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INQUA Early Career Researcher Conference and Summer School 2016

This year the internationally renowned INQUA ECR conference was hosted by the School of Archaeology and Geography and Environmental Sciences (SAGES) and the Department of Meteorology of the University of Reading (UoR), England.

The event themed "Using observations and modelling to understand past climate changes" brought together the palaeoecological and climate modelling communities to encourage multidisciplinary science during a 5 days residential Conference and Summer School. Besides having oral and poster presentations from delegates, the committee in charge added a teaching component as well as extra activities such as a field excursion to a National Nature Reserve in South East England and laboratory visits within SAGES which made the event integrative and social. Laboratory visits were to the Chemical Analysis, Dendrochronology and the Tropical Palaeoecology labs. The organisation of the conference, led by Dr Macarena Cárdenas, included both ECR and renowned academics working at the UoR such as Professor Sandy Harrison and Joy Singarayer.

This unique event brought 43 delegates from all over the world, including delegates from New Zealand, Australia, Argentina, Brazil and USA, as well as from all around Europe including Romania and Greece. Delegates called their experience at the conference as "inspiring", "illuminating", "research boosting" and "exciting".

The event was held between the 5th-9th September and it was sponsored by the internationally renowned research groups INQUA, Quaternary Research Association (QRA), the Royal Geographical Society (RGS) as well as the School of Mathematics and Physical Sciences of the University of Reading.

Photos and details of the event can be found in the webpage: inquaecr2016.com

Early Career Researchers Events at INQUA 2019

ECR Local Organising Committee: Darren Barry, Margaret Browne, Donna Hawthorne, Sabrina Renken

The next XX INQUA Congress will take place in Dublin, Ireland from the 25th-31st July 2019, with the theme "Life on the Edge". It promises to be a fantastic event showcasing national and international research and highlighting Quaternary research currently taking place in Ireland. Ireland's famously beautiful landscape contains a wealth of evidence depicting a dynamic Quaternary history, some of which you will be able to experience on one of the pre, mid or post congress fieldtrips. A number of self-guided fieldtrips will also be available so you can explore Ireland's spectacular landscape at your leisure. The landscape boasts dramatic glacial landforms, a varied coastline, extensive peatlands, innumerable lakes, and a rich archaeological heritage.

The scientific programme and sessions assure to cover a wide range of interests within Quaternary research, drawing inspiration from the five INQUA commissions; from glacial geomorphology to paleolimnology, palynology to diatoms, past and future climate changes, to human influences and the Anthropocene. The most current topics and research will be discussed and presented. The congress offers the perfect setting to present your research, meet current and future colleagues and collaborators, and provides the unique opportunity to get involved with the INQUA commissions and their specific programme of events.

In addition to the excellent scientific programme, at the 2019 congress there will be specific events aimed at Early Career Researchers (ECR). The proposed events will cover 5 main themes;

Academic Sessions: e.g. Introduction to R, Data/Model comparisons, Chronology creation, Introduction to Quaternary statistical techniques.

Science Communication: e.g. Presentation skills, Academic publishing, Effective scientific illustrations/diagrams, Science in the media.

Logistics of Science: e.g. Project management, Funding and grant writing, Fieldtrip planning, Thesis writing, Data management.

Career Skills: e.g. CV writing, Interview skills, Academia vs Industry, Online Networking, Linkedin, Conference networking.

Social Events: e.g. ECR dinner, Ice-breaker, designated stall/coffee area, women in science event, fieldtrip.

In addition to the proposed ECR events above there will be INQUA related events, which will highlight what is INQUA, how it works, how to become a committee member, how to get involved in an INQUA commission etc. There will also be an INQUA ECR Business meeting which will present the report from the last Inter-Congress meeting, introduce the committee members, include the ratification of the new committee chair and discuss ECR related topics.

The 2019 ECR congress local organising committee wish to provide the best experience for delegates and a specific program of interactive and engaging events for ECRs. To help do this, we would like your input!

Below is a link to a short survey, which will take less than 10 mins. Your suggestions and feedback will help us organise an exciting and dynamic congress, and make your stay in Ireland all the more memorable. All information gathered through this questionnaire will remain strictly confidential and the information will not be disclosed to third parties (individuals / institutions / organisations) under any circumstances.

On behalf of the 2019 ECR congress committee I thank you for your response and engagement and we hope to see you in Ireland in 2019 for what hopes to be an exciting and enlightening congress.

If you have any queries or concerns, please contact us at inqua2019.ecr@gmail.com. Likewise if you feel you would like to be involved in the organisation of any of the specific events, please do not hesitate to get in touch.

You can keep up to date with INQUA ECR activities on:

Facebook: https://www.facebook.com/INQUADUB2019 and https://www.facebook.com/INQUAECR

Twitter: https://twitter.com/INQUADUB19 and https://twitter.com/INQUA_ECR

Web: www.inqua2019.org and http://www.iqua.ie/INQUA_2019.html

Don't forget to fill out the survey: Survey

Darren, Donna, Margaret, Sabrina,
INQUA 2019 ECR Committee

1603P: MEDFLOOD – MOPP MOdeling Paleo Processes

Leaders: Matteo Vacchi (Aix Marseille Université-Cerege, France), Sara Biolchi (University of Trieste, Italy), Daniel Harris (University of Bremen, Germany), Alessio Rovere (University of Bremen, Germany), Giovanni Scicchitano (Studio Geologi Associati, Catania, Italy)

Report on the first workshop for International Focus Group MOPP-MEDFLOOD, 8th-9th September 2016, Bremen, Germany

Author: Daniel Harris[1]
[1] University of Bremen, Germany

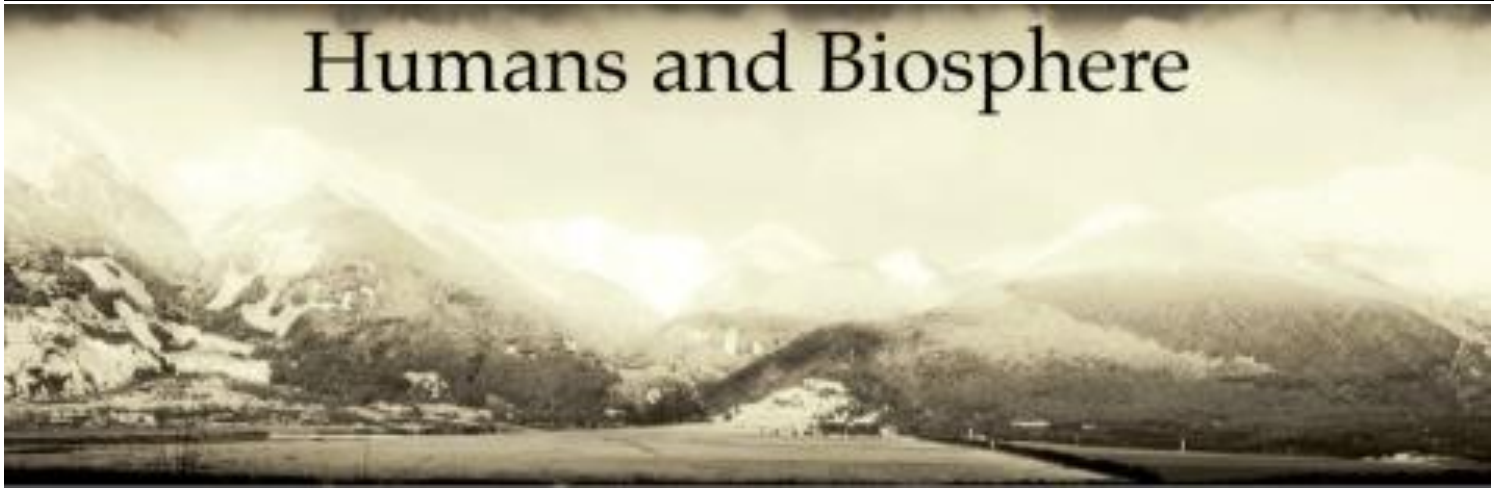
The first meeting of the new MOdelling Paleo Processes (MOPP-MEDFLOOD) INQUA International Focus Group (IFG) occurred at the Leibniz Center for Marine Tropical Research (ZMT) and the Center for Marine Environmental Sciences (MARUM), The University of Bremen. The MOPP-MEDFLOOD IFG (hereon MOPP) stems from the results of the original MEDFLOOD IFG, which was funded by INQUA from 2012 to 2015. The main aim of the first 4 years of MEDFLOOD was to bridge the communities of earth scientists and archaeologists working on sea-level problems in the Mediterranean Sea. The goals of MOPP is to grow the scientific community and scope of the original MEDFLOOD by adding researchers from the coastal processes fields which will allow for the modelling of paleo events (such as storms and tsunamis) during different sea levels as well as analyse the complex men-environment interaction in the past (historical and pre-historical) by modelling the paleo dynamics of the coastal areas . MOPP will also look to expand the geographic focus of MEDFLOOD from the Mediterranean to a more global scale. The workshop was coordinated by MOPP principle leader Dr. M. Vacchi and was organised by members of the Sea Level and Coastal Changes group in Bremen including A. Rovere, D. Harris, and Dr. Elisa Casella. The workshop was attended by 25 international scientists from three continents who were mostly early career. The scientific program included two days of talks divided into four themes which were introduced and convened by the MOPP leaders.

