

A Quick Guide to Using EDEN NetCDF Files in ArcGIS

9.2

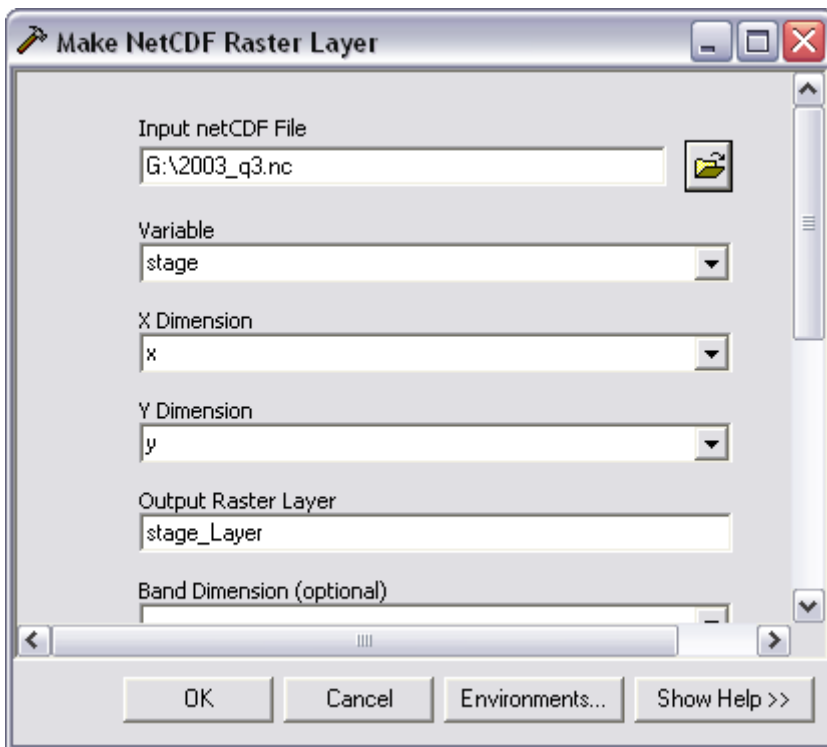
EDEN water surface data files are stored with multiple dates in each file. Each netCDF file contains a quarter of a year. So, for example, the data for every day in 2002 will be stored in 4 files: 2002_q1.nc, 2002_q2.nc, 2002_q3.nc, and 2002_q4.nc.

(Note: you may have to add Multidimension Tools to your ArcToolbox before beginning. To do this, right-click on ArcToolbox, select “Add Toolbox”, browse to the folder containing the toolbox files, and select the Multidimension Tools file.)

View a EDEN NetCDF File

1. ArcToolbox → Multidimension Tools → Make NetCDF Raster Layer
2. Select the input netCDF file to import
(Leave all optional information blank)
3. Click OK.

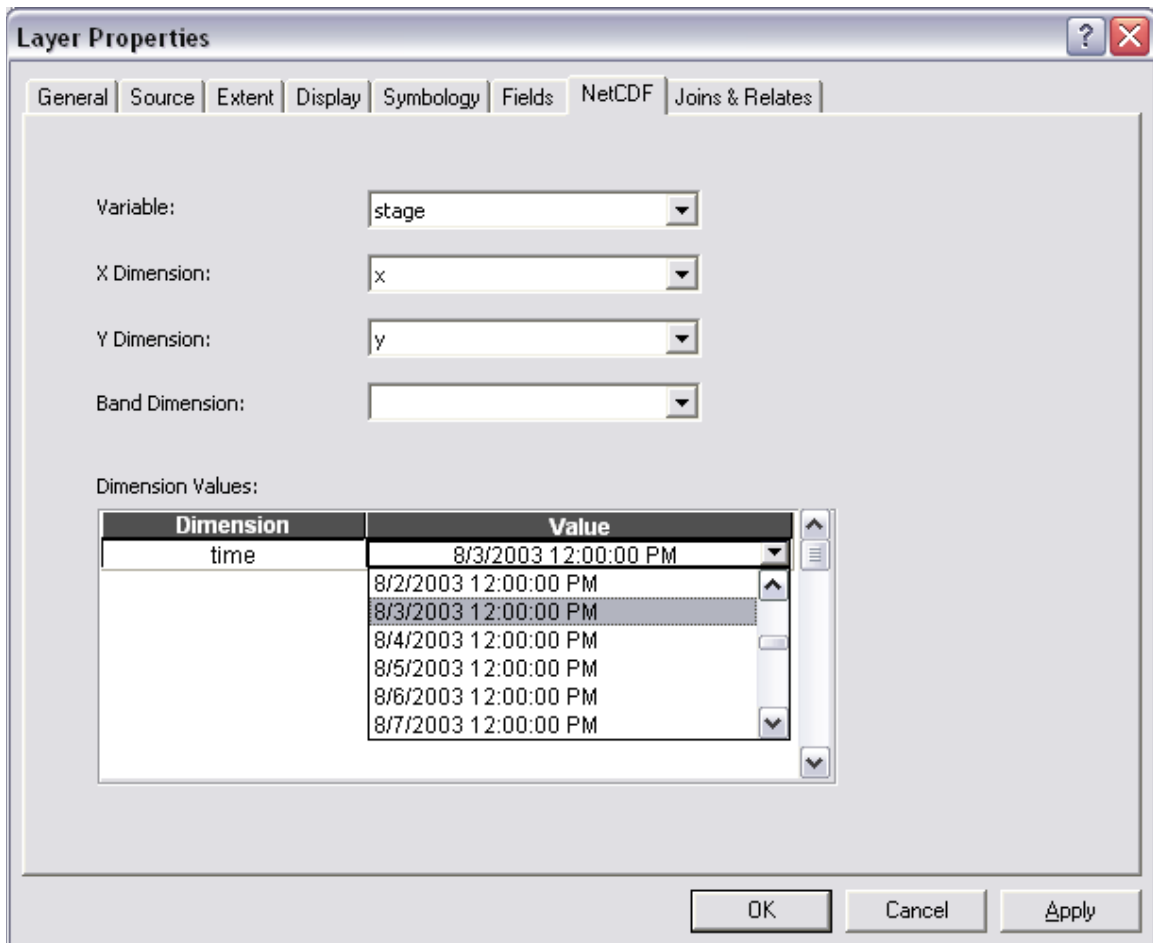
The date displayed will be the first date in the file’s time series. For example, if you load 2002_q1.nc, the date displayed will be January 1, 2002.



