



# **8<sup>th</sup> INTERNATIONAL PATA Days**

**Blenheim, New Zealand**  
HANDBOOK AND PROGRAMME

**13-16 November 2017**

KJ Clark , P Upton, R Langridge, K Kelly, K Hammond

GNS Science Miscellaneous Series 110  
November 2017

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## BIBLIOGRAPHIC REFERENCE

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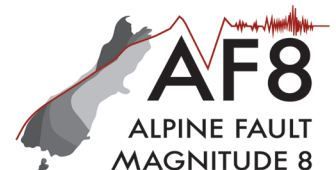
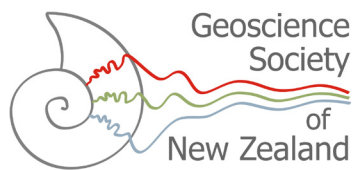
Petra Stepancikova, Institute of Rock Structure and Mechanics, Academy of Sciences of the Czech Republic

Mark Stirling, University of Otago

Phaedra Upton, GNS Science

Neta Wechsler, Tel Aviv University

Beau Whitney, The University of Western Australia/Fugro Geoter



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# INTRODUCTION AND PURPOSE

Welcome to the 8th PATA Days Meeting in Blenheim, New Zealand. The GNS Science Earthquake Geology team, and our colleagues at Victoria University of Wellington, University of Canterbury and University of Otago are very pleased to welcome you all to New Zealand. The purpose of this meeting is to share new research, ideas and techniques in the fields of paleoseismology, active tectonics and archaeoseismology. We are delighted to be hosting this event in New Zealand in 2017. Several years ago, the GNS Science earthquake geology team started discussing ways in which we could commemorate the tricentenary of the AD 1717 (+/- 5 yrs!) M~8.0 Alpine fault earthquake. An international conference seemed an ideal way to gather earthquake geology expertise in New Zealand, share some of the recent work we have been undertaking on the Alpine fault and raise public awareness of the hazard posed by the Alpine fault. Alas, our plans to hold the meeting in April in Hokitika on the West Coast were well derailed by the 2016 Kaikōura earthquake. It is with some relief that we are now holding the meeting in November 2017 – our re-adjusted plans were not interrupted by another earthquake and we are still within the tercentenary year of the last great Alpine fault earthquake!

The 2016 Kaikōura earthquake demonstrates the many ways in which a large earthquake can create devastation and reshape our understanding of earthquake and tsunami hazards. One year on, main transport routes in the northern South Island are still severely disrupted, communities still isolated, and ongoing aftershocks, land instability and sediment mobilisation are constant reminders that earthquake recovery & rebuilding is a prolonged process. Amongst this are many remarkable stories of resilience and community strength. On a personal level, all earthquake geologists in New Zealand have been humbled by the generosity of landowners in allowing us access to their land for undertaking research, even in these times of severe disruption to their livelihoods. The science community has much to learn from the Kaikōura earthquake – from our underpinning understanding of how plate boundaries evolve in time and space, through to slow-slip triggering, turbidite emplacement, earthquake-induced landslide distribution, the ongoing sedimentary response as landslide debris moves downstream and communication of earthquake science in times of crisis. We hope that this meeting allows an opportunity for all to share the latest in earthquake geology research and to learn more about active tectonics in the many parts of the world from which we have all gathered. We hope you enjoy the meeting.

Kate Clark, Phaedra Upton, Rob Langridge.