The first day of talks at MARUM was started by M. Vacchi who outlined the plan and goals over the two day workshop and then introduced the first theme of the day which was **Quaternary evolution of coastal areas: Open archaeological and geomorphological challenges**. This theme included presentations from archaeologists, geographers and geologists working on coastal sites in the Mediterranean and provided details into the coastal processes and sea level changes during the Holocene and Pleistocene. A number of interesting topics were discussed which highlighted the interdisciplinary scope of the MOPP community including, for example, the links between archaeological (e.g. pile dwellings, salt kilns) and geological (e.g. marine terraces, mud flats) sea level indicators.

The next theme after lunch was **Best practices for paleo-environmental reconstructions. What degree of resolution we can currently achieve?** led by G. Scicchitano began the session giving an overview of the state-of-the-art methods available to measure and map coastal features that are relevant for coastal geomorphology studies and reconstruction of extreme events (e.g. storm or Tsunami). This was followed by presentations that included remarkable data sets on the Holocene sea level changes measured by coral reefs in Indonesia and an holistic approach to reconstruct the evolution of the coast of Israel in the Late Quaternary. The final theme of the day before the workshop dinner was **Modelling coastal processes and isostatic adjustment. Experiences, good practices and reliability.** led by S. Biolchi. This theme introduced the first modelling components of the workshop and included cutting edge research on Holocene sea level indicators and glacio isostatic adjustment (GIA) sea level modelling as well as advanced climate and coastal morphodynamic modelling of the German Baltic sea coast over millennial time-scales. After the long first day of talks that was miraculously more or less on time we then moved to the workshop dinner on the shores of the Weser River in the Bremen city center.

For the second day of the workshop we moved from MARUM to the seminar rooms at ZMT for the set of talks in the final research theme followed by a round table discussion of the workshop. The last theme was led by D. Harris from MARUM and ZMT and focused on **Extreme coastal events in the Holocene and Pleistocene.** The final few talks presented some great work reconstructing sea level and paleo storm and Tsunami events in the Mediterranean and the Bahamas and included discussion on the best practises of coastal modelling and the use of drones in constructing 3D elevation models. The workshop was completed by a final roundtable discussion where the goals of the MOPP-MEDFLOOD IFG over the next four years and future workshop locations were discussed. The ultimate focus for MOPP will be to produce best practise guidelines for measuring and modelling paleo sea level and coastal processes that can be easily used by coastal scientists and maritime archaeologists.

All the talks presented during the two day workshop were exceptional and it was unanimously agreed that the quality and breadth of researchers that attended the workshop was remarkable and better than we could have hoped for. The mix of researchers, with the majority of early careers and some established scientists, resulted in an excellent combination of experience and new perspectives that will drive the next years of work together. We are eagerly looking forward to the next workshop in 2017 (most like in Sardinia, Italy) where we will further discuss the topics raised by this meeting with practical examples on the field. There, we will begin work in earnest in planning the distribution results and outcomes of the MOPP IFG to the INQUA and broader scientific communities.



IFG 1604F: METHOD Modelling EnvironmenTal dynamics and HOminin Dispersals around the Mid-Pleistocene Revolution

Leaders: Jesús Rodríguez, Ana Mateos (CENIEH, Spain); Christine Hertler (Senckenberg Forschungsinstitut, Germany); Maria Rita Palombo (Sapienza Università di Roma, Italy).

Contact: jesus.rodriguez@cenieh.es

Training Lab "Data availability, management and storage – Working with databases", Sassari, Italy

Authors: Jesús Rodríguez[1], Ana Mateos[1], Christine Hertler[2], Maria Rita Palombo[3]

[1]CENIEH, Spain; [2]Senckenberg Forschungsinstitut, Germany; [3] Sapienza Università di Roma, Italy.

The first training lab organized by the METHOD IFG was held on September 13-15th, 2016 in Sassari (Sardinia, Italy). METHOD aims to promote the use of mathematical approaches in general, and modelling approaches in particular, to study the influence of the Mid-Pleistocene Revolution (climate changes associated to climate forcing occurred around 1 M.a.) on the organization of ecosystems and the dispersal and evolution of the genus Homo. However, the group members are aware that models should be fed with data and/or that model results should be contrasted against data. Thus, it is not surprising that the first activity organised by the IFG was focused on data and on how to store and to manage them.

The meeting focused on crucial infrastructure, in particular shared data sources, but it started with an introductory presentation by A. Mateos, who reviewed the main open questions about the Palaeolithic settlement of Europe, the kind of data that would be required to develop models aimed to address those questions, the data that are really available and their limitations. The session continued with a presentation of the databases developed and maintained by some IFG members, and an overview of the ROAD database system. J. Rodriguez introduced the Neogene-Quaternary Mammals Database (NQMDB) which stores information on more than 2,000 European mammal assemblages of Pleistocene age, and ecological and distribution data on more than 700 mammal taxa. M. R. Palombo presented the Rome Faunal Database, which stores biostratigraphic and ecological information on Pleistocene mammals from Western Europe. M. Märker and C. Hertler provided a useful introduction on the ROAD Database System, which should become the core data source and management tool for the IFG members. Thus, most of the remaining time was devoted to learn the structure of ROAD and the different possibilities it offers to users. Z. Kanaeva provided the attendants with an introduction to the SQL language and how to run SQL queries through ROADweb, the internet gate to ROAD. One of the most interesting features of ROAD is that it integrates Geo-Data and tools to make spatial analyses on the data it contains, as M. Märker an C. Sommer showed to the assistants. In relation to this, C. Wilmes presented another interesting resource, the CRC806 Database, which contains palaeoclimate data on a GIS environment. Also related to spatial analyses was the presentation by E. Hölzchen, who introduced an appealing new feature of the ROCEEH Map Module: its ability to display the results of Agent Based Models on a map.

Fig. 1. Participants in the the Training Lab "Data availability, management and storage – Working with databases" organized by the METHOD IFG.

The assistants discussed about the connection of the Rome and the NQMDB databases to the ROCEEH Map Module and the possibility of homogenize the information contained in the two Databases. The main problem will be how to develop a consensus taxonomy for both databases, although J. Rodriguez and M.R. Palombo agreed that it is a feasible and desirable task that should be addressed in the near future. All participants were offered the opportunity to obtain a username and password to access ROAD and NQMDB through the ROCEEH Map Module, a possibility that was favorably received by them.

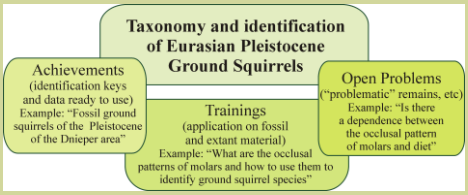
In summary, the meeting served to set the bases to share data between the IFG members. The next METHOD workshop will be focused on environmental dynamics and hominin dispersals and will be held in Frankfurt/Main in April 2017.

