

EDEN DataViewer Tool (v. 2.2)

User's Guide

(02/15/2013)

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What's new in version 2?

The EDEN DataViewer has been redesigned to provide for more functionality for our users. One of the modifications was to allow the user to simultaneously load over 20 years of EDEN water-level surfaces. This version is java-based, so users no longer have to install .Net or .dll files. The new version can be run on both 64-bit and 32-bit machines.

One additional change from the previous version is that the water-level surfaces are displayed as a 'smooth' or continuous surface; however the actual data is gridded in 400m-by-400m cells. The gridded detail of the surface values is no longer evident, as it was in the previous version of the tool. The value for a grid cell in any map view is accurately displayed using the identify tool.

What is the EDEN DataViewer?

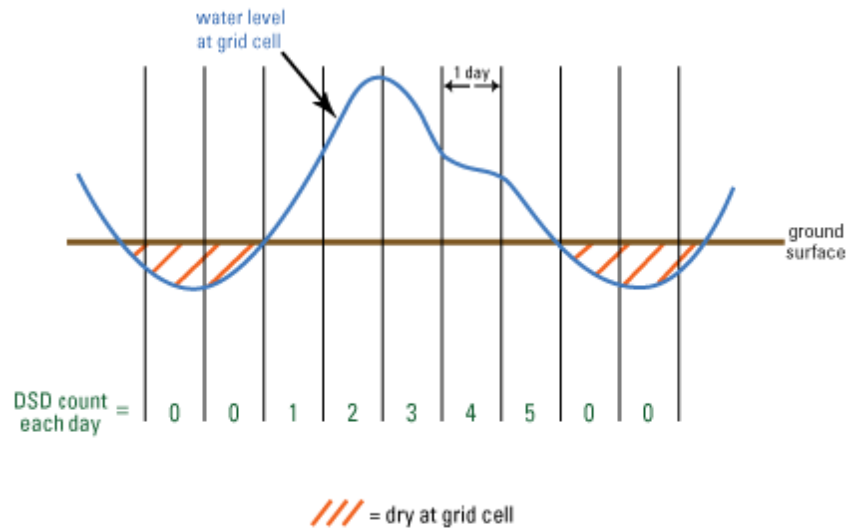
The EDEN DataViewer is a program for viewing the daily EDEN surfaces of **water level** and **ground elevation** from the ground surface digital elevation model and creates daily surfaces of water depth and days since last dry. The user can view all or a selected area of the EDEN domain and the surfaces can be animated over time. Data values for each surface are reported for user-selected UTM-coordinate locations.

The daily surface of **water depth** is created by subtracting the ground elevation for the EDEN grid cell (400 meter by 400 meter cells) from the water level surface. The **days since dry** grid cells indicate the number of consecutive days that an EDEN grid cell surface has had a depth value greater than zero. The count of "0" indicates that the cell is dry (water depth is equal or less than zero) for that day. When the cell becomes wet (water depth is greater than zero), the count begins and increases each wet day until a dry day is encountered. When the cell dries, the count returns to zero and remains at zero until the cell is wet again.

All water level and ground elevation data are output in units of North American Vertical Datum of 1988 (NAVD88).

Days Since Dry Calculations

The daily surface of water depth is created by subtracting the ground elevation for the EDEN grid cell (400 meter by 400 meter cells) from the water level surface. The days since last dry indicate the number of consecutive days that an EDEN grid cell surface has had a depth value greater than zero. The count of "0" indicates that the cell is dry (water depth is equal or less than zero) for that day. When the cell becomes wet (water depth is greater than zero), the count begins and increases each wet day until a dry day is encountered. When the cell dries, the count returns to zero and remains at zero until the cell is wet again. Note that in the "days since dry" window of the DataViewer a considerable portion of the graphic may appear blank as there is no data yet available. It is not until the cell is dry that the count begins (at "0"), and data is present.



For example, a count of 3 means that the cell has been wet for the last 3 consecutive days or, said another way, the cell was dry 3 days ago.

