CMG 2010 Program

Sunday 6 June

18.00-20.00 Icebreaker

Monday 7 June

08.00-09.00 Registration and distribution of conference material

09.00-09.30 Opening and welcome
Enzo Boschi, Alik Ismail-Zadeh, Umberto Mura, Augusto Neri, Daniel H. Rothman

Session 2: Geophysical fluid dynamics II Sub-surface and surface flows
Conveners: Einat Aharonov and Daniel Schertzer

09.30-09.50 Micol Todesco, Antonio P. Rinaldi
The rocks and the fluids. The complex sound of the hydrothermal activity

09.50-10.10 Piotr Szymczak, Tony Ladd
Dissolution in porous media and fractures: initial vs moving front instability

10.10-10.30 Daniel Reeves, Daniel H. Rothman
The role of spatial heterogeneities in the apparent age dependence of dissolution and precipitation rate constants in porous media

10.30-10.50 Coffee break

Session 2: Geophysical fluid dynamics II Sub-surface and surface flows
Conveners: Einat Aharonov and Daniel Schertzer

10.50-11.10 Enrique Merino
Self-Accelerating Dolomite-For-Calcite Replacement: Dynamics of Burial Dolomitization and Associated Ore Mineralization

11.10-11.40 Liran Goren, David W Sparks, Einat Aharonov, Renaud Toussaint
Modeling coupled fluid-grain deformation, with implications for landslides, fault-zones, and liquefaction (keynote)

11.40-12.00 Renaud Toussaint, Michael Niebling, Eirik G Flekkoy, Jean Schmittbuhl, Jan Ludvig Vinningland, Knut Jorgen Maloy, Berthilde-Maud Schelstraete, Oistein Johnsen, Anke Lindner, Eric Clement, Christophe Chevalier, Georg Koval
Sedimentation and aerofracture: Sedimentation instability and fracturing/channeling transitions in mixed grain/fluid flows - impact of viscosity and compressibility

Session 4: Brittle deformation and computational seismology
Conveners: Yehoda Ben-Zion and Massimo Cocco

12.00-12.20 Heiner Igel, Andreas Fichtner, Martin Käser, Paul Käufl, Christian Pelties, Karin Sigloch, Stefan Wenk
Simulation and inversion of full waveforms for 3-D Earth structures and sources

12.20-12.40 Michel Campillo, Berenice Froment, Celine Hadziioannou, Eric Larose, Diane Rivet, Philippe Roux, Florent Brenguier, Nikolai Shapiro
Noise based seismic speed monitoring: co-seismic and post seismic speed drops

12.40-13.00 Gilda M Currenti, Alessandro Bonaccorso, Agnese Di Stefano, Danila Scandura, Charles A Williams, Ciro Del Negro
Stress changes variations around a pressured magma chamber: constraints on magma intrusion and fault slip

13.00-14.30 Lunch

Session 4: Brittle deformation and computational seismology
Conveners: Yehoda Ben-Zion and Massimo Cocco

14.30-14.50 Jean-Pierre Vilotte, Gaetano Festa, Michel Raous
Dynamic rupture along interfaces including damage and friction: initiation, propagation and radiation

14.50-15.10 Vladimir Lyakhovsky
Damage rheology model: from local quasi-static to non-local dynamic formulation

15.10-15.30 Nataliya Makedonska, Liran Goren, David W. Sparks , Einat Aharonov
Friction versus dilation revisited: insights from theoretical and numerical models.

15.30-15.50 Christopher H Scholz
Large Earthquake Triggering, Clustering, and the Synchronization of Faults

15.50-16.10 Steffen Abe, Karen Mair, Janos L Urai
Roughness Evolution in DEM simulations of fault shear.

