
Sunday, June 4, 2006

(Sunday sessions will take place in Ma'agan Holiday Village)

10:00-12:00 **Registration and Distribution of Conference Material**
12:00-13:00 Light Lunch
13:00-13:15 Opening Remarks **Hall 6**

Kinneret Mini-Session:

Convener: Zvi Garfunkel

13:15-13:35 **Z Ben-Avraham**, The structure of the Sea of Galilee from geophysical data
13:35-14:05 **J. Claerbout, (INVITED)** Estimating an image of Galilee

14:05-14:15 **Short Break**

Deformation, Faults, Earthquakes and Waves

Convener: Y. Ben-Zion

14:15-14:20 Introduction
14:20-14:50 **J. Fineberg, (INVITED)** Detachment waves and the onset of frictional slip
14:50-15:20 **P.M. Mai, G. Hillers, J. Ripperger, J.P. Ampuero, (INVITED)** Source-scaling and near-source ground-motion in the presence of earthquake rupture complexity
15:20-15:40 **V. Lyakhovsky** and Y. Ben-Zion, Modeling of Fault Evolution, Seismicity Patterns and Strain Partitioning
15:40-16:10 **Coffee Break**
16:10-16:30 **C. Scholz**, Earthquake "Storms": Triggering and Phase Locking
16:30-16:50 **J.P. Ampuero**, Rupture nucleation, propagation and arrest along bimaterial faults
16:50-17:10 **M. Holschneider**, Modeling of surface wave dispersion and polarization in wavelet domain
17:10-17:30 **S.A. Miller**, Omori's law and fluid-driven aftershocks: a non-linear diffusion process
17:30-17:50 **G.J Funning**, R. Burgmann, A. Ferretti and F. Novali, How locked is the Hayward fault? Evidence from space geodesy
17:50-18:10 **G. King**, Seismic activity in the Sumatra-java region prior to the December 26, 2004 (Mw=9.0-9.3) and march 28, 2005 (Mw=8.7) earthquakes
18:10-18:30 **K. Regenauer-Lieb** and D. Yuen, Thermo-mechanics of brittle-ductile feedback: implications for plate tectonics and earthquakes
19:00 **Welcome BBQ Dinner + ice-breaker** **Ma'agan Pool**

(Monday-Thursday sessions will take place in Beit Gabriel)

Monday, June 5, 2006

Session in Honor of V. Keilis-Borok-Mathematical Aspects of Geohazard

Research Convener: A. Ismail-Zadeh

Theatre Hall

- 08:30-08:50 Introduction + speeches
08:50-09:20 **V. Keilis-Borok** and A. Soloviev, (INVITED)
Earthquakes prediction: “the paradox of want amidst plenty”
09:20-09:50 **B. D. Malamud**, D. L. Turcotte, F. Guzzetti, P. Reichenbach, (INVITED)
Landslides, earthquakes and erosion
09:50-10:10 **A. Nur**, J. Dvorkin and L. Soutter, A different view on earthquake instability,
stopping and migration.
10:10-10:30 **Zvelebil J.** and M. Paluš. Some applications of nonlinear dynamics in rock
fall risk assessment and early warnings

10:30 -11:00 **Coffee Break**

11:00-11:30 **M. Ghil**, (INVITED) Coupling in earth systems: solids, fluids and
economics
11:30-11:50 **V. K. Gusiakov**, An integrated tsunami research and information system:
application for mapping of tsunami hazard
11:50-12:10 **S. V. Sobolev**, A. Y. Babeyko and R. Galas, GPS-shield concept for a local
tsunami early warning system
12:10-12:30 **L. Eppelbaum**, B. Khesin and S. Itkis. Modern geophysical methodologies
as reliable tool for reducing risk of archaeological heritage destruction

12:30-14:45 **Lunch + Poster Session**

Earth System Feedbacks

Convener: H. Gildor

- 14:45-14:50 Introduction
14:50-15:20 **D.H. Rothman** and D. Forney, (INVITED) Temporal scaling of respiration
in earth’s carbon cycle
15:20-15:50 **C. Pasquero**, (INVITED) Diapycnal and isopycnal transport of biochemical
tracers in the marine ecosystems
15:50-16:20 **R. Murtugudde**, (INVITED) Biological controls on the annual cycle and
ENSO phase-locking

16:20-16:50 **Coffee Break**

16:50-17:10 **A.B. Murray** and M. Kirwan, Vegetation-morphology feedbacks in tidal-
channel and marsh systems: numerical modeling of long-term evolution
17:10-17:30 **F. de Ridder**, A. de Brauwere, D. Paillard, R. Pintelon and F. Dehairs,
Identification of the time base of ice volume record
17:30-17:50 **M. Abelson**, A. Agnon, A. Almogi-Labin, Control of the Iceland plume
on global Oligocene cooling and Antarctic glaciation

Monday, June 5, 2006 – cont.

