ANNUAL REPORT

October 2022- October 2023

Prepared by Tom Higham, Ron Pinhasi, Immo Trinks, Barbara Horejs and Maeve Nic Samhradáin

Contents

Section 1: From the Directors…

It is now two years since our Forschungsverbund, „*Human Evolution and Archaeological Sciences (HEAS)*“ was founded. HEAS is now an established name in the international scientific community and, importantly, across the University of Vienna and our partners at the Austrian Academy of Sciences and Natural History Museum. 2022-23 saw a change in the headship of HEAS from Gerhard Weber to Tom Higham. This was a seamless transition. So much has been achieved, with many successes already, as the reader will see in this Annual Report.

Tom Higham (r) took over as HEAS head from Gerhard Weber (l) in October 2023.

A great deal has happened in the period this Annual Report covers. We have continued to build on our programme of internal events, which is centred on a “Pecha Kucha” series of talks (20 slides for 20 seconds) by our Principal Investigators’, designed to introduce themselves and their work to the network. These talks are also recorded and archived on our YouTube channel, which is steadily growing in subscribers (currently >1,200). These events have helped to build a network of interacting researchers and scientists, and fostered a collaborative space for joint work. As part of this our Seed Grant initiatives are designed to provide pump-priming or research funding of up to €3000. We aim to fund research projects that have the potential to become bigger projects, specifically favouring teams that include members from more than one of the various HEAS groups.

Thus far, we have funded 21 Seed grant projects, ranging from ideas such as improving yields of ancient DNA from sediments, exploring health and diet from Roman and Medieval burials in Croatia, to extracting DNA from Palaeolithic rock art and much, much more (our latest grant awards are listed below on page 32). Grants are the lifeblood of scientific research, of course, and as well as the Seed grants we also saw several large grants awarded this year to various teams within the HEAS network. Congratulations to Matthias Mehofer, Karina Grömer and their team who received a prestigious standalone EU-H2020-IPERION to explore metallurgy at the famous Iron Age cemetery of Hallstatt, Austria. Sojung Han won an ESP 546 ESPRIT-Programm grant for a project on Introgression in “Hybridzonen in Schimpansen-Unterarten” in collaboration with Martin Kuhlwilm and Ron Pinhasi. Elmira Mohandesan was awarded a FWF grant for her project on “Genome-wide Genetic Diversity, Ancestry and Inbreeding in New Zealand Feral Kaimanawa Horses”. This grant also supports a PhD candidate. In addition, Michaela Schauer won an FWF ESPRIT grant and will join us to work on her project refining p-XRF instrumentation at VIAS. Emese Vègh also won an ESPRIT and will be working from October 2023 on AMS dating of non-collagenous proteins from ancient bones.

We were honoured to receive a personal visit from Rektor Schütze and Vice-Rektor Bacarrini in March 2023. We gave them a tour of the UBB and facilities at the Dept. of Evolutionary

Anthropology and held a meeting to discuss plans and showcase HEAS. It was a wonderful opportunity to talk about the network and hear the positive views from them on our progress and exciting future!

Our regular seminar series continues to gather momentum. It comprises three programmes of talks, each bringing international researchers to Vienna. The seminars series are "Archaeological Science", "Ancient Genomics" and "Human Evolution and the Palaeolithic". In the past year we have had 23 talks from some of the world-leading scientists in these fields, including Enrico Capellini, a pioneer in the field of palaeoproteomics, Ben Vernot, at the forefront of sediment DNA research, and Maria Martinon-Torres, a leading palaeonthropologist working at the World Heritage sites of Atapuerca in Spain. These seminars are hybrid events, and generate significant and growing interest from colleagues around the world. We usually see more people watching online, than in the audience! In addition, well-known, internationals scientists coming to Vienna allows us to introduce them to local researchers and students, and this often generates new collaborative projects between different groups.

We had our HEAS Keynote Lectures in November 2022 with Prof. Ernst Pernicka talking about the legendary Skydisk of Nebra, and in May 2023. Prof. Chris Stringer from the Natural History Museum London, who is one of the top palaeoanthropologists in the world, talked to us about 'Early human occupations of Britain'. Alongside Chris, we also welcomed a younger scientist, Alessandro Urciuoli from Senckenberg – Leibniz Institution for Biodiversity and Earth System Research, who talked about his research on microevolution in The Great Ape and Human Semicircular Canal**s.**

HEAS members have produced 80 publications with HEAS affiliation since its inception, including 38 in this Annual Report. Among them are several in high impact journals such as *Nature* (2) and *Science* (3) (see Section 4). In Section 5 we present some of the Scientific Highlights of the year in HEAS.

HEAS' web and social media presence has continued to grow, as we reach outwards to new users and followers across our various channels. The HEAS website, established in November 2021, now has 1,424 visitors per month on average. It comprises regular features such as news, events, blog posts, publications, job ads, and so on. Our monthly Newsletters are now sent to more than 1,000 subscribers, keeping them updated about news and events. HEAS' YouTube channel is also increasingly popular, as mentioned above. One of our online lecture events was watched >37,000 times. Our Twitter account now has 1,800 followers, with regular posts on new papers, events and awards. We also have Instagram and LinkedIn accounts.

There were some challenges at HEAS, as well as all of these successes. One was the issue of administration. We have been well served with having a super administrator in Maeve Nic Samhradáin, but the new university rules regarding chains of short-term contracts meant that we had a problem with continuity, such that we would have to recruit a new administrator and thereby lose her. Fortunately, the Rektorat was able to step-in after our appeals and allow Maeve's position to continue on a permanent basis, much to our relief.

The HEAS Network comprises seven research units from five faculties/centres of Univie, as well as the Natural History Museum Vienna and now the Austrian Academy of Sciences. We hope to welcome the Konrad Lorenz Institute in 2024. We now boast 44 PI's across these institutions with a total of 83 members. It is a broad-ranging, diverse and multi-disciplinary

church, mirroring the nature of the scientific disciplines with the fields of human evolution and archaeological science.

Aims for 2024-2025

Our aims for 2024-5 are four-fold. First, we want to strengthen the national and international reputation of HEAS as a potent partner for collaborative projects and to stimulate further joint cross-disciplinary projects within the network. To achieve this we will continue to focus on a combination of our Seed Grant and Pecha Kucha initiatives to encourage intra-network collaboration and the generation of new ideas. Keynote addresses and seminar series facilitate international collaborations and social interactions too, and we are welcoming 27 top scientists to Vienna in the next year to help drive this. We are seeing the results of these initiatives already, with a more dense and regular network of researchers who are actually linked with one another in formal ways, as represented in this report by the word cloud on page 9.

Second, we aim to offer a range of exciting workshops run by our members. We aim to share the expertise within our network and bring in others to experience the kinds of work we are doing. Education and teaching is crucial to build the next generation of scientists from our early career fellowship. In the first few months of 2024 we will host several workshops ranging from metallurgy to sediment geomorphology and more to push this area of HEAS.

Third, we want to widen our social impact and broaden interest in our field in the public arena. To this end we will implement a HEAS Podcast. The aim of the podcast is to share the scientific work we do with a much wider audience, including the general public. It will be produced monthly and feature interviews with some of our invited HEAS seminar speakers, along with regular features such as "Quick Takes" – rapid quickfire questions, questions from followers on our Instagram account, and more. A related initiative will be the HEAS Diaries, which are designed to feature the work of HEAS members in short videos. We are also planning to implement an outreach session in archaeology and science for children, through the NHM.

Finally, we will implement a Visiting Opportunities Scheme, starting in 2024, offering HEAS Fellowships, aimed at international established scientists, and HEAS Internships, to encourage early career researchers and young scholars to come to Vienna. The Fellowships will be strategic and targeted, aimed at researchers that HEAS PI's want to work or collaborate with, or who can bring something unique and new to our network.

Keep your eyes peeled for these new developments. We cannot wait to share them with you all!

We hope you enjoy reading the contents of this Annual Report.

Professor Tom Higham

Director

Professor Gerhard Weber

Immediate past Director

Section 2: HEAS Structure

HEAS Heads

The HEADS of HEAS since Oct. 2023 are: Tom Higham, Ron Pinhasi, Immo Trinks and Barbara Horejs.

The HEADS of HEAS from Oct. 2021 to Oct. 2023 were Gerhard Weber, Ron Pinhasi, Tom Higham and Immo Trinks.

HEAS Board

The HEAS Management Board is made up of 11 HEAS Members. Tom Higham (**Department of Evolutionary Anthropology (DEA)**), Ron Pinhasi (**Department of Evolutionary Anthropology (DEA)**), Immo Trinks (**Vienna Institute for Archaeological Science (VIAS)**), Barbara Horejs (**Austrian Academy of Sciences (ÖAW)** Katarina Rebay Salisbury **(Department of Prehistoric and Historical Archaeology (IUHA))**, Robin Golser (**Vienna Environmental Research Accelerator (VERA)**), Stephan M. Kraemer (**Department of Environmental Geosciences (EDGE)**), Sabine Ladstaetter (**Austrian Academy of Sciences (ÖAW)**) Doris Nagel **(Department of Palaeontology (PAL))**, Katrin Vohland **(Naturhistorisches Museum Wien (NHM))** and Gerhard Weber **(Department of Evolutionary Anthropology (DEA)**). The Board meets biannually and met virtually on the 10th May 2023 and the 29th November 2023.

Promoting the role of women in science has always been a goal for HEAS and we are pleased that five of the eleven HEAS Board member positions are filled by women.

HEAS Members

There are currently 81 members within HEAS comprising:

44 PI's or Team Leaders

23 Post Doctoral researchers

15 PhD candidates

Name	Research	Affiliation
Tom Higham	Human Evolution, Radiocarbon Dating	Department of Evolutionary Anthropology (DEA)
Ron Pinhasi	aDNA, Bioarchaeology, Isotopes	Department of Evolutionary Anthropology (DEA)
Immo Trinks	Archaeological Prospection, Digital Archaeology, Geoarchaeology	Vienna Institute for Archaeological Science (VIAS)
Barbara Horejs	Prehistory, Interdisciplinary Fieldwork, Neolithisation	Austrian Academy of Sciences (ÖAW)

Robin Golser	Accelerator Mass Spectrometry, Isotope Physics	Vienna Environmental Research Accelerator (VERA)
Michael Doneus	Environmental and Landscape Archaeology, Geographical Analysis, Prehistoric Archaeology	Department of Prehistoric and Historical Archaeology (IUHA)
Stephan Krämer	Environmental Geochemistry, Stable Isotopes	Department of Environmental Geosciences (EDGE)
Jürgen Kriwet	Aquatic Verebrates, Vertebrate Palaeontology	Department of Palaeontology (PAL)
Katrin Vohland	Citizen Science, Open Science in Museums	Naturhistorisches Museum Wien (NHM)
Gerhard Weber	Human Evolution, Dental Anthropology, Functional Morphology,	Department of Evolutionary Anthropology (DEA)
Michael Brandl	Lithic Provenance, Resource Management, Economic Behaviour, Archaeometry	Austrian Academy of Sciences (ÖAW)
Birgit Bühler	Animal - Human Relations, Metal Technologies	Vienna Institute for Archaeological Science (VIAS)
Laura Dietrich	Archaeology, Stone Tools, Use-wear and Residue Analyses, Object Biography	Austrian Academy of Sciences (ÖAW)
Katerina Douka	Palaeolithic, ZooMS, Paleoproteomics, Radiocarbon Dating	Department of Evolutionary Anthropology (DEA)
Thomas Einmwögerer	Upper Palaeolithic, Interdisciplinary Fieldwork, Site Formation, Human-Environmental Interactions	Austrian Academy of Sciences (ÖAW)
Martin Fieder	Evolutionary Demography, Statistical Genetics	Department of Evolutionary Anthropology (DEA)
Pamela Fragnoli	Craft Organization, Exchange Networks, Cross-Craft Interactions, Object Biographies	Austrian Academy of Sciences (ÖAW)
Alfred Galik	Archaeozoology, Archaeology of Food, Environmental Archaeology, Bioarchaeology	Austrian Academy of Sciences (ÖAW)
Pere Gelabert Xirinachs	Health Assessment, Metagenomics, Environmental Genomics, Paleogenomics	Department of Evolutionary Anthropology (DEA)
Karina Groemer	Textile research, Identity, Material Culture, Prehistoric Archaeology, Social Archaeology	Naturhistorisches Museum Wien (NHM)
Mathias Harzhauser	Cenozoic Era, Paleoclimate, Paleogeography, Stratigraphy	Naturhistorisches Museum Wien (NHM)
Irmgard Hein	Ceramology, Material Culture	Vienna Institute for Archaeological Science (VIAS)
Andreas Heiss	Archaeology of Food, Environmental Archaeology, Archaeobotany, Bioarchaeology	Austrian Academy of Sciences (ÖAW)
Alexandra Krenn-Leeb	Gender Archaeology, Environmental and Landscape Archaeology, Identity, Material Culture, Social Archaeology	Department of Prehistoric and Historical Archaeology (IUHA)

