CEED
The Centre for Earth Evolution and Dynamics

Menneskets tidsalder

Henrik H. Svensen

INTERNATIONAL CHRONOSTRATIGRAPHIC CHART

IUGS

www.stratigraphy.org

International Commission on Stratigraphy

v 2014/02

Units of all ranks are in the process of being defined by Global Boundary Stratotype Section and Points (GSSP) for their lower boundaries, including those of the Archean and Proterozoic, long defined by Global Standard Stratigraphic Ages (GSSA). Charts and detailed information on ratified GSSPs are available at the website http://www.stratigraphy.org. The URL to this chart is found below.

Numerical ages are subject to revision and do not define units in the Phanerozoic and the Ediacaran; only GSSPs do. For boundaries in the Phanerozoic without ratified GSSPs or without constrained numerical ages, an approximate numerical age (~) is provided.

Numerical ages for all systems except Lower Pleistocene, Permian, Triassic, Cretaceous and Precambrian are taken from 'A Geologic Time Scale 2012' by Gradstein et al. (2012); those for the Lower Pleistocene, Permian, Triassic and Cretaceous were provided by the relevant ICS subcommissions.

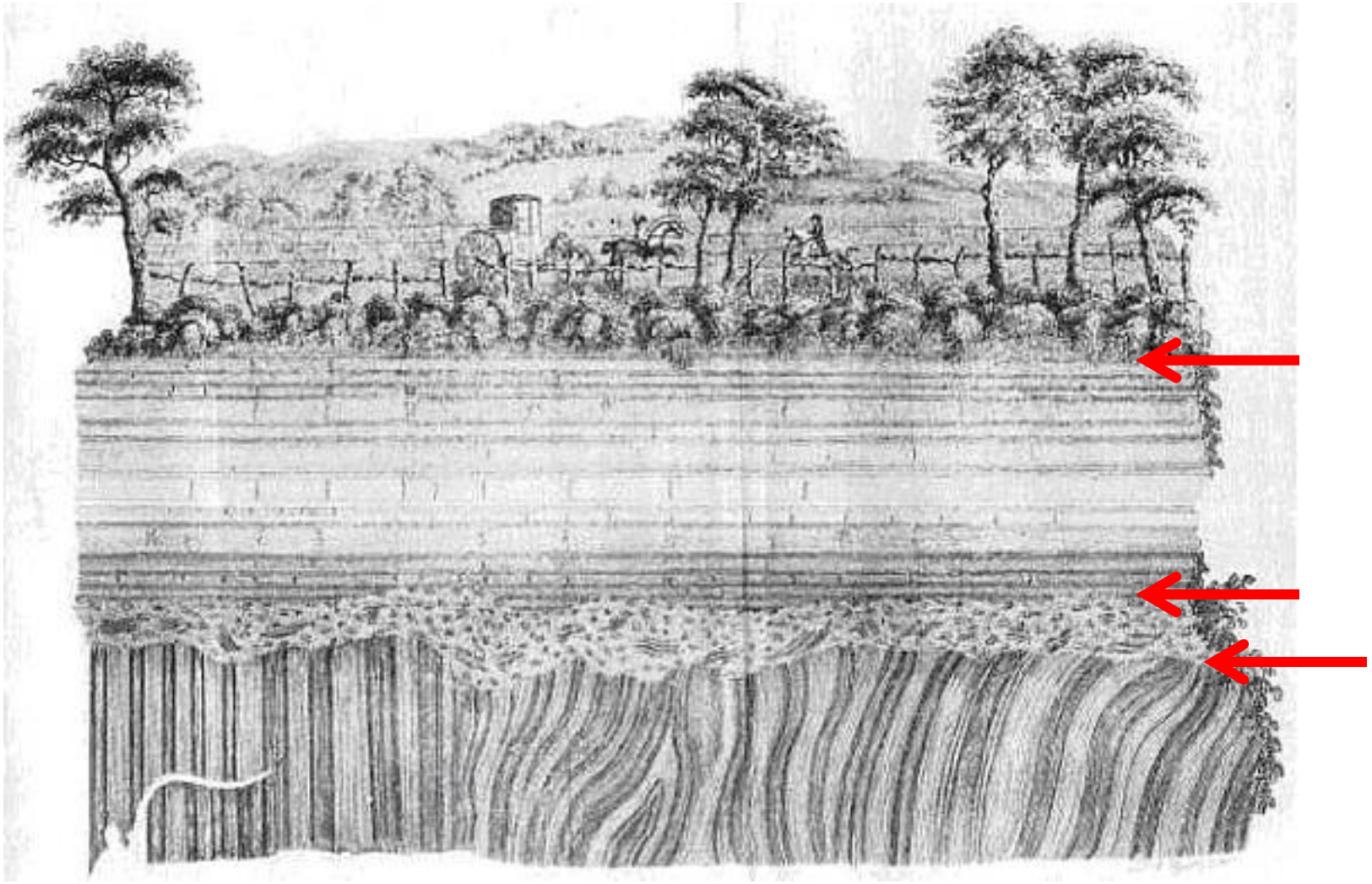
Coloring follows the Commission for the Geological Map of the World (http://www.cgmw.org)

