

# The World Magnetic Model (WMM 2015)

## WHAT IS THE WORLD MAGNETIC MODEL ?

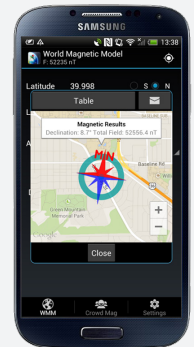
The World Magnetic Model is a data based spherical harmonic model of the magnetic field created by the spinning of Earth's core to degree and order 12. It is produced by the NOAA's National Centers for Environmental Information (NCEI) and the British Geological Survey (BGS). The model, associated software, and documentation are distributed by NCEI on behalf of the National Geospatial-Intelligence Agency (NGA). It is produced every five years to ensure accuracy as the magnetic field slowly changes each year. It is used by the DOD, FAA, NOAA, and NATO for heading and navigation.

The model is also installed into millions of smart phones (iOS and Android) so that every individual can map and navigate the world around them with ease and precision.



## WEB AND MOBILE-BASED CALCULATORS

NCEI provides web and mobile-based calculators that are accessed over 11 million times per year, by citizens and scientists alike, to explore and correct for Earth's magnetic field across the globe. The Geomagnetism Team at NCEI has also developed a crowd-sourced magnetic observation app called CrowdMag. This app can turn a smart phone into a traveling magnetic observatory which will anonymously send the data back to NOAA for use in validation and expansion of the magnetic field models.



### MAGNETIC FIELD CALCULATORS

**Calculate Declination**

Latitude:  ° S ° N

Longitude:  ° W ° E

Model:  WMM (2014-2019)  IGRF (1990-2019)

Date: Year:  Month:  Day:

Result format:  HTML  XML  CSV  PDF

**Calculate Magnetic Field**

Latitude:  ° S ° N

Longitude:  ° W ° E

Elevation:  GPS  Mean sea level

Kilometers

Model:  WMM (2014-2019)  IGRF (1990-2019)

Start Date: Year:  Month:  Day:

End Date: Year:  Month:  Day:

Step size:

Result format:  HTML  XML  CSV

**FOR ADDITIONAL INFORMATION**  
[ngdc.noaa.gov/geomag](http://ngdc.noaa.gov/geomag)

