BOREAS FOLLOW-ON DSP-10 REGRIDDED LAND COVER MAPS FOR 1994
Get Data

Summary:

These images were produced by aggregating the 1-km land cover classification by Lou Steyaert at multiple resolutions (2 km, 10x5 minutes, and 0.5 degree). These data were regridded for use by the BOREAS Follow-on Carbon and Hydro-Meteorological modeling groups to have a number of data sets available in common grid projections and scales for intercomparison studies. Characteristics of the individual products are described below.

Maps included in this data set:

Regridded Land Cover Maps, 2 kilometers
Regridded Land Cover Maps, 10 by 5 minutes Regridded Land Cover Maps, 54 km

Data Citation:

Cite this data set as follows (citation revised on October 30, 2002):

Hall, F., G. Rapalee, and D. Knapp. 2001. BOREAS Follow-On DSP-10 Regridded Land Cover Maps for 1994. Data set. Available on-line [http://www.daac.ornl.gov] from Oak Ridge National Laboratory Distributed Active Archive Center, Oak Ridge, Tennessee, U.S.A.

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Processing:

If there are any questions about how this aggregation was done, please contact Dave Knapp (David.Knapp@gsfc.nasa.gov).

These regridded maps may utilize class numbers that correspond to Lou Steyaert's AFM-12 classification or include data that cover the same area as the land cover classification. When referenced in the regridded map description, please refer to the following Land Cover Classification table. For more information, please access the following BOREAS data set and documentation.

BOREAS AFM-12 1-km AVHRR Seasonal Land Cover Classification

This regional land cover data set was developed as part of a multitemporal 1-km AVHRR land cover analysis approach that was used as the basis for regional land cover mapping, fire disturbance-regeneration, and multiresolution land cover scaling studies in the boreal forest ecosystem of central Canada (Steyaert et al., 1997). This land cover classification was derived by using regional field observations from ground and low-level aircraft transits to analyze spectral-temporal clusters that were derived from an unsupervised cluster analysis of monthly NDVI image composites (April-September 1992). This regional data set was developed for use by BOREAS investigators, especially those involved in simulation modeling, remote sensing algorithm development, and aircraft flux studies. Based on regional field data verification, this multitemporal 1-km AVHRR land cover mapping approach was effective in characterizing the biome-level land cover structure, embedded spatially heterogeneous landscape patterns, and other types of key land cover information of interest to BOREAS modelers.

Lou Steyaert's Land Cover Classification	
Class ID	**Class Name**
1	Wet Conifer (Low Stand Density)
2	Wet Conifer (Medium Stand Density)
3	Wet Conifer (High Stand Density)
4	Upland Conifer/Fen
5	Rock Outcrops/Bare Ground/Sparse Vegetation/ Slow Regeneration Burn Areas
6	NA
7	Open Water
8	NA
9	Regeneration (North: Within Canadian Shield Zone)
10	NA
11	Recent Visible Burn
12	Rangeland/Pasture/Hay/Aspen Patches
13	Mixed Agriculture/Predominately Grains
14	Mixed Agriculture/Predominately Pasture/Hay
15	Grassland Marshes

16	Mixed Forest (80% Coniferous)
17	Mixed Forest (50% Coniferous)
18	Mixed Forest (80% Deciduous)
19	Regeneration (South: generally south of Shield Zone)
20	Unknown

Regridded Land Cover Maps, 2 kilometers

These images were produced by aggregating the 1-km land cover classification by Lou Steyaert to a 2-km pixel size. The following files contain the percentage of each class within each 2-km pixel. The pixel values will be either 0, 25, 50, 75, or 100, since exactly four 1-km pixels are nested within a 2-km pixel.
See the document AFM12_AVHRR_CLASS.html for more information on the original data product that this is based on.

Image Specifications

Each image is 431 pixels by 336 lines and contains no leading header bytes. Each pixel in the image is represented by one-byte.

Land Cover maps, 2km
class00_2km.img
class01_2km.img
class02_2km.img
class03_2km.img
class04_2km.img
class05_2km.img
class07_2km.img
class09_2km.img
class11_2km.img
class12_2km.img
class13_2km.img
class14_2km.img
class15_2km.img
class16_2km.img
class17_2km.img
class18_2km.img
class19_2km.img
class20_2km.img

Spatial Coverage

These data cover the same area as the land cover classification from Lou Steyaert.

Corner	X	Y	Longitude	Latitude
Upper Left	174.0707	785.4531	108°03'09.30" W	58°01'07.68" N
Upper Right	1036.0707	785.4531	93°48'17.52" W	56°53'52.87" N
Lower Left	174.0707	113.4531	108°27'59.25" W	51°59'32.04" N
Lower Right	1036.0707	113.4531	96°08'36.17" W	51°01'20.43" N

The X and Y coordinates are the BOREAS grid coordinates which are based on an Albers Equal Area Conic (AEAC) projection with the following parameters:
Origin: 111.00 deg W, 51.00 deg N
Standard Parallels: 52.5 deg N, 58.5 deg N
Units of Measure: kilometers

Regridded Land Cover Maps, 10 by 5 minutes

These images were produced by aggregating the 1-km land cover classification by Lou Steyaert to a 10' (horizontal) by 5' (vertical) pixel size in a straight latitude/longitude grid.
See the document AFM12_AVHRR_CLASS.html for more information on the original data product that this is based on.

