

Newsletter of the Anthropocene Working Group

**Volume 5: Report of activities 2013-14
September 2014**



**International Union of Geological Sciences
International Commission on Stratigraphy**



Subcommission on Quaternary Stratigraphy

<http://quaternary.stratigraphy.org/workinggroups/anthropocene/>

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Newsletter edited by Colin Waters and Jan Zalasiewicz.

Thanks to all colleagues who contributed to this Newsletter.

Cover Illustration:

Night-time cityscapes such as New York epitomize the Anthropocene: the disassembly and reassembly of natural resources, habitats and energy all go into the remaking of the Earth as a human-natural planet.

Photograph by Colin Waters. Used as front cover for Waters, C. N. Zalasiewicz, J. A. Williams, M. Ellis, M. A. Snelling, A. M., 2014. A Stratigraphical basis for the Anthropocene. *Geological Society, London, Special Publication*, **395**.

CHAIRMAN'S COLUMN

Dear all

This has been another eventful year in the rapidly growing field of one might term 'Anthropocene studies'. From within our own group, a number of studies have emerged or are emerging, together with the publication of the Geological Society of London's Special Publication. There is the continuation of the major exhibition at Berlin's Haus der Kulturen der Welt, the preparations for the equally significant Deutsches Museum/Rachel Carson Anthropocene exhibition, and a little farther into the future, the incorporation of the Anthropocene as a major theme in the Smithsonian Institution's forthcoming 'Deep Time' exhibition. Three Anthropocene journals have appeared, while more general books and films on the topic are appearing or in preparation.

Within this, our own more specific task, of examining the case for a formal Anthropocene within the Geological Time scale, is making reasonable progress – perhaps even good progress (though one is always conscious here of the danger of tempting fate). There have been suggestions that our own work is proceeding on a geological timescale, though my own take on this, as an old-time stratigrapher, is that our target of 2016 is dangerously close to breakneck pace, compared with the decades usually taken to resolve more ancient geological time boundaries that are, by and large, rather less multi-dimensional than the phenomenon that we are faced with. Nevertheless, we have a good chance at arriving at least some interim conclusions over the next couple of years. That will not stop the study, of course, not least in that object of our study will be evolving as we try to understand it.

Later this autumn, we have our first proper meeting at the Haus der Kulturen der Welt. It's an occasion to look forward to, if the e-mail debates that we have had are anything to go by, following the circulation of assorted ideas and manuscripts over the last year. The Anthropocene includes aspects that are of more than a little concern as regards the future of our own species and of many others on this planet. Nevertheless, the ideas within it exert their own fascination. As Paul Crutzen (someone who is as aware of the societal aspects as anyone) said in Mainz, at a conference to celebrate his 80th birthday, the Anthropocene includes 'beautiful science'. I find it is something of a privilege to be able to pursue this science in the present company that is this working group.

Jan Zalasiewicz 16 June 2014

INAUGURAL ANTHROPOCENE WORKING GROUP MEETING

Plans are progressing for our inaugural meeting, kindly hosted and financially supported by Haus der Kulturen der Welt (HKW), Berlin, on Thursday 16th October 2014, followed by related Anthropocene discussions on the Friday and a field trip on the Saturday. A busy schedule of activities is outlined below:

Thursday 16th October 2014

1. Introductions- process of ratification and schedule for the meeting by Chair (9.00am)

Key questions identified by the International Commission on Stratigraphy

2. Is there a well-documented and significant stratigraphic record for the 'Anthropocene' on which to base its recognition worldwide and to define a boundary with underlying Holocene strata? (9.30am)

3. Should the base of the 'Anthropocene' be defined using a physical reference section ('golden spike' or GSSP) or instead should its beginning be defined in terms of a numerical date (GSSA)? (10.00am)

Coffee break 10.30-10.45am

4. Is the 'Anthropocene' a unit of Earth history or human history? (10.45am)

5. What is the usefulness of the 'Anthropocene' as a time unit and a material unit to be visualized by geoscientists and other interested communities? (11.15am)

6. What is the relative value of formalizing the 'Anthropocene' chronostratigraphic/geochronological unit as opposed to leaving it as an informal term? (11.45am)