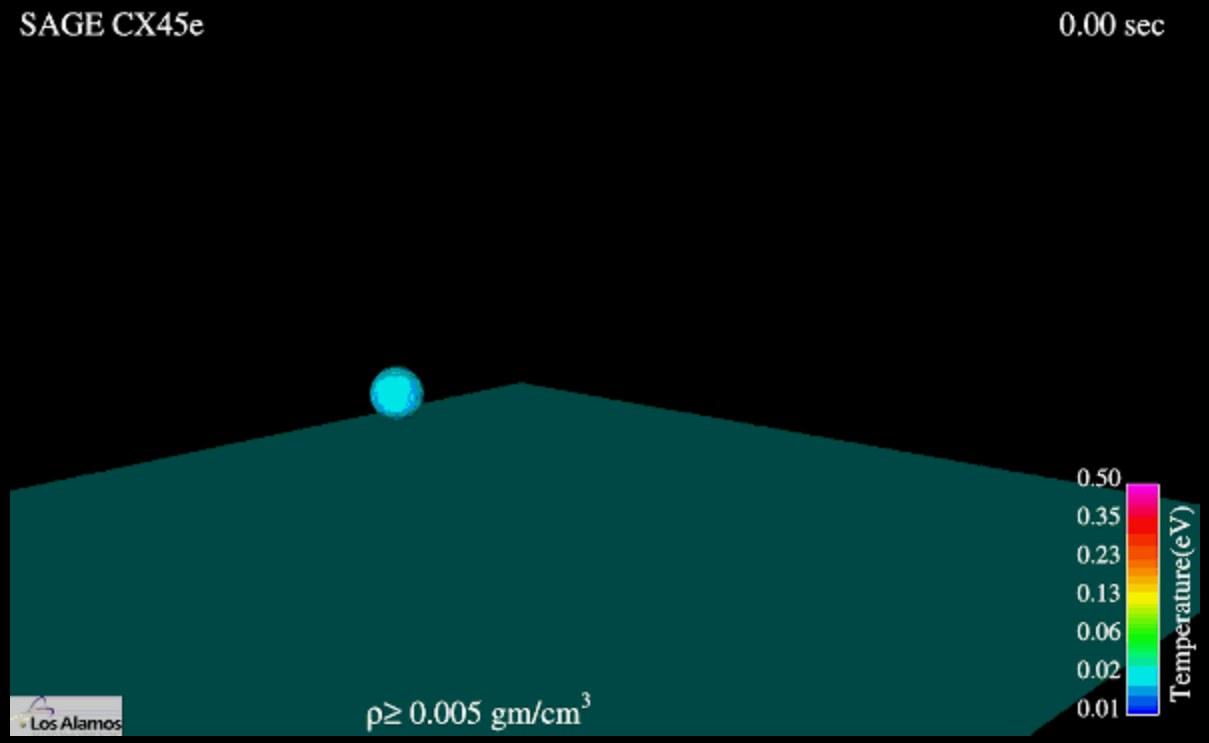
Chart drafted by K.M. Cohen, S.C. Finney, P.L. Gibbard
(c) International Commission on Stratigraphy, February 2014

To cite: Cohen, K.M., Finney, S.C., Gibbard, P.L. & Fan, J.-X. (2013; updated) The ICS International Chronostratigraphic Chart. Episodes 36: 199-204.