Change the Date Displayed in ArcGIS

Since an EDEN water stage NetCDF file contains 3 months of data, you will want to display dates other than the first one in the series.

1. Double click on the Layer Name in the Table of Contents (or right-click and select Properties).
2. In the Layer Properties form that pops up, select the NetCDF tab.
3. Under Dimension Values, the date of the currently displayed layer will be shown. Click on this date to bring up a drop-down list.
4. Use the drop-down list to select the date you want displayed.
5. Click OK



Notes:

1. You may want to change the displayed name in the Table of Contents to remind yourself of which date you're looking at. The default name is just "stage_layer".

2. To perform any spatial analyses (e.g. Raster Calculator) using more than one date from the same NetCDF file, you will have to import the NetCDF file repeatedly- once for each date you want to use- then use the Layer Properties dialog to change the dates. Spatial analyses in ArcGIS only operate on the layer being displayed.

Animate a NetCDF Time Series

Step 1: Create the time layer track

1. From the Animation drop-down on the Animation toolbar, select Create Keyframe. (To display Animation toolbar go to: View > Toolbars > Animation)
2. Click the Type drop-down arrow and choose Time Layer.
3. Click the Source object drop-down arrow and click the layer you want animate.
4. Click New to create a new track with a default name, or type a name for a new track into the Destination track text box, then click New.
5. In the Keyframe name input box, alter the default name given for the first keyframe. For example, type "Start Time".
6. Click Create to create a new keyframe for the track.
7. In the Keyframe name input box, type a name for the second keyframe. For example, type "End Time".
8. Click Create again to create another keyframe for the track.

Only two keyframes are required (a start keyframe and an end keyframe) for a time layer track, but you can add more if you want to display different intervals between each keyframe. You'll see these keyframes that you created on the Keyframes tab of the Animation Manager in step 2.

9. Click Close.

Step 2: Manage track and keyframe properties

Once a time layer track has been created, the time or date field (or fields) to use to animate by must be specified, as well as the time range, the time interval, and the units to use.

1. Click Animation and click Animation Manager.
2. Click the Tracks tab, click the track you created, and click Properties.

The Track Properties dialog box opens.

3. Click the Time Track Properties tab.
4. Specify time as the Start Time Field to animate by in the animation.
5. Click Calculate Times to calculate a time value for each keyframe in the track.

The minimum and maximum values from within the start time field set will be populated for the start and end keyframes on the Keyframes tab of the Animation Manager. If there are multiple keyframes, times are distributed evenly.

6. Check Show time in the display if you want the time to be displayed as the animation is playing.
7. Click OK.
8. Click the Keyframes tab.

The Time column displays the range of time values calculated by clicking Calculate Times. You may want to alter the time range that will be animated. The Interval column shows the interval that will be used when animating. The Units column shows the interval units that will be used when animating. The keyframe interval and units specified determine the next time slice that will be displayed. These options must be set appropriately. The EDEN time stamps in your data are Daily intervals: you could set the interval to 1 and the units to Days. Alternatively, set the interval to 10 and the units to Days to only show time slices of data for every 10 Days.

9. Click in the Time column to alter the time values.
10. Click in the Interval column to alter the interval that will be used for each keyframe.
11. Leave the Units column set to Days.
12. Click Close on the Animation Manager.

Step 3: Play the animation

How to play an animation automatically

1. After creating a track or tracks to animate, click the Open Animation Controls button on the Animation toolbar.
2. Click the Play button.

The animation is played back.

How to play an animation manually

1. After creating a track or tracks to animate, click the Animation drop-down arrow on the Animation toolbar and click Animation Manager.
2. Click the Time View tab.
3. Click the display in the Time View tab until a vertical red time line appears to view a specific frame of the animation.
4. Drag the time line to preview the way your animation will play.

For more information, visit the “Help” section in ArcGIS.

Reference:

Tim Whiteaker. Animating NetCDF Data in ArcMap. Center for Research in Water Resources, The University of Texas at Austin.

<http://www.crwr.utexas.edu/gis/gishydro06/SpaceAndTime/NetCDF/Animating%20netCDF%20Data%20in%20ArcMap.htm>

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Universities/others Partnership based at IFAS, University of
Florida, Fort Lauderdale Research Center.



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