

CONVERT DEGREES MINUTES SECONDS VALUES TO DECIMAL DEGREE VALUES IN ARCMAP 10.1

These instructions describe how to use the Field Calculator in ArcMap to do the conversion from DMS to DD:

If you have geographic coordinates in degrees, minutes and seconds (DMS) and want to add locations to a map using ArcGIS you first need to convert these to decimal degrees (DD). The coordinates in DMS based on the North American Datum of 1983 for the City of Guelph are the 43° 33' 36.60" North and 80°15' 53.72" West. In DD the coordinates are 43.56017 N and - 80.26492 W.

First, assemble your coordinates in tabular format (Excel, text or .dbf) as illustrated in the example below. (The values must be stored in a table as degrees minutes seconds with no symbols.)

```
Location,latitude,longitude
Guelph,43 33 36.60,80 15 53.72
```

1. Add the tabular data to ArcMap. If the table is not in database format (.dbf) export the data:
 - o Right-click the table in the table of contents, choose the option **Data** and then **Export**.
 - o In the **Export Data** dialog box ensure that **Export all records** is selected in the first drop-down box.
 - o For **Output Table**, **Browse** to provide a location and name for the table; choose **dBase table** from the **Save as type** drop-down box. Click **Save**, then **OK**.
 - o Click **Yes** to add the table to the current map. The exported table will be in .dbf format.
2. Right-click on the .dbf table in the Table of Contents and select **Open**.
 - o Click the **Table Options** button and select **Add Field**.
 - o Enter Lat_DD in the **Name** field and select **Double** from the **Type** drop-down list.
 - o Verify that the **Scale** and **Precision** is set to 0 and click **OK**.
3. Right-click on the Lat_DD field and select **Field Calculator**.
4. Click **Yes** if presented with a message box.
5. Check the **Show Codeblock** check box.
6. Paste the following code into the **Pre-Logic VBA** box:

```
Dim Degrees
Dim Minutes
Dim Seconds
Dim DMS
Dim DD
```

```
DMS = Split([Latitude])
Degrees = Cdbl(DMS(0))
Minutes = Cdbl(DMS(1))
Seconds = Cdbl(DMS(2))
```

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If Degrees < 0 Then

DD = -(Seconds/3600) - (Minutes/60) + Degrees

Else

DD = (Seconds/3600) + (Minutes/60) + Degrees

End If

7. Find the line that begins 'DMS ='. The text within the brackets [] is the name of the field holding the latitude values. If the name of the field that stores the latitude values is different from your table replace it with the field name from your table.
8. Paste the following code into the **Lat_DD =** box at the bottom of the dialog box and click **OK**.

```
Cdbl(DD)
```

9. Repeat steps 2 through 8 to create longitude values in decimal degrees.
10. In the example for the City of Guelph, since the location is west of the Prime Meridian the longitude must be expressed as a negative value. To calculate these values right-click on the Long_DD field and select **Field Calculator**.
11. Enter the equation $[Long_DD]*-1$ and click **OK**.

Help Guide adapted from an ESRI Technical Article on the ESRI support site – <http://support.esri.com>.