- 17:50-18:10 **I.M. Radjawane**, A. Susandi and A. Subki, Preliminary study on calculation and prediction of the sea-air CO₂ exchange in Indonesian waters
- 18:10-18:30 **J. Emile-Geay**, R. Seager, M.A. Cane, E.R. Cook and G. Haug, The volcanic eruption of 1258 a.d. and the subsequent ENSO event
- 19:00 **Dinner** **Ma'agan Dining room**

Tuesday, June 6, 2006

Frontiers in Computational and Analytical Techniques **Theatre Hall**
Conveners: M. Spiegelman, D. Yuen and E. Heifetz

- 08:30-08:35 Introduction
- 08:35-09:15 **D.G. Dritschel** and C.V. Tran, **(INVITED)** Vanishing enstrophy dissipation in two-dimensional Navier-Stokes turbulence in the inviscid limit
- 09:15-09:35 **N. Paldor**, Some unexpected consequences of the "rigid lid" approximation
- 09:35-09:55 **M. Orkan Umurhan** A weakly nonlinear analysis of the magnetorotational instability
- 09:55-10:15 **F. Malan**, A. Ilchev, and R. Sewjee, Material point method modeling with damage rheology
- 10:15-10:35 **R.E. Cohen** and X. Sha, Theory of iron at high pressure and temperatures.
- 10:35-11:10 **Coffee Break**
- 11:10-11:50 **L. Moresi**, D. May, V. Lemiale, S. Quenette and H. Muhlhaus, **(INVITED)** Plate scale geodynamics - an overview of the computational challenges
- 11:50-12:10 **S. Quenette**, B. Appelbe, P. Sunter, L. Hodkinson, A. Lo, R. Hassan, K. Humble and L. Moresi, A roles-based approach to enabling multi-scale, multi-physics computational geophysics codes
- 12:10-12:30 **D. Kosloff**, H. Tal-Ezer, A. Bartana, E. Ragoza and A. Shabelansky, A new scheme for solving the Helmholtz equation by stepping in the depth domain
- 12:30-12:50 **C. Tape**, Q. Liu and J. Tromp, Toward 3d seismic tomography based upon adjoint methods
- 12:50-13:10 **V.P. Dimri**, R.P. Srivastava and N. Vedanti, Optimum design of potential field survey network using fractals
- 13:30 **Half-Day Tour (including dinner)**

Wednesday, June 7, 2006

Coupled Fluids-Solid Systems

Theatre Hall

Convener: D. Bercovici

- 08:30-08:35 Introduction
- 08:35-09:15 **T. Halsey, (INVITED)** Diagenesis of Sedimentary Rocks
- 09:15-09:35 **R. Katsman**, E. Aharonov, and H. Scher, Localized compaction in rocks: numerical and analytical approaches
- 09:35-09:55 **R. Toussaint**, D. Koehn, J. Schmittbuhl, F. Renard, and J.P. Gratier, Modeling stylolite formation: control of the quenched disorder, elastic forces and surface tension over the morphology
- 09:55-10:15 **E. Shalev**, V. Lyakhovskiy, and Y. Yechieli, Salt dissolution and sinkhole formation along the Dead Sea shore
- 10:15-10:35 **H. Scher** and B. Berkowitz. Anomalous transport in geological formations: theory and observations
- 10:35-11:10 **Coffee Break**
- 11:10-11:50 **A. Rempel, (INVITED)** The mechanics of melting
- 11:50-12:10 **S. Emmanuel** and B. Berkowitz, modeling seafloor hydrothermal convection: incorporating effects of geochemical reactions and phase separation
- 12:10-12:30 **A.E. Lobkovsky**, B. Smith, A. Kudrolli, D.C. Mohrig, and D.H. Rothman Erosive dynamics of channels incised by subsurface water flow
- 12:30-12:50 **E.G. Flekkoy**, Pattern formation in gas-grain systems
- 12:50-15:15 **Lunch + Poster Session**

