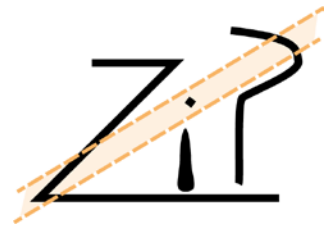


# SCIENTIFIC PROGRAMME

## SIP International Conference

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### Tuesday, April 18<sup>th</sup>

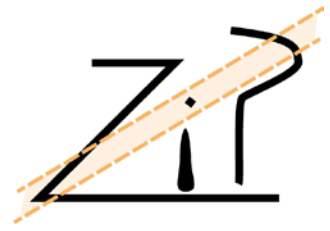
- 17:30-19:30    **Badge pickup and poster hanging**  
Hall of the *Congress Center* at *Gran Hotel Rey Don Jaime*
- 18:30-19:30    **Icebreaker**  
Hall of the *Congress Center* at *Gran Hotel Rey Don Jaime*
- 19:30-21:30    **Dinner**  
Restaurant at *Gran Hotel Rey Don Jaime*

ORAL PRESENTATIONS: *Keynote (25'+5')*, *Other (13'+2')*  
*Auditorium of the Congress Center at Gran Hotel Rey Don Jaime*

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### Wednesday, April 19<sup>th</sup>

8:30-9:00 **Badge pickup and poster hanging**  
Hall of the Congress Center at Gran Hotel Rey Don Jaime

9:00-9:15 **WELCOME** to the SIP International Conference  
*Philippe Agard* (Coordinator, EU-Marie Curie ITN "ZIP" Project)

#### Structure of the plate interface (at shallow depths)

*Chair: S. Lallemand, P. Vanucchi*

9:15-9:45 **SIP01** Active-source seismic study in subduction zones: a review of JAMSTEC's seismic studies in the Nankai Trough and the Japan Trench **(KEYNOTE)**  
*Shuichi Kodaira*

9:45-10:00 **SIP02** The frontal seismogenic nature of the Mentawai locked zone from full waveform inversion of long offset seismic streamer data  
*Y. Qin, S.C. Singh*

10:00-10:15 **SIP03** Constraints on the Alaska Subduction Zone from the creeping Shumagin Gap to the locked Semidi Segment from seismic data of the ALEUT Project  
*A. Bécel, D.J. Shillington, J. Li, D. Saffer, G A. Abers, M. Nedimovic, M. Delescluse, S.C. Webb, K.M.Keranen, H. Kuehn*

10:15-10:30 **SIP04** Water Content of the Juan de Fuca Plate Entering the Cascadia Subduction Zone  
*J.P. Canales, S.M. Carbotte, M. Nedimovic, H. Carton*

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

#### Role of incoming material/heterogeneities

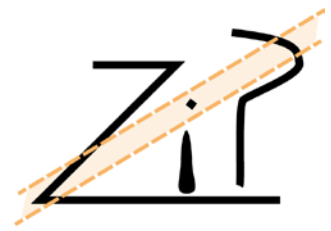
*Chair: S. Lallemand, P. Vanucchi*

11:00-11:30 **SIP05** How do input materials control the nature of seismogenic slip at a subduction zone with thick sedimentary input? Initial results from drilling the Sumatran subduction zone inputs (IODP Exp. 362) **(KEYNOTE)**  
*Lisa McNeill, B. Dugan, K. Petronotis and IODP Expedition 362 Scientists*

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- 11:30-11:45 **SIP06** Additional testing of the hypothesis that great (>Mw8.0) megathrust earthquakes are linked to where thick sediment and bathymetrically smooth seafloor enter the subduction zones  
*D. Scholl, S. Kirby, R. von Huene*
- 11:45-12:00 **SIP07** Seismic and thermal evidence for subduction of exhumed mantle oceanic crust beneath the seismically quiet Antigua-St Martin Margin segment in the Northern Lesser Antilles  
*B. Marcaillou, F. Klingelhoefer, M. Laurencin, Y. Biari, D. Graindorge, J.F. Lebrun, M. Laigle, S. Lallemand and the Antithesis cruises scient. party*
- 12:00-13:00 **Discussion #1**  
Convened by *S. Kodaira, L. McNeill, D. Fisher and V. Sallares*
- 13:00-14:30 **Lunch**  
Terrace at *Gran Hotel Rey Don Jaime*