Workshop "Taxonomy and identification of Eurasian Pleistocene Ground Squirrels"

24th -27th January, 2017

Weimar (Germany)

Reliable species identification is basic to reconstruct the pattern of expansion of ground squirrels during the Quaternary. This, and tightly connected questions about taxonomy and phylogeny will be topics of our next meeting, the workshop at the Senckenberg Research Station of Quaternary Palaeontology (Weimar, Germany) coordinated by Dr. L.C. Maul. The expected structure of the workshop is:



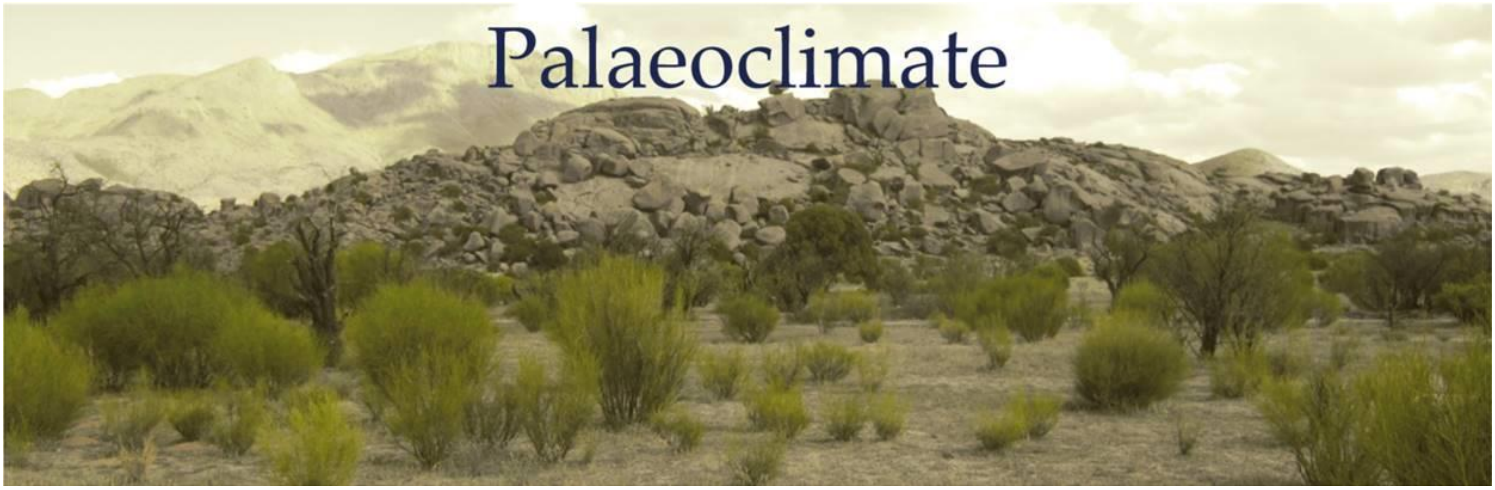
We invite palaeontologists and zoologists, who have already contributed to this research field or are interested to discuss problems within the scopes of this workshop. We expect researchers who like offbeat scientific approaches and are inclined to bring their own research experience to solve particular questions of palaeogeography, palaeoecology and biostratigraphy of the Quaternary that related to our investigations on ground squirrels.

There are three aspects of the workshop - achievements, training, and open problems – which, however, will not be performed in separate sessions, since all of them are equally favoured by a planned workshop format. The microscope camera with multimedia projector will allow simultaneous demonstrations to all participants the methods and problems of the identification of fossils. This format allows for full accessibility of the discussed materials in addition to the methodical know-how. Those who prefer showing only a presentation of their material, should provide photos with occlusal, lingual, and buccal projections of the discussed teeth, measurements and other primary data in order to make all reports equally informative. Possibly, the most valuable contributions will concern the so-called "problematic" remains (unidentified, dubious systematic position, transitional traits etc.).

A basic source of information for our project is the palaeogeographical distribution (maps of records) of ground squirrel species during various phases of the Pleistocene. During this period, ground squirrels were numerous and are known even from areas far beyond their present distribution. However, what we have in the moment is a map of blank spots, since many of these finds are still unidentified or misidentified. It is quite probable that among these records are key fossils which could shed light on the picture of evolution and expansion of the group. We hope that this material could help to answer the questions addressed by the project.

Generally speaking, one of the reasons, why fossil ground squirrels are believed to be a difficult, unrevealing group, is the absence of a comprehensive picture of intraspecific variation for all known - in our case Circum-Pontic - ground squirrel species, both living and extinct. It is impossible to assemble a puzzle, if parts are missing. We expect that the workshop in Weimar will make a breakthrough in this situation.

Researchers interested in the topic may contact L. Popova (popovalv@mail.ru) or L.C. Maul (lmaul@senckenberg.de) whether there are still places available for this workshop.



SWEEP / SHAPE Workshops

November 2 - 4, 2016

Santiago, Chile

The SWEEP project is gearing up for a one-day workshop in Santiago, Chile, which will happen in conjunction with a workshop of the SHAPE IFG.

Our goal is to bring together the community studying the Southern Hemisphere westerly winds, particularly ECRs who may be new to the field. At our workshop, we will present research, discuss data repositories, and plan for a special publication or special issue around our research. We will also have some tutorials aimed at ECRs, focusing on subjects like effective science communication, grant writing, and more. We will have attendees from many countries, including the US, South Africa, Australia, New Zealand, Chile, Brazil, the UK, and more. In addition to the workshop, we are developing an online platform through which international researchers can collaborate. We've had interest from many researchers, ECRs in particular, who want to see the development of a virtual community dedicated to our research theme.

Webpage

IFG 1612F DATESTRA, a Database of Terrestrial European Stratigraphy

Project Leaders: Pierluigi Pieruccini (University of Siena, Italy), Markus Fiebig (University of Wien, Austria), Guzel Danukalova (Russian Academy of Sciences, Russia)

Webpage

Introduction to the IFG, report of the activities, future perspectives and events

Authors: P. Pieruccini[1], Markus Fiebig[2], Guzel Danukalova[3]

1 University of Siena, Italy; 2 University of Wien, Austria; 3 Russian Academy of Sciences, Russia

SEQS for the 2016-2019 Inter-Congress period will aim to build a Database of Terrestrial European Stratigraphy (DATESTRA). This is seen as a European Geographic Stratigraphical Database that follows the activities and the projects carried out by SEQS during the previous Inter-Congress periods.

DATESTRA will focus on the creation of a common and shared geographic database that should constitute the first step to create a common base for all the Quaternary scientists who want to have a concise overview of the main stratigraphical subdivisions across the boundaries of Europe. DATESTRA will summarize the main sites containing Terrestrial Quaternary deposits in Europe trying to bypass their fragmentary nature and giving rapid access to the sections, techniques and methods used for their study.

The launch of DATESTRA project occurred at the INQUA-SEQS 2016 Meeting: «Bridging Europe and Asia: Quaternary stratigraphy and Palaeolithic human occupation in Armenia and South Georgia», organized by the Institute of Geological Sciences, Armenian National Academy of Sciences (IGS) under the guidance of SEQS-INQUA Section on European Quaternary Stratigraphy associated with ASQUA-INQUA Section on Asian Quaternary Stratigraphy under the umbrella of SACCOM-INQUA Commission on Stratigraphy and Chronology. The meeting was held from the 3rd-11th of September 2016 in Erevan, Armenia with the participation of ca. 50 participants, and 43 oral and poster contributions. A four day field trip gave the chance to the participants to visit many of the most interesting Quaternary sites of Armenia, spanning from Late Pliocene-Early Pleistocene basalts and their relationships with terrestrial mainly fluvial sedimentation. The fieldtrip allowed also the visit to well constrained Paleolithic sites (Haghtanak-3, Kurtan, Karakhach, Nor Geghi-1 etc.) as well as Holocene and Historical sites. One day was devoted to the visit of Dmanisi (South Georgia) to the famous early hominine site (dated back at 1.8 Ma) (Fig. 2).

Fig. 2. Photo of the group.

Unfortunately, the IFG Leader in charge for the DATESTRA activities (Pierluigi Pieruccini) did not attend the Meeting due to house troubles after the earthquake that affected Central Italy last 24th of August. During the meeting a DATESTRA Session and the IFG was launched. This involved people from different regions of Europe and ECR scientists who presented their data and opened the discussion for the future perspectives.

Several talks were devoted to the DATESTRA Project. The Project was presented by the Leaders (P. Pieruccini, M. Fiebig, G. Danukalova). The Pleistocene stratigraphy and the key sites in Estonia were presented by Katrin Lasberg (granted by DATESTRA IFG). Natalia Gerasimenko (granted by DATESTRA IFG) and colleagues introduced sites from Ukraine related to the Late Pleistocene. Guzel Danukalova (Fig. 3) (granted by DATESTRA IFG) introduced the biostratigraphy of the late Early Pleistocene of the Southern Urals Region and Lower Volga area. Again, Tivadar

Fig. 3. Guzel Danukalova.

Gaudenyi (granted by DATESTRA IFG) showed the stratigraphical units of the Pleistocene temperate stage fluvial successions in Serbia. Aleksey Zastrozhnov presented the Russian experience about the database of Quaternary key-sites and horizon stratotypes of the European part of Russia. The problems related to the absolute chronology of Quaternary successions were introduced by Mauro Coltorti and colleagues who presented the INQUA-funded Project CROSSTRAT pointed on the reliability of radiometric dating in a test-region like Sardinia, Italy. Mauro Coltorti also introduced the Italian potential key-sites.

