

# The Anthropocene Imagination: linking knowledge, belief and action in the world

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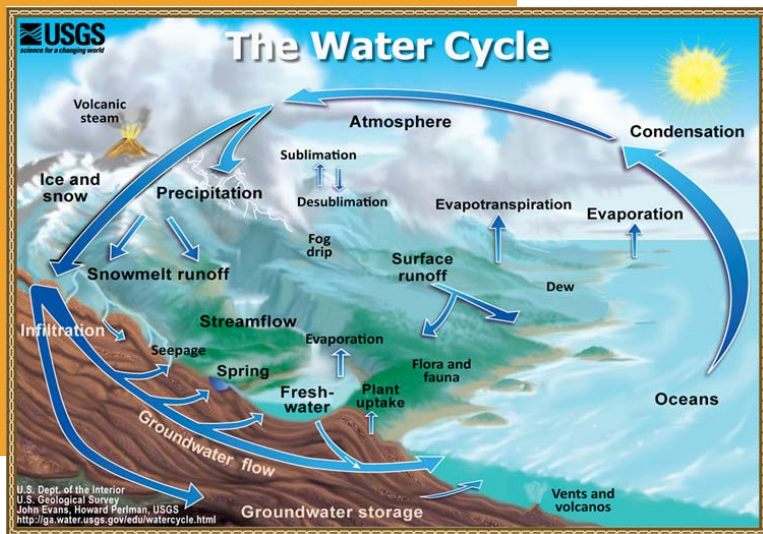
# Initial steps of work

- 1) Examine academic version of the Anthropocene
  - defining traits as pillars of the debate
  - place the 'who', 'where' and 'when' of the 'anthropocene' in a social and epistemological context
  - **Anthropo...cene**
- Meaning in in the wider discourse of global environmental change
  - 2) for dissemination in civil society and
    - Future Earth Engagement committee
    - Deutsche Museum Munich
    - Radio project Generation Anthropocene
    - Haus der Kulturen der Welt → Anthropocene Curriculum
  - 3) collective decision-making in the policy realm
    - decision-makers of CCA in specific urban locality
    - How useful is the Anthropocene analysis to them?

# Presentation outline

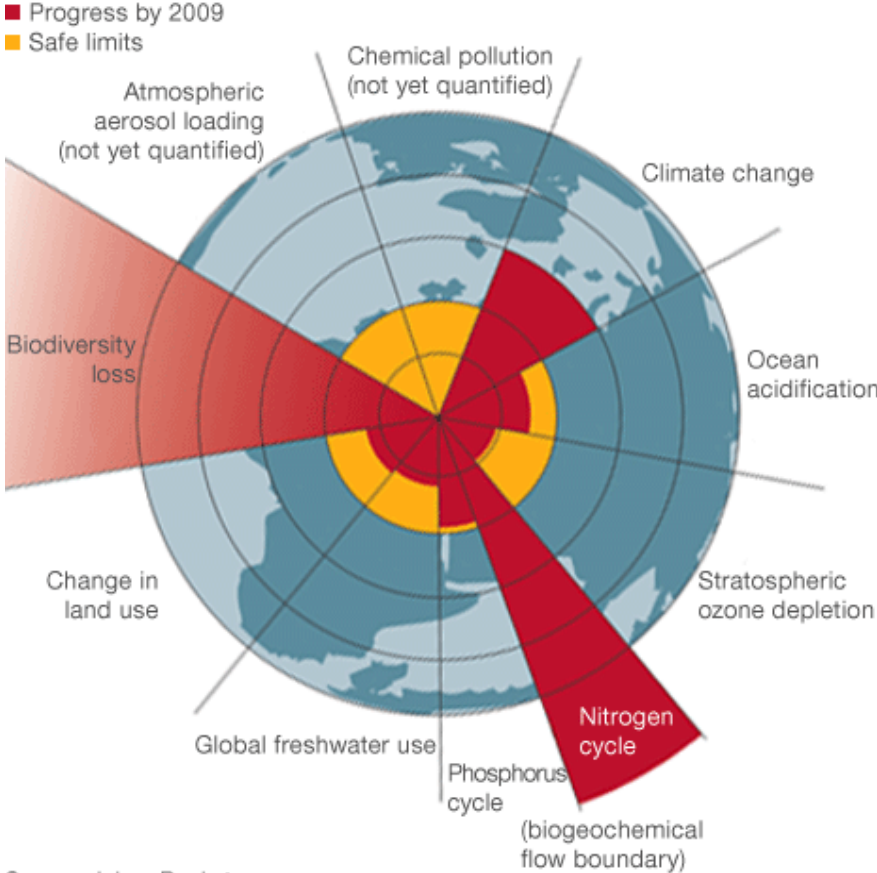
- 1 Area of interest
  - 1.1 The Anthropocene at face value
  - 1.2 Academic context
- 2 Overview of the crucial debates
  - 2.1 ...cene
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  - 2.3 Good vs. Bad Anthropocene
- 3 Co-producing the Anthropocene
  - 3.1 Co-production idiom
  - 3.2 Sites of co-producing the Anthropocene
  - 3.3 Co-producing Anthropocene
- 4 Science in an Anthropocene society
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- 5 Next steps
  - 5.1 Empirical context: Haus der Kulturen der Welt
- 6 Difficulties

