


RICCAR
Regional Initiative for the Assessment of
Climate Change Impacts on Water Resources and
Socio-Economic Vulnerability in the Arab Region

Regional Initiative for the Assessment of
Climate Change Impacts on Water Resources and
Socio-Economic Vulnerability in the Arab Region


Regional Initiative for the Assessment of Climate Change Impacts on Water Resources & Socio-Economic Vulnerability in the Arab Region

**WEBINAR SERIES ON
CLIMATE CHANGE ANALYSIS USING GIS TOOLS**

Module 3:
Extracting tabular data from NetCDF climate files for use
in other models and applications



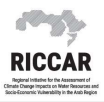
UNITED NATIONS
الأمم المتحدة
ESCWA



Webinar Series

- **Module 1:** RICCAR regional climate modelling and hydrological modelling datasets: An introduction
- **Module 2:** Viewing NetCDF regional climate modeling datasets in GIS
- ✓ **Module 3:** [Extracting tabular data from NetCDF climate files for use in other models and applications](#)
- **Module 4:** Creating a regional climate model ensemble using GIS and extreme events indices
- **Module 5:** Accessing global and regional climate datasets and platforms
- **Module 6:** RICCAR integrated vulnerability assessment methodology

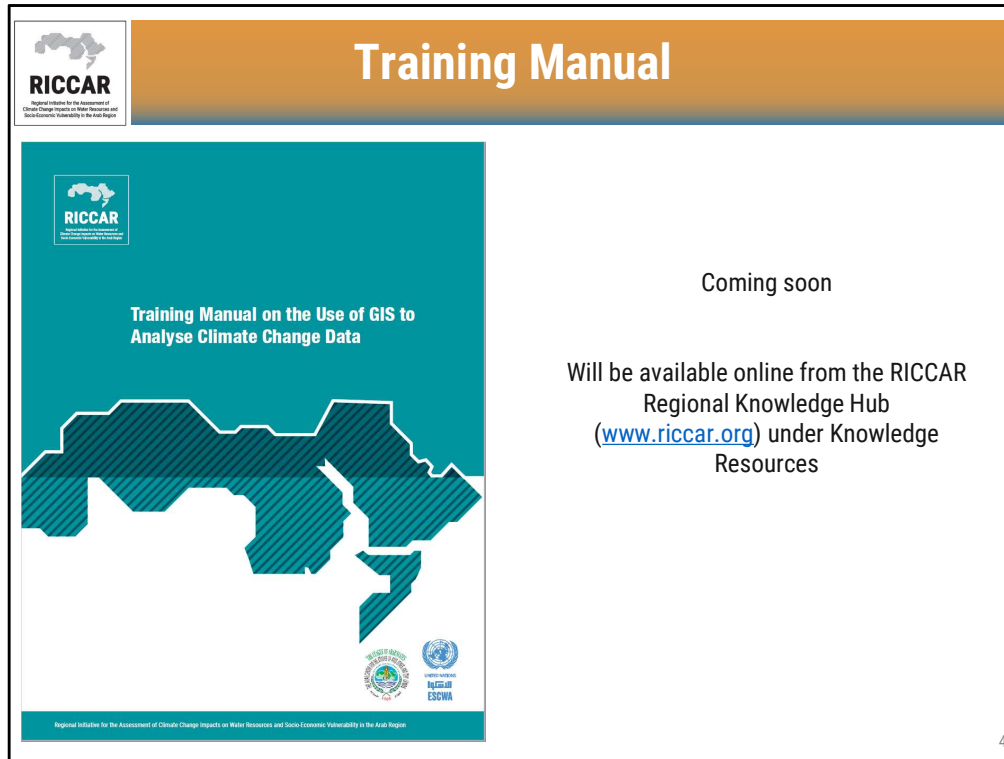
2



Module 3: Contents

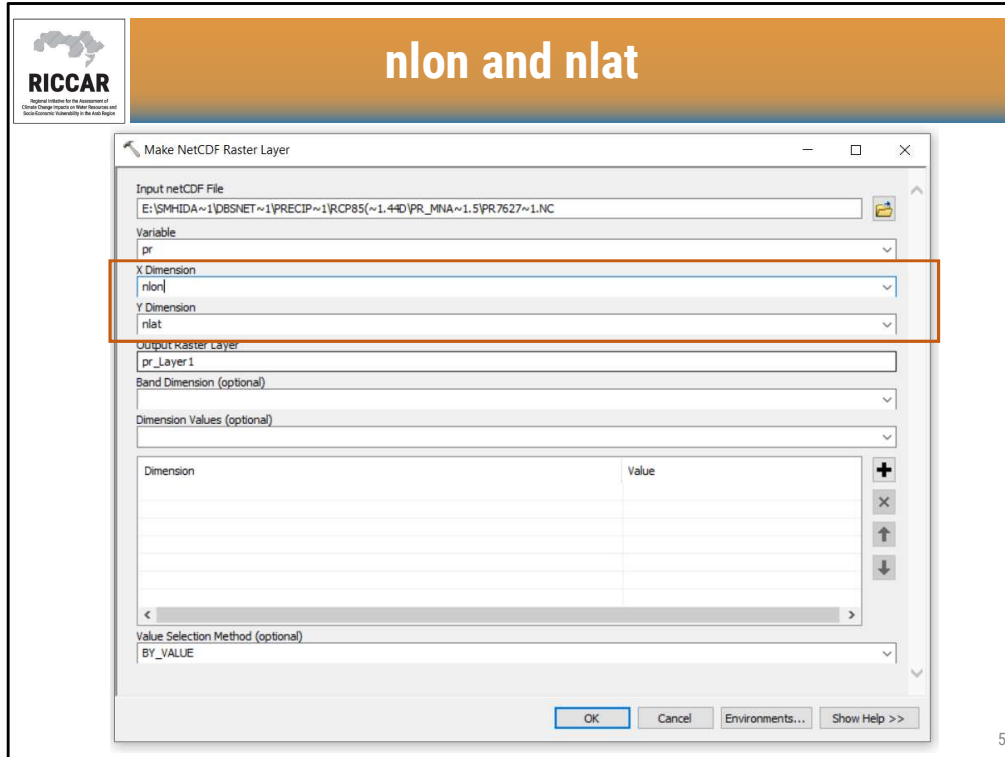
- Extracting time series datasets from NetCDF
- How to extract daily climate data for a given location for use in other models and applications
- Benefits and utilization of ArcMap Model Builder for NetCDF files

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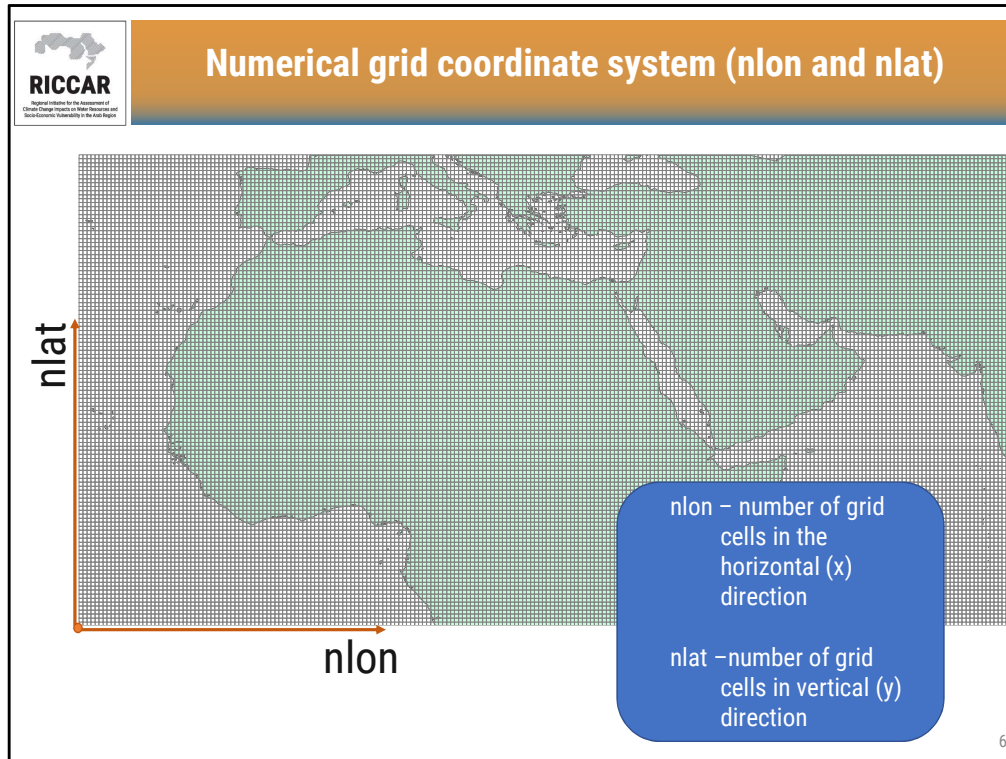


The image shows a slide titled "Training Manual" with an orange header. On the left is a cover for the "Training Manual on the Use of GIS to Analyse Climate Change Data". The cover features a teal background with a stylized map of the Arab region. Logos for RICCAR, UNESCWA, and the Regional Initiative for the Assessment of Climate Change Impacts on Water Resources and Socio-Economic Vulnerability in the Arab Region are visible. On the right, text announces the manual's availability: "Coming soon" and "Will be available online from the RICCAR Regional Knowledge Hub (www.riccar.org) under Knowledge Resources". A small number "4" is in the bottom right corner of the slide frame.

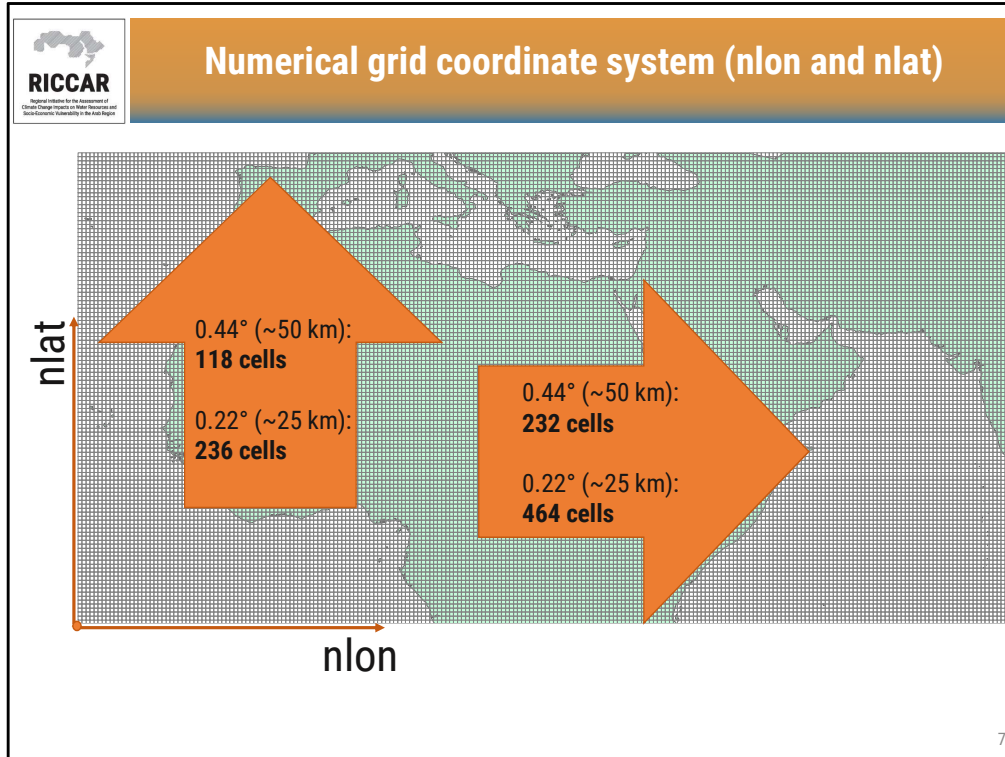
- Information included in this module is detailed in this training manual and relevant sections will be referenced.
- Manual is currently being finalized and will be available online. We will let participants know when it becomes available. It will be available in both English and Arabic.



