

# Anthropogenic Markers

Historical and Material Contexts  
of a Twentieth-Century Transition  
in Earthly Matters

International Workshop  
September 22-24, 2021  
° Online/Berlin



MAX PLANCK INSTITUTE  
FOR THE HISTORY OF SCIENCE

Anthropocene  
Working Group

**HKW** Haus der Kulturen  
der Welt

The special session on „Nuclear Anthropocene“ is supported by:

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# GENERAL OUTLINE

## The Project

From 2020 to 2022, the Anthropocene Working Group (AWG) is coordinating a geological investigation to identify key anthropogenic signatures for the onset of a new human-led epoch: the Anthropocene. As the group assesses the material evidence for a globally synchronous and lasting record of human activities on physical, chemical, and biological processes of the Earth system, it reconnects the debate on the Anthropocene to its actual chronostratigraphic meaning. Through the identification and dating of the lower stratigraphic boundary—the so-called Global Boundary Stratotype Section and Point (GSSP)—traceable in various marine and terrestrial deposits the group will pragmatically consider a formal beginning of the Anthropocene, placing this new human-made epoch at the current end of a geologic timescale that encompasses 4.5 billion years of geological evolution.

The anthropogenic markers investigated by the AWG are varied and multiple. They include novel materials such as plastics or black carbon from combustion processes, organic pollutants, biotic signals such as neobiota or changing pollen types, the changing compositions of carbon and nitrogen isotopes, as well as the release of artificial radiogenic substances to the global environment. Across the board, these markers portray the dramatic changes that have taken place particularly around the middle of the twentieth century. They represent a record of the multiple impacts that modern industrial societies have begun to have on the atmosphere, hydrosphere, and cryosphere, signaling, amongst other consequences the advent of a new era of species migration and widespread extinction, the measurable alteration of biogeochemical cycles, and the emergence of anthropogenic radionuclides resulting from atmospheric nuclear weapons testing.

Against this backdrop, the two-year “Anthropogenic Markers” project invites a variety of scholars from the fields of history, geology and geochemistry, science studies, anthropology and the arts to explore the evidence making and evidence traces that verify a mid-twentieth century start of the Anthropocene, specifically addressing the material histories of anthropogenic residues in human-impacted environments. The project sets up a conversation across different disciplines and methods in which geological and historical perspectives can inform each other through the lens of particular matters and epistemic settings. Attention will be paid to issues such as the material and conceptual histories of anthrobiogeochemical cycles, anthropogenic pressures on the biosphere, particle and chemical signatures of combustion processes, and the connection between the nuclear age and the Anthropocene.

The immediate aim of the project is the joint production of thematic online dossiers that cover six of these chosen subjects and which help to historically contextualize the different Anthropocene markers under investigation by the AWG. The dossiers, to be issued as a special publication on the [anthropocene-curriculum.org](https://anthropocene-curriculum.org) platform in January 2022, do not attempt to systematically organize all markers according to their properties, but instead allow for different perspectives, framings, and approaches to be taken. Each dossier will open with an introductory essay, authored by a group of several members of the AWG and their associated GSSP project teams from various laboratories across the world. These openers detail the dossier subject from a stratigraphic perspective with a special focus on scientific content and methods. The dossiers’ main contents then consist of a curated collection of individual and joint contributions developed and (co-)authored by participants of the project. Their composition can take different contents and formats: (multimedia) essays, videos, artistic contributions, transcripts of joint conversations, annotated collections of sources, etc.

The publication of the dossiers will launch a year of events, exhibitions, and programs at the HKW that reevaluate the Anthropocene condition for broader publics alongside the finalization of the AWG’s investigation, and their formal recommendation for the Anthropocene GSSP.

## The Workshop

The workshop presents an important intermediate step in the production process of the six dossiers. Already in April 2021 the opening essays of the AWG were made available to all project participants to stimulate ideas and thoughts for the varied directions the dossier contributions might take, including possible cross-collaborations between the participating geologists, historians, artists, and scholars. All participants (except the AWG members) will submit a first draft or sketch of their contribution by August 1 to be circulated among the group. The workshop will then present an opportunity to collectively review, discuss, and further develop the cross-integrated contents of the dossiers based on the drafts/sketches received.

