# EGU Today

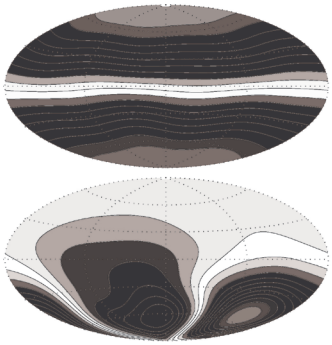
DAILY NEWSLETTER
FROM THE GENERAL ASSEMBLY

FRIDAY
APRIL 24
2009


## Planetary cores: Motions, evolution and effects on the compass needle

The dynamos of planetary cores have profound effects on the magnetic field of planetary bodies. Some phenomena in the early solar system induced magnetic fields in planetesimals and larger bodies, whereas other processes caused the internal magnetism of some bodies (e.g. Mars) to decline. This session concentrates on the state and evolution of metallic cores and the conditions under which internal magnetic fields may develop or disappear.

**MPRG11/GMPV26/PS10, Friday 17:30-19:00, Room 37**
**Convener: Simona Costin**



**Surface magnetic field of the Earth (above) and Mars (below) dynamo computer simulation (Stanley et al., 2008, Science)**

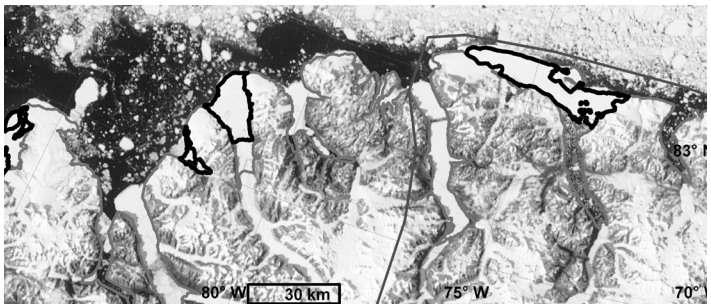
## How past climate changes could be relevant to our future

The geologic record shows evidence for climatic changes occurring at a variety of time scales. And today, Earth's climate is rapidly changing again. Most paleoclimate research has focused primarily on long term temperature trends over the past centuries to the past millennium. The role of human activity in present-day and future climate change, however, is best assessed by looking at relatively recent changes in atmospheric circulation patterns and drought. Climatic variations are caused both by intrinsic random variations of the climate system and by external drivers, like volcanic eruptions, changes in solar activity and human induced greenhouse gas emissions. Using climate models and paleoclimate reconstructions, one can examine the relative importance of random, natural variability and these external factors. This will ultimately lead to better predictions of how human activities will influence Earth's climate. Michael Mann, one of the world's most renowned climate scientists, gave a press conference on the latest developments in this field. Today, he will bring together paleoclimatologists working on higher-resolution proxy information and climate modellers simulating the climate of the last millennium, with a strong focus on regional and seasonal changes.

**CL10, Friday April 24**
**08:30–12:00, Room 13**
**Convener: Michael Mann**

## The cryosphere: For how much longer?

Arctic ice shelves have undergone dramatic recent losses from which they will likely not recover, while mountain glacier retreat is accelerating at a global scale. This Union Symposium is geared towards the general public and gives a broad overview on the present state and possible future constraints of the polar and mountain cryosphere. It focuses on five critical topics within the context of climate change: The results of the IPY (International Polar Year) 2007-2009, the state of the Mountain Glaciers, Permafrost and Arctic Sea Ice. It will be presented to you by four invited speakers, Luke Copland from Canada, Larry Hinzman from Alaska, Wilfried Haeberli from Switzerland and David Carlson from the UK. Key issues are building information into prediction of the cryosphere, accelerated worldwide glacier shrinkage, hydrological and ecological consequences of thawing permafrost due to global warming and accelerated collapse of arctic ice shelves. **US4, Friday April 24 13:30-14:50, Room D**
**Convener: Carmen de Jong**

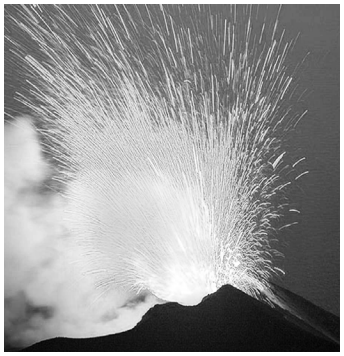



**The ice attached to Ellesmere Island has been reduced by almost a quarter. Warm air temperatures and reduced sea-ice conditions in the region have added to the break-up. One ice shelf, the 50 sq km Markham shelf, has completely broken off and is now adrift in the Arctic Ocean.**