Fire in Rocks

Convener: O. Navon

- 15:15-15:20 Introduction
- 15:20-16:00 **O. Melnik**, A. Barmin and S. Sparks, **(INVITED)** Application of fluid mechanics to modelling of volcanic flows
- 16:00-16:20 **N.G. Lensky**, R.W. Niebo, J.R. Holloway, V. Lyakhovskiy, and O. Navon, Bubble nucleation as a trigger for xenolith entrapment in mantle melts
- 16:20-16:40 **A. Costa**, O. Melnik, R.S.J. Sparks, A model for magma flow in dykes on cyclic lava dome extrusion
- 16:40-17:10 **Coffee Break**
- 17:10-17:30 **S. Vergnolle** and J. Caplan-Auerbach, Foam disruption as the origin of the subplinian basaltic plume at Shishaldin volcano (Alaska)
- 17:30-17:50 **S. Barsotti** and A. Neri, Modeling atmospheric effects of plume dynamics and ash dispersal from explosive eruption
- 17:50-18:10 **A. Folch**, A. Costa, G. Macedonio, A coupled model for volcanic ash fallout
- 18:10-18:30 **A.J. Hale** and H. Mühlhaus, Computationally modelling lava morphology in effusive volcanic eruptions
- 19:00 **Farewell Dinner**

Thursday, June 8, 2006

Morning: Check-out

Convection in Solids and Fluids **Conveners: D. Yuen and P. Fox**

Theatre Hall

09:00-09:05 Introduction

09:05-09:45 **P.J. Tackley**, T. Nakagawa and S. Xie, **(INVITED)** Coupled models of mantle convection, plate tectonics, core evolution, magmatism and mantle geochemical evolution, including phase changes and other complicating stuff

09:45-10:25 **J.A. Whitehead**, **(INVITED)** The formation of continents by mantle convection - cellular convection with a surface layer

10:25-10:45 **J. Zhang** and J.Q. Zhong, Experimental attempts to simulate continental drift

10:45-11:10 **Coffee Break**

11:10-11:30 **Y. Ashkenazy** and E. Tziperman, Thermohaline circulation hysteresis as a function of wind-stress amplitude

11:30-11:50 **L. Malki-Epshtein**, H.E. Huppert and O.M. Phillips, Double-diffusive intrusions in salt-water: growth, structure and internal waves

11:50-12:10 **I. Gavrieli**, Modeling seawater mixing in the Dead Sea in light of the planned "peace conduit"

12:10-12:30 **Y. Kaspi** and G.R. Flierl, Formation of multiple zonal jets by baroclinic instability on gas planet atmospheres

12:30-13:40 **Light Lunch**

Time Series Analysis

Conveners: Y. Ashkenazy and Y. Kushnir

13:40-13:45 Introduction

13:45-14:15 **U. Lall**, R. Samuels, S. Westra, H.H. Kwon and A. Khalil, **(INVITED)** Multivariate nonlinear state space reconstruction: identification and functional estimation

14:15-14:45 **A. Kaplan**, M.A. Cane and Y. Kushnir, **(INVITED)** Scale separation, uncertainty, and ensembles in objective analyses of climate fields

14:45-15:15 **J.W. Kantelhardt**, J.F. Eichner, A. Bunde, and S. Havlin, **(INVITED)** Return intervals and extreme value statistics in long-term correlated data

15:15-15:40 **Coffee Break**

15:40-16:00 **T. Kalisky**, Y. Ashkenazy and S. Havlin, Volatility of linear and non-linear time series

16:00-16:20 **A. Kritski**, A. Vincent, D. Yuen, T. Carlsen, Adaptive data driven wavelets for multiscale time series