Required Files

EDEN digital elevation model (DEM) file for ground elevation

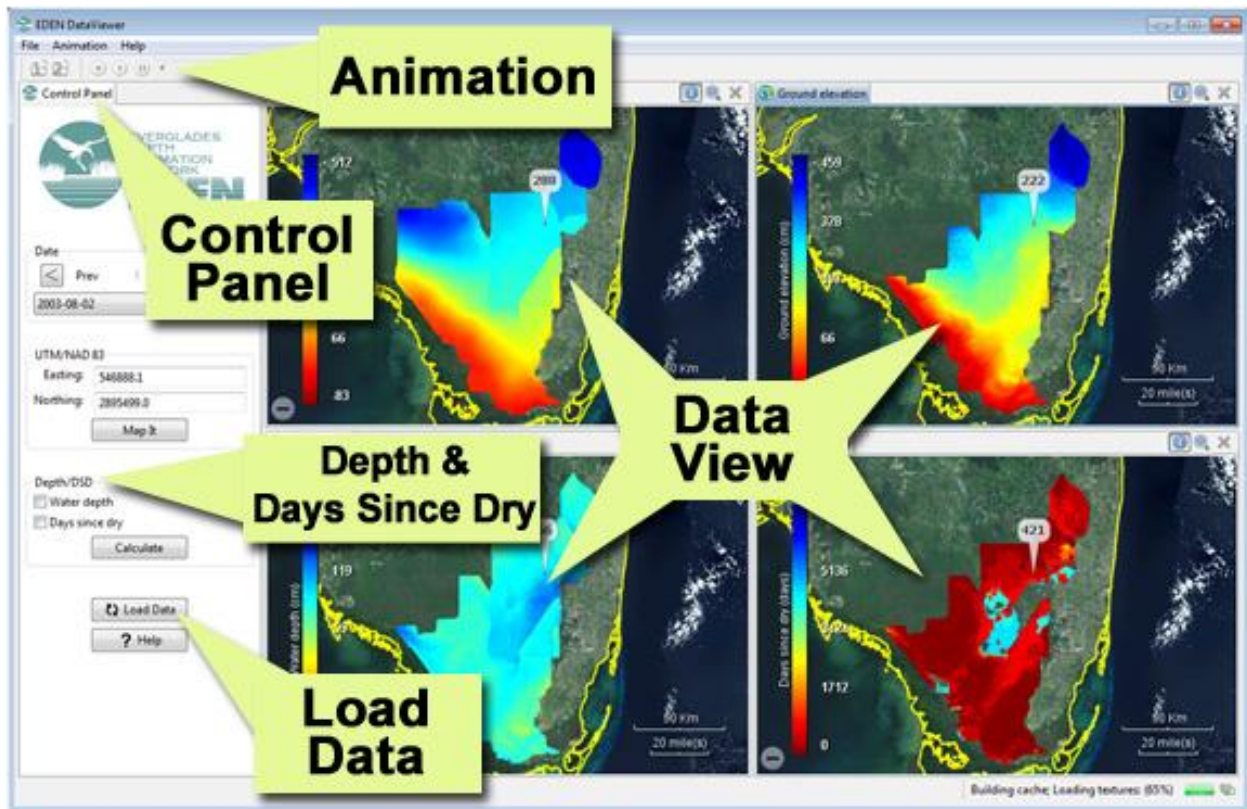
- a. NetCDF file format (.nc)
- b. Units of centimeters
- c. Available for download at <http://sofia.usgs.gov/eden/models/groundelevmod-edenapps.php>.

EDEN daily water level surfaces

- a. NetCDF format file(s) (.nc) containing daily water level surfaces
- b. Multiple one-quarter-year files can be used for requested time series (be sure that continuous data files are present for accurate time series calculations)
- c. Available for download at <http://sofia.usgs.gov/eden/models/watersurfacemod.php>.