16.10-16.30 Coffee break

Session 9: Computational geophysics: Modern algorithm and applications
Conveners: Marc Spiegelman and David A. Yuen

16.30-16.50 Ilario Mazzieri, Chiara Smerzini, Marco Stupazzini, Francesca Rapetti
Mortar Spectral Element Method applied to the study of seismic response of 2D alluvial deposits

16.50-17.20 Maarten V de Hoop, V. Brytik, Q. Cao, H. Smith, G. Uhlmann, R. D. van der Hilst, H. Wendt
Multi-scale approach to seismic inverse scattering and applications in Earth's upper mantle transition zone (keynote)

17.20-17.40 Nathanael Schaeffer
Towards a faster Spherical Harmonic transform

17.40-18.00 Gabriele Morra
Particle simulations with Stokeslet and Stresslet kernels

18.00-18.20 Jason Phipps Morgan, Joerg Hasenclever, Chao Shi
Better Strategies for Finite Element Solutions of Variable Viscosity Stokes Flow

18.20-18.40 David A. Yuen, Grady B. Wright, David A. Sanchez, Gregory A. Barnett, Jr.
The Coming Role of GPU in Computational Geosciences

Tuesday 8 June

Session 6: Environmental systems and climate
Conveners: Daniel H. Rothman and Eli Tziperman

08.30-08.50 Timothy T. Creyts, Christian G. Schoof
Drainage of water through subglacial water sheets

08.50-09.20 Christian Schoof
Drainage network formation under glaciers (keynote)

09.20-09.40 Andrea D'Alpaos, Cristina Da Lio, Marco Marani
Equilibrium states and transient dynamics in tidal bio-geomorphic systems subject to climate change

09.40-10.00 Roberta Sciascia, Claudia Pasquero, Antonello Provenzale
Settling plankton settling

10.00-10.20 Coffee break

Session 6: Environmental systems and climate
Conveners: Daniel H. Rothman and Eli Tziperman

10.20-10.40 Aviv Solodoch, William Boos, Zhiming Kuang, Eli Tziperman
Excitation of slow MJO-like Kelvin waves in the equatorial atmosphere by Yanai wave-group via WISHE-induced convection

10.40-11.00 Daniel H. Rothman
Singular Blow-up in the End-Permian Carbon Cycle

Session 3: Geophysical fluid dynamics III Atmosphere and Ocean
Conveners: Claudia Pasquero and William R. Peltier

11.00-11.30 Geoffrey K Vallis
The maintenance of stratification in the ocean and atmosphere: from conveyor belts to geostrophic turbulence (keynote)

11.30-11.50 Paola Cessi, Christopher L Wolfe, Bonnie C Ludka
Eddy-balanced buoyancy gradients on boundaries and their role in the thermocline and the meridional overturning circulation

11.50-12.10 Joseph H. LaCasce, Pal E. Isachsen
The dynamics of the Antarctic Circumpolar Current

12.10-12.30 William R. Peltier, Stephen D. Griffiths
Internal waves in the atmosphere and oceans and explicit models of the internal tide

12.30-14.00 Lunch

Session 3: Geophysical fluid dynamics III Atmosphere and Ocean
Conveners: Claudia Pasquero and William R. Peltier

14.00-14.20 Pablo Zurita-Gotor, Geoffrey K Vallis
Circulation sensitivity to heating in a simple model of baroclinic turbulence

14.20-14.40 Hezi Gildor, Daniel F. Carlson, Erick Fredj, Vered Rom-Kedar
Deducing an upper bound to the horizontal eddy diffusivity using a stochastic Lagrangian model

Session 7: Quantifying the uncertainty in Earth systems
Conveners: William P. Aspinall and Gordon Woo

14.40-15.10 Wendy S Parker
Confirmation and Testing of Scientific Models, Revisited (keynote)

15.10-15.30 Robert E. Kopp, Frederik J. Simons
Assessing the history of global sea level from noisy and incomplete observations of local sea level

15.30-15.50 Laurent Ailleres, Mark Lindsay, Mark Jessell, Eric deKemp
Geological uncertainty: a mean to reduce potential field ambiguity?