The main outcome expected by the activities of DATESTRA is a GIS-based Geographic Database containing the basic information about the key-sites of the Terrestrial Quaternary Stratigraphy of Europe. The definition, structuring and sharing of information by easy-to-use platforms as Google Earth © or as web-GIS applications like "Story Maps" is a unique tool to provide a geographic based summary of the main knowledge about the significance of the Terrestrial Quaternary that can be compiled, shared and updated easily and at low costs, reaching the wider audience as possible.

For this purpose, the activities for the 2017 will aim to discuss in detail the structure and design of the database, assessing a minimum number of information to be featured. The next DATESTRA activity will be a Workshop to be held possibly in Siena (Italy) at the beginning of 2017, where people involved will be called to discuss in detail the

principles and the features to be represented starting from a prototype developed for selected sites. In September 2017, a DATESTRA session is already planned in the frame of the SEQS 2017 Meeting, organized in Tautavel (France) by Vincenzo Celiberti of the University of Perpignan. Here, Quaternary scientists from different countries of Europe will be invited to contribute illustrating the key sites that can be included in the database.

In our plans, young (ECR) and low GDP countries scientists will be granted to participate to DATESTRA activities, as occurred for the SEQS Meeting in Armenia. We warmly invite all the people interested to contact us for information and details, and young scientists to apply for granting their participation to the DATESTRA events (Fig. 4).

Fig. 4. Early career researcher at the meeting.

The main target of this IFG is the presentation, in a dedicated session at the next INQUA Congress (2019 Dublin), the final results and outputs and share the Database among the INQUA community.

2016-SEQS-meeting in Yerevan – since 1976 the first INQUA meeting in Armenia

Organizers: Markus Fiebig (University of Wien, Austria); Guzel Danukalova (Russian Academy of Sciences, Russia); Khachatur Meliksetian (Academy of Science, Armenia); Thijs van Kolfschoten (University of Leiden, The Netherlands); Katrin Lasberg (University of Tartu, Estonia)

Many airplane connections from Europe reach the town Yerevan in Armenia in the middle of the night – so several participants of the SEQS-meeting 2016 in Armenia came in the morning the 4th of September to breakfast with only very little sleep. But the bus excursion started at 8 o'clock from the hotel, so there was no time to be tired. After the welcome by Dr. Khachatur Meliksetain and Dr. Lilit Sahakyan from the Institute of Geological Science at the Academy of Science of Armenia, the SEQS-excursion left Yerevan on the motorway direction to Alaverdi and the first stop was a road cut in Ignimbrite along the motor way. The source of these ignimbrites - the more the 4000 high volcano Mount Aragat - was visible on the horizon. After several hours of further driving through a steppe like mountainous vegetation the excursion group recovered in a picturesque lunch stop "gorge restaurant" with very nice Armenian food (lots of vegetables, meat, fish and fruit) which kept the participants strong to continue the trip. After having visited two very impressive monasteries from the 10th century, nicely explained by Boris Gasparian (Institute of Archaeology and Ethnography, Academy of Science of Armenia) huge Pleistocene plateau basalts came into focus. Very deep incised gorges were cut by the Debed River into these plateau basalts and the road curves into and out of the gorge were quite frightening. From a geological point of view the up to 230 m high cliffs in the gorge with very nice columnar basaltic pahoehoe sheet flows were of course absolutely spectacular. Impressive was as well the accommodation during the excursion because the Qefo Hotel was situated directly at the edge of the plateau basalt to the gorge. The second day of excursion started with a fabulous archaeological excavation presented by Boris Gasparian and his team which documented hominid presence throughout the Pleistocene in Northern Armenia. The excursion continued to Southern Georgia where the marvellous site of Dmanisi was presented by Teona Shelia from the team of Prof. David Lordkipanidze (Georgian National Museum). The site of Dmanisi seems to break all records: oldest dated hominids outside Africa, five skulls, many artefacts, human occupation proven from 1.8 million years to medieval times etc. etc. All participants were really impressed by the striking site and the outcomes of 25 years of high ranking research. Close to Dmanisi Prof. Daniel Adler (University of Connecticut) explained another archaeological excavation which was situated below a basaltic lava flow – a common situation here in the Southern Caucasus but a thrilling eye catcher for everybody from elsewhere. On the third day Prof. Vladimir Trifonov and Elena Belayaeva (both Russian Academy of Science) presented very well dated sections in the Lori basin (Karakhach and Kurtan). All participants were nearly shocked by the adventurous deep excavations in the very coarse and blocky material of the Lori basin. The last day of excursion went along the border to Azerbaijan to the fabulous lake Sevan and finally to Yerevan. Close to the borderline Daniel Wolf and his co-workers from Dresden University (Germany) explained picture-book-like loess and tuff outcrops with perfect sequences of several soil horizons. Datings by OSL and K/Ar gave reason for some discussions but altogether these sites were overwhelming because of their clear and maybe nearly complete internal subdivision. Along the bus route the vegetation changed abruptly from dense forests to high altitude steppe like mountain vegetation and the giant, more than 3000 km² big Lake Sevan was another highlight of the SEQS-excursion. Finally Prof. Daniel Adler (University of Connecticut) presented the Palaeolithic site of Nor Geghi-1 which is situated close to a former Military camp and displayed Palaeolithic artefacts between two spectacular lava flows. Before we reached Yerevan Mount Ararat showed his snow covered flanks in sunset light and proved that Armenia has one of the most beautiful scenery on Earth.

On the 8th of September the participants of the SEQS-meeting 2016 gathered in the main hall of the Academy of Science of Armenia. This architectonically very nice building delivered the impressive background for two days of talks and poster presentations. Several of the talks of the first day explained more about the fascinating local Caucasus area (eg. "Environmental conditions in NE Armenia" by Daniel Wolf; "Acheulian industry in NW Armenia" by Elena Belyaeva; "Geology and origin of the Shirak basin" by Evgenia Shalaeva and "Landscape dynamics and Paleolithic occupation of the Aparan depression in Armenia" by Boris Gasparian). The poster session and the last session of the day opened the frame to topics from all over Europe (Russia, France etc.). After finishing the presentations for this day people discussed further activities in the SEQS-business meeting. In 2017 SEQS wants to meet in southern France (Tautavel organised by Vincenzo Celiberti and Pierluigi Pieruccini). In 2018 the SEQS meeting will take place probably in Slovenia organised by Andrej Mihevic. In 2019 SEQS presents his activities to the global Quaternary community at the INQUA congress in Dublin in the frame of two SEQS sessions (one dedicated to European Quaternary Stratigraphy) and one focused on DATESTRA (www.datestra.strikingly.com SEQS IFG).

On the evening of the 8th participants experienced the remarkable conference dinner where toast from all participating countries were offered (Armenia, Austria, Estonia, France, Germany, Israel, Italy, The Netherlands, Poland, Russian Federation, Serbia, Turkey, Ukraine, United Kingdom and United States of America). The second days of talks again mirrored the wide spread origin of researchers and regional studies on this SEQS meeting. In the afternoon of the 9th September the remarkable 2016 SEQS conference closed in the museum of the Institute of Geological Science in the Academy of Science of Armenia.

Khachtur Meliksetian and his team had perfectly introduced the fascinating local geology and archaeology to the international audience of the SEQS meeting 2016. Thank you so much! Hopefully we meet again!

International focus group on tephrochronology and volcanism (INTAV)

INTAV is hosting a symposium on tephrochronology at the forthcoming Australasian Quaternary Association (AQUA) 2016 biennial meeting at the University of Auckland, Auckland, New Zealand, from 5-9 December, 2016. The symposium, being convened by David Lowe (University of Waikato) is entitled "Extending tephras (EXTRAS) and employing them in Quaternary reconstructions", as follows.

A broad aim of the international tephra community for the next decade is the enhancement of tephrochronology as a global research tool and its application (typically through collaborative projects such as CELL50K, INTIMATE, SHAPE, SMART) in multiple Quaternary disciplines including geochronology and volcanology. The aim is encapsulated by the EXTRAS project "EXTending TephRAS as a global geoscientific research tool stratigraphically, spatially, analytically, and temporally within the Quaternary" being led by INTAV within SACCOM.

Contributions to the INTAV symposium at AQUA 2016 are sought from researchers involved in the study of tephras or cryptotephras, with topics including (but not limited to) the following:

- Application and evaluation of current and emerging technologies to identify and map proximal-to-distal tephras and cryptotephras to establish their spatial and stratigraphic interrelationships, and thus to facilitate their use as chronostratigraphic units or as a basis for documenting volcanic eruption histories and hazards
- Application and evaluation of current and emerging methods to characterize tephra and cryptotephra constituents mineralogically and chemically using formalised protocols that enhance data quality and quantities
- Improvements to age models for tephras and cryptotephras to revamp existing age models for key volcanological, palaeoclimatic, archaeological or other events or sequences
- Application and development of objective ways of correlating tephras and cryptotephras from place to place using statistical techniques and measures of (un)certainty
- Development of regional and ultimately global databases of high-quality mineral, chemical, and other data (stratigraphic, chronologic, spatial) for tephras and cryptotephras
- Using tephras as a chronostratigraphic tool: applying tephrochronology to Quaternary science, volcanology, and archaeology.

