Use of Polar Orbiting Earth Observatories to Create a Synoptic Inventory of North American Forested Areas Affected by Wildfire

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Summary of VCC-CDB for 2002

VCC-CDB is generated at 250m resolution using data from the MODIS sensor. 16-day composites are used to reduce the overall data volume and yield the most cloud-free data set possible. Data are processed on a quarterly basis, starting from the current year to the previous year. Results are shown here for the VCC-CDB for the years 2002 and 2003.

Summary of VCC-CDB for 2003

In the interest of avoiding errors due to interannual differences in vegetation, the MODIS active fire product (MOD14) is used to select the areas where burn is likely. From these areas the burn threshold is used in an iterative process to allow the representation of the burn to grow to its natural boundary. The steps attempts to capture the areas outside of the active fire product detections, that may have been obscured by bad data or burned between MODIS overpasses. The results for the MODIS VCC-CDB can be seen below.

Summary of VCC-CDB for 2004

Conclusions

Totals affected by wildfires have increased dramatically during the last decade. The long-term average is 4.3 million acres burned per annum, but in the last decade, annual burned acreage has exceeded 6 million acres in five of these years, with three of those having in excess of 8 million affected acres.

Accurate inventories of burn affected area and burn severity are critical to informing land management decisions and progress toward implementation of the National Fire Plan and the Healthy Forests Initiative.

MODIS VCC-CDB validation using USFS Burned Area Emergency Response (BAER) polygons

Table 1: Summary of USFS BAER polygon validation for VCC-CDB for 2002 and 2003 polygons. Statistics for each BAER polygon was calculated through the validation process described in the validation overview section. Five pixel accuracy was used in validation process. BAER polygons were not included.

References


National Aeronautics and Space Administration. 2000. MODIS data products catalog [online]. Distributed Active Archive Center (DAAC), Greenbelt, Maryland. (http://daac.gsfc.nasa.gov)