## Threatening volcanoes

Volcanoes may quickly evolve from a state of dormancy to unrest, potentially leading to hazardous explosive eruptions. When critical data from previous activity is missing, however, it is a major challenge to forecast the likelihood and nature of an eruption at a reawakening volcano. Quantitative data from active volcanoes is needed to improve our capabilities on volcanic hazard mitigation. What are the critical monitoring parameters that help assessing the state of a volcano?

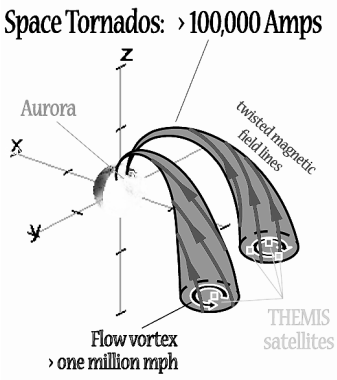
**NH3.1/GMPV22, Friday 08:30-12:00, Room 29**
**Convener: Erika Vye**



# Giant electrical tornados in outer space

Tornados on Earth are among the most violent storms, capable of enormous destruction with wind speeds of 200 mph and more. Yet these are tiny compared to the "space tornados" that impress with plasma flow speeds of more than one million mph and beautiful auroras. NASA's THEMIS spacecraft discovered that these flow vortices generate currents of more than one hundred thousand Amps in space and channel them into the ionosphere. The flow vortices are composed of rotating clouds of charged particles, called plasma, with embedded twisted magnetic field lines. Located about forty thousand miles away from Earth, they span a volume of approximately the size of the Earth or larger. While these intense currents do not cause any direct harm to humans, they can damage man-made structures, such as power transformers, on the ground.

**ST8, Friday April 24**
**15:30-17:00, Room 5**
**Convener: Andreas Keiling**

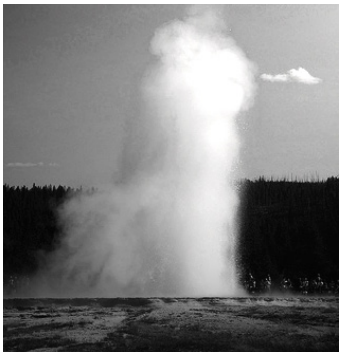



**Space tornados span a volume of approximately the size of the Earth or larger**

# Securing the world's future resources: High technology exploration

Exploration for minerals and geothermal energy are essential activities for securing the world's supply of mineral resources and energy. They are among the most challenging applications of geoscientific methods. Geothermal fields and many types of mineral deposits form when heat and metals are transported in subsurface fluid flow systems in the Earth's crust. These hydrothermal systems are characterised by complex interaction of physical processes such as heat transfer, rock deformation, fluid flow, solute transport and chemical reaction, all of which occur in a dynamic and evolving geological environment. Because hydrothermal mineral systems may share many characteristics with present-day geothermal systems, the quantitative techniques developed for mineralisation systems studies are increasingly and successfully applied to geothermal system studies.

**ERE7, Friday April 24**
**13:30–15:00, Room 2**
**Convener: Klaus Gessner**





## EGU 2009 in figures

**A total of 12.977 abstracts** were submitted, resulting in 4789 oral (37%) and 8188 poster (63%) presentations

## Top 4 contributors

**Hydrological Sciences**
1640 abstracts
**Atmospheric Sciences**
1368 abstracts
**Climate: Past, Present and Future**
1323 abstracts
**Natural Hazards**
1304 abstracts

**52 registered journalists** produced a wealth of newspaper and magazine articles, radio and TV programmes

**15.000 copies** of EGU Today were distributed

## Press Centre

**Suite F (Yellow Level)**

**Contacts for the media**
+43 676 3199567/68
egu-press@landforms.org

**Dick van der Wateren**
Spokesman EGU, +31 6 54604741
**Nora Witmans**
+31 6 11342146
**Pieter Boeder**
+31 6 10139300


## Colophon

**EGU Today 2009**

**Landforms Science & Media**

**Thomas Kruijer**

**Rogier Overkamp**