Additional INTAV inputs to the AQUA 2016 meeting include an optional one-day field trip to the spectacular basalt shield volcano, Rangitoto Island (10 Dec 2016) and much of the 5-day post-conference field trip 2, "Volcanism and Quaternary environmental change, North Island" (11-16 Dec, 2016).

For enquiries about the tephra symposium, email David Lowe at d.lowe@waikato.ac.nz.

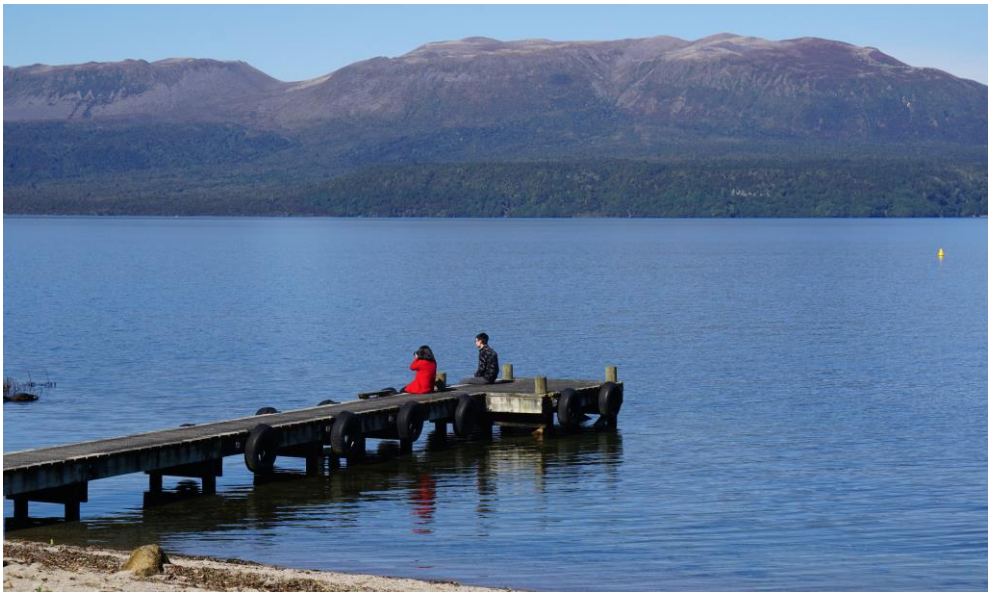
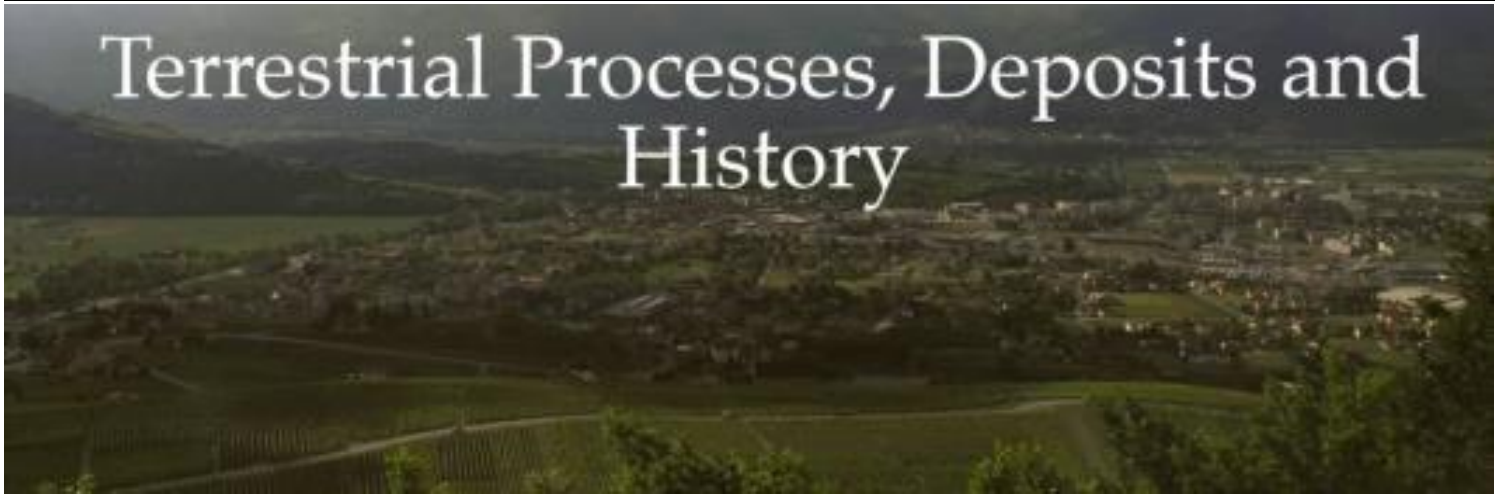


Fig. 5. Mt Tarawera volcano and Lake Tarawera, New Zealand.



1618F: EGSHaz – Earthquake Geology and Seismic Hazards

Project Leader: Ioannis Papanikolaou (University of Athens, Greece)

7th International INQUA Workshop on Paleoseismology, Active Tectonics and Archaeoseismology ("PATA Days")

Authors: Beau Whitney[1] Christoph Gruetzner[2] Petra Stepancikova[3]
[1] The University of Western Australia
[2] University of Cambridge
[3] Czech Republic Academy of Sciences

The 7th annual PATA (Paleoseismology, Active Tectonics, and Archeoseismology) Days Workshop was held from 30-May through 3-June, 2016 in beautiful Crestone, Colorado, USA. PATA Days is the premiere event for the INQUA focus group "Earthquake Geology and Seismic Hazards" (IFG EGSHaz). PATA Days provides a venue for the international exchange of new paleoseismic and archeoseismic methods and techniques and a forum for sharing of results. Workshop participants represented over twenty countries from five continents.

The meeting was organized by GEO-HAZ Consulting, Inc. and hosted by the Crestone Science Center. Crestone is a small former gold-mining town on the eastern margin of the Neogene Rio Grande rift zone. Crestone lies on the rift valley floor at 2500 m elevation, nestled at the base of ~4000 m mountains of the rift-flank uplift. Crestone's location on the margin of the Rio Grande Rift provided abundant opportunities for workshop participants to see textbook examples of low slip-rate faults geomorphic expression in the field.

The workshop held seven technical sessions over two and a half days. Sessions included: Paleoseismology of Strike-Slip Faults; Paleoseismology of Reverse Faults and Stable Continental Interiors; Paleoseismology of Normal Faults; Paleoseismology of Subduction Zones and Coasts; Seismites and Neotectonics; and Seismic Hazard Assessment, Remote Sensing, and Geophysics. The workshop and field trips provided a venue for Ph.D students, Post Docs, and recent graduates to share and discuss their work with preeminent scholars in their field and receive feedback.

The wide ranging multiple-disciplinary nature of the science of earthquake geology and seismic hazard requires communication across a number of topical fields. Different tectonic regimes and geomorphic settings around the globe provide a variety of challenges to researchers and communicating the successes and failures between colleagues from far afield is critical to efficiently advance our knowledge of earthquake processes and seismic hazards. Fostering co-operation among scientists and supporting early career researchers (ECRs) is the main aim of our new INQUA Focus Group EGSHaz. The intimate setting of the workshop fostered extended discussions not easily attainable at larger conferences and scientific gatherings.

Fig. 6. PATA ROAD TRIP participants above the 1983 Borah Peak surface rupture.

Fig. 7. PATA ROAD TRIP participants in front of the Teton Range.

The Workshop was preceded by the 1st PATA Road Trip, "*Faults of the Wild West*", a 2000-km, 6-day, field trip led by Jim McCalpin to classic faults of the western USA. The Road Trip visited famous historic surface ruptures and earthquake-induced landslides of the "Wild West" of Utah-Idaho-Wyoming, as well as cultural features. The trip began in Salt Lake City visiting the seismic retrofit of the Utah state capital building and sites along the Wasatch front before heading north from Pleistocene lake Bonneville. In Idaho, trip highlights included Craters of the Moon National Park and the 1983 M6.9 Borah Peak earthquake surface rupture. The Road Trip looked at coseismically triggered landslides and encountered bears and bison of Yellowstone National Park. Participants managed to witness an eruption from Old Faithful geyser and see countless other of the park's hydrothermal wonders. From Yellowstone the Road Trip travelled south into Jackson, Wyoming at the base of the imposing Teton Range with stops viewing a number of Pleistocene glacial features and the Teton fault. The trip leader was

Fig. 8. Participants visit a paleoseismological trench during the intra-congress field trip.

assisted by a number of local experts along the way to provide detailed overviews of the Quaternary geological evolution of the region. The trip wrapped up in Denver at the start of the PATA Days workshop.