### Subduction of asperities

**Chair:** *B. Marcaillou, F. Tilmann*

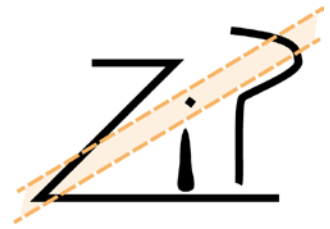
- 14:30-14:45 **SIP08** SubRough database: Proxy of Subduction interface Roughness and its relation with seismogenic potential. Part 3 – Application  
*E. van Rijsingen, S. Lallemand, M. Peyret, D. Arcay*
- 14:45-15:00 **SIP09** Seamount – Subduction Zone Interactions: Localised subduction accretion and erosion in response to subduction of high relief seafloor  
*A.P. Clarke, P. Vannucchi, J. Morgan*
- 15:00-15:15 **SIP10** Effects of seamount subduction on seismogenesis: comparative study of the 1992 Nicaragua and the 2002 Costa Rica earthquakes  
*V. Sallares, S. Martínez-Lorienté, C.R. Ranero, J. Ruh*
- 15:15-15:30 **SIP11** Crustal deformation dynamics and stress evolution during seamount subduction: High-resolution 3-D numerical modeling  
*J.B. Ruh, V. Sallarès, C.R. Ranero, T. Gerya*
- 15:30-15:45 **SIP12** Seamount subduction at seismogenic depths: structural and metamorphic evidence from the Zagros suture zone  
*G. Bonnet, P. Agard, S. Angiboust, M. Fournier, J. Omrani*
- 15:45-16:15 **Coffee Break**

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**Chair:** *B. Marcaillou, F. Tilmann*

16:15-16:45 **SIP13** Record of slow slip instabilities in rocks: the role of silica redistribution in the behavior of subduction interfaces (**KEYNOTE**)  
*Donald Fisher, A. Smye, C. Marone, A. Yamaguchi*

16:45-17:45 **Discussion #2**  
Convened by *S. Kodaira, L. McNeill, D. Fisher and V. Sallares*

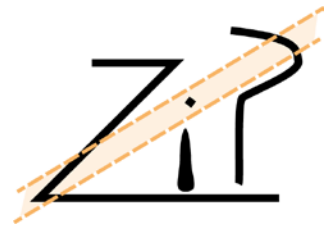
18:00-20:00 **Posters** (with drinks)  
Hall of the Congress Center at *Gran Hotel Rey Don Jaime*

20:30-22:00 **Dinner**  
Restaurant at *Gran Hotel Rey Don Jaime*

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### Thursday, April 20<sup>th</sup>

#### Long- vs short-term deformation, 1

**Chair:** O. Oncken, C. Vigny

- 9:00-9:30 **SIP14** Toward a unified view of slip modes at the megathrust: overview of a decade of observation at the Ecuadorian subduction zone (**KEYNOTE**)  
*Jean-Mathieu Nocquet, F. Rolandone, P. Jarrin, P. Mothes, M. Vallée and the LMI "Sismos y Volcanes en los Andes del Norte" team*
- 9:30-9:45 **SIP15** Monitoring deformation offshore Chile by employing seafloor geodesy (GeoSEA)  
*K. Hannemann, H. Kopp, D. Lange, F. Petersen*
- 9:45-10:00 **SIP16** Extraction of Crustal Deformation from Seafloor Hydraulic Pressure Gauges: A trial collaboration study  
*K. Ariyoshi, A. Nagano, T. Hasegawa, H. Matsumoto, M. Kido, T. Igarashi, N. Uchida, Y. Yamashita, T. Inuma*
- 10:00-10:15 **SIP17** Marine forearc tectonics in the Northern Chile seismic gap  
*J. Geersen, J. Behrmann, C.R. Ranero, I. Klaucke, H. Kopp, D. Lange, U. Barckhausen, C. Reichert, J. Diaz-Naveas*
- 10:15-10:30 **SIP18** Double downdip transitions in Chilean earthquakes  
*F. Tilmann, D. Lange, A. Rietbrock, M. Palo, P. Methe*
- 10:30-11:00 **Coffee Break**