## Venue Locations

### WORKSHOP

#### **Marlborough Convention Centre**

42A Alfred Street, Blenheim 7201

+64 3 579 5049

<https://www.marlboroughconventions.co.nz/>

### ICEBREAKER

#### **Biddy Kate's Backpackers**

2 Market Street, Blenheim 7201

+64 3-578 3299

<http://www.biddykates.com/>

### DINNER (DAY 4)

#### **Dodson Street Beer Garden**

1 Dodson Street, Mayfield, Blenheim 7201

+64 3 577 8348

<http://www.dodsonstreet.co.nz/>

### DINNER (DAY 5)

#### **Wither Hills Winery**

211 New Renwick Road, Blenheim 7272

+64 3 520 8284

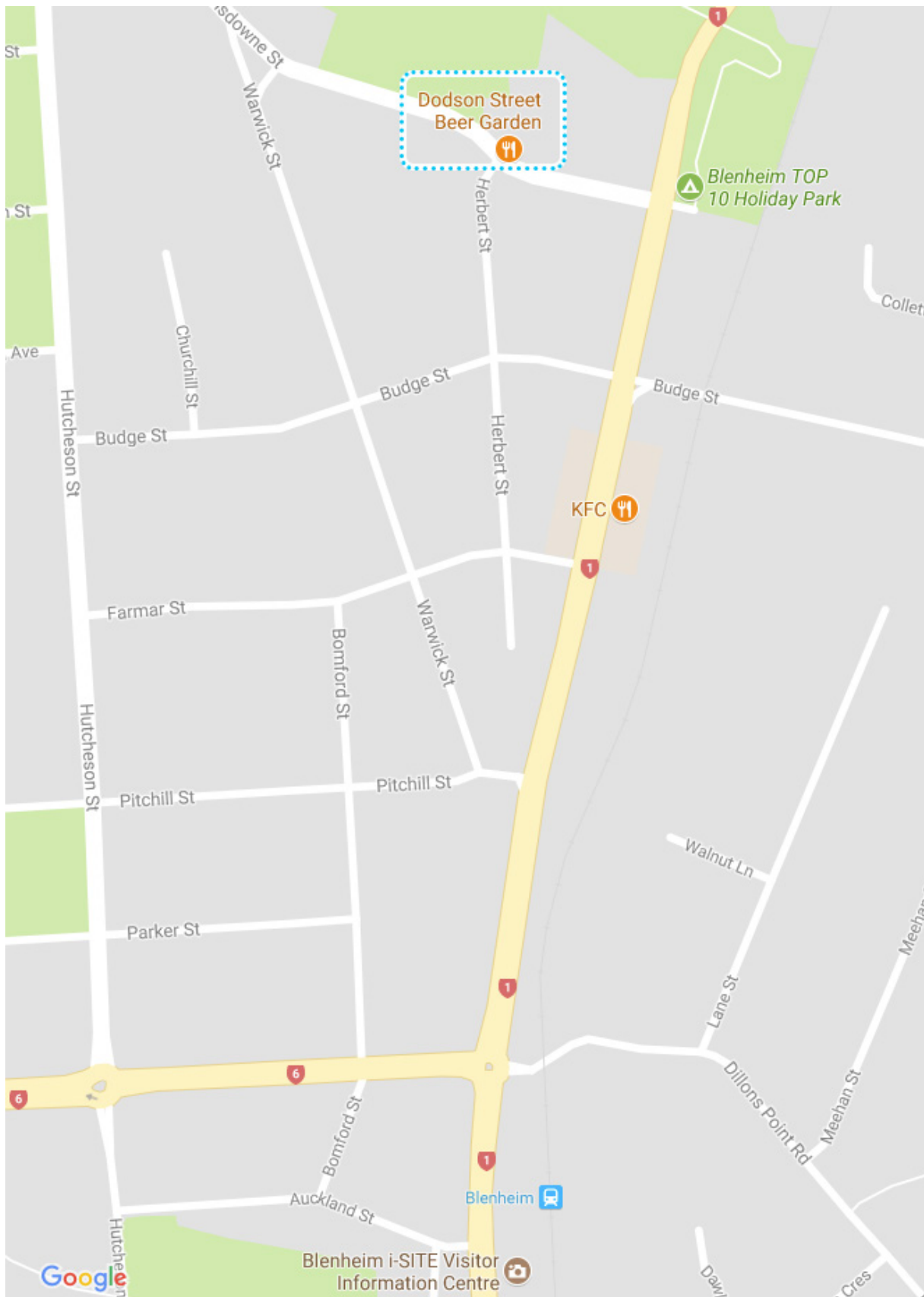
<http://witherhills.co.nz/>

# Map of Marlborough Convention Centre



Map of Blenheim showing the Marlborough Convention Centre, Biddy Kate's (location of the Icebreaker) and the Visitor Information Centre.

## Map of Dodson Street Beer Garden



Map showing the dinner location on Wednesday night at Dodson Street Beer Garden.

