



## nasa earth observations (neo)

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### Credits

#### ❑ Sponsorship

- Vince Salomonson and Michael King

#### ❑ The “Beef” (data sets)

- MODIS Ocean Group - Norm Kuring & Gene Feldman
- MODIS Atmosphere Group - Bill Ridgway
- MODIS Land Group - Jacques Descloitres & Jackie Kendall
- TRMM - Chris Lynnes
- MOPITT - David Edwards

#### ❑ NEO Development

- Database and programming - Kevin Ward, SSAI
- Interface - Alex McClung & Kevin Ward



## *Who will come & why?*

### ❑ **NEO's goal:**

To increase demand for and give easy access to NASA remote sensing images and data to facilitate “design at use time”

### ❑ **Our target audiences are relatively unsophisticated, non-traditional data users**

- Formal & informal educators
- Museum & science center personnel
- Professional communicators
- Citizen scientists & amateur Earth observers

### ❑ **Their four main reasons to visit NEO**

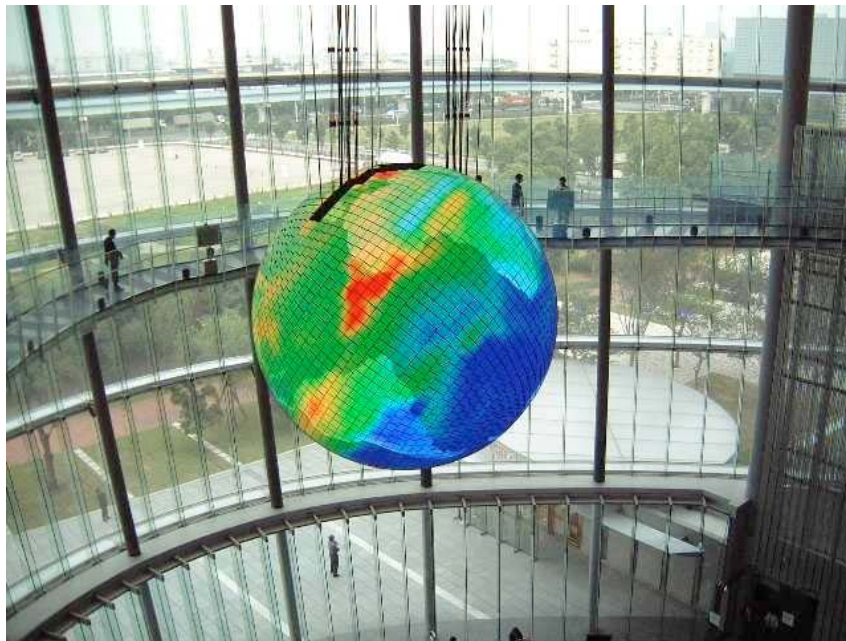
- To obtain Earth images for a publication (articles, posters, kiosks, etc.)
- To obtain and port images over to analytic tools for formal or informal educational lessons (ICE tool, ImageJ, Multi-spec, etc.)
- To obtain and display images in geospatial browsers that enable data layering (World Wind, ArcGIS, GeoFusion, GoogleEarth, etc.)
- To browse scenes and then order HDF data with the click of a button



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## **Sample Collaborations with Museums**

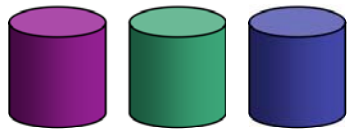
National Museum of Natural History  
*Forces of Change*



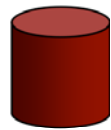
Tokyo Science Museum  
"GeoCosmos" (~20-foot spherical TV)