# 1.1. The Anthropocene at face value



- New geological epoch ('cene') that can be distinguished from other such units in the Earth's history by way of the traces that human changes ('Anthropo') to the Earth system have left in the Earth's crust.
- Anthropogenic environmental changes surpass the spatial and temporal scales previously considered relevant in this context.
- The 'collateral concept' (Castree 2014: 441) of *planetary boundaries* emerged in 2009, which outlined 9 sub-systems of the Earth that are being altered by humans (Rockström et al. 2009)

# Planetary boundaries



Source: Johan Rockstrom

# The background story



- Predecessors of the Anthropocene (Pálsson et al. 2013)
  - Stoppani's "anthropozoic era" (1873)
  - Vernadsky, Le Roy, and Teilhard de Chardin's "noo" sphere" (1922)
  - Catton's "Homo colossus" (1980)
  - Revkin's "anthrocene" (1992)
  - Samways's "homogenocene" (1999)
- Initially termed by Eugene Stroemer in the mid-1980s and resurrected and promoted by Paul Crutzen at the turn of the millennium.
- Official status of the Anthropocene is pending until 2016
- But popular framework for thinking about anthropogenic environmental change on the global level

## 1.2 Academic context



### Construction of commensurable environmental knowledge

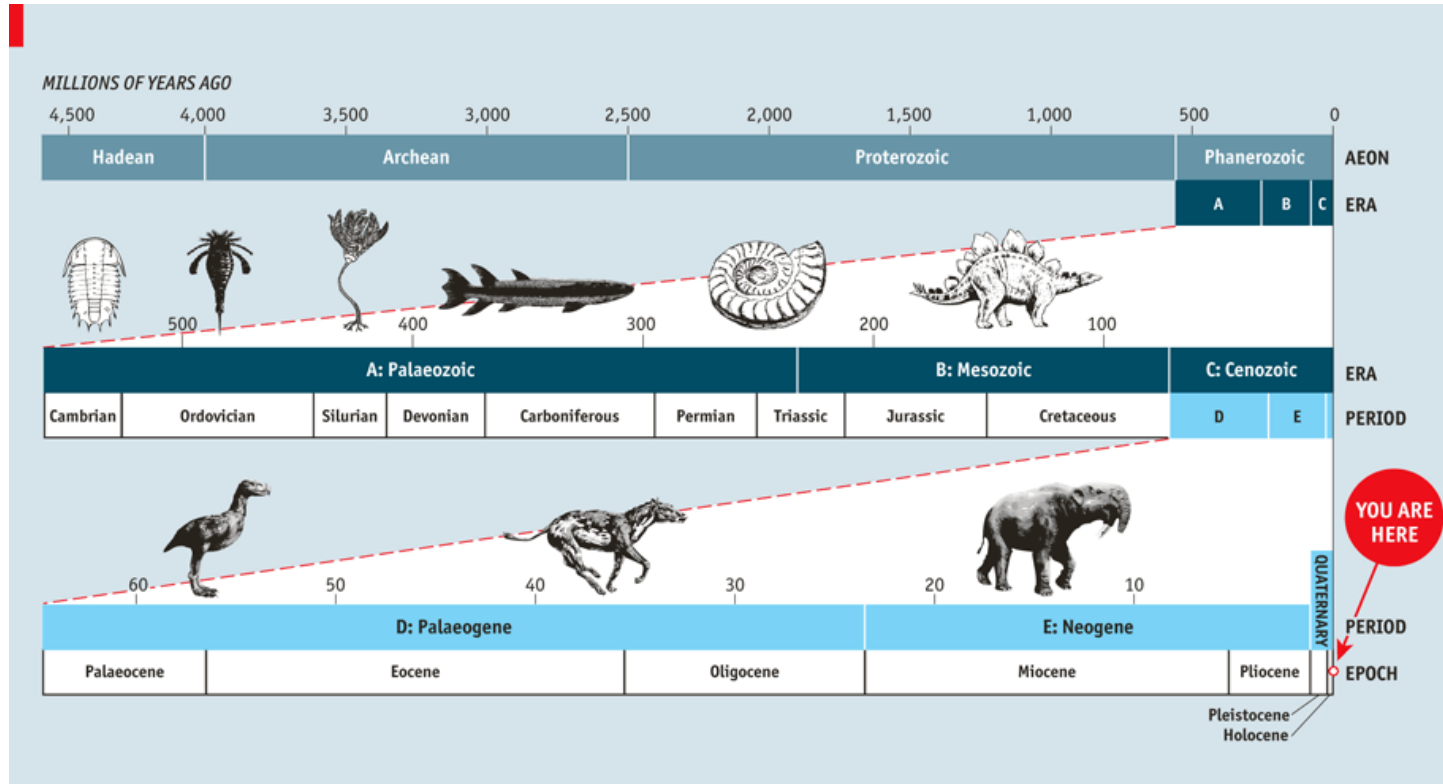
- Global scale of nature (Urry, 2011)
  - *'Whereas a globe has the smooth spherical surface and the uniform isotropic space of a Euclidean geometric figure, the Earth is irregularly shaped and its physical landscapes are both highly variegated and covered by seas of water and atmosphere moving in chaotically complex and changing ways.'* (Olwig 2011: 404)

*What role does science play in rendering the Anthropocene a commensurable representation of global processes of anthropogenic environmental change?*

*facts, rather, speak because we do'* (Carolan 2004: 498)

- But they vary according to their complexity and epistemological distance
- Scientific knowledge production
  - The role of science has been historically crucial in representing (global) environmental issues (Becker und Jahn, 2006) (Beck, 2007)
  - But scientists have been criticised for a 'view from nowhere' that marginalises spatial and temporal as well as political and ethical scales of human experience (Hulme, 2010; Pahl-Wostl et. al, 2012).
- Scientists have created *'entities [...] that reflect no one's unmediated observations of the world and yet are recognized and accepted as real.'* (Jasanoff 2010: 234)