# Icebreaker

Time: 6:30 - 8:00 PM

Date: 12 November 2017

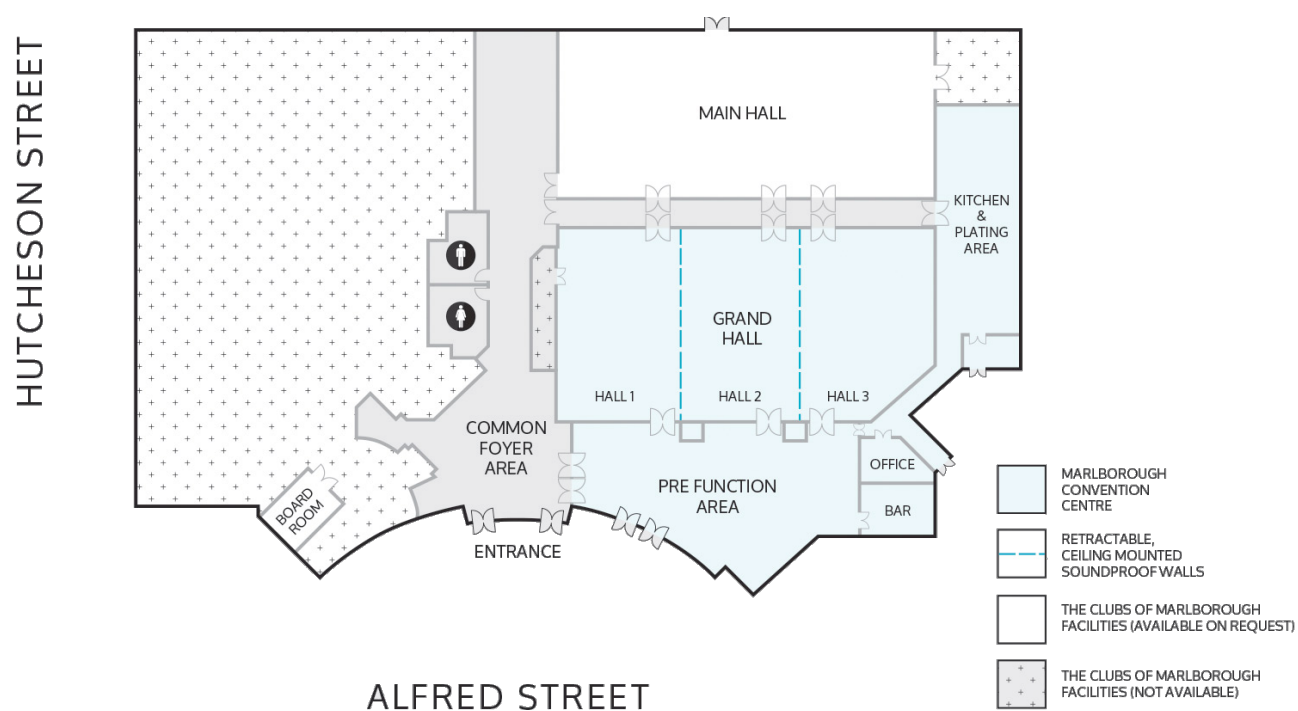
Biddy Kate's Bar, 2 Market St, Blenheim

## Marlborough Convention Centre

The 2017 PATA Days meeting will be held at the Marlborough Convention Centre which located near the centre of Blenheim. Buses for the field trips will leave and return from the Marlborough Convention Centre.



### FLOOR PLAN



## Internet Access

During our meeting, free wireless internet access will be available. Further details on accessing this network will be provided at the venue.

For internet access during your own time please see your hotel reception or see Marlborough's FreeSpot service: <https://www.marlborough.govt.nz/our-community/how-to-access-freespot>.

## Fieldtrip

For all those going on the post-conference fieldtrip. You will have been sent the information you need by email. We will be departing from the conference centre at 8:30am sharp on Friday morning.

## Abstracts

<http://www.earthquakegeology.com/index.php?page=publications&s=6>

Will also be on: <https://gns.cri.nz/PATA>

# PROGRAMME

## Sunday, 12 November

DAY 1

6:30 PM Icebreaker

## Monday, 13 November

FIELD TRIP - DAY 2

8:30 AM Field-trip departs (*All participants*)

## Tuesday, 14 November

MARLBOROUGH CONVENTION CENTRE - DAY 3

8:30 AM Opening (*Kate Clark - GNS Science, Ian Simpson - CEO, GNS Science, Christoph Greutzner - Friedrich Schiller University Jena/INQUA-IFG*)

