



**AGU
Chapman
Conference on
the Slow Slip
Phenomena**

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The conference organizers wish to acknowledge the generous support for this conference.



Scientific Program

MONDAY, FEBRUARY 22

- 9:00 a.m.– 11:00 a.m. **Oral Presentation I - Monday**
Presiding: Heidi Houston, Susan Schwartz
Rapporteur: Allen Husker, Yoshihiro Ito
- 9:00 a.m. –9:20 a.m. **Allen L Husker** | Introductory Remarks
- 9:20 a.m. –9:40 a.m. **Satoshi Ide** | Universality of very low frequency signals behind tremors, explained by a stochastic model
- 9:40 a.m. –10:00 a.m. **Akiko Takeo** | Source spectra of five slow slip events in the Cascadia subduction zone: Constraints from tremor, VLFs, and GPS
- 10:00 a.m. –10:20 a.m. **Julie Maury** | Focal Mechanism from Very Low Frequency Earthquakes Associated with Tectonic Tremors in Guerrero, Mexico.
- 10:20 a.m. –10:40 a.m. **Frederique Rolandone** | A Mixed Seismic-Aseismic Stress Release Episode in a Weakly Coupled Subduction Zone in Northern Peru
- 10:40 a.m. –11:10 a.m. **Kazushige Obara** | Observation of interaction between slow earthquakes in Bungo channel, Nankai subduction zone
- 10:40 a.m. –11:00 a.m. **Kenneth C Creager** | Comparison of Tectonic Tremor in Southwest Japan and Cascadia
- 11:30 a.m.– 1:15 p.m. **Oral Presentation II - Monday**
Rapporteur: Allen Husker, Yoshihiro Ito
- 11:30 a.m. –11:55 a.m. **Michael G Bostock** | Magnitudes and Moment-Duration Scaling of Low Frequency Earthquakes Beneath Southern Vancouver Island
- 11:55 a.m. –12:15 p.m. **Amanda Thomas** | Constraints on the Source Parameters of Low-Frequency Earthquakes on the San Andreas Fault

- 12:15 p.m. –12:35 p.m. **Heidi Houston** | Sensitivity of Slow Slip and Tremor to Tidal Stress Changes and Implications for Physical Conditions Deep in Subduction Zones
- 12:35 p.m. –12:55 p.m. **Susan Y Schwartz** | Comparison of Tremor and Slow Slip Behavior Before and After the 2012 Mw 7.6 Nicoya Costa Rica Earthquake
- 12:55 p.m. –1:15 p.m. **Shannon E Graham** | GPS constraints on the 2013 Oaxaca slow slip event: Implications for slow slip and postseismic afterslip interactions
- 3:00 p.m.– 5:00 p.m. **Oral Presentation III- Monday**
Rapporteur: Satoshi Ide, Susan Schwartz
- 3:00 p.m. –3:20 p.m. **Zhigang Peng** | Global Search of Remotely Triggered Tremors
- 3:20 p.m. –3:45 p.m. **Takuya Nishimura** | Short-term Slow Slip Events in the Kanto Region, Central Japan Detected From GNSS Data
- 3:45 p.m. –4:05 p.m. **Charles DeMets** | Evidence for Transient Slip Events and Non-Volcanic Tremor on the Rivera Plate Subduction Interface, Northern Middle America Subduction Zone
- 4:05 p.m. –4:25 p.m. **Noel M Bartlow** | Using deep slow slip in New Zealand to constrain slip partitioning
- 4:25 p.m. –4:45 p.m. **Tomoaki Nishikawa** | Detection of earthquake swarms in world's subduction zones and its insight into SSE activity
- 4:45 p.m. –5:00 p.m. Discussion
- 5:00 p.m.– 6:30 p.m. **Poster Session I - Monday**
Presiding: Heidi Houston, Susan Schwartz
- M-01 **Aaron Wech** | Tectonic tremor in South-Central Alaska
- M-02 **Nikolai Shapiro** | Comparative analysis of tectonic and volcanic tremors.
- M-03 **Quentin Bletery** | Automatic detection of secondary slip fronts in Cascadia (preliminary results)

