Using NAFI – viewing maps of current fires

Contents

Using NAFI – viewing maps of current fires

The North Australian & Rangelands Fire Information (NAFI) Website provides maps of fires based on satellite images to help fire managers across regional and remote Australia.

The home page has a number of features to help you get the fire map you need:

![Arrow 1] **Read this advice on uncertainty first.** The satellites used are only capable of mapping the approximate location of active fires and their detection of fires is affected by cloud cover and other factors

![Arrow 2] You can quickly bring up a map of your local area using this menu of pre-set maps. Clicking on the arrows on the left will reveal more local pre-set maps as shown below. Clicking on a map title will then bring up a map of recent fire activity in that area.

3 You can also bring up maps of recent fire activity by clicking on the satellite image. You will get a fire map across the broad region you click on: e.g. across the Top End of the NT. The satellite image also shows the current cloud conditions – courtesy of Geoscience Australia's Sentinel website.

4 Underneath the banner is a set of tabs that bring up different menus on the left so you can explore different fire management tasks. On opening the site, the left-hand menu is for viewing Fire Maps. By clicking on the other tabs at the top you can bring up new left-hand menus with tools that help you:

- track active fires
- view maps of past patterns of burning (fire history)
- download data from the NAFI site
- create a printable report that analyses the fire patterns in an area you select and displays them as tables, maps and graphs
- use other tools such as a list of all the fire map layers on the site, the SavBAT emissions calculation tool, and links to fire information.
- access a menu of help information on how to use the NAFI site.

5 There are quick links to the latest updates on the site, help information as pdfs and videos, how to view NAFI on *Google Earth* and contact information.

6 Occasionally there will be developments that affect the maps of recent fire activity that are useful to know about – such as unusually extensive cloud cover in the fire season that limits the detection of burning fires, or a technical problem that has interrupted the fire mapping. This information will be displayed in the menu bar above the map, in the space to the right of the standard menu tabs.

The Fire Maps
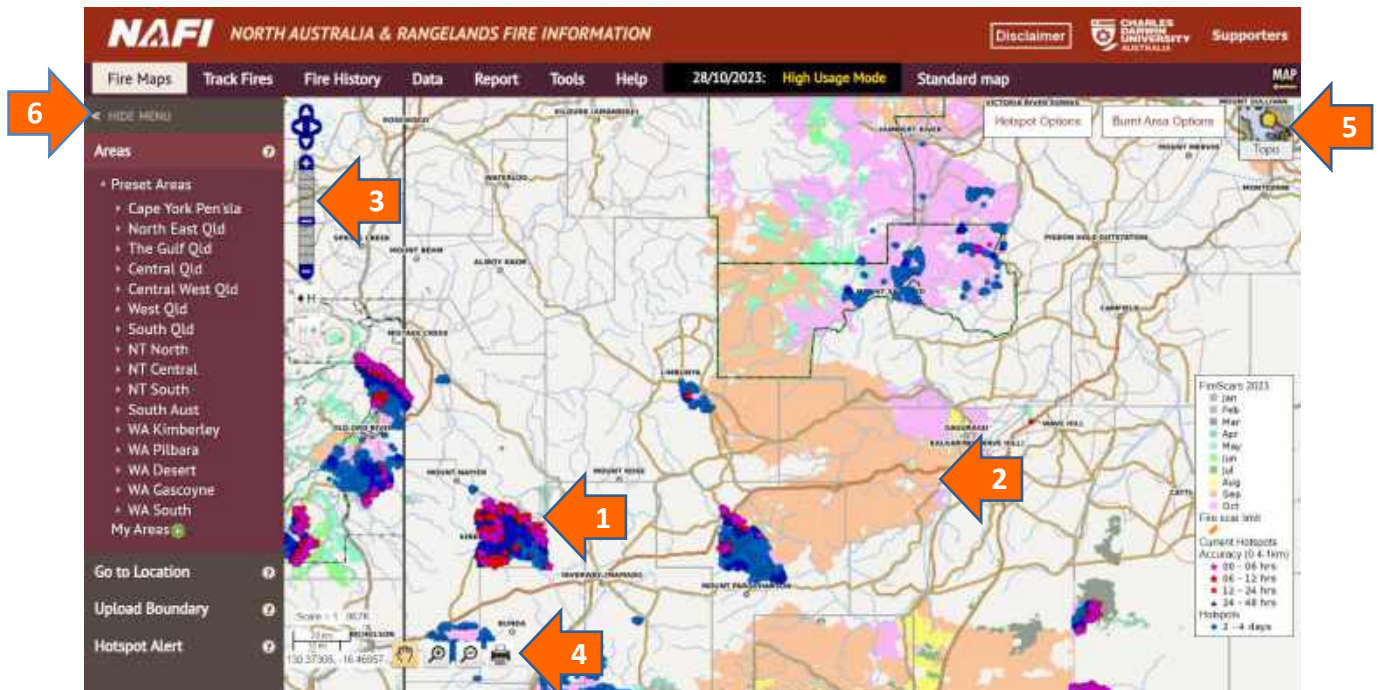
NAFI fire map basics

The maps of recent fire activity show:

1 Actively burning fires from recent days are displayed as coloured points, or "hotspots" with the pink and red hotspots indicating more recently detected burning fires and the blue hotspots indicating fires detected earlier as shown below.

⭐ Fires detected in the last six hours

★ Fires detected in the last 6 - 12 hours

🟥 Fires detected in the last 12 – 24 hours

🔺 Fires detected in the last 24 – 48 hours

🔵 Fires detected in the last 2 – 7 days

> **!** At times of very high usage, the hotspot display may be limited to more recent days to limit the load on the NAFI database.

2 Areas of land burnt in the current calendar year are shown as coloured patches with the colour corresponding to the month in which they were detected as being burnt – and the warmer colours (yellow, orange, pink and purple) allocated to those warmer months where fires are generally more intense.

⬜	January	🟩	May	🟧	September
⬜	February	🟩	June	🟪	October
⬜	March	🟩	July	🟪	November
⬜	April	🟨	August	⬜	December

3 The standard navigation is similar to that used on *Google Maps* with a slider bar and arrows for panning. The "H" history buttons below the slider bar allow you to quickly go back and forwards through all the maps you have made in your visit.

4 Alternatively, you can use the zoom in and zoom-out by rectangle tools along with a "hand" pan button as featured on the old NAFI site.