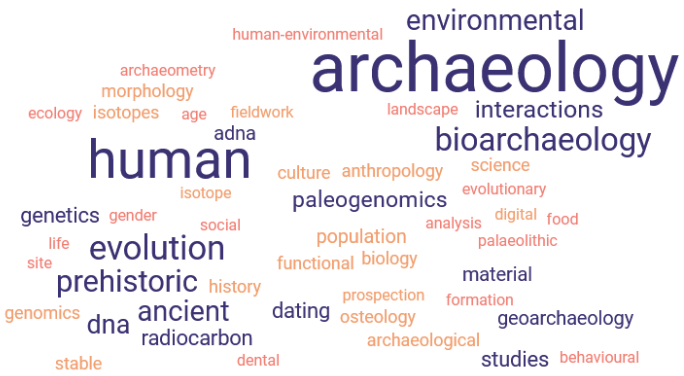
Kerstin Kowarik	Human-Environment Interactions, Prehistoric Identities, Archaeology of Food, Bioarchaeology	Austrian Academy of Sciences (ÖAW)
Martin Kuhlwilm	Evolution Genetics, Admixture, aDNA, Human Evolution	Department of Evolutionary Anthropology (DEA)
Sylvia Kirchengast	Human Life History of Recent and Historical Populations, Gender in Science, Bioarcheology, Growth studies, Paleopathology	Department of Evolutionary Anthropology (DEA)
Sabine Ladstaetter	Ancient Economy, Heritage Studies, Archaeology	Austrian Academy of Sciences (ÖAW)
Mareike Stahlschmidt	Pyroarchaeology, Site Formation, Ancient DNA, Geoarchaeology	Department of Evolutionary Anthropology (DEA)
Günther Karl Kunst	Vertebrate Archaeology	Vienna Institute for Archaeological Science (VIAS)
Naoise Mac Sweeney	Mediterranean Archaeology, Migration Studies, Material Culture	Department of Prehistoric and Historical Archaeology (IUHA)
Mathias Mehofer	Metallurgy	Vienna Institute for Archaeological Science (VIAS)
Elmira Mohandesan	Animal Domestication, Comparative Genomics, Palaeogenomics, Bioarchaeology	Department of Evolutionary Anthropology (DEA)
Doris Nagel	Phylogeography of Mammals, Palaeodiversity and Evolution of tertiary mammals	Department of Palaeontology (PAL)
Wolfgang Neubauer	Archaeological Geo-Physical Prospection, Virtual Archaeology, Stratigraphy	Vienna Institute for Archaeological Science (VIAS)
Philip R. Nigst	Human Behavioural Ecology, Human Evolution, Human -Environmental Interactions, Prehistoric Archaeology	Department of Prehistoric and Historical Archaeology (IUHA)
Katharina Rebay-Salisbury	Kinship, Mobility, Gender Archaeology, Prehistoric Archaeology	Austrian Academy of Sciences (ÖAW)
Alexandra S. Rolder-Rørbo	Material Provenance, (Organization of) Trade and Production Networks, Cross-Craft Interactions, Archaeometry of Colour	Austrian Academy of Sciences (ÖAW)
Peter Steier	Accelerator mass spectrometry (AMS)	Vienna Environmental Research Accelerator (VERA)
Roderick B. Salisbury	Copper Age and Bronze Age, Geoarchaeology, Human-Environmental Interactions, Neolithic, Spatial/Social Organisation	Department of Prehistoric and Historical Archaeology (IUHA)
Michaela Schauer	p-XRF, Pottery studies, Neolithic studies, Archaeometry	Vienna Institute for Archaeological Science (VIAS)
Katrin Schäfer	Evolutionary Aesthetics, Human Behavioural Biology	Department of Evolutionary Anthropology (DEA)

Harald Wilfing	Human Ecology	Department of Evolutionary Anthropology (DEA)
Magdalena Blanz	Palaeoecology, Palaeodietary Analysis, Stable Isotope Ratios	Vienna Institute for Archaeological Science (VIAS)
Olivia Cheronet	Ancient DNA, Paleogenomics, Bioarchaeology	Department of Evolutionary Anthropology (DEA)
Roland Filzwieser	Medieval History, Digital Humanities, Archaeological Prospection, Environmental and Landscape Archaeology	Vienna Institute for Archaeological Science (VIAS)
Bernhard Fink	Human Behavioral Biology, Evolutionary Aesthetics	Department of Evolutionary Anthropology (DEA)
Cinzia Fornai	Functional Morphology, Dental Anthropology	Department of Evolutionary Anthropology (DEA)
Meriam Guellil	Paleogenomics, Ancient DNA, Metagenomics, Microbial Pathogens	Department of Evolutionary Anthropology (DEA)
Sojung Han	Primates, Museum Specimens, Comparative Genomics, Population Genetics	Department of Evolutionary Anthropology (DEA)
Dominik Hagmann	Roman antiquity, digital archaeology/recording of archaeological excavations	Department of Evolutionary Anthropology (DEA)
Xin Huang	population genetics, method development	Department of Evolutionary Anthropology (DEA)
Ana M. Herrero Corral	Childhood, Kinship, Bioarchaeology, Prehistoric Archaeology	Department of Prehistoric and Historical Archaeology (IUHA)
Emily Kate	in Radiocarbon Dating, Isotopic Studies of Paleodiet And Migration, Human Osteology and Paleodemography	Vienna Institute for Archaeological Science (VIAS)
Richard Kimber	DNA-Mineral Interactions, DNA Preservation, SedaDNA, Ancient DANN	Department of Environmental Geosciences (EDGE)
Tom Maltas	Prehistoric Mediterranean, Environmental Archaeology, Archaeobotany, Stable Isotopes	Department of Prehistoric and Historical Archaeology (IUHA)
Lumila Paula Menéndez	Peopling of the Americas, Morphological Evolution, Bioarchaeology, Human Evolution	Department of Evolutionary Anthropology (DEA)
Annette Oertle	ZooMS, Zooarchaeology, Paleoproteomics, Prehistoric Archaeology	Department of Evolutionary Anthropology (DEA)
Konstantina Saliari	Domestication, Husbandry, Archaeozoology, Bioarchaeology	Naturhistorisches Museum Wien (NHM)
Susanna Sawyer	Methylation, Human Population Genetics, SedaDNA, aDNA	Department of Evolutionary Anthropology (DEA)
Viola Schmid	Lithic Technology, Stone Age Archaeology, African Fieldwork, Human Evolution	Austrian Academy of Sciences (ÖAW)
Mike Storozum	Remote Sensing, Geoarchaeology, Human-Environmental Interactions, Prehistoric Archaeology	Department of Evolutionary Anthropology (DEA)
José-Miguel Tejero	Human Behavioural Ecology, Human Evolution, Palaeolithic Archaeology	Department of Evolutionary Anthropology (DEA)

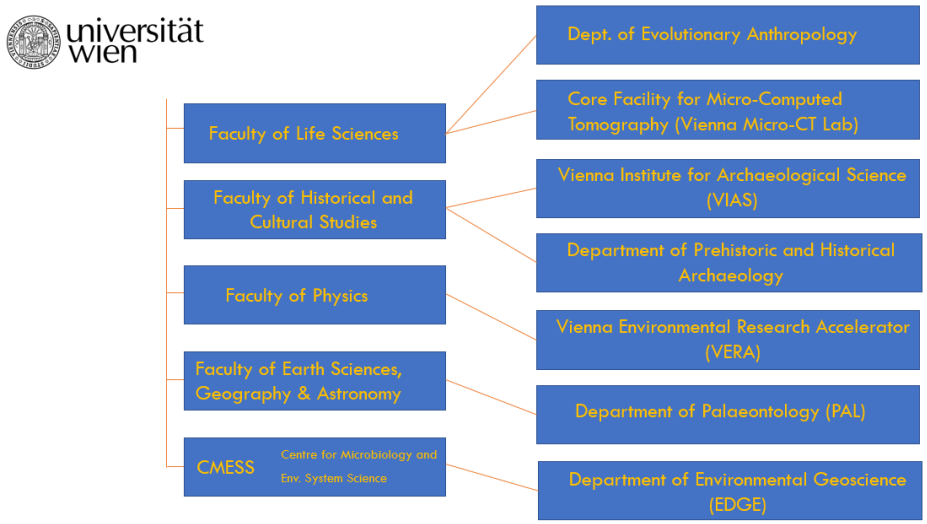
Laura van der Sluis	Stable Isotope Analysis, Prehistoric Archaeology, Radiocarbon Dating	Department of Evolutionary Anthropology (DEA)
Emese Vègh	Data Science, Palaeoproteomics, Taphonomy, Radiocarbon Dating	Department of Evolutionary Anthropology (DEA)
Sonja Windhager	Human Behavioral Biology	Department of Evolutionary Anthropology (DEA)
Thomas Beard	Microarchaeology, Site Formation, Geoarchaeology	Department of Evolutionary Anthropology (DEA)
Jeannette Becker	Palaeopathology, Human Osteology, Bioarchaeology, Life History & Aging	Department of Evolutionary Anthropology (DEA)
K.S. Duffett Carlson	bone biology, functional morphology, palaeodiet, taphonomy, field archaeology, virtual anthropology	Department of Evolutionary Anthropology (DEA)
Tobias Göllner	Human Evolution, Population Genetics, Selection	Department of Evolutionary Anthropology (DEA)
Michelle Hämmerle	Microbial Pathogens, Ancient DNA, Paleogenomics	Department of Evolutionary Anthropology (DEA)
Doris Jetzinger	Middle Neolithic	Department of Prehistoric and Historical Archaeology (IUHA)
Nisa Iduna Kirchengast	Zooarchaeology, Human-Animal Relations	Vienna Institute for Archaeological Science (VIAS)
Victoria Oberreiter	Paleogenomics, aDNA	Department of Evolutionary Anthropology (DEA)
Emily Pigott	Paleo-environment, Human Evolution, Prehistoric Archaeology, Radiocarbon Dating	Department of Evolutionary Anthropology (DEA)
Veer Vikram Singh	DNA-mineral interaction, Environmental Chemistry, Mineralogy	Department of Environmental Geosciences (EDGE)
Aigerim Rymbekova	Bioinformatics, Ancient DNA, Admixture, Human Evolution	Department of Evolutionary Anthropology (DEA)
Muhammad Bilal Sharif	Bioinformatics, Ancient DNA, Paleogenomics, Population Genomics	Department of Evolutionary Anthropology (DEA)
Petra Simkova	Functional Morphology, Dental Anthropology	Department of Evolutionary Anthropology (DEA)
Magdalena Srienc-Ściesiek	bioarchaeology, paleopathology, human osteology and life history.	Department of Evolutionary Anthropology (DEA)
Brina Zagorc	Human Osteology, aDNA, bioarchaeology, isotopes	Department of Evolutionary Anthropology (DEA)

Research Keywords

Each HEAS member has up to four keywords on their online profile to describe their research. This word cloud summarises these terms, demonstrating the breadth and depth of the science at the heart of HEAS. The keywords appear on the profiles of each HEAS member and illustrates the connections within the HEAS network.



HEAS Partner Institutions



nhm
naturhistorisches museum wien

ÖAW
ÖSTERREICHISCHE AKADEMIE DER WISSENSCHAFTEN

HEAS Staff

HEAS employs an Administrator, Maeve Nic Samhradáin, on a permanent contract.

HEAS is also in negotiations to employ a podcast producer on a 7-hour contract.

Section 3: HEAS Events

HEAS Talks

On the 9th December 2022 HEAS hosted an online talk by Flint Dibble on '**Archaeologists of the World Unite! Why We Need to Pay Attention to Pseudoarchaeology Today'.** This talk went on to be the most popular YouTube video on the HEAS YouTube channel with over 37,000 views to date.

On the 25th June 2023 HEAS hosted Ramiro Barberena for a talk on '**Isotopes, Mobility, And Migration In A Land Of Diversity: The Southern Andean Highlands Project**'

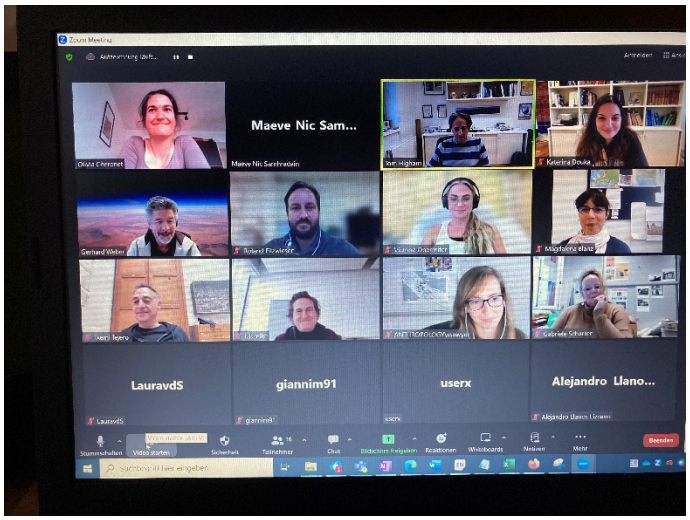
There were 21 attendees online with another 21 in the room.

On the 20th September 2023 we hosted Lara Rubio Arauna for a talk on '**Population History And Biological Adaptation Of Oceanians From Contemporary Genetic Data'**

There were 10 attendees online and another 14 in the room.

HEAS Pecha Kucha

Chairs: Prof. Gerhard Weber, Prof. Tom Higham



The Pecha Kucha series continues to be a success for HEAS. This is an online only event, with presenters given the option to record a talk or to deliver it live. For those who were happy to have their presentations recorded, a version goes on the HEAS YouTube channel.