## Conceptual Overview



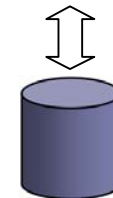
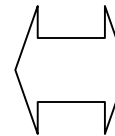
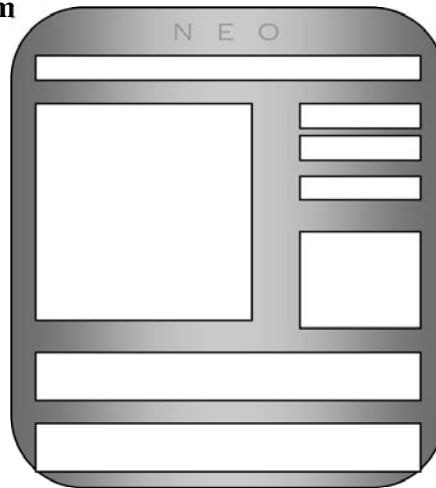
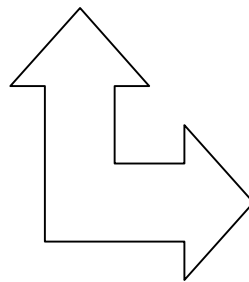
MODIS Discipline  
Groups' Science  
Computing Facilities



MODIS  
Rapid  
Response  
System

Routinely producing, harvesting & indexing of global & regional images

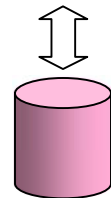
Credit goes to the MODIS  
discipline groups & MRR  
Teams doing the "heavy lifting"



GES  
DAAC



LP  
DAAC



NSIDC  
DAAC



## *Initial Offering of Data Products*

### ☐ Atmosphere Products

- Aerosol optical thickness
- Fraction of fine aerosol
- Water vapor
- Carbon monoxide
- TRMM Precipitation
- Stratospheric ozone
- Cloud fraction / cloud mask
- Cloud particle radius
- Cloud optical thickness
- Cloud water path
- Cloud top temperature
- UV Surface Exposure

### ☐ Ocean Products

- Sea surface temperature (day)
- AMSR-E SST
- SST Climatology
- NOAA Bathymetry
- Water-leaving radiance
- SST Anomaly
- Chlorophyll concentration
- Chlorophyll Anomaly

### ☐ Land Products

- Land cover classification
- Daily surface reflectance
- Global fire maps
- Land surface temp (day & night time)
- Normalized Difference Vegetation Index
- Land Topography
- Land Snow Cover
- Sea Ice Cover
- Leaf Area Index

■ = products in hand

■ = products near at hand

■ = products planned, but may lag some months



## *Image Specs & File Formats*

### ❑ **Spatial resolutions**

- 1 km, 5-minute granules: ~1800 x 1800 pixels
- Global-scale products at 0.1 and 1 degree: 3600 x 1800 pixels
- Platte Carre (cylindrical) is our preferred projection

### ❑ **Temporal resolutions**

- 1 day, 8 or 16 days, 1 month

### ❑ **File format**

- 8-bit binary number arrays, grayscale for products
- Natural color is the exception
- Users have the option of accepting our palettes, or devising their own



