



## Chapman Conference on Merging Geophysical, Petrochronologic, and Modeling Perspectives of Large Silicic Magma Systems

### Scientific Program

MONDAY, JANUARY 08

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9:00 a.m.– 1:15 p.m.	<b>Integration of Geophysics, Petrochronology and Numerical Modeling I</b>  Convener(s): Josef Dufek, Patricia Gregg  Salon Quinamavida
9:00 a.m. –9:15 a.m.	Welcome to Chile and the Chapman Conference
9:15 a.m. –9:45 a.m.	<b>Katharine V Cashman</b>   Petrologic perspectives on the architecture of active magmatic reservoirs ( <i>Invited</i> )
9:45 a.m. –9:55 a.m.	Questions and Discussion
9:55 a.m. –10:10 a.m.	<b>Jonathan R Delph</b>   The Evolution and Seismic Expression of a Lithospheric-scale Magmatic System: The Puna Plateau ( <i>Invited</i> )
10:10 a.m. –10:15 a.m.	Questions and Discussion
10:15 a.m. –10:45 a.m.	<b>Matthew E Pritchard</b>   Geophysical evidence for silicic crustal melt in the continents: where, what kind, and how much? ( <i>Invited</i> )
10:45 a.m. –10:55 a.m.	Questions and Discussion
10:55 a.m. –11:10 a.m.	Coffee Break
11:10 a.m. –11:25 a.m.	<b>Drew Steven Coleman</b>   Picking Apart a Bouguer Anomaly Using Space and Time ( <i>Invited</i> )
11:25 a.m. –11:30 a.m.	Questions and Discussion

- 11:30 a.m. –12:00 p.m. **Christy B. Till** | A Petrologist’s-Eye View of Silicic Magmatic Systems  
*(Invited)*
- 12:00 p.m. –12:10 p.m. Questions and Discussion
- 12:10 p.m. –12:25 p.m. **Bradley S Singer** | Integrating Geomorphology, Geochronology, and Numerical Modeling of 60 Meter Surface Inflation to Reveal Holocene Growth of the Silicic Magma Reservoir Beneath Laguna del Maule, Chile *(Invited)*
- 12:25 p.m. –12:30 p.m. Questions and Discussion
- 12:30 p.m. –1:15 p.m. Panel Discussion
- 2:15 p.m.– 7:00 p.m. **Reservoir Dimensions and Location(s) of Melt**  
Convener(s): Jamie Farrell, Stephanie Prejean  
Salon Quinamavida
- 2:15 p.m. –2:45 p.m. **Juliet Biggs** | Melt dimensions and connectivity within magma reservoirs from geophysical observations *(Invited)*
- 2:45 p.m. –2:55 p.m. Questions and Discussion
- 2:55 p.m. –3:10 p.m. **Martyn Jonathan Unsworth** | Electromagnetic Imaging of Silicic Magma Bodies *(Invited)*
- 3:10 p.m. –3:15 p.m. Questions and Discussion
- 3:15 p.m. –3:45 p.m. **Stephen R McNutt** | Interpreting Seismic Signals Associated With Active Volcanic Systems *(Invited)*
- 3:45 p.m. –3:55 p.m. Questions and Discussion
- 3:55 p.m. –4:10 p.m. Coffee Break
- 4:10 p.m. –4:25 p.m. **Katie M Keranen** | Fault Accommodated Magmatic Localization Beneath Laguna del Maule *(Invited)*
- 4:25 p.m. –4:30 p.m. Questions and Discussion
- 4:30 p.m. –5:00 p.m. **Judy Fierstein** | Postglacial Eruptive History Established by Mapping and Tephra Stratigraphy Provides Perspectives on Magmatic System beneath Laguna del Maule, Chile *(Invited)*
- 5:00 p.m. –5:10 p.m. Questions and Discussion
- 5:10 p.m. –5:25 p.m. **Ninfa L Bennington** | Understanding the rhyolitic magma system beneath Laguna del Maule, Chile: A Seismic Investigation *(Invited)*