16:20 **Goodbye and Departure**

Poster Session A – Monday, June 5, 2006

Deformation, Faults, Earthquakes and Waves: Y. Ben-Zion

- Baer G., G. Funning, T. Wright, and G. Shamir. The November 22, 1995, M=7.2 Gulf of Eilat (Aqaba) earthquake cycle revisited: INSAR measurements and mechanical modeling
- Bailey I., T. Becker and Y. Ben-Zion. Characterization of coseismic strain patterns inferred from ~180,000 focal mechanisms in Southern California
- Ben-Zion Y., Z. Peng, M. Lewis and J. McGuire. High resolution imaging of fault zone structures with seismic fault zone waves
- Dolmaz M.N., E. Oksum and A. Etiz. Tectonic interpretation of Burdur-Isparta area, SW Anatolia, based on gravity and aeromagnetic data
- Dor O., M. Sisk, Y. Ben-Zion, T.K. Rockwell and G. Girty. Pulverized rocks in the San Andreas fault zone
- Dor O., Y. Ben-Zion, T.K. Rockwell and J. Brune. Geologic observations of asymmetric rock damage across large faults: implications for rupture along biomaterial interface
- Durgaryan R. The quantitative assessment of Spitak earthquake aftershock distribution
- Finzi Y., V. Lyakhovskiy, Y. Ben-Zion, E.H. Hearn. Evolution of strike-slip fault systems and strain distribution in a 3-D model with brittle crust governed by damage rheology.
- Kohen-Kadosh S.Z.L. and K.F. Tiampo. Accelerating moment release preceding the 2002 AU Sable Forks, NY, Mw 5.0 earthquake
- Oksum E., M.N. Dolmaz and I. Aydin. Quantitative interpretation of aeromagnetic anomalies of southern Lake Van, Eastern Anatolia
- Oth A., F. Wenzel, H. Wust-Bloch, E. Gottschämmer and Z. Ben-Avraham. 3-D modeling of elastic wave propagation in the Dead sea area
- Petrinin A. and S.V. Sobolev. Thermomechanical model of a pull-apart basin
- Popov A.A. and S.V. Sobolev. Efficient computational formulation of elastoviscoplasticity for 3d modeling of strain localization in lithosphere
- Rubinstein S.M., G. Cohen and J. Fineberg. The dynamics of static friction
- Sobolev S.V., M. Weber, H.-J. Götze and GEO-DESIRE Team. Geo-desire – a new interdisciplinary project to study origin, structure and dynamics of the Dead Sea pull-apart basin
- Uyar O. and O. Uyanik. Evaluating comparative liquefaction resistance depending on shear wave velocity and a simplified procedure and mapping of a liquefaction-prone area (Inegol, Turkey)
- Wechsler N., Y. Ben-Zion and S. Christofferson. Quantifying heterogeneities in the surface traces of strike-slip faults

Earth System Feedbacks: H. Gildor

- Ashkenazy Y. and H. Gildor. Maximum equatorial insolation and the 100 kyr time scale of glacial cycles
- Paz S. and Y.M. Tourre. The north-Africa/west Asia (Nawa) sea level pressure index and linkages with north hemispheric dynamics
- Rimmer A., W. Eckert, A. Nishri and Y. Agnon. Evaluating hypolimnetic diffusion parameters in thermally stratified lakes
- Shepon Alon and Gildor Hezi, The Lightning-Biota Climatic Feedback
- Yizhaq H., Y. Ashkenazy and H. Tsoar. Simple model for the hysteresis of sand dunes mobility

Mathematical Aspects of Geohazard Research: A. Ismail-Zadeh

Chaudhari L. P., A. G. Bhole, A. Yewale, N. K. Choudhary, S. P. Yavalkar, M. D.

Shivankar. Planning for tsunami and natural disaster mitigation - issues on ecological and social risk: lessons from South Asian tsunami and extreme climate changes along Indian coast

Ismail-Zadeh A., J.-L. Le Mouél, A. Soloviev, P. Tapponnier, I. Vorovieva. Crustal block and-fault dynamics and earthquake modeling in the Tibet plateau and Himalayans

Kostyanev S. and E. Atanasova. On an inverse problem in land subsidence

Kontar E.A. and Y.R. Ozorovich. Development of a new method of geophysical survey of saltwater-freshwater interface in the coastal zone

Malamud B. D., J. D. A. Millington, G. L. W. Perry. Risk, ecosystems & robust power-law scaling of wildfires

Morin E. Utilization of meteorological radar rainfall information for flash-flood prediction in arid and semi-arid regions

Witt A. and B. D. Malamud. Performance tests for techniques that measure long-range persistence

Poster Session B – Wednesday, June 7, 2006

Frontiers in Computational and Analytical Techniques:

M. Spiegelman, D. Yuen and E. Heifetz

Asaf Z., D. Rubinstein and I. Shmulevich. Determination of discrete element model parameters for simulation of soil–implement interaction

