

The Flux Line

News of the Geomagnetism and Paleomagnetism Section of AGU

November 23, 2013

Fall 2013 AGU Meeting Events!

The GP Section will have primary responsibility for 16 oral and 13 poster sessions at the 2013 Fall AGU meeting, December 9-13, in addition to secondary sessions. With so many sessions, GP will have events every day of the week. See pages 6-7 for a synopsis of all primary GP scientific sessions. Many thanks go out to all our session conveners. A special thanks to Mike Purucker, GP Secretary, who put together the GP sessions for all of us. Mark your calendars for these special events:

- AGU Icebreaker: Monday December 9 6-8 pm in the Exhibit Hall (Moscone North)
- GP Student Reception: Monday, 5-7 pm, Kate O'Brien's Irish Bar, 579 Howard St. RSVP to Julie Bowles (bowlesj@uwm.edu)
- Bullard Lecture: Tuesday at 1:40 pm (see article later in this issue of Flux Line)
- GP Business Meeting and Reception: Tuesday, beginning 6:30 pm
- AGU Student Breakfast: Tuesday 6:45-7:45 a.m.: Watch the AGU website for details
- AGU Awards Ceremony: Wednesday, 6-8 pm Moscone North, Hall E
- AGU Honors Banquet: Wednesday, 8:30 pm-midnight, Yerba Buena Ballroom Marriott Marquis (ticket needed).

GP Executive Committee

The GP Executive Committee during this Fall meeting included the following people:

President: Richard Gordon

President-Elect: Andy Jackson

Past President: Rick Blakely

Secretary: Mike Purucker

GP Webmaster: Katerina Petronotis

Student Scientist: Sarah Slotznick

Early Career Scientist: Julie Bowles

Flux Line Editor: Ken Kodama

Cathy Constable to receive the 2013 William Gilbert Award



We are pleased to announce the GP Fellows and Awards Committee selection of Cathy Constable as recipient of the 2013 William Gilbert Award. Cathy is a Professor of Geophysics in the Cecil H. and Ida M. Green Institute of Geophysics and Planetary Physics of the Scripps Institution of Oceanography. Rick Blakely, Cathy's nominator, writes, "The Gilbert Award is given for excellence in one of three

categories: scientific impact, service to the GP community, and cross-disciplinary research. Cathy Constable excels in all three! Her theoretical research is steeped in observation, ranging from time variation of the geomagnetic field and implications for Earth's deep interior, to satellite magnetic field observations that bear on mantle conductivity. Her work directly impacts all three arms of our GP

community: geomagnetism, paleomagnetism, and electromagnetism. Cathy served as President of the GP Section during a time of dramatic change in AGU governance, ensuring that our Section emerged as strong as ever. She has served on the AGU Council, AGU Publications Committee, and AGU Bylaws Committee, to name a few, and is now serving as an elected member of the AGU Board of Directors. In short, Cathy epitomizes the spirit behind the Gilbert Award!

The Gilbert Award recognizes excellence in scientific rigor, originality, and impact; leadership and service to the GP research community; and development of cross-disciplinary research areas and methods. Congratulations, Cathy!

Thanks again to 2G Enterprises!

Once again, 2G Enterprises has offered to underwrite part of the cost of our 2013 GP Business Meeting and Reception on Tuesday, December 10th starting at 6:30 pm. 2G is a long-time supporter of our Section. Their support is very much appreciated by GP members and officers alike!

News from IODP: Southern Alaska Margin Tectonics

Joe Stoner



[Shulan Ge \(SOA, China\) and Joe Stoner \(Oregon State, US\) in the JR lab \(photo credit Chris Moy, University of Otago, NZ\).](#)

Although little prior data presently exist, the Gulf of Alaska is a location where paleomagnetic observables are likely to be sensitive to important geomagnetic concepts such as high-latitude flux lobes and the Pacific dipole window. With a glaciated, tectonically active margin that ensures an almost continuous supply of fine-grained lithogenic material deposited at exceptionally high rates, quality paleomagnetic records that can provide much-needed stratigraphic and paleo-geomagnetic information are likely to exist. Three sites (U1417, U1418, U1419) drilled during the recently completed IODP Expedition 341 (Southern Alaska Margin Tectonics, Climate and Sedimentation) provide, for the first time, the quality of material required to begin to explore these and other paleomagnetic concepts. Shipboard measurements of natural remanent magnetization from half core sections constrained by, and enriched from, the determination of physical, chemical, biological and lithostratigraphic properties highlight the paleomagnetic potential of this expedition.