## 2.1 ...cene

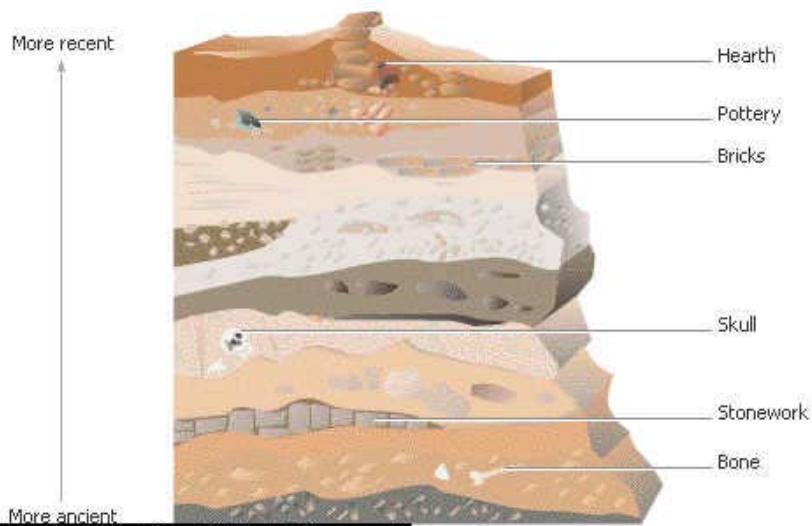


- Anthropocene must pass the high barriers 'to the development, recognition, and amendment of a timescale relevant to Earth's history', which the codified approach of formal stratigraphic practice provides (Autin & Holbrook 2012: 60).



... cene

- Challenge to stratigraphic community
  - 1) internally consistent and distinguishable rock layer caused by humans
    - Finding a 'golden spike' or Global Boundary Stratotype Sections and Points (GSSP): two marker points that define the span of geological time
  - 2) starting date of the surface processes that caused those impacts
    - Early vs. late Anthropocene
  - Encountered major methodological difficulties → significant controversy over its status
    - 'esoteric' (Autin & Holbrook 2012: 61)
    - 'compulsive' and inconsistent (Rull 2013: 1200)



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- 2 alternatives to the standard definitional practices of stratigraphy
  - Official adoption of relatively broad & widely agreeable geo-chronological boundary
    - about 50 – 250 years (Smith & Zeder 2013)
    - Using (an otherwise outdated) Global Standard Stratigraphic Age (Zalasiewicz et al. 2011).
  - Exclusively informal use of the term Anthropocene
    - global awareness about environmental change is a fundamentally different issue than practical stratigraphy

## 2.2 Anthropo...

- 'geology of mankind' = *aggregate* effect of numerous interactions of humans with their environments
  - *'To call human beings geological agents is to scale up our imagination of the human. Humans are biological agents, both collectively and as individuals. They have always been so. [...] But we can become geological agents only historically and collectively, that is, when we have reached numbers and invented technologies that are on scale large enough to have an impact on the planet itself.'* (Chakrabarty 2009: 206–207)
- 'Species narrative'
  - The ability to shape the earth system must necessarily be rooted in species-wide characteristics because *'anything less would make [...] [the Anthropocene] a geology [not of mankind but] of some smaller entity, perhaps some subset of Homo sapiens'* (Malm & Hornborg 2014: 63).
  - Proponents: long-term perspective onto human and planetary history (Chakrabarty 2009) that links planetary conditions to human biological evolution and contemporary environmental subjectivities like individual carbon footprints (Clark 2013)
  - Critics: undifferentiated understanding of human agency with a teleological view onto human-nature relationships
    - The Anthropos is *'the technological, scientific, modern, commercial, and acquisitive agent at work in the projects of Western nation-building, empire-expansion, and capitalist-development'* (Luke 2013: 3).