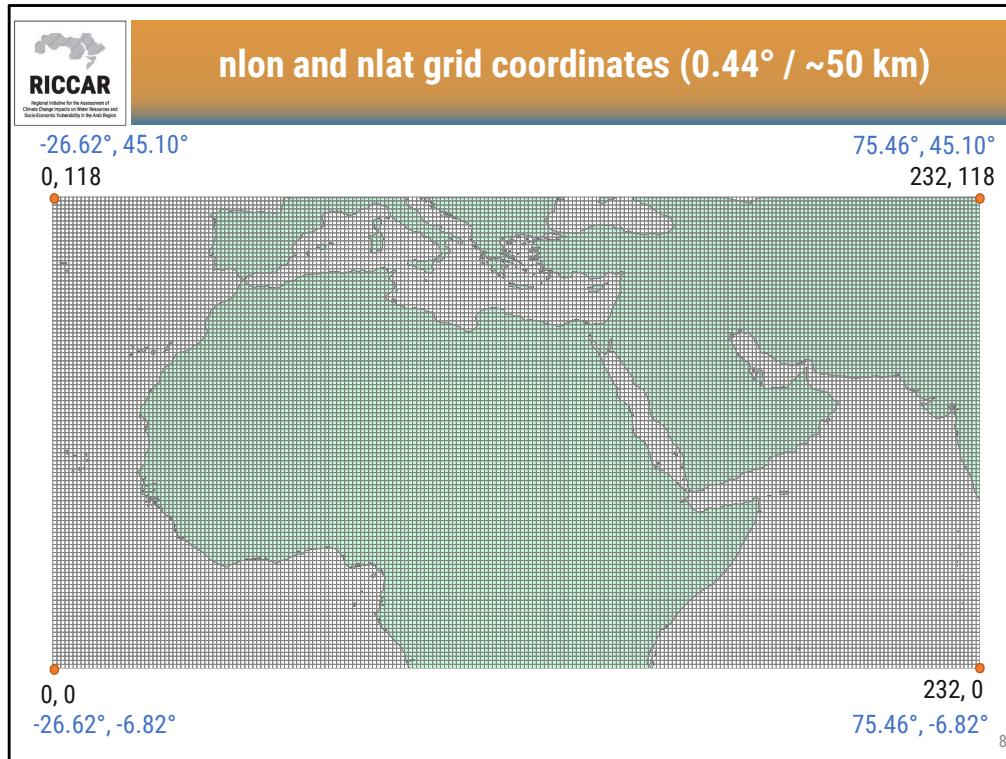
- Webinar 2 discussed the Make NetCDF Raster Layer Tool. When using this tool with the RICCAR NetCDF file, the X and Y dimensions were populated automatically with nlon and nlat. These were changed instead to lon (for longitude) and lat (for latitude) before creating the raster layer



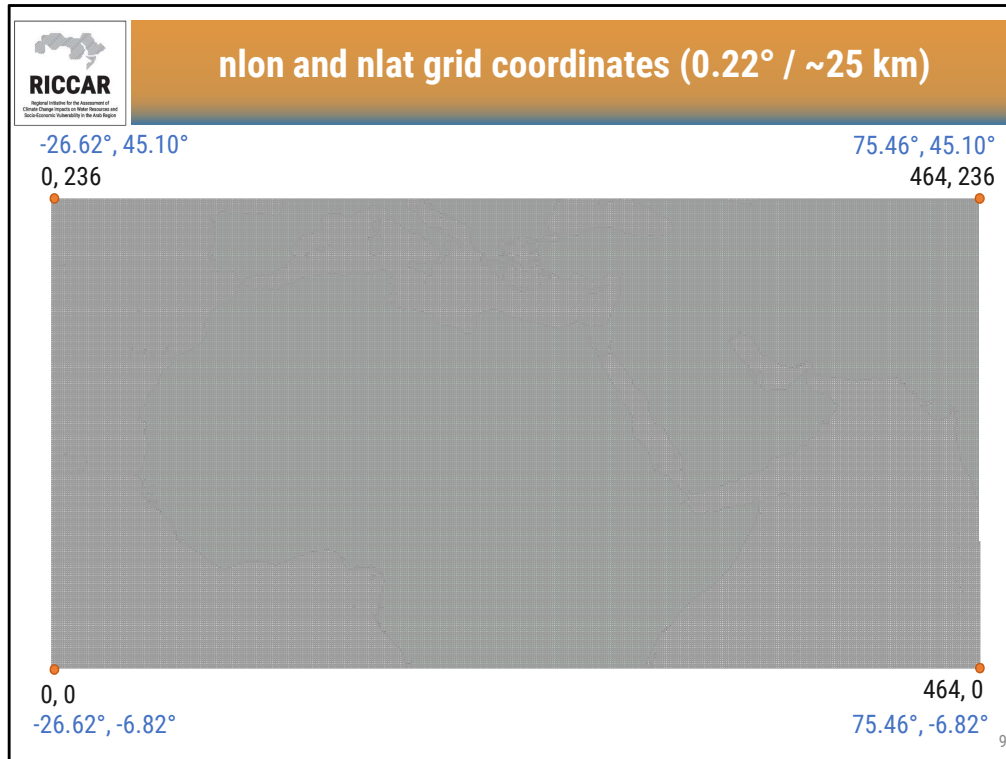
- nlon and nlat grid originates in bottom left corner of the domain
- RICCAR Training Manual on the Use of GIS to Analyse Climate Change Data Section 3.3.1



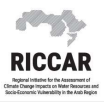
- In the vertical Y direction, there are 118 grid cells for the 0.44 deg (50 km) datasets and 236 grid cells for the 0.22 deg (25 km) datasets.
- In the horizontal X direction, there are 232 grid cells for the 0.44 deg (50 km) datasets and 464 grid cells for the 0.22 deg (25 km) datasets.



- Values in black are nlon and nlat coordinates at each corner of the 0.44 degrees/50 km domain
- Values in blue are the conventional longitude and latitude coordinates at each corner



- Values in black are nlon and nlat coordinates at each corner of the 0.22 degrees/25 km domain
- Values in blue are the conventional longitude and latitude coordinates at each corner



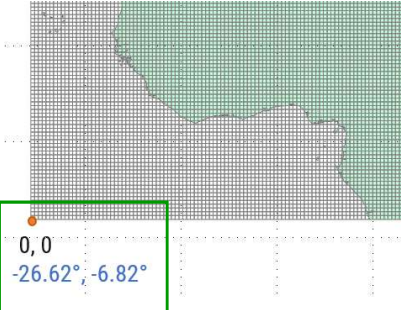
Converting Coordinates (0.44° / 50 km)

$$nlon = \frac{lon - (-26.62)}{0.44}$$

← Longitude coordinate

$$nlat = \frac{lat - (-6.82)}{0.44}$$

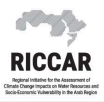
← Latitude coordinate



0,0
-26.62°; -6.82°

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- Conventional longitude and latitude coordinates can be converted to nlon and nlat using an equation based on the grid size.
- Note that nlon and nlat coordinates must be positive integer values.



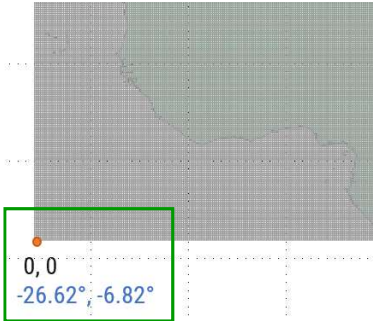
Converting Coordinates (0.22° / 25 km)