Brandt A., V. Ilyin, N. Makedonska The 3-D multilevel simulation of perovskite-like crystal

Franco Y., I. Shmulevich and D. Rubinstein. The effect of interlocking among soil particles on the discrete element model parameters of cohesionless soil

Gurnis M A , Luis Armendariz, Walter Landry and Leif Strang, Matt Knepely,

Spiegelman M. Computational Infrastructure for Geodynamics (CIG)

Huettig C. Dual mesh finite volume method for irregular 3d voronoi grids

Ismail-Zadeh A., A. Korotkii, I. Tsepelev, and G. Schubert. Techniques for data assimilation in models of mantle dynamics.

Kalyoncuoğlu Ü.Y. and M.F. Özer. Inversion of receiver functions for crustal structure beneath the Isparta angle

Koren Z. and D. Cohen. Anisotropy common reflection angle migration.

Malytskyy D., R. Pak and O. Mujl. Using the recurrent method for seismology problems

Morra G., P. Chatelain, P. Tackley and P. Koumoutzakos. Global scale lithosphere-mantle dynamics through boundary and finite element coupling

Ravve I. and Z. Koren. Asymptotically bounded velocity models: ray theory

Rudolph M., T. Gerya and D. Yuen. Computation and visualization of a 2-D mantle convection simulation using 10^{10} markers

Sewjee R. and A. Ilchev. On the elastic stability of the Lyakovsky-Myasnikov model.

Tackley P.J. and T. Gerya Global scale to meter scale simulations using finite difference/volume discretization and multigrid solvers.

Vanadit-Ellis W. U.S. Army centrifuge: critical capability for the future.

Yuen D.A., P. Topa and W. Dzwiniel. A new multiscale model of river systems and its verification by using complex network features

Coupled Fluids-Solid Systems: D. Bercovici

Aharonov E., R. Katsman. Modelling Stylolite Formation

Eldad L., M. Goldman and H. Gvirtzman. Detection the saline/brackish/fresh groundwater interfaces beneath the Judean desert using deep TDEM

Guarracino L. and L. Monachesi. Numerical simulation of constitutive relations for unsaturated flow in fractured porous media

Goren L. and E. Aharonov. Shear heating as a mechanism for long run out landslides

Rimmer A. Modeling recession curve of karstic springs—parallel or serial reservoirs?

Rimmer A., Y. Salinger. Modelling precipitation-streamflow processes in large karst basin.

Walsh R., O. Kolditz, C. McDermott. Modeling stress-permeability coupling in fractures: a finite element approach with realistic discrete fractures

Fire in Rocks: O. Navon

Hicks P.D., A.J. Matthews and M.J. Cooker. Triggering mechanisms for rain all-induced lava dome collapses

Ito G., M. Behn and E. Mittelstaedt. Magmatic intrusion and lithospheric dynamics at mid-ocean ridges

Kurzon I., V. Lyakhovsky, N.G. Lensky and O. Navon. Wave propagation in saturated and supersaturated bubbly magma

Convection in Solids and Fluids: D. Yuen and P. Fox

Amit H., J. Aubert, G. Hulot and P. Olson. Mantle-driven thermal wind at the top of the core

Kameyama M. and D.A. Yuen. 3-D convection studies on the thermal state in the lower mantle with post-perovskite phase transition

Shilo E., Y. Ashkenazy, A. Rimmer, S. Assouline, and Y. Mahrer. Winter currents in Lake Kinneret

Stemmer K., H. Harder and U. Hansen. Thermal convection in a 3-D spherical shell with strongly variable viscosity: application to the earth's mantle

Van den Berg A.P., M.D. Christiansen and D.A. Yuen. Mantle dynamics under super-earth conditions

Time Series Analysis: Y. Ashkenazy and Y. Kushnir

Adit A. and E. Morin. Multi time-scale characterization of rainfall and runoff responses using wavelet analysis

Ilani R. and D. Bar. The developing vertical velocity in the sea of galilee basin during hot summer mornings a theoretical approach

Lissauer M., Ben-Gal Irad, Gildor Hezi, On the analysis of geophysical time series by variable order Markov models

Samuels R. and U. Lall. Predictor screening for non-linear and/or non-Gaussian time series models

Witt A., H. Oberhaensli and A.Y. Schumann. Millennial scale variability of atmospheric dust loading over the Holocene