- M-04 **Shelley Chestler** | Dip-dependent variations in LFE duration and amplitude during ETS events
- M-05 **David R Shelly** | A 15-Year Catalog of 1 Million Low-Frequency Earthquakes Along the Deep San Andreas Fault: Rapidly Cascading Failure and Implications for Physics at the Tremor Source
- M-06 **Sadaomi Suzuki** | A new detection method for P and S waves of deep low-frequency earthquakes using a 3D array in the Tokai area and its application to hypocenter determination
- M-07 **Lindsay Yuling Chuang** | A Study of Low-Frequency Earthquake Magnitudes in Northern Vancouver Island
- M-08 **Andres Felipe Peña-Castro** | Very-low frequency earthquakes on the San Andreas Fault that occur independently of low-frequency earthquakes
- M-09 **Abhijit Ghosh** | Characteristics of very low frequency earthquakes (VLFs) in Cascadia
- M-10 **Rachel C Lippoldt** | Seismic Evidence for a Four-Year Episode of Deep Transient Creep Preceding the 2004 Parkfield Earthquake
- M-11 **Brent G Delbridge** | Geodetic Measurements of Slow Slip and Tremor in Parkfield, CA
- M-12 **Vladimir Kostoglodov** | Slow Slip Events on the Strike Slip Fault in Guerrero, Mexico
- M-14 **John Puchakayala** | Slow slip along the Sumatra-Andaman megathrust during various stages of earthquake cycle
- M-15 **Lujia Feng** | Hunt for slow slip events along the Sumatran subduction zone in a decade of continuous GPS data
- M-16 **Randy D Krogstad** | Evaluation of the Temporal and Spatial Relationship of Slip and Tremor during ETS events in Cascadia
- M-17 **Shanshan Li** | Time-dependent Inversion of slow slip events and associated seismicity in Lower Cook Inlet, Alaska

- M-18 **Kelley Hall** | Spatial and Temporal Relationships between Tremor and Slip in 2010 Cascadia ETS
- M-19 **Hiromu Sakaue** | GPS data analysis of the long term slow slip event in the Tokai region, central Japan, since 2013.
- M-20 **Sandro Vaca** | Interplay between seismic and aseismic processes along the Pta. Galera-Mompiche zone (northern Ecuador subduction zone)
- M-21 **Koike Toshiki** | Analysis on Crustal Deformation of Slow Slip Events Occurred in the Southwestern Ryukyu Arc in 2010-2014
- M-22 **Richard G. Serrano Sr.** | Pre- and post-seismic displacements associated with the Esmeraldas, Ecuador, 2012 earthquake (M=5.2) derived from REGME network GPS data
- M-23 **Enrique Cabral-Cano** | TLALOCNet: A Continuous GPS-Met Array in Mexico for Seismotectonic and Atmospheric Research
- M-24 **Dimas Salomo Sianipar** | Assessing Non-Volcanic Tremor (NVT) in Sumatra Subduction Zone Triggered by Large Distance Earthquakes
- M-25 **Jacob I Walter** | Triggered tremor and slow slip in the Western Solomon Islands
- M-26 **Nicholas van der Elst** | Fortnightly modulation of San Andreas tremor and low--frequency earthquakes
- M-27 **Chastity Aiken** | Comparative Study of Local Interactions between Earthquakes and Tremor in California and Japan
- M-28 **Junji Kikuchi** | Slow slip events response to tidal stress in western Japan
- M-29 **Camilla Cattania** | A Slow Rupture Episode during the 2000 Miyakejima Dike Intrusion
- M-30 **Chi-Yu King** | Kinematics of Slow-Slip Events
- M-31 **Kensuke Suzuki** | Seismic activities and ocean-bottom hydrostatic pressures changes along the Nankai trough detected

by the Dense Oceanfloor Network system for Earthquakes and Tsunamis (DONET)

