

**2013 Springs Fire BARC Adjustment Metadata:**

BARC data as received from USGS EROS had 3 areas along the coast with no-data values due to cloud cover. The first area covered approximately 262 acres over Mugu Peak. Two smaller clouds covered approximately 41 acres near Deer Creek Road.

Clouded areas were replaced using vegetation data provided by the park and visual inspection of neighboring BARC classification. All veg types immediately along the coast were given a BARC classification of 1 (Unburned/very low) which was consistent with the BARC data. Other areas were given the following classification:

<b>Generalized Vegetation</b>	<b>BARC Classification</b>
Chaparral Types	3 - Moderate
CSS Types	2 - Low
Disturbed Vegetation Types	1 – Unburned/Very Low
Prairie/Meadow Types	1 – Unburned/Very Low
Rock Outcrop Types	1 – Unburned/Very Low
Sandy, Rocky, Mud types	1 – Unburned/Very Low
Upland Tree Types	2 - Low
Urban/Disturbed, Built Up, Cleared Types	1 – Unburned/Very Low

No other changes were made to the BARC data. Figure 10 depicts the BARC data as used in the watershed analysis.

For a full description of the BARC process visit the website:

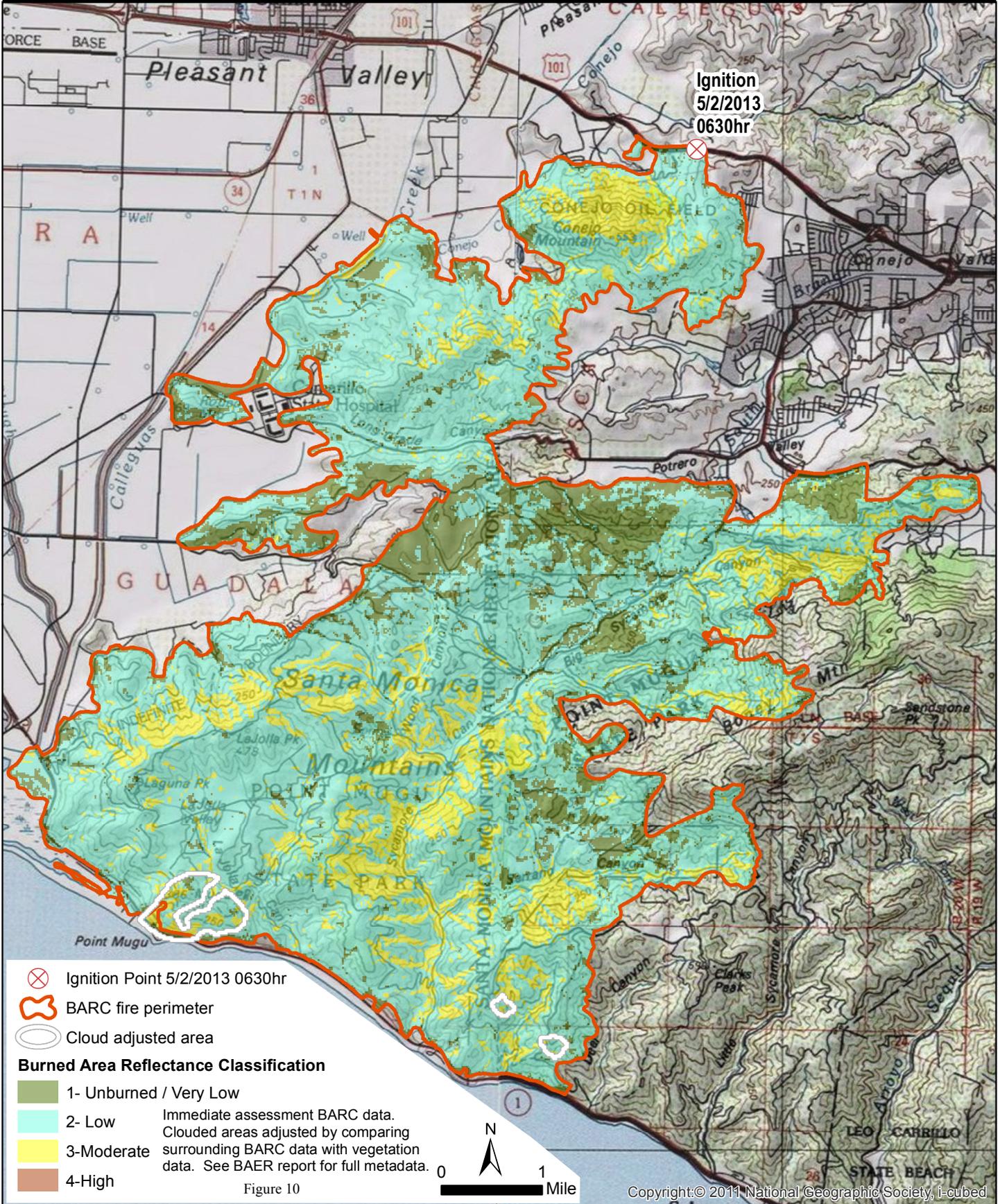
<http://www.fs.fed.us/eng/rsac/baer/barc.html>