Lunch from 12.15-13.15pm

Discussion on hierarchy and when the Anthropocene should begin

7. Should it be defined as an Epoch or Age? (13.15pm)

8. "Early Anthropocene" option linked with agricultural developments (13.45pm)

9. "Industrial Revolution" option (14.15pm)

10. Mid 20th Century option linked with "Great Acceleration" (14.45pm)

Coffee break 15.15-15.30pm

11. A future option for the start of the Anthropocene (15.30pm)

12. Summary of discussions (16.00pm)

13. Where do we go from here? Progress towards providing consensus views (or summaries of contrasting views) on the Anthropocene by the AWG (16.30pm)

Closure 17.00pm

Attendance at Opening Ceremony 18.00-19.00pm

Friday 17th October 2014

Human Impacts and Their Consequences: An open forum on the occasion of the first meeting of the Anthropocene Working Group (9am to 14.00pm)

09:00 Registration

09:15 Welcome & Introduction (Bernd Scherer)

09:45 Part 1: Three cases/proposals for potential stratigraphical basis for the Anthropocene, showing scope and breadth of evidence for the Anthropocene and putting it into geohistoric perspective (Moderation: Jan Zalasiewicz)

- *Colin Waters: Evidence for a mid-twentieth century boundary for the start of the Anthropocene*

Can a radionuclide layer associated with atomic weapons testing be used as a key signature that defines the onset of the Anthropocene? This event broadly coincides with the “Great Acceleration”, a pronounced and sharp threshold in human modification of the global environment. It is associated with expansion of the urban environment, development and dispersal of novel minerals and artefacts and changes in agricultural practices, both with resultant distinctive chemical signatures, increased incursion into the marine and subsurface realms, and ‘globalization’ of trade and the related spread of exotic species.

- *Matt Edgeworth & Dan Richter: The archaeosphere and Earth's Critical Zone in a time-transgressive Anthropocene*
- *Mark Williams: Will human-induced planetary change rank with fundamental step changes seen in the Earth's deep history?*

Part 2: Three cases directly linking scientific evidence to implications “on the ground”: (Moderation: Colin Waters)

- *Mike Ellis: Connecting climate change and the Anthropocene*

The connection between climate change and the Anthropocene is easy to recognize in one direction: humans and the human process are the cause of the accumulation of CO₂ in the atmosphere and ocean, and in turn, increased levels of CO₂ are leading to a changing climate. The other direction is less obvious: is there a connection – a signal – of climate change in the evidence base for the Anthropocene? After all, the modern climate has barely increased in its mean temperature by close to 1 °C. This lecture will provide some connective tissue between the two, highlighting both the physical signals of climate change within the Anthropocene and the human-process signals.

- *Reinhold Leinfelder: changes in the marine realm, ocean*
- *James Syvitski: Changes in fluvial systems, river sediments and deltas*

Momentum is building to officially declare the Anthropocene a new geological epoch. Humans are changing the Earth's biophysical system — atmospheric and ocean climatology and chemistry, extent of snow cover,

permafrost and sea-ice, glacier, ice-sheet and ocean volume, and indeed the hydrological cycle. Striking is the extent and rate at which humans have modified Earth's land surface. Humans are now the largest force in the movement of sediment — greater than ice, wind and water. We have scarred the Earth's surface with millions of abandoned mines throughout the world. We globally mine 8 to 9 Gt/y of coal, and global aggregate production is 13 Gt/y. Together these two mining activities greatly exceeds the total sediment delivery to the global ocean by all of Earth's rivers. Global hydraulic cement production is 2.2 Gt/y, and global iron ore production is 2.2 Gt/y. The Palm Islands of Dubai required 3 Gt of sand; the Hong Kong airport island required 0.6 Gt of sediment. The Great Wall of China is ~6,250,000m x 7m x 5m or ~0.4 Gt of bricks & stone.

