

Quaternary Perspectives



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[Quaternary Perspectives website](#)

Welcome to INQUA 2019 Dublin



Fig. 1. View of the city from the congress centre.

The abstracts are in and so are most of the registrations, so it is time to start planning your trip to Dublin for INQUA 2019 (25-31 July 2019). There is a lot of useful advice and information on the congress [website](#) covering travel and accommodation. Dublin airport is a major hub including direct trans-Atlantic flights and direct flights from Dubai. It is also linked to most major European airports by two carriers, Aer Lingus and Ryanair. The congress venue is in the city centre, 11 km from the airport. There are regular shuttle buses from the airport to the city and a good taxi service (more details on the congress website).

The congress website provides details of accommodation options ranging from hotels to universities and hostels. There are also a substantial number of Airbnb units in the city centre. Dublin is an easy city to walk around and there are public transport options via train, tram and bus. You can pay cash or purchase a Leap card (from shops or online) to which you can add credit for use on all public transport at a slightly reduced cost (details at [leapcard](#)). There are also two on-street bike hire schemes: [dublinbikes](#) and [bleeperbike](#).

Dublin is a busy tourist city with lots of [activities](#) available for accompanying family members. If you wish to extend your stay either side of the congress you can travel from Dublin to all major towns by bus or train. Car hire is recommended for getting access to more rural locations but there are coach tours along the west coast. You can find out more about the Irish Quaternary through the Irish Quaternary Association [website](#) including copies of field guides.

We look forward to seeing you in Dublin (Fig. 1, 2) in July when the average temperature is 16°C (60°F). INQUA 2019 expects all interactions between congress attendees to be [respectful and constructive](#), including interactions during the conference itself, and on social media.



Fig. 2. The Guinness Storehouse – the venue for the congress dinner.

Coastal and Marine Processes

INQUA Coastal and Marine Processes Report 2019

CMP has continued to develop the model presented to the incoming executive in Nagoya consisting of one IFG and supporting projects. In general, this has proven to be a very successful model that is developing strong links within the CMP research community and developing strong mentorship for ERC and integration of DCR. This base was developed on our existing traditional strengths of examining driving forces behind sea-level change and landscape evolution. This resulted in PALSEA2 (IFG), HOLSEA (Project), MOPP (Project) and QMI (Project). This has laid a strong foundation for continuing CMP activities beyond Dublin 2019 and the future for CMP.

International Focus Group:

PALSEA2: PALEO-constraints on SEA-level rise 2

The focus of PALSEA was quantifying sea-level budgets and glacier/ice-sheet change at decadal to millennial timescales to bridge the paleo and instrumental records. The goal was to critically assess what information can be gleaned from paleo-records and simulations during past warm periods that will provide clear insight into recent changes and future predictions. At present, there are over 200 members of the PALSEA2 community from 20 countries on the North American, European and Asian continents, including Australia and New Zealand. IFG activities can be viewed in detail through a dedicated [website](#). Since January 2018, PALSEA has been led by four new leaders selected among the ECRs that participated in PALSEA meetings throughout the years and were active within the PALSEA and INQUA communities (Jacqueline Austermann, Natasha Barlow, Jeremy Shakun and Alessio Rovere). PALSEA maintains an updated list of papers acknowledging the IFG at this [link](#).

Projects:

1601P HOLOCENE relative SEA level (HOLSEA)

HOLSEA is in the process of completing the first major goal of this project, which is to collate and

standardize all existing Holocene relative sea level data into a well-structured database that will be broadly useful to the scientific community and can be expanded to seamlessly interface with older (Plio-Pleistocene) archives and new Holocene data that becomes available after the life of the working group. A HOLSEA workshop was held in conjunction with the annual IGCP639/INQUA. This workshop engaged with researchers from locations underrepresented in the global sea-level data (e.g., South Asia, Africa). A preliminary global database was presented, and approaches to standardization and archiving of the data and modeling applications of the sea-level database were discussed.

1603P MOdelling PAleo Processes (MOPP-Medflood) MOPP

Focuses on modern coastal processes to better understand constraints and approaches to model paleo-events (such as storms and tsunamis). In the last 3 years we enlarged the Medflood community and encouraged the participation of experts in coastal geomorphology and geo-archaeology as well as engineers and hydrodynamic modelers. The MOPP-Medflood project stems from the results of the original Medflood project which was funded by INQUA from 2012 to 2015. MOPP-Medflood is a 4-year project that is the continuation of Medflood (2012-2015) and is funded by INQUA for the period 2016 to 2020. The aim of MOPP-Medflood is to enlarge the Medflood community and encourage the participation of experts in coastal geomorphology and geo-archaeology as well as engineers and hydrodynamic modellers.

CMP1701P Late Quaternary records of coastal inundation due to earth surface deformation, tsunami, and storms

The aim of this project is to develop evidence-based hazard assessment including storm induced coastal erosion, flooding from storms and tsunamis, instantaneous land-level change associated with co-seismic activity and longer-term subsidence and sea ingression associated with both tectonic and human-induced processes. Specific aims include:

- inter-disciplinary perspectives with a focus on integrating researchers who are ECR and DCR

- facilitating knowledge transfer between established research communities and nations currently underrepresented in the field; and

- developing products such as databases that can be used by multiple specialties investigating coastal hazards, occurrence of natural hazards and to better understand their potential future size and frequency. Synergy has been continued by re-energizing the link between International Geoscience Program projects and an INQUA project. This has historically been a strong link that has allowed for an extensive reach into the coastal community but was absent since the end of INQUA1001 until the funding of CMP1701P in 2017. As project leaders of IGCP Project 639, Engelhart and Yu are ensuring that synergies between the two are fully explored and overlap is minimized, to ensure that both projects achieve their goals. This was achieved in year one by hosting a joint meeting in South Africa.