15.50-16.10 Coffee break

16.10-18.50 **Poster session A**

18.00-18.30 CMG-IUGG Business Meeting (for CMG members and IUGG representatives)

Wednesday 9 June

08.30-19.00 Field excursion to the Alpi Apuane

Thursday 10 June

Session 7: Quantifying the uncertainty in Earth systems
Conveners: William P. Aspinall and Gordon Woo

08.30-08.50 E. Bruce Pitman, Abani K. Patra, Eliza Calder, M. J. Bayarri, James O. Berger, Keith Dalbey, Elaine Spiller, Robert Wolpert
Quantifying Input Uncertainty in Models of Volcanic Flows

08.50-09.10 Abani K Patra, Keith Dalbey, E. R. Stefanescu, E. B. Pitman, Eliza Calder, Marcus I Bursik, Michael F. Sheridan
Using Computer Models and Uncertainty Quantification to Construct Hazard Maps

09.10-09.30 Jacopo Selva, Warner Marzocchi, Paolo Papale, Lucia Civetta, Edoardo Del Pezzo, Laura Sandri
Community-based short-term eruption forecasting at Campi Flegrei

09.30-09.50 Franco Flandoli, Enrico Giorgi, William P. Aspinall, Augusto Neri
Comparing the performance of different expert elicitation models using a crossvalidation technique

Special session: Can our models only predict the irrelevant?
Conveners: Daniel H. Rothman and Augusto Neri

9.50-09.55 Daniel H. Rothman
A memory of Prof. Albert Tarantola

9.55-10.35 Orrin H. Pilkey, Linda Pilkey-Jarvis
Predictive Modeling of Processes on the Surface of the Earth Doesn't Work

10.35-10.55 Coffee break

Special session: Can our models only predict the irrelevant?
Conveners: Daniel H. Rothman and Augusto Neri

10.55-11.35 Warner Marzocchi
Forecasting large earthquakes and eruptions: is it a scientific issue?

11.35-12.15 Victor Brovkin
Limitations of global terrestrial biosphere models used for future climate projections

12.15-12.55 Roger M. Cooke
The Risk Management Perspective in Climate Change

12.55-14.15 Lunch

Special session: Can our models only predict the irrelevant?
Conveners: Daniel H. Rothman and Augusto Neri

14.15-14.55 Leonard A. Smith
Extracting Insight from Predictions of the Irrelevant: Can the Diversity in Our Models Inform Our Uncertainty of the Future?

14.55-15.40 Panel and floor discussion
Moderators: William R. Peltier and Gordon Woo

15.40-16.00 Coffee break

16.00-18.50 **Poster session B**

20.30 Social dinner

Friday 11 June

Session 1: Geophysical fluid dynamics I - Volcanoes
Conveners: Giovanni Macedonio and Michael Manga

08.30-08.50 Matteo Lupi, Sebastian Geiger, Thorvaldur Thordarson, Rebecca J. Carey, Bruce F. Houghton
Explaining the Plinian-phreatoplinian shift during the 1875 Askja volcano eruption by coupling geological and numerical techniques

08.50-09.10 Ittai Kurzon, Vladimir Lyakhovsky, Oded Navon, Bernard Chouet
Amplification of pressure waves in supersaturated bubbly magma

09.10-09.30 Fabio Dioguardi, Pierfrancesco Dellino, Salvatore De Lorenzo
1-D numerical simulation of the gas-particles flow in vertical conduits during large-scale experiments on the mechanics of explosive eruptions

09.30-10.00 Josef Dufek, Michael Manga
Flow transformation in explosive volcanic eruptions: Multiphase and multiscale interactions in pyroclastic density currents (keynote)

10.00-10.20 Gustavo Cordoba, Bruce Pitman, Michael F Sheridan
A two-phase, depth-averaged model for geophysical mass flows in the TITAN code framework

10.20-10.40 Coffee break

Session 1: Geophysical fluid dynamics I - Volcanoes
Conveners: Giovanni Macedonio and Michael Manga

10.40-11.00 Oleg E Melnik, Natalia V Gorokhova, Pavel Y Plechov, Jon Blundy, Alison Rust, Duncan Muir
Crystal growth in ascending magmas: from individual crystals to crystal populations