Karina Grömer	Natural History Museum	Archaeological textiles – research and dissemination	Friday 16th December 2022
Shevan Wilkin	Department of Evolutionary Anthropology	Ancient Proteins: from Diets to Disease	Friday 16th December 2022
Emese Vegh	Department of Evolutionary Anthropology	Tracing early taphonomic changes prior to burning on bone	Friday 16th December 2022
Barbara Horejs	OEAW	Neolithic Phenomena from western Asia to Europe	Friday 3rd March 2023 13:00
Victoria Oberreiter	Evolutionary Anthropology	From dirt to human evolution - sedimentary DNA as a paleogenomic archive	Friday 3rd March 2023 13:00
Elmira Mohandesan	Department of Evolutionary Anthropology	Ancient DNA and teeth show: Romans brought mules with them	Friday 28th April 2023 13:00
Mathias Mehofer	VIAS - Vienna Institute for Archaeological Science	Archaeomeallurgy	Friday 28th April 2023 13:00
Laura Dietrich	Prehistory and WANA Archaeology Austrian Archaeological Institute	Tools that shaped the world	Friday 16th June 2023 13:00
Mareike Stahlschmidt	Department of Evolutionary Anthropology	Impact of a recent wildfire on tortoises at Cape Point, South Africa, and implications for the interpretation of heated bones in the archaeological record	Friday 16th June 2023 13:00
Pere Gelabert	Department of Evolutionary Anthropology	The Social Genomics of the LBK expansion	Friday 16th June 2023
Roland Filzwieser	VIAS - Vienna Institute for Archaeological Science	Beyond the Item - the bITEM project	Friday 6th October 2023 13:00
Katharina Rebay-Salisbury	Institut für Urgeschichte	Gender, kinship and the plague: bio-archaeological insights into Early Bronze Age Austria	Friday 6th October 2023 13:00

HEAS Keynote

25th November 2022.

We were delighted to welcome one of the most renowned figures in archaeology**,** Ernst Pernicka from the Curt-Engelhorn-Zentrum Archäometrie, Mannheim and the Institut für Ur-und Frühgeschichte und Archäologie des Mittelalters, University of Tübingen to Vienna in November 2022 for a Keynote lecture on '*The Sky Disc of Nebra: A window to the Bronze Age world in Europe and beyond*.'

The "Sky Disc of Nebra" is the earliest astronomically identifiable representation of the night sky, which has considerable implications concerning archaeoastronomy, archaeometallurgy, the history of religion and archaeology. The scientific investigations centered around the question of authenticity, the provenance of the metals and their production technology. All these questions have been resolved and the results were presented.

This hybrid event had 85 online and 71 in-person attendees.

5th May 2023

The Keynote lecture provides us with the opportunity to draw in a further big name in the field of human evolution and archaeological science, and few come bigger than Professor Chris Stringer from London's Natural History Museum. Chris is one of the main proponents of the 'Out of Africa' model of human evolution and has been a research leader in the field for more than 40 years. His HEAS Keynote talk was entitled; *'Early human occupations of Britain'*. Chris explored the deep-time story of humans in the far north of the Great European Plain and the British Isles, across hundreds of thousands of years, taking in his extensive experience of working with large, funded teams such as the AHOB team (Ancient Human Occupation of Britain project). The talk really was focussed on 'occupations'. It was a thought-provoking and wide- ranging presentation which the audience really enjoyed.

In parallel, we also welcomed a younger scientist, Alessandro Urciuoli from Senckenberg – Leibniz Institution for Biodiversity and Earth System Research, who talked about his research on microevolution in The Great Ape and Human Semicircular Canals. We wanted to give a young, emerging scientist, an opportunity to present his/her work alongside a senior established colleague. The format worked very well indeed.

This event was held in hybrid format, with over 100 people in total attending. The YouTube video of this event has been watched more than 34,000 times!

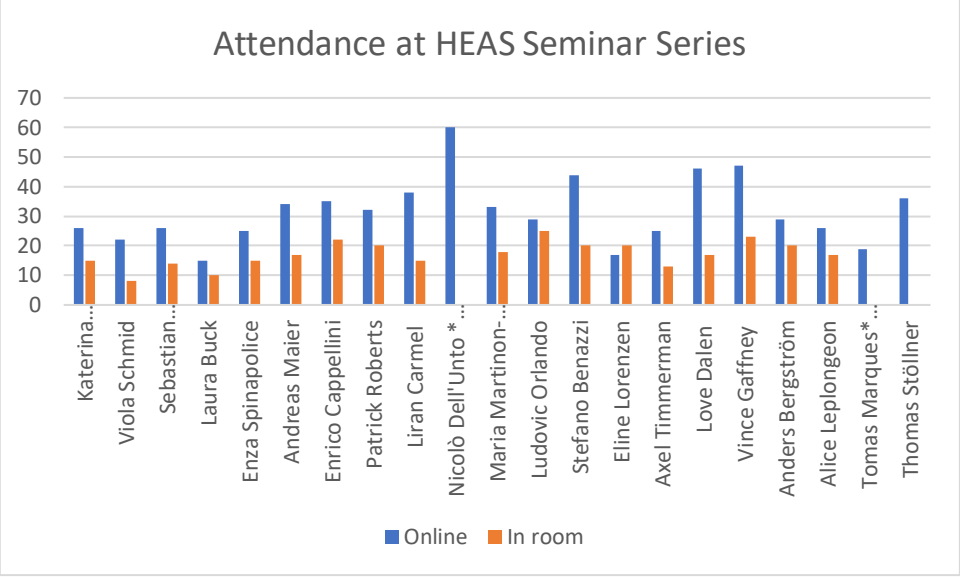
HEAS Seminar Series

The HEAS Seminar Series kicked off on the 3rd October 2022 with a talk by Carina Schlebusch. We had 24 international speakers visiting Vienna and giving talks through the year, visiting facilities, meeting students and discussing collaborative work.

HEAS Seminar Series			
Topic	**Date**	**Title**	**Speaker**
Ancient Genomics	Montag 3/10	African History - inferences from modern and ancient DNA.	Carina Schlebusch
Human Evolution and the Palaeolithic	Montag 10/10	Sediment DNA and Human History	Ben Vernot
Human Evolution and the Palaeolithic	Montag 14/11	Denisovans on the Tibetan Plateau.	Dongju Zhang
Ancient Genomics	Montag 5/12	Genomics and metagenomics of gorillas: Old samples - new insights	Katerina Guschanski
Human Evolution and the Palaeolithic	Montag 12/12	Shifting gear - new results on the Southern African Middle to Later Stone Age transition from Umhlatuzana rockshelter	Viola Schmid
Ancient Genomics	Montag 9/01	Origins of human pathogens	Sebastian Spencer-Calvignac
Human Evolution and the Palaeolithic	Freitag 13/1	The effects of hybridisation on skeletal morphology: using a macaque model to explore human evolution	Laura Buck
Human Evolution and the Palaeolithic	Montag 16/01	*Homo sapiens* is as *Homo sapiens* was? Late Pleistocene human adaptation at Gotera, Southern Ethiopia	Enza Spinapolice
Archaeological Science	Montag 23/01	Population dynamics and cultural evolution during the Upper Palaeolithic in Europe	Andreas Maier
Ancient Genomics	Montag 6/02	Reconstructing deep-time human evolution using palaeoproteomics	Prof. Enrico Cappellini
Human Evolution and the Palaeolithic	Montag 13/02	The generalist specialist: Exploring a unique Pleistocene ecological niche for our species	Patrick Roberts
Ancient Genomics	Montag 6/03	Paleoepigenetics - studying human evolution using ancient DNA methylation	Liran Carmel
Human Evolution and the Palaeolithic	Montag 20/03	Atapuerca: an East Side Story	Maria Martinon-Torres
Archaeological Science	Montag 20/3	The Use of 3D Spatial Technology in Support of Field Practice	Nicolò Dell'Unto
Ancient Genomics	Freitag 21/04	Molecular natural history: a prism to the past to better understand our future	Eline Lorenzen
Human Evolution and the Palaeolithic	Montag 18/04	Unravelling the earliest migration of *Homo sapiens* in southern Europe	Stefano Benazzi

Archaeological Science	Montag 17/04	The genomic history of the domestic horse	Ludovic Orlando
Ancient Genomics	Montag 8/05	DeepTime Genomics - investigating evolutionary change at a million-year timescale	Love Dalen
Human Evolution and the Palaeolithic	Montag 24/04	Understanding Human Evolution in the context of past climate change	Axel Timmerman
Archaeological Science	Montag 22/05	Not drowning but waving! Doggerland and the Lost Frontiers Project	Vincent Gaffney
Ancient Genomics	Montag 05/06	Genomic history of wolves and dogs	Anders Bergström
Human Evolution and the Palaeolithic	Montag 12/06	Not Just a Corridor. Towards an alternative narrative for Pleistocene human occupation of North-Eastern Africa	Alice Leplongeon
Archaeological Science	Montag 19/06	Death in Salt - Insights into an ancient mining disaster and the economic history of ancient Persia	Thomas Stöllner
Ancient Genomics	Montag 26/06	Global patterns of genome diversity across the primate radiation	Tomas Marques

The attendance statistics for the HEAS seminar series is shown below. It is clear that more people attend online than in person.



The 2023-2024 Seminar Series began on the 9th October 2023. These are the confirmed speakers:

Topic	Date	Title	Speaker
Human Evolution and the Palaeolithic	09.10.2023	Hominin diversity in Asia during the Late Pleistocene	Clement Zanolli
Ancient Genomics	16.10.2023	Inferring pathogen histories in space and time using genomes old and new	Lucy van Dorp
Archaeological Science	23.10.2023	Archaeological soil and sediment micromorphology as a tool for revealing activities and behaviors	Takis Karkanas
Human Evolution and the Palaeolithic	13.11.2023	It's a Plants' World - New insights about Upper Paleolithic plant use at Aghitu-3 Cave, Armenia.	Andrew Kandel
Ancient Genomics	20.11.2023	A critical look at the concept of domestication through ancient and modern cats	Greger Larson
Archaeological Science	27.11.2023	Emptyscapes Initiative: A Paradigm Shift in Mediterranean Landscape Archaeology	Stefano Campana
Human Evolution and the Palaeolithic	04.12.2023	Nubian complexity: new inter-regional perspectives on Middle Palaeolithic Nubian Levallois technology	Emily Hallinan
Ancient Genomics	11.12.2023	Demographic History of Central Asia from the Iron Age to the 1st Millennium CE	Ainash Childebayeva
Archaeological Science	08.01.2024	Milking, Meadows and Manure: Isotope-Based Results from Seventh Millennium Northwest Turkey	Rana Ozbal
Human Evolution and the Palaeolithic	15.01.2024	Improving radiocarbon dating methods for archaeological and palaeoenvironmental studies	Thibaut Deviese
Ancient Genomics	22.01.2024	Contrasting linguistic and genetic histories with a global genetic dataset	Chiara Barbieri
Human Evolution and the Palaeolithic	12.02.2024	Evolution of the human hand: Information held within our bones, fossils and living apes	Tracy Kivell
Ancient Genomics	19.02.2024	Northwest African Neolithic ignited by migrants from Europe	Mattias Jakobsson
Human Evolution and the Palaeolithic	20.02.2024	Landscape modification by Last Interglacial Neanderthals?	Wil Roebroeks
Archaeological Science	26.02.2024	Cosmic Radiation Events as Anchor Points for Human History	Mike Dee

Human Evolution and the Palaeolithic	04.03.2024	Unravelling the human past: insights from ancient DNA	Janet Kelso
Ancient Genomics	11.03.2024	Living models for human history: genomics and behavior in our primate cousins.	Jenny Tung
Archaeological Science	18.03.2024	Ships, harbours and waterways - Geophysical prospection in shallow waters and tidal flats	Dennis Wilken
Human Evolution and the Palaeolithic	15.04.2024	"Filling gaps in hominin evolution from the "armchair" to the field"	Aurélien Mounier
Ancient Genomics	22.04.2024	Beyond bones and teeth - exploring alternative sources of ancient DNA for investigating the human past	Matthias Meyer
Archaeological Science	29.04.2024	Isotopes gone wild: archaeo-ecological approaches to Late Pleistocene living landscapes	Kate Britton
Human Evolution and the Palaeolithic	13.05.2024	Decoding Neanderthal Pyrotechnological Traditions Concealed in the Microstratigraphic Sedimentary Record	Carolina Mallol
Ancient Genomics	20.05.2024	Expanding known diversity of human-associated microbes through assembly of ancient dental calculus	Irina Velsko
Archaeological Science	27.05.2024	Functional approaches to human behaviour in the Palaeolithic	Veerle Rots
Human Evolution and the Palaeolithic	03.06.2024	At the northern limit of the Neanderthal habitat. News from our research in Lichtenberg, Lower Saxony and Drelsdorf, Schleswig-Holstein	Marcel Weiss
Ancient Genomics	17.06.2024	Fine-scale genetic history	Pontus Skoglund
Archaeological Science	24.06.2024	The role of abrupt climatic shifts in the initial settlement of South America	Lorena Becerra Valdivia

Visiting speakers photo mosaic

HEAS Workshops

On the 14th December 2022, Gerhard Weber and Cinzia Fornai opened the series holding a one day workshop/Training Day on EVAN Toolbox (ET). This took place online with 11 participants in total.

On the 21st March 2023 a HEAS Workshop was held at the NHM on Interweaving Bell Beaker decorative motifs and textile patterns: Exploring technical and symbolic approaches during the 3rd millennium BCE in Europe. There were 25 people who attended the workshop in the museum with an additional 35 people attending the sessions online.

Section 4: HEAS Publications

Only publications carrying at least one HEAS affiliation were included. A full list of HEAS Publications can be viewed here. There is a total of 80 publications for HEAS since 2021. Below is a list of the 38 publications from 2022-2023.