CMP is also pleased to announce that a new and vibrant team has been nominated to lead CMP into the next inter-congress period. As there was only one nomination for each position those nominated will take on their roles at the next inter-congress period.

Nominations and approved:

President: Dr. Sarah Woodroffe
 Secretary: Dr. Robert Barnett
 Vice President: Dr. Matteo Vacchi
 Vice President: Dr. Nicole Khan

Advisory Board:

Dr. Craig Sloss
 Dr. Simon Engelhart
 Dr. Natasha Barlow
 Dr. Alessio Rovere

CMP President Craig Sloss

MOPP–Medflood - 1603P

Project Leaders: Dr Matteo Vacchi (University of Pisa, Italy), Dr Sara Biolchi (University of Trieste, Italy), Dr Alessio Rovere (Marum, University of Bremen, Germany), Dr Giovanni Scicchitano (Studio Geologi Associati, Italy).

In the last two years, MOPP-Medflood significantly enlarged its community by encouraging the participation of experts in coastal geomorphology and geo-archaeology as well as engineers and hydrodynamic modellers. The major aim of MOPP-Medflood is to define strategies adopted since antiquity to design coastal structures, considering not only the palaeo-geomorphology of the coastal area, but also the palaeo-coastal hydrodynamics obtained through numerical modelling of palaeo-nearshore processes. A further aim is to provide new approaches to better reconstruct the historical impacts of major coastal changes and catastrophic coastal events (such as major storms or tsunamis) along the Mediterranean.

After a first meeting in Bremen (Germany) and a second in Palau (Sardinia, Italy; Fig. 3), the third meeting was organized along the coast of southern Sicily, in the surroundings of the Siracusa (Italy). The scenic landscape of Siracusa area contains an abundance of sea-level indicators and evidence of past high-energy events. This facilitated conversation about archiving and interpretation of these features. In fact, this area has been continuously settled since the Neolithic period (c. 7 ka BP) and has experienced major development since c. 2.7 ka BP, notably during the Hellenistic and Roman periods. Furthermore, geomorphic, archaeological, and sedimentary evidence of both relative sea-level changes and high-energy wave

events are reported in this section of the Sicilian coast. The meeting, coordinated by Dr Matteo Vacchi, Dr Sara Biolchi, and Dr Giovanni Scicchitano, was structured over three days, and consisted of field activities and workshops. The 26 participants were mostly ECRs from Italy, USA, Canada, New Zealand, Germany, UK, Slovenia, Cyprus, and Turkey.

The participants had the opportunity to explore Ognina, a stunning location of major archaeological importance that has been continuously settled since the Neolithic period. In the morning the participants travelled by boat to a small islet where evidence of Bronze Age occupation is still present. Furthermore, a practical investigation of high-energy deposits found at the bottom of the narrow fjord of Ognina was performed. A trench was opened by the participants and the accurate description of the different sedimentary horizons was performed under the guidance of Dr Jessica Pilarczyk



Fig. 3. Analysis of quaternary coastal deposits at Valle della Luna (Sardinia) during the 2nd MOPP-Medflood meeting.

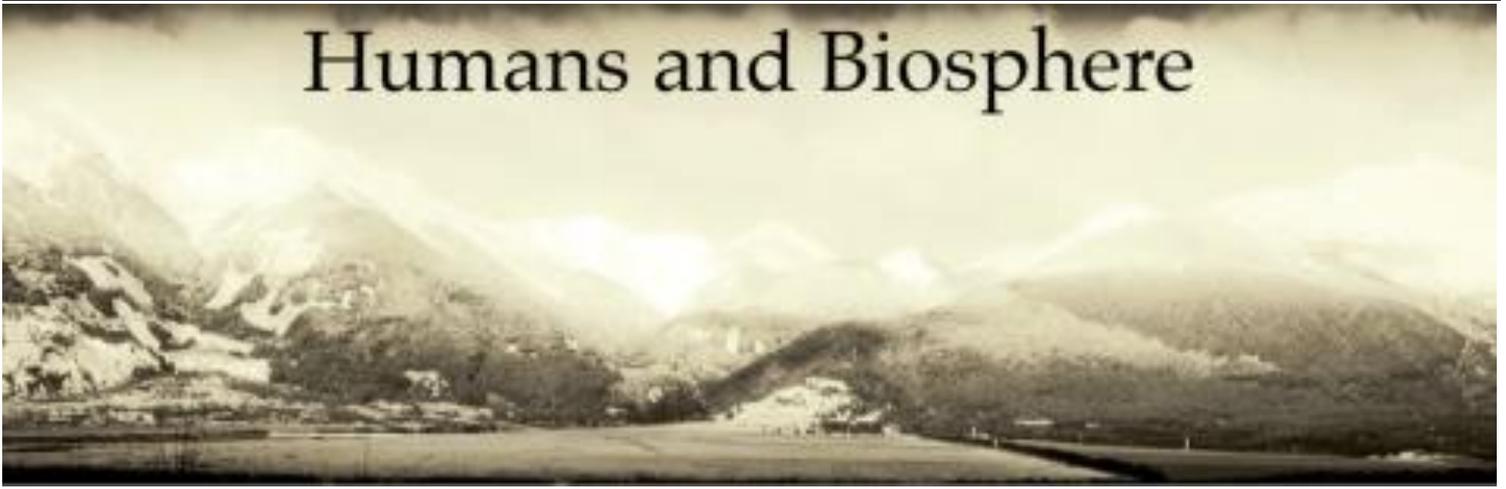


Fig. 4. ECRs attending the 3rd MOPP-Medflood Meeting in Sicily.