$$nlon = \frac{lon - (-26.62)}{0.22}$$

← Longitude coordinate

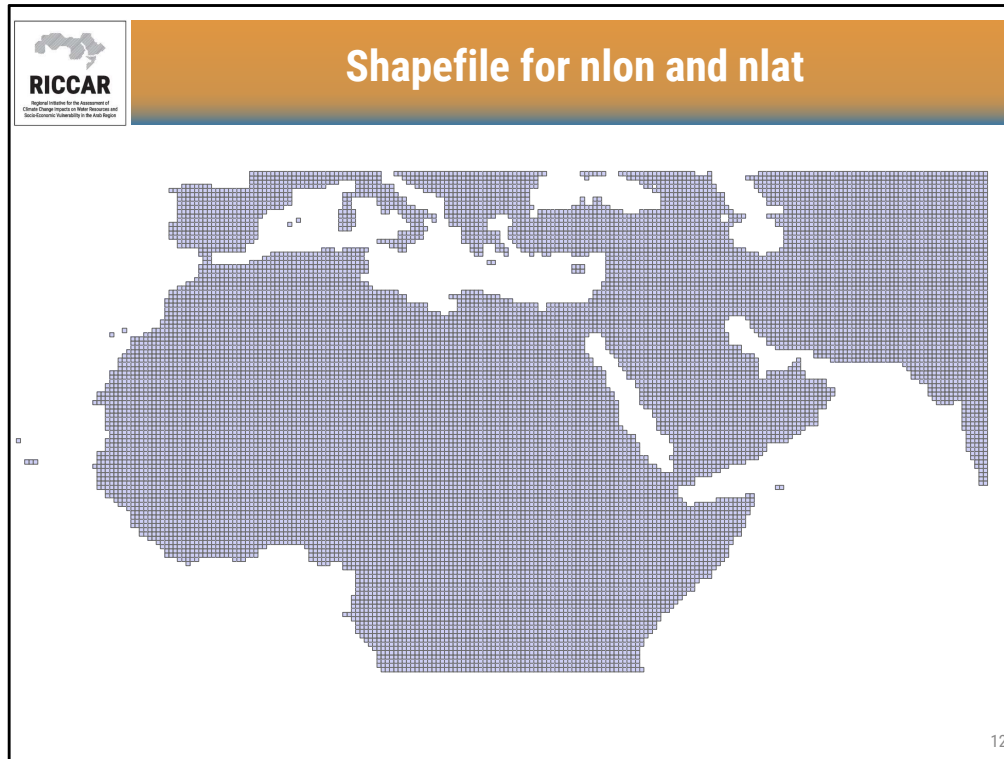
$$nlat = \frac{lat - (-6.82)}{0.22}$$

← Latitude coordinate

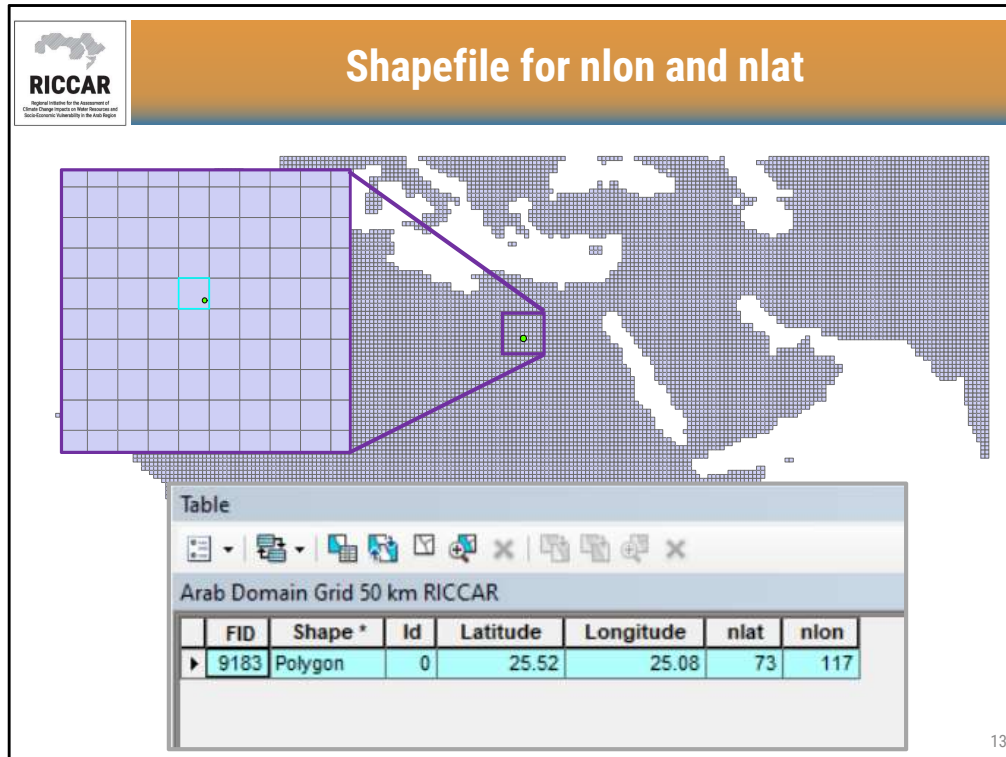


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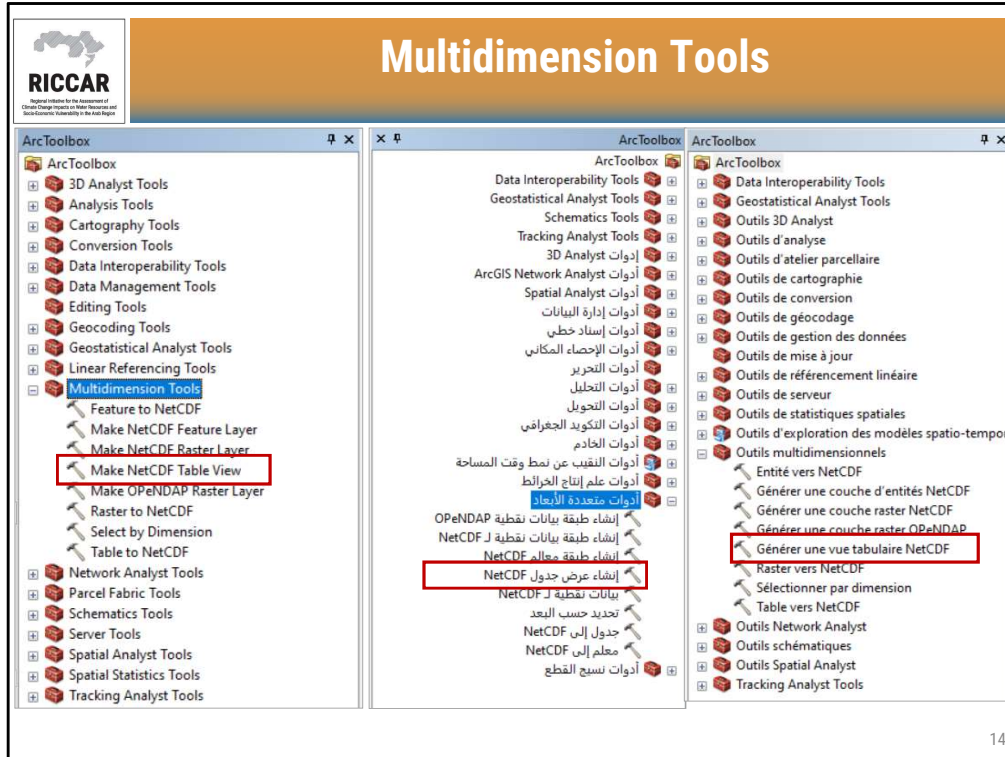
- Conventional longitude and latitude coordinates can be converted to nlon and nlat using an equation based on the grid size.
- Note that nlon and nlat coordinates must be positive integer values.




- Using the equations to convert does not always work due to rounding values, particularly for coordinates that may be located near the edge of grid pixel.
- Shapefile to compare longitude and latitude to nlon and nlat is available from the data files for this module or on request



- For example to determine nlon and nlat for a point location
- For this point, the nlat and nlon coordinates are 73 and 117, respectively from the shapefile attributes table
- The latitude and longitude coordinates shown in the attributes table represent the grid cell centroid

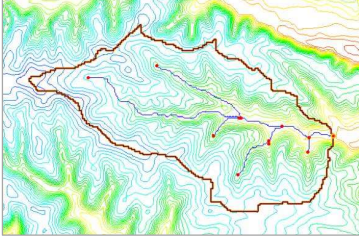
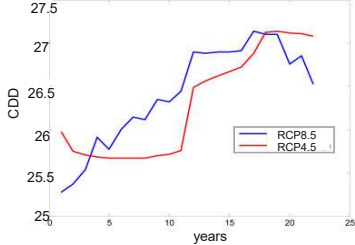


- nlat and nlon will be used to Make NetCDF Table View



Reasons for using Make NetCDF Table View

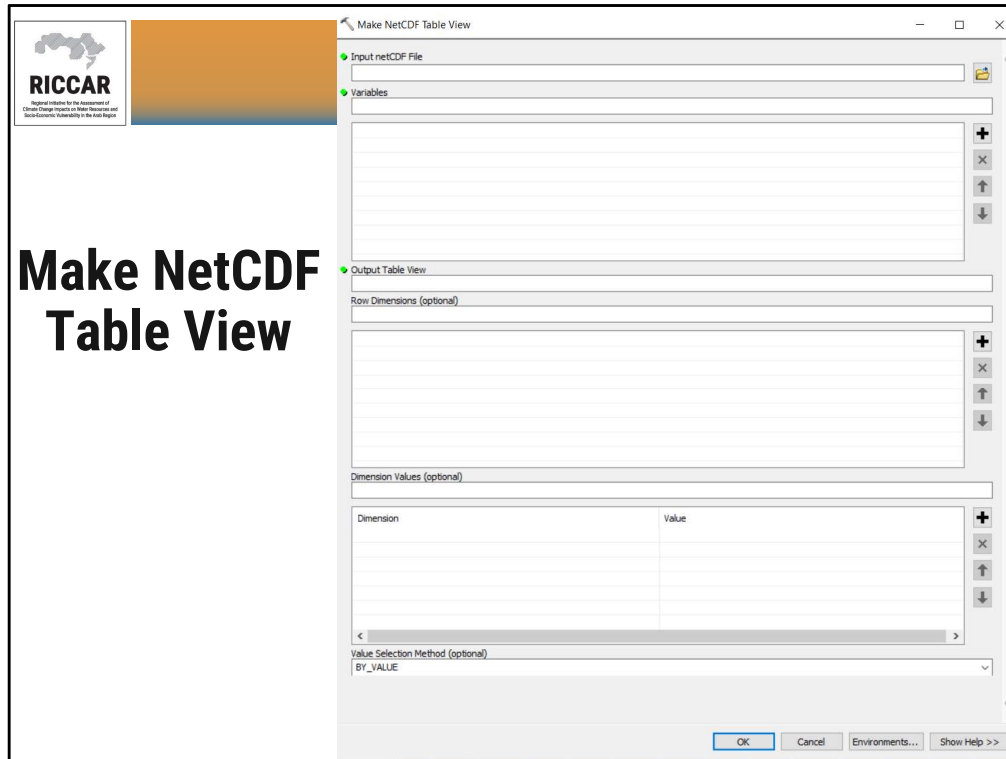
- Create time series data based on point location
 - Useful for modelling inputs (i.e. hydrological models)
 - Analyse projected trends based on the RCM outputs

Note that ArcMap GIS is limited to creating tables for one point location at a time

Time series analysis for an entire area (polygon) must be done for each individual grid cell and results averaged

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- RICCAR Training Manual on the Use of GIS to Analyse Climate Change Data Section 3.3.2

Make NetCDF Table View (Arabic)

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**Make NetCDF
Table View
(French)**

Fichier NetCDF en entrée

Variables

Vue tabulaire en sortie

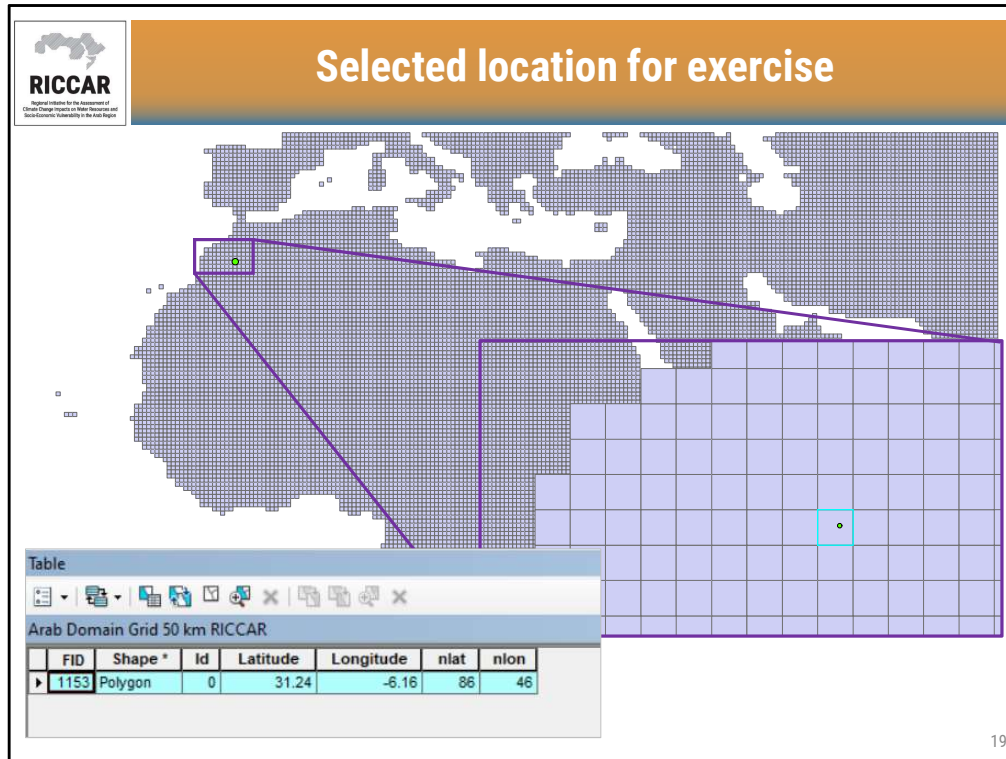
Dimensions de lignes (facultatif)

Valeurs de dimension (facultatif)