5 You can choose from different background map options by clicking on the small image in the upper right of the map. You can choose from line/topo maps (default), line maps, and topo maps as well as the Google satellite image.
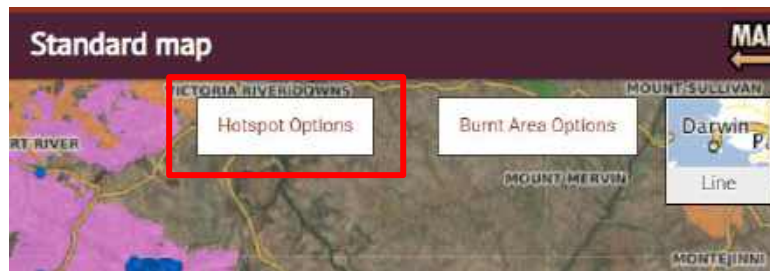
6 You can hide the left-side menu by clicking on the arrow, top left, to make more room for the map. Clicking the arrow again restores the menu.
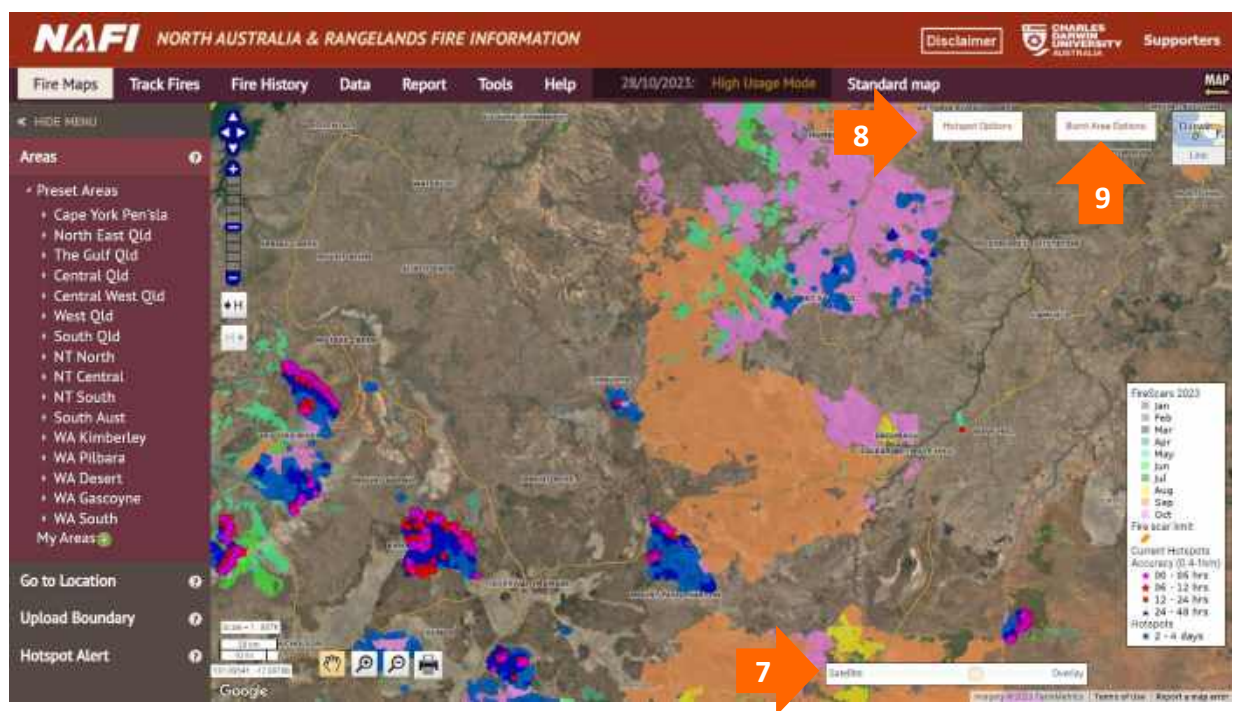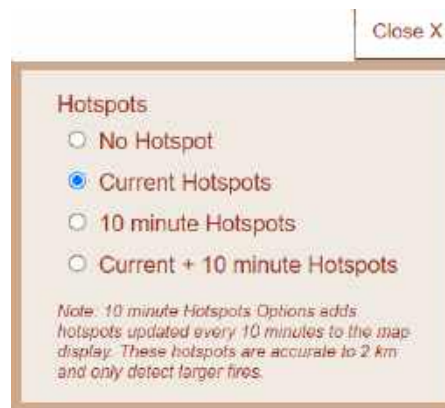

7 If you select the Google satellite image as a background, you can use the slider bar at the bottom of the screen to fade the fire scars so that the background features become easier to see behind the fire scars.
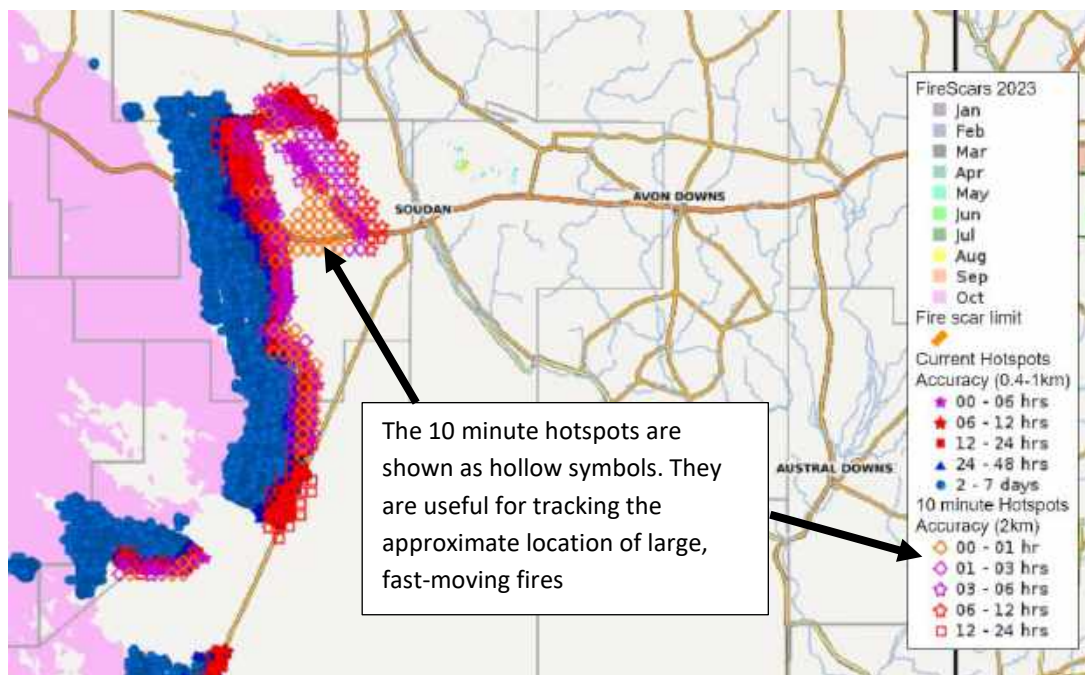
8 The "Hotspot Options" box at top right will open a menu of useful map layers for hotspots that can be turned on or off – providing quick access to these layers.

The default setting is "Current Hotspots" which are the regular hotspots described above that are accurate to between 400m and 1km and are updated several times a day for a given location. If you select "10 minute Hotspots" you can view hotspots sourced from a geo-stationary satellite that are updated every 10 minutes. These hotspots, however, are only accurate to 2 km and will not detect smaller fires. The "Current + 10 minute Hotspots" option is shown below.

The 10 minute hotspots are shown as hollow symbols. They are useful for tracking the approximate location of large, fast-moving fires

More about hotspots

What type of hotspots are displayed?

The NAFI site displays two types of hotspots:

- "Regular" hotspots, displayed as filled-in symbols, that are accurate to 400m to 1km and are updated several times a day; and
- "10 minute" hotspots, displayed as hollow symbols, that are accurate to around 2km and are updated every 10 minutes.

The regular hotpots more reliably detect open-country fires and are displayed by default. The 10-minute hotpots are useful for larger, fast moving fires and are an optional display.

How accurately are the regular hotspots mapped?

- The locations of the hotpots on the map are accurate to within approximately 400m of their actual location for some hotspots and up to a kilometre for others. This error may be greater under some conditions.
- The great majority of hotspots represent actual fires or heat sources such as smokestacks. Occasionally hotspots may be triggered by very hot rock surfaces, smoke plumes or errors in the automated process that detects the hotspots from a satellite image. In the latter case, the hotspots may appear in a line running diagonally across the map. These are usually removed as soon as they are detected.

How frequently updated are the regular hotspots?

- Active fires large enough to be detected by the satellites can have their position updated up to four or five times a day, but often less than this rate.
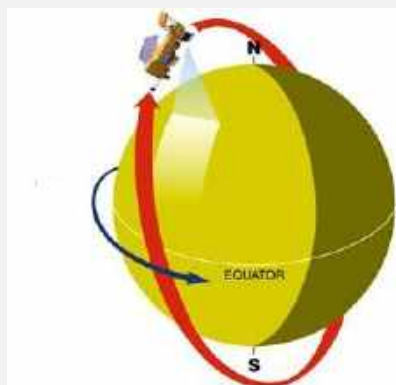
The NAFI site sources locations of regular hotspots from five satellites which have orbits that pass over the poles. These satellites only get to see a given location twice a day: once in the day and once at night.

Broadly speaking there are five regular hotspot updates a day corresponding to the different satellites passing over twice a day:

1. Very early morning pass (around 1-3am CST) Aqua, NPP and JPPS satellites
2. Early morning pass (around 4-6am CST) NOAA 19 satellites
3. Late morning pass (around 10am-12pm CST) Terra satellite
4. Early afternoon pass (around 1 – 3pm CST) Aqua, NPP and JPPS satellites
5. Late evening pass (around 10pm-12am CST) Terra satellite

- Most regular hotspots are displayed on the NAFI site between 30 minutes and 3 hours after they are detected by the satellites as they need to be processed at a downlink station and sent across the network to the NAFI server. A smaller number of hotpots are supplied to NAFI many hours after they were detected as they are earlier satellites passes that have been processed in a different way (e.g. by being sourced from NASA in the US) and are displayed to provide a more complete record. Because of this inherent delay the NAFI site is not suitable for tracking fast moving fires.

How accurately are the 10 minute hotspots mapped and how frequently are they updated?