(University of Southern Mississippi), an expert of sedimentary signatures of extreme waves.

The final day was dedicated to ECRs (Fig. 4), who presented their PhD and MSc projects in the beautiful venue of the Marine Protected area of Plemmirio, in the historical centre of Siracusa. The workshop, convened by Dr Giovanni Scicchitano, provided an opportunity to discuss different aspects of palaeo-coastal processes with examples that ranged from the Mediterranean to oceanic coasts.

Humans and Biosphere



METHOD: Modelling Environmental dynamics and Hominin Dispersals around the Mid-Pleistocene Revolution (MPR) - 1604F

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

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Report on the Training Lab and Workshop held at CENIEH

Author: J. Rodríguez¹.

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The Training Lab “Computational models in Palaeolithic Archaeology and Palaeoecology” was held in Burgos, Spain on 27th November 2018. The main aim was to provide an overview of a number of computational modeling techniques applicable to the study of human evolution, behaviour, and ecology during the Pleistocene. It was designed for archaeologists and palaeontologists interested in incorporating new methodological approaches in their research, but also to undergraduate and Ph.D. students willing to complement their training with an overview of innovative research approaches in palaeolithic archaeology and palaeoecology. The invited speakers covered various techniques, including: (i) simulation methodology (J. Ole Berndt, University of Trier, Germany), (ii) network analysis (S. Lozano, IPHES, Tarragona, Spain), (iii) palaeoenvironmental modeling (C. Willmes, University of Cologne, Germany), (iv) niche modelling (J. Hortal, MNCN-CSIC, Madrid, Spain), and (v) Agent-Based Modeling (E. Hoetzchen and C. Hertler, Senckenberg Research Institute, Frankfurt, Germany).

The Workshop “We boldly went: Advances and progress modelling the MPR” was held in Burgos after the Training Lab (28-29th November). This workshop was a continuation of the meeting held in Mauer in 2017 to discuss which environmental

factors drove early human expansion, and had an impact on their settlements. The recent workshop (Fig. 5) provided an overview of the progress made with the application of modeling approaches to the evaluation of the hypotheses to reconstruct the environmental constraints and to analyse the empirical evidence for cultural evolution during the Mid-Pleistocene Revolution.



Fig. 5. Participants of the Training Lab and Workshop, held in CENIEH at Burgos (Spain).

The workshop centered on two main topics: (i) the appearance and evolution of the Acheulean in Western Europe, and (ii) the availability of plant resources and their use by hominins in southern Europe during the Early Pleistocene.

Presentations covered topics such as the spatio-temporal interpolation of paleoclimate data based on $\delta^{18}O$ climate variability observations (C. Willmes, Univ. Cologne, Germany) and the testing of palaeoclimate reconstructions for the Acheulean in southern Africa using climate models (M. Ecker, Oxford Brookes University / University of Toronto). P. García-Medrano (British Museum, UK) presented the Western European Acheulean Project on the human occupation of the Western side of Europe from a technological perspective.

M. H. Moncel (Muséum National d'Histoire Naturelle, Paris) presented information on La Noira site and the question of the early Acheulean in Western Europe, E. Hoelzchen (Senckenberg Research Institute, Germany) presented an agent-based model (ABM) to simulate environmental effects on hominin dispersal around the MPR, and Y. Altolaguirre showed the ABM for hominin dispersal in South Eastern Spain. Finally, J.

Rodríguez and A. Mateos (CENIEH) discussed the topic of modeling human trophic ecology during the Mid-Pleistocene Revolution and C. Hertler (Senckenberg Research Institute) discussed the issue of the spatial behavior across different scales.

Next Event: Rome, 29-30th April 2019.

This two-day meeting will be held in Rome, Italy in April 2019, and will be organised by Donatella Magri and Maria Rita Palombo (Università de La Sapienza, Rome). During this meeting we intend to summarise the advances of METHOD-IFG (Fig. 6) and the results of the diverse modelling approaches and discuss their impact on the early hominin settlement patterns around the MPR. This meeting will also serve as preparation for the session at the upcoming INQUA Congress in Dublin. The session entitled “Human and non-human responses to the Mid-Pleistocene Transition” will be convened by Lutz Maul (Senckenberg Institute, Frankfurt, Germany), Ericson Hölzchen (ROCEEH, Senckenberg Institute, Frankfurt, Germany), and Maria Rita Palombo (Dp. Scienze della Terra, Sapienza Università di Roma, Italy).



Fig. 6. Logo of the METHOD International Focus Group.

The Ground Squirrel Story: Ground Squirrels divide the adaptive zone - 1606P

Project Leaders: Lilia Popova (Taras Shevchenko National University of Kyiv, Ukraine), Lutz Christian Maul (Senckenberg Research Institute, Research Station of Quaternary Palaeontology, Weimar, Germany).

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What do we know about ecological niches of extinct taxa? Even the Pleistocene, for which one could expect some clear information, is full of surprises in this respect: Even some extant species turn out to occur neither in the “right” (expected) areas, nor in the “right” neighbourhood (tundra-steppe) or their reconstructed diet appears to differ from what they feed on presently. This seems to be inconsistent with our understanding of the fundamental ecological niche. Isn't the niche a mirror of specific adaptations, i.e, a measure of interspecific relation, a sort of ecological equivalent of a species? Also palaeogeographical implications from phylogeographic analyses lead us to the same idea: the dynamics of occupation and de-occupation of an area are evolutionary events. In other words, evolution happens because of shifts in (bio)geography. This implicit idea contributes much toward our understanding of the Pleistocene history of faunas, even though everybody understands that it is a simplification. However, the characteristic Pleistocene phenomena listed above (tundra-steppe faunas etc) seem to exceed the limits of such simplification.

