

CIG-Magma Workshop Schedule

Friday 18 August *What's important and what can we do today...*

Discussion Leaders & presenters

8:00-8:45 am	Registration, Coffee and Snacks: 200 Mudd building APAM	
8:45-9:00 am	Introduction and Meeting Logistics: Rm 633 Mudd	Marc Spiegelman & Laurent Montesi
9:00-10:30 am	Discussion Session #1: Fundamental Science Questions and Observations in magma-dynamics Example Topics/Questions: How do we infer mantle and melt processes from chemical and physical observations? What is the geometry of magma extraction systems and how stable are they? What is the effect of magmatism on the dynamics of plate boundaries? How does including magmatic processes affect global geochemical evolution of the mantle? What is the link between volcanic centers and the locus of magma generation?	Peter Kelemen Doug Wiens: seismic constraints on porosity TBD
10:30-11:00am	Coffee Break	
11:00am-12:30pm	Discussion Session #2: Theoretical requirements for modeling magmatic systems Example Topics/Questions: Fluid flow in deformable media Consistency with solid mantle/lithosphere dynamics melting/thermodynamics/chemical transport permeability and melt transport rheology	Saswata Hier-Majumder Saswata Hier-Majumder: Grain Boundary Processes Max Tirone: Marc Spiegelman: recipes for magma-migration Ben Holtzman: Physical Experiments
12:30-2:00 pm	Lunch	
2:00-3:30 pm	Discussion Session #3: Current state of Magma Dynamics Theory Example Topics: Available Formulations Viscous Systems Brittle systems & other rheologies Reactive Systems Thermodynamics	David Bercovici Paula Smith & Laura Baker: MELTs and Modeling Roger Buck: Dike Intrusions David Yuen: Self-consistent petrological-thermomechanical modelling Yariv Hamiel: Damage formulations
3:30-4:00 pm	Afternoon break	
4:00-5:30 pm	Discussion Session #4: Current state of Magma Dynamics Computation Example Topics: Discretization techniques Algorithms Computational Frameworks (St. Germain, PETSc etc.) Implementations and Codes that actually work Related efforts in hydrogeology	Richard Katz Bill Applebe: Frameworks Steve Quennette: StGermain Matt Knapely: strategies for model coupling Richard Katz: MagmaDynamics Modeling in PETsc Shemin Ge Amandine-Marie Cagnioncle
7:30 PM	Conference Dinner for all interested: Saigon Grill 629 Amsterdam Ave (90th)	

Sat. 19 August	What do we want to do in the future? How do we accomplish this? How can CIG help?	Discussion Leaders & presenters
8:00-9:00 am	Registration, Coffee and Snacks: 200 Mudd building APAM	
9:00-10:30 am	<p>Discussion Session #5: Modeling Wish-lists <i>1 page wish-list micro-presentations</i></p> <p>Example Topics: Regional modeling frameworks (ridges, subduction zones, plumes) 2-D/3-D/4-D Interaction with brittle failure Large scale mantle convection with embedded magmatism Comparison with geological, geochemical, and seismological observations</p>	Garrett Ito
10:30-11:00am	Coffee Break	
11:00am-12:30pm	<p>Discussion Session #6: Modeling Challenges</p> <p>Example Topics: Accurate solid/fluid pressures Localization instabilities/multi-scale modeling (AMR?) Energy exchange between phases Open system thermodynamics Integration with other CIG software and reusability Integration with computational seismology Integration with computational geochemistry/databases</p>	Bill Applebe Boris Kaus Yuen Shijie Zhong Kerstin Lehnert: Geochemical Databases
12:30-2:00 pm	Lunch	
2:00-3:30 pm	<p>Discussion Session #7: Short, Intermediate and long-Term goals for CIG Software development in Magma Dynamics</p> <p>Example Topics: BenchMark and Demonstration problems Solitary Waves Reactive Flow Chemical transport Corner flow for ridges and subduction zones 3-D simplified Ridge model</p>	Jolante van Wijk Scott King: Subduction Benchmarks Ben Holtzman: physical benchmarks
3:30-4:00 pm	Coffee Break	
4:00-5:30 pm	<p>Discussion Session #8: Short, Intermediate and long-Term goals for CIG Software development in Magma Dynamics, continued</p> <p>Example Topics: Integration of magma into Convection models Regional Plate-Boundary models/ modeling toolkit Incorporation of elasticity and brittle failure Thermodynamics Framework for geochemical modeling and feedback</p>	Shijie Zhong