11.00-11.20 Antonio Costa, Oleg Melnik, Steve Sparks, Giovanni Macedonio, Joaquim Gottsmann
Nonlinear dynamics of magma flows in conduits

Session 5: Geodynamics and geomagnetism

Conveners: Matthias Holschneider and Mioara Mandea

11.20-11.50 Johannes Wicht
Towards Realistic Planetary Dynamo Simulations (keynote)

11.50-12.10 Abdolreza Ghods, Jafar Arkani-Hamed
Giant Impacts Control Mantle Dynamics and Cripple the Core Dynamos of Planets

12.10-12.30 Alexandre Fournier
Combining geomagnetic data with physical models of Earth's core dynamics: An introduction to data assimilation in geomagnetism

12.30-12.50 Annette Eicker
The determination of mass transport processes in the Earth's system from satellite gravity missions

12.50-14.20 Lunch

Session 5: Geodynamics and geomagnetism

Conveners: Matthias Holschneider and Mioara Mandea

14.20-14.40 Marco Cuffaro, Edie Miglio, Paolo Ruffo
Asymmetric Tectonics at Rift Zones: Geodynamics and Numerical Modeling

14.40-15.00 Isabelle Panet, Matthias Holschneider, Michel Diament, Yuki Kuroishi, Valentin Mikhailov
Multi-scale modeling and analysis of the Earth's gravity field using Poisson wavelets

15.00-15.20 Carmen Gaina, Stephanie Werner, Richard Saltus, Sergei Medvedev, CAMP-GM group
Structure and evolution of the Arctic in the light of new geophysical compilation and regional kinematics

Session 8: Data assimilation and model validation

Conveners: George Bergantz and Alik Ismail-Zadeh

15.20-15.50 Olivier Talagrand
Data Assimilation in Geophysics. An Update (keynote)

15.50-16.10 Laura M. Stewart, Sarah L. Dance, Nancy N. Nichols
Estimation and modelling of observation error correlations for numerical weather prediction

16.10-16.30 Alberto Carrassi, Stephane Vannitsem
Accounting for model error in data assimilation. A deterministic Formulation

16.30-16.50 Alain Caya, Mark Buehner, Tom Carrieres

Three-Dimensional Variational Data Assimilation in a coupled Ice-Ocean Model with Ensemble-Derived Background-Error Covariances

16.50-17.10 Coffee break

Session 8: Data assimilation and model validation
Conveners: George Bergantz and Alik Ismail-Zadeh

17.10-17.30 George W Bergantz, Alain Burgisser
Challenges in model validation of multiphase mixtures: scaling requirements for application to volcanic and magmatic systems

17.30-17.50 Tomaso Esposti Ongaro, Augusto Neri, Amanda B. Clarke, Jean-Francois Smekens, Barry Voight, Christina Widiwijayanty
Multiphase flow dynamics and damage zonation of the May 18, 1980 lateral blast of Mount St. Helens: comparison between 3D numerical simulations and field observations

17.50-18.10 Alik Ismail-Zadeh, Satoru Honda, Igor Tsepelev
Quantitative reconstruction of lithosphere subduction using assimilation of geophysical data

18.10 Conference closure

Poster session A

Tuesday 8 June 16.10-18.50

Session 2: Geophysical fluid dynamics II Sub-surface and surface flows
Conveners: Einat Aharonov and Daniel Schertzer

S2-02 Einat Aharonov, Regina Katsman, Leehee Laronne Ben-Itzhak
How do stylolite networks and stylolite-fracture networks form: insights from modeling

S2-03 Olivier Devauchelle, Alexander P Petroff, Daniel H. Rothman
Coupling groundwater to sediment transport in ravines

S2-04 Roberto M. R. Di Martino, Marco Camarda, Sergio Gurrieri, Mariano Valenza
Modelling the chemical composition transients in volcanic soil gases to evaluate the source depth of the gas reservoir