12:00 Session 2: Consequences (Moderation: Bernd Scherer and Jan Zalasiewicz)

Discussing the quality and magnitude of the shift posed by the Anthropocene, critical assessment of (science-)political solution pathways and a research agenda beyond sustainability, linking scientific practice with societal relevance and local to global strategies of knowledge production

- Andrew Revkin (Pace University, dot.earth blog, Future Earth IC): social debates
- Joyeeta Gupta (Vrije Universiteit Amsterdam): environmental law and politics
- Naomi Oreskes (Harvard University): limits of scientific engagement, political gridlock
- Klaus Töpfer tbc (Institute for Advanced Sustainability Studies): political leeways
- Jürgen Renn (MPIWG Berlin) – envisioning an adequate research architecture

14:00 Press Luncheon

Evening: AWG Dinner

Saturday 18th October

- *Field Excursion*

9.30am	Departure by bus	AWG hotel
10am-12	Man-made geology. Teufelsberg, hiking. Excursion led by Prof. Reinhold Leinfelder (Anthropocene project board member)	
12-12.20	Transfer to Berlin-Dahlem by bus	
12.20-1.30	Dahlem - birthplace of Anthropocene-related technologies (nuclear fission, Haber-Bosch process and others). Dahlem Max Planck Institutes, talk. Excursion led by Prof. Jürgen Renn (Max Planck Institute for history of science, tbc)	

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- 1.30-2pm Transfer to Tempelhof airfield
- 2 -3.30 Tempelhof from Nazi geology to modern urban participation
Excursion with electric bikes. Excursion led by Christian Schwägerl
(Author "The Anthropocene", board member)
- 4pm latest Hotel

- *Exchanges*

Exchanges initiates a set of dialogues between members of the Anthropocene Working Group and social scientists, thinkers, and artists, a serial thread of conversations that draws from a vast range of expertises, disciplines, and practices. Its aim is to reflect on the “what” and “how” of knowledge-articulation in the world, taking the material Earth and its combined history with the “human” as a starting point and combining it with an idea of the academic as a concerned citizen. Each dialogue addresses the concrete range of hands-on practices that emerge from epistemic infrastructures and worldviews in place, hence engaging with research methods in the lab or field, at the desk or in the studio. These dialogues ask how such varied practitioners from the sciences, humanities, arts, and activism make use of their “everyday” matters, how their diverse practices are affected and what they effect. What informs their concepts and what are the differences in their respective terminologies? How do these undergo transformation in their encounters with other knowledge-forms? And how can such movements of flux between and across specificities of expertise configure possible pathways for reestablishing modes of collaboration?

Participants:

Naomi Oreskes and Colin P. Summerhayes: Petrogeology and Denial

Peter K. Haff and Erich Hörl: Technosphere and Technoecology

Simon Price and Etienne Turpin: Stratigraphy and Urbanism

Joyeeta Gupta and Davor Vidas: Water and Law

Geoffrey Bowker and Irka Hajdas: Geoarchive and Laboratory

tbc (Chus Martinez and Andrew Revkin: Communications that Matter)

SELECTED PUBLICATIONS

- **The Anthropocene Review**

The Anthropocene Review, published by SAGE, is a transdisciplinary journal issued 3 times per year which brings together peer-reviewed articles on all aspects of research pertaining to the Anthropocene from earth and environmental sciences, social sciences, material sciences, and humanities. High impact research articles, reviews and brief ‘perspective’ articles are especially welcome.

It is planned to publish three issues during 2014, with the topics of 'Human Societies in the Anthropocene', 'Biodiversity' and 'Planetary boundaries and key processes'.

All interested should, in the first instance, contact Frank Oldfield (oldfield.f@gmail.com) or a member of the Editorial Board.

The Editorial Board currently comprises: Frank Oldfield (Editor in Chief), John Dearing (J.Dearing@soton.ac.uk), Marina Fischer-Kowalski (Marina.Fischer-Kowalski@aau.at), Will Steffen (will.steffen@anu.edu.au) and Jan Zalasiewicz (jaz1@leicester.ac.uk). It will be expanded to reflect the scope of the journal.