URL: http://www.stratigraphy.org/ICSchart/ChronostratChart2014-02.pdf

Stratigrafi





Simulation: Galen Gisler

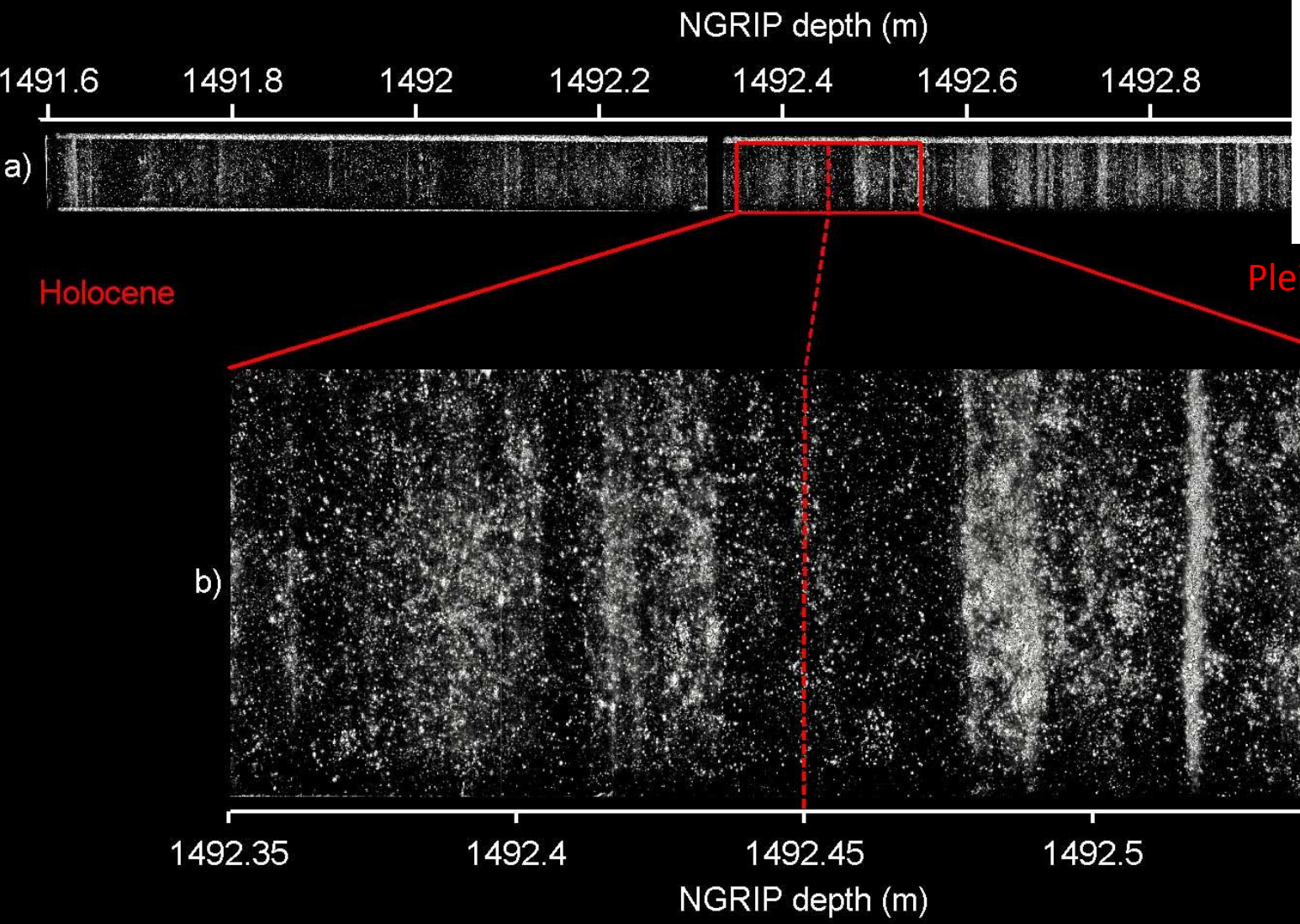
Æra

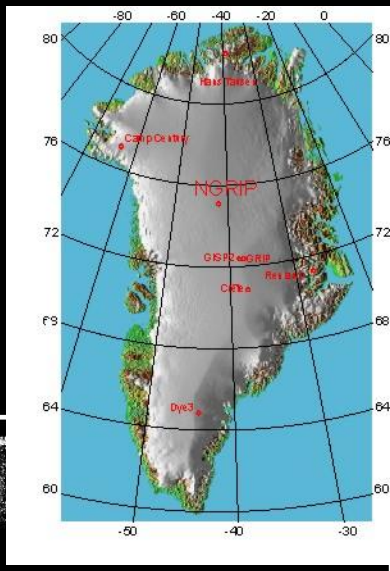
Den kvartære perioden:

40 istider

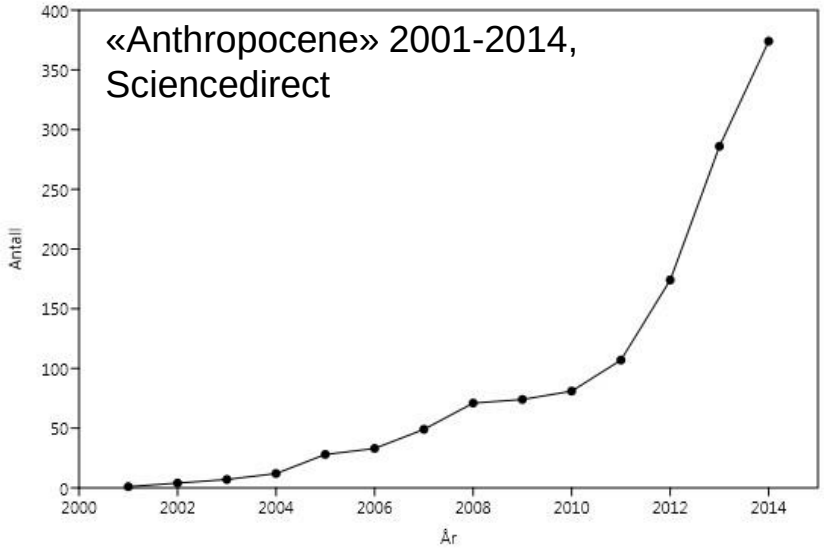