If we have a model object that really behaves as it evolves due to geographical reasons, it would allow juxtaposing phylogeographical and palaeontological points of view on evolution. It would be a powerful tool to investigate, how, in real Pleistocene palaeogeographical and palaeoecological context, species share the adaptive zone. And this is what we hope to achieve, with Ground Squirrels as a model agent, using a new format of the work.

This new format for the continuation of our project means: more meetings, but smaller numbers of participants, i.e., guests and hosts of each meeting). These meetings will include experts in the relevant stratigraphic, geological, palaeoecological context necessary for niche reconstructions. Guests are expected to be able to contribute to Ground Squirrel niche reconstruction. Local teams and guests are encouraged to present the results of their work in joint publications.

We are planning the following workshops:

◆ Workshop "Taxonomy of fossil Ground Squirrels from Germany and selected parts of the Mediterranean", Weimar, organised by L. C. Maul, Senckenberg Research Station of Quaternary

Palaeontology, Weimar, Germany. The aim of the workshop is to study fossils of *Spermophilus primigenius*, in comparison with *S. nogaici* and *S. polonicus*, and conclude the Early and Middle Pleistocene differentiation of Ground Squirrels in Europe.

◆ Workshop “Periphery of the adaptive zone” coordinated by A. Nadachowski, Institute of Systematics and Evolution of Animals, Krakow, Poland. The aim of the workshop is to ascertain distinctive morphological features of Pleistocene ground squirrel palaeo-populations from Poland, which could be interpreted as adaptations to a particular environment.

◆ Workshop “Periglacial Late Pleistocene Ground Squirrel *Spermophilus severskensis*: a phantom species?” coordinated by L.I. Rekovets and L.V. Popova. The objective of the workshop is to study the extinct Late Pleistocene *Spermophilus severskensis* by means of mesowear analysis and cross-check these results with an analysis of the patterns of occlusal surface (which is - believed by one of the authors - an ‘ecological portrait’ of the Ground Squirrels) of the same material.

◆ Workshop "For How Long Has the European Ground Squirrel Existed in Europe?", coordinated by K. Bogicevic, University of Belgrad, Serbia. The aim is to find out in detail the time of arrival of *S. citellus* in Europe, and the relationships between this species and *S. citelloides*.

◆ Workshop "Eastern roots of Ground Squirrels", coordinated by O. Ozkurt, Ahi Evran University, Turkey. The main focus of this workshop is the extant Anatolian species (*S. xanthoprimum*, *S. taurensis*), which are believed to be the most plesiomorphic ones among western Ground Squirrels species.

◆ Workshop “‘Colobotis’ sensu Gromov: Large Ground Squirrels, vast geographical ranges” coordinated by P. Pazonyi, Hungarian Academy of Sciences-Hungarian Natural History Museum-Eötvös Loránd University, Budapest. This workshop will summarize results on the large Ground Squirrels of the subgenus *Colobotis*.

Because of the aforementioned flexible and easy to organize format, we did not designate dates of meetings in advance. If you want to attend one of the meetings, please contact Lilia Popova or Lutz Maul (liliapopovalilia@gmail.com, Lutz.Maul@senckenberg.de), and send a research proposal (expected outcome) and preferred dates for the meeting.

HoLa: Holocene Global Landuse - 1702F

Project Leaders: Marco Madella (Universitat Pompeu Fabra, Barcelona, Spain), Kathleen Morrison (University of Pennsylvania, USA), Marie-José Gaillard (Linneus University, Sweden).

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Report from the South Asia Land Use Workshop (5-6th March 2019)

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² University of Pennsylvania, USA

The workshop on South Asia Land Use organized at the University of Pennsylvania Institute for the Advanced Study of India in New Delhi was a joint event between the IFG HoLa and the PAGES LandCover6k (LC6k) Working Group. HoLa is an interdisciplinary group dedicated to building capacity, creating new, internationally-shared databases, and producing initial models of the relationships between human land use and climate.

The collaboration between HoLa and LC6k aims to aggregate and synthesise evidence for land use and land cover change across the globe and throughout the Holocene, from the pre-farming and early farming stages to the beginnings of industrialisation. Our approach consists of two streams of data-driven mapping: we use palaeo-vegetation proxy data to assess land cover, and archaeological and historical data to assess distributions of human land use in the past. Our products will be used by the climate modeling community to test hypotheses about the effects of early anthropogenic activities on biogeochemical and biogeophysical feedbacks to the atmosphere (such as carbon sequestration and albedo). Improving climate data, conversely, will facilitate better understandings of how past climate change might have influenced human history.



Fig. 7. Participants discussing land use at the South Asia workshop organized in Delhi in March 2019.

During the first day of the workshop, M. Madella introduced the HoLa initiative. The scope of the South Asia workshop was discussed with presentations from M. Madella, K. Morrison, and O. Boles. The general scope and methodology for the PAGES LC6k initiative was presented by K. Anupama, while C. Petrie gave a presentation

about current work in Haryana (India) that could be useful for prehistoric land use mapping in South Asia. At the end of day one there was a discussion session where participants were able to put forward suggestions and doubts about the work to be done.

The second day was fully dedicated to the gathering of expert knowledge from the workshop participants (Fig. 7) and to transpose that knowledge onto maps at the 12 kya, 6 kya, 4 kya



Fig. 8. The 1500 AD time-slice group at the South Asia workshop debating and mapping the level of anthropic activities in the Indian peninsula.

and 1500 AD time “slices” (Fig. 8). The participants were separated, according to their expertise and geographical area of work, into four groups each covering one or more of the time slices. To maintain a uniformity of input, ideas, and approach, some participants moved between groups. Each group was supplied with print-outs of a South Asia base map from the GIS database created for the LC6k working group (land use) and the land uses, extrapolated from published and unpublished data, were plotted in colour according to the developed land use categories (see Morrison et al. 2018). The maps were also provided with a commentary related to the decision-making used to assign the different land use categories to specific areas in South Asia.