TUESDAY, FEBRUARY 23

- 9:00 a.m.– 11:10 a.m. **Oral Presentation I - Tuesday**
Rapporteur: Victor Cruz-Atienza, Satoshi Ide
- 9:00 a.m. –9:25 a.m. **Pascal Audet** | Teleseismic scattering constraints on the geological environment of deep episodic slow earthquakes in subduction zone forearcs
- 9:25 a.m. –9:45 a.m. **Roy D Hyndman** | Tremor and Slip: Subducting Plate Fluids Channeled to Forearc Mantle Corner
- 9:45 a.m. –10:10 a.m. **Demian M Saffer** | The Hydrologic, Metamorphic, and Frictional Habitat of Shallow Slow Earthquakes
- 10:10 a.m. –10:30 a.m. **Victor M Cruz-Atienza** | Tectonic Tremor Modulation by Intraslab Fluid Diffusion During Slow Earthquakes
- 10:30 a.m. –10:50 a.m. **Kelin Wang** | On the Relationship Between the Seismogenic Zone and the ETS Zone
- 10:50 a.m. –11:10 a.m. **Donald M Fisher** | Fault Zone Processes Recorded within Ancient Subduction Plate Boundaries
- 11:30 a.m.– 1:05 p.m. **Oral Presentation II - Tuesday**
Rapporteur: Victor Cruz-Atienza, Satoshi Ide, Vladimir Kostoglodov, Allen Husker
- 11:30 a.m. –11:55 a.m. **Yehuda Ben-Zion** | Modeling non-volcanic tremor, slow slip events and earthquakes with space-variable frictional weakening and creep
- 11:55 a.m. –12:15 p.m. **Lucile Bruhat** | Mechanical and Geodetic Constraints on the Northern Cascadia Megathrust
- 12:15 p.m. –12:20 p.m. Break
- 12:20 p.m. –12:45 p.m. **Bill Fry** | Incorporating the Physics of SSEs into Time-dependent Forecasting of Subduction System Main Shock Earthquakes

- 12:45 p.m. –1:05 p.m. **Tadafumi Ochi** | Contribution of the Long-term SSEs to Stress Accumulation Process in Southwestern Japan
- 3:00 p.m.– 5:00 p.m. **Oral Presentation III - Tuesday**
Rapporteur: Vladimir Kostoglodov, Allen Husker
- 3:00 p.m. –3:20 p.m. **Yoshihiro Ito** | Two effects of slow earthquake to megathrust events: Triggering and facilitating of megathrust slip
- 3:20 p.m. –3:45 p.m. **Nathalie Cotte** | The Large 2014 Slow Slip Event in Guerrero, Mexico: New Feature and Possible Triggering of the 18 April Papanao Earthquake (Mw 7.3).
- 3:45 p.m. –4:05 p.m. **Nicholas K Voss** | Post earthquake slow slip following the 2012 Nicoya Earthquake
- 4:05 p.m. –4:25 p.m. **Zhen Liu** | Slow Slip Interaction with Seismic Slow Earthquakes and Large Seismic Event
- 4:25 p.m. –4:45 p.m. **Paul Segall** | (WITHDRAWN) Slow Slip Events and the Potential for Triggering Dynamic Rupture
- 4:25 p.m. –4:45 p.m. **Allen L Husker** | SSE induced seismic gap: A permanently reduced seismic hazard.
- 4:45 p.m. –5:00 p.m. Discussion
- 5:00 p.m.– 6:00 p.m. **Poster Session - Tuesday**
Presiding: Vladimir Kostoglodov, Satoshi Ide
- T-32 **Waleed Eid Olimat** | Determination Site Effect of Zarqa City and Hashemite University Campus Based on Microtremors Field Measurements: A microzonation Study
- T-33 **Tim W Hayward** | Repeating Earthquakes on the Queen Charlotte Fault near Haida Gwaii, B.C.
- T-34 **Alexandre P Plourde** | Low-Frequency Earthquakes and the Subduction Zone Plate Boundary
- T-35 **Daya Shanker** | Trending Discussion on Present Day Earthquake Frequency and Focal Depth Distribution Pattern in Hindukush Complex Zone of Himalaya