1. Baquedano, E., Arsuaga, J.L., Pérez-González, A., Laplana, C., Márquez, B., Huguet, R., Gómez-Soler, S., Villaescusa, L., Galindo-Pellicena, M.Á., Rodríguez, L., García-González, R., Ortega, M.C., Martín-Perea, D.M., Ortega, A.I., Hernández-Vivanco, L., Ruiz-Liso, G., Gómez-Hernanz, J., Alonso-Martín, J.I., Abrunhosa, A., Moclán, A., Casado, A.I., Vegara-Riquelme, M., Álvarez-Fernández, A., Domínguez-García, Á.C., Álvarez-Lao, D.J., García, N., Sevilla, P., Blain, H.-A., Ruiz-Zapata, B., Gil-García, M.J., Álvarez-Vena, A., Sanz, T., Quam, R., **Higham, T.**, 2023. **A symbolic Neanderthal accumulation of large herbivore crania**. Nature Human Behaviour.

2. **Blanz, M.**, Balasse, M., Card, N., Ascough, P., Fiorillo, D., Taggart, M.A., Feldmann, J., Mainland, I., 2022. **Life, Death and Teeth of Late Neolithic Sheep and Red Deer Excavated at Ness of Brodgar, Orkney Islands (UK)**. Environmental Archaeology, 1-13.

3. Butovskaya, M., Adam, Y., Batsevich, V., Shackelford, T.K., **Fink, B.**, 2023. **Direct and radiographic digit ratio (2D:4D) measurements of Tuvan children and adolescents from Southern Siberia: Sex differences and skeletal maturation**. Early Human Development 184, 105835.

4. Davin, L., **Tejero, J.-M.**, Simmons, T., Shaham, D., Borvon, A., Tourny, O., Bridault, A., Rabinovich, R., Sindel, M., Khalaily, H., Valla, F., 2023. **Bone aerophones from Eynan-Mallaha (Israel) indicate imitation of raptor calls by the last hunter-gatherers in the Levant**. Scientific Reports 13, 8709.

5. **Doneus, M., Neubauer, W., Filzwieser, R.,** Sevara, C., 2022. **Stratigraphy from topography II. The practical application of the Harris Matrix for the GIS-based spatio-temporal archaeological interpretation of topographical data**. *Archaeologia Austriaca* (2022).

6. Essel, E., Zavala, E.I., Schulz-Kornas, E., Kozlikin, M.B., Fewlass, H., Vernot, B., Shunkov, M.V., Derevianko, A.P., **Douka, K.**, Barnes, I., Soulier, M.-C., Schmidt, A., Szymanski, M., Tsanova, T., Sirakov, N., Endarova, E., McPherron, S.P., Hublin, J.-J., Kelso, J., Pääbo, S., Hajdinjak, M., Soressi, M., Meyer, M., 2023. **Ancient human DNA recovered from a Palaeolithic pendant**. Nature 18, 328–332 (2023)

7. **Fieder, M.**, Danz, C., Deibl, J.H., 2023. **Transformation of Religion: Interdisciplinary Perspectives, An Account of Behavioural Biology on the "Concept of Religion"**. Brill | Schöningh, pp. 111-117.

8. **Fieder, M.**, Huber, S., 2023. **Facial attractiveness is only weakly linked to genome–wide heterozygosity**. Frontiers in Psychology 14.

9. **Fieder, M**., Huber, S., 2023. **Increasing pressure on US men for income in order to find a spouse. Biodemography and Social Biology**, 1-19.

10. **Filzwieser, R.D.**, Michael; Hasenhündl, Gerhard; Kucera, Matthias; Lenzhofer, Andreas; Pisz, Michał et al. , 2023. **Der Dernberg. Neue Perspektiven auf einen mittelalterlichen Hausberg mit anschließender Ortswüstung durch integrierte archäologische Prospektion und die systematische Analyse historischer Karten.** . Beiträge zur Mittelalterarchäologie in Österreich 39,, S. 115–136.

11. **Fornai, C.**, 2023. **An evolutionary perspective on craniomandibular dysfunctions. Bulletin of the International Association for Paleodontology** 17.

12. Gallo, G., Ushakov, S.V., Navrotsky, A., **Stahlschmidt, M.C.**, 2023. I**mpact of prolonged heating on the color and crystallinity of bone**. Archaeological and Anthropological Sciences 15, 143.

13. Gao, H., Hamp, T., Ede, J., Schraiber, J.G., McRae, J., Singer-Berk, M., Yang, Y., Dietrich, A.S.D., Fiziev, P.P., Kuderna, L.F.K., Sundaram, L., Wu, Y., Adhikari, A., Field, Y., Chen, C., Batzoglou, S., Aguet, F., Lemire, G., Reimers, R., Balick, D., Janiak, M.C., **Kuhlwilm, M.**, Orkin, J.D., Manu, S., Valenzuela, A., Bergman, J., Rousselle, M., Silva, F.E., Agueda, L., Blanc, J., Gut, M., de Vries, D., Goodhead, I., Harris, R.A., Raveendran, M., Jensen, A., Chuma, I.S., Horvath, J.E., Hvilsom, C., Juan, D., Frandsen, P., de Melo, F.R., Bertuol, F., Byrne, H., Sampaio, I., Farias, I., do Amaral, J.V., Messias, M., da Silva, M.N.F., Trivedi, M., Rossi, R., Hrbek, T., Andriaholinirina, N., Rabarivola, C.J., Zaramody, A., Jolly, C.J., Phillips-Conroy, J., Wilkerson, G., Abee, C., Simmons, J.H., Fernandez-Duque, E., Kanthaswamy, S., Shiferaw, F., Wu, D., Zhou, L., Shao, Y., Zhang, G., Keyyu, J.D., Knauf, S., Le, M.D., Lizano, E., Merker, S., Navarro, A., Bataillon, T., Nadler, T., Khor, C.C., Lee, J., Tan, P., Lim, W.K., Kitchener, A.C., Zinner, D., Gut, I., Melin, A., Guschanski, K., Schierup, M.H., Beck, R.M.D., Umapathy, G., Roos, C., Boubli, J.P., Lek, M., Sunyaev, S., O'Donnell-Luria, A., Rehm, H.L., Xu, J., Rogers, J., Marques-Bonet, T., Farh, K.K.-H., 2023. **The landscape of tolerated genetic variation in humans and primates**. Science 380, eabn8153.

14. **Hagmann, D.**, Ankerl, B., Greisinger, M., Miglbauer, R., **Kirchengast, S.**, 2023. **Where are the Roman women of Ovilava? A spatio-temporal approach to interpret the female deficit at the eastern Roman cemetery (Gräberfeld Ost) of Ovilava, Austria**. Anthropological Review 86, 89-118.

15. **Huang, X.**, Rymbekova, A., Dolgova, O., Lao, O., **Kuhlwilm, M.**, 2023. **Harnessing deep learning for population genetic inference**. Nature Reviews Genetics.

16. **Jetzinger, D.**, **Krenn-Leeb, A.**, Lindinger, V., Weßling, R., Peresson, M., Supper, R., Roetzel, R., Peticzka, R., 2023. **Is this settlement intersected by a ditch? A comparison between magnetic prospection data, ALS data, and archaeological and geological excavation results from the Early Bronze Age fortified hilltop settlement of Ratzersdorf, Lower Austria, Advances in On-and Offshore Archaeological Prospection: Proceedings of the 15th International Conference on Archaeological Prospection**, pp. 143-147.

17. **Krenn-Leeb, A.**, Supper, R., Ottowitz, D., Jochum, B., Preiner, A., Weßling, R., **Jetzinger, D.**, 2023. **A swamp as an obstacle to approach–archaeological and geoelectrical investigations on the Early Bronze Age fortification of Ratzersdorf, Lower Austria, Advances in On-and Offshore Archaeological Prospection: Proceedings of the 15th International Conference on Archaeological Prospection**, pp. 159-162.

18. Kuderna, L.F.K., Gao, H., Janiak, M.C., **Kuhlwilm, M**., Orkin, J.D., Bataillon, T., Manu, S., Valenzuela, A., Bergman, J., Rousselle, M., Silva, F.E., Agueda, L., Blanc, J., Gut, M., de Vries, D., Goodhead, I., Harris, R.A., Raveendran, M., Jensen, A., Chuma, I.S., Horvath, J.E., Hvilsom, C., Juan, D., Frandsen, P., Schraiber, J.G., de Melo, F.R., Bertuol, F., Byrne, H., Sampaio, I., Farias, I., Valsecchi, J., Messias, M., da Silva, M.N.F., Trivedi, M., Rossi, R., Hrbek, T., Andriaholinirina, N., Rabarivola, C.J., Zaramody, A., Jolly, C.J., Phillips-Conroy, J., Wilkerson, G., Abee, C., Simmons, J.H., Fernandez-Duque, E., Kanthaswamy, S., Shiferaw, F., Wu, D., Zhou, L., Shao, Y., Zhang, G., Keyyu, J.D., Knauf, S., Le, M.D., Lizano, E., Merker, S., Navarro, A., Nadler, T., Khor, C.C., Lee, J., Tan, P., Lim, W.K., Kitchener, A.C., Zinner, D., Gut, I., Melin, A.D., Guschanski, K., Schierup, M.H., Beck, R.M.D., Umapathy, G., Roos, C., Boubli, J.P., Rogers, J., Farh, K.K.-H., Marques Bonet, T., 2023. **A global catalog of whole-genome diversity from 233 primate species**. Science 380, 906-913.

19. Laurits Skov, Stéphane Peyrégne, Divyaratan Popli, Leonardo N. M. Iasi, Thibaut Devièse, Viviane Slon, Elena I. Zavala, Mateja Hajdinjak, Arev P. Sümer, Steffi Grote, Alba Bossoms Mesa, David López Herráez, Birgit Nickel, Sarah Nagel, Julia Richter, Elena Essel, Marie Gansauge, Anna Schmidt, Petra Korlević, Daniel Comeskey, Anatoly P. Derevianko, Aliona Kharevich, Sergey V. Markin, Sahra Talamo, **Katerina Douka**, Maciej T. Krajcarz, Richard G. Roberts, **Thomas Higham**, Bence Viola, Andrey I. Krivoshapkin, Kseniya A. Kolobova, Janet Kelso, Matthias Meyer, Svante Pääbo, Benjamin M. Peter. 2022. **Genetic insights into the social organization of Neanderthals.** Nature, 20 Oct. 2022.

20. Lauterbur, M.E., Cavassim, M.I.A., Gladstein, A.L., Gower, G., Pope, N.S., Tsambos, G., Adrion, J., Belsare, S., Biddanda, A., Caudill, V., Cury, J., Echevarria, I., Haller, B.C., Hasan, A.R., **Huang, X.**, Iasi, L.N.M., Noskova, E., Obšteter, J., Pavinato, V.A.C., Pearson, A., Peede, D., Perez, M.F., Rodrigues, M.F., Smith, C.C.R., Spence, J.P., Teterina, A., Tittes, S., Unneberg, P., Vazquez, J.M., Waples, R.K., Wohns, A.W., Wong, Y., Baumdicker, F., Cartwright, R.A., Gorjanc, G., Gutenkunst, R.N., Kelleher, J., Kern, A.D., Ragsdale, A.P., Ralph, P.L., Schrider, D.R., Gronau, I., 2023. **Expanding the stdpopsim species catalog, and lessons learned for realistic genome simulations**. eLife Sciences Publications.

21. Manning, J.T., **Fink, B.**, Trivers, R., 2023. **Digit Ratio (2D:4D; Right-Left 2D:4D) and Multiple Phenotypes for Same-Sex Attraction: The BBC Internet Study Revisited**. Archives of Sexual Behavior.

22. Mas, B., Mangado, X., de la Torre, M.S., **Tejero, J.-M.**, Fullola, J.M., Allué, E., 2023. **Late Paleolithic hunter-gatherers' resilience in the face of the transformation of the vegetation landscape and climate change in the Pre-Pyrenees.** Quaternary Science Reviews 317, 108276.

23. Mohaseb, A.F., Cornette, R., Zimmermann, M.I., Davoudi, H., Berthon, R., Guintard, C., Cucchi, T., Hanot, P., **Mohandesan, E.**, Eisenmann, V., 2023. **Predictive use of modern reference osteological collections for disentangling the shape of Eurasian equid cheek teeth and metapodials in archaeological material**. International Journal of Osteoarchaeology.

24. Moots, H.M., Antonio, M., Sawyer, S., Spence, J.P., **Oberreiter, V.**, Weiß, C.L., Lucci, M., Cherifi, Y.M.S., La Pastina, F., Genchi, F., Praxmeier, E., **Zagorc, B**., **Cheronet, O.**, Özdoğan, K.T., Demetz, L., Amrani, S., Candilio, F., De Angelis, D., Gasperetti, G.,

Fernandes, D., Gao, Z., Fantar, M., Coppa, A., Pritchard, J.K., **Pinhasi, R.**, 2023. **A genetic history of continuity and mobility in the Iron Age central Mediterranean**. Nature Ecology & Evolution.

25. Pawar, H., Rymbekova, A., Cuadros-Espinoza, S., **Huang, X.**, de Manuel, M., van der Valk, T., Lobon, I., Alvarez-Estape, M., Haber, M., Dolgova, O., Han, S., Esteller-Cucala, P., Juan, D., Ayub, Q., Bautista, R., Kelley, J.L., Cornejo, O.E., Lao, O., Andrés, A.M., Guschanski, K., Ssebide, B., Cranfield, M., Tyler-Smith, C., Xue, Y., Prado-Martinez, J., Marques-Bonet, T., **Kuhlwilm, M.**, 2023. **Ghost admixture in eastern gorillas.** Nature Ecology & Evolution.