de siste 2,7 mill. år

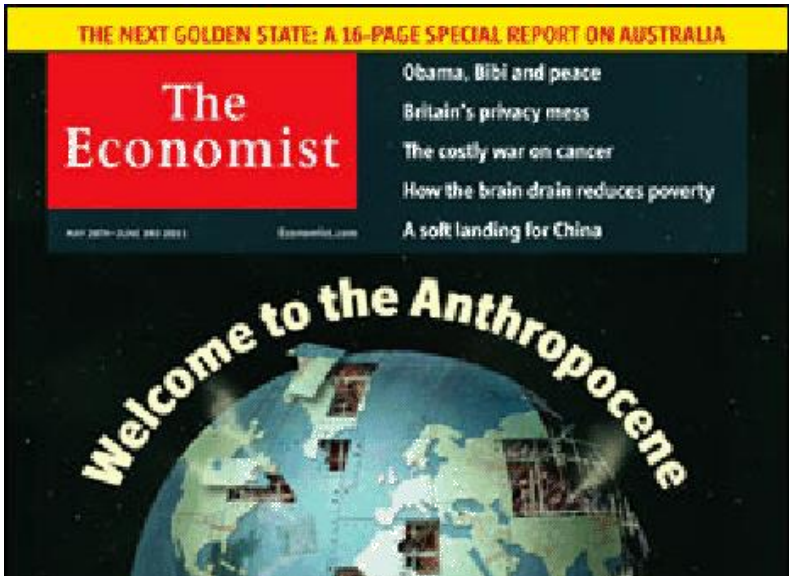
Den holocene epoken





Ideen om antropocen





- Paul Crutzen and Eugene Stormer, 2001
- Politisk motivert
- Ikke formelt akseptert
- Men etablert i faglitteraturen og ellers i samfunnet

