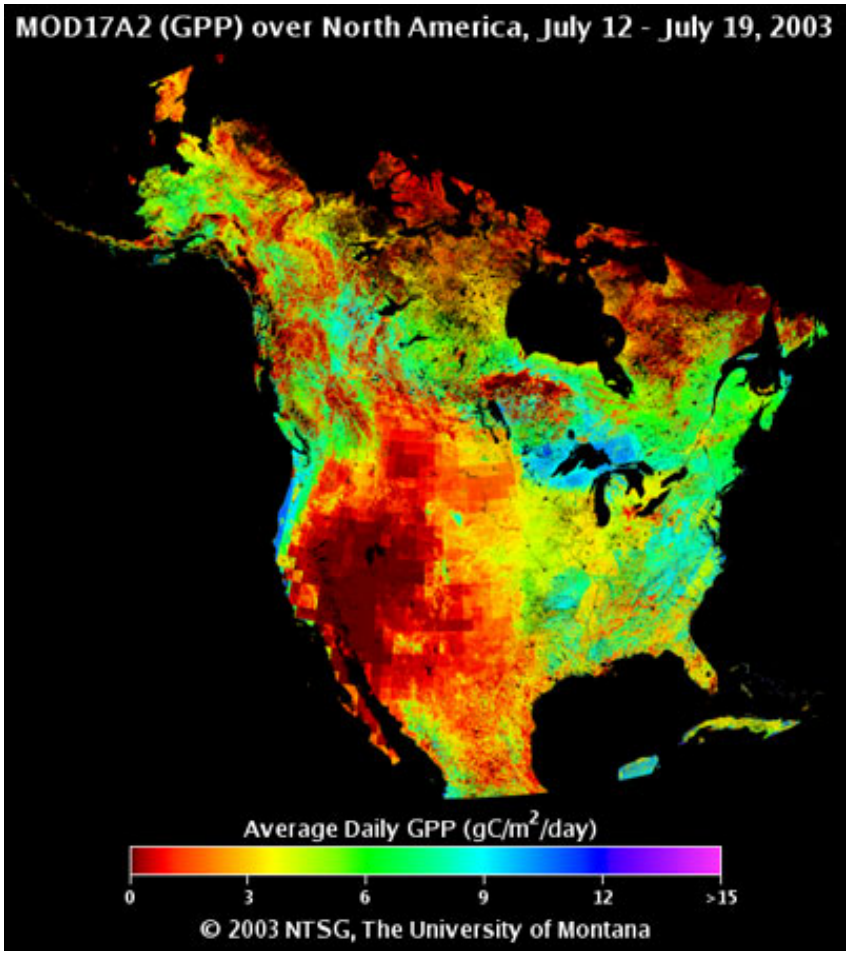
EDG Data Set Name
MODIS/Terra Net Photosynthesis 8-Day L4 Global 1km SIN Grid

Granule Shortname
MOD17A2

Version	Acquisition Range	Science Quality Status
V003	January 1, 2001 (2001001) to December 27, 2002 (2002362)	Beta
V004	January 1, 2001 (2001001) to present	Provisional

Data Set Characteristics
Area = ~ 10° x 10° lat/long
Image Dimensions = 1200 X 1200 rows/columns
File Size = ~4 MB
Resolution = 1 kilometer
Projection = Sinusoidal
Data Type = 16-bit signed integer
Data Format = HDF-EOS
Science Data Sets (SDSs) = 2



Product Description
The MOD17 Net Photosynthesis (PSN) and Net Primary Production (NPP) products are Level 4, 1km global data collections used in calculating terrestrial energy, carbon, water cycle processes, and biogeochemistry of vegetation.

The rate at which light energy is converted to plant biomass is termed primary productivity. The sum total of the converted energy is called gross primary productivity (GPP). The MOD17A2 false-color image shown is an 8-day composite of GPP, expressed as the mass of Carbon per square meter, over North America.

MOD17A2 is produced based on the original work of Monteith* (1972) which relates PSN and NPP to the amount of Absorbed Photosynthetically Active Radiation (APAR). The algorithm uses input from MODIS LAI/FPAR (MOD15A2), land cover, and biome-specific climatology data from NASA's Data Assimilation Office (DAO). The 8-day PSN will be integrated over a year to produce MOD17A3, an annual NPP product. Both have theoretical applications towards defining the seasonal dynamic flux of terrestrial surface carbon dioxide for climate modeling.