26. Pérez-Ramallo, P., Ignacio Lorenzo-Lizalde, J., Staniewska, A., Aiestaran, M., Aguirre, J., Semas Sesma, J., Marzo, S., Lucas, M., Ilgner, J., Chivall, D., **Higham, T.**, Rodríguez-Varela, R., Götherström, A., Etxeberria, F., Grandal-d'Anglade, A., Alexander, M., Roberts, P., 2023. **To the field of stars: Stable isotope analysis of medieval pilgrims and populations along the Camino de Santiago in Navarre and Aragon, Spain.** Journal of Archaeological Science: Reports 48, 103847.

27. Rybin, E.P., Belousova, N.E., Derevianko, A.P., **Douka, K.**, **Higham, T.**, 2023. **The Initial Upper Paleolithic of the Altai: New radiocarbon determinations for the Kara-Bom site.** Journal of Human Evolution 185, 103453.

28. **Sawyer, S.**, **Gelabert, P.**, Yakir, B., Lizcano, A.L., Sperduti, A., Bondioli, L., **Cheronet, O.**, Neugebauer-Maresch, C., Teschler-Nicola, M., Novak, M., Pap, I., Szikossy, I., Hajdu, T., Meshorer, E., Carmel, L., **Pinhasi, R.**, 2023. **Improved detection of methylation in ancient DNA.** bioRxiv, 2023.2010.2031.564722.

29. Schröder, M., **Windhager, S.**, Schaefer, K., Ahnelt, H., 2023. **Adaptability of Bony Armor Elements of the Threespine Stickleback Gasterosteus aculeatus (Teleostei: Gasterosteidae): Ecological and Evolutionary Insights from Symmetry Analyses**. Symmetry 15, 811.

30. Sharif, M.B., Fitak, R.R., Wallner, B., Orozco-terWengel, P., Frewin, S., Fremaux, M., **Mohandesan, E.**, 2022. **Reconstruction of the Major Maternal and Paternal Lineages in the Feral New Zealand Kaimanawa Horses**. Animals 12, 3508.

31. Shemer, M., Boaretto, E., Greenbaum, N., Bar-Yosef Mayer, D.E., **Tejero, J.-M.**, Langgut, D., Gnezdilov, D.L., Barzilai, O., Marder, O., Marom, N., 2023. **Early Upper Paleolithic cultural variability in the Southern Levant: New evidence from Nahal Rahaf 2 Rockshelter, Judean Desert, Israel.** Journal of Human Evolution 178, 103342.

32. Sørensen, E.F., Harris, R.A., Zhang, L., Raveendran, M., Kuderna, L.F.K., Walker, J.A., Storer, J.M., **Kuhlwilm, M.**, Fontsere, C., Seshadri, L., Bergey, C.M., Burrell, A.S., Bergman, J., Phillips-Conroy, J.E., Shiferaw, F., Chiou, K.L., Chuma, I.S., Keyyu, J.D., Fischer, J., Gingras, M.-C., Salvi, S., Doddapaneni, H., Schierup, M.H., Batzer, M.A., Jolly, C.J., Knauf, S., Zinner, D., Farh, K.K.-H., Marques-Bonet, T., Munch, K., Roos, C., Rogers, J., 2023. **Genome-wide coancestry reveals details of ancient and recent male-driven reticulation in baboons.** Science 380, eabn8153.

33. **Stahlschmidt, M.C.**, Mentzer, S.M., Heinrich, S., Cooper, A., Grote, M.N., McNeill, P.J., Wilder, J.C.B., Steele, T.E., 2023. **Impact of a recent wildfire on tortoises at Cape Point,**

South Africa, and implications for the interpretation of heated bones in the archaeological record. Archaeological and Anthropological Sciences 15, 126.

34. Swami, V., Tran, U.S., Stieger, S., Aavik, T., Ranjbar, H.A., Adebayo, S.O., Afhami, R., Ahmed, O., Aimé, A., Akel, M., Halbusi, H.A., Alexias, G., Ali, K.F., Alp-Dal, N., Alsalhani, A.B., Álvares-Solas, S., Amaral, A.C.S., Andrianto, S., Aspden, T., Argyrides, M., Aruta, J.J.B.R., Atkin, S., Ayandele, O., Baceviciene, M., Bahbouh, R., Ballesio, A., Barron, D., Bellard, A., Bender, S.S., Beydağ, K.D., Birovljević, G., Blackburn, M.-È., Borja-Alvarez, T., Borowiec, J., Bozogáňová, M., Bratland-Sanda, S., Browning, M.H.E.M., Brytek-Matera, A., Burakova, M., Çakır-Koçak, Y., Camacho, P., Camilleri, V.E., Cazzato, V., Cerea, S., Chaiwutikornwanich, A., Chaleeraktrakoon, T., Chambers, T., Chen, Q.-W., Chen, X., Chien, C.-L., Chobthamkit, P., Choompunuch, B., Compte, E.J., Corrigan, J., Cosmas, G., Cowden, R.G., Czepczor-Bernat, K., Czub, M., da Silva, W.R., Dadfar, M., Dalley, S.E., Dany, L., Datu, J.A.D., Berbert de Carvalho, P.H., Coelho, G.L.d.H., De Jesus, A.O.S., Debbabi, S.H., Dhakal, S., Di Bernardo, F., Dimitrova, D.D., Dion, J., Dixson, B., Donofrio, S.M., Drysch, M., Du, H., Dzhambov, A.M., El-Jor, C., Enea, V., Eskin, M., Farbod, F., Farrugia, L., Fian, L., Fisher, M.L., Folwarczny, M., Frederick, D.A., Fuller-Tyszkiewicz, M., Furnham, A., García, A.A., Geller, S., Ghisi, M., Ghorbani, A., Martinez, M.A.G., Gradidge, S., Graf, S., Grano, C., Gyene, G., Hallit, S., Hamdan, M., Handelzalts, J.E., Hanel, P.H.P., Hawks, S.R., Hekmati, I., Helmy, M., Hill, T., Hina, F., Holenweger, G., Hřebíčková, M., Ijabadeniyi, O.A., Imam, A., İnce, B., Irrazabal, N., Jankauskiene, R., Jiang, D.-Y., Jiménez-Borja, M., Jiménez-Borja, V., Johnson, E.M., Jovanović, V., Jović, M., Jović, M., Junqueira, A.C.P., Kahle, L.-M., Kantanista, A., Karakiraz, A., Karkin, A.N., Kasten, E., Khatib, S., Khieowan, N., Kimong, P.J., Kiropoulos, L., Knittel, J., Kohli, N., Koprivnik, M., Kospakov, A., Król-Zielińska, M., Krug, I., Kuan, G., Kueh, Y.C., Kujan, O., Kukić, M., Kumar, S., Kumar, V., Lamba, N., Lauri, M.A., Laus, M.F., LeBlanc, L.A., Lee, H.J., Lipowska, M., Lipowski, M., Lombardo, C., Lukács, A., Maïano, C., Malik, S., Manjary, M., Baldó, L.M., Martinez-Banfi, M., Massar, K., Matera, C., McAnirlin, O., Mebarak, M.R., Mechri, A., Meireles, J.F.F., Mesko, N., Mills, J., Miyairi, M., Modi, R., Modrzejewska, A., Modrzejewska, J., Mulgrew, K.E., Myers, T.A., Namatame, H., Nassani, M.Z., Nerini, A., Neto, F., Neto, J., Neves, A.N., Ng, S.-K., Nithiya, D., O, J., Obeid, S., Oda-Montecinos, C., Olapegba, P.O., Olonisakin, T.T., Omar, S.S., Örlygsdóttir, B., Özsoy, E., Otterbring, T., Pahl, S., Panasiti, M.S., Park, Y., Patwary, M.M., Pethö, T., Petrova, N., Pietschnig, J., Pourmahmoud, S., Prabhu, V.G., Poštuvan, V., Prokop, P., Ramseyer Winter, V.L., Razmus, M., Ru, T., Rupar, M., Sahlan, R.N., Hassan, M.S., Šalov, A., Sapkota, S., Sarfo, J.O., Sawamiya, Y., **Schaefer, K.**, Schulte-Mecklenbeck, M., Seekis, V., Selvi, K., Sharifi, M., Shrivastava, A., Siddique, R.F., Sigurdsson, V., Silkane, V., Šimunić, A., Singh, G., Slezáčková, A., Sundgot-Borgen, C., Ten Hoor, G., Tevichapong, P., Tipandjan, A., Todd, J., Togas, C., Tonini, F., Tovar-Castro, J.C., Trangsrud, L.K.J., Tripathi, P., Tudorel, O., Tylka, T.L., Uyzbayeva, A., Vally, Z., Vanags, E., Vega, L.D., Vicente-Arruebarrena, A., Vidal-Mollón, J., Vilar, R., Villegas, H., Vintilă, M., Wallner, C., White, M.P., Whitebridge, S., **Windhager, S.**, Wong, K.Y., Yau, E.K., Yamamiya, Y., Yeung, V.W.L., Zanetti, M.C., Zawisza, M., Zeeni, N., Zvaríková, M., Voracek, M., 2023. **Body appreciation around the world: Measurement invariance of the Body Appreciation Scale-2 (BAS-2) across 65 nations, 40 languages, gender identities, and age**. Body Image 46, 449-466.

35. **Tejero, J.-M.**, **Cheronet, O.**, **Gelabert, P.**, **Zagorc, B.**, Alvarez, E., Averbouh, A., Bar-Oz, G., Belfer-Cohen, A., Bosch, M.D., Brück, F., Cueto, M., Dockner, M., Fullola, J.M.,

Gárate, D., Giannakoulis, M., González, C., Jakeli, N., Mangado, X., Meshveliani, T., Neruda, P., Nigst, P., Šimková, P.G., Tapia, J., Torre, M.S.d.l., Schwab, C., **Weber, G.**, **Pinhasi, R.**, 2023. **A minimally-invasive method for ancient DNA sampling of Prehistoric bone and antler tools and hunting weapons.** bioRxiv, 2023.2004.2002.535282.

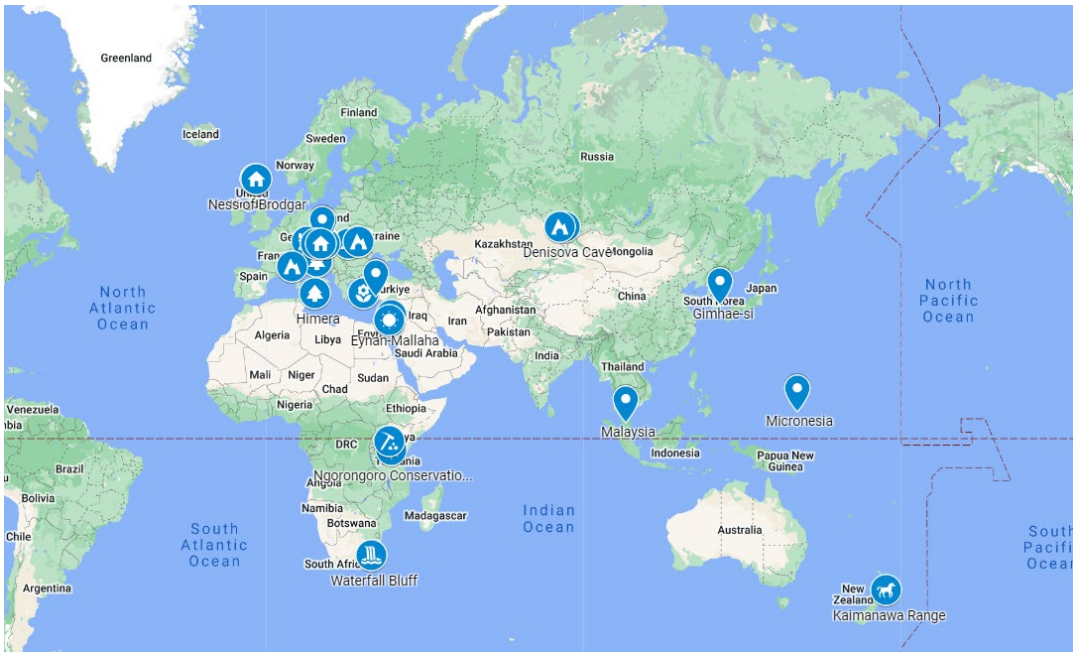
36. Usyk, V.I., Gerasimenko, N., Garba, R., Damblon, F., **Nigst, P.R.**, 2023. **Exploring the Potential of the Middle and Upper Palaeolithic Site Korolevo II (Ukraine): New Results on Stratigraphy, Chronology and Archaeological Sequence**. Journal of Paleolithic Archaeology 6, 16.

37. Wang, N., Xu, Y., Tang, Z., He, C., Hu, X., Cui, Y., **Douka, K.**, 2023. **Large-scale application of palaeoproteomics (Zooarchaeology by Mass Spectrometry; ZooMS) in two Palaeolithic faunal assemblages from China.** Proceedings of the Royal Society B: Biological Sciences 290, 20231129.

38. **Weber, G.W.**, 2023. **Quantum Leaps in Human Biocultural Evolution and the Relationship to Cranial Capacity**. Life 13, 1030.

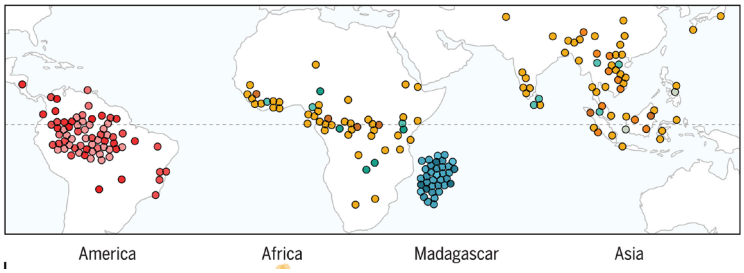
Research Map

This research map illustrates the geographical range of the publications by HEAS members. The link to the live map is here.