- **Anthropocene**

This new journal, also devoted to publishing research into the Anthropocene, is published by Elsevier (<http://www.journals.elsevier.com/anthropocene/>). Anne Chin is the Editor-in-Chief, and Paul Crutzen is on the editorial board. The journal advertises that it welcomes the following types of manuscripts:

- Original research articles that meet the Aims and Scope of the journal, with typical length of text in the 5000-7000 word range. Research articles may include specific case studies if these studies demonstrate theoretical significance and broad systemic relevance.
- - Review papers and Prospects that assess the state of knowledge of a particular subfield or topic, that point toward future research needs and directions. These review articles, with a typical length within 8000 words, may include some new data or synthesis of existing data that produce new understanding.
- - Short communications include commentaries and viewpoints on specific issues, discussions and replies of articles published in the journal, and shorter papers addressing timely topics that are reviewed and published rapidly. The length of these articles should be within 2000-4000 words.

- **Elementa – Science of the Anthropocene**

Elementa is published on an open-access, public-good basis—available freely and immediately to the world. (<http://elementascience.org/>). The journal welcomes the following types of manuscripts:

- **Research articles**, presenting the results of primary scientific research and typically following the format of a traditional research paper;
- **Reviews**, presenting conceptual advances, syntheses, and integration of a field or topic;
- **Policy bridge**, articles focused on bridging scientific knowledge with policy issues, policy options, or policy analysis;

- **Special features**, collections of articles addressing themes of broad interest, typically 4–10 articles in each collection, linked by keywords and preceded by a short introduction; and
- **Comment & reply**, items of correspondence relating to *Elementa* articles and promoting discussion of relevant research, accompanied by author responses.
- **Volume on *A Stratigraphic Basis for the Anthropocene*** (Special Publication of the Geological Society of London) <http://sp.lyellcollection.org/online-first/395>. The lead editor of this volume is Colin Waters (BGS), with co-editors Jan Zalasiewicz, Mark Williams, Mike Ellis and Andrea Snelling. In part arising from the Geological Society meeting on the Anthropocene in May 2011.

The volume specifically focusses on stratigraphic criteria that might be used to help define an Anthropocene boundary. In content, following an overview, the current content includes:

- Overview of the content of the volume (Waters and others)
- Can an Anthropocene Series be defined and recognised? (Zalasiewicz and others)
- Viewpoint of the ICS (Stan Finney)
- The term ‘Anthropocene’ in the context of formal geological classification (Phil Gibbard & Mike Walker)
- An assessment of lithostratigraphy of anthropogenic deposits (Jon Ford and others)
- The mineral signature of the Anthropocene (Zalasiewicz and others)
- The relationship between archaeological stratigraphy and artificial ground and its significance in the Anthropocene (Matt Edgeworth)
- Palaeontological evidence for defining the Anthropocene (Anthony Barnosky)
- Micropalaeontological signatures for the Anthropocene (Ian Wilkinson and others)
- Coral reefs in the Anthropocene: persistence or the end of the line? (Ove Hoegh-Guldberg)
- Definition of the Anthropocene: a view from the underworld (Ian Fairchild & Silvia Frisia)
- Ice Sheets and the Anthropocene (Eric Wolff)
- Assessing the Anthropocene with geochemical methods (Agnieszka Galuska and others)
- The release and persistence of Radioactive Anthropogenic nuclides (Gary Hancock and others)
- Geomagnetic and mineral magnetic characterization of the Anthropocene (Ian Snowball and others)
- Tephrochronology (Victoria Smith & Christine Lane)
- Technology as a Geological Phenomenon: Implications for Human Well-Being (Peter Haff)

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- **Rendiconti Lincei Volume 25, Issue 1, March 2014. Anthropocene: natural and man-made alterations of the Earth's fragile equilibrium.**
<http://link.springer.com/journal/12210/25/1>.

Foreword- Maria Bianca Cita, Giuseppe Orombelli

The Anthropocene: a comparison with the Ordovician–Silurian boundary- Jan Zalasiewicz, Mark Williams

The Earth: one of the planets of the solar system- Enrico Flamini

The Anthropocene: of time, mice, and men- Enrico Bonatti

The accelerating rate of global change- William W. Hay

Climate models- Antonello Provenzale

Glaciers and ice sheets: current status and trends- Massimo Frezzotti, Giuseppe Orombelli

The Alps in the age of the Anthropocene: the impact of human activities on the cryosphere recorded in the Colle Gnifetti glacier- Jacopo Gabrieli, Carlo Barbante

