

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 - past and present climate change - 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 aircrafts - 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 Field

Division II: Aeronomic Phenomena

Division III: Magnetospheric Phenomena

Division IV: Solar Wind and Interplanetary Field

Division V: Geomagnetic Observatories, Surveys and Analyses

Division VI: Electromagnetic Induction in the Earth and Planetary Bodies

Interdivisional Commission on Developing Countries

Interdivisional Commission on History

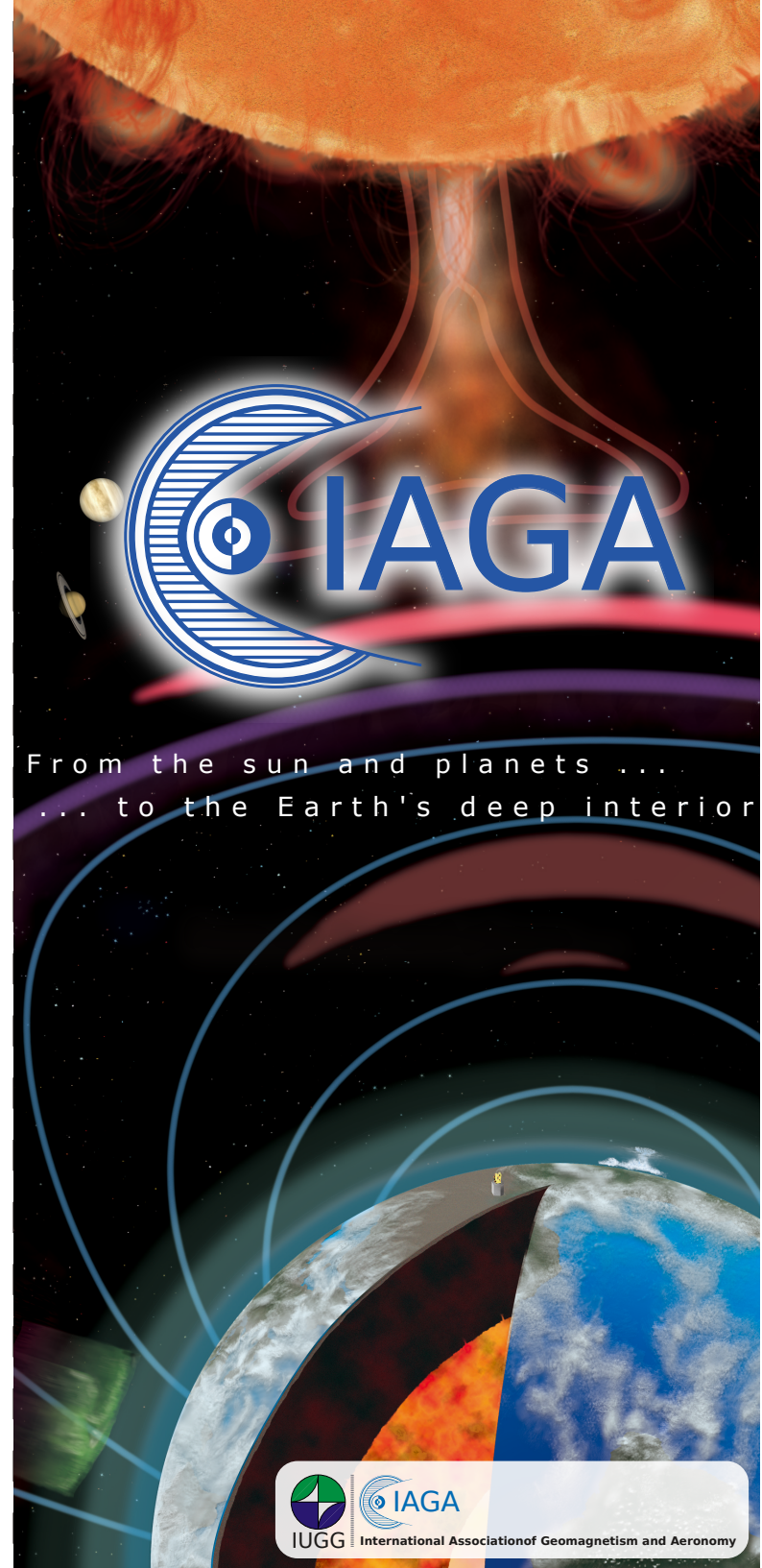
Interdivisional Commission on Education and Outreach

Interdivisional Commission on Space Weather



An Association of the International Union of Geodesy and Geophysics

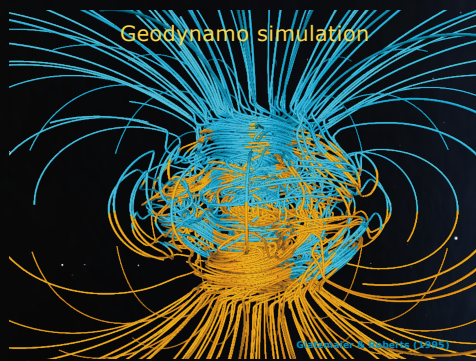
Information about IAGA: www.iaga-aiga.org