Further information:
1. *Monteith, J.L., 1972: Solar radiation and productivity in tropical ecosystems. *J. Appl. Ecology*, **9**, 747-766
2. Running, S.W., P.E. Thornton, R.R. Nemani, J.M. Glassy. (2000) Global Terrestrial Gross and Net Primary Productivity from the Earth Observing System. In: Methods in Ecosystem Science, O.Sala, R. Jackson, and H.Mooney Eds. Springer-Verlag New York.

NOTE: These products are still experimental in nature upon their initial release. Investigations are underway to assess

the scientific validity of these products.

SDS	UNITS	DATA TYPE-bit	FILL VALUE	VALID RANGE	Multiply by SCALE FACTOR	Calibrated_nt
* MODIS Gridded 1KM 8-day Composite GPP	kgC/m^2	16-bit signed integer	32767	0, 30000	0.0001	22
* MODIS Gridded 1KM 8-day Composite (GPP minus maint resp) as PsnNet	kgC/m^2	16-bit signed integer	32767	-30000, 30000	0.0001	22
** PSN QC 1KM	na	8-bit unsigned integer	255	0, 254	na	na

*** Non-Terrestrial Value Index/Fill Value Index**

Gpp_1km and PsnNet_1km

Value	Description
32767	Fill Value
32766	Landcover assigned as perennial salt or inland fresh water
32765	Landcover assigned as barren, sparse vegetation (rock, tundra, desert)
32764	Landcover assigned as perennial snow, ice
32763	Landcover assigned as permanent wetlands/inundated marshland
32762	Landcover assigned as urban/built-up
32761	Landcover assigned as unclassified/not able to determine

*** Quality Control Bit Index (Valid only for V004 MOD17A2)**

Psn_QC_1km 5 BITFIELDS IN 8-BITWORD

Index	Bit Value	Description
MODLAND_QC	START 0 END 1 VALIDS 4	
	00=0	Best Possible
	01=1	OK, but not the best
	10=2	Not produced,due to cloud
	11=3	Not produced,due to other reasons

DEADDETECTOR	START 2 END 2 VALIDS 2	
	0	Detectors apparently fine for up to 50% of channels 1,2
	1	Dead detectors caused >50% adjacent detector retrieval
CLOUDSTATE	START3 END 4 VALIDS 4	
	00=0	Significant clouds NOT present (clear)
	01=1	Significant clouds WERE present
	10=2	Mixed cloud present on pixel
	11=3	cloud state not defined,assumed clear
SCF_QC	START 5 END 7 VALIDS 4	
	000=0	Pixel produced, best quality
	001=1	Pixel produced, good quality – saturation in FPAR/LAI algorithm
	010=2	Pixel produced, poor quality due to geometry problems
	011=3	Pixelproduced, poor quality due to problems other than geometry
	100=4	Couldn't retrieve pixel
	111=7	NOT PRODUCED AT ALL (non-terrestrial biome)

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NEW **Retrieve the MOD17A2v4 MODIS product through the LP DAAC Data Pool**
Via Search Tool: http://e0dps01u.ecs.nasa.gov:22000/OPS/drill?attrib=esdt&esdt=MOD17A2.4&group=MOLT
Via FTP Directory: ftp://e0dps01u.ecs.nasa.gov/MOLT/MOD17A2.004/

Order Data through the EOS Data Gateway
(http://edcimswww.cr.usgs.gov/pub/imswelcome/)

EOS Data Gateway Search Tips

Data Center:	EDC-ECS
Sensor:	MODIS
Dataset:	MODIS/Terra Net Photosynthesis 8-Day L4 Global 1km SIN Grid
Geographic Extent:	Type Lat/Long Range or Draw on Map
Temporal Extent:	2001-01-01 to present

Product Information

Product Description
(http://www.ntsg.umt.edu/)

User Guide
(http://www.forestry.umt.edu/ntsg/MODIS/MOD17UsersGuide.pdf)

Algorithm Theoretical Basis Document (ATBD)
(http://eospso.gsfc.nasa.gov/atbd/modistables.html)

MODIS Standard Data Products Catalog
(http://modis.gsfc.nasa.gov/data/dataproducts.html)

EOS Data Products Handbook Volume 1 (2000)
(http://eospso.gsfc.nasa.gov/eos_homepage/for_scientists/data_products/vol1.php)

Contact Information

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Last Update: Thursday, September 25, 2003
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