

Land Processes Distributed Active Archive Center



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EDG Data Set Name

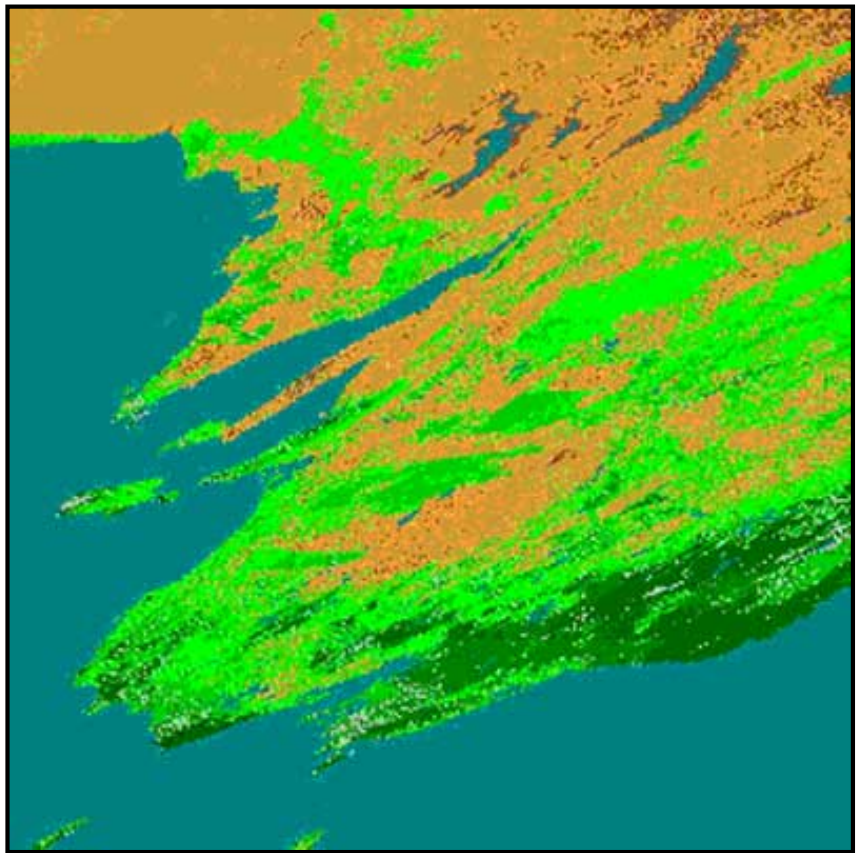
MODIS/Terra Net Photosynthesis 8-Day L4 Global
1km ISIN Grid

Granule Shortname

MOD17A2

Data Set Characteristics

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



MOD17A2 acquired over Adelaide, Australia between Dec. 18-25, 2000. Data are in the Integerized Sinusoidal map projection.

KgC/m ² (PSN)	Color
0 to 0.010	Dk Brown
0.010 to 0.020	Lt Brown
0.020 to 0.120	Green
fill	Teal

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 MOD17A2 false-color image shown above is an 8-day composite of cumulative PSN, expressed as the mass of Carbon per square meter, over Southern Australia. The appearance of this image is characteristic of data projected onto an Integerized Sinusoidal mapping grid.

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 MOD17Y, an annual NPP product. Both have theoretical applications towards defining the seasonal dynamic flux of terrestrial surface carbon dioxide for climate modeling.

Further information:

*Monteith, J.L., 1972: Solar radiation and productivity in tropical ecosystems. *J. Appl. Ecology*, **9**, 747-766

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.

SDS	Units	Data Type	Fill Value	Valid Range	Scale Factor
MODIS Gridded 1km 8-Day Composite PSN	KgC/m ²	16-bit Signed	32767	0,30000	.0001
PSN QC 1KM	Na	8-bit unsigned	255	0,254	na

PSN QC 1KM BITS

0,1 MODLAND bits for PSN 8-day

- '00' =0 Best possible
- '01' =1 OK,but not the best
- '10' =2 Not produced,due to cloud (ignored until strategy solid)
- '11' =3 Not produced,due to other reasons

2,3 ALGORITHM_PATH Binary Decimal Description

- '00' =0, used main (RT) method to calculate FPAR,LAI
- '01' =1, used empirical backup method to calculate FPAR,LAI
- '10' =2, used empirical backup method,despite clouds or other problems
- '11' =3, pixel COULD NOT be produced under ANY circumstance

4,4 CLOUDS_PRESENT (this is inherited from Aggregate_QC bits {0,1} cloud state)

- '00' =0, significant clouds NOT present
- '01' =1, significant clouds present

5,7 MONTANA (3-bit, Confidence Quality score, binary {'000'..'111'} or {0..7} decimal.

- '000' =0, Very best possible
- '001' =1, Good,very usable, but not the best
- '010' =2, OK, produced in spite of clouds OR other problems (see other QA)
- '011' =3, Poor, judged problematic to use in any circumstance.
- '100' =4, NOT PRODUCED AT ALL (non-terrestrial biome, or in GCTP_ISINUS break region, etc)

Notes: (binary values 101,110,111 {decimal 5,6,7} are NOT yet assigned a definition), and please note that 7 '111' is never routinely used, which allows us to define decimal 255 as the overall _Fillvalue for this variable

Order MOD17A2 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 ISIN Grid
Geographic Extent: Type Lat/Long Range or Draw on Map

Temporal Extent: 2000-12-18 to present

Product Information

[Product Description](#)

(<http://www.forestry.umt.edu/ntsg/RemoteSensing/netprimary/>)

User Guide - Not Available

[Algorithm Theoretical Basis Document \(ATBD\)](#)

(<http://eospsso.gsfc.nasa.gov/atbd/modistables.html>)

[MODIS Standard Data Products Catalog](#)

(<http://modis.gsfc.nasa.gov/data/dataprod/descchart.html>)

[EOS Data Products Handbook](#)

(http://eospsso.gsfc.nasa.gov/eos_homepage/misc_html/data_prod.html)

Contact Information

[LP DAAC User Services](#)

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URL: <http://LPDAAC.usgs.gov/modis/mod17a2.html>

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