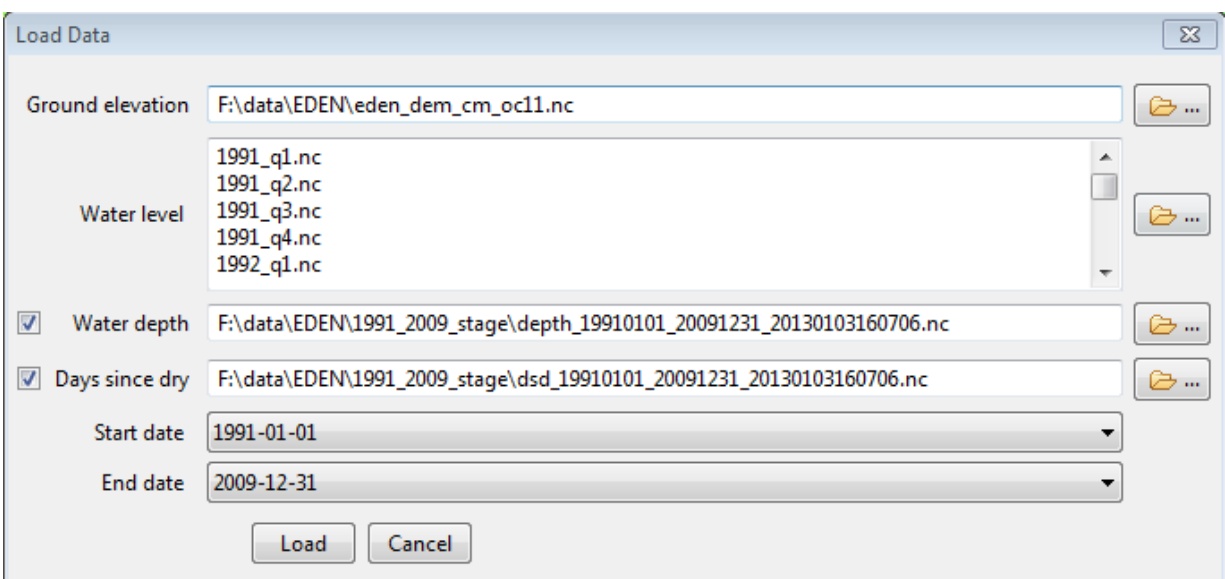
User Instructions

Note: We recommend **NOT** using the Windows extractor to unpack the .zip file containing the DataViewer, as the Windows extractor has trouble with complex zip archives and long path names. We recommend using [WinZip](#) or [7zip](#).



1. Open the application. To do this, navigate to the application and double-click “EDEN_DataViewer.exe”. The “Load Data” menu automatically appears.

Load data



1. Browse to the location of the ground-elevation (DEM) netCDF (.nc) file.
2. Browse to the location of the water-level (stage) netCDF file(s). Select multiple netCDF files by holding down the Ctrl or Shift key and select files by left-clicking the mouse.
3. If you are finished loading files, click on the “**Load**” button.

The loader has the option to load/view previously-calculated water-depth or days-since-dry netCDF files. (There is also an option in the Control Panel to calculate these values from the loaded water-level and ground-elevation files using the Calculate button. See the section “Control Panel” for more information.)

1. To view an existing water-depth netCDF file, check the Water depth checkbox and browse to the location of the water-depth netCDF file.
2. To view an existing days-since-dry netCDF file, check the Days since dry checkbox and browse to the location of the days-since-dry netCDF file.
3. Select start and end dates from the respective drop down list of dates to display on the map. If water depth or days since dry options are checked, only the common dates between all the input datasets are displayed in the drop down list.
4. Click the “**Load**” button to display selected input file data on the map(s).

Control Panel

Control Panel

EVERGLADES
DEPTH
ESTIMATION
NETWORK
EDEN

Date

< Prev | Next >

2000-01-01

UTM/NAD 83

Easting: 536041.2

Northing: 2854057.0

Map It

Depth/DSD

Water depth

Days since dry

Calculate

Load Data

Help

The control panel controls the four maps in the display (“data view”).

Date

The **Date** section gives the available common dates to display corresponding data on the maps. A user can navigate to a date by selecting from the drop down list or clicking the next or previous buttons.

UTM/NAD83

Under the **UTM/NAD 83** section, the **Easting/Northing** (NAD83) text boxes display X/Y coordinates for the selected identify point on the map.