GREAT MOMENTS IN GEOPHYSICS :
Siméon Poisson discovers the wave equation!

Steven Cande, 2013 Bullard Lecturer



Steven Cande will present the Bullard Lecture at the 2013 Fall AGU Meeting. Steven is a Professor in the Geosciences Research Division of the Scripps Institution of Oceanography in La Jolla California. Steve is an expert on plate tectonics and geomagnetism. Specific research interests include: global plate reorganizations, the geomagnetic polarity reversal timescale, and paleointensity variations of the geomagnetic field. Steve's Bullard Lecture is entitled, "Kinematic constraints on the forces driving the rapid motion of India in the Late Cretaceous and early Cenozoic". The Bullard Lecture will be on Tuesday, December 10, at 1:40 pm in room 104 of Moscone South.

Awards and New GP Fellows

Congratulations to our new GP AGU Fellows: *Catherine Johnson, Andrew Roberts, and Keke Zhang.*

Catherine Johnson: For significant contributions to understanding the magnetic fields and interior structures of the Moon and terrestrial planets.



Andrew Roberts: For his pioneering work in environmental magnetism and climate change, and for developing advanced new methods in rock magnetism.



Keke Zhang: For fundamental contributions to our understanding of rotating fluids and dynamo theory and their application to the cores of Earth and other planets.



Congratulations to GP member, *Jaime Fucugauchi*, who will receive the International Award for 2013 from AGU.



John LaBrecque, a member of Geodesy, but who contributed early on to the Geomagnetic Polarity Time Scale for the Cretaceous and Cenozoic (LaBrecque et al., 1977) will receive the Edward Flinn Medal at the Fall AGU Meeting.

Dan Pomeroy to Receive Special Honorary Award from GP at the Fall Meeting

John Geissman

Many in the broad and far reaching community of paleomagnetists, rock magnetists, and geomagnetists (and even many petrologists!) know of the name Pomeroy, or the phrase Pomeroy drill, yet it is likely that the person behind the name or phrase remains a mystery to most. It gives me great pleasure to announce that Mr. Dan Pomeroy, who lives in Oakland, California, will be presented with a special, honorary award in recognition of his service to our community at the Business Meeting of the Geomagnetism and Paleomagnetism Section of AGU, on Tuesday, December 10.

Many of you had the experience, in the early 1980's of trying out a new, remarkable breakthrough in paleomagnetic "drilling technology", which was typically referred to as the "Pomeroy Drill", along with the excellent, well-crafted orientation device. At this time, Mr. Dan Pomeroy was a Technical Machinist at Western Washington University, and, at the suggestion of (if not prodding by) Myrl Beck and Russ Burmester, he, working with Russ, devised the new field drill, drill bits, and orientation device that eventually were all marketed by ASC Scientific.

Although I am not aware of many specific interactions that members of the paleomagnetism and geomagnetism community may have personally had with Mr. Pomeroy over the years, I suspect that mine are an honest reflection of the kinds of very positive and incredibly helpful interactions Dan Pomeroy has had with our colleagues, in times of dire field sampling equipment troubles. I have never met Dan Pomeroy, but I feel as if I know him as well as a best friend. I, and I hope all of you, look forward to meeting Mr. Dan Pomeroy at our Business Meeting and recognizing him for his tremendous help over many, many years! It will be joyful to put a face with a name, so bring your cameras!

ESA's Swarm mission successfully launches!

Andy Jackson & Mike Purucker from ESOC, Darmstadt, Germany

Yesterday (22nd Nov) we witnessed the successful launch of ESA's Swarm mission to measure the Earth's magnetic environment with unprecedented precision.

The mission, 11 years in the planning, is the first to consist of multi-point measurements of the field, consisting, as it does, of 3 satellites nominally called A, B & C. Swarm A & B will fly in a low-orbit formation displaced East-West from one another. Swarm C will fly in a higher orbit with slightly different inclination, in order that its orbital plane sweeps around faster leading to an orbit orthogonal to A & B after about 3 years.

The launch took place from northern Russia and went entirely to plan; see

http://spaceinvideos.esa.int/Videos/2013/11/Swarm_liftoff

At the time of writing, communication has been established with all satellites and the vector magnetometer is switched on on Swarm C.