- 5:25 p.m. –5:30 p.m. Questions and Discussion
- 5:30 p.m. –5:45 p.m. **Basil Tikoff** | *The interaction of deformation and volcanism in the plutonic record: Do volcanic conduits exploit geological structures? (Invited)*
- 5:45 p.m. –5:50 p.m. Questions and Discussion
- 5:50 p.m. –7:00 p.m. Panel Discussion/Breakout Groups
- 7:00 p.m.– 8:00 p.m. **Merging Geophysical, Petrochronologic and Modeling Perspectives to Understand Large Silicic Magma Systems Posters**  
 Convener(s): Bradley Singer, Clifford Thurber, Josef Dufek  
 Salon Maule
- P-1 **Carol D Frost** | Dimensions and characteristics of intrusive complements to silicic ignimbrites: insights from the Wyoming batholith, USA
- P-2 **Darcy Raymond Cordell** | Imaging the Laguna del Maule Volcanic Field, Central Chile Using Magnetotellurics: Evidence For Upper-to-mid Crustal Melt Regions Laterally-offset From Surface Vents and Holocene Lava Flows
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- P-9 **Kurt L Feigl** | Time-series analysis of geodetic data at the Laguna del Maule volcanic field, Chile, (2007-2017)
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- P-11 **Michel de De Saint Blanquat** | What plutons tell us about the evolution of large silicic magma systems?

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- P-18 **Allen J Schaen** | Identifying Trapped Melt in Low Pressure Silicic Cumulates Using Textural Mapping and Mineralogy
- P-21 **Camila Pineda** | Storage Conditions of Pudahuel Rhyolitic Ignimbrite in Central Chile
- P-22 **Calvin F Miller** | Repeated Perturbations, One Supereruption: Peach Spring Tuff, Arizona-California-Nevada, USA
- P-23 **Carolina Munoz Saez** | Advection of heat from the El Tatio geothermal system since the late Pliocene
- P-25 **Juliet Ryan-Davis** | Mafic enclaves and granitic cargo in a plinian high-Si rhyolite: insights into the pre-eruptive magma reservoir at Laguna del Maule
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- P-51 **Sebastian Garcia** | Future Laguna del Maule Argentine Volcano Monitoring Network
- P-52 **Alvaro Amigo** | Advances in the hazards evaluation for the Laguna del Maule volcanic complex

## TUESDAY, JANUARY 09

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- 7:30 a.m.– 9:30 p.m. **Field Trip to Laguna del Maule**  
Convener(s): Alvaro Amigo, Bradley Singer
- 7:30 a.m. –6:00 p.m. Board Buses for Laguna del Maule
- 6:00 p.m. –7:30 p.m. Chilean BBQ
- 7:30 p.m. –9:30 p.m. Board Buses to Hotel Quinamavida

## WEDNESDAY, JANUARY 10

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- 9:00 a.m.– 1:15 p.m. **Growth and Evolution of Systems on Long and Short Time Scales**  
Convener(s): Allen Glazner, Fidel Costa  
Salon Quinamavida

- 9:00 a.m. –9:30 a.m. **Blair Schoene** | Constraining magmatic processes with ID-TIMS U-Pb geochronology: towards better P-T-X-t paths in magmatic systems *(Invited)*
- 9:30 a.m. –9:40 a.m. Questions and Discussions
- 9:40 a.m. –9:55 a.m. **Mary R Reid** | Protracted magma assembly and evolution of the Toba Caldera Complex, Indonesia *(Invited)*
- 9:55 a.m. –10:00 a.m. Questions and Discussions
- 10:00 a.m. –10:30 a.m. **Jamie Farrell** | Seismic Imaging of a Large Silicic System: What we Know About the Yellowstone Magmatic System *(Invited)*
- 10:30 a.m. –10:40 a.m. Questions and Discussions
- 10:40 a.m. –10:55 a.m. Coffee Break
- 10:55 a.m. –11:10 a.m. **George W Bergantz** | On the mechanics and melt segregation of crystal-rich systems *(Invited)*
- 11:10 a.m. –11:15 a.m. Questions and Discussions
- 11:15 a.m. –11:45 a.m. **Katy Chamberlain** | Chronologies of Magma Chamber Assembly and Eruption for Supervolcanoes: Long Valley and the Taupo Volcanic Zone *(Invited)*
- 11:45 a.m. –11:55 a.m. Questions and Discussions
- 11:55 a.m. –12:10 p.m. **Nathan L Andersen** | Protracted Magma Reservoir Growth and Rapid Extraction of Repeatedly Erupted Rhyolite at Laguna del Maule, Chile *(Invited)*
- 12:10 p.m. –12:15 p.m. Questions and Discussions
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- 4:00 p.m.– 6:00 p.m. **Merging Geophysical, Petrochronologic and Modeling Perspectives to Understand Large Silicic Magma Systems Posters**  
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## THURSDAY, JANUARY 11