Antonio Stoppani:
The Anthropozoic Era

Vladimir Vernadsky:
The Psychozoic Era

Biosphere – Geosphere – Noosphere

Robert Lionel Sherlock:
Man as a geological agent (1922)

Postapocalypse stratigraphy: Some considerations and proposals

E. C. Prosh, A. D. McCracken
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ABSTRACT

An imminent nuclear apocalypse will be a geologically significant event characterized by widespread extinction and marked by a highly radioactive lower boundary layer. The concept of a fallout-enriched Cenozoic/postapocalypse boundary layer is significant in that such a horizon would constitute an ideal, global isochron that is both readily detectable and correlatable; the only other systemic boundary that appears to be analogous is the Cretaceous/Tertiary boundary. New terminology consistent with the established stratigraphic nomenclature is herein proposed for the major anticipated postapocalypse geochronologic units.

INTRODUCTION

In recent years, the Cretaceous/Tertiary boundary has attracted a surge of interest currently unparalleled in geology. Anomalous enrichments of certain elements in cosmic abundances (particularly iridium and

following partial destruction of the ozone layer would most certainly devastate the global biota. Ehrlich et al. (1983) predicted extinction of most tropical plants and animals, most terrestrial vertebrates in north temperate regions, many plants, and numerous freshwater and some marine biota. These estimates suggest an overall level of extinction of roughly the same scale as the five major Phanerozoic extinctions (Raup and Sepkoski, 1982); for comparison, the Cretaceous/Tertiary boundary is marked by an 11% reduction at the family level. Recovery times to re-establish pre-extinction levels of familial diversity appear to be on the order of 10 to 20 m.y. (see Raup and Sepkoski, 1982, Fig. 2).

Thus, any future preapocalypse to postapocalypse transition would be marked, on a coarse scale, by a major faunal depletion. On a finer scale, the actual boundary itself would be marked by a thin, highly radioactive layer representing the geologically brief interval of fallout deposition, in direct analogy to the thin Ir-Os–rich boundary clay at the Cretaceous/Tertiary transition. Along with the standard heavier fission products, some 300 different fission-produced isotopes of 36 light ele-

Geology, 1985

Modifisert natur

Current World Population

7,408,285,851

view all people on 1 page >

TODAY		THIS YEAR	
Births today	356,345	Births this year	28,589,446
Deaths today	149,228	Deaths this year	11,972,480
Population Growth today	207,117	Population Growth this year	16,616,965