The results from the workshop were extremely positive and the team was able to produce the first ever maps of South Asian land use for four Holocene time slices (12 kya, 6 kya, 4 kya and 1500 AD). These maps, and the associated expert commentary, will be compared and merged with changes in population size reconstructed using summed probability distributions of radiocarbon dates (Shennan et al., 2013; Timpson et al., 2014). The approach will produce estimates of population

in South Asia at the different time slices using kernel density techniques to extrapolate from site data.

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Stratigraphy and Chronology

SACCOM ANNUAL REPORT 2018

Over the past year SACCOM has continued its mission to study the Quaternary Period through Quaternary stratigraphy and chronology, and to provide a forum to discuss and establish stratigraphic investigations and classification throughout the World. The Commission continues to help promote and co-ordinate international co-operation, and integrate the unification of regional and national chronostratigraphic nomenclature, promote stratigraphic methods, and disseminate stratigraphic knowledge. In addition, international focus groups (IFGs) and projects are evaluating new stratigraphic methods, and defining principles of stratigraphic classification, terminology and procedures. SACCOM is also helping to support the establishment and publication of a geological timescale for the Quaternary. Of particular note during the past year was the ratification of the subdivisions of the Holocene, which involved key members of SACCOM working with the ICS (International Commission on Stratigraphy) Subcommittee on Quaternary Stratigraphy (SQS) lead by Martin Head.

Last December, the President of SACCOM, Mauro Coltorti, reluctantly resigned because of his increasing commitments having been recently elected to the Italian Parliament. The Commission is extremely grateful to Professor Coltorti for his leadership throughout this Inter-Congress period. Vice-President Lewis Owen stepped in as Interim-President to oversee SACCOM until the next Inter-Congress period that starts this coming August.

The diverse range of international focus groups (IFGs) and projects within SACCOM involves several hundred scientists and more than one hundred early career researchers from distant parts of the world. This includes field workshops, meetings, conferences, and publishing findings. INQUA has continued to fund several IFGs and new projects over the past year. Below is a summary of some of SACCOM's activities.

IFG 1612F, Section on European Quaternary Stratigraphy (SEQS) IFG, is focusing on the study of the Quaternary Period in Europe. This interdisciplinary group is concerned with the Quaternary stratigraphy of Europe. IFG 1612F

provides a forum for Quaternary scientists to discuss and help establish stratigraphical investigations and classification throughout the European continent, highlighting one of the most significant and densely investigated regions of the World. During the past year, this IFG held a meeting, including a field trip, on Quaternary Stratigraphy and Karst & Cave sediments, in Postojna, Slovenia.

Part of SEQS involves developing the Database of Quaternary Terrestrial European Stratigraphy (DATESTRA) to allow scientists from all over Europe and adjacent areas to visit, observe and discuss highly detailed sedimentary records and depositional sequences in different geodynamic contexts. Results from this work will be presented at the INQUA Congress in Dublin.

The Loess and Pedostratigraphy IFG (IFG 1707) is one the oldest study groups in INQUA (established in 1961) and it continues enthusiastically to hold an international meeting, LoessFest, in a different part of the world each year. Last year, the LoessFest was held in Volgograd in Russia and focused on "Diversity of loess: properties, stratigraphy, origin and regional features". This coming September the LoessFest will be in Yerevan in Armenia and will focus on "Loess deposits as archives of environmental change".

IFG 1708F, Northeastern African Quaternary Stratigraphy IFG (NAQS), aims to examine the late Quaternary climatostratigraphic division for Northeastern Africa with special attention devoted to Egypt and Sudan. This IFG is building a platform for meaningful exchange of information among archaeologists, geologists, geographers, climatologists and researchers from related fields. The second meeting of this IFG was held last October in Zagreb, Croatia focusing on the Late Antiquity and Migration Period crisis and its significance and place in Holocene climatostratigraphy. The meeting was particularly concerned with developing research experience for students and ECRs.

The Ponto-Caspian Stratigraphy and Geochronology IFG (IFG 1709F) centers on the chain of intercontinental basins that encompasses the Caspian, Black, Azov seas, the Kerch Strait, the

Manych Valley, and their coasts, which represent relict Paratethys basins. This is a very diverse group. Some of their activities involved participation in IFG 1707 in Volgograd Russia last September and the 6th Conference and fieldtrip of IGCP 610, and it held its 2nd Conference and field meeting in Antalya Turkey last October. The IFG also held sessions at the Paleontological Society of Russia in St. Petersburg last April and held an ECR expo at Moscow State University last June.

The Tephrochronology and Volcanism IFG (INTAV; IFG 1710P) is one of the largest groups and it continues to flourish. Currently, the core project of INTAV (2015-2019), EXTRAS (Extending Tephros), is to enhance tephrochronology as a global research tool and its application in multiple Quaternary disciplines and volcanology. This past June-July, this IFG held a conference and field trip with the theme "Crossing New Frontiers: Tephra Hunt in Transylvania" at Moieciu de Sus, near Braşov in the southern Carpathian Mountains of Transylvania, Romania. Over 90 participants took part in the meeting, representing 20 countries, and including 21 students (17 undertaking PhDs).

The past year INQUA funded a skills project (1802S) to help support the 4th Workshop on Dinaric Glaciation to examine Pleistocene glaciations of NE Mediterranean. The workshop was held last May focusing on the glaciogenic sedimentary palaeoenvironments of Krk Island and concentrated on helping to train students.