#### Long- vs short-term deformation, 2

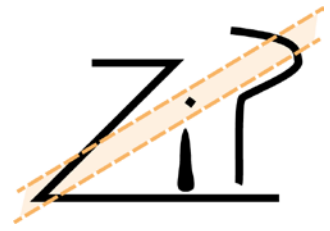
**Chair:** O. Oncken, C. Vigny

- 11:00-11:15 **SIP19** Seismic structure of the seismogenic Rivera plate subduction by multichannel reflection imaging (western Mexican margin)  
*R. Bartolome, E. Górriz, J. Dañobeitia, D. Córdoba, D. Martí, A.L. Cameselle, F. Núñez-Cornú, W.L. Bandy, C.A. Mortera-Gutiérrez, D. Nuñez*

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11:15-11:45 **SIP20** Strength of subduction interface and great earthquakes (**KEYNOTE**)

*Stefan Sobolev, I. Muldashev*

11:45-12:00 **SIP21** Subducting slab damage at the outer rise: combined effects of brittle faulting, serpentinization, and grainsize reduction

*T.V. Gerya, D. Bercovici*

12:00-13:00 **Discussion #3**

Convened by *J.-M. Nocquet, S. Sobolev, K. Wang and C.R. Ranero*

13:00-14:30 **Lunch**

Restaurant at *Gran Hotel Rey Don Jaime*

### Thermal and rheological constraints

**Chair:** *L. Le Pourhiet, N. Hilaret*

14:30-15:00 **SIP22** Hot and cold SIPs: Learning from heat flow observations (**KEYNOTE**)

*Kelin Wang, X. Gao*

15:00-15:15 **SIP23** Rheology of the subduction interface from numerical modeling of forearc thermal structure: a new view of end-member subduction zones (flat slabs, ultra-slow subduction) in P-T-t space

*M.-A. Gutscher*

15:15-15:30 **SIP24** Stripping slabs during subduction initiation: transient rheological switches witnessed by metamorphic sole accretion

*M. Soret, P. Agard, B. Dubacq, C. Prigent, B. Ildefonse, A. Plunder, P. Yamato, S. Guillot*

15:30-15:45 **SIP25** Deformation experiments of lawsonite blueschist in simple shear and implications for earthquakes in subduction zones

*H. Jung, S. Choi, S. Jung*

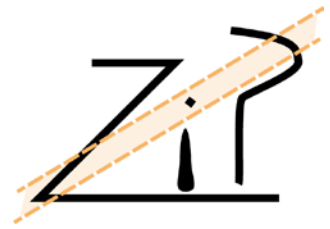
15:45-16:15 **Coffee Break**

**Chair:** *L. Le Pourhiet, N. Hilaret*

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16:15-16:45 **SIP26** The mechanics of intermediate and deep focus earthquakes:  
Experimental evidences (**KEYNOTE**)

**Alexandre Schubnel**, N. Hilairet, T. Ferrand, S. Incel, J. Gasc, L. Labrousse,  
F. Brunet, J. Renner, H.W. Green, Y. Wang

16:45-17:45 **Discussion #4**

Convened by J.-M. Nocquet, S. Sobolev, K. Wang and C.R. Ranero

18:00-20:00 **Posters** (with drinks)

Hall of the Congress Center at Gran Hotel Rey Don Jaime

21:00-23:30 **Social dinner**

**Tibu-Ron Beach Club** at Castelldefels beach

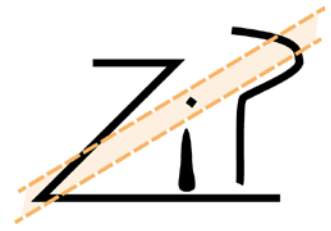
Buses will leave from Gran Hotel Rey Don Jaime at 20:15 and will get back  
from Tibu-Ron Beach Club at 00:00

All SIP conference attendees are welcome and invited

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### Friday, April 21<sup>st</sup>

