From: Albury, Carl -FS
To: Lecker, Jennifer -FS
Subject: FW: Waldo Canyon fire Soil Burn Severity layer - NEW FINAL
Date: Tuesday, September 25, 2012 9:19:59 AM
Attachments: Waldo_BARC.img.aux.xml
Waldo_BARC.img.vat.dbf
Waldo_BARC.rrd
Waldo_BARC.img
Waldo_SBS_10m_final.img.aux.xml
Waldo_SBS_10m_final.img.vat.dbf
Waldo_SBS_10m_final.img.xml
Waldo_SBS_10m_final.img
Filling in the BARC stripes.docx
What is a BARC.doc

From: Young, Dave -FS
Sent: Thursday, August 02, 2012 2:09 PM
To: Stamer, Marc -FS; Sanchez, Steven A -FS; Butler, Dana -FS; Moore, Mary C -FS; John, Tommy -FS; Albury, Carl -FS; Biery, Ed H -FS
Cc: Rust, Brad L -FS; Park, David -FS; Jimenez, Jason -FS; THOMPSON, CATHLEEN - OGC
Subject: Waldo Canyon fire Soil Burn Severity layer - NEW FINAL

Hi All,

Brad and I have finished revising a 'new final' soil burn severity layer, after the BARC was made available (thanks again Carl!) and some geoprocessing angst. Apologies for the weeks delay, I'm still working through getting my computer functional again, ugh. And Brad actually had a local fire to attend to on our return.

The BARC image was the usual differential product, but Landsat 7 so we had the characteristic NoData 'stripes' we get with that sensor. The stripes are generally 5-8 pixels wide (150-240 meters), so they're not insignificant. We first adjusted the BARC in the usual manner to better reflect SBS as observed in the field (attached BARC is adjusted).

We then had a decision to make as to if and how we should try to fill in the missing data stripes. We tried a few different approaches. We finally decided that with the orientation of the stripes and the pattern of the burn, it was reasonable to fill the stripes using a 'nearest neighbor' type geoprocessing procedure, emphasizing north-south oriented neighbors. We enlisted the help of our very talented GIS-master Jonna DuShey (also a soil scientist!); her method directions are attached for reference. There are still some small figments of stripes and missing data pixels, but it's very close and we did not like the result as well from the alternative procedure that filled every last pixel, tended to over-generalize.

So it must be conveyed that the stripes are <u>not real data</u>, but generated by computer. In most places the result looks very reasonable to us, went back over pictures and such to check it out in detail. Where it's likely to be inaccurate is where topographic breaks occur in the stripe that could have altered fire behavior. Therefore, **both versions (BARC and SBS map) should be distributed as companions so people know where the missing data was on the landscape, and printed SBS maps should have the following disclaimer:**

Soil Burn Severity Map Disclaimer:
The initial basis for this map is satellite imagery from Landsat 7, which has missing data bands through the imagery. The imagery was modified by soil scientists to better reflect Soil Burn Severity (SBS) as observed in the field. The missing data bands were filled using GIS processing, so SBS as displayed there may not be accurate, particularly where topographic breaks occur in the gaps; these areas may need to be further field verified for small scale analysis purposes. Refer to the companion BARC imagery for location of these areas.

Please keep us updated on implementation happenings and other developments! Cheers all!!
Dave.

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