Southern California Disasters II
Heather Nicholson, Amber Todoroff, Madeline LeBoeuf
NASA DEVELOP National Program

There has been an increase in the number of wildfires in California due to drought and warmer weather. In 2014, approximately 5,500 wildfires burned more than 90,000 acres in California. An increase in wildfires can lead to soil erosion, expansion of invasive plant species, and loss of property and life. It is necessary to be able to quickly map the burn severity of a wildfire in order to mitigate its effects.

Introduction

Objectives

- Use simulated HyspIRI data to produce wildfire burn severity and vegetation assessment products which are used to aid post wildfire remission and wild land restoration
- Quantitatively compare HyspIRI products to similar Landsat-based products generated by the USFS to assess and show how hyperspectral satellite data may help improve current capabilities.

Outcomes

- Statistical analyses were performed in R. The indices were proved to have non normal distributions by Shapiro-Wilks tests.
- A Wilcoxon rank-sum test with continuity correction further suggested that there is a statistically significant difference between the indices.
- Spearman’s rank correlation coefficient implied that all indices were strongly correlated to the ground truth data for the King Fire.

<table>
<thead>
<tr>
<th>Data set name for indices</th>
<th>P-value</th>
<th>Rho</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAVG dNBR King Fire</td>
<td>1.144e^-14</td>
<td>0.926</td>
</tr>
<tr>
<td>MASTER dNBR King Fire</td>
<td>1.344e^-11</td>
<td>0.880</td>
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<tr>
<td>AVIRIS dNBR King Fire</td>
<td>7.857e^-09</td>
<td>0.815</td>
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Summary

The results from this project suggest that future HyspIRI data will be a valuable data source for USFS post-fire decision support.

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