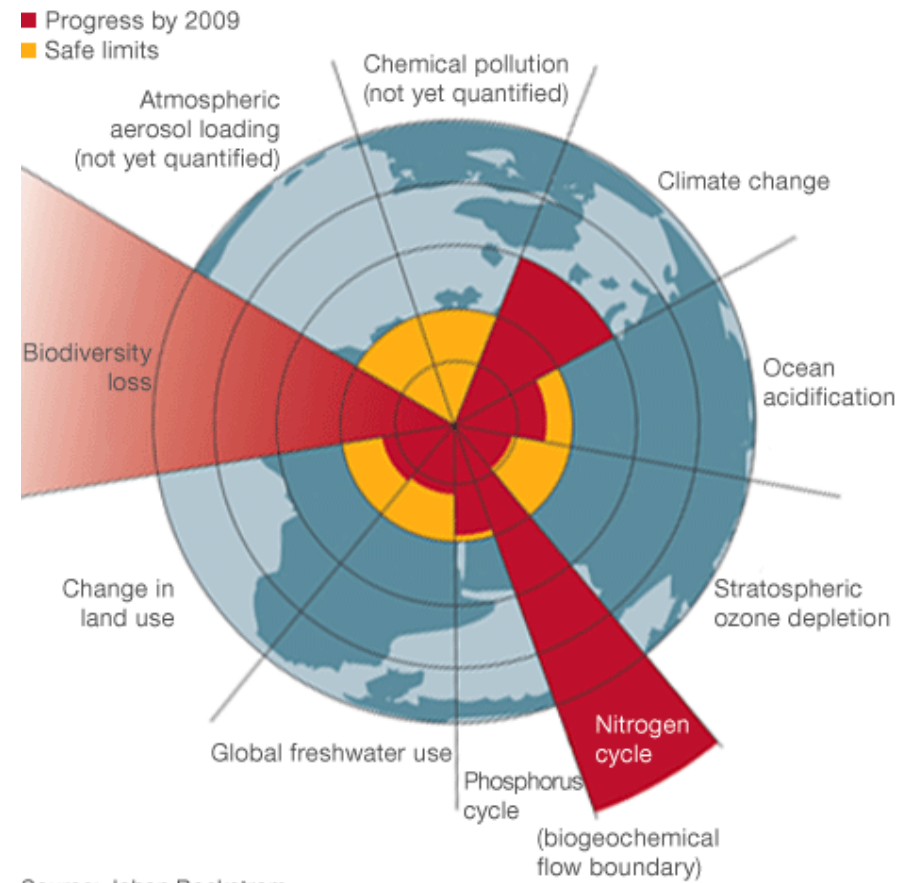


## 2.3 Bad Anthropocene



- Holocene as a 'save operating space'
  - 'the Holocene-like state of the earth system is the only one that we can be sure provides an accommodating environment for the development of humanity' (Steffen et al. 2011b: 753).
- The concept of 'planetary boundaries' (Rockström et al. 2009) quantifies the idea of a safe operating space
  - 3 boundaries (climate change, loss in biodiversity, and changes in the nitrogen cycle) have already been crossed
  - Articulates Bad Anthropocene in more normative fashion
- Anthropocene as crisis
  - 'cosmic tragedy' (Zalasiewicz et al. 2008: 240)
  - 'foregrounds a political imaginary of threat' (Evans & Reid 2014: 4)

# Planetary boundaries



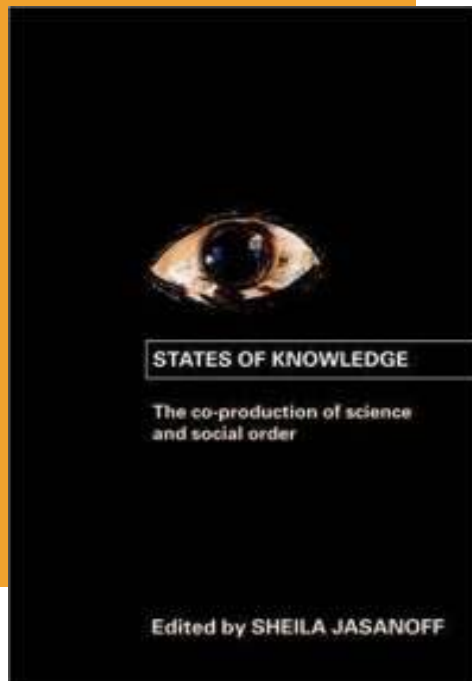
Source: Johan Rockstrom

## 2.3 Good Anthropocene



- 'planetary opportunities' rather than 'planetary limits'
  - Humans have the unprecedented capacity to *transform* their environment on a planetary scale and thus change the conditions of their very existence.
  - Change towards intentionality: humans have capacity to *navigate* Earth system changes
- Humans have always drastically altered ecological systems across most of the terrestrial biosphere and thus rendered the earth more capable of supporting human development
- Extends the spatial and temporal scale of acceptable human interference
  - Anthropocene Earth system is inevitable but a better version is possible