Ditt slektstre

Viktig Melding

3D People Counting Sensor

Høyre i Buskerud

WORLD POPULATION SECTIONS

20 Countries LIVE by Region

Current World Population

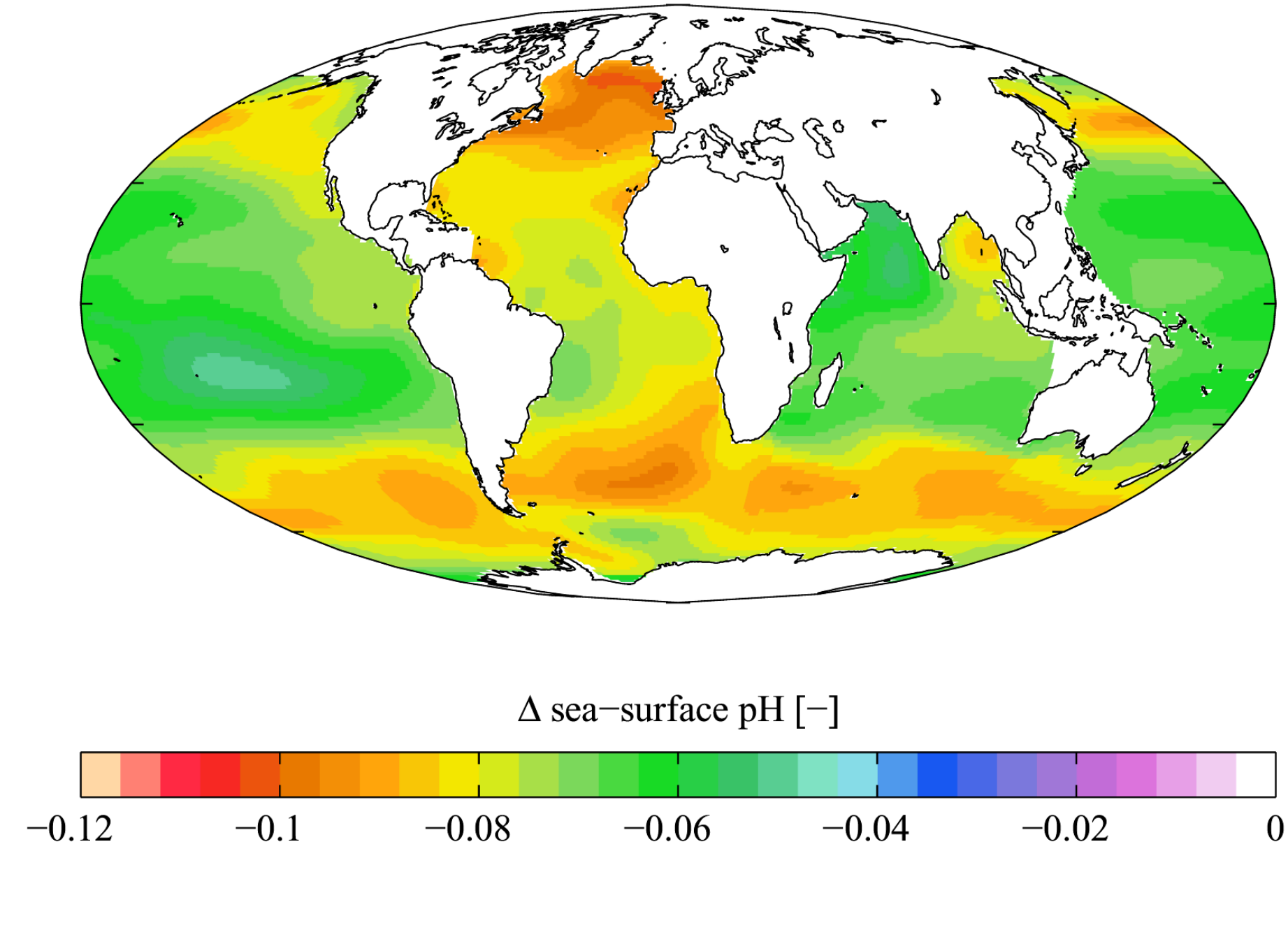
7,366,468,523

view all people on 1 page >

TODAY		THIS YEAR	
Births today	185,212	Births this year	99,768,979
Deaths today	77,562	Deaths this year	41,780,527
Population Growth today	107,650	Population Growth this year	57,988,452