- The 10-minute hotspots are sourced from a Geo-stationary satellite – Himawari 9 (in 2023) – which sits around 35,800 km above the earth holding location above the Asian – Australian region. This is much further away from earth that the around 800km altitude of the polar-orbiting satellites and the location accuracy of active fires is only around 2km.
- The advantage of the geo-stationary satellites is that it is sitting above the same large area on earth and can frequently update the hotspots detected in this area. No prizes for guessing how often the 10 minute hotspots are updated: every 10 minutes. However, this does not mean that the location of an active fire will be reliably updated every 10 minutes. Because a fire has to be intense enough "light-up" a 2km by 2km pixel on the sensor, only brighter signals are detected and if a fire dips in brightness it will not be detected.
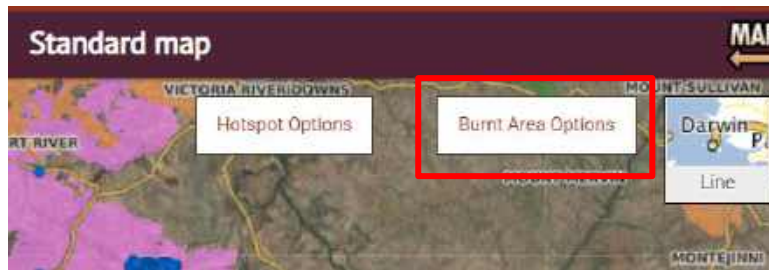
9 The "Burnt Area Options" box at top right will open a menu of useful map layers for burnt areas that can be turned on or off – providing quick access to these layers.
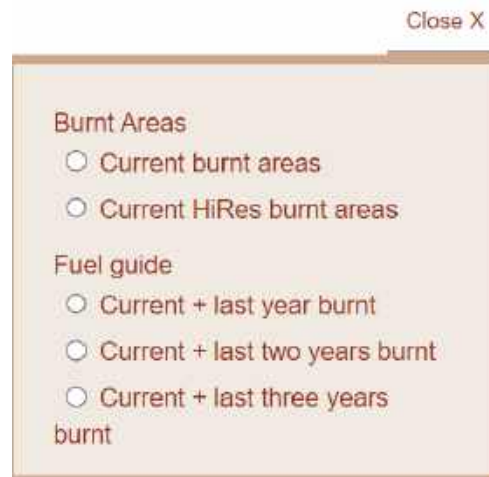

The menu allows two types of Burnt Area mapping to be displayed:

- "Current burnt areas" which are 250m resolution burnt area maps that cover all of the NAFI display area except SE Qld where this mapping is too coarse to be useful. This mapping is often updated weekly in the fire season.

- "Current HiRes burnt areas" which are finer-scale 10 or 20m resolution burnt area maps for certain regions such as QLD and much of the Top End of the NT. These maps are updated less frequent – the NT maps every 1-2 weeks in the fire season and the Qld maps every month. The Queensland hi res burnt area mapping is sourced from the Queensland Department of Environment and Science.

The menu also allows the quick display of previous years' annual burnt areas (in the 250m resolution mapping) that can act as a useful guide to fuel levels, particularly in areas of the far north with a regular rainfall seasonality. These layers are also available in the left hand menu under the "Track Fires" tab – see below).

More about Burnt areas

NAFI displays two types of burnt areas or fire scars: the standard NAFI burnt area maps which are frequently updated, "more blocky" with 250m pixels and are displayed right across the rangelands; and HiRes fire scar mapping which is "less blocky" (has a higher resolution), is less frequently updated, with 20m pixels and displayed in some regions only.
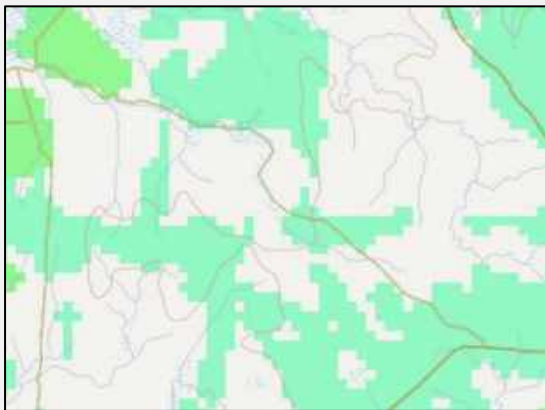
Standard 250 pixel mapping
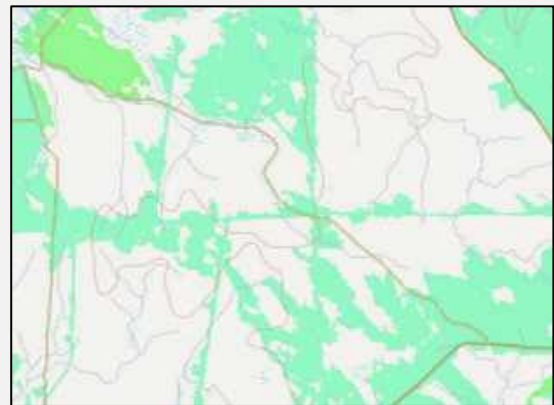
HiRes 20m pixel mapping

How accurately are the 250m burnt areas mapped?

The standard 250 burnt areas are a more comprehensive and accurate record of burning than the record of hotspots. They are mapped from satellite images of fire that have a pixel size of 250m – a

recently burnt area is shown in false-colour red at left. This contrasts with the approx. 1 km. resolution of the hotspot mapping.

This 250m resolution is suitable for broadly mapping the areas burnt by large open-country fires, but it won't pick up the smaller scale patchiness that often characterises early dry season fires.

Each year the NAFI 250m fire scar mapping is compared with the actual burnt areas through aerial surveys and show that in the savanna landscapes the mapping is between 85-95% accurate at measuring areas burnt across large properties. The accuracy drops in the more arid areas to the south and in the wooded, moister northern and coastal regions – and in the more developed landscapes further south.

How frequently are the 250m burnt areas mapped – and how accurately are they dated?

In the northern fire season, the 250m fire scar mapping in a given area of the fire-prone far north (north of 20 degrees South) is usually updated once a week – occasionally twice or more a week.

The mapping is initially generated with an automated process using software that compares the most recent satellite image to earlier ones and picks out the changes in dark areas – which may be new burnt areas. These maps are then edited to improve accuracy with the operator using their knowledge of the landscape and fire patterns.

Because there may be a few days to a week between the two images that are compared to detect new fire scars, it is uncertain exactly when in that interval the new burns detected actually occurred. If the interval between the two images covers the end of one month and the beginning of the other, then the fire scar is given the colour corresponding to the month with the most days in the interval.

So, the cut-off date between one month and the next in the fire scar mapping is only approximate for most months.

July-August cut-off

The exception is the cut-off date between July and August as this is important for Carbon Farming Initiative Savanna Burning projects. By selecting the appropriate images, the NAFI mappers ensure that their mapping identifies all July fire scars correctly and does not assign August scars to July.

How accurately are the 20m burnt areas mapped?

At the property scale the 20m mapping is usually much more accurate at mapping the extent of burnt areas than the 250m mapping as it can pick out much smaller burnt/unburnt areas. But at the broader landscape scale the 20m mapping may not be as accurate as the 250 mapping at measuring burnt areas, particularly in regions and times of year with persistent cloud cover.

This is because the Sentinel-2 satellites used for the 20m mapping pass overhead every 5 days, whereas the MODIS and VIIRS satellites used for the 250m mapping pass overhead a few time every day. If several consecutive Sentinel-2 HiRes passes are obscured by clouds this can mean a gap of weeks between images of burnt areas by which time the scar may have faded so much it can no longer be mapped well, whereas the MODIS/VIIRS satellites will usually get a few peeks at the scar during occasional rare breaks in cloud cover. So the HiRes mapping can miss more burnt areas than the standard mapping in areas where there has been persistent cloud cover.

## How frequently are the 20m burnt areas mapped – and how accurately are they dated?

As the Sentinel-2 satellites used for the HiRes mapping pass overhead every 5 days and as the occasional pass may be not suitable for mapping, the HiRes mapping is usually updated every 1-2 weeks – less frequently than the standard burnt area mapping.

The lower frequency of satellite overpasses affects the accuracy of dating the HiRes burn area mapping. If there is a gap of a week or two between capturing an image of a fire that has spread, there is a week or two of uncertainty in when that new area might have burnt. So, the dating o9f the HiRes mapping is more approximate that that of the standard mapping and may be up to a few weeks different from when it actually burnt.