INQUA also funded a skills project (1803S) to help support the 10th World Dendro Conference that was held at the Royal University of Bhutan in Thimphu this past June. This was organized by the Tree-Ring Society, who sponsor a 1-week-long international meeting every four years, and is the largest and most international gathering of its kind for dendrochronology. The workshop examined aspects of basic dendrochronology, flood history reconstructions, dendroecology and advanced methods, and concentrated on training Bhutanese ECRs.

SACCOM members are excited about developing new initiatives for the next Inter-Congress period helped by its newly elected President Lewis Owen, Vice-Presidents Helen Roberts and Adele Bertini,

Secretary Susan Ivy-Ochs, and advisory members. The executive members of SACCOM very much welcome advice and comments from the community.

SEQS-IFG SACCOM 1612F

Project leaders: Pierluigi Pieruccini (University of Torino Italy), Markus Fiebig (University of Wien, Austria), Guzel Danukalova (Institute of geology of the Ufimian scientific centre, Russia)

2019 activities, future perspectives and events.

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The activities of SEQS during 2019 mainly focussed on the improvement of the IFG SACCOM 1612F DATESTRA devoted to the implementation of the Geographic Database of the Terrestrial Quaternary Sites with stratigraphic importance of Europe. DATESTRA will critically 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. Each territory has its own regional names of Quaternary units and regional stratigraphic schemes which sometimes have some problems when we try to correlate stratigraphical units from different parts of Europe. DATESTRA will therefore focus on Sites belonging to the main Quaternary stages as assessed by IGSC (Lower-, Middle-, Upper Pleistocene and Holocene) giving emphasis to the

stage boundaries and transitions. This approach should give a summary and overview of the main characters of the subseries/stages across Europe. The Database will be made available as web-GIS applications like "Story Maps" in order to disseminate to a much wider audience as possible, also at informative level, the chance to have an overview of the European Terrestrial Quaternary stratigraphical setting (Pieruccini et al., 2018).

The goal for 2019 is to present the Prototype of the Database and Output at the INQUA 2019 Congress where the Session "The Quaternary of Europe: stratigraphical perspectives and tools for correlations" is also devoted to the results of DATESTRA. In the framework of this Session, the Conveners received 26 abstracts for Oral and Poster contributions.

In the meanwhile, SEQS Board and members worked on the preparation of the Quaternary International Special Issues regarding the Meetings held in the 2016-2019 Inter-Congress periods.

The Special Issue with the SEQS's community contributions to the Session of the INQUA Nagoya 2015 Congress (Japan) (Westerhoff et al., 2018), was published with 7 accepted manuscripts.

SEQS 2016 Meeting held in Yerevan (Armenia) is undergoing the final steps for publication. The Quaternary International Special Issue will be titled "Bridging Europe and Asia: Quaternary



Fig. 9. Participants of the workshop.

Stratigraphy and Palaeolithic Human occupation" (Guest Editors M. Fiebig, G. Danukalova and K. Meliksetian) and it will include eight manuscripts.

SEQS 2017 Meeting (Fig. 9), held in Tautavel (France), will be soon published in a Quaternary International Special Issue titled "Quaternary Stratigraphy and Hominids around Europe: SEQS 2017 Meeting" (Guest Editors P. Pieruccini, G. Danukalova, V. Celiberti) where 12 manuscripts were already accepted and sent to production and two manuscripts that are undergoing the final steps of revision.

Also, the SEQS 2018 Meeting, held in Postojna (Slovenia), will have a Quaternary International Special Issue titled "Quaternary Stratigraphy and Karst & Cave Sediments: SEQS 2018 Meeting" (Guest Editors G. Danukalova, A. Mihevijc, N. Zupan Hajna, M. Fiebig) that is undergoing preparation with a provisional list of 18 contributions.

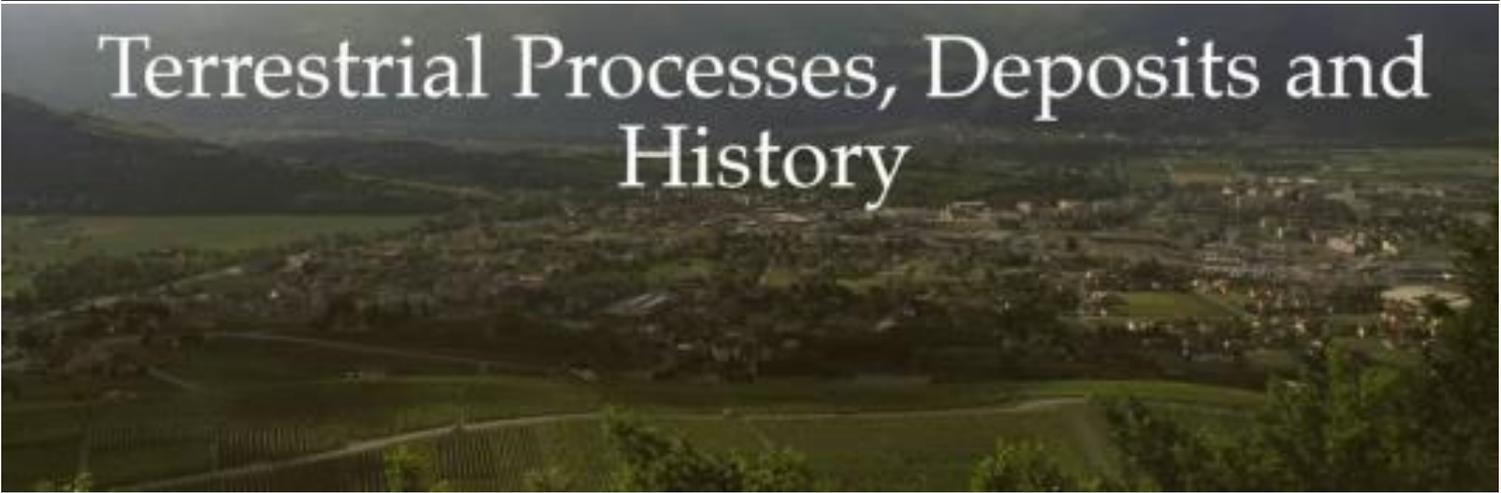
SEQS is therefore warmly inviting all interested Quaternary scientists to join the Session at the INQUA 2019 Dublin Congress, where the SEQS Business Meeting will also be held, which will provide an opportunity to discuss the SEQS Board composition (any candidature for Board positions are welcome) and future activities for the next 2020-2023 Inter-Congress period, including Meetings and Projects for application to INQUA funding as International Focus Group.