Section 5: Science Highlights

Landmark study of whole-genome diversity in primates



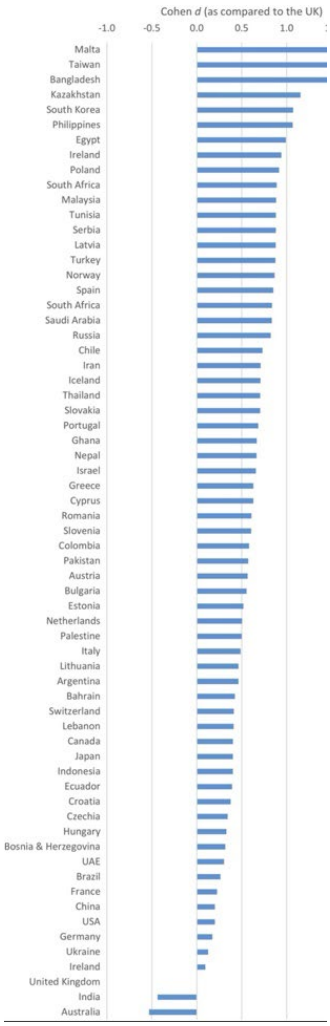
HEAS Principal Investigator Martin Kuhlwilm was one of the leading team members of a group of scientists from 24 countries publishing this paper in the journal ***Science*** this year. The landmark study was part of a special issue on "Primate Genomics" in *Science*, resulting in genomic sequencing of 809 individuals from 233 primate species. This generated the most complete catalog of genomic information about our closest relatives thus far; representing 86% of genera and all 16 families of primates. The research team obtained crucial information on the genetic diversity and evolutionary history of primates and gained important insights into what distinguishes humans from other primates. Intriguingly, the team showed that half the number of genomic variants occur exclusively in humans compared with what we previously thought. This is key data in exploring the mutations that we do not share with other primates but are exclusive to us. This dataset was also used, together with fossil calibration, to create a nuclear DNA phylogeny and to reassess evolutionary divergence times among primate clades. This study will open a wide range of research avenues for future primate genomic research.

As well as this paper, Martin was also a co-author on two other papers published in *Science* on the same day. The first (Sorensen et al. 2023) focussed on the genomics of the baboon (*Papio* sp.) and showed that the degree of hybridisation between different sub-species makes this species a great analog for human evolution. The second, (Gao et al. 2023), explored the effects of human genetic variants by comparing protein-altering variants in both humans and the primate database. They were able to classify 6% of all possible human protein-altering variants and probably benign.

Kuderna, L.F.K., Gao, H., Janiak, M.C., Kuhlwilm, M., (and 71 others) 2023. A global catalog of whole-genome diversity from 233 primate species. ***Science*** 380, 906-913.

Largest study ever undertaken on body image

Scientists working as part of the HEAS network were co-authors in a major international study involving 56,968 participants from 65 countries, working to understand the links between 'body appreciation' and human health and well-being. The study, published in the journal ***Body Image***, found that there were significant differences in body appreciation scores between different nations. Over 250 scientists worked on the research project. Amongst the Vienna contributors were Katrin Schaefer and Sonja Windhager, from the Department of Evolutionary Anthropology.



Greater body appreciation was significantly associated with higher life satisfaction across nations. The research showed that people who had a greater body appreciation also had a higher level of healthy eating habits and self-esteem. The reverse was the case when depression and anxiety was considered. The team also identified significant differences between different countries. Australia had to lowest level of body appreciation, while Malta was ranked highest, as shown in the figure on the right.

Swami, V., *et al.* (2023) Body appreciation around the world: Measurement invariance of the Body Appreciation Scale-2 (BAS-2) across 65 nations, 40 languages, gender identities, and age. *Body Image.* doi.org/10.1016/j.bodyim.2023.07.010.

Incredible insights into Neanderthal group sizes

HEAS scientists have played a central role in a new study of Neanderthal social group sizes through genomic analysis of 50-60,000-year-old human remains at the sites of Chagyrskaya and Okladnikov caves in the Siberian Altai region of Russia. This was published in ***Nature***.

Ancient genomics have revolutionised the study of ancient humans, revealing episodes of admixture and interbreeding, as well as entirely new species of humans. High coverage ancient DNA can also shed light upon the family relationships that exist amongst members of a group.

In this research, archaeologists working at Chagyrskaya cave (left) have identified the remains of almost 20 Neanderthals, living almost certainly at the same time. DNA was successfully retrieved from 13 Neanderthals – 7 men and 6 women, of which 8 were adults and 5 were children and young adolescents. This is the largest number of people ever genetically sequenced in a single study in such detail. The results revealed that among those present were members of a nuclear family — a father and his adolescent daughter — as well as a male–female pair of second-degree relatives (those who share about 25% of their DNA). Of 13 individual Neanderthals analysed, several that were related to one another – among them a father and his teenage daughter. A male individual who was a maternal relative of the father was also identified. This provides a glimpse into the social organization of a Neandertal community that numbered between 10-20 people. HEAS researchers Higham and Douka worked on new AMS dating of Neanderthal remains with a revolutionary new single amino acid (hydroxyproline) dating method, showing that the Okladnikov Neanderthals, previously dated to 29-38,000 BP, and therefore some of the most recent Neanderthals, were, in fact, more than 45,000 years old.

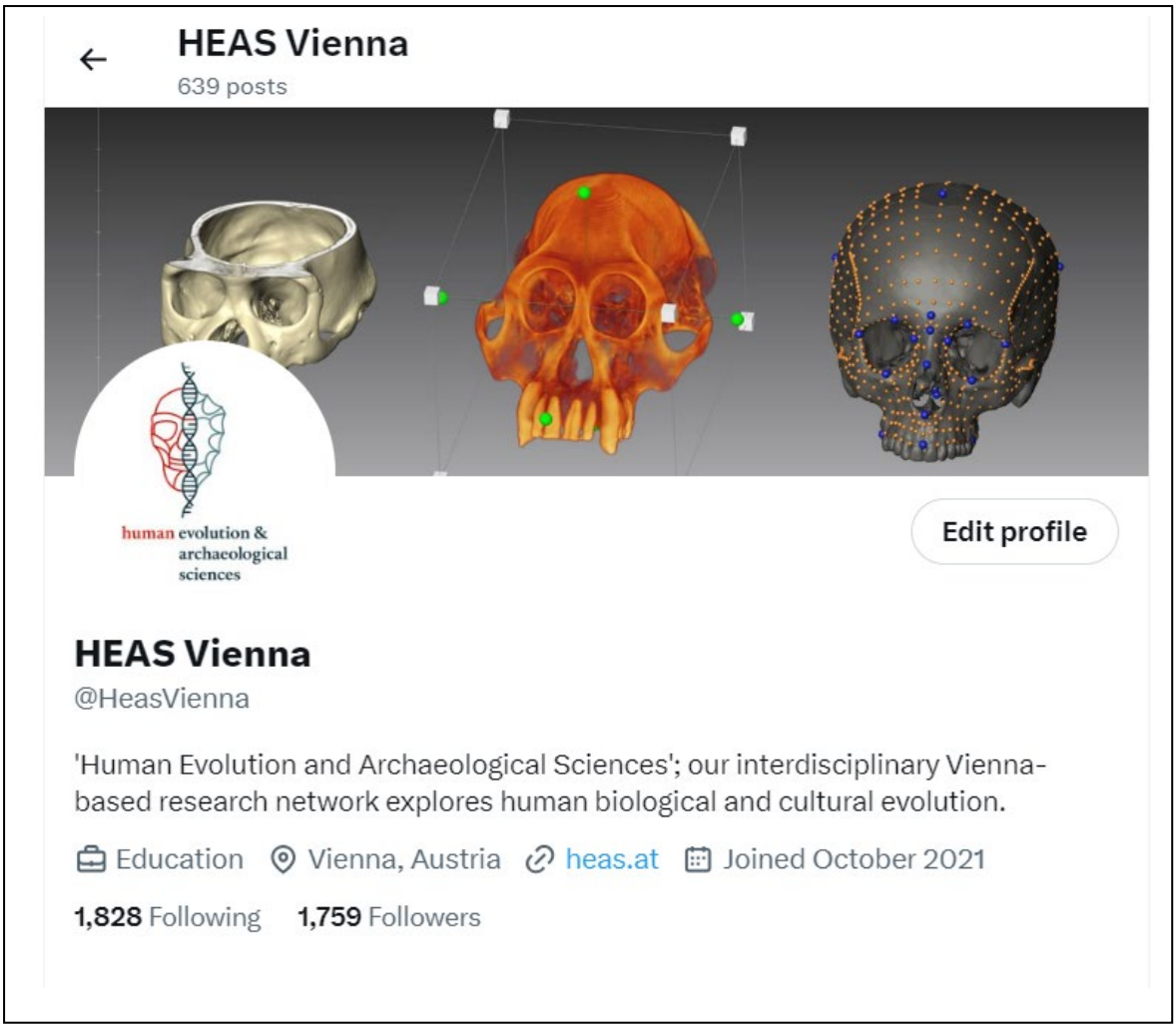
Laurits Skov, Stéphane Peyrégne, Divyaratan Popli, Leonardo N. M. Iasi, Thibaut Devièse, Viviane Slon, Elena I. Zavala, Mateja Hajdinjak… **Katerina Douka**, Maciej T. Krajcarz, Richard G. Roberts, **Thomas Higham**, Bence Viola, Andrey I. Krivoshapkin, Kseniya A. Kolobova, Janet Kelso, Matthias Meyer, Svante Pääbo, Benjamin M. Peter. 2022. Genetic insights into the social organization of Neanderthals. *Nature, 610: 519–525.*

Section 6: HEAS Social Media

Social media is a key part of our outreach and publicity programme. We use Twitter/X, YouTube, Instagram, Facebook and LinkedIn to keep our followers and subscribers updated with new research results, publication, media releases, news and events.

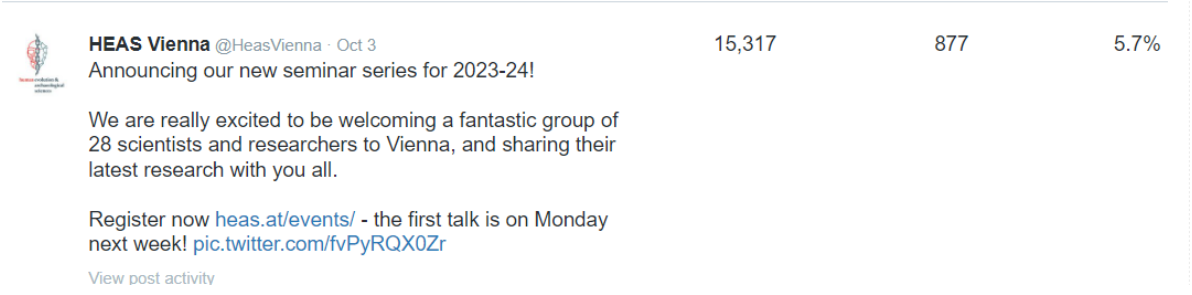
Twitter/X

HEAS Twitter was set up in October 2022 and currently has 1804 followers. We use our Twitter to promote publications, videos, events and news items of interest to others working in the field of Human Evolution and Archaeological Sciences.



Our posts earned **76.1K impressions** over this **91-day** period.

Our most popular post was the announcement of the HEAS Seminar Series for 2023-2024. It had 15,317 impressions, 877 engagements and an engagement rate of 5.7%.

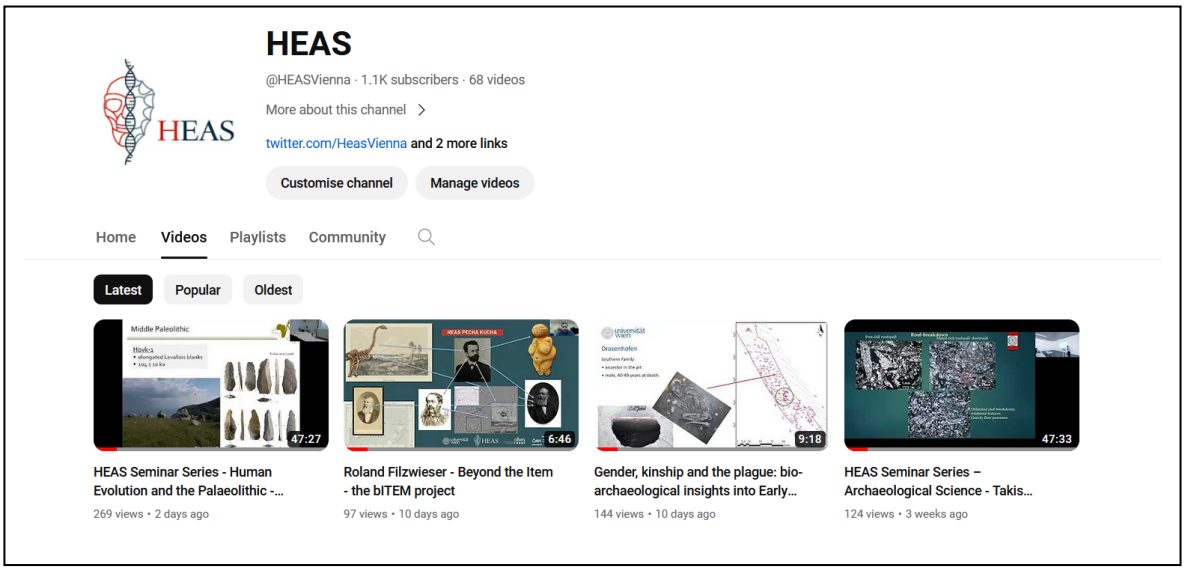


Popular hashtags we use: #HEASVienna , #HEASPublications, #HEASSeminar

YouTube

The HEAS YouTube account was set up in December 2021 and currently has 1210 subscribers which is an increase of 99% from the previous year.