The user can also enter UTM coordinates and click the **Map It** button to display the point on the map.

Depth and Days Since Dry (DSD)

Under the **Depth/DSD** section, the user can select **Water depth** and/or **Days since dry** and click the **Calculate** button to calculate water depth and days since dry from the water-level and ground-elevation files loaded on the map.

If only the **Days since dry** option is checked, water-depth data must already be loaded as this calculation depends upon the depth maps. Calculations have completed once the progress dialog has closed. The status bar at the bottom of the application may still display a “Building cache; loading textures” message. This means map images are still being generated so they can be animated once complete. The Animation Control is also available/enabled upon completion.

- **NOTE: The user must have write permissions on the folder containing the water-level netCDF files to be able to calculate and create water-depth and days-since-dry output files.**
- The application also creates an ncml file (ex. stage_0E7860E4DA0567B28AFB7BC973E31F762BC6DBE4.ncml) when multiple water-level files are selected to open. The application uses this file for data display and calculations and should not be deleted. The filenames of the newly calculated water-depth and days-since-dry output files will contain the start and end dates of the data calculated and a created timestamp (ex: depth_20060101_20071231_20121226151851.nc).
- If non-consecutive data was used to calculate the water-depth and days-since-dry files, the flag “_gap” will be found within the output filename.

Load Data

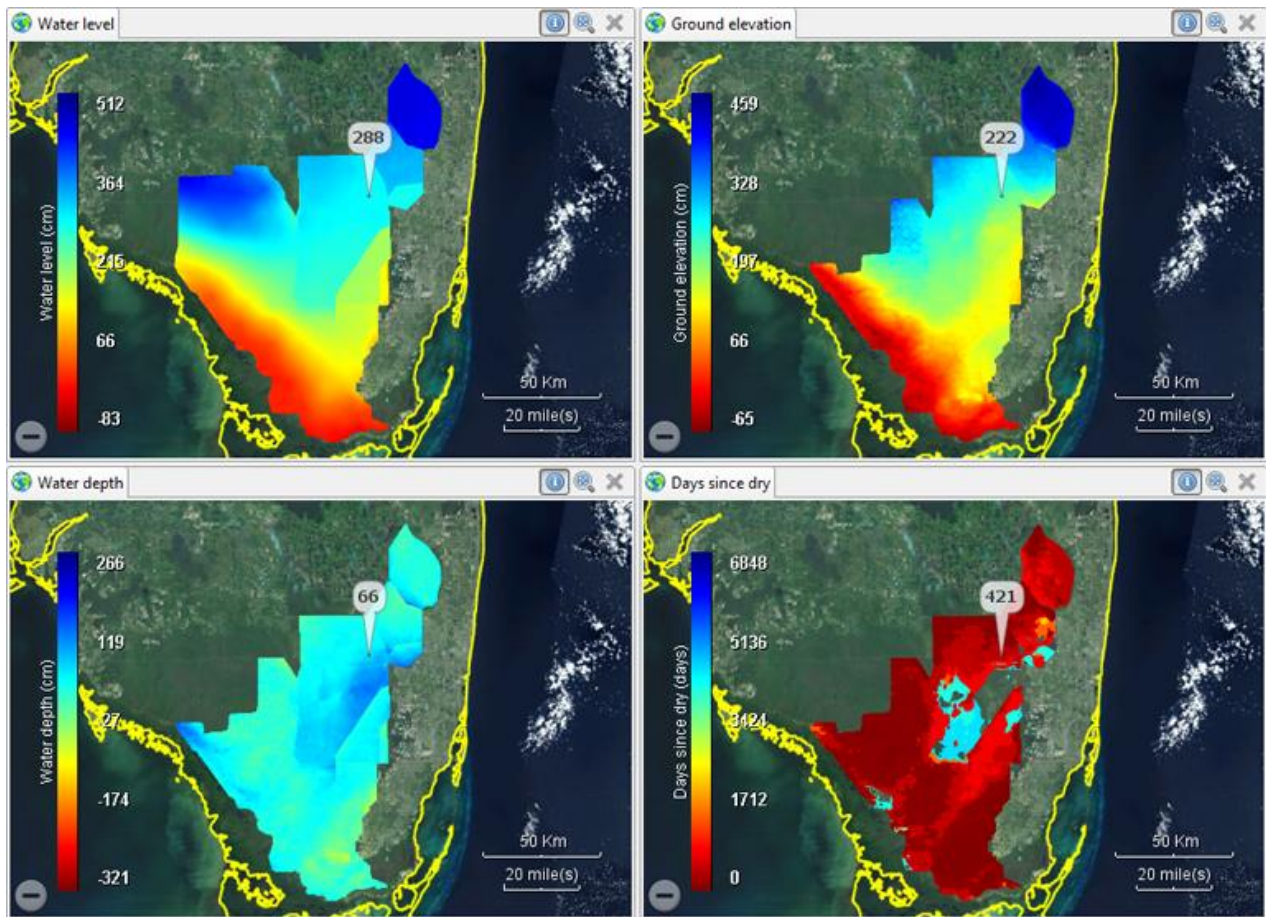
The **Load Data** button allows the user to select a different set of dates or input datasets to load on the map(s).