In addition to the Road Trip, three intra-conference field trips took participants to a number of geologically significant sites relating to the neotectonic development and extensional tectonic geomorphology of the Colorado Front Range and the Rio Grande Rift. The mid-conference field trip provided an opportunity to see an open paleoseismic teaching trench, the only permanent paleoseismic teaching trench in North America.

An INQUA business meeting was held at the end of the meeting. It was decided to produce a Special Volume in an international peer-reviewed journal as an outcome of the PATA Days. We discussed the progress of the two projects that are running under the umbrella of our focus group (SURFACE and GEMAP) and collected ideas for future work of the Focus Group. Another discussion point was the funding situation of joint projects and meetings. We collected ideas on how to improve the support for ECRs and scientists from low-GDP countries. Many participants supported the idea of creating a world-wide paleoseismology database that could possibly be hosted by the Focus Group EGSHaz.

Next year PATA Days will be held on the South Island of New Zealand. The trip will commemorate the 300th anniversary of the last rupture on the Alpine fault and field trips will focus on deformation associated with the plate boundary. Dr. Rob Langridge, GNSS, is leading the workshop organizing committee and will perhaps be leading a pre-conference Road Trip to sites around the South Island. Tentative dates for PATA Days 2017 are the first week of May.

We thank Jim McCalpin and his organizing committee for putting together a fantastic workshop and field trips at a beautiful venue. We thank the past IFG leaders for their dedication to developing our group and we look forward to continuing their mission. All interested researchers, especially ECRs are cordially invited to participate in our activities. See you in New Zealand 2017.

Fig. 9. Jim McCalpin, organizer of the meeting, also led the intra-congress field trip.

INQUA REGIONAL MEMBERS

Australia and New Zealand

Researchers from Australia and New Zealand have been heavily involved in the SHAPE IFG. The Southern Hemisphere Assessment of PalaeoEnvironments (SHAPE) was successful in evolving from an inter-congress project to an international focus group (IFG) with the support of PALCOM. The overall remit of SHAPE is to foster network-building of Quaternarists working in the Southern Hemisphere. The goals of SHAPE are to improve on integration of chronologically-constrained palaeodata from across the Southern Hemisphere and interpret changes at different spatial and time scales in the context of climate drivers and climate modes. Use of different interrogation tools and climate model simulations are key aspects of the SHAPE IFG, as are improving representation and participation in the Quaternary sciences from South Africa, South America and Oceania.

There are several events related to SHAPE that will happen in late 2016. A SHAPE-aligned project called "Southern Westerlies Evolution in Environments of the Past (SWEEP) will hold a one-day workshop in tandem with a two-day SHAPE event in Santiago, Chile during early November 2016. These two workshops will have a focus on the inter-relationships, history and impacts of Southern Hemisphere climate systems at regional to hemispheric-scales, with palaeoclimatologists, climate dynamicists and climate modellers in attendance.

Another SHAPE-aligned project, SHeMax (last glacial maximum in **the** Southern Hemisphere), which is examining the period 35-18ka from the sub-tropics to Antarctica, will meet 3-4 December ahead of the AQUA 2016 conference in Auckland. The goals of SHeMax will compare and contrast model and proxy data to examine the expression, timing and variability of glacial climates across southern regions and synthesise that into a coherent picture for the late Quaternary. Following that kick-off workshop, there are 26 presentations that have been submitted to AQUA 2016 biennial meeting for a dedicated SHAPE session, following the strong showing at INQUA in Nagoya. SHAPE is expected to carry on through to INQUA in Dublin, and new ideas for aligned projects are welcomed at any time.

Australian palaeoclimatic research will also be boosted by two new Centres of Excellence. The ARC Centre for Excellence for Climate Extremes, led by UNSW scientist A.Pitman, won $30.05 million for research into past and present climate extremes and to revolutionise Australia's ability to predict them into the future. The research across five universities and multiple partner organisations is expected to make Australia more resilient to climate extremes and minimise risks to the Australian environment, society and economy.

The ARC Centre of Excellence of Australian Biodiversity and Heritage, led by the University of Wollongong (but bringing together 20 institutions) will examine the history of Australia, Papua New Guinea and eastern Indonesian from 130,000 years ago until the time of European arrival. The research integrate insights from archaeology, palaeoanthropology, genetics, ecology, Earth sciences and climate science.

S. Mooney (UNSW, Sydney Australia) is currently finalising a composite record of fire across multiple high altitude sites in eastern Australia. The project includes comparison of high resolution CHAR (charcoal accumulation) at a subset of these sites with dendrochronological information (in collaboration with P. Baker, University of Melbourne, Australia) to better inform the interpretation of charcoal. The project is also comparing this composite CHAR record with the recently published eastern Australia and New Zealand summer drought atlas (ANZDA see Environ. Res. Lett. 10 (2015) 124002) in collaboration with J. Palmer (Climate Change Research Centre, UNSW Australia).

Finally, the electronic edition the book Coastal Landscapes of South Australia has now been published:
http://www.adelaide.edu.au/press/titles/coast-sa/.
The book is freely downloadable as an e-book and is available for purchase as a printed book.

The bibliographic details are:

Bourman, R. P., Murray-Wallace, C.V. & Harvey, N. (2016) Coastal Landscapes of South Australia, University of Adelaide Press, 405 pp.

AQUA 2016 Biennial Meeting, Auckland, New Zealand

Quaternary Perspectives From the City of Volcanoes
5-9 December, 2016

AQUA 2016 is the biennial meeting for the Australasian Quaternary Association (AQUA). This meeting, only the third to be held in New Zealand by AQUA, promises to be friendly, interesting, and informative. At last year's INQUA Congress in Nagoya, the Australasian group was the fourth-largest in attendance and so some exciting Quaternary science is sure to be presented and discussed at the Auckland meeting. At the time of writing (mid-September), more than 125 papers had been submitted for AQUA 2016.

Venue: Old Government House, University of Auckland City Campus, Auckland, New Zealand

Co-sponsors: National Institute of Water and Atmospheric Research [NIWA], GNS Science, University of Waikato, University of Auckland, and the Geoscience Society of New Zealand

Fig. 10. Rangitoto Island.

Keynote speakers: Prof Atholl Anderson, Dr Matt McGlone, Assoc Prof Phil Shane

The meeting will feature four days of Quaternary science sessions, a mid-conference one-day field trip through the basaltic Auckland Volcanic Field and the native kauri forest of the Waitakere Ranges, and a conference dinner and winery tour at Villa Maria Estate inside the Waitomokia volcanic crater.

Session themes include:

- Evolution and impacts of ENSO
- Southern Hemisphere Assessment of PalaeoEnvironments (INQUA PALCOM IFG)
- Millennial-scale variability and environmental change: MIS5-present
- Australasian peats and their potential
- Late Quaternary human impacts and activities in Australasia and Oceania
- Extending tephras (EXTRAS) and employing them in Quaternary reconstructions (INQUA INTAV IFG)
- Quaternary coastal dynamics (INQUA CMP)

Full early-bird registration (on or before 25 October, 2016) is $400 and $250 for students, and is all-inclusive. Discounted hotel suites are available. Please see the conference website.

For all enquiries, email: aqua2016@niwa.co.nz

Post-conference field trips

One day trip: Rangitoto Island, Saturday 10 December, 2016 (9 am-3 pm). An informal, optional field trip to Rangitoto Island to view Late Holocene basalt eruptives, unique vegetation, and spectacular views of Auckland city and the harbour. Includes short harbour ferry trip (cost is additional to the conference registration fee).

Two multi-day post conference field trips: Sunday 11 to Friday 16 December, 2016. Limited spots are available for each trip, which will run

subject to sufficient interest (costs are additional to the conference registration fee). Please indicate interest by emailing aqua2016@niwa.co.nz as soon as possible (by 1 November, 2016). See conference website for more information about post-conference trips 1 and 2: https://www.niwa.co.nz/node/111451

Trip 1: Kauri and the Quaternary of Northland (a loop around the sub-tropical Northland/Far North region starting and ending in Auckland).

Fig. 11. Ancient kauri preserved in swamp.

Fig. 12. Modern kauri and students.