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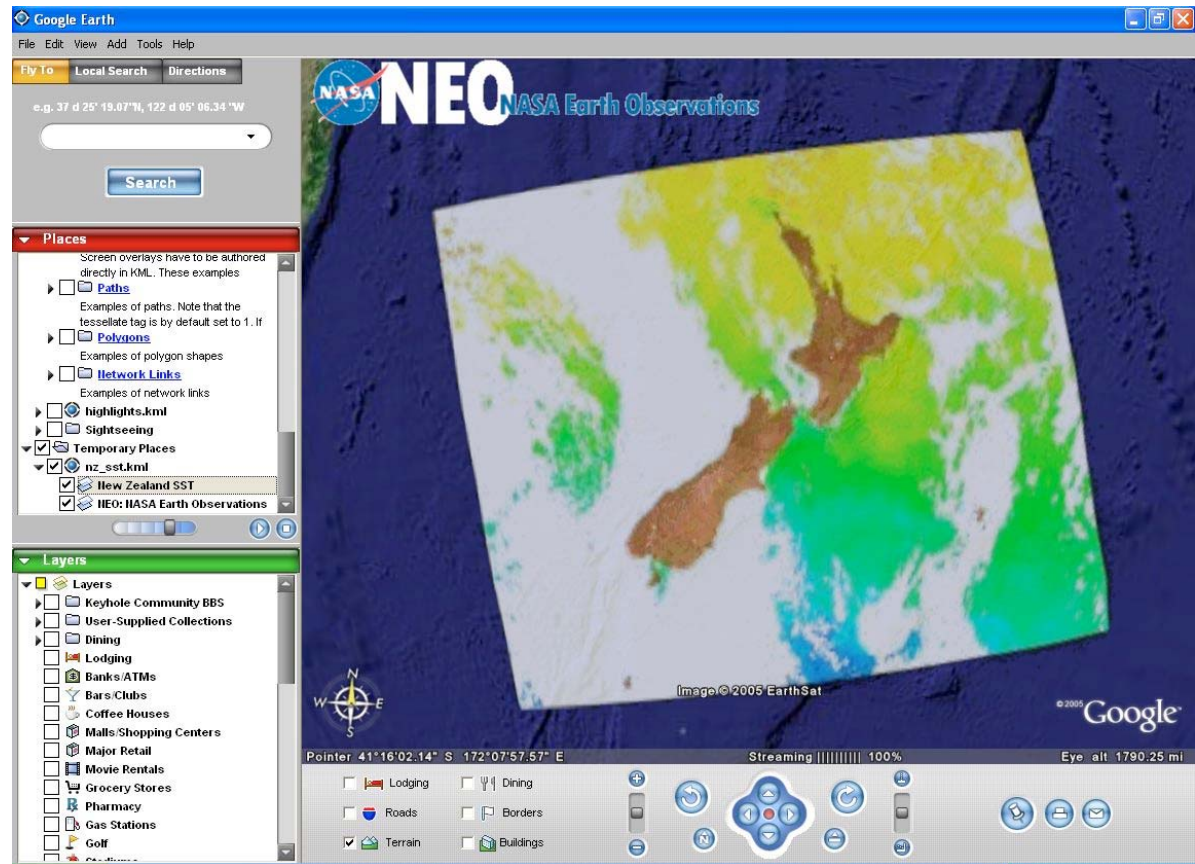
## Compatible with GoogleEarth

### Screen shot

MODIS Level 2 SST  
over New Zealand

Opacity adjusted in  
GE

A good indicator of  
open compatibility &  
wide utility of NEO





## *Current Status (Nov '06)*

### **Recent Developments**

- Ready for public rollout
- Data processing and upload well underway
  - Full upload of MODIS Ocean Products
  - Partial upload of MODIS Atmosphere Products
  - Upload of MODIS Land Products is imminent
- Easy export to GoogleEarth in place
- Export to ICE tool in place
- Subsetting tools and incremental down-sampling tools in place
- Well-rounded “tire kicker” community in place

### **Future Developments**

- Amateur’s Guide to Earth Observation
- Widen the circle of data inclusion
- Plans for refinement of the search tools
- Linkage to Earth Observatory’s data set animation function
- Spatio-temporal browser per data product





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## NEO Beta-2 Interface

<http://neo.sci.gsfc.nasa.gov>



NATIONAL AERONAUTICS  
AND SPACE ADMINISTRATION



Home News Tools Help

### Welcome to NEO

Tip: These tips will help you learn more about NEO. [Learn more about using NEO.](#)



NEO

Ocean Atmosphere Energy Land Life

**Blue Marble Next Generation**  
About this dataset  
December 1, 2004 00:00-January 1, 2005 00:00

**Search Results**

- December 1, 2004 00:00 to January 1, 2005 00:00  
[Preview](#)
- November 1, 2004 00:00 to December 1, 2004 00:00  
[Preview](#)
- October 1, 2004 00:00 to November 1, 2004 00:00  
[Preview](#)

**Search Terms**  
  
[Help with Search Terms](#)

**Search Parameters**

**Search NEO** 

**Download Options**

**Get Image** 

November 2, 2006