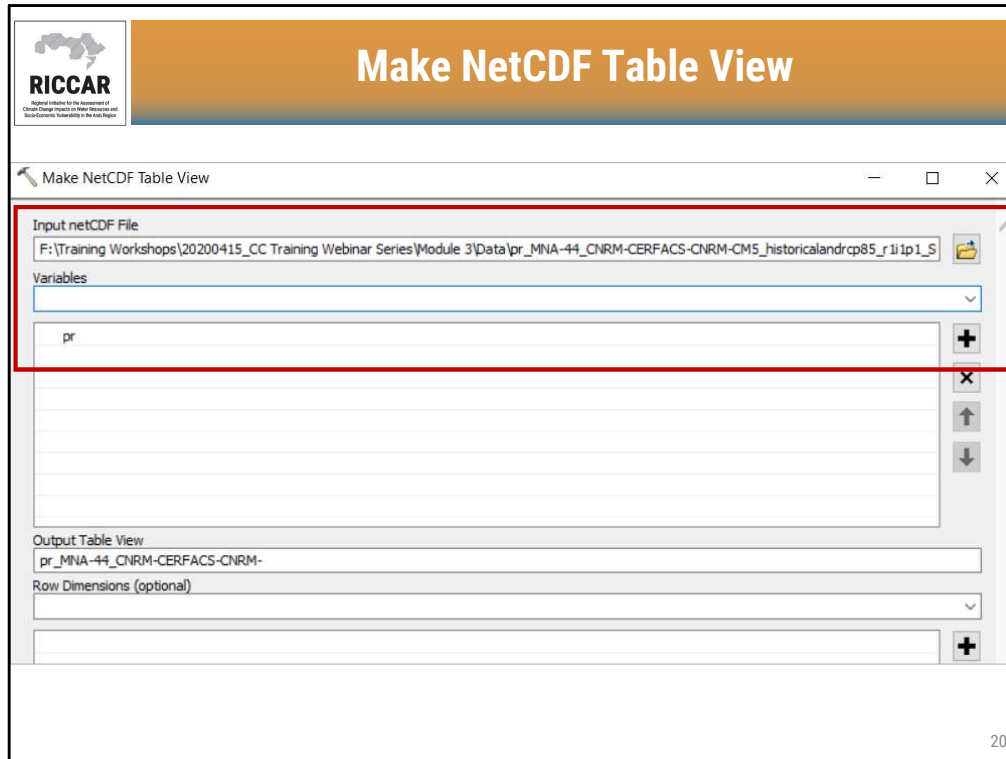
Dimension	Valeur

Méthode de sélection de valeurs (facultatif)
BY_VALUE

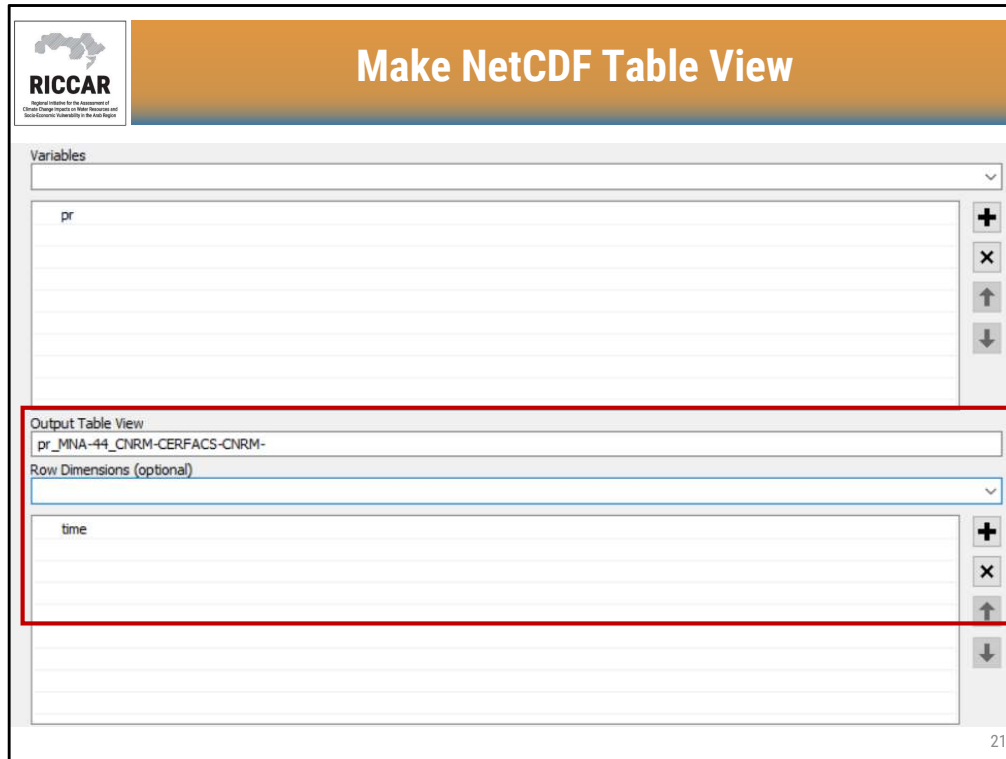
OK Annuler Environnements Afficher l'aide >>



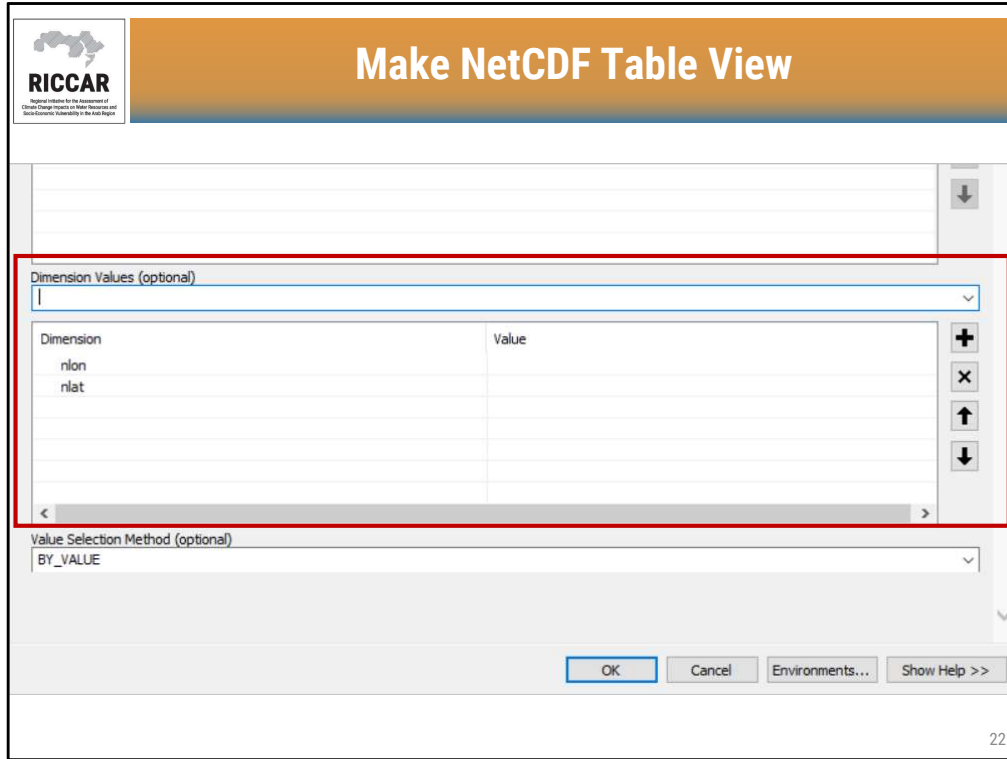
- Marked location has an nlat coordinate of 86 and an nlon coordinate of 46



- Select the NetCDF file and choose the appropriate variable (pr for precipitation), similar to the Make NetCDF Raster Layer tool discussed during webinar module 2. The example uses the 2046 NetCDF file (same as for Module 2).
- More than one variable can be selected. (Not applicable for RICCAR and most other climate datasets.)



- For the Output Table View, either leave the default name (as shown here) or this can be user defined.
- Row dimensions are selected using the drop down arrow. Time should be selected. More than one row dimension can be added (not applicable for RICCAR and most other climate datasets).



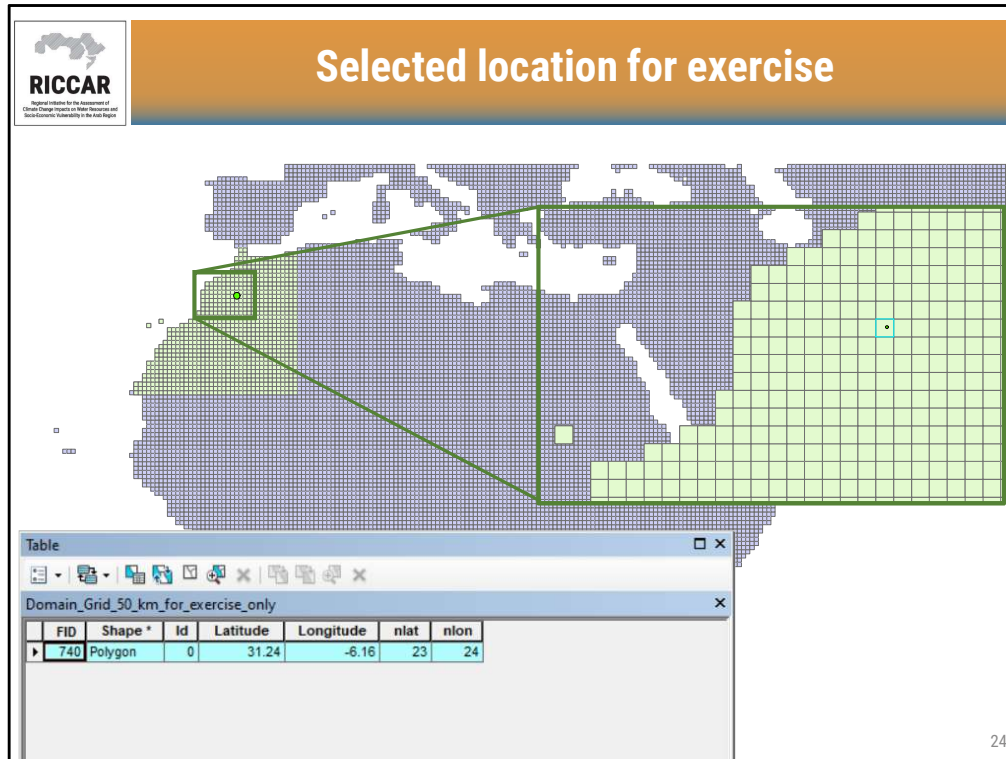
- For the dimension values enter nlon and nlat. For RICCAR data 0.44 deg/50 km, lon (for longitude) and lat (for latitude) will not be an option.

The screenshot shows a web interface titled "Make NetCDF Table View". At the top left is the RICCAR logo with the text "Regional Initiative for the Assessment of Coastal Change Impacts on Water Resources and Socio-Economic Vulnerability in the Arab Region". Below the logo is a "Dimension Values (optional)" section containing a table:

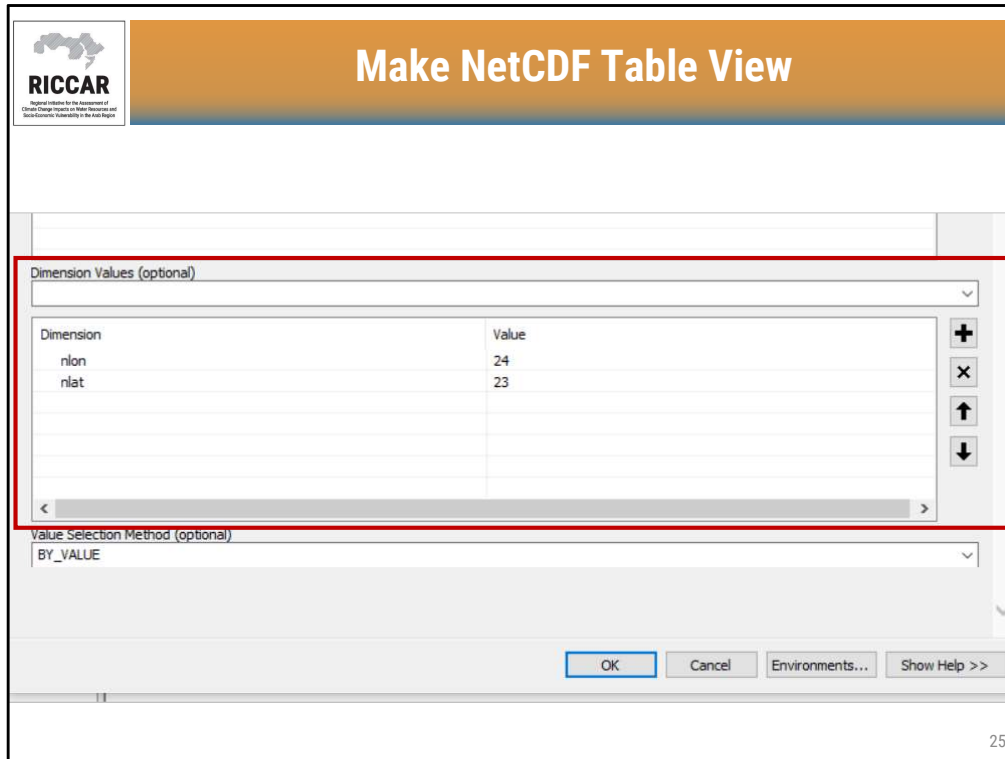
Dimension	Value
nlon	
nlat	

Below the table is a "Value Selection Method (optional)" section with a dropdown menu set to "BY_VALUE". To the right of the table, a vertical list of numbers from 0 to 24 is visible, with a blue arrow pointing to the "nlat" cell's dropdown menu. On the far right, there are navigation controls including a vertical scrollbar, a "p >>" button, and a page number "23".

- Recommended to enter nlon and nlat values via the dropdown box.



- Note that because the NetCDF file provided for the exercise is an extracted NetCDF, the nlon and nlat coordinate system reset based on the bottom left corner of the extracted dataset.
- Instead of entering 46 for nlon and 86 for nlat (coordinates based on entire Arab domain as shown on slide 19), the revised coordinates are 24 (nlon) and 23 (nlat).
- Shapefile for the extracted NetCDF grid is named Domain_Grid_50_km_for_exercise_only



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Make NetCDF Table View Result

Table Of Contents

Layers

- F:\
 - pr_MNA-44_CNRM-CERFACS-CNRM-

Table


OID	time	pr
1	01/01/2046	0
2	02/01/2046	0
3	03/01/2046	0
4	04/01/2046	0
5	05/01/2046	0
6	06/01/2046	0
7	07/01/2046	0
8	08/01/2046	0
9	09/01/2046	0
10	10/01/2046	0
11	11/01/2046	0
12	12/01/2046	0
13	13/01/2046	0
14	14/01/2046	0
15	15/01/2046	0
16	16/01/2046	0
17	17/01/2046	0
18	18/01/2046	0
19	19/01/2046	0

Table

OID	time	pr
66	07/03/2046	0
67	08/03/2046	0
68	09/03/2046	0
69	10/03/2046	0
70	11/03/2046	0
71	12/03/2046	6.01
72	13/03/2046	0.38
73	14/03/2046	0
74	15/03/2046	0
75	16/03/2046	0
76	17/03/2046	0
77	18/03/2046	0
78	19/03/2046	0
79	20/03/2046	0
80	21/03/2046	0
81	22/03/2046	0
82	23/03/2046	0
83	24/03/2046	0
84	25/03/2046	0

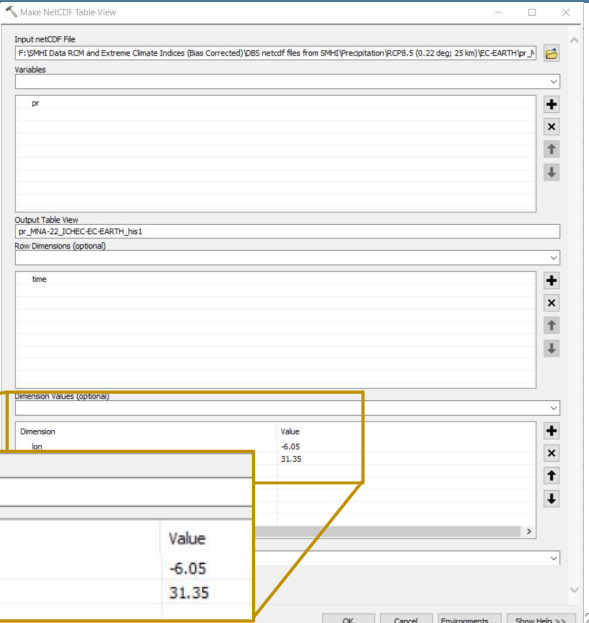
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- Resultant table of NetCDF values found in Table of Contents
- Table of values represent precipitation (pr) for each time slice in the NetCDF file with values of mm/day
- Non-zero values can be found by scrolling table of values



Make NetCDF Table View (0.22° / 25 km data)

- RICCAR 0.22° / 25 km NetCDF files are **formatted differently** than the 0.44° / 50 km data
- Instead of nlon and nlat, actual longitude (lon) and latitude (lat) values are entered for the Dimension Values (based on grid cell centroid)



Dimension Values (optional)	
Dimension	Value
lon	-6.05
lat	31.35

Selected location (0.22° / 25 km)


Table

Arab_Domain_Grid_25_km_RICCAR

FID	Shape *	Id	Latitude	Longitude
▶ 4654	Polygon	0	31.35	-6.05

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- Locating grid cell and corresponding longitude and latitude coordinates of the cell centroid




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Make NetCDF Table View Result (0.22° / 25 km data)

Results will only include non-zero values

OID	time	pr
1	11/01/2046	7.53
2	12/01/2046	7.53
3	13/01/2046	1.95
4	26/02/2046	3.84
5	27/02/2046	2.56
6	26/03/2046	23.37
7	28/03/2046	5
8	30/03/2046	6.75
9	05/04/2046	6.46
10	06/04/2046	22.95
11	07/04/2046	6.46
12	08/04/2046	6.71
13	20/05/2046	6.5
14	21/05/2046	6.02
15	22/05/2046	3.62
16	29/05/2046	5.76
17	30/05/2046	3.62
18	02/06/2046	2.84
19	03/06/2046	2.56
20	07/06/2046	5.57
21	08/06/2046	8.1
22	09/06/2046	5.98
23	10/06/2046	7.46
24	11/06/2046	2.56
25	27/08/2046	1.07
26	28/08/2046	1.03
27	04/10/2046	5.77
28	05/10/2046	19.13
29	06/10/2046	16.61
30	07/10/2046	5.39
31	16/10/2046	7.79
32	17/10/2046	5.39
33	27/10/2046	8.88
34	28/10/2046	9.89

- Users must manually enter zero values (assumed to be on days not listed such as 1/1/2046)
- Entering zero values manually only applicable for precipitation as temperature data will always be > 0



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Make NetCDF Table View in QGIS

- Must use a plugin (either Value tool or gdal2xyz tool)
- Load NetCDF dataset (Layer > Add Raster Layer)

Value Tool

Enable

Table Graph Options

Decimals

Layer	Value
1	temperatures Band 001 -12427.0
2	temperatures Band 002 -12334.0
3	temperatures Band 003 -12581.0
4	temperatures Band 004 -12522.0
5	temperatures Band 005 -12155.0

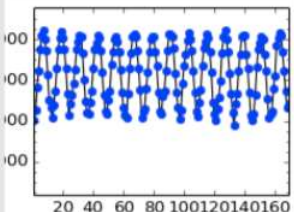
Coordinate: (115.551262, 42.629338)

Value Tool

Enable

Table Graph Options


Y min Y max



Coordinate: (115.551262, 42.629338)

http://www.ggiuliani.ch/download/netcdf_qgis_GG.pdf
30


- Value tool plug-in displayed which is a docket widget that allows to explore NetCDF raster layers as tables or graphs
- Select location by clicking on raster layer and coordinate will be shown at bottom

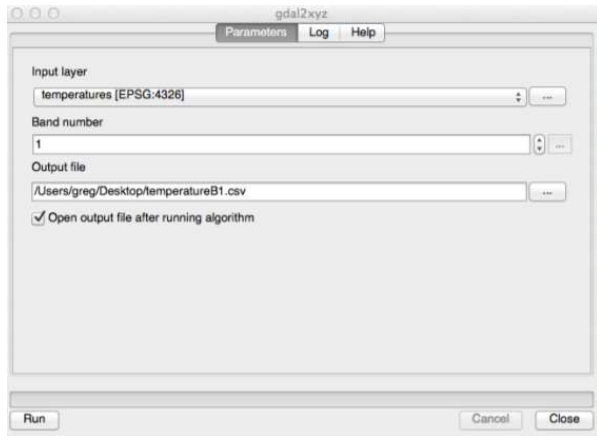


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Make NetCDF Table View in QGIS

- Must use a plugin (either Value tool or gdal2xyz tool)
- Add tool available in Processing > Toolbox < under GDAL/OGR > [GDAL] Conversions





http://www.ggiuliani.ch/download/netcdf_qgis_GG.pdf

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- Gdal2xyz tool
- Select a time slice and give name to Output file (in .csv format) and click run.
- Each line of the resultant .csv will include the XY coordinate and corresponding variable

The image shows a presentation slide titled "Use Model Builder to Create Time Series". It features three screenshots of the QGIS Model Builder interface. The top-left screenshot shows the English help pop-up: "ModelBuilder: Open the ModelBuilder window so you can make a geoprocessing model. Press F1 for more help." The top-right screenshot shows the French help pop-up: "ModelBuilder: Ouvrir la fenêtre ModelBuilder pour vous permettre de créer un modèle de géotraitement. Appuyez sur F1 pour obtenir de l'aide." The bottom-left screenshot shows the Arabic help pop-up: "منشئ النموذج: فتح نافذة منشئ النموذج حتى تتمكن من إنشاء نموذج معالجة جغرافية. اضغط F1 للحصول على مزيد من التعليمات." The slide also includes the RICCAR logo and a page number "32" in the bottom right corner.

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Add Tools and Data to Model Builder

ArcToolbox

- ArcToolbox
- 3D Analyst Tools
- Analysis Tools
- Cartography Tools
- Conversion Tools
- Data Interoperability Tools
- Data Management Tools
- Editing Tools
- Geocoding Tools
- Geostatistical Analyst Tools
- Linear Referencing Tools
- Multidimension Tools
 - Feature to NetCDF
 - Make NetCDF Feature Layer
 - Make NetCDF Raster Layer
 - Make NetCDF Table View
 - Make OPeNDAP Raster Layer
 - Raster to NetCDF
 - Select by Dimension
 - Table to NetCDF
- Network Analyst Tools
- Parcel Fabric Tools
- Schematics Tools
- Server Tools
- Space Time Pattern Mining Tools
- Spatial Analyst Tools
- Spatial Statistics Tools
- Tracking Analyst Tools

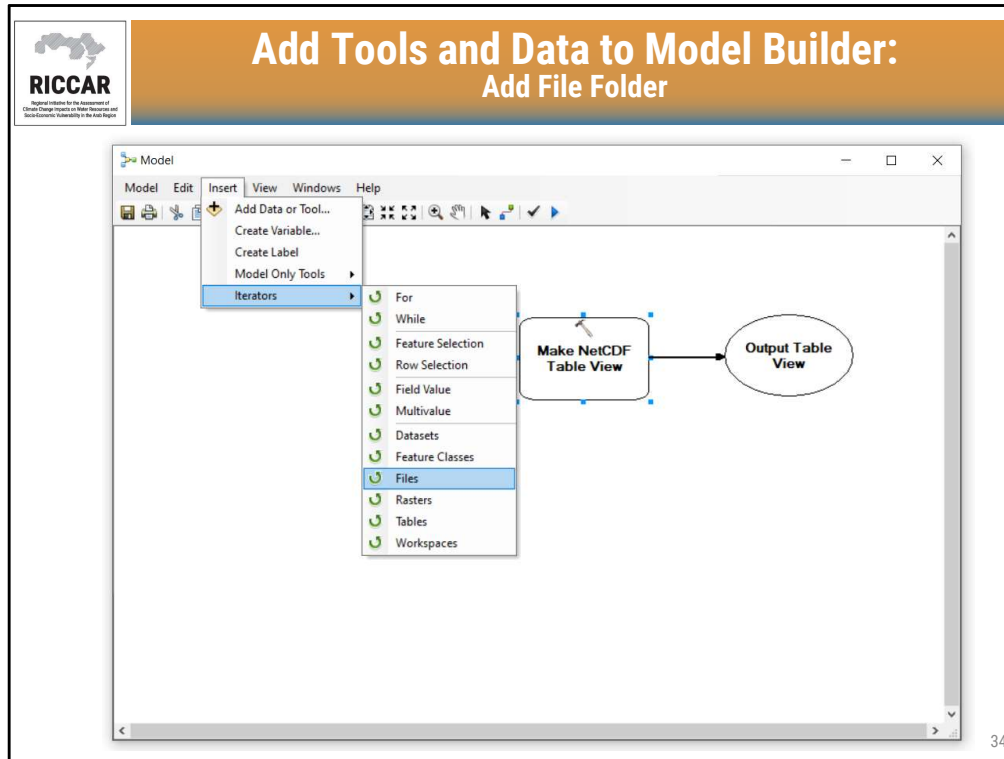
Model

Model Edit Insert View Windows Help

Make NetCDF Table View → Output Table View

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- Tools are added by dragging from the ArcToolbox to the Model Builder workspace
- RICCAR Training Manual on the Use of GIS to Analyse Climate Change Data Section 3.3.3

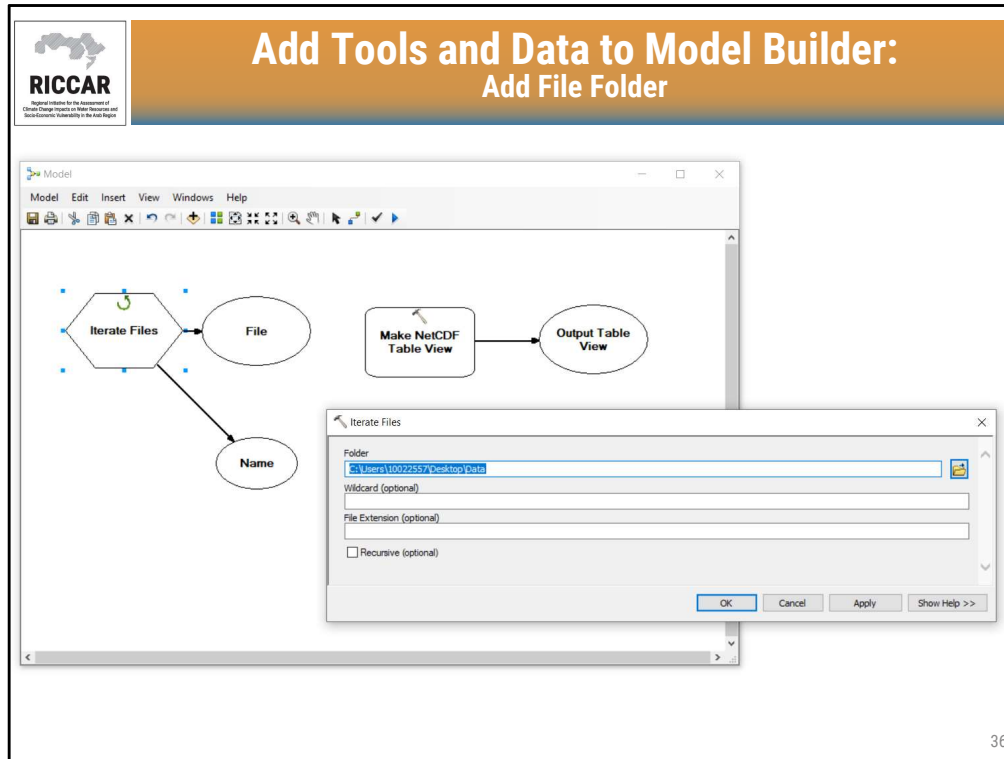


- Choose the NetCDF files by selecting Iterators > Files
- All of the NetCDF files should be in a single folder. It is recommended the folder be placed on the computer Desktop to keep the full file name as short as possible.


The screenshot displays the Riccar Model Builder interface. At the top, a banner reads "Add Tools and Data to Model Builder: Add File Folder". The main workspace shows a flowchart with two boxes: "إنشاء عرض جدول NetCDF" (Create NetCDF Table View) and "عرض الجدول الناتج" (Display Output Table). A context menu is open over the "إنشاء عرض جدول NetCDF" box, listing options such as "إضافة بيانات أو أداة...", "إنشاء مظهر...", "إنشاء تسمية", "أدوات نموذج فقط", and "تكرارات".

In the bottom right, a "Modèle" window is open, showing a menu for "Ajouter des données ou un outil...". The "Fichiers" (Files) option is selected, which has opened a sub-menu with options like "Pour", "Tant que", "Sélection d'entités", "Sélection d'enregistrements", "Valeur du champ", "Valeurs multiples", "Jeux de données", "Classes d'entités", "Fichiers", "Rasters", "Tables", and "Espaces de travail".

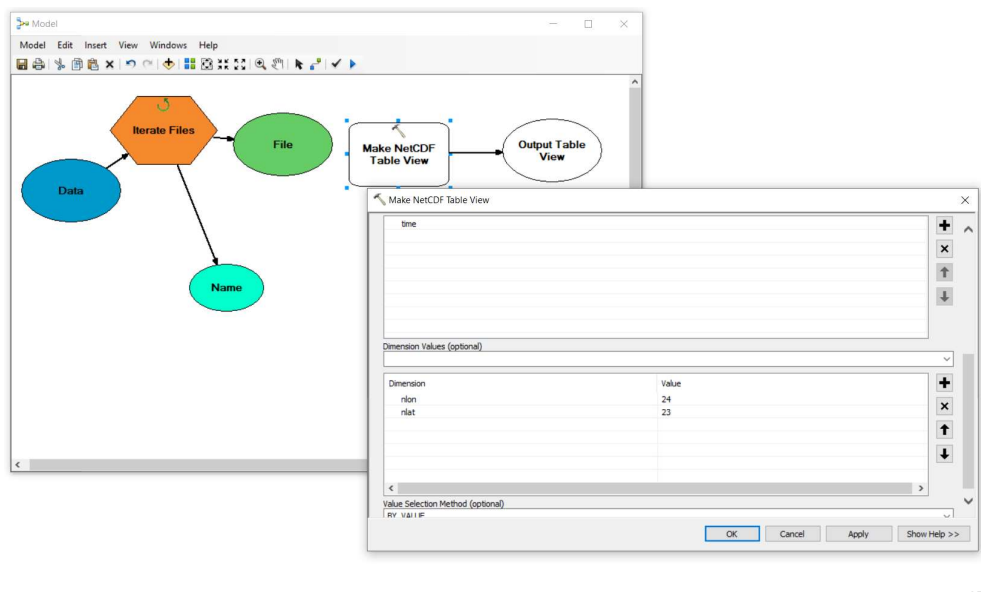
The Riccar logo is visible in the top left corner of the interface.



- Double click on the Iterate Files hexagon in the Model Builder workspace and select the entire **folder** using the dropdown box where the NetCDF files are saved
- After pressing OK when completed, the Iterate Files hexagon and data, file, and name ovals will automatically colorize



Add Tools and Data to Model Builder: Make NetCDF Table View



The screenshot shows the Model Builder interface with a workflow diagram. The workflow consists of four nodes: 'Data' (blue oval), 'Iterate Files' (orange hexagon), 'File' (green oval), and 'Name' (cyan oval). Arrows connect 'Data' to 'Iterate Files', 'Iterate Files' to 'File', and 'Name' to 'Iterate Files'. A 'Make NetCDF Table View' tool (blue rectangle) is connected to the 'File' node, and its output is an 'Output Table View' (white oval).

The 'Make NetCDF Table View' dialog box is open, showing a table with the following content:

Dimension	Value
time	
Dimension Values (optional)	
rlon	24
rlat	23

At the bottom of the dialog, there is a 'Value Selection Method (optional)' dropdown menu with 'RV V&I F' selected. Buttons for 'OK', 'Cancel', 'Apply', and 'Show Help >>' are at the bottom right.

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- Add information in the Make NetCDF Table View using **any** of NetCDF files in the file folder
- The selected location is the same as before (from slide 24) and is based on the Morocco extracted NetCDF files

**Add Tools and Data to Model Builder:
File Folder to Make NetCDF Table View**

(1)


(2)

(3)

(4)

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- Rather than run the model based on the 1 NetCDF file used to populate the Make NetCDF Table View, select the File oval to perform the tool on all NetCDF files
- The result from the previous slide will be similar to (1)
- Use the connect tool to connect the File oval to the Make NetCDF Table View rectangle (2)
- The blue oval (in this example shows pr_MNA-44_CNRM-CERFACS-CNRM) will not longer be connected and instead the File oval will be connected to the Make NetCDF Table View rectangle (3). The blue oval can be deleted as it is no longer used.
- The Make NetCDF Table View tool will then shown the Input NetCDF file as File rather than the original NetCDF file name (4). The Variables, Row Dimensions, and Dimension Values populated by the single NetCDF file will remain the same.