### COMPLEX FAULT RUPTURES ON TRANSPRESSIONAL PLATE BOUNDARIES (TIM STAHL, RUSS VAN DISSEN)

- 9:00 AM **Kaikōura earthquake: overview of seismology, geodesy & earthquake geology** (*Pilar Villamor*)
- 9:30 AM Surface Rupture and Slip Distribution of the Kekerengu Fault during the Mw 7.8 2016 Kaikōura Earthquake (*Jesse Kearse*)
- 9:45 AM Preliminary geometry and kinematics of multiple surface ruptures during the 2016 MW 7.8 Kaikōura earthquake, North Canterbury region, New Zealand (*Narges Khajavi*)
- 10:00 AM The Hundalee Fault and the Mw7.8 2016 Kaikōura earthquake (*Mark Stirling*)
- 10:15 AM Multi-fault earthquakes with rupture complexity: how common? (*Mark Quigley*)
- 10:30AM **Morning tea**
- 11:00 AM Three-dimensional coastal deformation in the Mw 7.8 Kaikōura earthquake from differential airborne lidar (*Ed Nissen*)
- 11:15 AM Surface displacement during and after the 2016 Kaikōura earthquake revealed from SAR imagery (*Teng Wang*)
- 11:30 AM High-resolution optical-image correlation for the Kaikōura earthquake, slip distribution and rupture processes (*Yann Klinger*)
- 11:45 AM The role of surface-rupturing faults in the Waiautoa microblock, Clarence valley, New Zealand, during the Mw 7.8 2016 Kaikōura Earthquake (*Rob Langridge*)
- 12:30 PM **Lunch**
- 1:30 PM Castle Mountain fault, southcentral Alaska: Observations on slip partitioning from lidar and paleoseismic trenching (*Rich Koehler*)
- 1:45 PM Paleo-uplift along the Kaikōura coastline: evidence from Holocene marine terraces (*Nicola Litchfield*)
- 2:00 PM Past multi fault ruptures at the southern Hikurangi margin (*Kate Clark*)
- 2:15 PM Landslides triggered by the MW 7.8 14 November 2016 Kaikōura Earthquake, New Zealand (*Chris Massey*)

### ARCHAEOSEISMOLOGY (NICOLA LITCHFIELD)

- 2:30 PM Archaeoseismology: Studying past earthquakes using archaeological data (*Tina Niemi*)
- 2:45 PM OSL Dating of Sediments Pre- and Post-dating Late Quaternary (*Manfred Frechen*)

3:00 PM **Afternoon break**

### POSTER SESSION

- 3:30 PM 28 Posters
- Complex Fault Ruptures on Transpressional Plate Boundaries
- Studies on Other Topics Related to Earthquakes Geology
- Earthquake Behaviour of High Slip Strike-Slip Faults

7:00 PM - 8:30PM **Public Talk**

Earthquake research from New Zealand and beyond

## ADVANCES IN PALEOSEISMIC TECHNIQUES (JAMIE HOWARTH)

- 8:30 AM** Optically stimulated luminescence dating (OSL) in awkward places: what is doable in tectonically active environments (*Sebastian Huot*)
- 9:00 AM Sedimentary Evidence for the 2016 November M 7.8 Kaikōura Earthquake and Possible Sedimentary Evidence for Paleoeearthquakes along the Hikurangi Subduction Zone (*Jason Patton*)
- 9:15 AM Paleoseismological studies on Hinagu Fault, Kumamoto, Japan (*Takashi Azuma*)
- 9:30 AM Combined high-resolution topographic analysis and paleoshoreline dating reveal spatio-temporal variability in slip rates on low-strain-rate normal faults (*Ann Egger*)
- 9:45 AM Paleoseismic Study Enhanced by U-Series Geochronology of Pedogenic Carbonate from Displaced Fluvial Gravel Deposits, Issyk-Ata Fault, Central Tien Shan, North Kyrgyzstan (*Magda Patyniak*)
- 10:00 AM Holocene deformation events in the offshore Transverse Ranges (California, USA) constrained by new high-resolution geophysical data (*Hector Perea Manera*)
- 10:15 AM Varve ages and the paleoearthquake interpretations of event horizons from three lakes, Quebec, Canada (*Greg Brooks*)
- 10:30 AM** Morning tea

## POSTER SESSION

- 11:00 AM 30 posters
- Earthquake Geology Contributions to Seismic Hazard Analysis
- Large Earthquakes in Mountaineous Regions and Landscape Response
- Advances in Paleoseismic Techniques
- Archaeoseismology
- 12:45PM** Lunch

## ADVANCES (CONT.)

- 1:30 PM Slope failure - effect or trigger of tremors? Insights from geoelectrical methods, speleothem deformations dating (Tatra Mts., Carpathians) (*Maciej Mendecki*)
- 1:45 PM Soft sediment deformation structures from cave as an indicator of tremors in mountains: insights from site effects analysis (Kalacka Cave, Tatra Mts., Carpathians) (*Jacek Szczygiel*)

