EDEN xyLocator Tool (v. 1.4)
User's Guide
11/26/2007, revised 5/19/08, 7/24/08

What is EDEN xyLocator?

EDEN xyLocator is a program for extracting data from EDEN daily water level surfaces and ground elevation surface. Data is extracted for user-specified x,y locations for water level, water depth, and ground elevation, and days since last dry (counting from the user-specified time range). All EDEN surfaces are gridded to 400-meter by 400-meter cells therefore the data extracted for the x,y location corresponds to the data for the grid cell in which the x,y location occurs. All water level and ground elevation data are output in units to North American Vertical Datum of 1988 (NAVD88).

Installation Instructions

Required for execution of the program:

1. **EDEN xyLocator.exe** (currently at v. 1.4)
   Available for download at
   http://sofia.usgs.gov/eden/edenapps/xylocator.php.
   Executable file can be copied to any location on your computer.

2. **netCDF dll (NetCDF data library files)**
   Extract files from http://sofia.usgs.gov/eden/edenapps/programs/netcdf-3.6.1-win32.zip.
   Extract all files in the .zip and copy them to c:\windows\system32.

3. **.NET Framework 2.0**
   EDEN xyLocator requires the .NET Framework 2.0. If you receive an error message telling you that it is missing, you will need to download it from http://www.microsoft.com and install it. Accept the default settings.

User Input

Required files:

1. EDEN DEM file for ground elevation
   a. NetCDF file format (.nc)
   b. Units of centimeters
   c. Available for download at
      http://sofia.usgs.gov/eden/data/dem/eden_dem_cm_nov07.zip.

2. 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.

3. xy points files (see example screenshot below)
   a. Plain text file (ASCII or Unicode)
   b. Tab- or comma-delimited
   c. Header row required
   d. Each row contains point positions for which EDEN data will be extracted. Each row contains, in order:
      i. Position name
      ii. X coordinate (UTM, zone 17N, NAD83)
      iii. Y coordinate (UTM, zone 17N, NAD83)

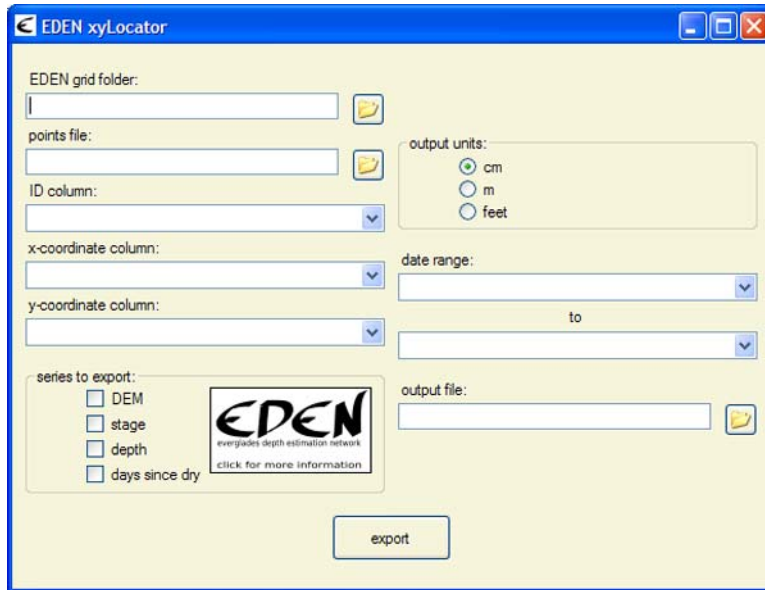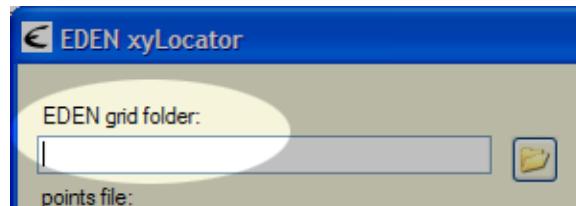Example xy points file
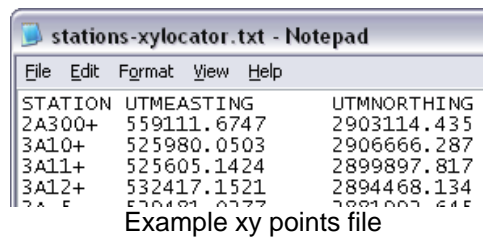
User Instructions