## 3.1 Co-production idiom



- 'co-production is shorthand for the proposition that the ways in which we know and represent the world (both nature and society) are inseparable from the ways in which we choose to live in it.' (Jasanoff 2004: 3)
- The 'products of the sciences, both cognitive and material, embody beliefs not only about how the world is, but also how it ought to be. Natural and social orders, in short, are produced at one and the same time— or, more precisely, coproduced. The apparent firmness of the devices with which we make sense of our existence, then, is maintained through more or less purposive action by identifiable actors.' (Jasanoff 2007: 19)

## 3.2 Sites of Co-production

- Sites of co-production (Jasanoff 2004)
  - Making representations: processes of rendering an object, event, idea or perception intelligible or identifiable (Dubow 2009: 645)
  - Making discourse: relates to 'the appropriation of existing discourses (...) and their selective tailoring to suit new needs.'
  - Making institutions: 'They may be regarded in this sense as society's inscription devices (See Latour 1987; Latour and Woolgar 1979) – vehicles through which the validity of new knowledge can be accredited'
  - Making identities: 'how does it affect people collective and individual identities, permitting some to be experts, others to be research subjects, and still other to be resisters or revolutionaries?'

## 3.3 Co-producing the Anthropocene: ...cene

- Alternative definitional practices of Stratigraphy differ mainly in orientation towards stratigraphic formality
  - Using Anthropocene only informally: appropriates the established discourse of stratigraphy by positioning the Anthropocene outside of it
  - Applying a fairly broad boundary: flexible interpretation of stratigraphic rules
  - **Making scientific representations:** Selective tailoring of stratigraphic rules and nomenclature
    - Anthropocene's place within the stratigraphic hierarchy has consequences for adjacent chronostratigraphic units
- **Making of institutions** through which the validity of new knowledge can be accredited
  - Anthropocene Working Group considers validity of Anthropocene until 2016
- **Making identities:** of stratigraphers as the ultimate experts and arbiters of the Anthropocene
  - key event: workshop organised by Geological Society of London in May 2011 (Steffen 2013).



# Co-producing the Anthropocene: ... Anthro

- Emerging criticism that Anthropocene provides a view from nowhere which conceals particularities
- Alternative conceptual visions: specificity rather than standardisation
  - Capitalocene: capitalist production is a structural cause of global environmental change (Moore 2014)
  - Mediacene: In which earth systems are visualised and rationalised 'under the auspices of digital media's simulative effects' (Gurevitch 2014)
  - Econocene: Referring to the 50-fold increase and the globalization of economic activity during the 20th century (Norgaard, 2013).
  - Thanatocene: Referring to the role of wars, particularly World War II, in shaping societies for the Anthropocene (Bonneuil & Fressoz, 2013).
- **Making Discourse:** Modifying language of stratigraphy as to find words for novel phenomena
  - Anthro....cene is the only epoch in the current Cenozoic era to be named after 'the dominant force in its Earth system

Good and bad

# 4 Science of/ in the Anthropocene



- Co-production of the Anthropocene
  - Anthropocene rendered more intelligible and portable in the wider context of society
  - Anthropocene affects the social practices of evaluating knowledge claims about global environmental change
- These processes are not coincidental but, as Jasanoff put it, '**maintained through more or less purposive action by identifiable actors**'
  - Influential role of IGBP network but also AWK
- Scientists increasingly '**not only analyse sustainability problems, but relate themselves to a societal transition process**' (Seidl et al. 2013: 9)
  - Recommendations about how to proceed practically from the Anthropocene
    - Reform current systems of governance in order to respond to the Anthropocene (Biermann 2014)
  - Anthropocene research
    - '**A daunting task lies ahead for scientists and engineers to *guide society* towards environmentally sustainable management during the era of the Anthropocene.**' (Crutzen 2002: 23)(emphasis added)
    - Science that is efficacious in delivering an 'international public good' (Ellis & Trachtenberg 2014: 124).

# Science of/ in the Anthropocene

- The Anthropocene embodies not just beliefs about how the world is but also how it ought to be
  - Indeed, some argue that Anthropocene reality only truly commences if and when Anthropocene societies emerge that are aware of their role in the Earth system and prepared to take up responsibility for it (Steffen et al. 2011a: 860; Palsson et al. 2013).