## EARTHQUAKE GEOLOGY CONTRIBUTIONS TO SEISMIC HAZARD ANALYSIS (PILAR VILLAMOR, STEPHANE BAIZE)

- 2:00 PM** The M7 2016 Kumamoto, Japan, Earthquake: 3D coseismic deformation from differential topography (*Chelsea Scott*)
- 2:30 PM Imaging the distribution of transient viscosity following the 2016 Mw 7.1 Kumamoto earthquake (*James Moore*)
- 2:45 PM Fast fault tip propagation driven by near-surface lithology: evidence from trishear inverse modeling (*Franz Livio*)
- 3:00 PM** Afternoon break
- 3:30 PM Tectonic Geomorphology, Late Quaternary Slip Rate, and Paleoseismology of the Whittier Fault in Southern California (*Eldon Gath*)
- 3:45 PM The new Italian seismic hazard model (*Carlo Meletti*)
- 4:00 PM Towards modelling the hazard relating to episodically slipping faults in slowly deforming regions (*Dan Clark*)
- 4:15 PM Hydrocode modeling of seismic deformation structures – assumptions and preliminary results (*Malgorzata Bronikowska*)
- 4:30 PM Earthquake history of the western Issyk-Ata Fault, Central Tien Shan, North Kyrgyzstan (*Angela Landgraf*)
- 4:45 PM INQUA - IFG Meeting
- Last year's activities, news, future PATA events, strategy. Everyone's welcome.
- 6:40 PM** Leave for the dinner venue - Dodson St Beer Garden (Walking distance - see the map on page X)
- 7:00 PM** Dinner - Dodson St Beer Garden

## LARGE EARTHQUAKES IN MOUNTAINEOUS REGIONS AND LANDSCAPE RESPONSE (PHAEDRA UPTON)

- 8:30 AM Near real-time modelling of landslide dams from the 2016 Kaikōura earthquake (*Tom Robinson*)  
9:00 AM Surface rupture of the 1933 M 7.5 Diexi earthquake in eastern Tibet: implications for seismogenic tectonics (*Junjie Ren*)

## EARTHQUAKE GEOLOGY CONTRIBUTIONS TO SEISMIC HAZARD ANALYSIS (PILAR VILLAMOR, STEPHANE BAIZE)

- 9:15 AM Tectono-magmatic domains of the eastern Basin and Range, Utah, determined from paleoseismic investigations of active faults (*Tim Stahl*)  
9:30 AM Paleo-liquefaction; an Alternative Tool for Seismic Hazard Assessments (*Sarah Bastin*)  
9:45 AM Uplift of Fluvial Meanders at Kendeng Fold and Thrust Belt (East Java, Indonesia): Evidence of Late Quaternary Thrust Faulting (*Gayatri Marliyani*)  
10:00 AM New school faults and seismic hazard, guilty (i.e. active) until proven innocent (i.e. inactive)? (*Gregory De Pascale*)  
10:15 AM The AD 1755 Lisbon Earthquake-Tsunami: Modeling the seismic source from the analysis of environmental and building macroseismic data (*Pablo Silva*)  
10:30 AM Morning tea

## EARTHQUAKE BEHAVIOUR OF HIGH SLIP STRIKE-SLIP FAULTS (URSULA COCHRAN)

- 11:00 AM Paleoseismology of the northern Elsinore fault in southern California (*Tom Rockwell*)  
11:15 AM Geomorphic and Paleoseismic Investigation of a Prominent Secondary Strand of the San Andreas Fault in the Carrizo Plain: Implication for Rupture Complexity (*Sinan Akciz*)  
11:30 AM Timing of Earthquakes during the past 800 years along the Peninsula Section of the San Andreas Fault Suggests Persistent 1906-like Behavior (*Gordon Seitz*)  
11:45 AM Late Holocene Surface Rupturing on the Kekerengu fault, New Zealand (*Tim Little*)  
12:00 PM Kekerengu Fault: Characterisation of fault slip rate over the last ca 30 ka, and surface rupture displacement perpendicular to strike during the 2016 Kaikōura Earthquake (*Russ Van Dissen*)  
12:30 PM Lunch  
12:15 PM A revised earthquake history for the North Westland segment of the Alpine Fault (*Jamie Howarth*)  
1:30 PM Development of an 8000-year record of large earthquakes on the Alpine Fault, New Zealand: where to from here? (*Ursula Cochran*)  
1:45 PM Along-strike variations in fault geometry and slip distribution along the Bulnay Fault, Mongolia (*Jin-Hyuck Choi*)  
2:00 PM The 2007 Aysén earthquake sequence: complex faulting and seismic migration in a transpressional fault zone (*Angelo Villalobos*)  
2:15 PM Late Quaternary activity of the Dangjiang fault, Central Tibetan Plateau (*Xuemeng Huang*)