- T-36 **Robert N Harris** | The Thermal Regime of Shallow and Deep Slow Slip associated with the Hikurangi Trough, New Zealand
- T-37 **Glenn A Spinelli** | Modeled Temperatures and Fluid Source Distributions for the Mexican Subduction Zone: Effects of Hydrothermal Circulation and Implications for Plate Boundary Seismic Processes
- T-38 **Genevieve Savard** | Metamorphic Reaction Controls on ETS via Tomographic Imaging
- T-39 **Dmitry Garagash** | Hysteresis of stress-dependent permeability leads to lithostatic pore pressure at the base of San Andreas Fault
- T-40 **Justin Scott Ball** | Sediment Rigidity and Strain Distribution on the Hikurangi Subduction Zone: Preliminary Findings from the HOBITSS Experiment
- T-41 **Baptiste Rousset** | Detection of a Surface Transient Creep Event on the North Anatolian Fault Creeping Section with InSAR CosmoSkyMed acquisitions
- T-42 **Edilson Fernando Salazar Monroy** | SPATIO-TEMPORAL ANALYSIS OF SEISMIC VELOCITIES IN GUERRERO, MEXICO
- T-43 **Ryosuke Ando** | Forshock, After-slip and Nucleation: 2011 Tohoku-oki case
- T-44 **Miguel Angel Santoyo** | Stress Transfer by Slow Slip Events in the Guerrero Segment of Plate Interface in the Mexican Subduction Zone.
- T-45 **Nathalie Cotte** | Complexity of the seismic cycle in Guerrero, Mexico : long term coupling modified by slow slip events, as inferred by cGPS
- T-47 **Vala Hjorleifsdottir** | Are Asperities Persistent Over Time? Observations From The Mexican Subduction Zone
- T-48 **Marily Triviño Abella** | Characterization and segmentation of subduction process along the Southamerica and Caribbean margin plates

- T-49 **Katrina M Jacobs** | Impacts of Slow Slip Events on Volcanic Areas in the Far-field: An Example from the Taupo Volcanic Zone, New Zealand
- T-50 **Ramesh P Singh** | Seismic Hazards Evaluation Using Ground motion Parameters in Chile
- T-51 **Hassan Gholibeigian** | Generation of Diurnal Stresses From Inside Out the Earth Due to External Gravitational Loading on the Earth's Core as the Main Cause of the Earthquakes and Slow Slip Phenomena, Based on the "Pulsating Mantle Hypothesis"

WEDNESDAY, FEBRUARY 24

- 9:00 a.m.– 10:50 a.m. **Oral Presentation I - Wednesday**
Rapporteur: Matt Ikari, Michel Campillo
- 9:45 a.m. –10:05 a.m. **Robert M Skarbak** | (PAPER WITHDRAWN) Modeling Fault-Valve Controls on Episodic Tremor and Slip in Subduction Zones
- 9:00 a.m. –9:25 a.m. **Heather M Savage** | Laboratory Insights on Slow Slip
- 9:25 a.m. –9:45 a.m. **Chris Marone** | The Mechanics of Slow Earthquakes and the Spectrum of Fault Slip Behaviors
- 9:45 a.m. –10:05 a.m. **Matt Ikari** | Laboratory observations of slow slip events and related frictional behaviors
- 10:05 a.m. –10:25 a.m. **Jean Paul Ampuero** | Multi-asperity models of slow slip and tremor
- 10:25 a.m. –10:45 a.m. **Suguru Yabe** | Unified source model of ordinary earthquake and slow earthquake
- 11:20 a.m.– 1:00 p.m. **Oral Presentation II - Wednesday**
Rapporteur: Matt Ikari, Michel Campillo
- 11:20 a.m. –11:45 a.m. **Takanori Matsuzawa** | Numerical modeling of slow slip events in Nankai and Cascadia, considering plate configuration and tremor distribution