## 4.1 Geographiacene?



- Privileged position of scientists
  - '[the planetary image] promises an imagined community as encompassing as the earth itself, but is this a community in which those without the power to patrol the heavens, to map and perhaps devastate the earth, can ever meaningfully participate?' (Jasanoff 2012: 98)
  - 'ESS may yet prove to be a re-invention of scientific privilege and practice [...] and where the claims to apprehend the real and complex are, once more, by the few on behalf of the many.' (Clifford & Richards 2005: 382)
- Anthropocene (analysis) exists not because we do because scientists do.
  - Our current age may not be that 'of humans' but rather that of 'geographers' – that is of those individuals, communities and systems that are able to know the Earth (system) or rather inscribe it with meaning (geo-graphia).

# 5. Next Steps

- Evaluate the instruments through which these scientists have come to know the anthropocene such as the I-PAT diagram
- Investigate how the Anthropocene is taken up by other actors – how this knowledge is localised
  - ...Through cultural practices which endow objects with legitimacy and meaning
  - ....By way of changing individual and collective identities
- For Anderson and Scott who have written on imagined communities, the 'power of representation lies not so much in the resources invested in creating them (though these are not irrelevant) as in the resources used to disseminate them, so that they alter the behaviour or command the belief of masses of sentient human actors.' (Jasanoff 2004: 25)

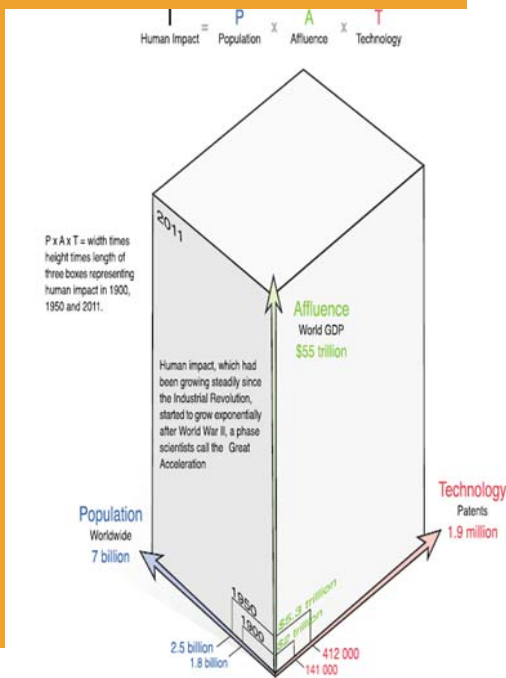


Fig. 2 I = PAT identity at the global scale from 1900 to the present. Note the difference in volume between the 1900-1950 period and the 1950-2011 period, which represents the Great Acceleration (Kolbert 2011)

# Haus der Kulturen der Welt



- Closing events (October 2014)
  - Forum of the Anthropocene Working Group (AWG) at the ICS
    - First meeting will be 'a socio- and science-political forum'
    - The forum discusses both the extraordinary changes to the Earth system as well as its consequences in setting new agendas for governing, researching, and disseminating knowledge.
    - Comprises: short presentations by members of the AWG & input statements by invited speakers from the humanities, the social sciences, and political fields
- Anthropocene Curriculum (since 2013)
  - An ongoing negotiation across disciplinary lines, taking place as a multistage, online-based process of active knowledge production.
  - Including Campus (November 2014)
    - Which puts curriculum to the test by discussing concrete case studies with 100 young academics, artists, and cultural producers

## 6 Difficulties

- Theoretical basis
  - Application of co-production idiom (shortcomings, pitfalls)
  - Other approaches (Non-representational theory; geographical imagination)
- Methodological approach for next steps?
- Breath vs. depth of Anthropocene discourse
  - ICS focus
  - Historical parallels?
- Geographiacene?
- How to reconcile the notion that scientific representations reflect no one's unmediated observations of the world and the notion that they are yet recognized and accepted as real?



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