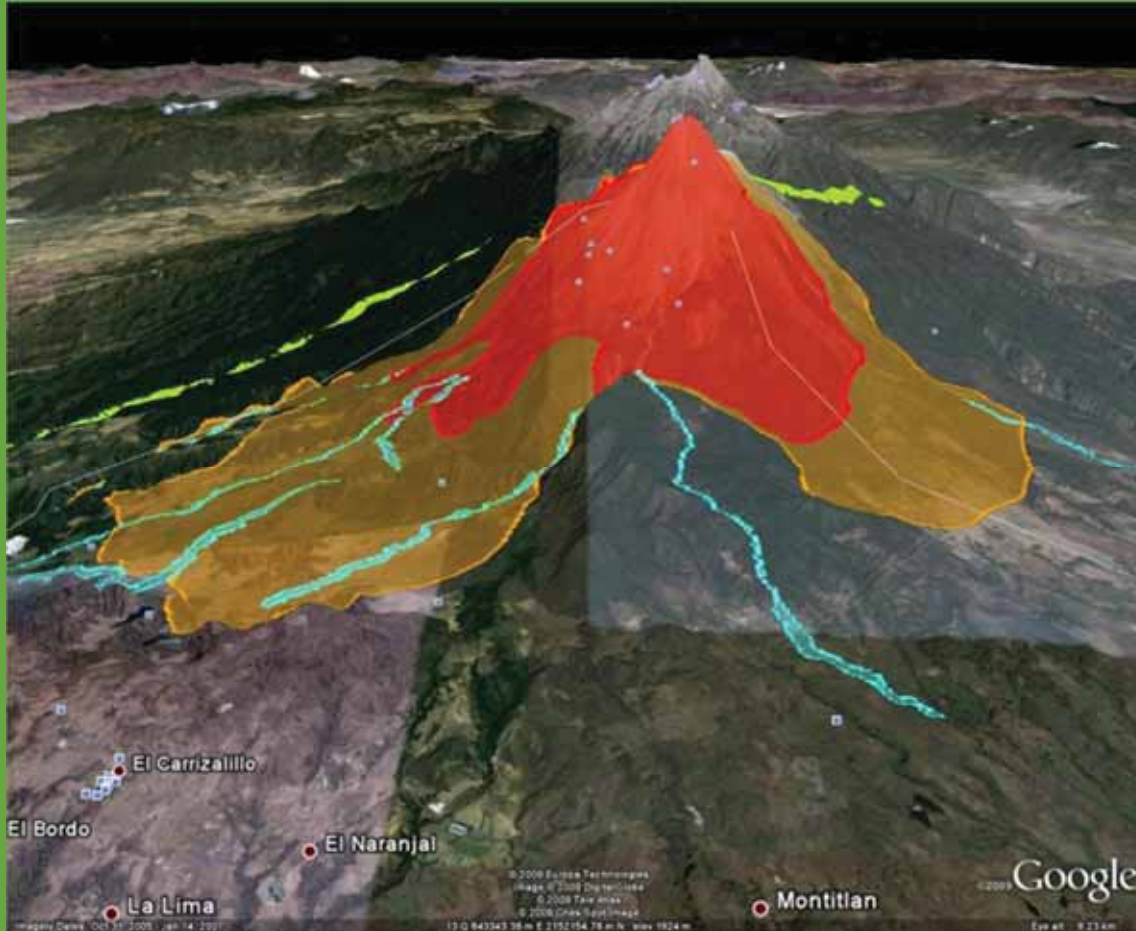
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# Google Earth



Source: Universidad Nacional Autonoma De Mexico

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# Teaching *about* Hazards with Spatial Technologies

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# Resources

- Contour Education Sentinel activity
- Queensland Floods 2011
- Fukushima disaster and Christchurch Earthquake
- Google Maps and Google Earth
- GIS Packages

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Questions?