Purpose

The Hawaii Vegetation Fire Risk web tool is designed to assist Users with estimating vegetation-related fire risk on the Island of Hawaii.

Disclaimer

This experimental web tool can be freely accessed but at the sole risk of the User. The Carnegie Institution makes no warranty as to the quality and/or accuracy of any data obtained by the User of this tool. The User assumes all risks and liabilities in the interpretation and use of any data or results obtained from this experimental web tool.

Use

Using the webtool is easy. Simply click anywhere in the map and allow the time-graph to load in the upper right portion of your browser. Any missing data points in the time-graph are due to cloudiness in the satellite data record. By moving your mouse cursor over the time-graph, you can view vegetation conditions at any point in time for which there are satellite measurements (see below about satellite availability). You can also download the time-graph for your point using the "Download CSV for this point", which can be read in Microsoft Excel or compatible spreadsheet software.

Analysis Method

Vegetation fire risk maps are generated using a combination of NASA satellite data and Carnegie data processing methods. The information is generated only for Hawaii Island and is subject to the limitations of NASA-provided satellite imagery (see below).

The satellite data are automatically updated and processed approximately every 15 days. This frequency is set by NASA data availability. Each image is taken from the NASA Moderate Resolution Imaging Spectroradiometer (MODIS) onboard the Terra satellite. The web tool ingests the MOD09A1 seven-band reflectance, 8-day composite, which is provided at 500 meter spatial resolution.

The MODIS reflectance data are processed to provide sub-pixel cover percentages (or fractions) spanning 0 to 100% for moist vegetation, dry vegetation, and bare rock/soil. For example, a dry vegetation fraction of 0.30 is 30% cover of dry fire-prone vegetation within the 500 x 500 meter MODIS pixel. The analysis is done using the *Automated Monte Carlo Unmixing* (*AutoMCU*) algorithm published by Asner and Heidebrecht (2001) and updated by Asner et al. (2005).

Limitations

Hawaii Island is a very cloudy region. As a result, most images are missing portions, and sometimes large areas, of the island. This is not an error in data processing. It is due to clouds in the MODIS data.

There are stripes in various locations in the images. This is not an error in data processing. It is due to errors in the NASA MODIS satellite compositing.