

Anthropocene: What interdisciplinarity?

Since the 2000s, the concept of the Anthropocene has sparked numerous debates between the natural and social sciences regarding the definition of this new geological epoch, which is said to be dominated by human activities. It has thus very quickly become a central and cross-disciplinary concept for thinking about the transition to a new planetary regime, both in academic circles and in the media, particularly online.

However, in March 2024, geological institutions refused to recognise the validity of this concept within the field of geological sciences. How can this refusal be explained? What should be done with the concept of the Anthropocene? And how can we continue the interdisciplinary dialogue between the 'natural' and 'social' sciences in the age of the ecological crisis and the internet? These are the key questions addressed throughout this conference, which is aimed at all fields of knowledge concerned with human-induced global change, transcending the traditional divide between 'sciences' and 'humanities'.

The "Anthropocene"

by Paul J. Crutzen and Eugene F. Stoermer

The name Holocene ("Recent Whole") for the post-glacial geological epoch of the past ten to twelve thousand years seems to have been proposed for the first time by Sir Charles Lyell in 1833, and adopted by the International Geological Congress in Bologna in 1885 (1). During the Holocene mankind's activities gradually grew into a significant geological, morphological force, as recognised early on by a number of scientists. Thus, G.P. Marsh already in 1864 published a book with the title "Man and Nature", more recently reprinted as "The Earth as Modified by Human Action" (2). Stoppani in 1870 rated mankind's activities as a "new telluric force which in power and universality may be compared to the greater forces of earth" [quoted from Clark (3)]. Stoppani already spoke of the anthropozoic era. Mankind has now inhabited or visited almost all places on Earth; he has even set foot on the moon.

The great Russian geologist V.I. Vernadsky (4) in 1926 recognized the increasing power of mankind as part of the biosphere with the following excerpt: "... the direction in which the processes of evolution must proceed, namely towards increasing consciousness and thought, and forms having greater and greater influence on their surroundings". He, the French Jesuit P. Teilhard de Chardin and E. Le Roy in 1924 coined the term "noosphere": "the world of thought, to mark the growing role played by mankind's brainpower and technological talents in shaping its own future and environment."

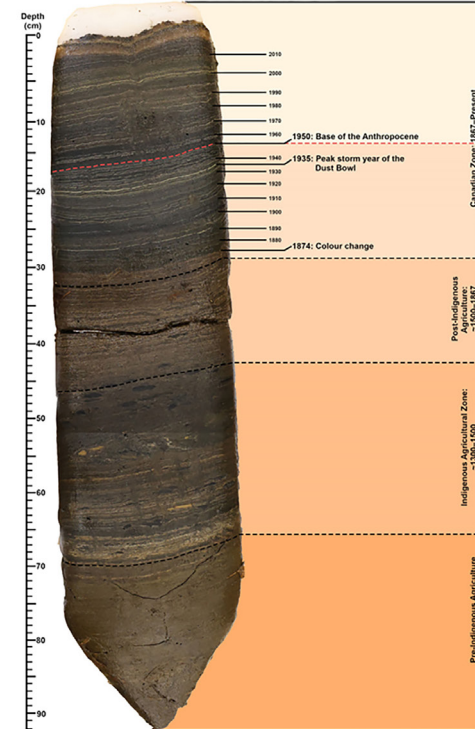
The estimates of the number of people on Earth's surface are increasing (5). To give a few examples: During the past 3 centuries human population increased

by a growth in cattle population to 1400 million (6) (about one cow per average size family). Urbanisation has even increased tenfold in the past century. In a few generations mankind is exhausting the fossil fuels that were generated over several hundred million years. The release of SO₂ globally about 160 Tg/year to the atmosphere by coal and oil burning, is at least two times larger than the sum of all natural emissions, occurring mainly as marine dimethyl-sulfide from the oceans (7); from Vitousek et al. (8) we learn that 30-50% of the land surface has been transformed by human action; more nitrogen is now fixed synthetically and applied as fertilizers in agriculture than fixed naturally in all terrestrial ecosystems; the escape into the atmosphere of NO from fossil fuel and biomass combustion likewise is larger than the natural inputs, giving rise to photochemical ozone ("smog") formation in extensive regions of the world; more than half of all accessible fresh water is used by mankind; human activity has increased the species extinction rate by thousand to ten thousand fold in the tropical rain forests (9) and several climatically important "greenhouse" gases have substantially increased in the atmosphere: CO₂ by more than 30% and CH₄ by even more than 100%. Furthermore, mankind releases many toxic substances in the environment and even some, the chlorofluorocarbon gases, which are not toxic at all, but which nevertheless have led to the Antarctic "ozone hole" and will lead to global warming. We have destroyed much of the world's rain forests. If no international regulations are put in place to end their production and use, the world's rain forests will have been 1/30 of their original extent. Coastal wetlands are also affected by humans, having resulted in a 50% reduction of the world's man-

groves. Finally, mechanized human production ("fisheries") removes more than 25% of the primary production of the oceans in the upwelling regions and 35% in the temperate continental shelf regions (10). Anthropogenic effects are also well illustrated by the history of biotic communities that leave remains in lake sediments. The effects documented include modification of the geochemical cycle in large freshwater systems and occur in systems remote from primary sources (11-13).