Trip 2: Volcanism and Quaternary environmental change, North Island (excursion south from Auckland through the Waikato, the central North Island, Hawke's Bay, Wanganui Basin, and ending in Wellington)

Fig. 13. Tarawera lake and volcano.

Fig. 14. Tephra section near Rotorua.

Fig. 15. Te Mata peak view, Hawke's Bay.

Successful completion of PhD thesis by Matt Ryan, Victoria University of Wellington

Matt Ryan, who won a student poster prize at the INQUA Congress in Nagoya, Japan, in 2015, has successfully completed his PhD thesis entitled "Late Quaternary vegetation and climate history reconstructed from palynology of marine cores off southwestern New Zealand".

Quaternary paleoclimate records can offer valuable insights into the environmental effects of future warming, which is predicted to reach 0.3-4.8°C above pre-industrial values by the end of this century. Although many pollen records show step-changes in regional vegetation due to warming since the Last Glacial Maximum, there are few records that capture the response to warmer-than-present conditions. Two time periods in the last 500,000 years are generally considered to have been warmer than present – Marine Isotope Stage 5e at ~125 ka and 11 at ~410 ka. Both of these periods are difficult to assess from terrestrial paleoclimate records because they are often discontinuous and poorly dated. I investigate the magnitude and timing of regional warming and its effect on forest ecology associated with MIS 5e (Termination II) and 11 (T-IV) compared to the last glacial termination (T-I) and Holocene. Pollen analysis is compared with marine climate indicators developed from two giant east Tasman Sea piston cores that are chronologically constrained by $\delta^{18}O$, radiocarbon and tephrostratigraphy.

Vegetation change in southwestern New Zealand is of similar structure during T-I and T-II, despite different amplitudes of forcing (i.e., insolation rise, CO_2 concentrations). The tall tree conifer *Dacrydium cupressinum* remained dominant in the region during the climatic optimums of the early Holocene and the last interglacial. Maximum ocean and atmosphere temperatures reconstructed for the last interglacial were ~2.5°C and 1.5°C higher than present. In contrast, MIS 11 sea surface temperatures were ~1.5-3°C warmer than present, with a notable expansion and dominance of the thermophilous shrub *Ascarina lucida* at the expense of the currently dominant tall tree conifer *D. cupressinum* in this highly humid region. The MIS 11 record suggests a forest ecology 'threshold' was crossed in response to warming: a prolonged period of higher air temperature and reduced terrestrial seasonality followed the extreme cold of MIS 12, and biogeographic barriers inhibited the migration of species from more northerly latitudes. These results suggest that New Zealand's most widespread tree – and by implication our lowland podocarp forests – may be under threat in the near future.

Fig. Matt Ryan at left receiving INQUA poster prize 2015.

OBITUARIES

In memoriam Dr. Nicole Petit-Maire (1928 - 2016)

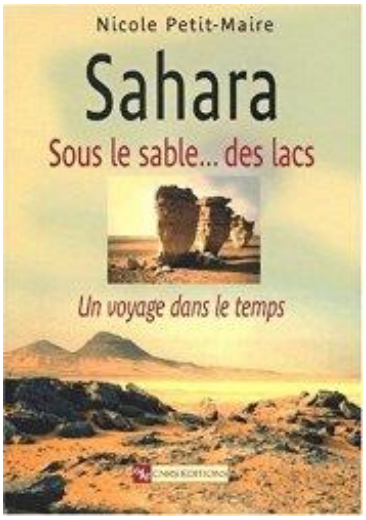
Nicole Rosette Gabrielle Petit-Maire Heintz, born Mery, started her scientific career as paleoanthropologist, disserting in 1966 her PhD thesis on skulls of anthropomorphic specimens, which deserved the Broca 1967 Award. Interested on biometrics and statistics, she brings in the first electronic calculator to the Laboratory of Geology of the Quaternary in early 1970s. She then teaches Anthropology at Paris VII University.

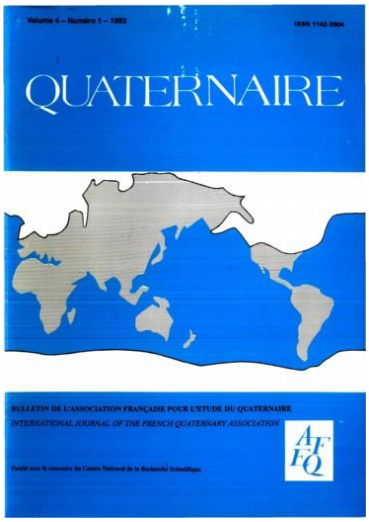
Nicole publishes her first article on the Mauritanian Sahara in 1971. From then, she carries out annual missions to the Saharan regions of northern Africa (Mauritania, Mali, Libya) for almost 30 years. Renowned and passionate specialist of the arid regions of northern Africa in the Pleistocene and Holocene, her field missions couple the studies of climatic and biologic variations with prehistoric occupations.

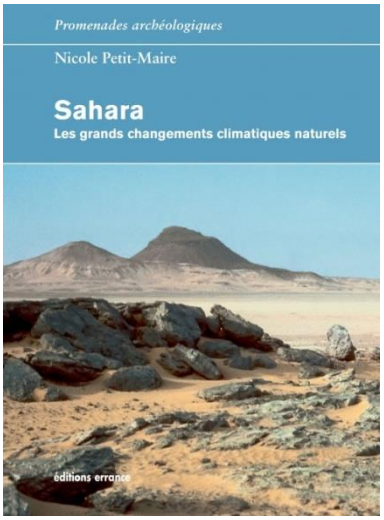
The coordination of PICG 252 "Deserts: Past, present and future evolution" takes her to enlarge her interests to all tropical deserts and takes her to Asia to study and publish paleoclimate data of the last 140,000 years in the arid/semi-arid transition zone of Africa and Asia.

Her publication list not only attests clearly to her investment in and significance of her work in Saharan Africa, but also worldwide.

At the Mediterranean Laboratory of Europe-Africa Prehistory (Laboratoire Méditerranéen de Préhistoire Europe-Afrique, LAMPEA; Aix-en-Provence, France), where she was a CNRS Research director, she devoted an important group-research effort to the last two climatic extremes in France and the Mediterranean Sea, which allowed to mapping and documenting recent surface formations, vegetation and human settlements during the Last Glacial Maximum –LGM- and the Holocene Optimum. Aware of the importance of science outreach, Nicole PETIT-MAIRE equally published several books, frequently recipient of awards, such as her last book "Sahara: the large natural climate changes", edited in 2012 (Errance / Actes Sud), which received the Pierre-Jules-César Janssen 2013 Prize, awarded by the Geographical Society of Paris (Société de Géographie de Paris).







She was:

- Emeritus CNRS Research Director at LAMPEA, from where she retired
- Member of the Royal Academy for Overseas Sciences (Académie des Sciences d'Outre-Mer).
- Member of the Geological Society of France (Société Géologique de France).
- President of the Scientific Council of Centre International pour la Formation et des Échanges Géologiques (CIFEG).
- Head of Project PICG 252 "Deserts: Past, Present, Future" of UNESCO-IUGS (1987-1992).
- Vice-President of the International Union of the Geological Sciences (IUGS; 1989-1996).
- Head of the International Program "Climates of the Past" of UNESCO-IUGS (1993-1997).
- Head of the International Program "Climate Latest Extremes" (CLIMEX), of the Commission for the Geologic Map of the World (CGMW), under the umbrella of Agence Nationale pour la Gestion des Déchets Radioactifs (ANDRA; 1995-2000).
- President of the French Committee of INQUA (1996-2000).
- Professor at graduate level at Paris and Marseille universities. Thesis advisor.

Partly published in the LAMPEA webpage by Jean-Pierre Bracco
Free translation and completion by Franck A. Audemard M.,
Member of the Climates of the Past –CLIP- Project

In memoriam Valerie Anne Hall (1946-2016)

Valerie Hall (née Cairns), Professor Emerita at the School of Geography, Archaeology and Palaeoecology, Queen's University Belfast, passed away on the 28th July 2016, at the age of 70 following a long, courageous battle with cancer. Valerie was a botanist, palynologist and tephrochronologist, with a very wide range of interests, who inspired a generation of new palaeoecologists. Amongst other distinguished roles, she served as Secretary to INQUA's Commission for Tephrochronology and Volcanology (INTAV; 1995–1999), and subsequently as its Executive Vice President (1999–2003). In 2011, Valerie was made an Honorary Life Member of INTAV in recognition of her significant contributions to tephrochronology, and to teaching and mentoring.