#### Interplay between rocks and fluids

**Chair:** *M. Scambelluri, J. Morgan*

9:00-9:30 **SIP27** Fluid circulation and deformation at seismogenic depths in subduction zones: the record from fossil accretionary prisms (**KEYNOTE**)

*Hugues Raimbourg, V. Famin, G. Palazzin*

9:30-9:45 **SIP28** Investigating the role of fluid properties in the rupture process of submarine faults

*L. Gélj, J.M. Piau, R. Dziak, V. Maury, D. Fitzenz, D. Broseta, M. Steele-MacInnis, T. Driesner*

9:45-10:00 **SIP29** Formation of serpentine-bearing fracture network in the mantle wedge at subduction inception. New Caledonia as a case study

*S. Lesimple, D. Lahondère, P. Maurizot, M. Iseppi, D. Cluzel*

10:00-10:15 **SIP30** Water migration in the subduction mantle wedge: a two phase flow approach

*H. Wang, R.S. Huismans, S. Rondenay*

10:15-10:30 **SIP31** Fast dehydration-related intraslab fluid-flow events: implications for pore fluid pressure fluctuations at the plate interface

*T. John, S. Taetz, M. Bröcker, C. Spandler, A. Stracke*

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

#### Structure of the plate interface (into intermediate depths)

**Chair:** *M. Scambelluri, J. Morgan*

11:00-11:30 **SIP32** The subduction plate interface and mantle wedge from thrust zone to subarc (**KEYNOTE**)

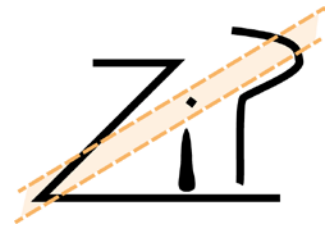
*Geoffrey A. Abers*



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11:30-11:45 **SIP33** Intermediate Depth Seismicity in the Western Hellenic Subduction Zone: Constraints from Tomography and Double-Difference Relocation

*F. Halpaap, S. Rondenay, L. Ottemöller*

11:45-12:00 **SIP34** Seismic properties of eclogite facies shear zones in subducted lower crust

*S. Zertani, T. John, F. Tilmann, H.B. Motra, L. Labrousse, T. B. Andersen*

12:00-13:00

### **Discussion #5**

Convened by *H. Raimbourg, G.A. Abers, H. Marschall, Ph. Agard*

13:00-14:30

### **Lunch**

Terrace at *Gran Hotel Rey Don Jaime*

## Rocks and fluids at depth and into the arc

**Chair:** *C. Garrido, T. John*

14:30-14:45 **SIP35** Paleo-asperities frozen along a major fault zone in Alpine Corsica ophiolites: Implications on present-day subduction zone intermediate-depth seismicity

*O. Fabbri, M. Fournier, R. Magott*

14:45-15:00 **SIP36** Eclogitic breccia from the Monviso meta-ophiolite: evidence for multiple rupture stages at intermediate subduction depths

*M. Locatelli, A. Verlaquet, P. Agard L. Federico, S. Angiboust*

15:00-15:15 **SIP37** Alpine Serpentinite Geochemistry As Key To Define Timing Of Oceanic Lithosphere Accretion To The Subduction Plate Interface

*M. Gilio, M. Scambelluri, S. Agostini, T. Pettke, M. Godard, S. Angiboust*

15:15-15:30 **SIP38** Fluid-mineral element distribution in antigorite dehydration product rocks

*A. Bretscher, T. Pettke*

15:30-15:45 **SIP39** Couplings between far field stresses, fluid flow and high pressure deserpentinization in subducting slabs: insight from the Almirez ultramafic massif

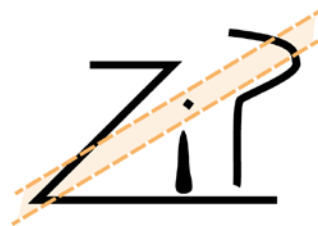
*N. Dilissen, K. Hidas, C.J. Garrido, V. López Sánchez-Vizcaíno, W.A. Kah, J.A. Padrón-Navarta, M.J. Ramón-Alpiste*

