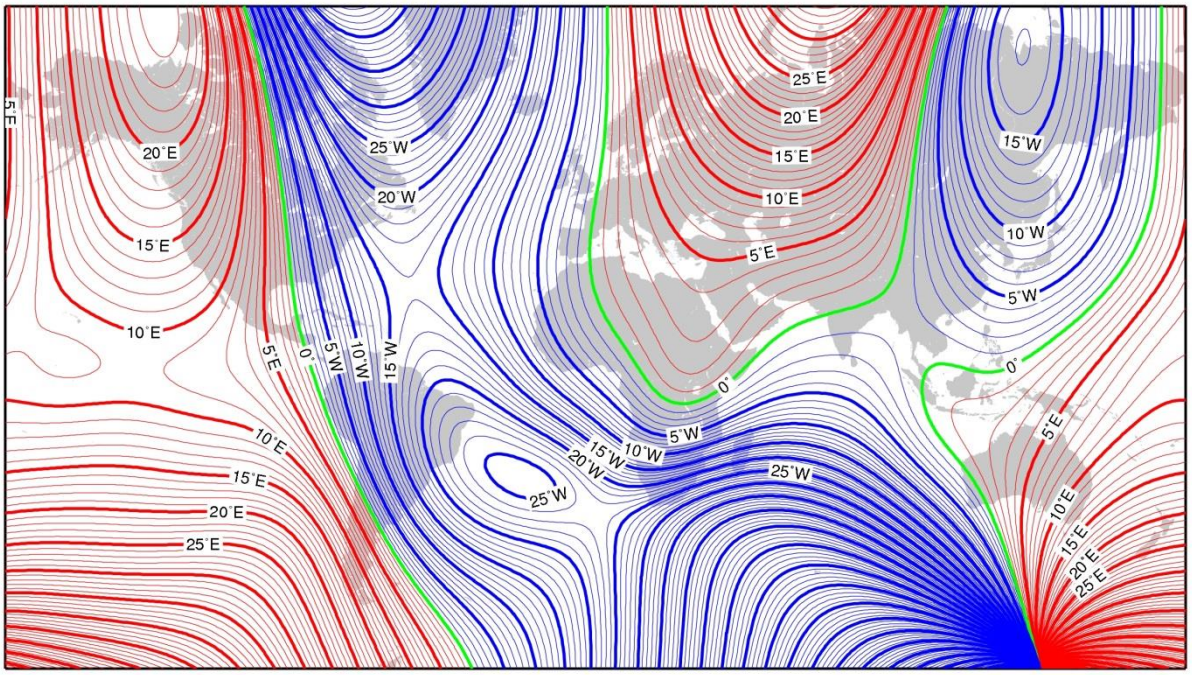
PRESS RELEASE

18th December 2014

Course correction for the world's smartphones

A new set of charts predicting the Earth's magnetic field for the next five years have been released by the British Geological Survey (BGS) and the US National Oceanic and Atmospheric Administration (NOAA).

The charts, known as the World Magnetic Model (WMM), are used to convert between compass measurements of magnetic north and true north and can be found in the navigation systems of ships and airplanes as well as geological applications (such as drilling and mining). The WMM is also part of map applications in smartphones, including the Google Maps App downloaded over 1 billion times.



Map of compass direction (angle in degrees between true and magnetic north) for 1st January 2015. The green line shows the only places where true and magnetic North are the same.

Although the Earth's magnetic field is broadly similar to that of a bar magnet, there are many areas of the world where there are significant deviations between the direction a compass points and true north. A chart of declination, the angle between true north and the direction that a compass will point, is needed for safe and accurate travel.

Dr Ciaran Beggan, a geophysicist at BGS says "A huge number of people use the magnetic field without realising it. The World Magnetic Model is built into lots of the apps in smartphones that use the digital compass. If you've seen the little arrow that appears in your map app pointing along the direction you're facing, then you have used the World Magnetic Model. "

Measurements of the magnetic field were made at dedicated observatories all over the world and by satellites. These were then compiled by scientists to make a new mathematical model of the magnetic field, from which the magnetic maps are derived. As the magnetic field of the

Earth changes slowly over time, these maps have to be updated every five years and include predictions of how the magnetic field will change over the next five years.

The World Magnetic Model was jointly prepared by the British Geological Survey in the UK and the National Oceanic and Atmospheric Administration (NOAA) in the USA, on behalf of the UK Defence Geographic Centre and the US National Geospatial-Intelligence Agency. The previous version of the World Magnetic Model was released in December 2009 and expires on 31 December 2014.

Updated charts, online WMM2015 calculator and further information can be found at the BGS Geomagnetism web pages.

Ends

For further details or to arrange media interviews please contact:

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Notes for Editors

The following are available for interview:

- Dr Ciaran Beggan, BGS Geophysicist, Edinburgh
- Dr Susan Macmillan, BGS Senior scientist, Edinburgh

For additional information go to: BGS Geomagnetism web pages

Read the NOAA press release here: Critical changes made to ensure accurate navigation.

The British Geological Survey

The British Geological Survey (BGS), a component body of the Natural Environment Research Council (NERC), is the nation's principal supplier of objective, impartial and up-to-date geological expertise and information for decision making for governmental, commercial and individual users. The BGS maintains and develops the nation's understanding of its geology to improve policy making, enhance national wealth and reduce risk. It also collaborates with the national and international scientific community in carrying out research in strategic areas, including energy and natural resources, our vulnerability to environmental change and hazards, and our general knowledge of the Earth system. More about the BGS can be found at www.bgs.ac.uk.

The Natural Environment Research Council

The Natural Environment Research Council (NERC) is the UK's main agency for funding and managing world-class research, training and knowledge exchange in the environmental sciences. It coordinates some of the world's most exciting research projects, tackling major issues such as climate change, food security, environmental influences on human health, the genetic make-up of life on earth, and much more. NERC receives around £300 million a year from the government's science budget, which it uses to fund research and training in universities and its own research centres. www.nerc.ac.uk