The workshop starts with a full day devoted to the AWG's discussion on the progress made in the search for suitable GSSP candidates. The following two days then focus on the future contributions to the dossiers. Each participant will have the opportunity to briefly summarize the topic and format of his/her contribution (7 mins). A short commentary by another workshop participant will then give a first response (5 mins) and thereby kickstart the general discussion (15 mins). The Nuclear Anthropocene session organized by Soraya Boudia and Maria Rentetzi, has a slightly different format with two round tables and a subsequent artist presentation. The aim of these formats is to ensure a lively discussion based on the precirculated drafts. As attendance of the workshop will be both physical and remote, a carefully coordinated discussion is key to its success.

## Organization

The "Anthropogenic Markers" project is a direct contribution of the Max Planck Institute for the History of Science (MPIWG) to the ongoing collaboration between the AWG, the Haus der Kulturen der Welt (HKW), and the MPIWG that together coordinate, fund, and contextualize the extensive endeavour of finding and defining the Anthropocene GSSP. The project is conceptualized and organized by Giulia Rispoli and Christoph Rosol from the MPIWG research group "Anthropocene Formations."

The "Anthropogenic Markers" workshop taking place midway through this project is funded by the MPIWG and the HKW. The special session on the „Nuclear Anthropocene" is supported by the research program "Nuclear Governance after Hiroshima funded by Face Foundation - Partner University Fund (PUF)," convened by Soraya Boudia (Université de Paris), Bernadette Bensaude-Vincent (Université Paris 1 Panthéon-Sorbonne), and Kyoko Sato (Stanford University), as well as the ERC Consolidator Grant "Living with Radiation: The Role of the International Atomic Energy in the History of Radiation Protection (HRP-IAEA)," lead by Maria Rentetzi (Friedrich-Alexander Universität Erlangen-Nuremberg, MPIWG).

# PROGRAM

**Wednesday, September 22, 2021**

– INTERNAL –

<b>Time (Berlin)</b> <i>*Check your local time zone*</i>	<b>Presentations from candidate GSSP locations and project members</b>
8:00 am	<b>Check in at HKW</b>
8:30 – 9:00 am	<b>Welcome and Introduction</b> Bernd Scherer & Katrin Klingan & Christoph Rosol (HKW, MPIWG) Simon Turner & Colin Waters (AWG)
9:00 – 9:30 am	<b>Flinders Reef, Australia</b> (Jens Zinke & Australian Institute of Marine Science)
9:30 – 10:00 am	<b>Beppu Bay, Japan</b> (Michinobu Kuwae/Yoshiki Saito)
10:00 – 10:30 am	<i>Coffee Break</i>
10:30 – 11:00 am	<b>Sihailongwan Maar Lake, China</b> (Yongming Han)
11:00 – 11:30 am	<b>Śnieżka peatland, The Sudetes, Poland</b> (Barbara Fiałkiewicz-Kozieł)
11:30 – 12:00 am	<b>Ernesto Cave, Italy</b> (Andrea Borsato)
12:00 – 1:15 pm	<i>Lunch Break</i>
1:15 – 1:45 pm	<b>East Gotland Basin, Baltic Sea</b> (Jérôme Kaiser/ Juliana Assunção Ivar do Sul)
1:45 – 2:15 pm	<b>Antarctic Peninsula, Antarctica</b> (Liz Thomas)
2:15 – 2:45 pm	<b>San Francisco Estuary, USA</b> (Stephen Himson/Mark Williams)

2:45 – 3:05 pm	<b>Urban stratigraphy, Vienna, Austria</b> (Michael Wagreich)
3:05 – 3:25 pm	<i>Coffee Break</i>
3:25 – 3:55 pm	<b>Plutonium isotope analysis of GSSP samples</b> (Andy Cundy)
3:55 – 4:25 pm	<b><sup>14</sup>C analysis of GSSP samples</b> (Irka Hajdas)
4:25 – 4:55 pm	<b>SCP analysis of GSSP samples</b> (Neil Rose)
4:55 – 5:25 pm	<b>Crawford Lake, Canada</b> (Francine McCarthy)
5:25 – 5:35 pm	<i>Coffee Break</i>
5:35 – 6:05 pm	<b>West Flower Garden Bank Reef, USA</b> (Kristine DeLong)
6:05 – 6:35 pm	<b>Searsville Reservoir, California, USA</b> (Allison Stegner/Anthony Barnosky/Liz Hadly)
6:35 – 6:50 pm	<b>Project review and plans</b> (Simon Turner)
6:50 – 7:10 pm	<b>Anthropocene Review paper template</b> (Colin Waters)
7:10 – 7:40 pm	<b>Presentation of artistic project on GSSP-research</b> (Giulia Bruno and Armin Linke)
7:45 pm	<i>Dinner</i>