Track Fires

Beyond locating fires, the NAFI site can also be used to get more information on the behaviour of an active fire. The tools for this are found in the **Track Fires** menu – click the tab to the right of the **Fire Maps** tab. You should then see the left-hand menu with the various tools for tracking fires.

Track Fires: Recently Burnt Areas
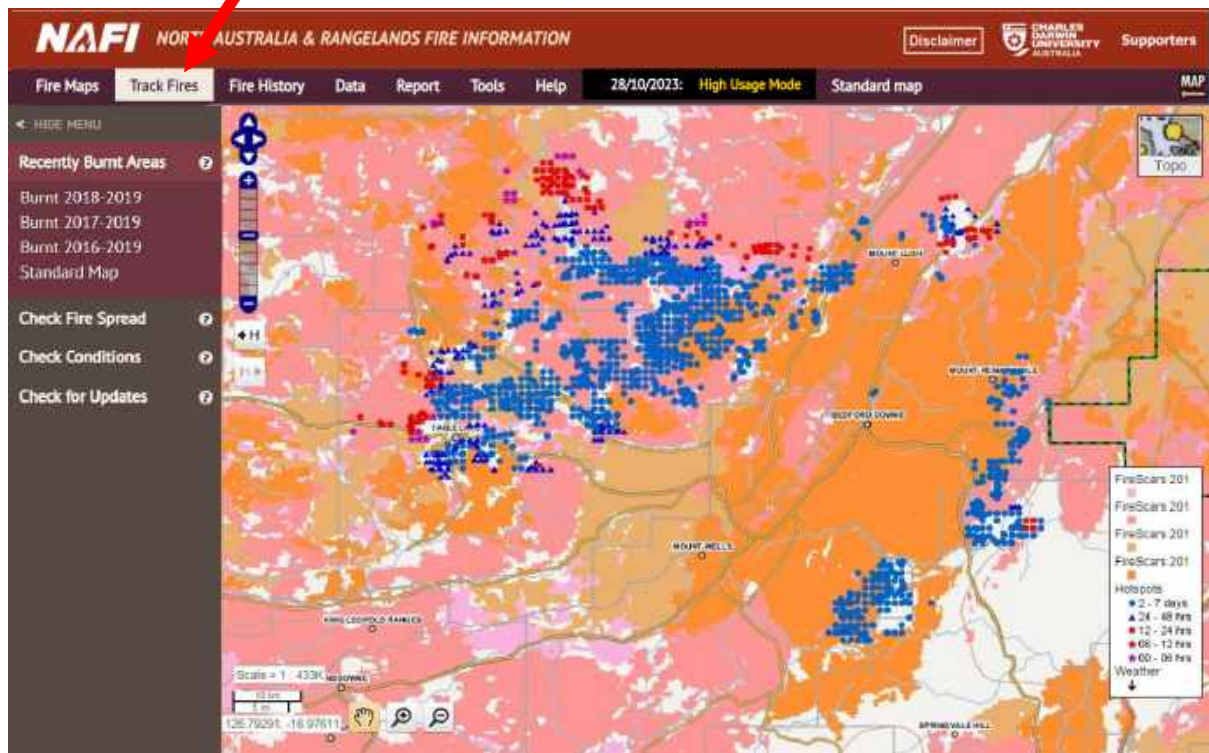
1 By clicking on one of the layers in the **Recently Burnt Areas** menu you can display the most recent one to three years of fire scars, which in the far north can be a good guide to grassy fuel levels. In the map above the white and pale pink areas have not been burnt for three and two years respectively and may have more fuel available for fire. To restore the map of current year fire scars, click "Standard Map". Using the satellite image background and the slider bar to fade the fire scars can also be useful.

# Track Fires: Recent HiRes Fire Scars

This menu allows the display of high-resolution firescar mapping for the current year (regularly updated) and the previous year. This mapping is produced by different groups for use in particular regions and made available for display on NAFI. As shown below, the regions where the HiRes mapping is not available have a grey mask. Areas with regularly updated HiRes mapping are expected to increase in the future.
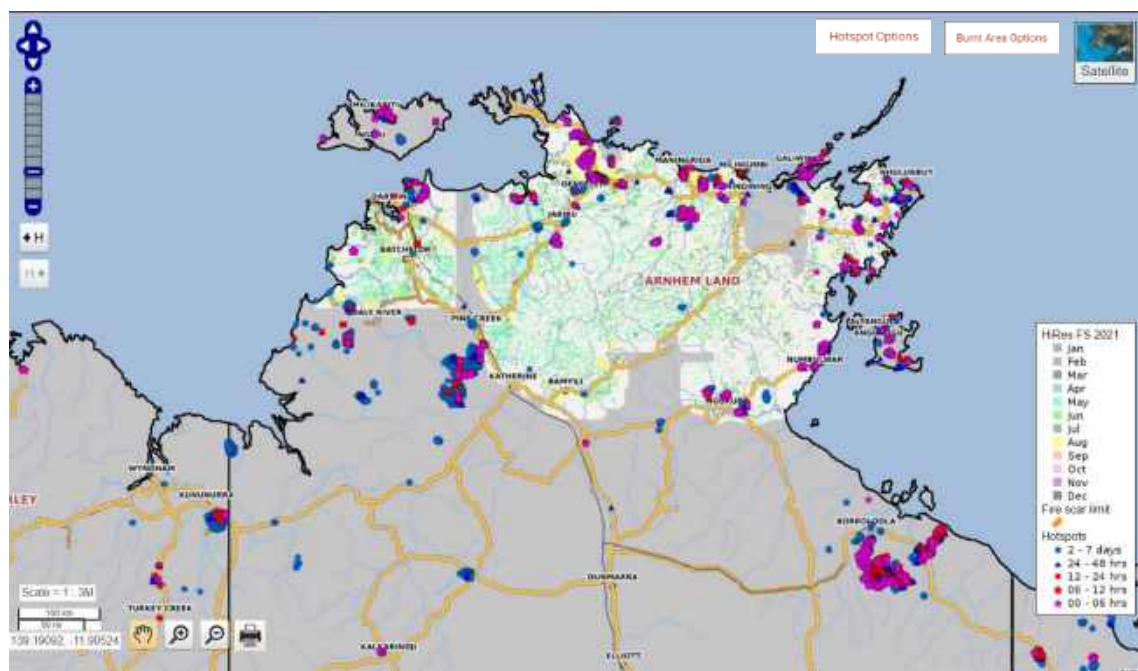
While the standard NAFI mapping has a resolution of 250m per pixel, the high-resolution mapping resolution is 10-20m per pixel. As shown below, this allows fine fire breaks, smaller fires and internal patchiness to be captured by the mapping.
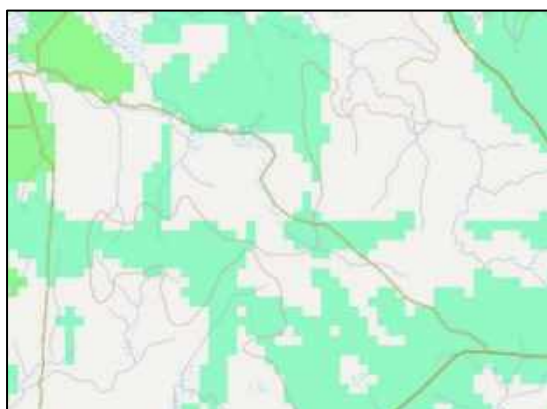
Standard 250 pixel mapping
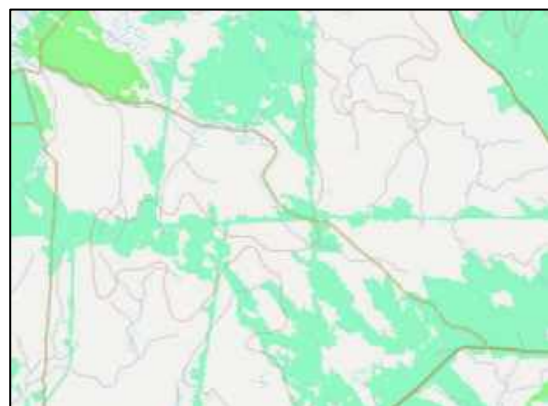
HiRes 20m pixel mapping

Because the satellites used to produce the HiRes mapping pass overhead less frequently than those used for the standard mapping (once every 5 days versus a few times every day) the dating of the HiRes burnt area mapping is only approximate and may be up to few weeks different from the actual date of the burn.