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

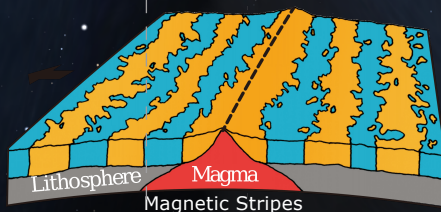


International Association of Geomagnetism and Aeronomy



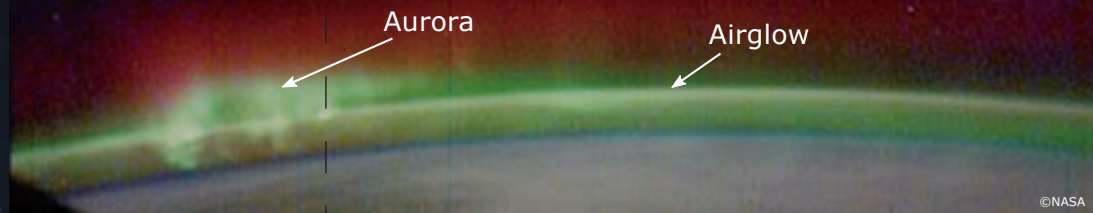
Division I: Internal Magnetic Fields

Division I aims at understanding the structure, dynamics and history of the Earth and other planets. Areas of interest include planetary magnetism, geomagnetism, paleomagnetism and rock magnetism.



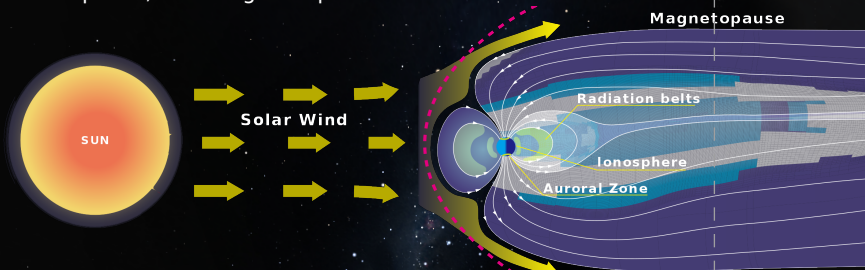
Division II: Aeronomic Phenomena

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. Methods include simulations with whole atmosphere-ionosphere models.



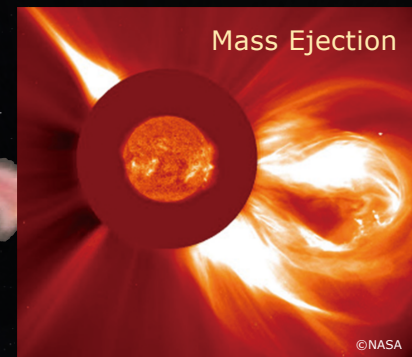
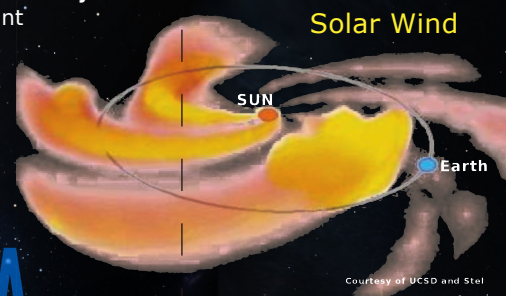
Division III: Magnetospheric Phenomena

Division III is focused on the influence of energy inputs from the Sun and solar wind on the near Earth environment. Research areas include solar wind-magnetosphere-ionosphere coupling, the radiation belts, ring currents and plasmasphere, and magnetospheric storms and substorms.



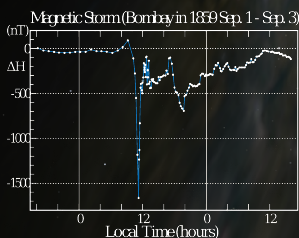
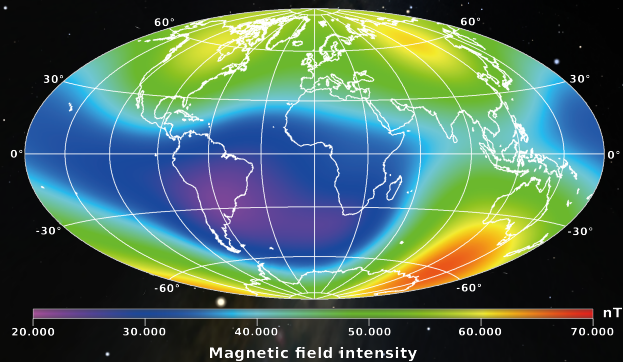
Division IV: Solar Wind and Interplanetary Field

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.



ABOUT IAGA

www.iaga-aiga.org/about

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

Division VI: Electromagnetic Induction in the Earth and Planetary Bodies

Division VI investigates all aspects of the spatial distribution of electrical properties within the Earth's and planetary interiors, particularly electrical conductivity, and their relationship with other physical parameters, to elucidate geological structures and processes.



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.

Interdivisional Commission on Space Weather

The IDC on Space Weather encourages research into space weather and on space weather impacts on society and informs IAGA scientists on wider developments in space weather research and applications.