For information regarding BARC adjustment for the Springs Fire contact:

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**Springs Fire 2013  
Burned Area Reflectance Classification  
(BARC)**

Santa Monica Mountains National Recreation Area  
National Park Service  
U.S. Department of the Interior

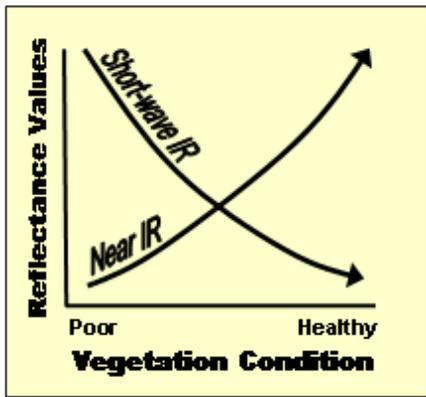


## What is a BARC?

A Burned Area Reflectance Classification (BARC) is a satellite-derived map of postfire vegetation condition. The BARC has four classes: high, moderate, low, and unburned. This map product is used as an input to the burn severity map produced by the Burned Area Emergency Response (BAER) teams.

## How are BARC maps generated?

BARC maps are made by comparing satellite near and mid infrared reflectance values. The logic behind the process is as follows:



- Near infrared light is largely reflected by healthy green vegetation. That means that near infrared bands will be very high in areas of healthy green vegetation and low in areas where there is little vegetation.
- Mid infrared light is largely reflected by rock and bare soil. That means that mid infrared band values will be very high in bare, rocky areas with little vegetation and low in areas of healthy green vegetation.
- Imagery collected over a forest in a pre-fire condition will have very high near infrared band values and very low mid infrared band values. Imagery collected over a forest after a fire will have very low near infrared band values and very high mid infrared band values.

It is the relationship between these two bands that BARC mapping attempts to exploit. The best way to do this is to measure the relationship between these bands prior to the fire and then again post fire. The areas where the relationship between the two bands has changed the most are most likely to be severely burned. The areas where that relationship has changed little are likely to be unburned or very lightly burned. To determine this relationship, analysts perform a band ratio between the mid and near infrared bands. The result is a classification of burned areas.

## How should BARC data be used?

In the immediate aftermath of a wildfire, a Forest Service Burned Area Emergency Response (BAER) team is dispatched to the site to prepare an emergency rehabilitation and restoration plan. They do this by making an initial assessment of burn severity and to estimate the likely future downstream impacts due to flooding, landslides, and soil erosion. One of the first tasks for this team is the creation of a burn severity map that highlights the areas of high, moderate, and low burn severity. This map then serves as a key component in the subsequent flood modeling and Geographic Information System (GIS) analysis. The BARC data are meant to be used as a main input into the development of the final burn severity map.

## What is the BARC256 and how do I use it?

In addition to delivering the 4-class BARC data to field teams, RSAC also provides field users a continuous 256-class version of the BARC. This is called the BARC256. This data set provides users the ability to adjust the break points between reflectance classes. Analysts at RSAC will color code the BARC256 image using the same classification scheme used for the BARC4 data, but the BARC256 will not be recoded into 4 classes. The breakpoints for the BARC256 will look something like this: