

# COURSE: GROUNDWATER MODELLING USING MODFLOW

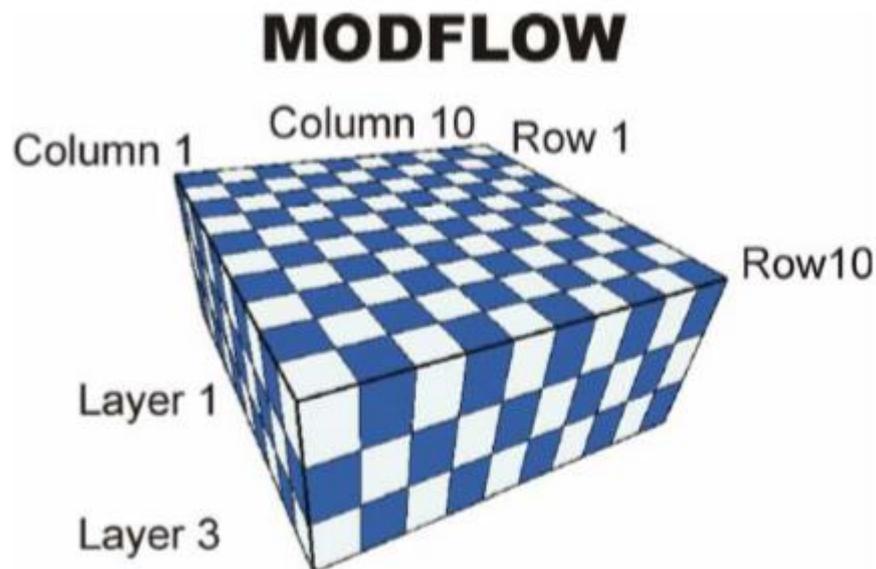
## Session 3: Generating Grids on Model Muse

### Objective:

The objective of this session is describe the tool menu grids, specify a uniform initial grid and use objects to specify the grid.

### Description grid in MODFLOW

The grid in MODFLOW uses block-centered nodes, the locations at which calculations are made are at the centers of blocks. In the following figure, MODFLOW the grid is numbered with 1, 1, 1 in the furthest upper left corner.

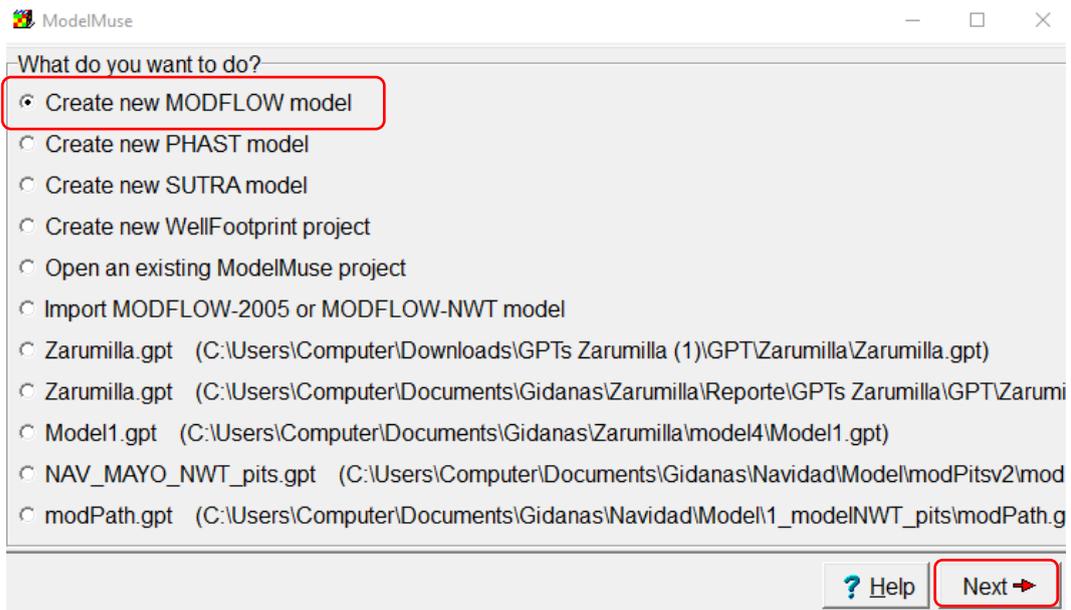


In this case, a grid can be generated in three ways:

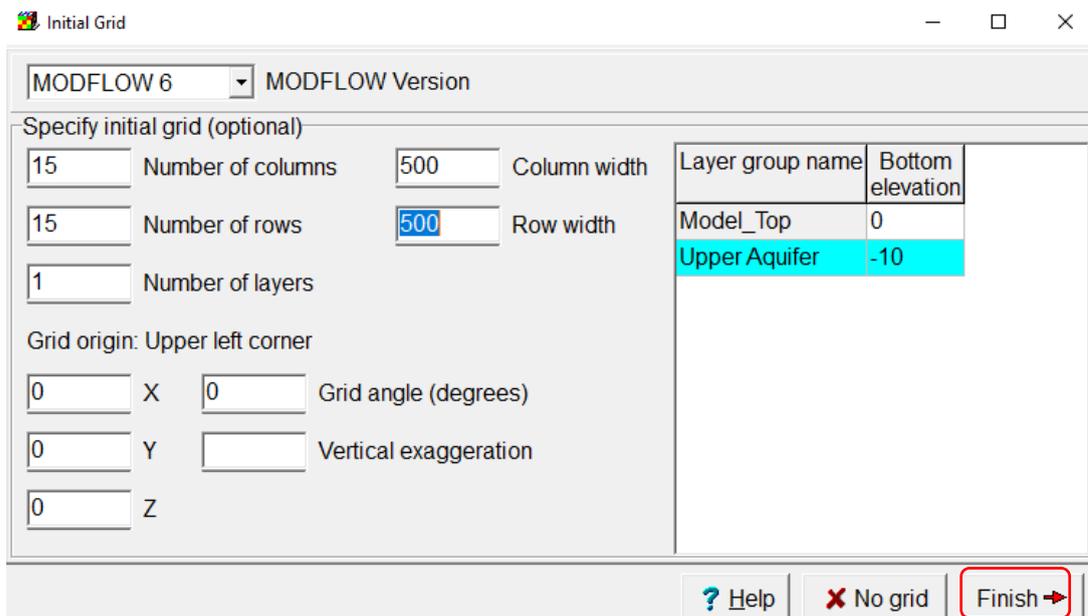
### 1. Specifying a uniform initial grid

When a new model is first created, a uniform initial grid can be specified. The **Initial Grid** box gives the user the opportunity to specify a grid with uniformly spaced columns and rows. Also, the user can specify the layers that will be horizontal and the layer thicknesses.

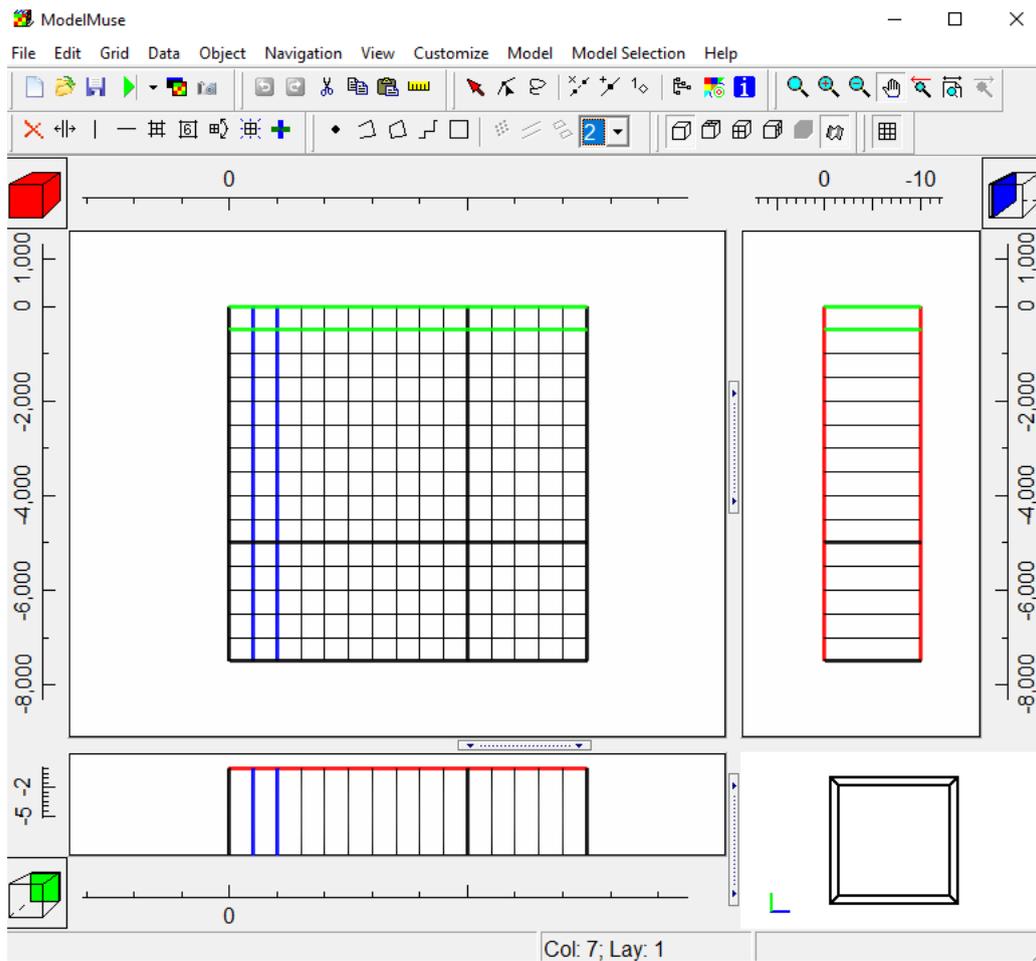
In this case, Open **ModelMuse.exe** and choose the option Create **New MODFLOW Model**.



Now create the grid. This model will work with one layer. Click in **Finish** button.

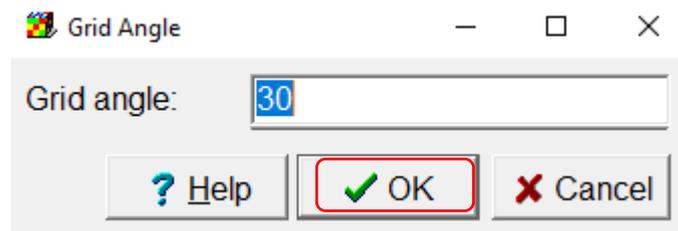


Then visualize the grid.

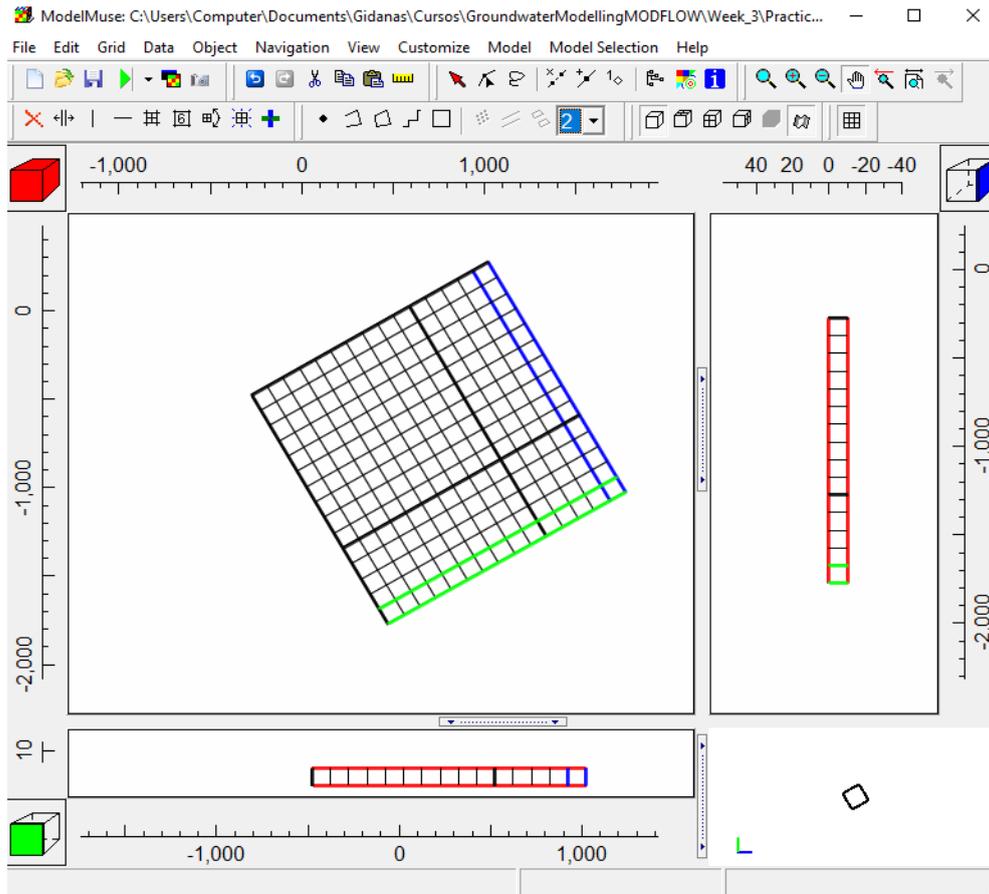


## 2. Specifying a Grid with Numbers

In this step, go the command **Grid/Specify Grid Angle** to rotate the grid numerically. Then click **OK**.



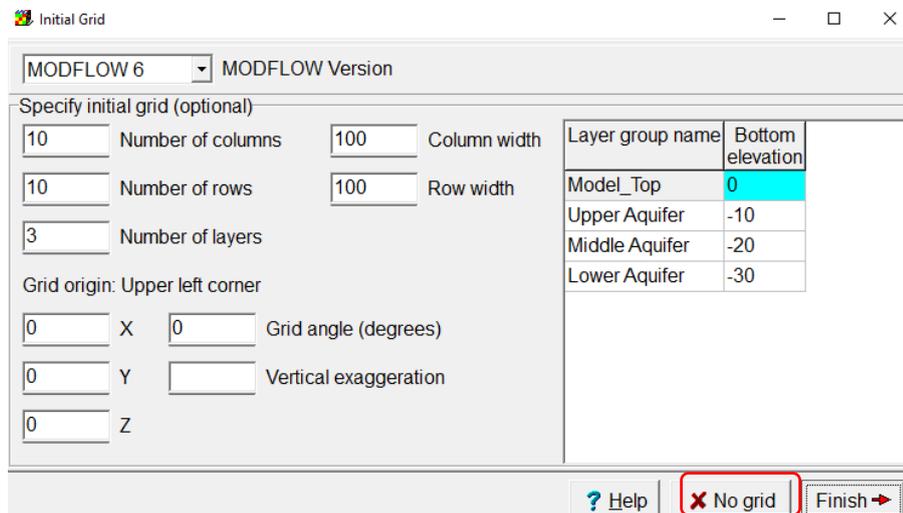
Then the grid is rotated.



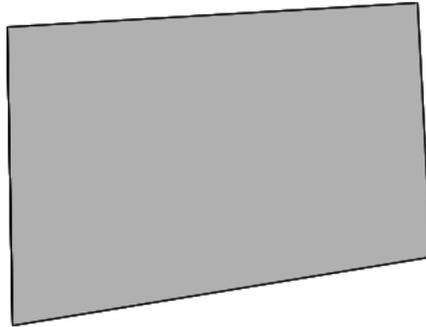
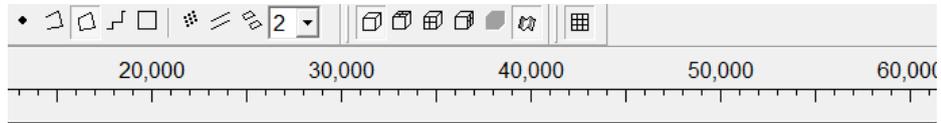
### 3. Using Object to specify the grid

Multiple objects can be used in determining the grid location. An object drawn on the top view of the model can be used to specify the column and row widths.