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9:00 a.m.– 1:15 p.m. **Interpreting Signals of Unrest to Improve Eruption Forecasting**

Convener(s): Carlos Cardona, Tim Masterlark

Salon Quinamavida

9:00 a.m. –9:30 a.m. **Edward (Wes) Hildreth** | Lessons from Long Valley Caldera (LVC) for Considering the Unrest at Laguna del Maule (LdM) (*Invited*)

9:30 a.m. –9:40 a.m. Questions and Discussion

9:40 a.m. –9:55 a.m. **Hélène Le Mével** | Modeling Deformation Episodes at Large Silicic Systems using Poroelasticity: Examples from Long Valley Caldera and Laguna del Maule Volcanic Field. (*Invited*)

9:55 a.m. –10:00 a.m. Questions and Discussion

10:00 a.m. –10:30 a.m. **Tamsin A Mather** | Integrating gas measurements with other volcanological constraints in order to understand unrest at caldera systems (*Invited*)

10:30 a.m. –10:40 a.m. Questions and Discussion

10:40 a.m. –10:55 a.m. Coffee Break

10:55 a.m. –11:10 a.m. **Glyn Williams-Jones** | 4D gravity-geodesy – An integral part of comprehensive monitoring and modelling of large silicic magmatic systems (*Invited*)

11:10 a.m. –11:15 a.m. Questions and Discussion

11:15 a.m. –11:45 a.m. **Jacob B Lowenstern** | Merging geophysical, petrochronologic, and modeling perspectives to understand large silicic magma systems (*Invited*)

11:45 a.m. –11:55 a.m. Questions and Discussion

- 11:55 a.m. –12:10 p.m. **Stephanie G Prejean** | Eruption Forecasting Challenges at Large Calderas (*Invited*)
- 12:10 p.m. –12:15 p.m. Questions and Discussion
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## FRIDAY, JANUARY 12

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- 9:00 a.m.– 1:00 p.m. **Integration of Geophysics, Petrochronology and Numerical Modeling II**  
Convener(s): Matthew Pritchard, Martyn Unsworth, George Bergantz  
Salon Quinamavida
- 9:00 a.m. –9:30 a.m. **Tim Masterlark** | Impulse-response Experiments for Integrating Spaceborne, Field, and Laboratory Measurements of Magmatic Systems  
(*Invited*)
- 9:30 a.m. –9:45 a.m. Questions and Discussion
- 9:45 a.m. –10:15 a.m. **Josef Dufek** | Using magma dynamics models to integrate geochemical and geophysical data in a process-based framework: Melt residence and accumulation at Laguna del Maule, Chile (*Invited*)
- 10:15 a.m. –10:25 a.m. Questions and Discussion
- 10:25 a.m. –10:40 a.m. Coffee Break

10:40 a.m. –10:55 a.m.	<b>Fidel Costa Rodriguez</b>   Looking into the smaller to see the bigger: nanometer observations of minerals as clues to thermal histories and reservoir sizes of silicic magmas ( <i>Invited</i> )
10:55 a.m. –11:00 a.m.	Questions and Discussion
11:00 a.m. –11:30 a.m.	<b>Patricia M Gregg</b>   Linking thermomechanical models with geodetic observations to assess magma reservoir evolution and stability ( <i>Invited</i> )
11:30 a.m. –11:40 a.m.	Questions and Discussion
11:40 a.m. –11:55 a.m.	<b>Paul Bedrosian</b>   Crustal inheritance and arc magmatism: Constraints from the Washington Cascades on top-down control ( <i>Invited</i> )
11:55 a.m. –12:00 p.m.	Questions and Discussion
12:00 p.m. –12:15 p.m.	<b>Craig Lundstrom</b>   A possible role for low temperature melt in silicic magmatic systems ( <i>Invited</i> )
12:15 p.m. –12:20 p.m.	Questions and Discussion
12:20 p.m. –1:00 p.m.	Panel Discussion