The sixth mass extinction: Anthropocene and the human impact on biodiversity- Telmo Pievani

A short review of the roles of climate and man in mammal extinctions during the Anthropocene- Giovanni Amori, Spartaco Gippoliti, Luca Luiselli

When did the Anthropocene begin? A geoarchaeological approach to deciphering the consequences of human activity in pre-protolithic times: selected cases from the Po Plain (northern Italy)- Mauro Cremaschi

Energy sources and carbon dioxide waste- Adriano Zecchina

Nuclear energy and Anthropocene- Ettore Fiorini

The book “Assault on the planet”, 13 years later- Sandro Pignatti

The Working Group has circulated two papers for discussion:

- 1) When did the Anthropocene begin? A mid-twentieth century boundary level is stratigraphically optimal: Jan Zalasiewicz, Colin N. Waters, Mark Williams, Anthony D. Barnosky, Alejandro Cearreta, Paul Crutzen, Erle Ellis, Michael A Ellis, Ian J Fairchild, Jacques Grinevald, Peter K Haff, Irka Hajdas, Reinhold Leinfelder, John McNeill, Eric O Odada, Clément Poirier, Daniel Richter, Will Steffen, Colin Summerhayes, James P M Syvitski,

Davor Vidas, Michael Wagreich, Scott L. Wing, Alexander P. Wolfe and An Zhisheng. Submitted to a Special Issue of *Quaternary International*.

- 2) Diachronous beginnings of the Anthropocene: the stratigraphic bounding surface between anthropogenic and non-anthropogenic deposits: Matt Edgeworth, Daniel deB. Richter, Colin N. Waters, Peter Haff, Cath Neal and Simon J. Price. Aim to be submitted to *Anthropocene Review*.

- **Keywords in the Study of Environment and Culture**

Zalasiewicz, J., Williams, M. and Waters, C N. In press. *Anthropocene*. (edited by Joni Adamson, William A. Gleason, and David N. Pellow). NYU Press.

- Foley et al. (2013). The Palaeoanthropocene- The beginnings of anthropogenic environmental change. *Anthropocene*, **3**, 83-88.
- Zalasiewicz, J., Williams, M., Waters, C.N., Barnosky, A.D. and Haff, P. 2014. The technofossil records of humans. *Anthropocene Review*, **1** (1), 34-43.
- Jordan, H. & Prosser, C. 2014. Indicators of the Anthropocene: is there a case for conservation? *Geology Today*, **30**, No 2, 61-66.
- Cearreta, A. (2013). Nature and human societies: the geological concept of the Anthropocene. *Ihiza*, **41**, 25.
- Leorri, E.; Cearreta, A.; Irabien, M.J.; García-Artola, A.; Corbett, D.R.; Horsman, E.; Blake, W.H. & Sanchez-Cabeza, J.A. (2014). Anthropogenic disruptions of the sedimentary record in coastal marshes: examples from the southern Bay of Biscay (N. Spain). *Continental Shelf Research*, dx.doi.org/10.1016/j.csr.2013.08.016
- Leorri, E.; Mitra, S.; Irabien, M.J.; Zimmerman, A.R.; Blake, W.H. & Cearreta, A. (2014). A 700 yr record of combustion-derived pollution in northern Spain: tools to identify the Holocene/Anthropocene transition in coastal environments. *Science of the Total Environment*, **470-471**, 240-247.
- Vidas, D. 2014. Sea-Level Rise and International Law: At the Convergence of Two Epochs. *Climate Law*, **4**, 70-84.

CONFERENCES

- SQS in conjunction with SACOM-INQUA sponsored a full-day special session “The Quaternary System and its Formal Subdivision” during the First International Congress on Stratigraphy - *Strati 2013*, in Lisbon, Portugal, 1-7 July, 2013. The conveners for this special session were Martin J. Head (Chair, SQS), Philip L. Gibbard (President, SACOM-INQUA), and Thijs van Kolfschoten (former Secretary SQS). There was a special session on the Anthropocene at which Jan Zalasiewicz and Colin Waters presented on progress on the classification of the Anthropocene. A special issue of **Quaternary International** is planned for contributions to the Quaternary session.