Track Fires: Check Fire Spread

This menu item has the *Query hotspot times* and *Visualise Spread* for *hotspots (last week)* and *hotspots (older)* tools - useful for checking how rapidly and in what direction a fire is spreading as well as where it may have started.

Query hotspot times

The **Query hotspot times** tool displays in a table the times at which all hotspots in an area you select were detected by satellite. This table can be useful for finding out more about how a fire is spreading and where it may have started from. This tool can be used on recent hotspots as well as those from past months and years. (This tool can also be found in the **Map Layers** menu under the **Tools** tab.)

1 Clicking on the **Query hotspot times** tool (circled in blue) will produce a small yellow circle at the tip of your cursor – which allows your cursor to draw a boundary around a fire that you want to get hotspots times for.

2 Double-clicking the completed boundary will highlight the area selected and bring up a list of all the hotspots within the area and the times at which they were detected by the satellites – as well as which satellite detected them, what organisation the data was sourced from and the Log Id (used by site administrators). You can drag the table to a convenient place on the screen with the cursor.

3 You can highlight details of a hotspot in the table and that hotspot will be highlighted in the map in yellow (circled in red). The table is ordered with the earliest hotspots at the top, so highlighting the topmost hotspots in the table can give you information on where the fire may have started.

> **!** **THE LOCATION OF THE EARLIEST DETECTED HOTSPOT MAY NOT BE WHERE THE FIRE STARTED.** The actual early stages of a fire may have been too cool to be detected by satellites or may have occurred on days where detection was hampered by cloud cover.

Visualise Spread: hotspots (last week)

The **Visualise Spread: hotspots (last week)** tool creates a mini-movie of the spread of a recent fire by animating the hotspots based on their time of detection. This can give an idea of how a fire is spreading, but care should be taken interpreting these animations given that the satellites may not have detected all hotpots in a fire. This tool is for hotspots up to a week old – displayed on the standard NAFI maps.
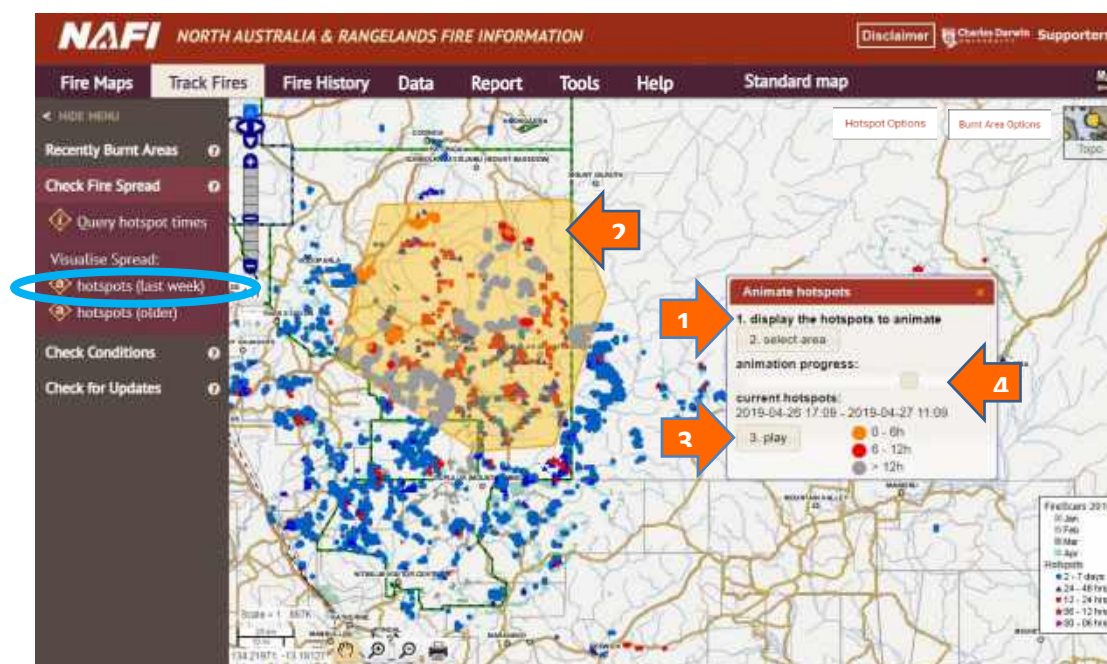
1 Clicking on the **hotspots (Last week)** tool (circled in blue) will bring up a panel at the bottom of the screen – you can drag this with the cursor if you need to position it next to your hotspots of interest.

The first step is a link that reminds you to display the appropriate hotspots to animate in the map window if you haven't already navigated there.

2 Next, click the "2. select area" button on the panel and you will be able to draw a boundary around the hotspots of interest. Double-click to highlight the area.

3 Then click the "3. play" button on the panel to start the animation of the hotspots in the highlighted area. This may take a little while as the "loading" symbol displays in the lower right of the map, but soon you should see the slider bar move across the panel as the hotspots are cycled through the colours orange (0-6 hours after detection), red (6-12 hours after detection) and grey (over 12 hours after detection).

4 After the animation has played you can grab the slider bar with the cursor and move the animation back in time to analyse the fire spread in more detail.

! **THE ANIMATION MAY NOT PROVIDE A FULL VIEW OF FIRE SPREAD.** Because the satellites may not have detected all the hotspots associated with a fire due to cloud cover or other conditions, the animations of fire spread should be interpreted with caution.

Track Fires: Check Conditions
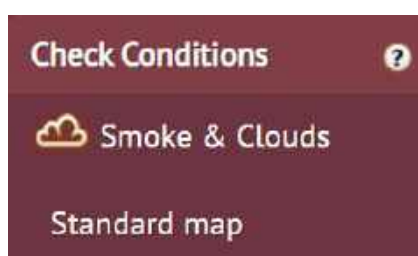
This menu allows you to check the smoke & cloud conditions as seen by the satellites that detect the fires.

This tool can be useful when checking an active fire – to see if cloud cover might be limiting satellite detection, or to verify hotspots are a fire by looking for smoke plumes.

THE LIGHTNING DISPLAY IS CURRENTLY NOT AVAILABLE. This menu did allow you to view lightning data, however, this menu item is currently not available while we arrange for a new data supplier.
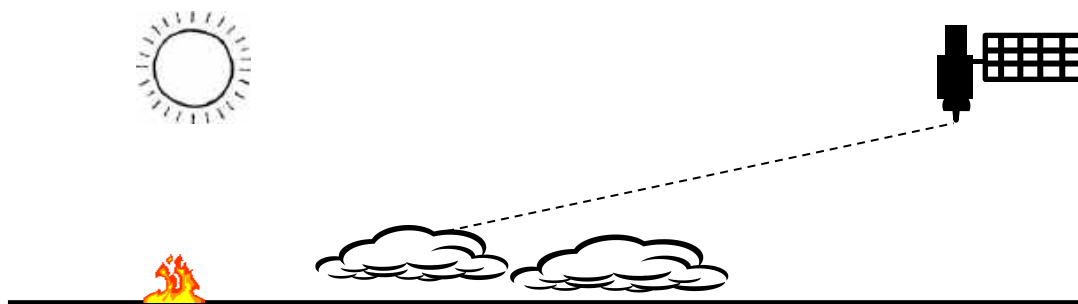

Check Smoke & Clouds

Clicking **Smoke & Clouds** will open an image in a new tab or window that shows the view of the map area by the Himawari geostationary satellite. The image may appear a bit blurry if

you are zoomed in, but it will show the current cloud cover and the presence of smoke plumes. For example, the image below shows significant cloud cover in the satellite's view of a NAFI map area. In this case if you have a fire in the area arrowed, it will likely not be detected by the satellite due to cloud cover, and will not show up on NAFI.

The satellites are often passing low in the sky when they take a photo of a fire. In this case although it may be sunny overhead, it is the clouds towards the horizon that may be preventing detection of a fire. Using the **Smoke & Clouds** image will provide the satellite's eye view to verify if this is happening.