Help

The **Help** button displays the help for the EDEN DataViewer.

Data View

The Data View displays four maps: Water level, Ground elevation, Water depth, and Days since dry. If available, data is displayed on each map for the current selected date in the Control Panel.



- Pan the map in different directions by holding down the mouse and moving.
- Zoom in or out of the map by using the mouse wheel. Keyboard options may also be used: = key to zoom in and – to zoom out.
- The map tools are present at the top of each map as shown below. The tools will remain disabled until data is loaded. The “Close Globe Section” tool is always disabled since the DataViewer displays four synced globes at all times.



- The “Add Identify Objects” tool ("i") can be used to click on any one of the maps to create an identify point. The identify point will display a corresponding data value at the same location on all four maps.

- The “Zoom and Fit Dataset” tool zooms to the full extent of the map data.

Animation



The Animation tool bar is located above the Control Panel. The Animation control allows the user to loop through the available dates present in the Control Panel date list displaying its respective data on the map(s). The sliding bar can be adjusted to increase or decrease the animation speed. Menu options, Increase/Decrease Speed, are also available from the Animation menu.

- **NOTE:** The Animation tool bar is enabled only after all the data and image cache is loaded. Also, the two buttons located next to the Animation control ("Multi-Globe Page 1 and 2" tools) are disabled for this version of the DataViewer.

Log Files

The DataViewer automatically creates two log files containing informational application messages and error messages.

- The first log file, named “eden_dataviewer.log”, is located in the same folder as the DataViewer application (.exe) file.
- The second log file can be accessed through the Help menu by selecting the “View Error Log” option.

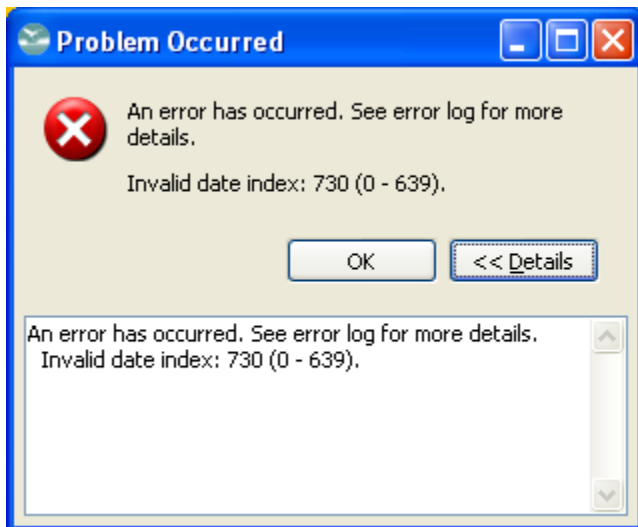
You may be asked to send these files to the EDEN team for the purpose of diagnosing errors.