1. Open the application. To do this, navigate to the application and double-click on the icon.
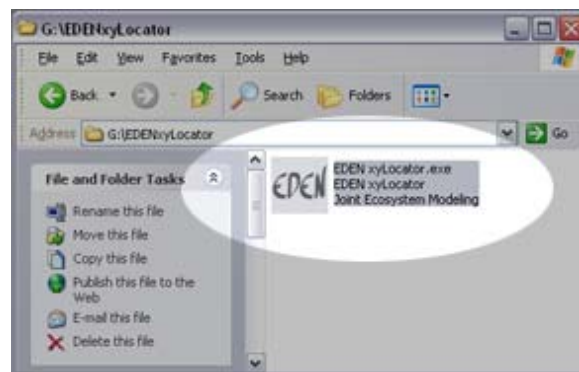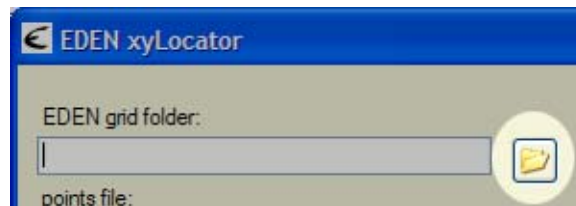

The application will open to the following window.

2. Type the folder path to the EDEN data files stored on your hard drive. This folder must contain one or more EDEN daily water level surface files (netCDF, .nc) and the EDEN DEM file for ground elevation (netCDF, .nc).
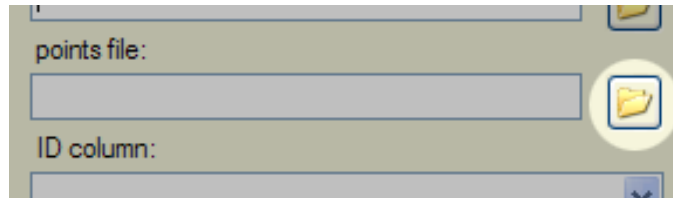

Alternatively, you may click the browse button and browse to the appropriate folder.


3. Type the file path to the file containing the point data you want to extract. (See the example xy points file in the "User Input" section above.)
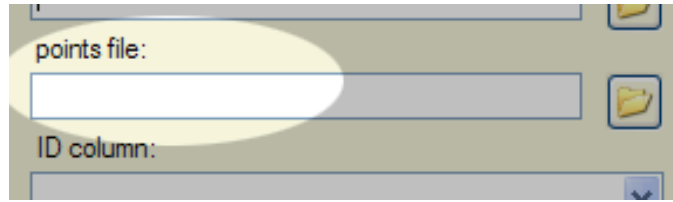
You may also browse to this file. Simply click the browse button and select the appropriate file.

4. Fields from the points file will auto-populate the next 3 fields. Verify that the data are correctly being read by the program. You can reselect the correct column by using the drop-down menu.
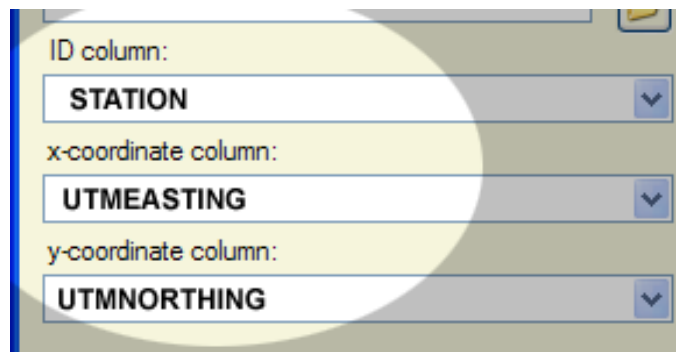