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15:45-16:15 **Coffee Break**

**Chair:** *C. Garrido, T. John*

16:15-16:45 **SIP40** Mélangé formation at the slab-mantle interface as a key process in the generation of arc magmas: geochemical evidence (**KEYNOTE**)

***Horst R. Marschall, S.G. Nielsen***

16:45-17:45

**Discussion #6**

Convened by *H. Raimbourg, G.A. Abers, H. Marschall, Ph. Agard*

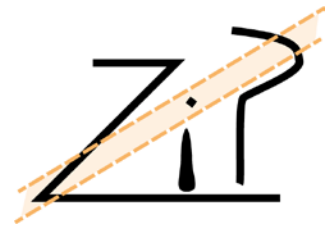
18:00

**CLOSURE** of the SIP International Conference

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## POSTERS

*Size of poster boards: 135 cm wide x 95 cm high*

*Physical space is limited to 50 poster boards*

*Posters can be up during the whole duration of the conference*

**P01** Comparison of fold-thrust belts on passive and active margins X. Yang, F. Peel, L. McNeill, D. Sanderson

**P02** Stress, porosity, and pore pressure evolution in fold-and-thrust belts B. Gao, P. Flemings, D. Saffer, M. Nikolinakou, M. Heidari

**P03** Deciphering the Alpine Deformation History of a Potential Fossil Subduction Interface in the Depth of the Seismogenic Zone (Central Alps) P. I. Ioannidi, O. Oncken, S. Angiboust, and P. Agard

**P04** The Effective Rheology of Natural Subduction Shear Zones: Insights from Numerical Simple Shear Experiments P.I. Ioannidi, L. Le Pourhiet, M. Moreno, P. Agard, O. Oncken, S. Angiboust

**P05** Scaly fabrics and veins of the Mugli and Makimine mélanges G. Ramirez, D. Fisher, A. Yamaguchi, G. Kimura

**P06** Microstructures recording shear localization in the shallow part of a megathrust ancient analogue A. Cerchiari, S. Mitterpergher, F. Remitti, A. Festa

**P07** Importance of phengite lattice preferred orientation (LPO) on seismic anisotropy in subduction zones Y. Ha, H. Jung, L.A. Raymond

**P08** Eclogite-facies metamorphic reactions under stress and faulting in granulites from the Bergen Arcs, Norway: an experimental investigation S. Incel, N. Hilaret, L. Labrousse, T.B. Andersen, T. John, Y. Wang, A. Schubnel

**P09** Deformation of olivine + antigorite aggregates : effect of phase proportions and in-situ evaluation of stress partitioning within serpentized peridotites N. Hilaret, T.Ferrand, P.Raterron, S. Merkel, J. Guignard, C.Langrand, A. Schubnel, W. Crichton

**P10** Deformation, fluid release and migration across a nascent, warm subduction interface: what we learn from the Oman example Ph. Agard, C. Prigent, M. Soret, S. Guillot, B. Dubacq

**P11** The exposed roof of a paleosubduction zone: the Peridotite Nappe of New Caledonia M. Iseppi, S. Lesimple, D. Cluzel, B. Le Bayon, B. Sevin, P. Maurizot

**P12** Oxygen Fugacity and Chemical Potentials as Determinant Factors in Constraining the Metamorphic Evolution of Subducted Rodingites and Enclosing Ultramafic Rocks C. Laborda-López, V.López Sánchez-Vizcaíno, C. Marchesi, M.T. Gómez-Pugnaire, C.J. Garrido, A. Jabaloy-Sánchez, J. A. Padrón-Navarta

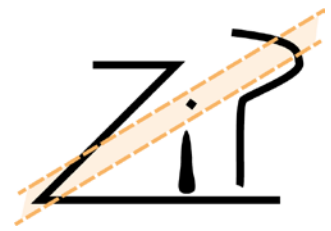
**P13** Subduction Metamorphism of Ophicarbonates beyond the Stability of Antigorite: insights into Carbonate Dissolution vs. Decarbonation from the Almirez ultramafic massif (S. Spain) M. Menzel, C. J. Garrido, V. López Sánchez-Vizcaíno, C. Marchesi, K. Hidas