Error Messages

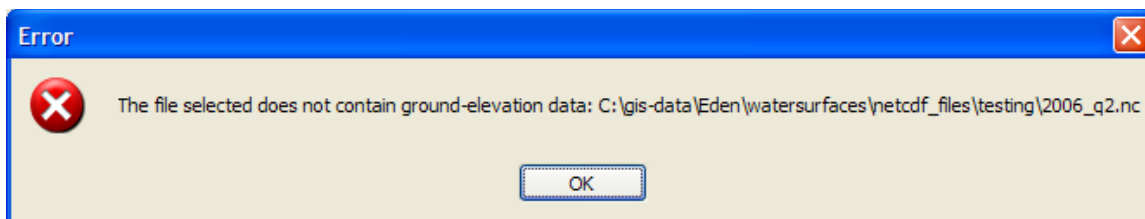
Below are a list of common error messages users might encounter while using the EDEN DataViewer tool.

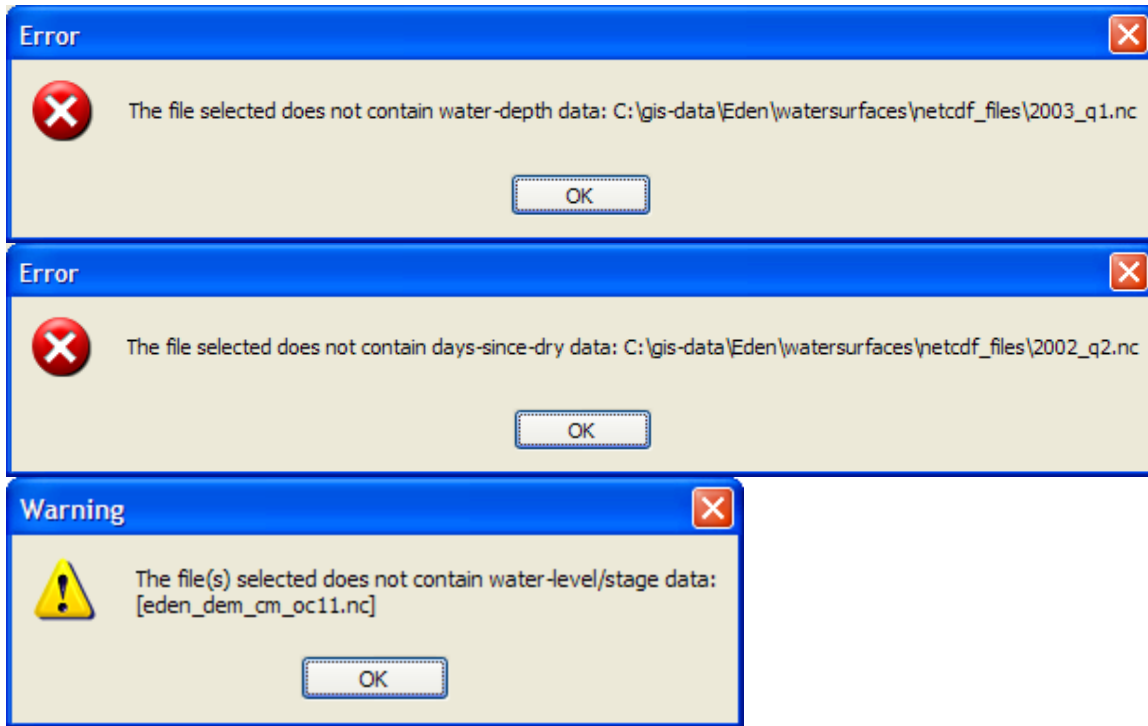


Users need to use a third-party program for unzipping files as Window's unzipping program has trouble unzipping this zip file. Please see the section "User Instructions" for more information.



Users will see this error message when the DSD file dates do not match the dates in the water-level files.





These are error messages due to the loading of incorrect files.

This software is developed for the Everglades Depth Estimation Network (EDEN) through a partnership with the National Wetlands Research Center's Advanced Applications team.

For more information, contact Pamela Telis, patelis@usgs.gov.

<http://sofia.usgs.gov/eden>