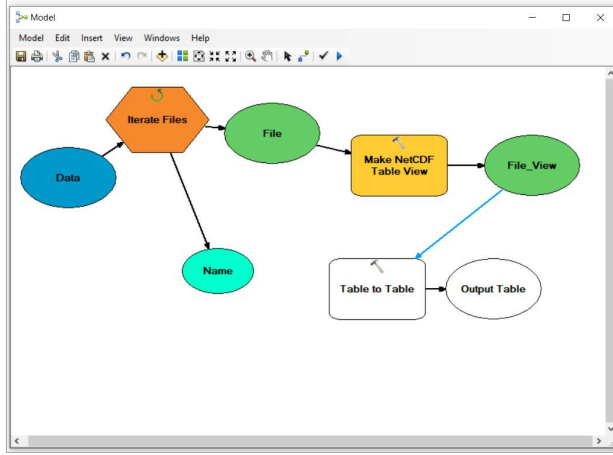


Add Tools and Data to Model Builder:

Convert Output to Geodatabase Table

ArcToolbox

- 3D Analyst Tools
- Analysis Tools
- Cartography Tools
- Conversion Tools ←
- Excel
- From GPS
- From KML
- From PDF
- From Raster
- From WFS
- JSON
- Metadata
- To CAD
- To Collada
- To Coverage
- To dBASE
- To Geodatabase
 - CAD to Geodatabase
 - Copy Runtime Geodatabase to File Geodatabase
 - Feature Class to Feature Class
 - Feature Class to Geodatabase (multiple)
 - Import CAD Annotation
 - Import Coverage Annotation
 - Raster To Geodatabase (multiple)
 - Table To Geodatabase (multiple)
 - Table to Table
- To GeoPackage
- To KML
- To Raster
- To Shapefile



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- The output from the Make NetCDF Table View tool needs to be converted to a Geodatabase by adding the Table to Table tool found under Conversion Tools > To Geodatabase
- Connect the File_View oval to the Table to Table rectangle

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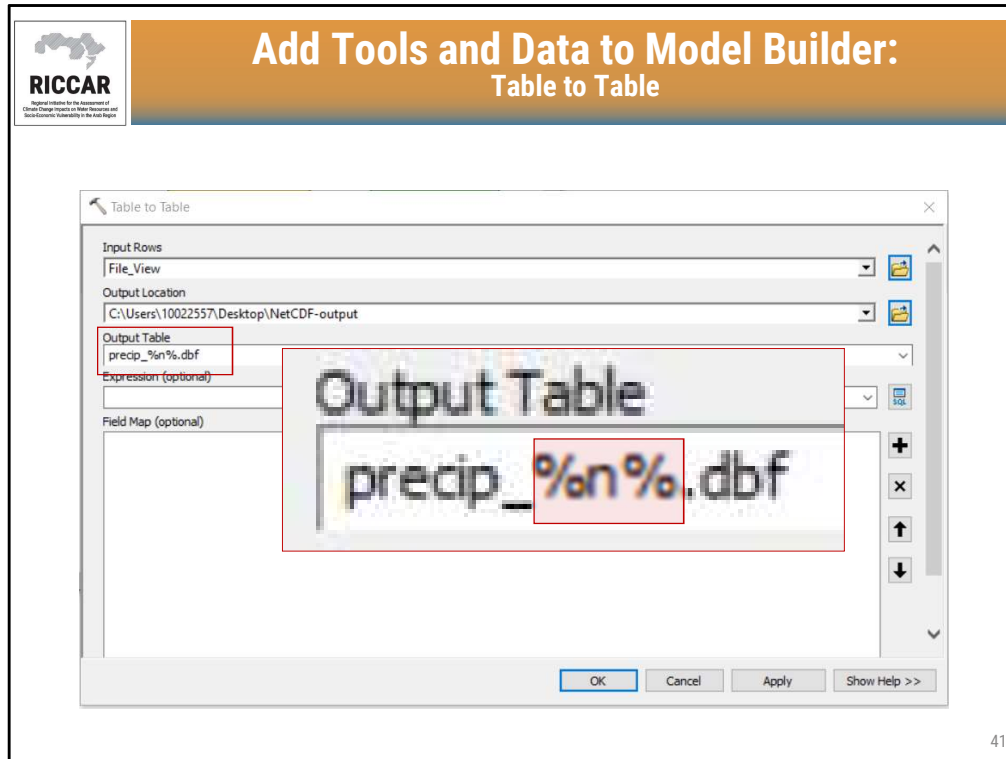
Add Tools and Data to Model Builder: Convert Output to Geodatabase Table

ArcToolbox

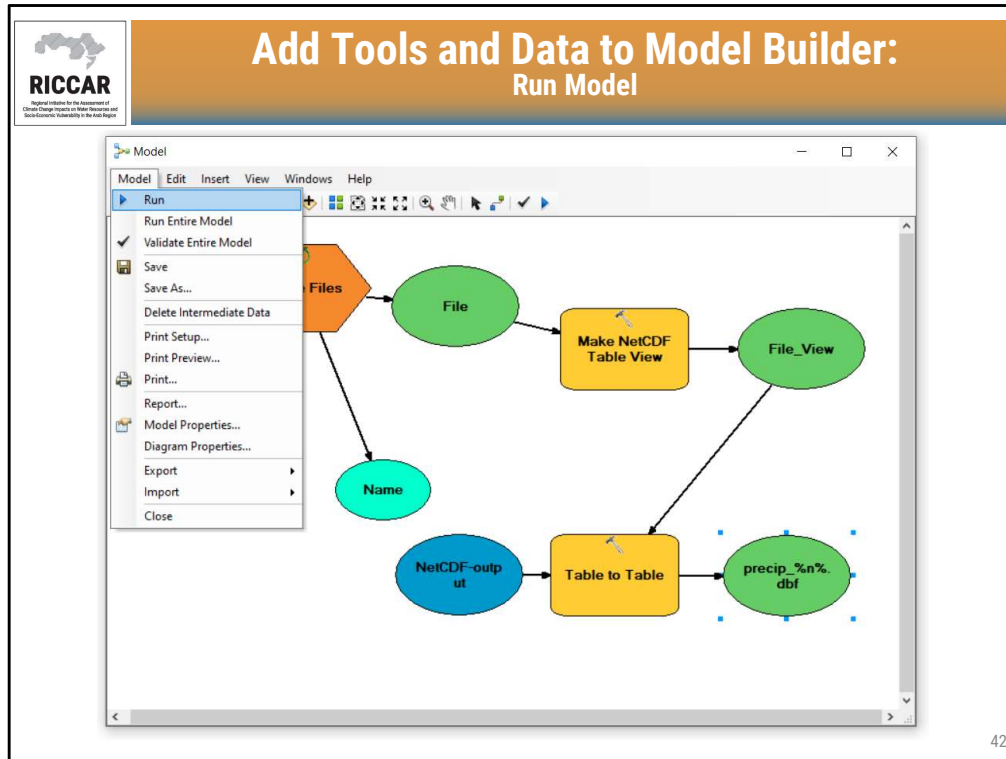
- Data Interoperability Tools
- Geostatistical Analyst Tools
- Schematics Tools
- Tracking Analyst Tools
- 3D Analyst أدوات
- ArcGIS Network Analyst أدوات
- Spatial Analyst أدوات
- أدوات إدارة البيانات
- أدوات استيراد خطي
- أدوات الإحصاء المكاني
- أدوات التحرير
- أدوات التحليل
- أدوات التحويل
- Excel
- JSON
- CAD إلى
- Collada إلى
- dBASE إلى
- GeoPackage إلى
- KML إلى
- إلى النقطية
- إلى بيانات نقطية
- إلى قاعدة البيانات الجغرافية
- إلى قاعدة البيانات الجغرافية
- CAD إلى قاعدة البيانات الجغرافية
- استيراد تعليق توضيحي CAD
- استيراد تعليق توضيحي النقطية
- البيانات النقطية إلى قاعدة البيانات الجغرافية (متعددة)
- تصدير النقطية إلى قاعدة البيانات الجغرافية (متعددة)
- جدول إلى جدول
- جدول إلى قاعدة البيانات الجغرافية (متعدد)
- مخطط جغرافي إلى مخطط جغرافي
- تصدير قاعدة البيانات الجغرافية وقت التشغيل إلى قاعدة البيانات الجغرافية الملقية
- إلى ملف شكل
- بيانات تعريفية
- من GPS
- من KML
- من PDF
- من WFS
- من بيانات نقطية
- أدوات التحويل الجغرافي
- أدوات الخادم
- أدوات النقيب عن نطق وقت المساحة
- أدوات علم إنتاج الجرائد
- أدوات متعددة الأبعاد
- أدوات تبويب القطع

ArcToolbox


- ArcToolbox
- Data Interoperability Tools
- Geostatistical Analyst Tools
- Outils 3D Analyst
- Outils d'analyse
- Outils d'atelier parcellaire
- Outils de cartographie
- Outils de conversion
- A partir de GPS
- A partir de KML
- A partir de WFS
- A partir d'un raster
- De PDF
- Excel
- JSON
- Metadonnées
- Vers Collada
- Vers DAO
- Vers dBASE
- Vers fichier de formes
- Vers KML
- Vers le paquetage géographique
- Vers raster
- Vers une couverture
- Vers une géodatabase
- Classe d'entités vers classe d'entités
- Classe d'entités vers géodatabase (multiple)
- Copier une géodatabase d'exécution dans une géodatabase fichier
- DAO vers géodatabase
- Importer des annotations DAO
- Importer des annotations de couverture
- Raster vers géodatabase (multiple)
- Table vers table
- Table à géodatabase (multiple)
- Outils de géocodage
- Outils de gestion des données
- Outils de mise à jour
- Outils de référencement linéaire
- Outils de serveur
- Outils de statistiques spatiales
- Outils d'exploration des modèles spatio-temporels
- Outils multidimensionnels
- Outils Network Analyst
- Outils schématiques
- Outils Spatial Analyst
- Tracking Analyst Tools



- The Output Location is user-defined and is a folder (not a single file)
- The Output Table is also user-defined and is a .dbf file type
- Recommended to include %% in the Output Table file name. This will create multiple output tables with a unique number for each, starting from 0, in chronological order



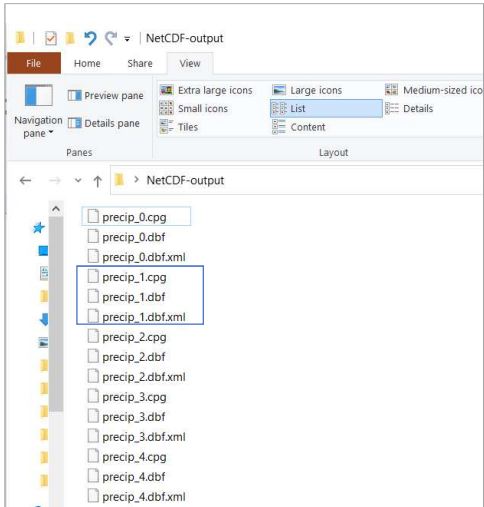
- Once the Table to Table data is entered, the Model Builder workspace will look similar to what is shown
- At this point, run the model

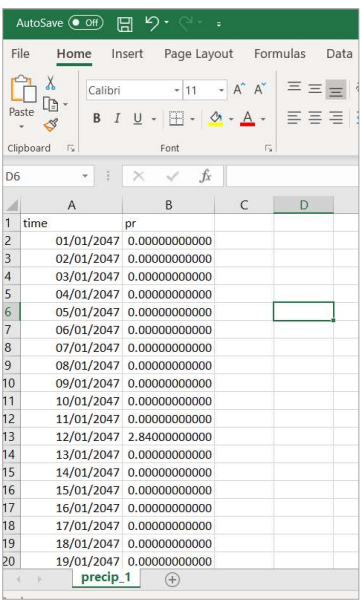


Add Tools and Data to Model Builder: Model Output

Output Table

```
precip_%n%.dbf
```



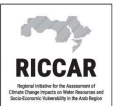


	A	B	C	D
1	time	pr		
2	01/01/2047	0.0000000000000000		
3	02/01/2047	0.0000000000000000		
4	03/01/2047	0.0000000000000000		
5	04/01/2047	0.0000000000000000		
6	05/01/2047	0.0000000000000000		
7	06/01/2047	0.0000000000000000		
8	07/01/2047	0.0000000000000000		
9	08/01/2047	0.0000000000000000		
10	09/01/2047	0.0000000000000000		
11	10/01/2047	0.0000000000000000		
12	11/01/2047	0.0000000000000000		
13	12/01/2047	2.8400000000000000		
14	13/01/2047	0.0000000000000000		
15	14/01/2047	0.0000000000000000		
16	15/01/2047	0.0000000000000000		
17	16/01/2047	0.0000000000000000		
18	17/01/2047	0.0000000000000000		
19	18/01/2047	0.0000000000000000		
20	19/01/2047	0.0000000000000000		

- The output will appear similar the screen in the folder. The file names are based on what was user-defined
- Each geodatabase table includes 3 files grouped together (.cpg, .dbf, and .dbf.xml)
- Each output .dbf file can be opened in Excel or other compatible software with similar results as shown. (The shown results are from the precip_1 files, which have been determined from the 2047 NetCDF file.)