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- A session on Anthropocene Geomorphology at 8th International Conference on Geomorphology, August 27th to 31st, 2013, Paris, France. Simon Price presented a paper on 'Humans as geological and geomorphological agents in the Anthropocene'.

Simon Price also presented on a similar theme at the British Society for Geomorphology Annual Conference at Royal Holloway, University of London

- "Thinking the Anthropocene" held at the National Museum of Natural History, Paris from 13-15th November 2013. Jointly organised by Sciences Po, EHESS (Centre Alexandre Koyré), the University of Versailles Saint-Quentin-en-Yvelines, the National Museum of Natural History and the Ministry of Ecology, Sustainable Development and Energy.
- 4th International Symposium on man-Made Strata and Geopollution, Japan branch of International Union of Geological Sciences – Geoscience for Environmental Management (IUGS – GEM) Yamagata, Japan 1-4 December 2014.
- European Geosciences Union April 2014
- A thematic session devoted to the Anthropocene geological record will be included in the 14th Spanish Meeting on Quaternary to be held in Granada, June-July 2015.

MEDIA

The State of the Ocean 2013: Perils, Prognoses and Proposals press release on 3rd October 2013 by the International Programme on the State of the Ocean.

Brave New Epoch: A search for humankind's mark on the Earth, by Lee Billings (Nautilus Magazine): <http://nautil.us/issue/9/time/brave-new-epoch>

A TV service broadcasted by the National Spanish Television RTVE on 3th January 2014, dedicated to the Anthropocene: www.rtve.es/alacarta/videos/telediario/estamos-antropoceno/2280048/.

A TV service broadcasted by the Regional Basque Television EITB on 23th March 2014, dedicated to the Anthropocene: www.eitb.tv/es/video/teknopolis--es-2013-2014/2732669346001/3373941222001/23-032014/.

University of Plymouth (posted 30 April 2014): European seafloor survey reveals depth of marine litter problem
<http://www.sciencedaily.com/releases/2014/04/140430192743.htm>

Independent (posted 4 May 2014):
<http://www.independent.co.uk/news/science/the-age-of-anthropocene-was-1950-the-year-human-activity-began-to-leave-an-indelible-mark-on-the-geology-of-earth-9321344.html>

Neue Zürcher Zeitung am Sonntag (8 June 2014)

Spiegel Online (25 August 2014):

<http://www.spiegel.de/wissenschaft/natur/anthropozoen-debatte-um-neues-geologisches-zeitalter-durch-menschen-a-987349.html>

OTHER NEWS

- International Geosphere-Biosphere Programme (IGBP): James P Syvitski reports on a workshop held in the fall of 2013 on the Anthropocene. The writing meeting and the subsequent workshop is being sponsored by IGBP, IHDP, DIVERSITAS, and WCRP, the four Global Environmental Change Programmes under ICSU. These programmes are merging into something called Future Earth and we want the Anthropocene to be a concept that makes this transition.

- **From Dan Richter:** Exhibition entitled 'Recording the Anthropocene' from 16 July to 13 October 2013 at Perkins Library Gallery, Duke University <http://blogs.library.duke.edu/blog/2013/07/18/new-exhibit-recording-the-anthropocene/>. Dan Richter has a new project on the Earth's Critical Zone, the system that integrates the atmosphere, biota, soil, rocks, water, and humans. The new Critical Zone Observatory is located on one of the USA's most agriculturally eroded and gullied regions, the Southern Piedmont of South Carolina. The CZO provides a special perspective of the Anthropocene landscape.

- **From Jacques Grinevald:** creation of a new environmental collection, "Anthropocene", published by Editions du Seuil. The editor of this collection, Christophe Bonneuil, is a historian of science and technology, in the Momentum Institute devoted to the social implications of the Anthropocene. <http://www.institutmomentum.org/language/fr/>

- **From Alex Cearreta:** A brand new project financed by the Spanish Ministry of Science and Education and dedicated entirely to the Anthropocene has been just approved for the next 3 years: Anthropocene sedimentary record in the Cantabrian coastal environments (Antropicosta), led by A. Cearreta.