S2-05 Luis Guarracino, Jesús Carrera Ramírez
Hydraulic and mechanical effects on tide-induced head fluctuation in coastal aquifer systems

S2-06 Ilaria Isola, Francesco Mazzarini
Model for local fluid circulation in the upper brittle crust: insights from veins' thickness distribution

S2-07 Ilaria Isola, Francesco Mazzarini, Giancarlo Molli
Structural analysis of a percolating fracture network in karst systems: the Antro del Corchia Cave, Alpi Apuane, Italy

S2-08 Ioan R. Ionescu, Oana Cazacu
Onset and dynamic shallow flow of a viscoplastic fluid. Applications to dense avalanches

S2-09 Matteo Lupi, Sebastian Geiger, Colin Graham
Fluid-induced seismicity in volcanic and hydrothermal systems: numerical studies of the Tjörnes Fracture Zone, Iceland

S2-10 Alexander P Petroff, Olivier Devauchelle, Daniel H. Rothman
The bifurcation of channel heads cut by springs

Session 3: Geophysical fluid dynamics III Atmosphere and Ocean

Conveners: Claudia Pasquero and William R. Peltier

S3-01 Yosef Ashkenazy, Nathan Paldor, Yair Zarmi
On the meridional structure of extra-tropical Rossby waves

S3-02 Yosef Ashkenazy, Ian Eisenman, Hezi Gildor, Eli Tziperman
The effect of Milankovitch variations in insolation on equatorial seasonality

S3-03 Yuley Cardona, Annalisa Bracco
Mesoscale variability, high frequency winds and their impact on the vertical velocity fields of the South China Sea

S3-04 Silvia De Monte, Antonello Provenzale, Roberta Sciascia
Plankton settling and survival

S3-05 Domenico M. Doronzo, Pierfrancesco Dellino
Fluid dynamics of volcaniclastic turbidity currents

S3-06 Eyal Heifetz, Avinoam Rabinovich, Nili Harnik, Orkan M Umurhan, François Lott
Gravity wave instability in terms of vorticity inversion and action-at-a-distance

S3-07 Vladimir A. Gusev, Aleksey L. Sobissevitch
Propagation of wideband and shock waves induced by seismic activity in the stratified atmosphere

S3-08 Claudia Pasquero, Eli Tziperman
Statistical parameterization of heterogeneous oceanic convection

Session 4: Brittle deformation and computational seismology

Conveners: Yehoda Ben-Zion and Massimo Cocco

S4-01 Mohammad R. Asef, Mohsen Farrokhrouz, Hamed Haghi
Evaluation of P-wave and S-wave Correlations

S4-02 Rafael A. Benites, Yehuda Ben-Zion
Seismic wavefield generated by shear dislocations in a structure with a bimaterial interface and near-by cracks

S4-03 Angelo De Santis, Gianfranco Cianchini, Enkelejda Qamili, Alberto Frepoli
The 2009 L'Aquila (Central Italy) seismic sequence as a chaotic process and implications for main shock predictability

S4-04 Mohsen Farrokhrouz, Mohammad R. Asef
Effects of Confinement on Rock Velocity Relations for different Rock Types

S4-05 Yariv Hamiel, Vladimir Lyakhovsky, Yehuda Ben-Zion
Nonlinear deformation and the elastic energy of damaged rocks

S4-06 Gregor Hillers, Yehuda Ben-Zion
Seasonal variations in observed noise amplitudes above 1 Hz in southern California

S4-07 Bulent Kaypak, Gozde Venedik
Three-Dimensional Seismic Velocity Structure in The Denizli Geothermal Region, Western Turkiye

S4-08 Ignace Loris, Frederik J. Simons, Sergey Voronin, Ingrid C. Daubechies, Guust Nolet, Stephen J. Judd, Massimo Fornasier, Phillip A. Vetter
A new approach to global seismic tomography that promotes sparsity with a new three-dimensional wavelet transform in spherical geometry

S4-09 Karen Mair, Espen Jettestuen, Steffen Abe
Characterising contact force networks in 3D sheared granular fault gouge

