

MODIS Vegetation Cover Conversion (MOD 44)

Product Description

Using MODIS data from the two 250-m bands, the vegetation cover conversion product will show the global distribution of the occurrence of vegetation cover change. Where there is sufficient evidence, the type of change will be labeled (e.g., forest conversion to agricultural fields or grassland or bare surface). The distribution of these changes will be represented at a resolution of 250 meters and as gridded 10-km summaries. These will be generated at 3-month intervals. An interannual product is also being produced, displaying the global distribution of vegetation-cover change during the previous year.

Research and Applications

Vegetation-cover change is an important driver of many important biogeochemical, hydrological, and climate processes. It also represents the integrated response to several biophysical and anthropogenic impacts. Among the important influences of vegetation-cover change are the following:

- It strongly affects changes in many biophysical factors such as surface roughness and albedo;
- It has a major effect on changes in sensible heat flux, because it affects global albedo and surface roughness, which in turn affects atmospheric drag;
- It is of crucial importance for determining the biogeochemical cycling of carbon, nitrogen, and other elements at regional-to-global scales;
- It has a major impact on the runoff characteristics of catchments through its effects on evapotranspiration and partitioning of precipitation into overland flow, interflow, and groundwater accretion;
- It gives a direct insight into ecosystem response related to climate change and anthropogenic influences;
- It affects biodiversity through direct impacts on habitat;
- It provides increasingly important information for natural-resource managers.

This product will be combined with data obtained from finer spatial resolution data from sensors such as ETM+ on Landsat 7 and ASTER on Terra (see Volume 1) to assist in the identification of the types of vegetation conversion occurring. The product also provides information to assist the acquisition strat-

egy of finer resolution systems since it helps flag areas where significant changes are likely to be occurring.

Data Set Evolution

Previous work has shown that data with a resolution of 1 km and coarser are sufficient for the mapping of the distribution of vegetation cover and for the monitoring of those changes in vegetation cover caused by seasonal-to-interannual climate change. However, such relatively coarse resolution data are often inadequate to detect changes caused by anthropogenic factors. Analyses of many types of vegetation-cover change indicate that they are relatively small in size largely due to the inherently local nature of anthropogenic vegetation-cover conversions. Consequently a very large proportion of changes is only detectable at fine spatial resolutions. For this reason it was decided to use the two 250-m bands for the identification and mapping of this type of conversion.

Suggested Reading

Townshend, J.R.G., and C.O. Justice, 1988.

Townshend, J.R.G. *et al.*, 1991.

Zhan, X. *et al.*, 1999.

MODIS Vegetation Cover Conversion Summary

Coverage: Global, daytime

Spatial/Temporal Characteristics: 250 m,
10 km/3-month, yearly

Key Geophysical Parameters: Vegetation-
cover change occurrence and type

Processing Level: 4

Product Type: Research, at-launch and post-
launch

Maximum File Size: 1 GB/tile (land tiles only)

File Frequency: 1/month (Monthly Level 4),
1/year (Yearly Level 4)

Primary Data Format: HDF

Browse Available:

[http://www.geog.umd.edu/landcover/
modis](http://www.geog.umd.edu/landcover/modis)

Additional Product Information:

[http://modis-land.gsfc.nasa.gov/products/
products.asp?ProdFamID=2](http://modis-land.gsfc.nasa.gov/products/products.asp?ProdFamID=2)

DAAC: EROS Data Center

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