## Thursday, September 23

– OPEN TO REGISTERED PARTICIPANTS –

Time (Berlin) Discussion of contributions to the Anthropogenic Markers Dossiers  
\*Check your local time zone\*

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9:30 am Check in at HKW

10:00 am **Welcome and Introduction**  
Giulia Rispoli, Christoph Rosol (MPIWG, HKW)

10:15 am **Session 1: Combustion**

Chair: Christoph Rosol

**Nigel Clark**

*Anthropogenic Fire as the Hinge between Earth System and Strata*

Comments by Neil Rose

**Benjamin Steininger**

*Molecular Mobilization*

Comments by Jahnavi Phalkey

**Karolina Sobecka & Desiree Foerster**

*The Carbon Catalogue*

Comments by Bernadette Bensaude-Vincent

12:00 pm *Lunch Break*

1:15 pm

**Session 2: Anthrobiogeochemical Cycles**

Chair: Giulia Rispoli

**Juan-Andres Leon**  
*Radiocarbon Reflections*

Comments by Irka Hajdas

**Benjamin Johnson**  
*A Future Marker for the Anthropocene: Closed Chemical Cycles*

Comments by Andy Cundy (tbc)

**Julian Charrière**  
*Weight of Shadows*

Comments by Liz Thomas

**Eva Horn**  
*The Case of Air*

Comments by Adam Wickberg

3:30 pm

*Coffee Break*

4:00 pm

**Session 3: Nuclear Anthropocene**

Round table discussion 1

***Nuclear Governance***

Chair: Maria Rentetzi

**Xavier Roque, Maël Goumri, John Krige, Kyoko Sato**

5:00 pm

*Short Break*

5:15 pm

Round table discussion 2

***Nuclear Anthropocene***

Chair: Bernadette Bensaude-Vincent

**Kate Brown, Nestor Herran, Angela N. H. Creager, Tania Navarro-Rodriguez & Soraya Boudia**

6:15 pm

*Short Break*

6:30 pm

Artist Talk

Moderation: Jahnavi Phalkey

**Brian Holmes & Jeremy Bolen**

*Signals of What? Filming the Anthropocene Mode of Production*

7:45 pm

*Dinner*

**Friday, September 24**

10:00 am

**Session 4: Biotic Change**

Chair: Barbara Fiałkiewicz-Koziet

**Luke Keogh**

*Ephemeral Biosphere: A Very Brief History of Biological Invasions*

Comments by Mark Williams

**Killian Quigley**

*Reading the Anthropocene Ocean*

Comments by Reinhold Leinfelder

**Nina Canell & Robin Watkins**

*Silurian Harvest*

Comments by Francine McCarthy

**Matthew C. Wilson**

*Atmosphanae, Colonialialis ...*

Comments by Jan Zalasiewicz

12:15 pm

*Lunch Break*



1:30 pm

**Session 5: Novel Materials and Technofossils**

Chair: Pietro D. Omodeo

**Andrea Westermann**

*Against the Aestheticization of Technofossils: Considering Migrant Labor and Petrochemical Feedstocks in the History of Plastic*

Comments by Juliana Ivar do Sul

**Katrin Hornek & Kira Lappé**

*Latent Soils, Sensing the Viennese City-Strata of the Anthropocene*

Comments by Matt Edgeworth

**Cristian Simonetti & Matt Edgeworth**

*Concrete: A Stratigraphic Marker for the Anthropocene*

Comments by Franz Mauelshagen

3:15 pm

*Short Coffee Break*

3:30 pm

**Session 6: Critical Environments**

Chair: Jürgen Renn

**Adam Bobbette**

*A Javanese Anthropocene*

Comments by Julia A. Thomas

**Xandra van der Eijk**

*Visualizing Anthropogenic Markers in the Polluted Sediment of Sydney Harbour*

Comments by Agnieszka Gałuszka (tbc)

4:40 pm

*Short Break*

5:00 pm

**Julia A. Thomas**

*Changing Hopes as Anthropocene Markers*

Comments by Brian Holmes

**Kim Fortun**

*Toward Anthropocene Kaleidoscopes*

Comments by Simon Turner

6:10 pm

**Wrap-up session**

Chair: Christoph Rosol

Brief reflections on the workshop by Simon Turner, Bernd Scherer, Eva Horn, Jürgen Renn, Giulia Rispoli

General discussion and concluding remarks