5. Select the data you want to export.

> **DEM** will extract the ground elevation for the xy points from the DEM of the ground surface.
>
> **Stage** and **depth** extract time series of water level (NAVD88) and depth for the xy points for the user specified period, respectively.
>
> a. **Days since dry** generates a time series for each xy point that indicates 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 (see example below).

At the beginning of the user-specified time period, the value of the days since last dry at all grid cells is set to null or 'no data'. Once the grid cell becomes dry for the first time, the computation of days since last dry starts, therefore it is feasible that some grid cells may never become dry during the period and have no value for the days since last dry computation.

**Days Since Last 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 then 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 the output for the xyLocator Tool will display "no data" for a day until it reaches a count of "0". Some stations may only report "no data" if they never encounter a dry day during the dates selected.
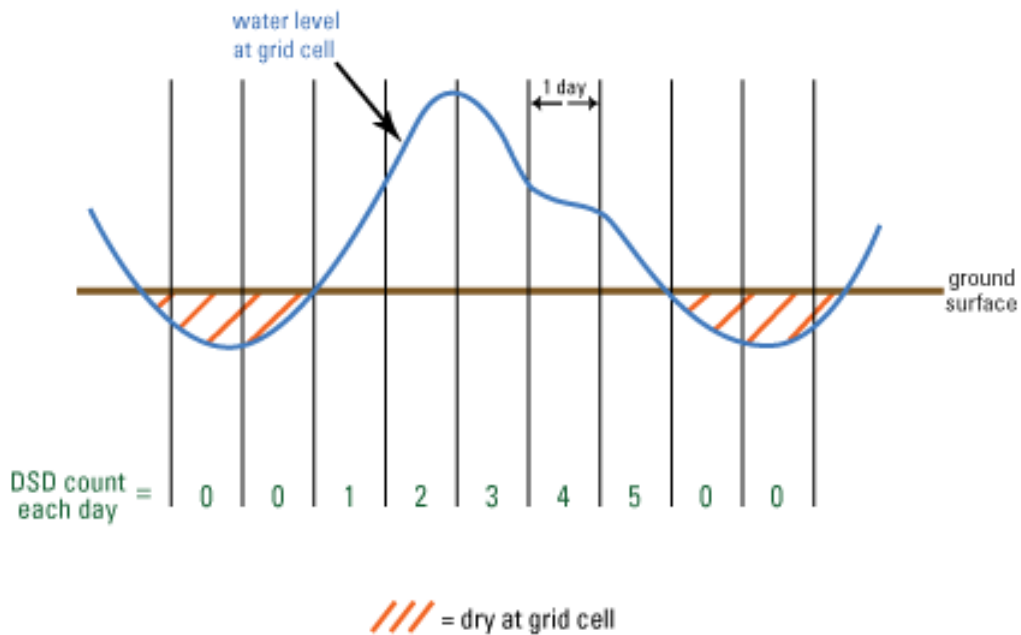
For example, a count of 3 means that the cell has been wet for the last 3 consecutive days or, said another way, the cell was dry 3 days ago.

You may select any or all series for export.
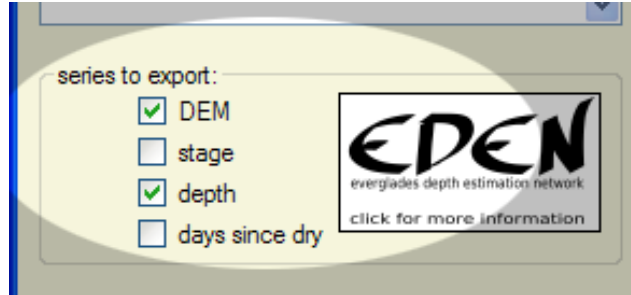
6. Select the units of measure for the output file. The available selections are centimeters, meters, and feet.