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Terrestrial Processes, Deposits and History



INQUA International Summer School on Active Tectonics & Tectonic Geomorphology in Prague, 24-27 September 2019

The INQUA Focus Group on Earthquake Geology and Seismic Hazards (EGSHaz) will run the International Summer School on Active Tectonics and Tectonic Geomorphology in Prague from 24-27 September, 2019. This event replaces the PATA Days this year and aims mainly at MSc./PhD students and Early Career Researchers. The summer school is organized by the Institute of Rock Structure and Mechanics (Czech Academy of Sciences) and the Charles University in Prague, Faculty of Science.

Programme

24 September: Lectures on historical earthquakes and archeoseismology, paleoseismology, specific paleoseismological problems in intraplate regions, methods for dating earthquakes, tectonic modelling from geodesy.

25 September: Lectures on seismically triggered landslides, seismites vs. periglacial features, tectonic geomorphology, secondary seismic hazard (liquefaction, tsunamis etc.), seismic hazard assessment.

26 -27 September: Field trip and training course to the Cenozoic Eger rift and the Cheb basin.

Download the 1st circular with more details on registration and funding [here](#).

SKILL GRANTS

Project 1804S: Mezhyrich International Archaeology Summer School: Interdisciplinary Study of an Upper Pleistocene Site

Project Leaders: Pavlo Shydlovskiy (Taras Shevchenko National University of Kyiv, Ukraine), Stéphane Péan (Muséum National d'Histoire Naturelle, France)

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Archaeological context of Mezhyrich Upper Palaeolithic settlement with mammoth bone dwelling structures

Authors: Pavlo Shydlovskiy¹, Stéphane Péan², Ostap Tsvirkun³

¹ Taras Shevchenko National University of Kyiv, Ukraine; ² Muséum National d'Histoire Naturelle, France; ³ Institute of Archaeology NAS of Ukraine

Mezhyrich is an Epigravettian open air base camp, in the Middle Dnieper basin, dated to 14.9-14.3 ka 14C BP (i.e. between 18.2 and 17.4 ka cal BP), situated in a loessic sedimentary context. Four mammoth bone dwelling structures have been uncovered, surrounded by activity areas and pits. The Mezhyrich International Archaeology Summer School, which took place in summer 2018, was dedicated to young scientists in archaeology, especially Master students, PhD students and post-graduate early career researchers, from the following institutions of Ukraine and France: Taras Shevchenko National University of Kyiv, National University "Kyiv-Mohyla Academy", Institute of Archaeology NAS of Ukraine, Muséum National d'Histoire Naturelle in Paris.

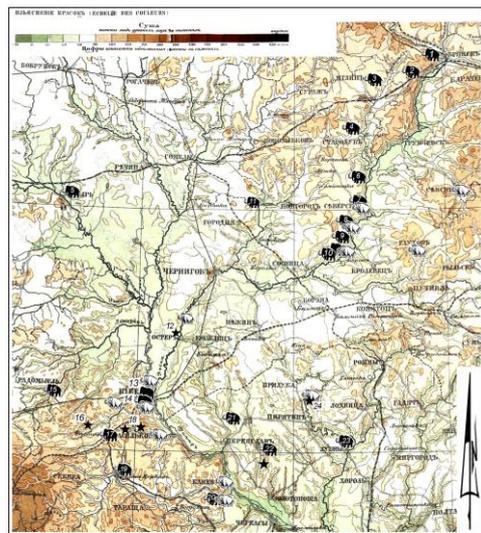


Fig. 10. Upper Pleistocene localities in the Middle Dnieper valley.

During the 2018 Summer School project implementation, which took place during field work in Mezhyrich within the framework of the Ukrainian State Fund for Fundamental Research project (No. F77/82-2017) named "Mezhyrich mammoth-hunters' settlement: archaeological research and museum studies", student training and research were conducted, as well as several trips and excursions to other Pleistocene locations of the Middle Dnieper region. The past years of research at the Mezhyrich site and its surrounding landscape have yielded the following results.

The territory of the Middle Dnieper Region belongs to the Late Upper Pleistocene mammoth zone, in which mammoths played a central role in a mammalian complex of herbivores and carnivores, and was the main subsistence resource of Palaeolithic groups.



Fig. 11. Stéphane Péan lecturing on "Methods of Zooarchaeology" at Department of Archaeology and Museology, Taras Shevchenko National University of Kyiv.

In the basin of the Middle Dnieper and its tributaries, a large number of Upper Palaeolithic sites and palaeontological deposits have been uncovered (Fig. 10). The archaeological settlements are attributed to different cultural and chronological facies: Gravettian (24-19 ka 14C BP), Epigravettian (15-13 ka 14C BP), Final Palaeolithic (13-10 ka 14C BP).