## EARTHQUAKE GEOLOGY GENERAL CONTRIBUTIONS (TIM DAWSON)

- 2:30 PM Paleoseismology and Late Quaternary upper crustal deformation along active submarine faults on the continental shelf at 23°S, northern Chile (*José González-Alfaro*)  
2:45 PM Assessing giant tsunamigenic subduction earthquakes in the Northern Chile Seismic Gap during the last millennia from submarine and archaeological records (*Gabriel Vargas*)  
3:00 PM Afternoon break  
3:30 PM Kinematics of the Area Between Palu (Elazığ) and Pütürge (Malatya) on the East Anatolian Fault System in Turkey (*Mehmet Kokum*)  
3:45 PM Late Quaternary activity of slow-slip intraplate Mariánské Lázně fault as revealed by trenching and shallow geophysical survey; Bohemian Massif (Czech Republic, central Europe) (*Petra Štěpančíková*)  
4:00 PM Resistivity imaging of an active tectonics on examples from Central Europe (*Petr Taborik*)  
4:15 PM Authentic collaboration with local communities in post-disaster reconnaissance and beyond: how to create a win-win scenario (*Kate Pedley*)  
6:00 PM Bus departs for the dinner venue - Wither Hills Winery  
6:15 PM Dinner - Wither Hills Winery

- 8:30 AM Post-meeting field trip departs

# POSTER PRESENTATIONS

## Tuesday Posters

3:30 - 5:30 PM

### COMPLEX FAULT RUPTURES ON TRANSPRESSIONAL PLATE BOUNDARIES

- Anthropogeomorphology and Paleoseismology Blend to Define the Marvast Active Fault Slip History and Potential Seismology, Central Iran (*Abolghasem Goorabi*)
- Preliminary insights of the fault geometries and kinematics along the South Leader Fault System during the Mw 7.8 Kaikōura earthquake (*Natalie Hyland*)
- Rupture patterns on the North Leader Fault System during the Mw7.8 2016 Kaikōura Earthquake (*Tabitha Bushell*)
- The effect of crustal structure on fault interactions (*Susan Ellis*)

### EARTHQUAKE GEOLOGY GENERAL CONTRIBUTIONS

- An Extreme Wave Event in eastern Yucatán, Mexico: evidences of paleotsunami during the Mayan time. (*Javier Lario*)
- Exploratory use of random forest classification for characterising and predicting patterns of liquefaction ejecta (*Monica Giona Bucci*)
- Extreme soft-sediment deformation structures as palaeoseismic indicators in slurries from the Late Triassic Ordos Basin (central China) (*Tom van Loon*)
- Factors controlling the distribution of building damage in the traditional Vrissa settlement induced by the 2017 June 12, Mw 6.3 Lesvos (Northeastern Aegean Sea, Greece) earthquake (*Efthymios Lekkas*)
- First steps in assessing paleoseismic activity along the eastern boundary of the Upper Rhine Graben (*Stephane Baize*)
- From fresh tsunami deposit to paleo tsunami deposit: Preservation and disappearance of the 2011 Tohoku-Oki tsunami deposit along the Misawa coast, northern Japan (*Yuichi Nishimura*)
- Historical and paleo-tsunami deposits on the Sanriku Coast, north-east Japan (*Daisuke Ishimura*)
- Past sea level markers as accurate earthquake geological effects: pros and contras (*Teresa Bardaji*)
- Possibility of the Late Holocene uplift in Youngil Bay, the southeast-ern part of Korean Peninsula (*Sung-ja Choi*)
- Post-earthquake rapid assessment using Unmanned Aircraft Systems (UAS) and GIS online applications: the case of Vrissa settlement after the 2017 June 12, Mw 6.3 Lesvos (North Aegean Sea, Greece) earthquake (*Varvara Antoniou*)
- Preliminary results of a multidisciplinary investigation on a slow-moving active strike-slip fault in Korea (*Yong Sik Gihm*)
- Quaternary deformation in the Cordillera Oriental between 24°-25° SL, Central Andes (NW Argentina) (*Victor Hugo Garcia*)
- Recording Holocene paleotsunamis along the hyperarid coast of Tal-tal region in Northern Chile (*Tomas Leon*)
- Scarp erosion and burial within four years following the M7.2 2010 El Mayor-Cucapah earthquake rupture from repeat terrestrial lidar scans (*Austin Elliott*)
- Simulation of Strong Ground Motion using Seismic Data of the Earthquake Occurred on September 12th 2016, near Gyeongju, Korea (*Hak-Sung Kim*)
- Slip rate estimation from tilting of marine terraces, Kaikoura, New Zealand (*Brendan Duffy*)
- Slope movements induced by strike-slip earthquakes in Western Greece (*Spyridon Mavroulis*)
- Southern Hikurangi Margin uplift rates and tectonic implications based on new marine terrace data from the south coast of the North Island, NZ (*Dee Ninnis*)
- The Characteristics of the Gyeongju Earthquake Observed from the Eupcheon Fault Monitoring System (*Sung-il Cho*)
- Trend and policy of Quaternary fault research in Korea after 2016 Gyeongju earthquake (*Seung Ryeol Lee*)
- Valley evolution of the Biala Łądecka drainage network during late Cenozoic, Lower Silesia, Poland (*Jakub Stemberk*)
- Which sedimentary environment best preserves paleoliquefaction features? (*Peter Almond*)