You can also use the **Smoke & Clouds** tool to verify that a hotspot or group of hotspots on a NAFI map are actually fires. As shown below, many active fires will show up as smoke plumes – such images can also give a good guide to prevailing winds.
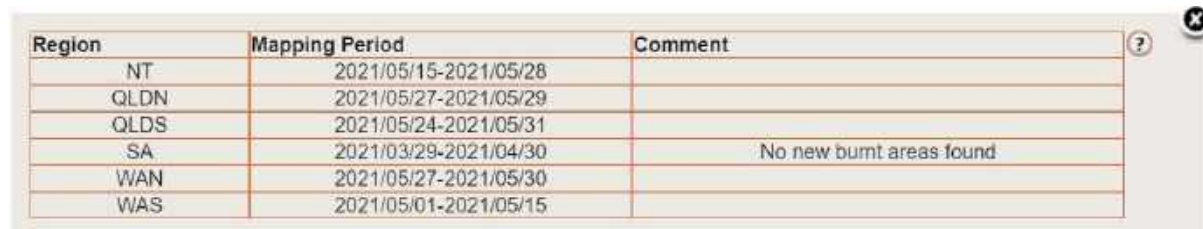
Track Fires: Check for Updates

With this menu you can check when the latest fire scars and hotspots were uploaded to NAFI which can help understanding what the map display is telling you – e.g. the maps may not be showing very recent fire spread because there has not been recent hotspot data from the satellites - or there has not been a recent fire scar update.

Check latest firescars

Region	Mapping Period	Comment
NT	2021/05/15-2021/05/28	
QLDN	2021/05/27-2021/05/29	
QLDS	2021/05/24-2021/05/31	
SA	2021/03/29-2021/04/30	No new burnt areas found
WAN	2021/05/27-2021/05/30	
WAS	2021/05/01-2021/05/15	

Clicking this link produces a pop-up table (above) that lists the most recent fire scar updates for the fire regions that NAFI covers

- Southern Western Australia (WAS)
- Northern Western Australia (WAN – down to 21°S)
- The Northern Territory (NT)
- South Australia (SA)
- North Queensland (QLDN – down to around 20°S)
- Southern Queensland (QLDS)
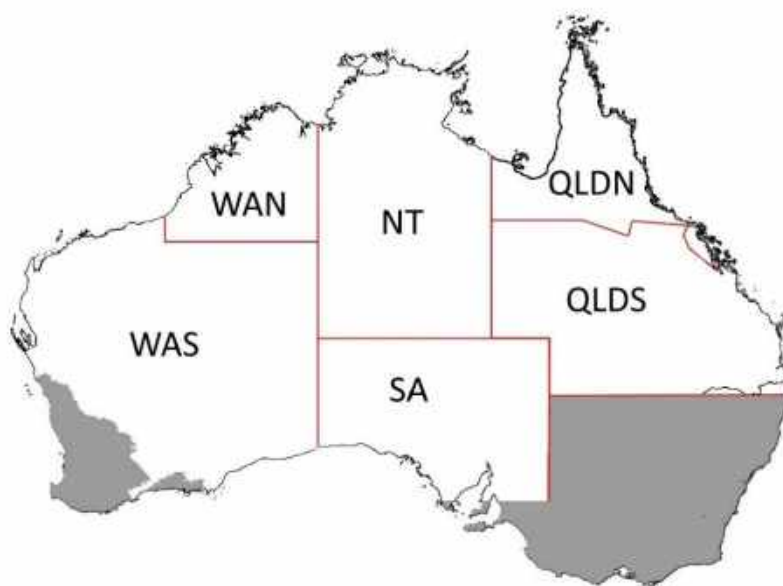
The fire scars, based on satellite imagery and edited for accuracy, are uploaded for each region by the fire scar mappers who specialise in that region. The upload frequency for a region is typically once a week once during the active fire season in that region.

The mapping period is the period in which the fire scar - the newly burnt area - was detected (see section on fire scars in "NAFI fire map basics" above).

Check latest hotspots

Pass No.	Source filename	Source	Acquired	Uploaded to NAFI	Hotspots
1236155	202106040556A.txt	Landgate	04/06/21 07:26 CST	04/06/21 07:55 CST	2
1236143	A202106040117.txt.SRSS	Landgate	04/06/21 02:47 CST	04/06/21 03:35 CST	80
1236141	P202106040032.txt.SRSS	Landgate	04/06/21 02:02 CST	04/06/21 02:45 CST	10
1236140	L202106040029.txt.SRSS	Landgate	04/06/21 01:59 CST	04/06/21 02:45 CST	61
1236138	A202106040026.txt.SRSS	Landgate	04/06/21 01:56 CST	04/06/21 02:15 CST	3
1236127	P202106032345.txt.SRSS	Landgate	04/06/21 01:15 CST	04/06/21 01:35 CST	3
1236132	C202106032339.txt.SRSS	Landgate	04/06/21 01:09 CST	04/06/21 02:05 CST	21
1236131	A202106032335.txt.SRSS	Landgate	04/06/21 01:05 CST	04/06/21 02:05 CST	2
1236122	A202106032250.txt.SRSS	Landgate	04/06/21 00:20 CST	04/06/21 00:35 CST	1

Clicking this link produces a pop-up table (above) that lists the most recent hotspot updates to the NAFI map display. The hotspots are automatically generated from imagery from satellite passes by agencies like Landgate WA and Geoscience Australia or "Sentinel" (see section on hotspots in "NAFI fire map basics" above).

Each row in the table lists details of the hotspots from a given satellite overpass. It will list a pass no; the filename that contains the hotspot data; and the agency the hotspots come from (all used for more advanced queries); the time the hotspots in the pass were detected, the time they were then uploaded to NAFI and the number of hotpots uploaded.

The most useful information is the "Acquired" column which shows the time when the hotspots were detected by the satellite, ordered by the most recently acquired. The time of acquisition is given in Central Standard (NT) time.

! **THE MOST RECENTLY ACQUIRED HOTSPOTS MAY NOT BE IN YOUR AREA** Because a given set of hotspots uploaded to the NAFI map display come from a certain satellite overpass, they are limited to the area that the satellite passes over which might only cover e.g. WA and NT but not QLD (see section below).

Check next hotspot updates

This link will take you to a page that outlines some useful web tools for seeing when the next hotpot pass over your area is due. For example the site above is showing the next pass of the TERRA satellite on the 31st of August 2020 for the Alice Springs downlink station – which overpasses the east and south of Australia from 9:43 to 9:52 am.

Other useful tools for tracking fires

Querying Fire Scars

If you want to find the dates that a particular fire scar was mapped between, you can query fire scars using the **Tools** menu above the map. (fire scars are mapped by comparing a satellite image of an area with an image of the same area from an earlier date - see "More About Fire Scars" above).
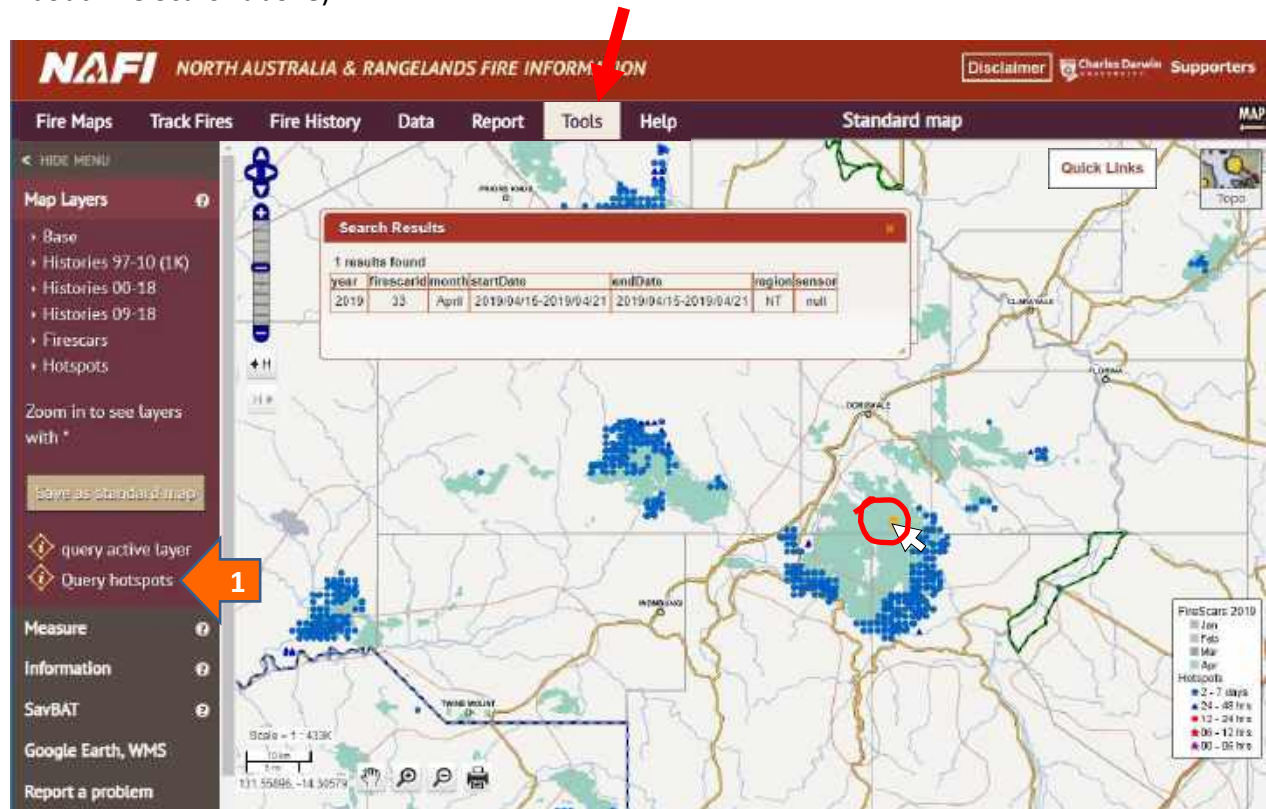
Click on **query active Layer** and you should see a yellow point appear at end of your cursor (as shown circled in red) – next click on the fire scar of interest and you will see the mapping period and other information displayed. If not, check that the "firescars by month (Current year)" layer is selected as active in the Map Layers.

