The NLDAS Project and NLDAS Data Access and Drought Monitor Output

NLDAS Data Access at the NASA GES DISC

The hourly NLDAS data can be accessed via the National Aeronautics and Space Administration (NASA's) Goddard Earth Data and Information Services Center (GES DISC)'s Hydrology Data and Information Services Center (HDISC) (Figure 3, right). Users can access the data by searching and downloading via anonymous ftp or Mirador (Figure 4, below left). Mirador, a fast interface for searching Earth science data on NASA GES DISC, uses keywords and time span to find and download data quickly in a batch format. Figures 4 and 5 (below left) illustrate the Mirador search interface and results, respectively. The NLDAS products are also made available to GRADS Data Server (GDS) users (Figure 6, below). The GDS is a stable, secure data server that provides sub-setting and analysis services across the internet. The GDS provides subsets of any NLDAS data set, in ASCII comma-delimited format and/or binary format, in Figure 7 (below, right) shows an example of the layer 1 solar moisture content in ASCII format. More advanced tools will be provided in later releases, such as spatial and parameter sub-setting, data format transformation, and an online visualization and analysis tool (Giovanni).

Mirador Search Interface

Giovanni

Mirador Search Results

GDIS C DGS for NLDAS Dataset (http://hydrog.mf.nasa.gov/data/)

Sample NLDAS Drought Monitor Output

Figure 3: HDISC Data Holdings webpage.

Figure 4: Mirador webpage.

Figure 5: Sample Mirador results.

Figure 6: NLDAS GGRS Data Server (GDS).

Figure 7: Sample NLDAS data via GDS.

Real-time NLDAS Drought Monitor

Figure 8 (left): NLDAS real-time drought monitor (NARR/NLDA) has taken over main flooding duties from NASA/GSFC.

• Climatological mean soil wetness values were computed for each day of the year (1979 discarded due to spin-up)

• Anomalies are computed relative to the near real-time data (past day/week/month) to the same time of the year in the mean climatology

• Parameters are computed by ranking the current soil wetness values (past day/ week/month) against the same time of the year in the mean climatology

• NLDAS data are available to users from 1996-2000.

NLDAS drought monitor modeled after existing services (Figure 9, below, 1 to 14) with 1.5 month lead times for soil moisture indices, which can be used to calibrate the national indices.

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Figure 9 (above, 1): Precipitation declines directly from the index for the (R) North American Drought monitor product for June 2009. This index measures the CAVN agricultural/hydrometeorological drought, as this index only considers the precipitation and meteorological drought, so a different drought index may need to be used instead.

Sample NLDAS Drought Monitor Output

Figure 10: (above) 1. Precipitation declines directly from the index for the (R) North American Drought monitor product for June 2009. This index measures the CAVN agricultural/hydrometeorological drought, as this index only considers the precipitation and meteorological drought, so a different drought index may need to be used instead.

Sample NLDAS Drought Monitor Output

Figure 11 (left): Upper: Drought map for July 2009 (R) from NOAA NARR, Mosaic, and SAC LSMs, Lower: [1] Probability that severe drought (level D3) is occurring, based on the ensemble-based Drought monitor product for early September 2007.

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