- **From Christian Schwägerl (Curator)** the Deutsches Museum and the Rachel Carson Center in Munich will be showing a large Anthropocene special exhibition from October 2014 to June 2015. In preparation for the exhibition, we have just launched a global "scenario competition" about how the Anthropocene could play out. Please share the following invitation to participate with as many people as possible, school kids, journalists, senior researchers....
http://www.carsoncenter.uni-muenchen.de/news_media/news_events/rcc_news/deutsches-museum-competition/index.html

- **From Reinhold Leinfelder**

our Anthropocene Weekly Comic Strip "Anthropocene Milestones: Illustrating the Path to the Age of Humans" is now online. This is the preview of comic strips which will be used for the Anthropocene Exhibition at the Deutsche Museum and which will also be published in book form. The online version includes "subtitles" in english. Every monday another milestone will be published.

Here is the general information and the list of stories to come:

<http://www.environmentandsociety.org/blog/anthropocene-milestones-illustrating-path-age-humans>

- STRATI 2015 - 2nd International Congress on Stratigraphy to be held in Graz, Austria, 19-23 July 2015.
- XIX INQUA Congress: Quaternary Perspectives on Climate Change, Natural Hazards and Civilization, 27 July - 2 August, 2015, in Nagoya, Japan. Proposed session title: Evolving perspectives in the Anthropocene.

MEMBERSHIP TO DATE

Listed here are names of members to date and their contact details. * denotes new members- see New Members Forum, below, for brief introductions.

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NEW MEMBERS FORUM

Agnieszka Gałuszka

I am an environmental geochemist specializing in geochemical background assessment. My research interests focus on determination of trace elements in different environmental samples (e.g. waters, soils, sediments, plants etc.) and on pinpointing possible sources and the fate of these elements in the environment with the emphasis on anthropogenic pollution. Currently I am working on a project concerning the historical metal ore mining sites in the Holy Cross Mts., Poland, the aim of which is to establish trace element geochemical background ranges. My publications cover a wide range of topics – from case studies on environmental quality oriented issues, acid mine drainage, mineralogy, to green analytical chemistry. I believe that geochemical methods may find their important application in the study of the Anthropocene because anthropogenic pollution has caused enrichment of soils and sediments in certain elements (e.g. lead, mercury, antimony) or/and has changed their isotopic composition and biogeochemical cycles. In my opinion, the most fascinating area for the future study of the Anthropocene is to combine the knowledge and methods used in different disciplines to formulate one coherent theory that is needed to formally recognize the Anthropocene as an epoch of the Earth's history.

Cath Neal

My research interests coalesce around 'landscape' with an interest in deep time (geological/early Holocene interface), palaeoenvironmental reconstruction and the Iron Age-Roman period transition. I am currently publishing papers about these topics (see relevant section below) and writing a major monograph (3*) about prehistoric and Roman archaeology in the Vale of York. I am developing a new research project which will examine the Late Iron Age context of the Birdsall Estate, Yorkshire Wolds. This collaborative project (with the University of Manchester) will commence in 2014, subject to permissions.

My interest in post-colonial discourse has led the development of a funding proposal for a fellowship to utilise Natural Language Processing (discourse analysis) with Roman grey literature as an exemplar for data mining in the humanities (a collaboration with the University of Reading and Computer Science, at York). Other interests that find synergy with my core research include the relationship of theory to practice, fieldwork training and the role of disciplinary ethics. Arising from these strands, and related to my experience of community archaeology, I am researching and publishing on participatory mechanisms within archaeological practice. Fundamentally my research benefits from a multidisciplinary approach and broad levels of engagement and dissemination.

Selected publications:

Neal, C. ([under review](#)) 'The potential of integrated urban deposit modelling as a cultural heritage planning tool' *Planning Practice and Research Special Edition* (publication date January 2014)

Neal, C. and Roskams, S. 2013 'Authority and Community: Reflections on archaeological practice at Heslington East, York' *The Historic Environment: Policy and Practice* 26
DOI:10.1179/1756750513Z.00000000032

Roskams, S. Neal, C. Richardson, J. and Leary, R. 2013 'A Late Roman well at Heslington East, York: ritual or routine practices?' *Internet Archaeology* 34