S4-10 Warner Marzocchi
Some physical insights on earthquake statistics derived from a physics-based earthquake seismicity simulator

S4-11 Mark Naylor, Sarah Touati, Greenhough John, Ian G Main, Andrew Bell
Interpretation of statistical signals in earthquake data

S4-12 Danila Scandura, Gilda Currenti Currenti, Alessandro Bonaccorso, Agnese Di Stefano, Ciro Del Negro
Finite-Element modeling of static stress changes induced by recharging and intrusive phases at Etna volcano

S4-13 Ylona van Dinther, Taras V. Gerya, Luis A. Dalguer, Martin Mai, Gabriele Morra
The long-term seismic cycle within geodynamic numerical simulations of a subduction zone

S4-14 Melissa Vassalli, Gareth S O'Brien, Chris J Bean, Ivan Lokmer, Gilberto Saccorotti
Importance of structural and rheological complexity on ground deformation inversion: a numerical study

S4-15 Dion K Weatherley
On the role of boundary conditions in particle-based numerical simulations of brittle failure

S4-16 Ilya Zaliapin, Yehuda Ben-Zion
Seismic clustering and regional physical properties: A statistical analysis

Session 6: Environmental systems and climate

Conveners: Daniel H. Rothman and Eli Tziperman

S6-01 Baerbel Langmann, Michaela Werning, Matthias Hort
Regional numerical modelling of volcanic ash atmospheric dispersion and deposition after the eruptions of Mt. Pinatubo and Kasatochi

S6-02 Lauren Padilla, Geoffrey K Vallis
Joint effects of natural variability and forcing uncertainty on observational estimates of climate sensitivity

S6-03 Yuri N. Skiba, David Parra-Guevara
Pollution level assessment and control of emission rates

Session 9: Computational geophysics: Modern algorithm and applications

Conveners: Marc Spiegelman and David A. Yuen

S9-01 Alexandr M. Bobrov, Alexey A. Baranov
The role of variable viscosity in the modeling of global stress fields in the Earth's mantle and in floating continents

S9-02 Philipp L. Bykov, Vladimir A. Gordin
The Analysis of Three-Dimensional Geometry of Atmospheric Fronts

S9-03 Gaetana Ganci, Annamaria Vicari, Sergio Bonfiglio, Ciro Del Negro
Hotsat volcano early warning system based on a combined use of SEVIRI and MODIS multispectral data

S9-04 Victor Isakov
Some Numerical Methods for Gravimetric Prospecting

S9-05 Elena M. Mazurova
Computation of Height Anomaly through the Fast Wavelet Transform

S9-06 Gabriele Morra, David A. Yuen
Pulsations of a plume rising through a non-monothonic mantle

S9-07 Henri Samuel, Martha Evonuk
Fast and Accurate Modeling of Advection in Geophysical Flows with Dynamic Implicit Surfaces

S9-08 Anna Scotti, R. Galimberti, P. Ruffo
Darcy based models for oil generation and expulsion from source rock.

S9-09 Frederik J. Simons
Slepian functions and their use in geophysical signal estimation and spectral analysis

S9-10 Nicola Tosi, David A. Yuen, Ondrej Cadek
Dynamical consequences in the lower mantle with the post-perovskite phase change and strongly depth-dependent thermodynamic and transport properties

Poster session B

Thursday 10 June 16.00-18.50

Session 1: Geophysical fluid dynamics I - Volcanoes

Conveners: Giovanni Macedonio and Michael Manga

S1-01 Marina Bisson, Roberto Sulpizio, Giovanni Zanchetta, Federica Demi, Roberto Santacroce
Assessment of collapsing colluvial cover volume as crucial input for volcaniclastic flow modelling in the Circumvesuvian area

S1-02 Antonio Costa, Giovanni Macedonio, Arnau Folch, Adam Durant
A model for ash aggregation in volcanic plumes