Content	Views	Watch time (hours)	Subscribers	Impressions	Impressions click-through rate
Total	**116,908**	**20,645.8**	**1,053**	**2,031,626**	**3.5%**
44:08 Archaeologists of the World Unite! Why We Need to Pa...	37,461 32.0%	4,254.9 20.6%	174 16.5%	460,802	4.6%
49:15 Early human occupations of Britain – Chris Stringer	31,998 27.4%	7,713.1 37.4%	220 20.9%	681,314	3.1%
55:19 Understanding Human Evolution in the context of past ...	7,408 6.3%	1,630.3 7.9%	66 6.3%	128,780	3.7%
56:27 Atapuerca: an East Side Story - Maria Martinon-Torres	5,560 4.8%	1,065.8 5.2%	35 3.3%	94,740	3.6%
51:35 Homo sapiens is as Homo sapiens was? Late Pleistoc...	3,604 3.1%	446.1 2.2%	28 2.7%	59,626	3.9%
51:32 Reconstructing deep-time human evolution using pala...	3,506 3.0%	516.3 2.5%	28 2.7%	59,112	3.8%
39:15 Unravelling the earliest migration of Homo sapiens in s...	3,054 2.6%	358.3 1.7%	13 1.2%	55,309	3.7%



This year we increased the number of playlists to 12. There are 77 videos on the channel in total. In the past year we have had a total of 118,082 views with a total watch time of 20.9k hours. Our most popular video was Archaeologists of the World Unite! Why We Need to Pay Attention to Pseudoarchaeology Today which was a recording is of a talk delivered on Friday the 9th December 2022 by Dr. Flint Dibble. This video has had 37,441 views to date.

There are 12 Playlists on the channel with 77 videos in total. We had a total of 113,293 views from October 2022-October 2023.

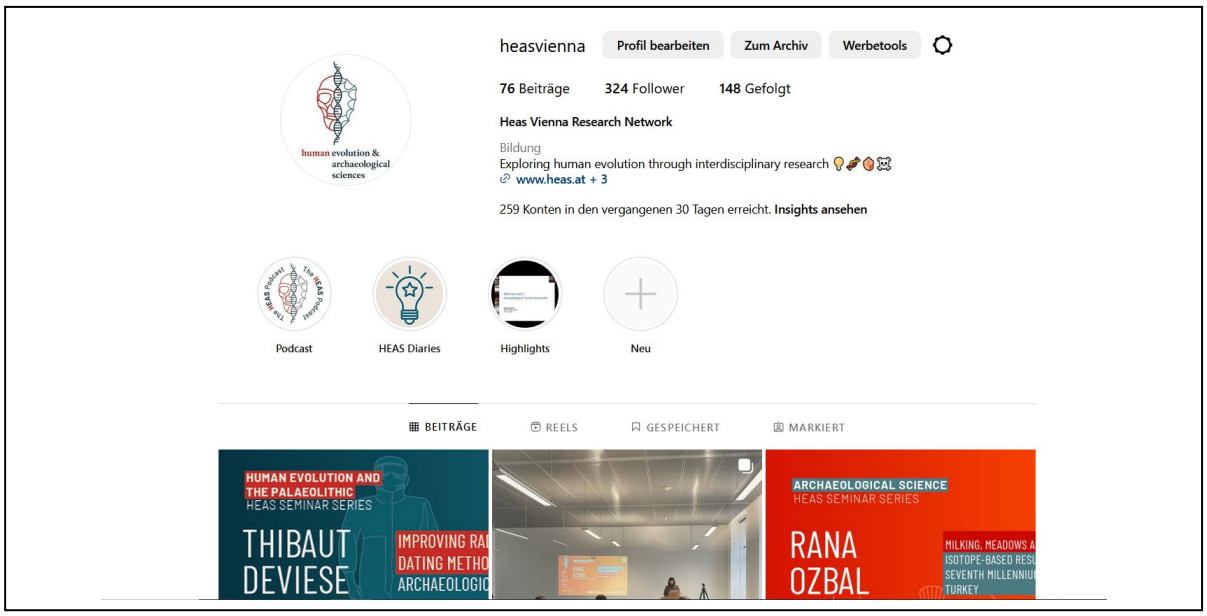
Each new video is also posted on the Twitter account.

The playlists are as follows:

- The HEAS Podcast
- HEAS Diaries
- HEAS Seminar Series 2023-2024
- HEAS Seminar Series 2022 -2023
- HEAS Bell Beaker Workshop at the Natural History Museum
- Short videos
- HEAS Keynote Lectures
- Lectures with HEAS Members
- HEAS Talks
- About us
- New papers and articles
- Pecha Kucha Series

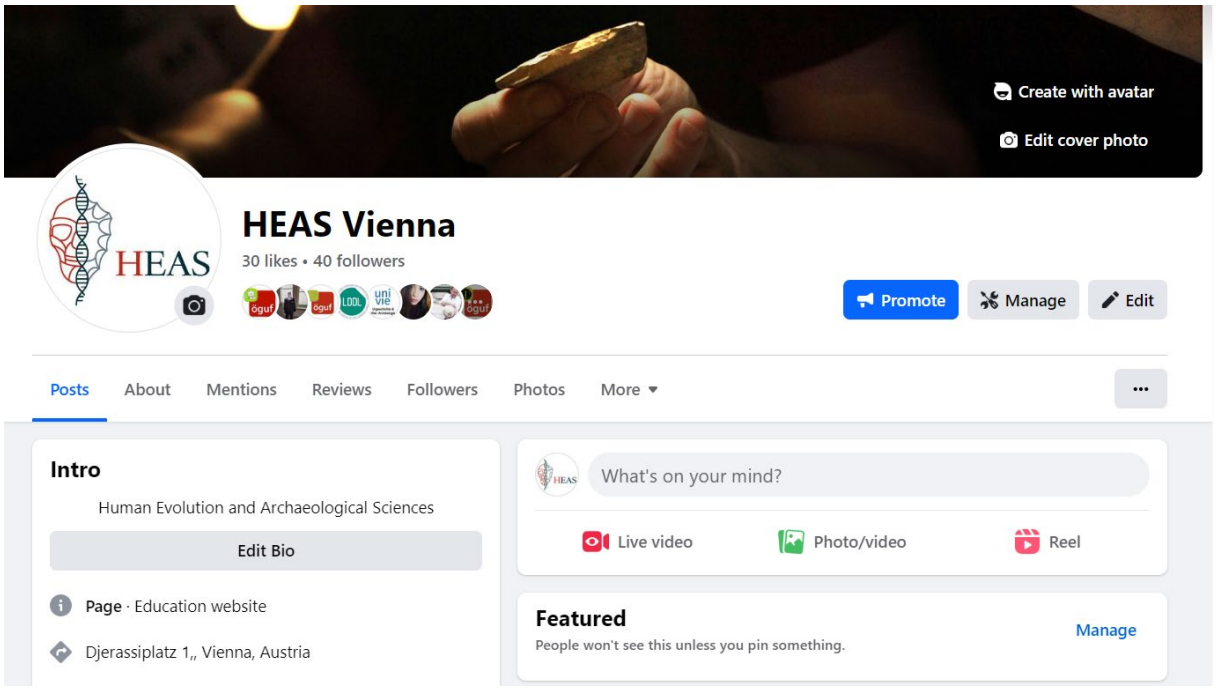
Instagram

We currently have 324 followers on our Instagram account and use it to post pictures associated with publications and events and to engage with a younger audience.



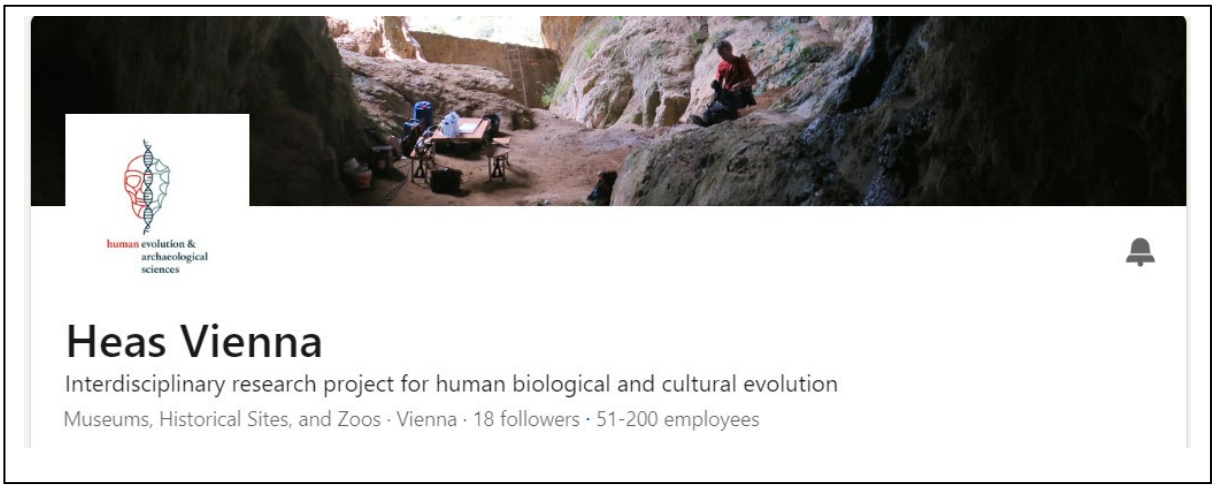
Facebook

We have a Facebook account for sharing videos and information about upcoming events.



LinkedIn

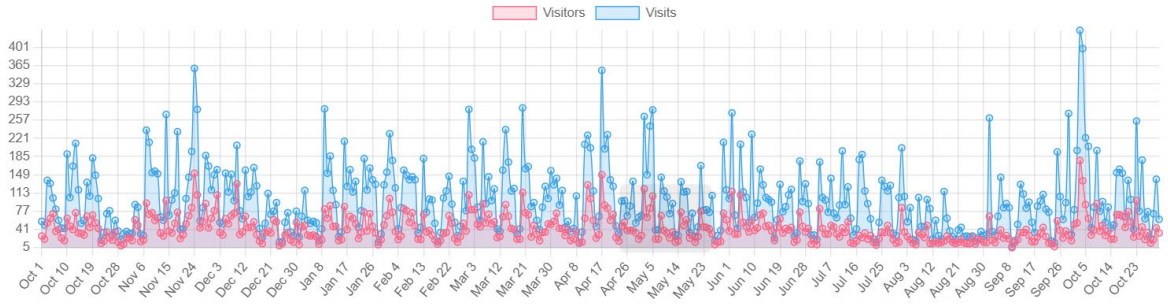
We have a profile on LinkedIn for those who wish to list HEAS on their CV. Jobs within the HEAS network are also posted here.



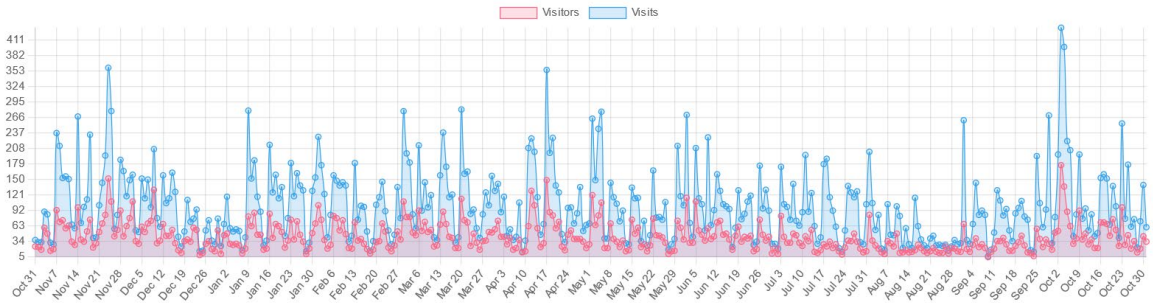
Section 7: HEAS Website

The HEAS website has been online since October 2021. The website was designed by Nora Dibowski and is maintained by Maeve Nic Samhradáin.

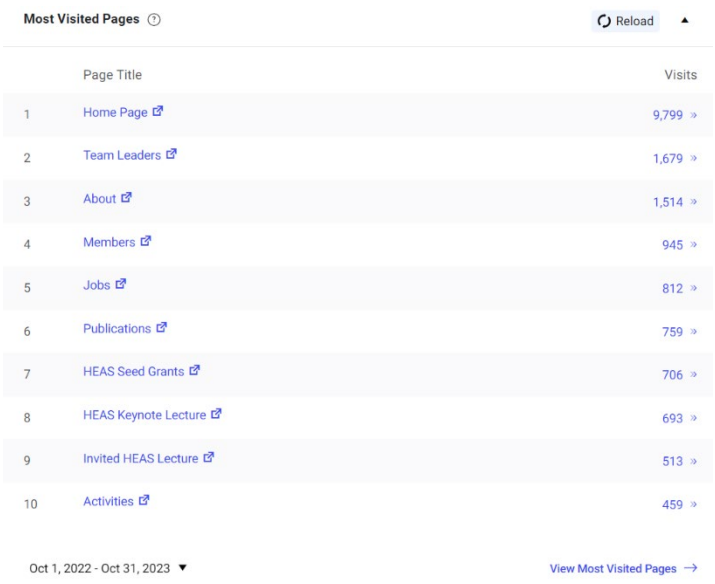
Visitor numbers



This year the number of visitors increased from 19,121 visits and 7,322 visitors to 37,365 visits and 15,939 visitors. This corresponds to an increase of over 117 % unique visitors in one year.