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- Neal, C. 2013 ([in press](#)) 'Heritage and Participation' in E. Waterton and S. Watson (eds) *A Companion to Contemporary Heritage Research*, Palgrave Macmillan
- Neal, C. 2012 'Community archaeology in the UK: setting the agenda' in N. Schücker (ed) *Integrating Archaeology: International Conference on the Social Role, Possibilities and Perspectives of Classical Studies* 29-33
- Neal, C. and Roskams, S. 2012 'Prehistory at Heslington East; an interim assessment' in *Prehistoric Yorkshire* 49, 61-64
- Price, S. Ford, J. Cooper, A. and Neal, C. 2011 'Humans as major geological and geomorphological agents in the Anthropocene: the significance of artificial ground in Great Britain' *Royal Society Philosophical Transactions A* 13 1056-1084
- Neal, C. 2007 'The dynamics of human activity and landscape processes on the Yorkshire Wolds; an assessment of dry valley deposits at Cowlam Well Dale' *Yorkshire Archaeological Journal* 79, 1-17
- Neal, C. 2006 'Dry valley research: a case study from the Yorkshire Wolds' *Papers from the Institute of Archaeology* 17, 86-92

James Syvitski

My specialty is the global flux of water and sediment (river borne and ocean borne) and its trends in the Anthropocene. Approach is both data from ground stations, from orbital sensors, and from modeling, and thus in combining all three into a re-analysis product. I also bring connections to the biochemical and biogeophysical world through the International Geosphere-Biosphere Programme (IGBP) and the social dimension through my joint work with the International Human Dimensions Programme (IHDP) and now Future Earth. I am one of the earliest users of the term, although I never had any idea of the profoundness of the term — rather the term was simply useful and overcame my objections on limiting global environmental change to climate change science.

ANTHROPOCENE WORKING GROUP: PROGRAMME FOR 2014-15

- The inaugural meeting of the Anthropocene Working Group (details above) provides an opportunity for us to meet as a group for the first time and carry on many of the interesting discussions initiated via e-mails. However, the focus must be on formulating our collective opinion (or opinions) on the question of whether or not to formalize the Anthropocene and, if so, at what level (i.e. when should its beginning be placed) and using what criteria. The two recent submitted discussion papers will help with steering the conversations. As regards further work, it still seems a reasonable date to aim for summer 2016 to arrive summarize the evidence and arrive at some conclusions on the Anthropocene, however interim, to pass on to the Subcommittee on Quaternary Stratigraphy and International Commission on Stratigraphy, for their consideration.
- As regards summarizing the evidence, Cambridge University Press are still interested in producing a book on the Anthropocene: and we should aim to compile the volume in 2015, for publication sometime in 2016, timed to coincide with the IGC. We have been working on a draft outline that we will circulate. We think the book should be organised something along the lines of the Gradstein et al. Geological Time Scale 2012 book or perhaps the IPCC 'Summary for Policymakers'. That is a relatively coherent and accessible synthesis, co-authored and contributed to by all of us, and with a relatively small group of lead editors to help maintain consistency of style and level. It should synthesize and

build on the two detailed volumes we have produced so far (the 2011 Royal Society volume and the 2014 Geol Soc London volume), together with the burgeoning number of papers published elsewhere, both by people within our group and people outside it. It will be necessary to combine scientific rigour, to build and constrain the scientific case, with accessibility, given that the Anthropocene is of interest and importance to a wider audience than the standard stratigraphic one: so, not the easiest of tasks, but one that we can collectively manage - and that we will find rewarding.

Stepping stones towards this volume might include a limited number of further summaries and position papers. A few possibilities are:

- A discussion on the most appropriate stratigraphic level of the Anthropocene (Age/Epoch/Period)
- A synthesis of numerical dating techniques relevant to dating the Anthropocene, building on the paper by Hancock focussing on plutonium on sediments; this would include related 'bomb spike' phenomena such as radiocarbon, annual varves, and the use of other stratigraphic signals (e.g. different types of technofossils) that we can interpret through the existence of a dated historical context.
- A discussion/analysis of the use of a formal vs informal Anthropocene to different communities within both the sciences and the humanities.

Jan Zalasiewicz (Chair)
Colin Waters (Secretary)