S1-03 Domenico M. Doronzo, Pierfrancesco Dellino, Marco D. de Tullio, Giuseppe Pascazio
Immersed boundary simulation of pyroclastic density currents: numerical scheme and experimental validation

S1-04 Ittai Kurzon, Vladimir Lyakhovsky, Oded Navon
Visco-elastic magma - Fragmentation criteria revisited

S1-05 Einat Lev
Extracting lava velocity and rheology from computer-vision analysis lava flow videos

S1-06 Antonella Longo, Paolo Papale, Andrea Cassioli, Gilberto Saccorotti, Michele Barsanti, Chiara P. Montagna, Melissa Vassalli, Salvatore Giudice
GALES: a consistent finite element numerical library for the simulation of underground magma dynamics

S1-07 Ornit Maimon, Vladimir Lyakhovsky, Oleg Melnik, Oded Navon
Factors controlling propagation of a dyke filled with gas-saturated magma

S1-08 Michael Manga, Josef Dufek
In-situ production of ash and clast breakup in pyroclastic density currents: model results and a preliminary field validation

S1-09 Margherita Polacci
Implications of rock texture characterization on the modelling of volcanic processes

S1-10 Annamaria Vicari, Giuseppe Bilotta, Sergio Bonfiglio, Annalisa Cappello, Gaetana Ganci, Alexis Herault, Eugenio Rustico, Ciro Del Negro
GPU-based models to perform numerical simulations of lava-flow dynamics

S1-11 Mattia de' Michieli Vitturi, Amanda B. Clarke, Augusto Neri, Barry Voight
Modelling extrusion cycles of dome-forming eruptions

Session 2: Geophysical fluid dynamics II Sub-surface and surface flows

Conveners: Einat Aharonov and Daniel Schertzer

S2-11 Luca Valentini
Numerical Study of the role of Korteweg Stress in Magma Dynamics

Session 5: Geodynamics and geomagnetism

Conveners: Matthias Holschneider and Mioara Mandea

S5-01 Stoyan N. Avdev, Christian V. Tzankov
Presenting of Earth's gravity field with optimized models of point masses

S5-02 Badia Z. Chulli , Hakim Gabtni
Using gravity and geothermal gradients data to determine the crustal configuration and associated oil and gas accumulations in the Sahel Basin (Eastern Tunisia)

S5-03 Martha Evonuk
Differential flow in planets prior to core formation

S5-04 Nicolas Gillet, Nathanael Schaeffer, Dominique Jault
Rationale and geophysical evidence for quasi-geostrophic rapid dynamics within the Earth's outer core

S5-05 Michael Hayn, Isabelle Panet, Matthias Holschneider, Michel Diament
Multiscale Feature Extraction of Potential Fields Using Poisson Wavelets

S5-06 Omar F. Lopes, Jeferson de Souza
A Super Volcano in Southern Brazil

S5-07 Anne Geese, Mioara Mandea, Vincent Lesur
SAMS - the South African Magnetic model made of Splines

S5-08 Gabriele Morra, Maria Seton, Dietmar Muller
Hierarchical self-organisation of tectonic plates

S5-09 Sofia C. Olhede, Frederik J. Simons
How to measure the strength of the lithosphere without using the admittance or coherence between gravity and topography

S5-10 Maria A. Pais, Nathanael Schaeffer
Extending the Quasi-Geostrophic flow model for core flow inversions.

S5-11 Natalia Ptitsyna, Anatoly Levitin , Lidia Dremukhina , Ludmila Gromova
Modeling external magnetic field dynamics during extreme events

S5-12 Enkelejda Qamili, Angelo De Santis, Gianfranco Cianchini
Shannon information of the geomagnetic field for the past 7000 years and implications on the present field understanding

S5-13 Reyko Schachtschneider, Michael Hayn, Matthias Holschneider
Anisotropy of the geomagnetic field detected with directional Poisson wavelets on the sphere

Session 7: Quantifying the uncertainty in Earth systems

Conveners: William P. Aspinall and Gordon Woo

S7-01 William P. Aspinall
Evaluating uncertainty and probabilistic forecast skill in volcanic hazard and risk assessments