Valerie was born in Belfast on the 5th February, 1946. With a love of plants and science, she opted to study Botany for her primary degree at Queen's University Belfast (graduating in 1968) and took her first steps into palaeoecology while undertaking a palynological dissertation under the supervision of Professor Alan Smith in her final year. Following her degree, Valerie taught Biology at Bloomfield Collegiate Girls Grammar School in Belfast, then took a career break from 1973 to raise her daughters, Fiona and Roisin, with her husband George. By the mid-1980s, having successfully overcome her first encounter with breast cancer, Valerie's thoughts returned to academia, and from 1985, she embarked upon a part-time PhD, supervised by Jonathan Pilcher. Her research, "A comparative study of the palynology and regional history of some sites in the north of Ireland", used palynological reconstructions of vegetation history to critique historical accounts of woodland composition and demise across the period of the Plantation of Ulster. Her dissertation questioned the accepted orthodoxy that Ireland's woodlands had remained extensive until the 17th century plantation. At the same time, Valerie worked as a demonstrator at the Ulster Folk Museum where she obtained insight into traditional farming techniques. This prompted her to conduct experimental work to investigate the pollen signatures from cropped land, research that has helped inform the understanding of anthropogenic signatures in pollen records.

Valerie completed her PhD by 1989, and from 1990 worked as a Natural Environment Research Council Research Fellow in the Institute of Irish Studies at Queen's, investigating the effects of distal volcanic ash (tephra) on climate and vegetation. This study proved to be groundbreaking, as she and Jonathan Pilcher demonstrated that Irish bogs contained a tremendous archive of tephra (later termed cryptotephra) layers that could significantly improve the dating and correlation of palaeoenvironmental records and enable the wider impacts of volcanic eruptions to be examined. With a host of graduate students both from Queen's and other institutions whom they trained and mentored, Valerie and Jonathan were instrumental in pioneering a new branch in chronological study that is now globally applied to address wide-ranging issues in palaeoecological, palaeoclimatological, volcanological and archaeological research. In 1994, Valerie was appointed Lecturer in the Institute of Irish Studies at Queen's, and was soon promoted to Senior Lecturer in what was then the School of Archaeology and Palaeoecology in 1998. The interdisciplinary nature of her work saw Valerie teaching to Archaeology, Geography and Biology students alike, and she did so with a passion as much for her subject area as for education. Along with Jonathan Pilcher, she cored numerous bogs across the island of Ireland for pollen and tephra investigations, cores that were to provide an impressive tephrochronological framework for Ireland and that enabled Valerie to compare secular and monastic impacts on the landscape since early Medieval times. Valerie contributed substantially, at both a professional and personal level, to a vibrant and prolific research and teaching environment that was formally recognised by the bestowing of Her Majesty the Queen's Prize for Excellence in Higher Education upon the Palaeoecology Centre in 2001. In 1999, Valerie's professional dedication was rewarded with a Personal Chair, which she held until her retirement in 2011.

Valerie was a leading and inspiring figure in Irish palaeoecological studies. She served as a Member and Secretary on the Irish Quaternary Research Association Committee (IQUA) from 1998–2000, as well as Honorary Company Secretary to the Board of Directors of the Irish Naturalists Journal Ltd. She was a regular attendee and presenter at the Roscrea Conferences, a community-run forum that brought together academics and the public to share knowledge and love of historical heritage. Her reputation as a scholar extended well beyond the confines of the island, and she disseminated her work and expertise globally, presenting talks, co-convening conference sessions and co-organising workshops, including the setting up of TEFRATRACE, the first internet training workshop, for INQUA. She worked on cryptotephras found in Norway, the Falklands, China and Greenland, and with her colleagues, demonstrated the inter-continental dispersal of ash, from China to Greenland, and from Alaska to Europe. She published prolifically, for both academic and popular readerships, including Flora Hibernica (with co-author Jonathan Pilcher, Collins Press, 2001) and The Making of Ireland's Landscapes since the Ice Age (Collins Press, 2011), and was a regular commentator on science topics for BBC Radio Ulster.

A passion for palaeoecology was but one component of Valerie's wider love of cultural and natural heritage. She was proud of the richness of her Ulster background, embracing both its British and Irish elements. Somehow, she managed to find time to master a range of traditional skills, including dye production from native plants, spinning, weaving, bee-keeping and harp-playing, and was an avid gardener, cook and baker. She had an equally high regard for the diversity of other cultures, and relished opportunities to observe and participate in different traditions wherever she travelled. Her wide-ranging interests equipped her with an impressive general knowledge, to the extent that—word has it—she was barred from playing Trivial Pursuit with her family!

Valerie's wit and character meant that she was always great company and always made a lasting and favourable impression on those she met. Amongst the many, many tributes that poured in from around the world following Valerie's death, one observation stood out: "she had such a distinguished profile academically, knew what she was talking about and didn't upset anyone—a rare gift in academia". This last-mentioned capacity stemmed from Valerie's innate respect for others, from her thoughtfulness and her boundless generosity. She was an example to us all, professionally and personally. She will be very sorely missed by her colleagues and friends at Queen's, and by the wider Quaternary community.

Our deepest condolences go to Valerie's daughters and their families, and to her sister, Arnette, who helped care for Valerie throughout her illness.

Gill Plunkett, Jonathan Pilcher and Mike Baillie,
Archaeology & Palaeoecology, School of Natural and Built Environment, Queen's University Belfast

In memoriam John Imbrie (1925 - 2016)

John Imbrie, a MacArthur Fellow, a member of the National Academy of Sciences, and one of the founders of the science of paleoceanography, died May 13, 2016. Born July 4, 1925, he enjoyed a long productive career and life. After serving in the 10th Mountain Division and fighting in Italy during World War II, he graduated from Princeton in 1948 and received his PhD in geology from Yale in 1951 for a field study in Michigan. He was innovative from the start and willing to take up new and challenging problems throughout his career. He also cooperated broadly with other lead scientists. As a deep-time paleontologist, he introduced multivariate statistical methods to the analysis of fossils. He did this research while teaching at Columbia University, where he became department chair in 1966. After moving to Brown in 1967, he devoted himself to the study of microfossils in marine sediments from the Quaternary period of ice ages. With collaborators at Columbia, URI and later Oregon State University, he co-founded an NSF-sponsored multi-institutional project called CLIMAP (Climate: Mapping and Prediction), within which he masterminded his most famous discovery by using time series analysis to demonstrate that Earth's orbital variations in seasonal radiation pace the multiple glacial/interglacial cycles of the ice ages. This work led directly to his election to the National Academy of Sciences in 1978 and to his selection as a MacArthur fellow in 1981. During his Brown tenure, John encouraged, influenced, inspired, and supported many young faculty and students; a number of whom are current leaders in paleoceanography and paleoclimatology.

From 1973-1975, John served on a National Research Council panel that developed a 10-year research program for advancing understanding of climate change and the climate system. With colleagues, he wrote an appendix to the final report that shaped paleoclimatic research for the next decade during which paleoclimatic research became central to understanding climatic dynamics in atmospheric and ocean sciences. With his son, John, a mathematical physicist at the University of Virginia, he wrote an influential paper modeling past climates, and with his daughter Kate, he wrote Ice Ages: Solving the Mystery about the historical developments leading to our current understanding of ice age climates. The book won the Phi Beta Kappa award for science writing. From 1981 to his retirement in 1990, he directed SPECMAP, an inter-institutional, international, interdisciplinary project that used time series analysis of marine cores to identify the timing and variability of orbital-scale environmental changes to better understand the dynamics of major climate changes. After retirement he continued to collect wine glasses and became a lead historian for the men he had served with in the 10th Mountain Division. With his wife Barbara's help, he produced several books and videos about his time of service. He also continued to enjoy skiing.

Thompson Webb & Warren Prell,
Professors Emeriti at Brown

OTHER NEWS


OPENQUATERNARY
Call for Submissions
Open Quaternary is a fully open access, peer-reviewed journal, publishing contributions that consider the changing environment of the Quaternary as well as the development of humanity. The journal focuses on all aspects of the Quaternary. The scope is intentionally broad, and covers a range of specialisms such as geomorphology, palaeoclimatology, palaeobotany, palynology, palaeontology, zooarchaeology, geoachaeology, biological anthropology and Palaeolithic archaeology.
The journal publishes one issue per year, with rapid publication as soon as articles are ready, thus ensuring authors do not experience unnecessary delay to their publication. All submissions are subjected to double blind peer-review, which has been shown to decrease gender bias in publication.
Article Processing Charges (APCs) have been kept to a minimum to ensure that the journal can sustainably operate while remaining low cost and fully open access. Fees are assessed by the publisher and are separate from the editorial and peer review process. At £300 ($450) the APC is just 20% of some competitors. The journal is published by Ubiquity Press and has received over 33,000 page views since its launch in 2015.
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