

# Downloading NLDAS Data

**Green Bolded text is customizable/change to desired data**

Two Letter Metric Codes:  
ET – Potential Evapotranspiration (inches/hour)  
PP – Precipitation (inches/hour)  
RH – Relative Humidity (fraction)  
RN – Solar Radiation (langley/hour)  
TT – Air Temperature at 10 meters (degree C)  
VP – Vapor Pressure in (Pascals)  
WD – Wind Speed (miles/hours)

## Extracting Land Segments 05

Begin in the `/backup/meteorology` directory and run:  
`NLDAS2_ASCII_to_LSegs <ASCII_folder> <LSEG_folder> <start_year> <start_month> <start_day> <start_hr> <end_year> <end_month> <end_day> <end_hr> <LSEG_NLDAS_MAP>`

\*\*You will need to make a directory within the `LSEG_folder` that outlines the timeframe you specified in the function. Formatted `/startYearMonthDayHour-endYearMonthDayHour`

Ex: `/2017010100-2017010123` outlines the first hour of Jan 1, 2017 to the last hour of Jan 1, 2017

\*\*`<LSEG_NLDAS_MAP>` is a .txt config file that contains a list of land segments and corresponding NLDAS grids that lie within the land segments.

**Outputs** 6 files in `Lseg` directory named `<landseg.metric>`  
\*\*Output similar to Step 4, just based on Land Segments

**This function averages data from Step 4 based on desired Land Segments**

## Create and link Earth Data Account 01

Follow registration directions [here](#)

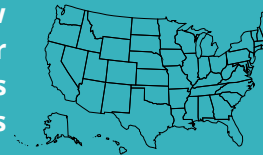
## HARP/ DEQ 2021

## Download Gridded Weather Data for Desired Year 03

To download NLDAS data run the following line in your **home** directory:

```
wget --load-cookies ~/urs_cookies --auth-no-challenge=on --keep-session-cookies -np -r -NP -R "*" -c -N --content-disposition https://hydro1.gesdisc.eosdis.nasa.gov/data/NLDAS/NLDA_S_FORA0125_H_002/<YEAR>/
```

Function downloads the raw data for an entire year (or day), for national recordings of all NLDAS-2 grids. This data is

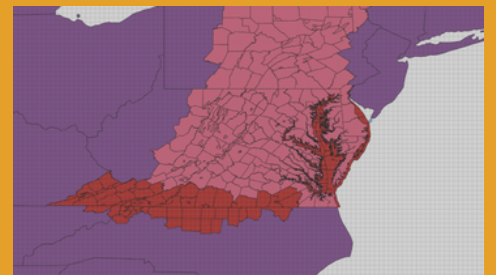


stored as `grb` or `grb.xml` files in the directory (HARP data currently in `backup/meteorology drive`).

## NLDAS Grid Information

The entire NLDAS-2 grid includes 1/8th degree boxes with lines of latitude from 25-53 degrees north and lines of longitude from -125 to -67 degrees west: 224 rows and 464 columns.

Link to larger photo of land segments and grid [here](#)



## Create Cookies on Linux 02

Allows function to run, only download once

Log into `deq4` and type following lines in the command window of the terminal.

```
1. touch .netrc
2. echo "machine urs.earthdata.nasa.gov login
YOURUSERNAMEGOESHERE password
YOURPASSWORDGOESHERE" >> .netrc
3. chmod 0600 .netrc
4. touch .urs_cookies
```

## Extracting Time Series for Desired Location(s) 04

Begin in the home directory and run the following line:

```
NLDAS2_GRIB_to_ASCII <IN_DIR> <OUT_DIR> <S.YEAR> <MONTH> <DAY> <HRS> <E.YEAR> <MONTH> <DAY> <HRS> <NUM.GRIDS> <COL> <ROW>
```

Once the data has been downloaded in Step 3 for the entire NLDAS grid, Step 4 specifies the specific grids to be studied with time series data. For example, this function can input the rows and columns for all of the grid boxes in Virginia: giving only Virginia data for the time series.

**Outputs** .txt files in corresponding output directory given in the function. Ex: `x395y111zPP.txt`  
`x<column>y<row>z<two letter metric code>.txt`

Each .txt file corresponds to a metric and has 5 columns containing: `<year> <month> <day> <hour> <value>`

\*\*See pink box for metric code details