S7-02 Sara Barsotti, Mauro Coltelli, Antonio Costa, Arnau Folch, Giovanni Macedonio, Luca Nannipieri, Augusto Neri, Michele Prestifilippo, Simona Scollo, Gaetano :Spata, Enzo :Boschi
Investigating the model-dependent uncertainty of volcanic ash dispersal forecasts

S7-03 Richard A Brazier, KB Boomer
Empirically based seismic location criteria for simple to complex geological structures: A jacknife approach for local/regional networks

S7-04 Richard Brazier, KB Boomer
Stochastic velocity Modeling of the Kaapvaal Craton beneath the BASO station.

S7-06 Mark Naylor, Simon M Mudd, Kyungsoo Yoo
Markov Chain Monte Carlo (MCMC) Inversion of Hillslope Elevation and Soil Thickness Data for the Baselevel History

S7-07 Augusto Neri, Daniele Andronico, William P. Aspinall, Peter J. Baxter, Antonella Bertagnini, Raffaello Cioni, Tomaso Esposti Ongaro, Franco Flandoli, Enrico Giorgi, Giovanni Macedonio, Maurizio Mulas, Paolo Papale, Marco Pistolesi, Mauro Rosi, Micol Todesco
Assessing pyroclastic density current hazard from sub-Plinian eruptions at Vesuvius (Italy) and associated uncertainties

S7-08 Enrico Peruzzo, Michele Barsanti, Franco Flandoli, Paolo Papale
The stochastic quantization method and its application to the numerical simulation of volcanic conduit dynamics under random conditions

S7-09 Simone Tarquini, Massimiliano Favalli, Alessandro Fornaciai
DEM-due uncertainties in gravity-driven mass movements on Earth surface

S7-10 Marta Tyasto, Olga Danilova, Natalia Ptitsyna, Valery Sdobnov, Giorgio Villoresi
Evaluation the uncertainty of the Earth's Magnetospheric Magnetic Field Models

Session 8: Data assimilation and model validation

Conveners: George Bergantz and Alik Ismail-Zadeh

S8-01 Dario Albarello, Vera D'Amico, Marco Mucciarelli
Empirical Testing of Probabilistic Seismic Hazard Estimates

S8-02 Svetlana Dubinkina, Hugues Goosse, Elisabeth Crespin, Yoan Sallaz-Damaz
Data assimilation using a particle filter in twin and real data experiments with a coupled climate model.

S8-03 Sarah E Gelman, George W Bergantz, Olivier Bachmann
Quantifying the role of individual sources of error and uncertainty in model validation: A case study in conductive heat transfer

S8-04 Stephen A Haben, Amos S Lawless, Nancy K Nichols
Conditioning of the Variational Data Assimilation problem

S8-05 Ibrahim Hoteit, Xiaodong Luo, Dinh-Tuan Pham, Irene Moroz
Particle Kalman Filtering: A nonlinear framework for Ensemble Kalman Filters

S8-06 Xiaodong Luon, Ibrahim Hoteit
Ensemble Local H-infinity filter for data assimilation

S8-08 Johannes Rückelt, Thomas Slawig
Sensitivity analysis and parameter estimation for a marine biogeochemical model.

S8-09 Hamid Shabanzadeh, Ghader Bagheri, Mahmoud Ghasemi, Mahammah Nekoofar
Investigation of the results of seismography to determine shear wave velocity and soil shear strength parameters

S8-10 Zbyněk Sokol, Petr Zacharov
Assimilation of extrapolated radar reflectivity into a NWP model and its impact on forecasts of convective precipitation

S8-11 Hajoon Song, Ibrahim Hoteit, Bruce D Cornuelle, Aneesh C Subramanian
An Adaptive Approach to Mitigate Background Covariance Limitations in the Ensemble Kalman Filter

S8-12 Andrea Storto, Simona Masina, Srdjan Dobricic, Pierluigi Di Pietro
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