7. Select the date range for export. The information in the **date range** will auto-populate from the dates contained in the water surface files. If there are multiple water surface files, then the dates will extend from the earliest date to the latest date.

    If no dates are listed in the boxes, ensure that the correct folder has been selected in step 2.

    You can modify the dates, if necessary, simply by selecting the dates in the pull-down list.
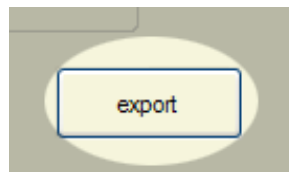

8. Type a path and name for the output file. (Output file format is text (.txt) file.)
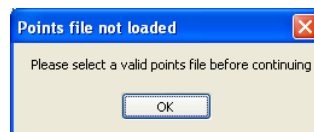
You may also click the browse button and use the dialog box to indicate where you want to save the file. Then type the output file name.

output file:

9. Click the export button.

export

If any information on the form is incomplete, a box will notify you to make the necessary correction.

Points file not loaded

Please select a valid points file before continuing

OK

A window will keep you apprised of the program's progress.

reading c:\eden\2001_q3.nc

joint ecosystem modeling

10. A message box will let you know when the program has successfully completed the export process.

Export successful

Successfully exported points to G:\output.txt

[OK]
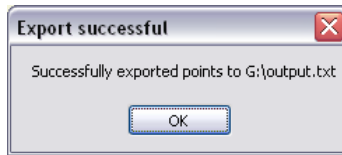
11. To close the application, click on the close button in the upper-right corner of the window.

12. The output file is a tab-delimited text file that can be opened in a text editor or a variety of spreadsheet programs (including Excel).

Users are urged to note the units in the filename title or edit the file to include the units of water level, depth, and ground elevation. The options for units include centimeters, meters, and feet.

A sample output file, opened in Excel, is shown below.

Microsoft Excel - output

File   Edit   View   Insert   Format   Tools   Data   Window   Help

	A	B	C	D	E	F
1	dem					
2	===					
3		2A300	3A10	3A11	3ASW	3BS1W1
4	dem	269.9408	299.0562	276.5754	228.267	129.2033
5						
6	days since dry					
7	=============					
8		2A300	3A10	3A11	3ASW	3BS1W1
9	7/1/2006	no data	0	no data	0	0
10	7/2/2006	no data	0	no data	1	0
11	7/3/2006	no data	0	no data	2	0
12	7/4/2006	no data	0	no data	3	0
13	7/5/2006	no data	0	no data	4	0
14	7/6/2006	no data	0	no data	5	0
15	7/7/2006	no data	0	no data	6	1
16	7/8/2006	no data	0	no data	7	2
17	7/9/2006	no data	0	no data	8	3
18	7/10/2006	no data	0	no data	9	4
19	7/11/2006	no data	0	no data	10	5
20	7/12/2006	no data	1	no data	11	6
21	7/13/2006	no data	2	no data	12	7
22	7/14/2006	no data	3	no data	13	8
23	7/15/2006	no data	4	no data	14	9
24	7/16/2006	no data	5	no data	15	10
25	7/17/2006	no data	6	no data	16	11
26	7/18/2006	no data	7	no data	17	12
27	7/19/2006	no data	8	no data	18	13
28	7/20/2006	no data	9	no data	19	14
29	7/21/2006	no data	10	no data	20	15
30	7/22/2006	no data	11	no data	21	16
31	7/23/2006	no data	12	no data	22	17

Developed for Everglades Depth Estimation Network (EDEN).
Joint Ecosystem Modeling, A DOI (USGS/USFWS/NPS)/
Universities/others Partnership based at IFAS,
University of Florida, Fort Lauderdale Research Center.

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http://sofia.usgs.gov/eden