### EARTHQUAKE BEHAVIOUR OF HIGH SLIP STRIKE-SLIP FAULTS

- Refining the earthquake chronology of the last millennium along the Cholame segment of the San Andreas fault (*Alana Williams*)

## EARTHQUAKE GEOLOGY CONTRIBUTIONS TO SEISMIC HAZARD ANALYSIS

- Anatomy of the 2016-2017 central Italy coseismic surface ruptures and their arrangement with respect to the foreseen active fault systems segmentation (*Riccardo Civico*)
- Contemporary and Paleo Liquefaction Induced Lateral Spreading in Christchurch New Zealand (*Greg De Pascale*)
- Earthquake damages associated with the 2016 ML=5.8 Gyeongju earthquake, Korea (*Kwangmin Jin*)
- Earthquake fault propagation, displacement and damages (*Young-Seog Kim*)
- Evidences of glacio-isostatic rebound in Germany and Poland – an overview of the GREBAL project (*Szymon Belzyt*)
- Fault segmentation in central Apennines: insights from trenching data (*Francesca Romana Cinti*)
- Ground response analysis during the 8 October 2005 Kashmir earthquake (Mw 7.6): implication for historical and paleoearthquake deterministic hazard assessment (*Hamid Sana*)
- Integrating faults and past earthquakes into a probabilistic seismic hazard model for peninsular Italy (*Bruno Pace*)
- Lidar and field mapping of the western Hope Fault (*Jessica Vermeer*)
- New seismicity models for updating the national Italian seismic hazard model (*Francesco Visini*)
- Preliminary study on the triggering mechanism and related faults associated with the 9.12 Gyeongju Earthquake (M=5.8), SE Korea (*Teahyung Kim*)
- Saalian earthquakes in the Ujście Basin, W Poland (*Malgorzata Pisarska-Jamroz*)
- Towards a unified and worldwide database of surface ruptures (SURE) for Fault Displacement Hazard Analyses (*Stephane Baize*)

## LARGE EARTHQUAKES IN MOUNTAINOUS REGIONS AND LANDSCAPE RESPONSE

- Active faults related to the West Andean Thrust System (WATS) and coseismic mega-landslides, Central Chilean High Andes (*Jose Araya*)
- Deformation history of sackung features concentrated around the northern tip of the active Neodani Fault, central Japan (*Komura Keitaro*)
- Earthquake environmental effects induced by the 2017 June 12, Mw 6.3 Lesvos (North Aegean Sea, Greece) earthquake (*Vassiliki Alexoudi*)
- Measuring the slip-rate of the Ashgabat Fault, Turkmenistan (*Christoph Gruetzner*)
- Predicting rock failure as a function of the total stress state: An example from the western Southern Alps (*Phaedra Upton*)
- The Green Lake landslide and its implications for earthquake hazard in the southern South Island (*Tom Robinson*)