**P14** Structure and metamorphism of a subduction mélange (Sistan, Eastern Iran): a close-up on

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subduction channel processes *G. Bonnet, P. Agard, S. Angiboust, P. Monié, J. Omrani, H. Whitechurch, M. Fournier, M. Jentzer*

**P15** Influence on subduction boundary segmentation at the southwest end (Albatross segment) of the Mw 9.2, 1964 Kodiak Island, and the northeast end (Semidi segment) of the Mw 8.3 megathrust rupture areas offshore Alaska *A. Krabbenhoeft, R. von Huene, D. Klaeschen, J. J. Miller*

**P16** An analysis of marine forearc extension on the northern Hikurangi subduction margin using high resolution 3D seismic data *C. Böttner, F. Gross, J. Geersen, G. Crutchley, J. Mountjoy, S. Krastel*

**P17** The Calabrian Arc: deep structure and deformation from Multichannel Seismic data *A. Calahorrano B., C. R. Ranero, Nevio Zitellini, Valentí Sallarès and CHIANTI scientific cruise party*

**P18** ANTITHESIS Cruises: Investigating the Northern Lesser Antilles margin (Antigua-Virgin Islands) from the interplate contact structure to the shallow tectonic partitioning and the seismic activity. *B. Marcaillou, F. Klingelhoefer and the Antithesis cruises Scientific Party*

**P19** Structure and seismicity associated with dehydration of slow-spread oceanic lithosphere *M. Paulatto, M. Laigle, A. Galve, P. Charvis, B. Marcaillou, Y. Biari*

**P20** 2D velocity and interplate geometry model of the North Chile margin from joint refraction and wide-angle reflection travel time inversion *S. Begovic, C. Ranero, V. Sallarès, I. Grevemeyer*

**P21** Seismic velocity structure of the Calabrian subduction system: new insights from the CHIANTI wide-angle seismic survey *M. Prada, V. Sallarès, C.R. Ranero, N. Zitellini, I. Grevemeyer, CHIANTI scientific party*

**P22** Influence of the intra-plate geometry on earthquake nucleation: insights from the seismic and tectonic structure of Southern Costa Rica *S. Martínez-Loriente, V. Sallarès, C.R. Ranero, Jonas B. Ruh, I. Grevemeyer, K. McIntosh*

**P23** Unveiling the fault source of the January 25th 2016, Mw 6.4 earthquake (Alboran Sea) constrained by seismological and geological data *E. Gràcia, I. Grevemeyer, H. Perea, R. Bartolomé, S. Martínez-Loriente, L. Gómez de la Peña, C. R. Ranero, A. Villaseñor, S. Diez, E. d'Acromont, A. Rabaute*

**P24** Along- and across-strike shallower structure of the subduction/collision zone in the northern Hispaniola margin *A. Rodríguez-Zurrunero, J. L. Granja Bruña, A. Carbó-Gorosabel, A. Muñoz-Martín, J.M. Gorosabel, L. Gómez de la Peña, M. Gómez Ballesteros, A. Pazos, M. Catalán, M. Druet, P. Llanes*

**P25** The uneven crustal structure at the subduction termination between Rivera and North American plates at the Jalisco block *J.J. Dañobeitia, R. Bartolomé, M. Prada, F. Nuñez-Cornú, D. Córdoba, W. L. Bandy, F. Estrada, D. Nuñez, C. Mortera, M. Ortiz*

**P27** Analysis of Wadati-Benioff Zone seismicity *M. Ruscic, D. Becker, L. Le Pourhiet, P. Agard, T. Meier*

**P28** Additional testing of the hypothesis that great (>Mw8.0) megathrust earthquakes are linked to where thick sediment and bathymetrically smooth seafloor enter the subduction zones *D. Scholl, S. Kirby, R. von Huene*

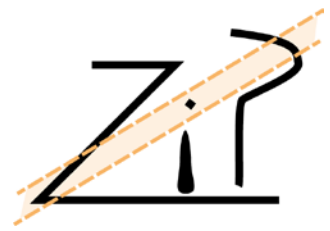
**P29** SubRough database: Proxy of subduction interface Roughness and its relation with seismogenic potential. Part 1 - Methodology *M. Peyret, S. Lallemand, D. Arcay, E. van Rijsingen*