The constellation design enables a superior separation of different sources of field to be made. It includes accelerometers and electric field instruments in addition to both scalar and vector magnetometers.

Objectives of the mission are focussed on determination of core fields at higher resolution than before, high fidelity mapping of the crustal field (thanks to the low gradiometer pair of satellites), mapping of mantle electrical conductivity and better characterization of the external magnetic environment.

The mission has relied heavily on the participation of a large number of GP colleagues from both Europe and also the USA, e.g. from NASA and NOAA.

Details are at http://www.esa.int/Our_Activities/Observing_the_Earth/Swarm



Launch of SWARM-Nov 22, 2013



The spacecraft in orbit

Newsletter contributions are welcome.

We welcome news items of general interest to the GP community. Please keep them brief (150 words or less) and send to Ken Kodama (kpkodama@gmail.com).

—GP Executive Committee

GP Scientific Meeting, 2013 Fall AGU Meeting

Monday, December 9, 2013

GP13A. Marine Magnetic Anomalies 50 Years after Vine and Matthews II **Posters**

GP11A. Marine Magnetic Anomalies 50 years after Vine and Matthews

GP12A. Applications of Paleomagnetism to Tectonic and other Geologic Problems 1

Oral sessions Monday in room 300 Moscone South

Tuesday, December 10, 2013

GP23A. Progress in EM Induction Studies of Crust and Mantle from Land, Sea, Air, and Space 3 **Posters**

GP21A. Progress in EM Induction Studies of Crust and Mantle from Land, Sea, Air, and Space 1

GP22A. Progress in EM Induction Studies of Crust and Mantle from Land, Sea, Air, and Space 2

Oral sessions Tuesday in room 300 Moscone South

GP23B. Bullard Lecture: Steven Cande 1:40-2:40 pm **room 104 Moscone South**

Wednesday, December 11, 2013

GP31A. Late Quaternary Geomagnetic Field Variations 1 **room 300 Moscone South**

GP33A. Understanding Planetary and Stellar Magnetic Fields 1 **room 103 Moscone South**

GP34A. Magnetic Study of Igneous Processes and Magnetic Anisotropy 1 **room 300 Moscone South**

Thursday, December 12, 2013

GP41A. Applications of Paleomagnetism to Tectonic and other Geologic Problems 11 **Posters**

GP41B. Late Quaternary Geomagnetic Field Variations II **Posters**

GP41C. Magnetic Study of Igneous Processes and Magnetic Anisotropy II **Posters**

GP41D. Understanding Planetary and Stellar Magnetic Fields II **Posters**

GP41E. Recent Developments in Geochronology, Magnetostratigraphy, and Scientific Drilling: Reducing Uncertainty in the Geologic Time Scale I

GP42A. Recent Developments in Geochronology, Magnetostratigraphy, and Scientific Drilling: Reducing Uncertainty in the Geologic Time Scale II

GP43A. Recent Developments in Geochronology, Magnetostratigraphy, and Scientific Drilling: Reducing Uncertainty in the Geologic Time Scale III-Posters

GP43B. Rock Magnetism: Beyond the State-of-the-Art I **room 301 Moscone South**

GP44A. Potential Field and EM Methods Applied to Studies of the Upper Crust to Deep Lithosphere I

All oral sessions Thursday except GP43B in room 300 Moscone South

Friday, December 13, 2013

GP51A. Advanced Methods in Dynamo Modeling I **Posters**

GP51B. Full Vector Records of Earth's Ancient Magnetic Field: Methods and Models I **Posters**

GP51C. Potential-Field and EM Methods Applied to Studies of the Upper Crust to Deep Lithosphere II **Posters**

GP53A. Environmental Magnetism: Knowns and Unknowns II **Posters**

GP53B. Rock Magnetism: Beyond the State-of-the-Art II **Posters**

GP53C. Geomagnetic Field Modeling and Interpretation: Core to Crust II **Posters**

GP51D. Environmental Magnetism: Knowns and Unknowns I

GP52A. Geomagnetic Field Modeling and Interpretation: Core to Crust I

GP53D. Full Vector Records of Earth's Ancient Magnetic Field: Methods and Models II

GP54A. Advanced Methods in Dynamo Modeling II

Oral sessions Friday in room 300 Moscone South