Considering these and many other major and still growing impacts of human activities on earth and atmosphere, and at all, including global, scales, it seems to us more than appropriate to emphasize the central role of mankind in geology and ecology by proposing to use the term "anthropocene" for the current geological epoch. The impacts of current human activities will continue over long periods. According to a study by Berger and Loutre (14), because of the anthropogenic emissions of CO₂, climate may depart significantly from natural behaviour over the next 50,000 years.

To assign a more specific date to the onset of the "anthropocene" seems somewhat arbitrary, but we propose the latter part of the 18th century, although we are aware that alternative proposals can be made (some may even want to include the entire holocene). However, we choose this date because, during the past two centuries, the global effects of human activities have become clearly noticeable. This is the period when data retrieved from glacial ice cores show the beginning of a growth in the atmospheric concentrations of several "greenhouse gases", in particular CO₂ and CH₄ (7). Such a starting date also coincides with James Watt's invention of the steam



Study Day

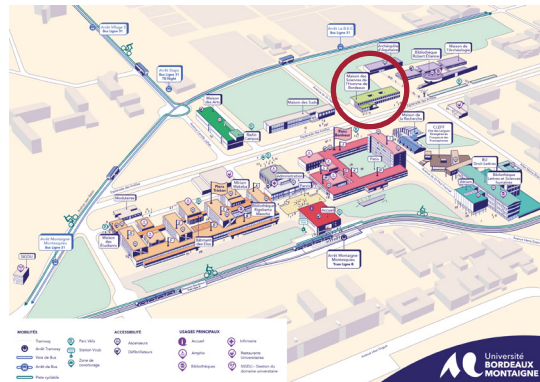
Organised as part of the Anthropocenoscope project – Mapping interdisciplinarity in the Anthropocene: an overview of controversies and initiatives (AAP MSHBx 2026)



Wednesday, June 24, 2026
MSH-Bordeaux (salle Jean Borde)
9h-18h

Organization: Fabien Colombo, associate researcher at the University of Bordeaux Montaigne, MICA (UR 4426)

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33607 Pessac cedex
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Mercredi 24 Juin 2026

Matinée

- 8:30 Welcome
- 9:00 “What should we do with the Anthropocene?”
Fabien Colombo (Social Sciences, MSHBX Laureate)
- Session 1 – Geological signals of the Anthropocene**
Themes: Geology, formalization, golden spike
- 9:15 *Anthropocene Working Group, Jan Zalasiewicz, Mark Williams, Simon Turner* (Geological Sciences, University of Leicester & University College London)
- 10:15 Discussion
- 10:30 Break
- Session 2 – Planetary trajectories of the Anthropocene**
Themes: Earth System science, Great Acceleration, complexity
- 10:45 *José Halloy* (Sustainability Sciences, Université Paris Cité)
- 11:15 *Martin Bohle* (Geoethics, Universität Erfurt)
- 11:45 Discussion
- Interdisciplinary Dialogue #1**
From geological signals to planetary dynamics
- 12:00 Guiding question: Are we referring to the same Anthropocene in geology and Earth System science?
- 12:30 Lunch (catered)

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Après-midi

- Session 3 – Environmental philosophies in the Anthropocene**
Themes: Philosophy, modernity, ontology
- 13:30 *Catherine Larrère* (Philosophy, Université Paris Panthéon-Sorbonne)
- 14:30 Discussion
- Session 4 – Future societies in the Anthropocene**
Themes: Sociology, education, sustainability
- 14:45 *Éric Macé* (Sociology, Université de Bordeaux)
- 15:15 *François Prouteau* (Education sciences, Université Catholique de l’Ouest)
- 15:45 Discussion
- 16:00 Break
- Interdisciplinary Dialogue #2**
From conceptual frameworks to interdisciplinary practices
- 16:15 Under what conditions is interdisciplinary research on the Anthropocene possible?
- 17:00 **Interdisciplinary Perspectives**
“Building interdisciplinarity in the Anthropocene”
- 17:45 Discussion
- Conclusion
- Social gathering**
- 20:00 Dinner in Bordeaux