- 11:45 a.m. –12:05 p.m. **Bunichiro Shibazaki** | Modeling slow slip events and their interaction with large earthquakes along Hikurangi and Mexican subduction zones
- 12:05 p.m. –12:25 p.m. **Duo Li** | 3D Cascadia slow slip event model constrained by tremor locations and gravity
- 12:25 p.m. –12:45 p.m. **Nicholas W Hayman** | Sticky, slippery, creepy, crackly crust: geologic, experimental, and analytical approaches to fault slip.
- 12:45 p.m. –1:00 p.m. Discussion
- 3:00 p.m.– 5:00 p.m. **Oral Session III - Wednesday**
Rapporteur: Laura Wallace, Yoshihiro Ito
- 3:00 p.m. –3:25 p.m. **William Frank** | Pinpointing transient aseismic slip at depth with seismological observations
- 3:25 p.m. –3:40 p.m. **Evelyn A Roeloffs** | (PAPER WITHDRAWN) Borehole Strainmeters as Tools for Observing Slow Slip: The Earthscope Plate Boundary Observatory in the Cascadia Forearc
- 3:40 p.m. –4:05 p.m. **Jessica C Hawthorne** | Identifying the aseismic moment of rapid tremor reversals in Cascadia
- 4:05 p.m. –4:30 p.m. **Ryota Hino** | Seafloor geodetic observations for detection of various slow-slips before and after the 2011 Tohoku-oki earthquake: Review and prospect
- 4:30 p.m. –4:45 p.m. **Tianhaozhe Sun** | Slow Slip to Trench Associated With Deeper Seismic and Aseismic Events Inferred From Seafloor and Formation Fluid Pressure Observations at Costa Rica and Nankai
- 4:45 p.m. –5:00 p.m. **Laura M Wallace** | Seafloor Geodetic Investigation of Shallow Slow Slip Events at the Hikurangi Subduction Margin, New Zealand
- 5:00 p.m.– 6:30 p.m. **Poster Session - Wednesday**
Presiding: Matt Ikari, Laura Wallace
- W-53 **Naum I Gershenzon** | Not a 'rate-and-state' • Theory of Friction: Application to Slow Slip Events

- W-54 **Marco Maria Scuderi** | Seismic Velocity Changes Across the Transition from Slow- to Fast- Frictional Sliding in Earthquake-Like Laboratory Experiments
- W-55 **Alexey Ostapchuk** | Laboratory investigation of conditions of slow slip event generation
- W-56 **John Leeman** | Laboratory Observations of Slow Earthquakes - Insights on the mechanics of slow stick-slip
- W-57 **Alexey Ostapchuk** | Transformation of a stick-slip mode of fault behavior into a stable sliding in the laboratory tests at the spring-block model
- W-58 **Erin K Todd** | Spatiotemporal relationships between tectonic tremor, microseismicity, and slow-slip induced stress changes along the northern Hikurangi Margin, New Zealand
- W-59 **Hannah S Rabinowitz** | Frictional Behavior of Carbonate-rich Sediments in Subduction Zones
- W-60 **Shoichi Yoshioka** | Three-dimensional Thermal Modeling Associated with Subduction of the Philippine Sea Plate, Southwest Japan
- W-61 **Yingfeng Ji** | Seismic distribution and dehydration of MORB associated with subduction of the Pacific and the Philippine Sea plates beneath the Tohoku and Kanto districts, Japan
- W-62 **Marshall A Rogers-Martinez** | A Creep Instability in High SFE Materials at Intermediate Homologous Temperatures with Application to Slow Earthquakes and Slow Slip
- W-63 **Yinbin Liu** | Low frequency scattering resonance and natural resonance in strong heterogeneity
- W-64 **Nobuaki Suenaga** | Three-dimensional thermal modeling associated with subduction of the Cocos plate beneath southern Mexico, and its relationship to the occurrence of interplate seismic events
- W-65 **Duo Li** | Segmentation of Slow Slip Events in South Central Alaska Controlled by the Yakutat Plateau