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**P30** SubRough database: Proxy of Subduction interface Roughness and its relation with seismogenic potential. Part 2 - analysis *S. Lallemand, M. Peyret, E. van Rijnsingen, D. Arcay*

**P31** How to simulate the subduction interface in a convection and compositional model? The effects of numerical and rheological parameters *D. Arcay*

**P32** Boundary-element modeling of two plates interaction at subduction zones *G. Gerardi, N.M. Ribe*

**P33** Opposite polarity subduction in adjacent plate segments *M. Peral, A. Király, S. Zlotnik, F. Funicello, M. Fernandez, C. Faccenna*

**P34** Incorporating dynamical information into 3D inversion problem to determinate lithospheric structure: efficient solvers for Stokes problems via Model Order Reduction *O. Ortega-Gelabert, S. Zlotnik, J. C. Afonso, P. Díez*

**P35** Evidence for small-scale convection in the North Atlantic lithosphere from geodynamic modeling *J. Likeran, S. Zlotnik, C. Li*

**P36** Effect of Shear Zone Viscosity, Yield Strength and Overriding Plate Structure on Slab Dynamics with Pyrolite Mantle Composition and Phase Transitions *M.I. Billen, K.M. Arredondo*

**P37** Stressing and breaking a single strong asperity – the 2014 M8.1 Iquique, northern Chile earthquake sequence *B. Schurr, M. Moreno, A.M. Tréhu, J. Bedford, S. Li, O. Oncken*

**P38** The Indo-Australian intraplate stress defined in the northern Wharton Basin and its relationship with the Himalayan front *P. Vannucchi, M. Hamahashi, A. Kenigsberg, Y. Shan, P. Vrolijk, and IODP Exp. 362 Scientific Party*

**P39** Stratigraphic record of the Atacames seamount subduction beneath the North- Ecuadorian margin *C. Martillo, M. Muthre, J.-N. Proust, F. Michaud, J.-Y. Collot, G. Loayza*

**P40** Geometry, segmentation and tearing of the Hellenic Subduction Zone, new insights from seismicity *Bocchini G.M., Brüstle A., Becker D., Ruscic M., Papadopoulos G., van Keken P., Meier T.*

**P41** Sabalan Volcano, NW Iran, Evidence for slab break off process *S.Z. Mousavi, J. Ghalamghash, R. Zamani, A. Safari, K. Panahi Khiavi*

**P42** From ductile to brittle deformation at blueschist-facies conditions: case study of a brecciated mylonite in the Voltri Massif (Western Alps, Italy). *C. Malatesta, L. Federico, L. Crispini, G. Capponi*

**P43** Several-km thick accretion at ~80 km along the plate interface: evidence from the Chinese Tianshan UP-UHP metamorphic belt *L. Bayet, T. John, P. Agard, J. Gao, T. Zhou*

**P44** Short and long term analysis of upper plate deformation in Northern Chile subduction zone with GPS and tiltmeter data *G. Meneses, C. Vigny, F. Boudin*

**P45** Basal erosion: barrier to earthquake propagation? Insight from the northern Chilean forearc *R. Tissandier, N. Cubas*

**P46** Water migration in the subduction mantle wedge: a two phase flow approach *H. Wang, R.S. Huismans, S. Rondenay*

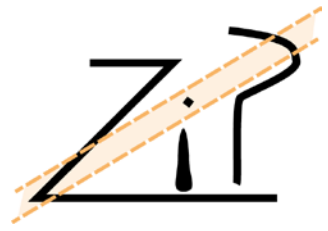
**P47** SubRough database: Proxy of Subduction interface Roughness and its relation with seismogenic potential. Part 3 – Application Joint inversion: The way forward to a comprehensive Earth model *E. van*

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*Rijsingen, S. Lallemand, M. Peyret, D. Arcay*

**P48** Monitoring deformation offshore Chile by employing seafloor geodesy (GeoSEA) *K. Hannemann, H. Kopp, D. Lange, F. Petersen*