## ADVANCES IN PALEOSEISMIC TECHNIQUES

- Quaternary faulting near the Utah FORGE geothermal site from high resolution topographic data and luminescence dating (*Emily Kleber*)
- Rapid RS Data Collection for Landslide Damage and Fault Rupture using UAV and Structure-From-Motion Photogrammetry following the 2016 Mw 7.8 Kaikōura Earthquake (*Katie Jones*)
- Stream channel morphology for the assessment of Quaternary fault segmentation activity along the San Ramon fault (Santiago, Chile) (*Rachel Abrahams*)
- Tsunami or Hurricane? Mapping coastal boulders and boulder fields using satellite and high-resolution drone imagery with photogrammetric techniques (*Tina Niemi*)
- Untangling Tectonic Slip from the Potentially Misleading Effects of Landform Geometry (*Austin Eliot*)
- Using the X-ray micro-computed tomography to reveal cryptic strain fabric of faulted soft sediment: outlines of a pilot study and preliminary results (*Petr Spacek*)

## ARCHAEOSEISMOLOGY

- Back analysis of earthquake damage on buildings used for the detection of the basic seismological parameters of historical earthquakes: the case of the 1755 Great Lisbon earthquake (*Alexia Grampa*)
- Earthquake Archaeological Effects (EAEs) in Machupicchu. Preliminary results (*Miguel Angel Rodriguez-Pascua*)
- Lichenometric analyses of rocky fault scarps: The example of the Sencelles Fault (Balearic Islands, Spain). (*Pablo G. Silva*)
- SfM as a tool in Archaeoseismology (*Neta Wechsler*)
- The record of ancient and historic earthquakes in the archaeological site of Idanha a Vela (Central Portugal; Iberian Peninsula) (*Miguel Angel Rodriguez-Pascua*)

# ABSTRACTS

Copy of the abstracts is available at

<http://www.earthquakegeology.com/index.php?page=publications&s=6>

# LIST OF PARTICIPANTS

| LAST NAME       | FIRST NAME       | ORGANISATION                                                   | COUNTRY        |
|-----------------|------------------|----------------------------------------------------------------|----------------|
| ABRAHAMI        | Rachel           | University of Chile                                            | Chile          |
| AKCIZ           | Sinan            | California State University Fullerton                          | USA            |
| ALEXOUDI        | Vassiliki        | National and Kapodistrian University Of Athens                 | Greece         |
| ALMOND          | Peter            | Lincoln University                                             | New Zealand    |
| ANTONIOU        | Varvara          | National and Kapodistrian University of Athens                 | Greece         |
| ARAYA           | Jose             | University of Chile                                            | Chile          |
| AZUMA           | Takashi          | Geological Survey of Japan/AIST                                | Japan          |
| BAIZE           | Stephane         | Institut Radioprotection et Surete Nucleaire                   | Germany        |
| BARDAJÍ         | Teresa           | Universidad de Alcalá                                          | France         |
| BARRELL         | David            | GNS Science                                                    | Spain          |
| BASTIN          | Sarah            | QuakeCoRE, University of Canterbury                            | New Zealand    |
| BELZYT          | Szymon           | Uniwersytet im. Adama Mickiewicza w Poznaniu                   | Poland         |
| BERRYMAN        | Kelvin           | GNS Science                                                    | New Zealand    |
| BRONIKOWSKA     | Malgorzata       | Adam Mickiewicz University in Poznań                           | Poland         |
| BROOKS          | Greg             | Geological Survey of Canada                                    | Canada         |
| BROUGH          | Thomas           | University of Canterbury                                       | New Zealand    |
| BUSHELL         | Tabitha          | University of Canterbury                                       | New Zealand    |
| CHO             | Sung-il          | Korea Hydro & Nuclear Power company                            | South Korea    |
| CHOI            | Jin-Hyuck        | Korea Institute of Geoscience and Mineral Resources            | South Korea    |
| CHOI            | Sung-ja          | Korean Institute of Geoscience and Mineral Resources           | South Korea    |
| CINTI           | Francesca Romana | Istituto Nazionale di Geofisica e Vulcanologia                 | Italy          |
| CIVICO          | Riccardo         | Istituto Nazionale di Geofisica e Vulcanologia                 | Italy          |
| CLARK           | Kate             | GNS Science                                                    | New Zealand    |
| CLARK           | Dan              | Geoscience Australia                                           | Australia      |
| COCHRAN         | Ursula           | GNS Science                                                    | New Zealand    |
| CODY            | Emma             | Massey University                                              | New Zealand    |
| DAWSON          | Timothy          | California Geological Survey                                   | USA            |
| DE PASCALE      | Gregory          | University of Chile                                            | Chile          |
| DUFFY           | Brendan          | The University of Melbourne                                    | Australia      |
| EGGER           | Anne             | Central Washington University                                  | USA            |
| ELLIOTT         | Austin           | University of Oxford                                           | United Kingdom |
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