Viewing Fires on *Google Earth*

You can view the main fire maps from NAFI on *Google Earth* by downloading kml files (*Google Earth* files) from the site. You can either go to the **Data** Tab and then open the **For Google Earth** menu or go to the **Tools** Tab and open the **Google Earth, WMS** menu:

There are a few *Google Earth* (kml) files you can download that are useful for monitoring active fires:

- **Current fire data.** Clicking on this link will bring up a dialog box that allows you to download the kml file that displays the last 3 days of hotpots and the current year-to-date fire scars.

  Clicking on the downloaded kml file should then display the recent hotspots and fire scars in *Google Earth*. As this is a network linked file, saving it to "My Places" on *Google Earth* means that the latest fire data will be sourced from NAFI each time you open *Google Earth*.
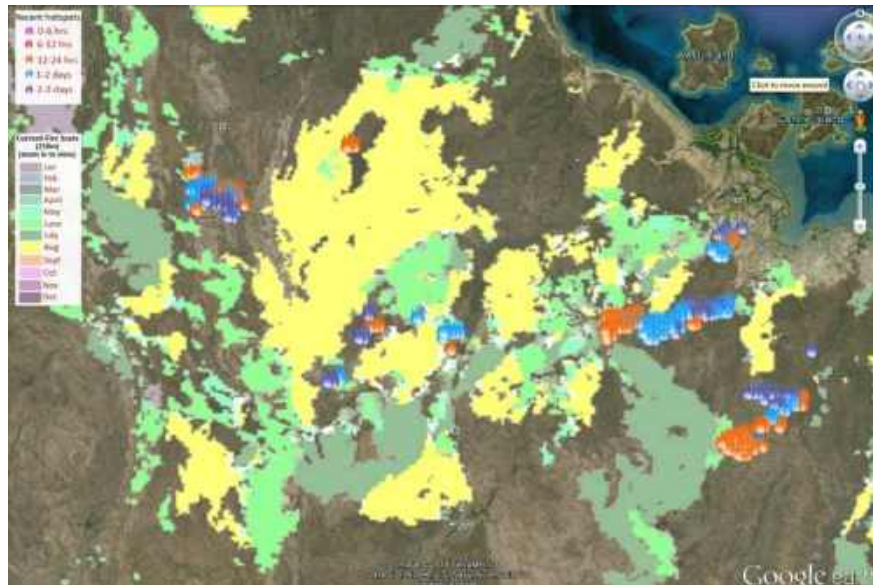
- **Past Year's fire scars.** Clicking on this link will bring up a dialog box that allows you to download the following kml files:

  o *Fire scars by year (from 2006).* Clicking on this link will download the kml file that displays the fire scars colour-coded by year for each year from 2006 to the current year. Follow the same procedure as above – and as for the current hotspots and fire scars, if you save it to "My Places" on *Google Earth*, it will update the data automatically (i.e. the current year's scars). This layer is useful for showing what country has been burnt in recent years, which can be used to estimate grassy fuel in many areas of the far north.

☞ **HINT:** If you display more than one of these layers, the most recent layers need to be on top, as more recent burns will replace older burn histories. Depending on how you ticked the boxes, the initial layering in *Google Earth* may not be like this – so once you have all your layers displayed, move the map around until the scars refresh and they should display in the correct order.

o *Fire scars by month (from 2000).* Clicking on this link will download the kml file that displays the fire scars colour-coded by month (like the current fire scars) for each year from 2000 to the year before the current year. This layer is useful for showing the seasonal pattern of burning in earlier years.
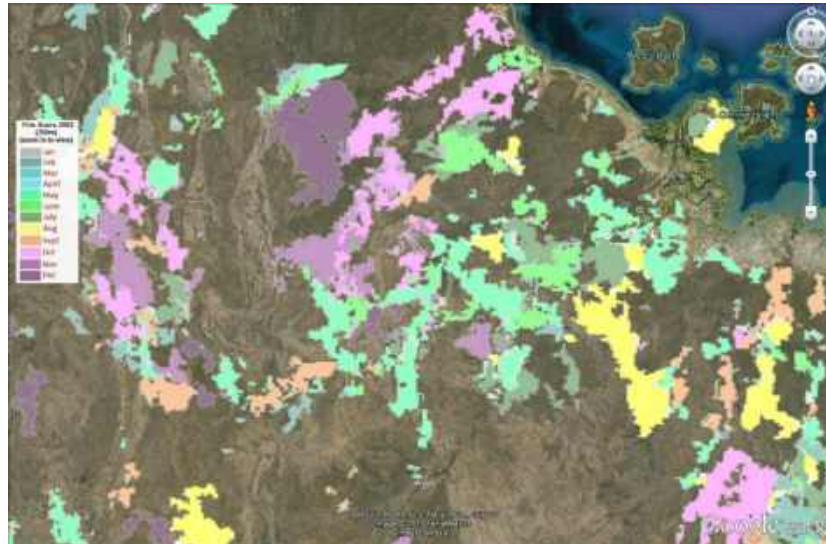
Viewing NAFI data as a Web Map Service

You can view the fire scars, hotspots and fire histories displayed on the NAFI site as a Web Map Service (WMS) in another map viewer. This means you can copy and insert a link into a map viewer that is capable of displaying WMS data (such as another mapping website, or mapping programs like ArcMap) and you will then see a layer list of NAFI maps that can be displayed on that viewer.

To access WMS, go to the **Map Tools** tab and select the **Google Earth, WMS** menu:
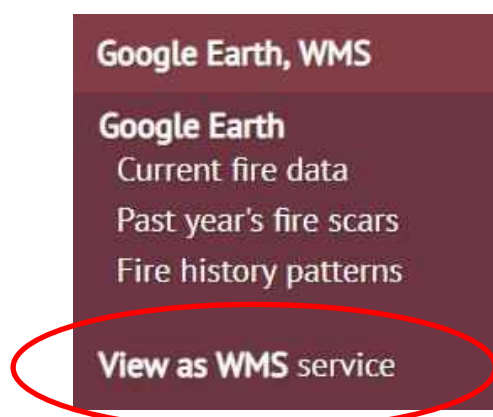
Clicking on this link will bring up the following page:

WMS - WEB MAP SERVICES

This Web Map Service (WMS) provides access to some of the data displayed on the NAFI website directly over the Internet so you can display it as a layer in your own map viewer such as a desktop GIS software application. Every time your map viewer requests new data from this WMS it will get the latest version

These WMS layers are only available as images - you cannot control the symbology or query the attributes of the data. **There have been issues with QGIS users displaying fire scar images using this WMS link.**

Using WMS
To access the WMS data enter the following URL link in your GIS software application:

https://www.firenorth.org.au/public?request=GetCapabilities

and a list of the following data layers should be displayed:
- RANGELANDS_250M_FIRE_FREQUENCY (250m fire frequency since 2007 for most of Rangelands)
- RANGELANDS_250M_LATE_FIRE_FREQUENCY (250m late (after July 31) fire frequency since 2007 for most of Rangelands)
- RANGELANDS_250M_TIME_SINCE_LAST_BURNT (250m Time since last burnt since 2007 for most of Rangelands)
- Hotspots 48 hours to 7 days
- Hotspots 24 to 48 hours
- Hotspots 12 to 24 hours
- Hotspots 6 to 12 hours

The link you need to copy into your map viewer is above the list of NAFI map layers available as a WMS. Note that there have been issues in displaying the fire scar and fire history maps using WMS in the QGIS software.

