

Applications

NAVIGATION

Magnetic compass corrections and navigation; surveying and direction-finding; orientation of satellites; guidance and detection systems; biomagnetism, animal navigation.

HAZARDS

Space weather and the effects of magnetic storms: damage to satellite systems, disruption of satellite communications, GPS errors, varying orbital drag on satellites, radio communication fadeouts, induced currents in power grids, corrosion in pipelines; electric and magnetic monitoring of earthquakes and volcanoes.

ENVIRONMENT

Global change; climate change past and present; solar variability and global temperature change; tracing of pollutants; dam siltation; coastal dynamics; salinity mapping; water resources.

GEOLOGY

Tectonic reconstructions; continental drift; crustal structure and rock properties; stratigraphy; dating of rocks, ocean floor, and marine cores; archaeology.

MINERAL & OIL EXPLORATION

Sub-surface mapping and modelling; stratigraphy; dating of sedimentary rocks and mineralisation; hydrocarbon maturation; directional drilling.

HUMAN HEALTH

Effects of magnetic fields on humans; radiation exposure to astronauts and in high-flying aircraft; biomagnetic effects of electromagnetic radiation.

IAGA is

- ▶ a network of more than 8000 scientists from more than 70 countries
- ▶ science-driven, non-Governmental, not-for-profit
- ▶ supported by contributions from the national bodies of participating countries
- ▶ one of the eight Associations of the International Union of Geodesy and Geophysics (IUGG), which itself is a member of the International Council for Science (ICSU)

IAGA covers

- ▶ origin and dynamics of Earth's magnetism
- ▶ aeronomy of the middle and upper atmosphere
- ▶ physics of the ionosphere and magnetosphere
- ▶ solar, planetary and interplanetary physics

IAGA scientists produce

- ▶ databases and catalogues
- ▶ reference models
- ▶ magnetic activity indices
- ▶ procedural guides and standards
- ▶ special reports and bulletins
- ▶ IAGA News

IAGA supports

- ▶ international scientific meetings
- ▶ specialist forums, workshops, and meetings
- ▶ participation of young scientists and scientists from developing countries at its meetings
- ▶ training and education

IAGA comprises

Division I: Internal Magnetic Fields
Division II: Aeronomic Phenomena
Division III: Magnetospheric Phenomena
Division IV: Solar Wind and Interplanetary Field
Division V: Geomagnetic Observatories, Surveys, and Analyses
Interdivisional Commission on Developing Countries
Interdivisional Commission on History
Interdivisional Commission on Education and Outreach

Information about IAGA can be found at
www.iugg.org/IAGA



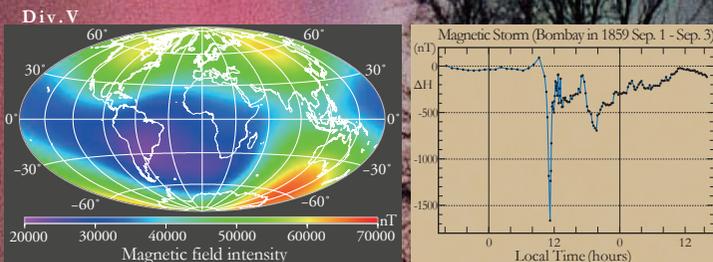
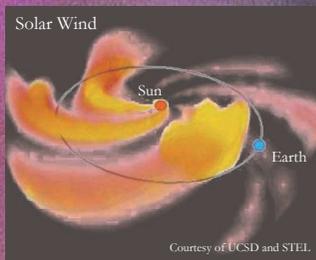
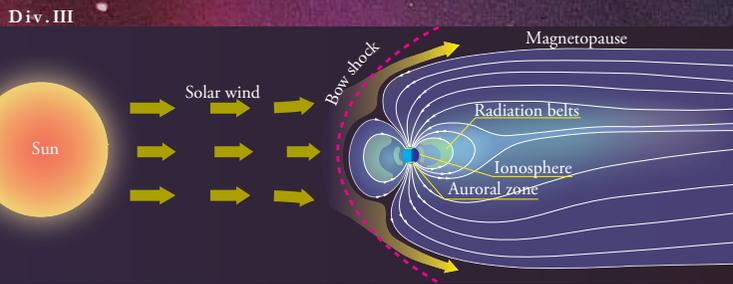
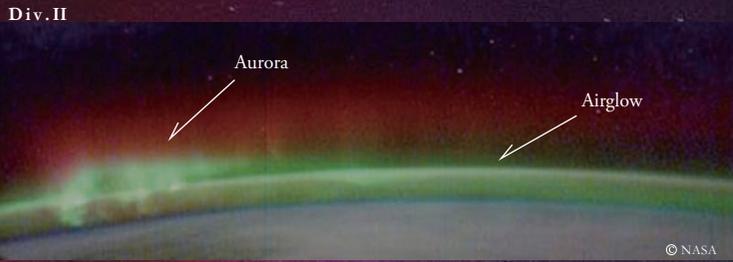
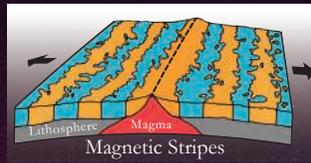
An Association of the International
Union of Geodesy and Geophysics