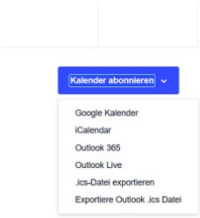
	Visits	Visitors
Chart Total:	37,365	15,939
All Time Total:	65,287	26,883



The most popular pages after the home page are the 'Team Leaders' page which leads to the profiles of HEAS Teams Leaders / PIs and 'About' pages.

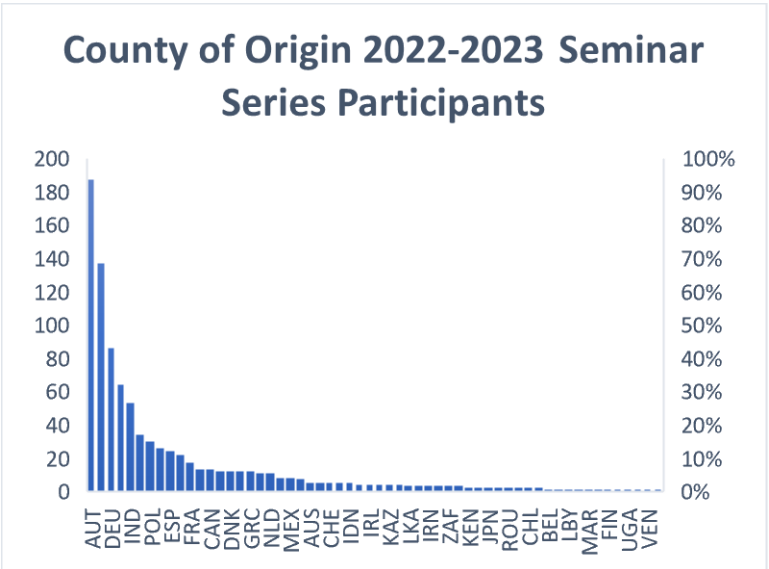
Registration

Registration for events is hosted via the HEAS website.



The HEAS Events calendar hosts the booking page for the event and the calendar can be downloaded into a variety of different calendar software programmes. Visitors are then directed to a Typo3 form hosted on the University website where they can enter their details to register for both online and in-person events.

The Zoom link is sent out to the participants on the day of the event. By hosting hybrid events we can attract participants from all over the world. Below is an example of the country of origin of the participants for the 2022-2023 Seminar Series.



Newsletter

There are currently 963 subscribers to the HEAS Newsletter. That is an increase of 783 in one year.

There are two ways to subscribe to the HEAS Newsletter; from the frontpage of the website or by choosing 'sign up to our mailing list' when registering for a HEAS Event.

A newsletter with all new posts from the website is sent out monthly to subscribers. We customise the newsletter based on which of the various sections we want to promote (eg. Blog posts, new publications and news). We can also customize how many items are listed per section.

Publications

All publications by HEAS members which cite HEAS are listed on the HEAS Publications page on the website and then promoted on Twitter. By using Twitter the users are directed back to the HEAS website.

Blog

The HEAS blog was launched in 2022. Blog submissions are welcomed from all HEAS members. Topics can be as diverse as:

- a 'behind the paper' when a publication comes out;
- Talking about a new instrument;
- New member introducing themselves;
- A day in the life (in the lab, in the field).

The blog has a 1000-word limit.

So far this year we have had two blogs:

Ancient Textile Production from an Interdisciplinary Approach: Humanities and Natural Sciences Interwoven for our Understanding of Textiles. By Karina Grömer

A Bell Beaker workshop in Vienna by Eve Derenne and Karina Grömer

News

We have maintained a healthy media profile on our research, publications and scientific achievements. Some of our headlines:

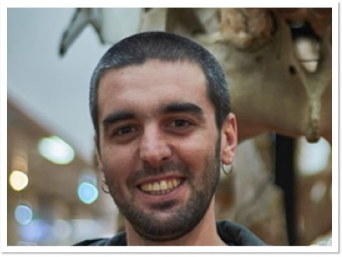
BAG-Förderpreis awaded to HEAS Members Magdalena Blanz and Doris Jetzinger

Published On: 29. November 2022

HEAS Members Magdalena Blanz and Doris Jetzinger have been awarded the BAG-Förderpreis, the promotional award of the Bioarchäologische Gesellschaft Österreich, for their PhD thesis and Master thesis, respectively. Magdalena worked on the identification and interpretation of seaweed consumption by terrestrial mammals in archaeological contexts (left). Doris undertook a research project focusing on two block-excavated child burials from the Middle Neolithic Lengyel Culture of the Middle Danube of central Europe.

HEAS Members win Young Investigator Award 2023

Published On: 16. August 2023



Congratulations to HEAS member Laura van der Sluis and HEAS Team Leader Pere Gelabert on being awarded the Young Investigator Award for 2023.

The Young Investigator Award is an initiative of the Faculty of Life Sciences at the University of Vienna designed to honour young postdoctoral scientists publishing in the top journals of their field. Award recipients are selected based on their publication output.

HEAS Member Philipp Mitteroecker is the 2023 recipient of the Rohlf Medal for Excellence in Morphometric Methods and Applications

Published On: 7. September 2023

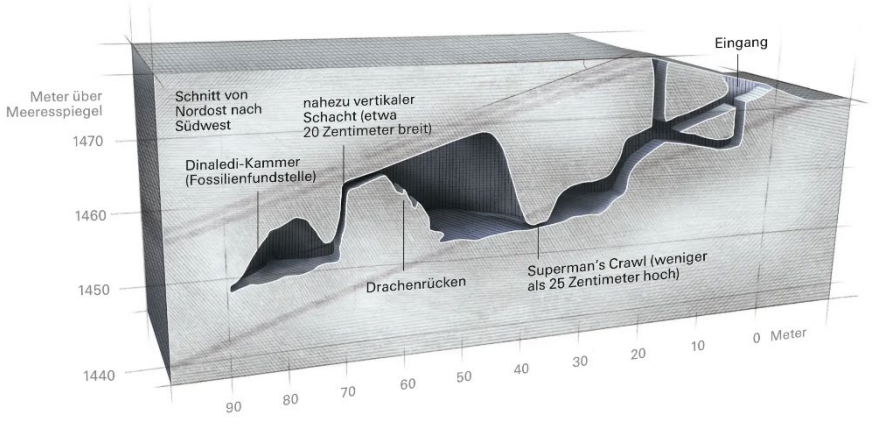
On October 24, 2023 at Stony Brook University, the seventh Rohlf Medal for Excellence in Morphometric Methods and Applications was awarded to Philipp Mitteroecker, Professor of Biostatistics and Biometrics in the Department of Evolutionary Biology at the University of Vienna, Austria. Since receiving his Ph.D. in 2007, Prof. Mitteroecker's research has spanned a remarkable range of today's biological questions from his broadly biostatistical-morphometric point of view. His contributions combine advances in the foundations of morphometric representations and inferences with applications across a great variety of examples in evolutionary and developmental biology. Recent work incorporates additional types of data (genomics, volume imaging, perceptions of faces) and, lately, one particularly salient bridge between human evolution and public health (the topic of Caesarian section and the "obstetrical dilemma"). His published work, widely cited in the field, and his appearances in broadcast and online media, have broadened the participation of morphometrics in the biological sciences.

For these reasons, the committee selected Professor Phillip Mitteroecker as the 2023 Rohlf Medal Recipient.

HEAS Member Gerhard Weber interviewed for Spektrum on *Homo naledi* Cave

Published On: 21. September 2023

Prof. Gerhard Weber, former Head of HEAS, was recently interviewed by Spektrum magazine on the Rising Star cave system in South Africia and some of the controversial theories explaining the discovery of 1,550 bone fragments from *Homo naledi* found deep within the cave.



HEAS Member Immo Trinks featured in Wired Magazine

Published On: 29. September 2023

HEAS member Immo Trinks was interviewed on his work on geophysical surveys for Wired magazine.

For this report, journalist Geoff Manaugh followed Immo and his team on a trip to the Roman site of Carnuntum, 40 kilometres east of Vienna, to learn about the immense capabilities of the surveying tools Immo uses as part of his research.

Scientists Have an Audacious Plan to Map the Ancient World Before It Disappears | WIRED

Section 8: HEAS Seed Grants

Our **HEAS Seed Grant initiative** supports pilot projects designed to promote more collaborative work in our network and provide funding that might lead to bigger grant proposals.

The proposals are deliberately short, comprising a maximum of 1 or 2 pages; a summary of what will be done, what the target of the pilot project is (e.g., preparation for grant applications, proof of concept, etc.), with a particular emphasis on the bridging aspect of the intended interdisciplinary work in the framework of HEAS.

The grants are now awarded three times a year with submission dates in February, June and October. Seed grants awarded so far embrace a wide span of science; from innovative ancient DNA analysis of ancient cave paintings, to studies of pottery composition in Roman trade networks, to using collagen peptide mass sequencing to analyse bones in ancient sediments.

Awarded Grants

October 2023

Applicant	Project	Amount Granted
Dominik Hagmann, Barbara Borgers	Comprehensive Analysis of Pottery Composition from Traismauer/Augustianis: Rethinking Roman Trade Networks	€ 2.986,00
Mareike Stahlschmidt, Katerina Douka, Thomas Beard	Collagen-based taxonomic identification of bones preserved in resin impregnated sediment blocks	€ 2.590,00
Magdalena Blanz, Günther Grabner, Karin Wiltschke-Schrotta, and Alexandra Krenn-Leeb	Diet and Subsistence in the Lower Austrian Early Bronze Age – A bioarchaeological view through C and N stable isotope ratios on selected find complexes of the Wieselburg/Gáta, Unterwölbling and Únětice cultures	€ 3.000,00
Michelle Hämmerle, José-Miguel Tejero, Olivia Cheronet	Development of a bioinformatics tool to assess aDNA preservation from pooled extracts	€ 3.000,00
Mathias Mehofer, Laura Dietrich	Metal exchange networks and hoard biographies in Late Bronze Age Romania – First archaeometallurgical studies on the metal hoard from Bandul de Câmpie, jud. Mures.	€ 2.974,50

Lumila Menéndez, Katerina Douka, Tom Higham	Applying Zooms And ^{14}C For Studying Human-Canid Interactions in Ancient South America	€ 3.000,00

June 2023

Applicant	Project	Amount Granted
Susanna Sawyer, Pere Gelabert, Mareike Stahlschmidt	Tissue source determination of ancient DNA in sediment	€3.000,00
Laura van der Sluis, Georg Tiefengraber	Early Bronze Age clothing bone pins from the Natural History Museum archive	€3.000,00
Tom Higham, Emese Végh	HUMEVCOL – Human Evolution Beyond Collagen	€2.955,47

February 2023

Applicant	Project	Amount Granted
Victoria Oberreiter and Florian Exler	Analyzing Altamira: The first aDNA analyses of the renowned cave paintings from northern Spain	€3.000,00
Annette Oertle, Katerina Douka, Frank Zachos	Using museum collections for ZooMS marker development of New Guinea taxa	€3.000,00
Dominik Hagmann, Sylvia Kirchengast	Undiscovered Ancient Deathscapes“: Archaeothanatological Analysis Of Roman and Early Medieval Inhumations from Cemeteries in the Southeastern Upper Danube River Basin (sUDRB) during the Roman Climate Optimum (RCO) and Late Antique Little Ice Age (LALIA)	€3.000,00
Olivia Cheronet, Maria Teschler-Nicola, Daniel Fernandes, Adrian Daly	Confirmation of the presence of Mucopolysaccharidosis in the Medieval population of Pottenbrunn (Lower Austria)	€3.000,00

Richard Kimber, Susanna Sawyer,Florian Exler	A density separation approach for improved ancient DNA yields from sediments	€3.000,00

The impact of the Seed Grant programme is significant. Here is one of our grantees, Dr Pere Gelabert on this grant and what it meant:

"Thanks to the HEAS seed Grant "(Project: Assessing the differential DNA preservation in Palaeolithic sediments and osseous tools from museum collections)", HEAS members Txemi Tejero, Olivia Cheronet, and Pere Gelabert were able to conduct experimental and innovative research on Paleolithic antler, a fundamental animal resource for hunter-gatherer groups in the Eurasian Upper Palaeolithic period. Its primary application was the creation of indispensable tools vital for the survival of these societies, particularly in the context of hunting weapons. Antler tools could however be crafted from various deer species, each with distinct ecological requirements and behavioral characteristics. The identification of the specific taxonomic origins of antler objects becomes imperative in enhancing our understanding of the functional, practical, and symbolic choices made by ancient humans and their interactions with animals. In this project, the HEAS members were able to study a set of 45 antler artifacts dating back to the Palaeolithic and Neolithic periods (approximately 32,000 to 8,000 years ago) from regions including South-Western Europe, Central Europe, and the Caucasus. This aDNA analysis successfully determined the deer species exploited for these objects, underscoring the reliability of ancient antler artifacts as a source of aDNA. Additionally, an innovative minimally invasive aDNA sampling technique was applied to some antlers, preserving these objects for subsequent examinations, encompassing morphometric, technical, genetic, radiometric, and other forms of analysis".

"The Seed Grant was key in enabling us to do this innovative experimental project. It is so wonderful to have this source of funding for small projects"