WMM Magnetic Field Calculator

by Steven M. Shope, Ph.D.

Sandia Research Corporation

Example

<pre>
Dim Magnetic_Field As New clsWMM_Magnetic_Field_Calculator
</pre>

Set Input Properties

<pre>
Magnetic_Field.Latitude = Latitude (double) (signed decimal degrees)
Magnetic_Field.longitude = Longitude (double) (signed decimal degrees)
Magnetic_Field.Altitude_km = Altitude_km (double) (signed decimal km)
Magnetic_Field.WMM_Decimal_Year = Decimal_Date (double)(decimal year)
Note: Year must be less than Jan. 1, 2020
</pre>

Method

<pre>
Magnetic_Field.Calculate_Magnetic_Field()
</pre>

Get Output Properties
Field Components
<pre>
Magnetic_Field.Full_Field (double) (nT)
Magnetic_Field.X_Field (double) (nT)
Magnetic_Field.Y_Field (double) (nT)
Magnetic_Field.Z_Field (double) (nT)
Magnetic_Field.Horizontal_Field (double) (nT)
Magnetic_Field.DEC (double) (radians)
Magnetic_Field.DIP (double) (radian)
Magnetic_Field .Grivation(double) (degrees)
Note: If Grivation = -999 Then Grivation not available
</pre>

Time derivatives
<pre>
Magnetic_Field.dot_Full_Field (double) (nT/yr)
Magnetic_Field.dot_X_Field (double) (nT/yr)
Magnetic_Field.dot_Y_Field (double) (nT/yr)
Magnetic_Field.dot_Z_Field (double) (nT/yr)
Magnetic_Field.dot_HorizonT/yral_Field (double) (nT/yr)
Magnetic_Field.dot_DIP (double) (radians /yr)
Magnetic_Field.dot_DEC (double) (radians /yr)
</pre>

Warnings
<pre>
Magnetic_Field.Had_Warning (boolean)
Magnetic_Field.Warning_Message (string)
</pre>

Errors
<pre>
Magnetic_Field.Had_Error (boolean)
Magnetic_Field.Error_Message (string)
Magnetic_Field.Calculation_Error (boolean)
Magnetic_Field.Data_Input_Error (boolean)
Magnetic_Field.Date_Out_Of_Range = (boolean)
</pre>