International
Association
of Geomagnetism
and Aeronomy

IAGA

From the Sun and planets....
....to the Earth's deep interior



Division I: Internal Magnetic Fields

Division I represents a variety of research fields linked by common interest in understanding the structure, dynamics and history of the Earth and other planets. Areas of interest include planetary magnetism, geomagnetism, paleomagnetism, rock magnetism and electromagnetic induction.

Division II: Aeronomic Phenomena

The purpose of Division II is to understand the dynamics, chemistry, energetics and electrodynamics of the atmosphere-ionosphere system as well as the coupling processes, by extensive observations, sophisticated data analysis techniques, and simulations with whole atmosphere-ionosphere models.

Division III: Magnetospheric Phenomena

Division III is focused on understanding how energy inputs from the Sun and solar wind influence the Earth's magnetosphere and upper atmosphere. Research areas include solar wind-magnetosphere-ionosphere coupling, the radiation belts, ring currents and plasmasphere, and magnetospheric storms and substorms.

Division IV: Solar Wind and Interplanetary Field

Division IV researches how turbulent motions inside the Sun supply energy to heat the magnetized atmosphere, produce the solar wind outflow, and drive enormous energy releases. The Sun and its heliosphere are natural plasma laboratories.

Division V: Geomagnetic Observatories,

Surveys and Analyses

Division V promotes high quality standards in geomagnetic data acquisition, observatory and survey procedures, the production of geomagnetic indices, and data dissemination. Magnetic data are analyzed to develop detailed regional and global models of the Earth's magnetic field.

Interdivisional Commission on Developing Countries:

This Commission stimulates the participation of scientists from developing countries in IAGA activities. It encourages activities in areas of special interest to developing countries, as well as the exchange and dissemination of scientific information.

Interdivisional Commission on History:

This Commission encourages historical research by scientists, as well as professional historians of science, into the history of geomagnetism and aeronomy. It also preserves IAGA's history.

Interdivisional Commission on Education and Outreach:

This Commission promotes education activities within the IAGA community and outreach to schools, the general public, and the wider scientific community.

Brief History of IAGA

- 1834 First international multi-station magnetic observations organized by Carl Friedrich Gauss
- 1882-83 International Polar Year
- 1919 The International Geodetic and Geophysical Union (IGGU) was established with Terrestrial Magnetism and Electricity as Section D
- 1932-33 Second Polar Year
- 1954 The International Association of Terrestrial Magnetism and Electricity was renamed IAGA
- 1957-58 International Geophysical Year
- 1983 Creation of the Inter-Divisional Commission on Developing Countries
- 2007-08 Electronic Geophysical Year and International Heliophysical Year
- 2013 Creation of the Inter-Divisional Commission on Education and Outreach