

MagCompass User Manual



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0 Credits

MagCompass is another fine product brought to you by the hard-working folks at St. Kwan's Home for the Terminally ADD. Contact kwan3217 on the Orbiter Forums for more details

Source code is released under the GNU Library GPL.

1 Introduction

MagCompass demonstrates the magnetic field model WMM-2005 (<http://www.ngdc.noaa.gov/geomag/WMM/DoDWMM.shtml>) in an MFD. This model is relatively accurate, yet easy to calculate. Applications include simulating a magnetic compass, numbering runways to match reality (for instance, the Vandenberg runway is 12/30, not 14/32) and, well, not much else at the moment. If you have any ideas or can find any use for this code, please do. I have my own plans for it, to be released soon.

2 Installation

Installation is the same as for other add-ons. Unzip the zip file into your Orbiter directory. To un-install, use your zip program to see a list of files this package installs, and delete those files. This package does not overwrite any standard files, and does not write to the registry or anything like that.

3 Usage

The white needle points to true north, the red one to magnetic north, where straight up is the direction the vessel is pointing (in the horizontal plane). There are no buttons or switches. The thing Just Works.

The components displayed are as follows:

Lat	Latitude	Degrees
Lon	Longitude	Degrees
Rad	Altitude	Meters
X	North component of field	Teslas
Y	East component of field	Teslas
Z	Down component of field	Teslas
H	Horizontal field intensity	Teslas
TI	Total field strength	Teslas
Dec	Horizontal Declination – positive means magnetic north is east of true north	Degrees
Dip	Vertical Inclination – positive means field is pointing down	Degrees
THead	True heading	Degrees
MHead	Magnetic heading	Degrees

4 Known Issues

Angles are calculated to 15 digit precision, displayed with three figures after the decimal point, and probably only valid to one decimal place. Accuracy notices in the WMM-2005 documentation are valid here.

The WMM-2005 model is valid only for the Earth, but this MFD will treat any central body as if it is the Earth. For obvious reasons this isn't accurate.

The WMM-2005 model is valid from the beginning of 2005 to the beginning of 2010, but this MFD always evaluates it at the beginning of 2006.

The WMM-2005 model can be evaluated at any altitude, but I don't know how high it is valid. It was produced based on data taken at the surface and satellites in orbits of up to 700km altitude, so it should be accurate in that altitude range, but above and below, I am not sure.