Viewing NAFI data on the QGIS Plug-in
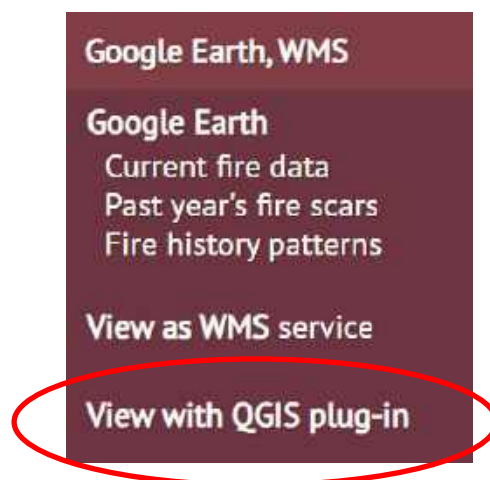
The "View with QGIS plug-in" link in this menu will take you to an information page that explains how you can view NAFI data on the free mapping software QGIS. Using programs like QGIS allow you to view NAFI data against a range of other data, as well as carrying out analyses that are more advanced than what you can do on Google Earth. The information page has a downloadable PDF that provides all the details.

Other tools

Printing a map
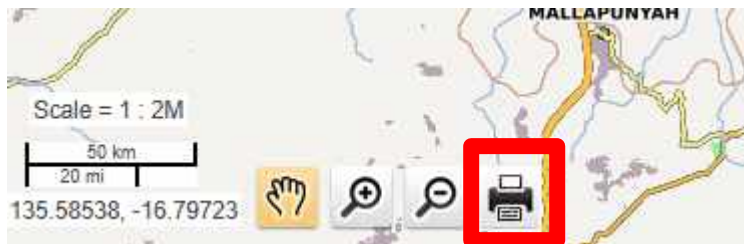
You can print the displayed map by clicking on the print icon at the bottom left of the map. This will produce two printable outputs:
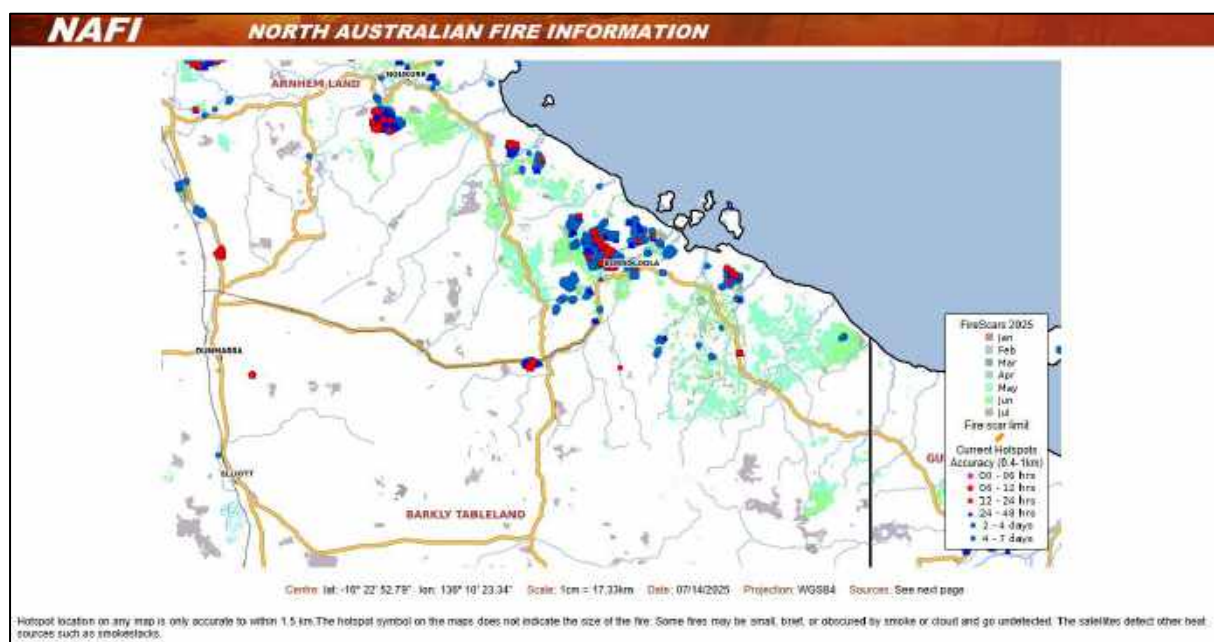
The first is the main central part of the map display with a note below on the reliability of the data displayed.

The second is a list of the data sources used on the NAFI maps.

The easiest way to produce a colour print is to use the "Print" function on your browser to print the web page – and then save as a pdf.
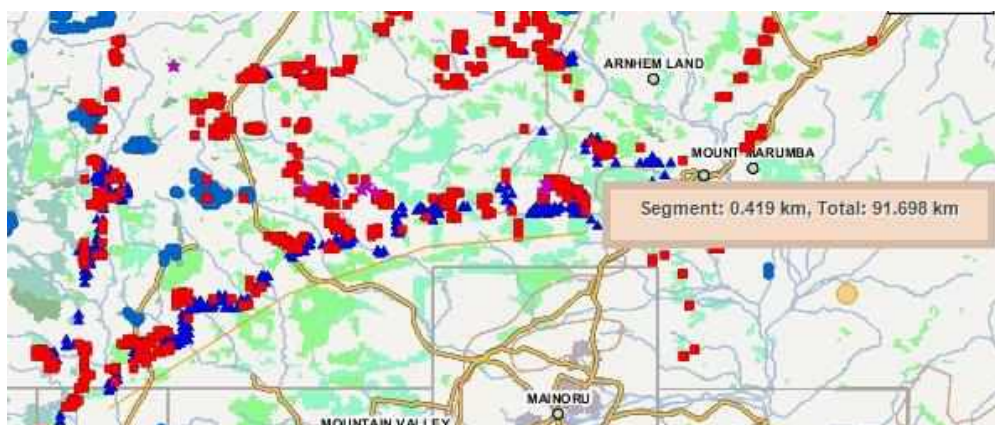
Measuring distances and areas

You can measure distances and areas on the NAFI maps by going to the **Tools** tab and then the **Measure** menu.


To measure a distance, click on the **Distance/Reset** link and instructions will appear below. Simply draw the distance you want to measure with the cursor on the map. You can measure along roads, rivers or boundaries with several clicks of the cursor. Double-click to finish. This distance will be displayed next to the end-point (see below).

To reset for another measure – re-click the link. To exit the measure tool, click the pan navigation button.

To measure an area, click on the **Area/Reset** link which works in a similar way – but will always measure the area enclosed by the line drawn with the cursor. As with the distance tool, the area is displayed on the map (see below).

Measuring distance
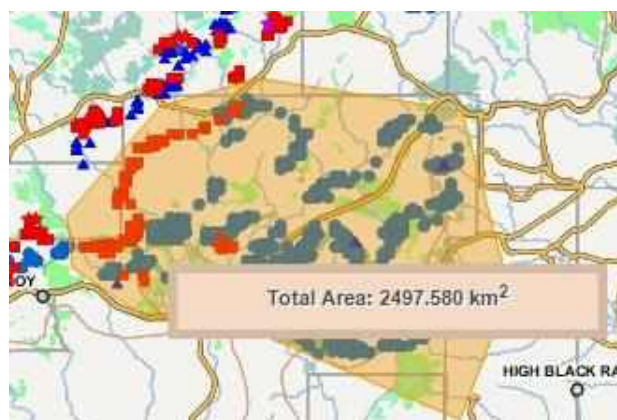
Measuring area

Hiding/displaying the map legend

You can hide or re-display the map Legend (the list of layer colours in the lower right of the display) by going to the **Tools** tab and then the **Map Legends** menu and clicking **Toggle Legend**.

You can also view the legend for the background maps used on the NAFI site (the symbols used for roads, railways, airfields, contours etc.). Click on **Legend for NAFI background maps**.