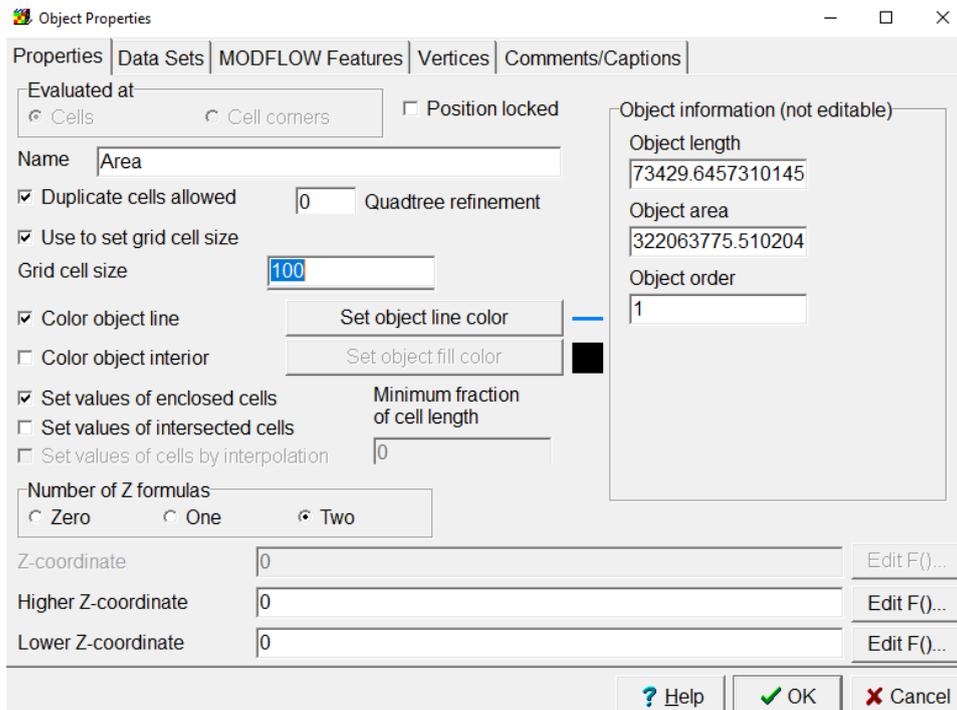
In a new model, choose the option **Create New MODFLOW Model**. Then click in the **No grid** button.



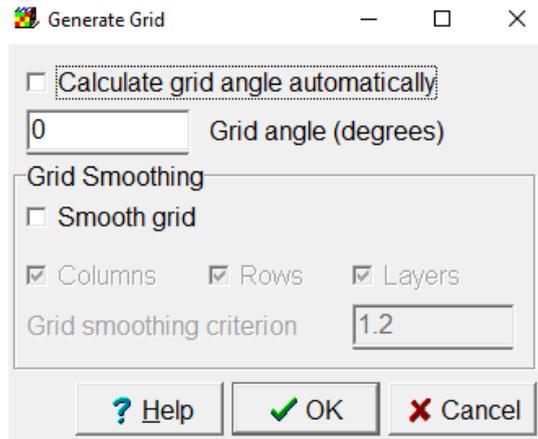
Now create the working area, using the tool **Create Polygon object** . Then draw a figure similar to the one in the image.



When reaching the last vertex, double click on it, a dialog window will appear where the name of the object will be indicated. Select **Use to set grid cell size** with a value of 100. Change the color of the line by selecting **Color object line**. Click **OK**.



Click  (*Generate grid*). Uncheck the option **Calculate grid angle automatically**. Click OK.



Then the grid is created.