Several Epigravettian sites refer to the Mezhyrichian type of industry, which is dated in a rather narrow time-span between 15-13 ka 14C BP. They include notably the following large settlements: Mezhyrich (Fig. 10: 20), Dobranichivka (Fig. 10: 22), Gintsi (Fig. 10: 23), Semenivka I, II, III (Fig. 10: 21), and Buzhanka II (Fig. 10: 10), which have seen large-scale excavations over many years. Typo-technological analysis of lithic assemblages allows us to understand the uniformity of reduction strategies within this assemblage type, distinguishing it from other synchronous and neighbouring Epigravettian industries such as Mezinian, Yudinovian, Ovruchian and Osokrovka.

Such a technological, territorial and chronological homogeneity of sites represents the remnants of the living activities of a single society. These sites have different functional and seasonal characteristics, which provide a unique opportunity to reconstruct certain aspects of life, seasonal mobility cycles, and hunting strategies in a single palaeo-environmental context.

Considering the logistic model of annual mobility, base camps with mammoth bone dwelling structures, such as Mezhyrich, Dobranichivka and Gintsi, represent the centre of movements of human groups in the most convenient places in terms of availability of natural resources, while other sites were used as short-term camps, kill-sites, or flintstone raw material deposits.

Spatial features of the site layout indicate a standardized use of the residential area. The centre of such an assemblage is a dwelling, around which there are functionally distinct structures and zones associated with butchering activities, flint processing, storage structures, and garbage deposits. Several pits that surround the dwellings can be reconstructed as structures filled with both stored raw materials and middens comprised of butchery, artefact processing and hearth fuel waste. The renewed investigation of the internal space in the fourth dwelling of Mezhyrich will test the hypothesis of a standardized location of functionally defined areas within the dwelling structure, around a central hearth.

Considering the spatial distribution of dwelling structures in Mezhyrich and the other Mezhyrichian sites, it suggests a centralized behavioural pattern that manifests itself at different levels: dwelling structures, residential areas, base camps and an inter-site microregion.

Preliminary results of the 2019 International School and expedition were highlighted in the [presentation](#) "The Secret Diary of the Mammoth Hunter" at the LEGIO HISTORICA Festival on 23 November 2018; at the [open lecture](#) "Mammoth hunters: from field research to social interpretation" which held in Taras Shevchenko National University of Kyiv on 20 March 2019; and at the presentation "Bone tools from the household pit of Mezhyrich Upper Palaeolithic settlement: Interpretation of the field object" at the XXXVth Archaeological Conference in Rzeszow (Poland) on 2-3 April 2019.



Fig. 12. Trimmed and decorated distal part of a mammoth rib from the fourth dwelling of the Mezhyrich settlement.

Following the 2018 Summer School, a [scientific seminar](#) on the study of the Mezhyrich settlement with the use of zooarchaeological methods was given by Stéphane Péan (Fig. 11) for students and young scientists of the Department of Archaeology and Museology and the Institute of Biology, from

Taras Shevchenko National University of Kyiv, on March 20-30, 2019.

Expected research results will be presented at two international conferences:

The 3rd Conference "World of Gravettian Hunters" in Krakow, Poland, on 20-25 May 2019 and the 25th Annual Meeting of European Association of Archaeologists in Bern, Switzerland, on 4-7 September 2019.

In the future, based on the experience of leading the summer school, it will be possible to form an international focus group oriented to new issues about cultural and chronological, seasonal and palaeoeconomical research on Upper Palaeolithic sites in the Middle Dnieper basin area, including a central component focusing on skills enhancement

of research methods in prehistoric archaeology (Fig. 12).

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REGIONAL AND NATIONAL MEMBERS

SWITZERLAND

Swiss Society for Quaternary Research (CH-QUAT)

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Highlights in Switzerland in 2018

The Swiss Society for Quaternary Research (CH-QUAT) is an interface for scientists and professionals from different research and applied fields dealing with the Quaternary period (the last 2.6 Ma of Earth History), in particular the aspects concerning humans, the environment and climate. At our annual meetings and excursions, we offer a



Fig. 13. Early stage researchers present and discuss their posters during a coffee break at the annual CH-QUAT meeting which was presented at the University of Bern for 2018.



Fig. 14. Excursion participants take in the view of the “Ötzi-land” landscape during the summer excursion.

platform to promote an exchange of knowledge, ideas and contacts between students, scientists, professionals from both governmental institutions and private companies and the greater public (Fig. 13).

The start of a thriving year began with the annual meeting, which took place at the Institute of Geological Sciences at the University of Bern. The 2018 focus was on interdisciplinary issues with the theme “Natural Hazards”. Five presentations were given on various natural disasters from Rock avalanches to earth quakes and tsunamis, as well as the importance of geosciences outreach. Additionally, several early career researchers (ECR) presented posters.

Our yearly excursion took us to the central Alps in Engadin and South Tyrol to see „Ötzi-land“ (Fig. 14). Under the leadership of Prof. Dr. J.-N. Haas, we

had a great introduction to the Neolithic foundation of the Rhine Valley.

In the late fall of 2018, we supported a successful session at the 16th Swiss Geoscience Meeting in Bern November 30th to December 1st. The “Quaternary Environments: landscapes, climate, ecosystems, human activity during the past 2.6 million years” session proudly presented 14 talks and 34 posters.



Fig. 14. Tanja Frei, Master Student & CH-QUAT member, in Lienz, Austria working on fieldwork.

Throughout the year, we supported students (Fig. 14) and ECR in their research fields to present their results at different conferences and encouraged them to contribute to the CH-QUAT session at the 16th Swiss Geoscience Meeting in Bern. The ECR supported five students at various workshops and summer schools, as well as in the field for thesis research.