GLDAS Version 2 (GLDAS-2) Data

GLDAS-2 Noah Experiment 1-monthly and 3-hourly 1° x 1° data sets (1948-2008) have been released to the public by the NASA Public DISC.

While GLDAS-2 data are becoming available incrementally, more than 30 years (Jan. 1979 - present) of GLDAS Version 1 (GLDAS-1) data, simulated by CLM, Noah, VIC models, remain publicly available and are still growing.

GLDAS Basic Characteristics

- **Content:** Water and energy budget data forcing data
- **Spatial resolution:** 0.25° and 1.0°
- **Temporal resolution:** 3-hourly and monthly
- **Elevation:** GTOP0 30
- **Vegetation:** University of Maryland, 1 km


The portal lists all GLDAS and GLDAS data sets along with links for accessing the data via Mirador, GDS, ftp, Giovanni, and README documents.

Updates to Each GLDAS-2 Land Surface Models

<table>
<thead>
<tr>
<th>Model - resolution</th>
<th>GLDAS-1</th>
<th>GLDAS-2</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noah 3°x3°</td>
<td>Version 2.7</td>
<td>Version 3.3</td>
<td>Updated model parameters that specify the initial soil temperature</td>
</tr>
<tr>
<td>CLM 1°x1°</td>
<td>Version 2.0</td>
<td>Version 3.5</td>
<td>Used MODULES based parameter data sets, stand alone</td>
</tr>
<tr>
<td>VIC 1°x1°</td>
<td>Water balance mode</td>
<td>Energy balance mode</td>
<td>Includes all variables</td>
</tr>
<tr>
<td>Noah 0.25°x0.25°</td>
<td>Version 2.7, Snow DA, direct insertion</td>
<td>Snow, VIC, forward-looking</td>
<td>Updated bottom temperature</td>
</tr>
</tbody>
</table>

Check for GLDAS-2 Data

- **Mirador data search and download**
  - Parameter and spatial subsetting
  - NetCDF conversion
  - GrADS Data Server (GDS)
  - Visualization and analysis
  - Parameter and spatial subsetting
  - Output Types: Binary, ASCII, Image
  - FTP downloading
  - Quick access and batch processing
  - Navigation based on date

- **Giovanni Portals**
  - Online visualization and analysis
  - Parameter and spatial subsetting
  - Output Types: HDF, NetCDF, ASCII, and Image (GIF/PNG/KMZ)

- **Giovanni Data, ftp, Giovanni, and README documents**

- GLDAS-2 Noah Experiment 1-monthly and 3-hourly 1° x 1° data sets (1948-2008) have been released to the public by the NASA Public DISC.

- While GLDAS-2 data are becoming available incrementally, more than 30 years (Jan. 1979 - present) of GLDAS Version 1 (GLDAS-1) data, simulated by CLM, Noah, VIC models, remain publicly available and are still growing.

**Recent updates of Princeton Forcing Data**

- **GLDAS-2 data will be generated using:**
  - Updated models (Noah, Catchment, CLM, and VIC)
  - Updated land cover, land mask, and other vegetation maps based on MODIS data
  - Experiment 1 (1948 - present)
  - Experiment 2 (2001 - present)

- **GLDAS-2 NOAH Model Data:**
  - Catchment model was developed by Randy Koster et al at GSFC (the same group who developed Noah).
  - 1°x1° monthly and 3-hourly Experiment 1 Data are coming soon in summer 2012.
  - All data to Noah model data, Catchment model data contain 20 variable fields.
  - However, unlike most LSMs, the soil water prognostic variables are not strongly associated with soil layers. [http://nisp.gsfc.nasa.gov/research/land-catchment.html](http://nisp.gsfc.nasa.gov/research/land-catchment.html)

- **GLDAS-2 CLM and VIC Model data will also be forthcoming......**

Please visit GES DISC Hydrology Portal for updates. [http://disc.sci.gsf.nasa.gov/hydrology](http://disc.sci.gsf.nasa.gov/hydrology)

Improvements in GLDAS-2 Data

- In GLDAS-1, source of forcing data was changed several times during the 30-year data record. As a result, model output data show some discontinuities corresponding to dates of forcing data changes.
- GLDAS-2, using the improved forcing data from Princeton, has generated 61 years of improved and climatologically consistent data, using updated LSMs.
- The global mean time series of Total Precipitation (rainfall + snowfall, right-upper) and Surface Incident Shortwave Radiation (right-middle) show 61-year temporally consistent data.
- Global mean time series of Total ET (right-lower) shows the improvement of the 61-year consistent intensity and annual cycles.
- Other variables (not shown here) of GLDAS-2 model outputs also show improved data consistency.

Summary

- To date, GLDAS and GLDAS have generated more than 60 years (1948 - present) and 30 years (1979 - present) of data, respectively. These quality-controlled, spatially and temporally consistent terrestrial hydrological data could play an important role in characterizing the spatial and temporal variability of water and energy cycles and supporting climate research.
- All data are accessible at NASA GES DISC Hydrology Data Holdings via Mirador, ftp, GDS, or Giovanni [http://disc.sci.gsf.nasa.gov/hydrology/data-holdings](http://disc.sci.gsf.nasa.gov/hydrology/data-holdings)
- Giovanni GLDAS and GLDAS portals provide access to the full set of data, both temporal and spatial.
- The data are available in NetCDF, HDF, and ASCII formats.
- GLDAS-2 data are available at NASA GES DISC via the Giovanni portal. [http://gdata1.sci.gsf.nasa.gov/dacar-bin/G3/gui.cgi?instance_id=GLDAS02_00](http://gdata1.sci.gsf.nasa.gov/dacar-bin/G3/gui.cgi?instance_id=GLDAS02_00)

GLDAS is supported by the NASA Energy and Water cycle Study (NEWS).

Additional information about GLDAS and GLDAS can be found at [http://disc.sci.gsf.nasa.gov](http://disc.sci.gsf.nasa.gov)

GLDAS is a collaboration project among several groups (NOAA/NCEP/EMC, NASA/GSFC, Princeton University, University of Delaware, NOAA/OMS, and NOAA/NCEP/PCP) and is a core project of NOAA/MAAP.