- W-66 **Carlos David Villafuerte** | Modeling Pore Pressure Changes due to Slow Earthquakes: Implications for Tectonic Tremor Generation in Guerrero, Mexico.
- W-67 **Valentina Castellanos** | Self-sustained Oscillations in the Transition Zone From a Spring - block Model with Lubricated Surfaces
- W-68 **Paul A Johnson** | Nonlinear dynamical triggering of slow-slip on simulated earthquake faults
- W-69 **Vincent Marie Maury** | Initiation of seismic ruptures possible in zones of slow slip events according to the PMF model of fault cores with compressible fluids
- W-70 **Yajing Liu** | Earthquakes segmentation and possible slow slip events on Gofar transform fault, East Pacific Rise
- W-71 **Harmony Colella** | Simulations of Microseismicity Associated With Slow Slip Events
- W-72 **Linda A Reinen** | Slow Slip Events: The Role of Metastable Frictional Slip of Serpentine
- W-73 **Robert Herrendoerfer** | Spectrum of slip processes on the subduction interface in relation to long-term deformation in a continuum-based numerical model
- W-74 **Victor KEVIN Contreras** | Inundation model of Ixtapa-Zihuatanejo zone produced by an hypothetical local tsunami generated by an earthquake of 7.0 on the Richter magnitude scale
- W-75 **David A Lockner** | Laboratory-determined Rheology of Rocks at Hydrothermal Conditions and the Transition from Brittle to Ductile Deformation
- W-76 **Luis A Dominguez** | Google Cloud: Processing large volumes of seismic data in the search of highly correlated waveforms.
- W-77 **Satoshi Katakami** | Detecting tectonic tremor through frequency scanning and polarization analyses at a single station in the Japan Trench subduction zone

- W-78 **Justin R Brown** | Challenges to Understanding Seismic Observations of Fast and Slow Slip Phenomena in Multiple Tectonic Environments
- W-79 **González Molina Guillermo Sr.** | An automated method for TT detection
- W-80 **Jorge Arturo Real Sr.** | Detection of Nonvolcanic Tremors using Spectral Cross-Correlation
- W-81 **Kazuaki Ohta** | Polarization evidence for the occurrence of shallow tremors in the Japan Trench subduction zone
- W-82 **Mark A Zumberge** | Optical Instruments for Detection and Characterization of Slow Slip Events
- W-83 **Baptiste Rousset** | Geodetic Matched Filter Search of Low Amplitude Slow Slip Events on the Mexican Subduction Zone
- W-84 **David A Schmidt** | Cascadia Slow Slip Models Constrained by Tremor-Derived Slip Histories
- W-85 **Louisa L Tsang** | Slow slip events from multi-decadal deformation records: The 1966 - 1981 Banyak Islands slow slip event in the Sumatran subduction zone
- W-86 **Jean Mathieu Nocquet** | Frequent Shallow Slow Slip Events along the Ecuadorian Subduction Zone
- W-87 **Martin Heesemann** | Seafloor observatories to monitor slow slip phenomena
- W-88 **Azim Amirshahkarami** | Localization and Large Deformation Numerical Modeling of Slow-Slip Events Cause and Earthquake Rupture Predictions(Early Steps for Structural Behavior Simulation of the Earth Crust as a Coupled Whole)