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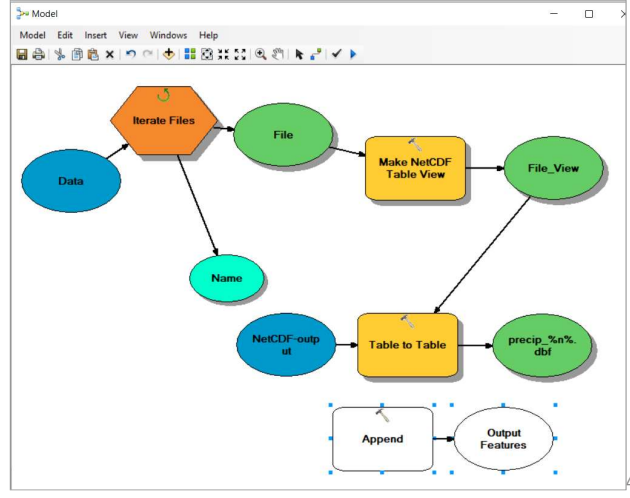
Add Tools and Data to Model Builder: Append

- Geodatabase tables are created for every single NetCDF file
- To combine them into a single table, the Append Tool is used

ArcToolbox

- 3D Analyst Tools
- Analysis Tools
- Cartography Tools
- Conversion Tools
- Data Interoperability Tools
- Data Management Tools
- Data Comparison
- Distributed Geodatabase
- Domains
- Feature Class
- Features
- Fields
- File Geodatabase
- General
- Analyze Tools For Pro
- Append**
- Copy
- Delete
- Merge
- Rename
- Sort
- Generalization
- Geodatabase Administration
- Graph
- Indexes


Model



```
graph TD; Data((Data)) --> IterateFiles{{Iterate Files}}; IterateFiles --> File((File)); File --> MakeNetCDF[Make NetCDF Table View]; MakeNetCDF --> FileView((File_View)); FileView --> TableToTable[Table to Table]; TableToTable --> precip[precip_n%.dbf];
```


Append

Output Features



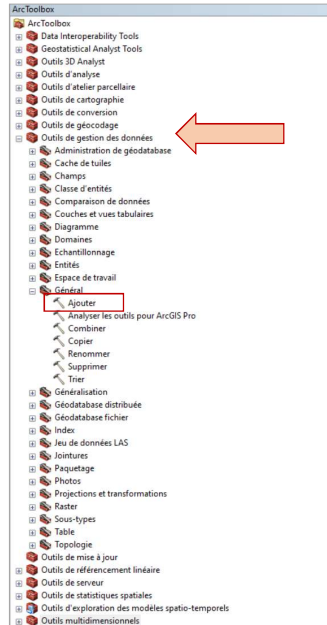
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Add Tools and Data to Model Builder: Append



ArcToolbox

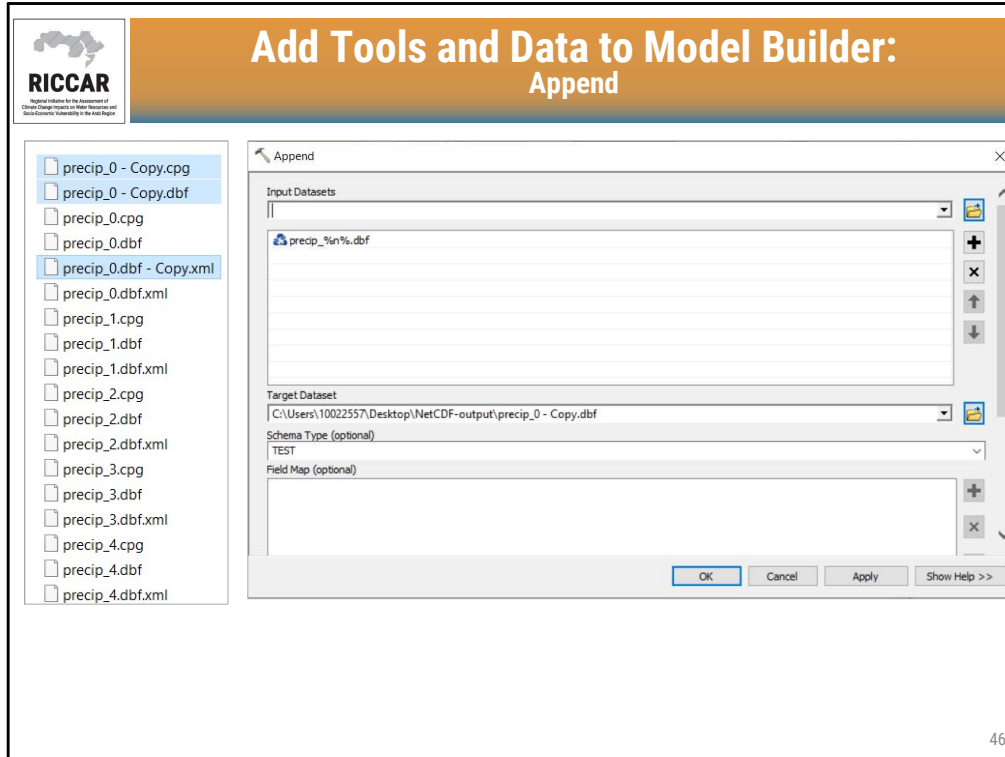
- Data Interoperability Tools
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- Schematics Tools
- Tracking Analyst Tools
- 3D Analyst
- أدوات ArcGIS Network Analyst
- أدوات Spatial Analyst
- أدوات إدارة البيانات
- النوع فرعية
- إدارة قاعدة البيانات الجغرافية
- استعلامات و تحويلات
- البيانات الخطية
- العقول
- العينة
- المخالات
- تصنيف معالم
- تضمين
- جدول
- حرمة
- ذاكرة التخزين المؤقت للبيانات
- رسم بياني
- روابط
- صور
- طرق عرض الطبقات و الجدول
- عام
- إعادة تسمية
- إلحاق
- تحويل أدوات For Pro
- حذف
- دمج
- فزل
- نسخ
- علاقة مكانية
- فهارس
- قاعدة البيانات الجغرافية الموزعة
- قاعدة بيانات حترافية عليقة
- مجموعة بيانات LAS
- معالجة العمل
- معالم
- معالجة البيانات
- أدوات إسناد حطب
- أدوات الإحصاء المكاني
- أدوات التحرير
- أدوات التحليل
- أدوات التحويل



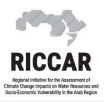
ArcToolbox

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- Outils de cartographie
- Outils de conversion
- Outils de géocodage
- Outils de gestion des données
- Administration de géodatabase
- Cache de tuiles
- Champs
- Classe d'entités
- Comparaison de données
- Couches et vues tabulaires
- Diagramme
- Domaines
- Echantillonnage
- Entités
- Espace de travail
- Général
- Ajouter
- Analyser les outils pour ArcGIS Pro
- Combiner
- Copier
- Renommer
- Supprimer
- Trier
- Généralisation
- Géodatabase distribuée
- Géodatabase fichier
- Index
- Heu de données LAS
- Jointures
- Paquetage
- Photos
- Projections et transformations
- Raster
- Sous-types
- Table
- Topologie
- Outils de mise à jour
- Outils de référencement linéaire
- Outils de serveur
- Outils de statistiques spatiales
- Outils d'exploration des modèles spatio-temporels
- Outils multidimensionnels

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- Add parameters to Append tool
- The Input Datasets are selected using the dropdown box. Select the same file name used as the Output Table for the Table to Table tool. (In this example, it is precip_%n%.dbf).
- The Target Dataset is user-defined and must be based on an existing file. The target dataset must have the same file structure as the other output files (.cpg, .dbf, and .dbf.xml). A simple way to do this is just copy/paste the first geodatabase table



Add Tools and Data to Model Builder:


Append

362	27/12/2046	0.00000000000
363	28/12/2046	0.00000000000
364	29/12/2046	0.00000000000
365	30/12/2046	0.00000000000
366	31/12/2046	0.00000000000
367	01/01/2046	0.00000000000
368	02/01/2046	0.00000000000
369	03/01/2046	0.00000000000
370	04/01/2046	0.00000000000
371	05/01/2046	0.00000000000
372	06/01/2046	0.00000000000
373	07/01/2046	0.00000000000
374	08/01/2046	0.00000000000
375	09/01/2046	0.00000000000
376	10/01/2046	0.00000000000
377	11/01/2046	0.00000000000
378	12/01/2046	0.00000000000
379	13/01/2046	0.00000000000
380	14/01/2046	0.00000000000
381	15/01/2046	0.00000000000

Because the Target Dataset must be based on an existing table, that existing table will be combined with the remaining geodatabase tables

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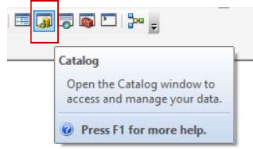
- Results are based on the duplicated geodatabase (precip_0 – copy) shown on slide 46
- Copy/paste a new file to enter in the Target Dataset or otherwise the results will continue to append one another



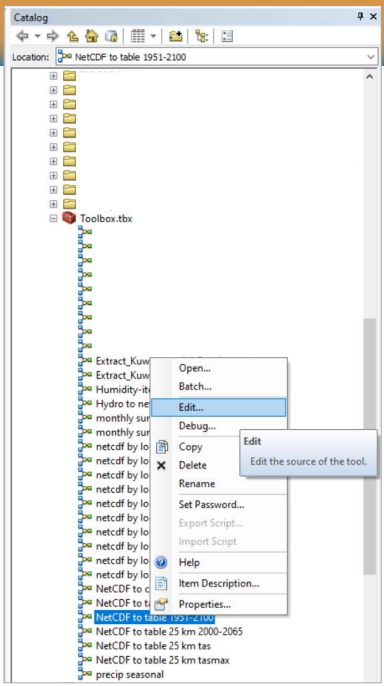
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Accessing Created Models


- Models can be saved in user Toolbox, accessed from the Catalog



- To run model, select Edit (not Open)



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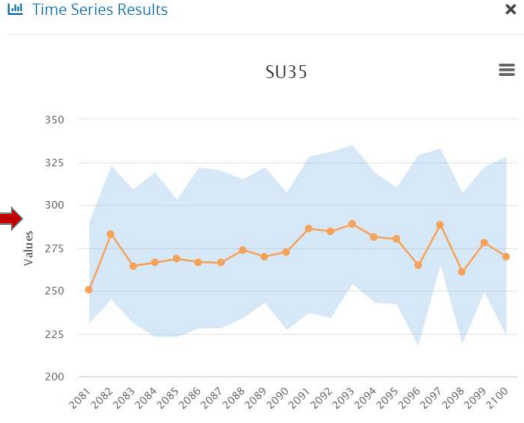
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Time Series Data for Multiple Locations

- Make NetCDF Table View will only work for single point location at a time
- Multiple point locations cannot be performed using Model Builder
- Calculate results for an area by calculating for each grid cell individually

Alternatives

- NetCDF Extractor developed by Agrimetsoft (<https://agrimetsoft.com/netcdf-extractor>)
- RICCAR Regional Knowledge Hub Data Portal (will report averaged results)



Time Series Results

SU35

Values

2001 2082 2083 2084 2085 2086 2087 2088 2089 2090 2091 2092 2093 2094 2095 2096 2097 2098 2099 2100

Thank You

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ريكار
المعهد الإقليمي لتقييم الأثر المناخي على
الموارد المائية والموارد الطبيعية
والضعف الاقتصادي والاجتماعي
في المنطقة العربية

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