Image Specifications

Each image is 66 pixels by 60 lines and contains no leading header bytes. Each pixel in the image is represented by one byte. The DN value for each pixel is the percentage of that pixel that is of a given class. The sum of all of the percentages in the various images might not be 100 for a given pixel because of rounding.

The following files contain the percentage of each class within each 10' by 5' pixel.

Land Cover Maps, 10 by 5 minutes
landcover00_10by5min.img
landcover01_10by5min.img
landcover02_10by5min.img
landcover03_10by5min.img
landcover04_10by5min.img
landcover05_10by5min.img
landcover07_10by5min.img
landcover09_10by5min.img
landcover11_10by5min.img
landcover12_10by5min.img
landcover13_10by5min.img
landcover14_10by5min.img

landcover15_10by5min.img
landcover16_10by5min.img
landcover17_10by5min.img
landcover18_10by5min.img
landcover19_10by5min.img
landcover20_10by5min.img

The Pixel-Area Image

The file "0_pixel_area_10by5min.img" is an image that provides the area for each of the 10 by 5 minute cells. The area for each pixel is given in hectares. One hectare equals 10,000 square meters.

Each pixel value is represented as a 2-byte integer. This image has the low-order byte first. On some systems, the bytes may need to be swapped in order the read the 2-byte integers correctly. On UNIX systems, this can be done with the following command.

dd if=input_file_name conv=swab of=output_file_name

Spatial Coverage

These data cover the same area as the regional meteorological parameters assembled by Val Pauwels. The data are in a straight latitude/longitude grid. The BOREAS grid coordinates listed below are simply given for reference purposes. The corner coordinates are identical to the upper left corner of Val's regional data set.

Corner	X	Y	Longitude	Latitude
Upper Left	242.697	675.191	107°00'00.00" W	57°00'00.00" N
Upper Right	903.583	765.939	96°00'00.00" W	57°00'00.00" N
Lower Left	274.686	119.043	107°00'00.00" W	52°00'00.00" N
Lower Right	1022.683	221.752	96°00'00.00" W	52°00'00.00" N

The X and Y coordinates listed above are the BOREAS grid coordinates which are based on an Albers Equal Area Conic (AEAC) projection with the following parameters:
Origin: 111.00 deg W, 51.00 deg N
Standard Parallels: 52.5 deg N, 58.5 deg N
Units of Measure: kilometers

Regridded Land Cover Maps, 54 km

These images were produced by aggregating the 1-km land cover classification by Lou Steyaert to a 54-km pixel size. 54-km roughly equals one-half a degree (30 minutes) of latitude.
See the document AFM12_AVHRR_CLASS.html for more information on the original data product that this is based on.

Image Specifications

Each image is 16 pixels by 12 lines and contains no leading header bytes. Each pixel in the image is represented by one-byte.

The following files contain the percentage of each class within each 54-km pixel.

Land Cover Maps, 54 km
landcover_54km_class00.img
landcover_54km_class01.img
landcover_54km_class02.img
landcover_54km_class03.img
landcover_54km_class04.img
landcover_54km_class05.img
landcover_54km_class07.img
landcover_54km_class09.img
landcover_54km_class11.img
landcover_54km_class12.img
landcover_54km_class13.img
landcover_54km_class14.img
landcover_54km_class15.img
landcover_54km_class16.img
landcover_54km_class17.img
landcover_54km_class18.img
landcover_54km_class19.img
landcover_54km_class20.img

Spatial Coverage

These data cover the same area as the land cover classification from Lou Steyaert. The upper left corner is identical to the upper left corner of Lou Steyaert's classification. Due to rounding off to the nearest 54-km pixel, the other corners are in slightly different locations.

Corner	X	Y	Longitude	Latitude
Upper Left	174.0707	785.4531	108°03'09.30" W	58°01'07.68" N
Upper Right	1038.0707	785.4531	93°46'22.83" W	56°53'37.06" N
Lower Left	174.0707	137.4531	108°27'13.26" W	52°12'28.30" N
Lower Right	1038.0707	137.4531	96°02'33.91" W	51°13'46.60" N

The X and Y coordinates are the BOREAS grid coordinates which are based on an Albers Equal Area Conic (AEAC) projection with the following parameters:
Origin: 111.00 deg W, 51.00 deg N
Standard Parallels: 52.5 deg N, 58.5 deg N
Units of Measure: kilometers

References:

Steyaert, L.T., F.G. Hall, and T.R. Loveland. 1997. Land Cover Mapping, Fire Disturbance-Regeneration, and Multiresolution Land Cover Scaling Studies in the BOREAS Forest Ecosystem with Multiresolution 1-km AVHRR. J. Geophys. Res.102: 29581-29598.

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