WORLD POPULATION SECTIONS

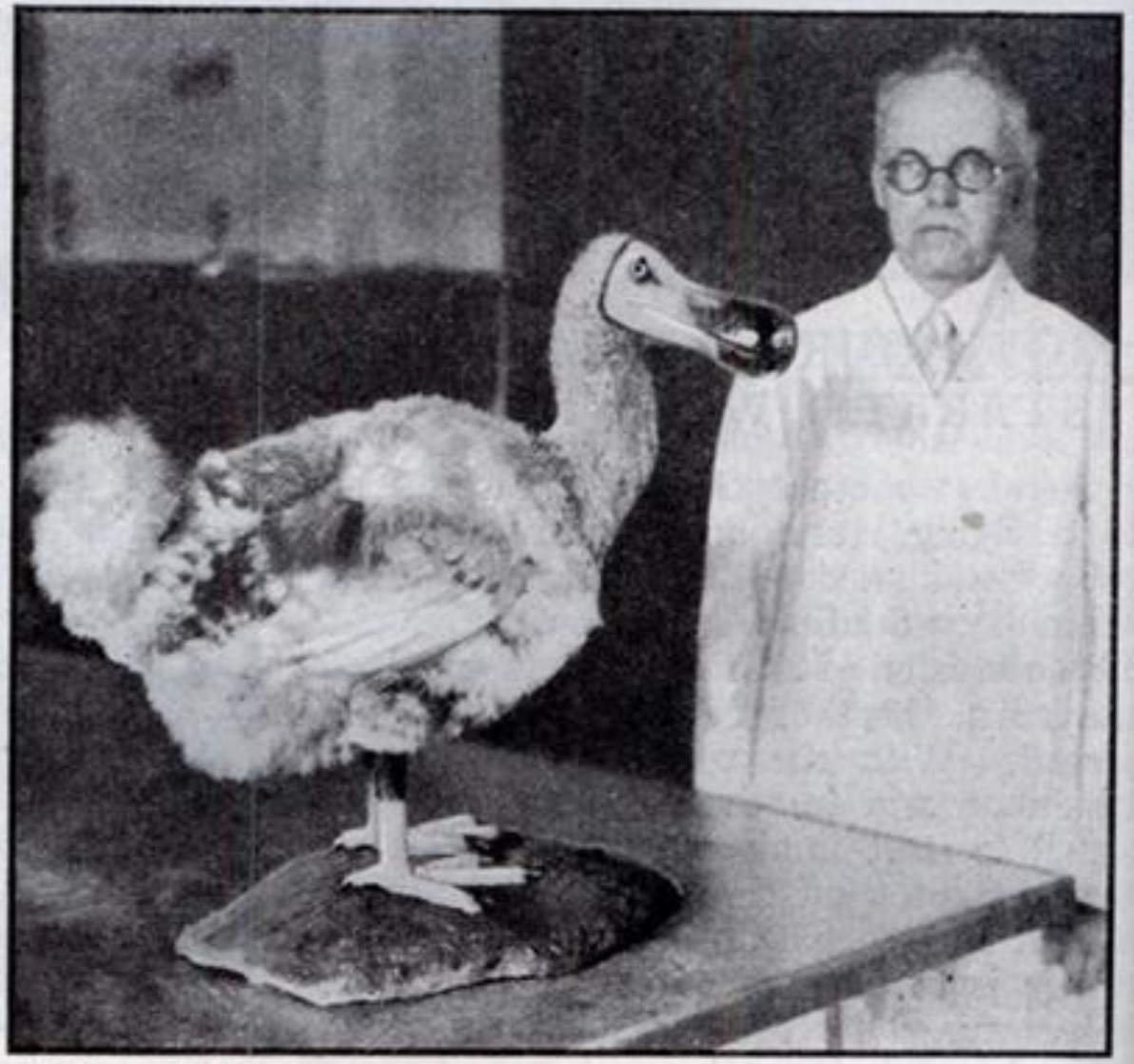
~350 Gt C


Δ sea−surface pH [−]
−0.12
−0.1
−0.08
−0.06
−0.04
−0.02
0


Nitrogen, fosfor, bly

RECONSTRUCTS EXTINCT DODO BIRD

FAMILIAR as a figure of speech is the dodo bird—but no one living ever saw one, until Prof. Homer Dill, of the University of Iowa Museum, set out to re-construct the strange bird for modern eyes. After a search of many years, in which he examined crumbling old manuscripts and gathered information and measurements, he has just completed a restoration of the dodo. The original dodo bird was a flightless pigeon larger than a turkey. It lived on the island of Mauritius, off the eastern coast of Africa, until it became extinct about 1681. It had an enormous bill, short legs covered with scales, and curly tail feathers as shown in picture at the right.



Homer Dill, of University of Iowa Museum, and his reconstruction of the dodo bird which became extinct in 1681.

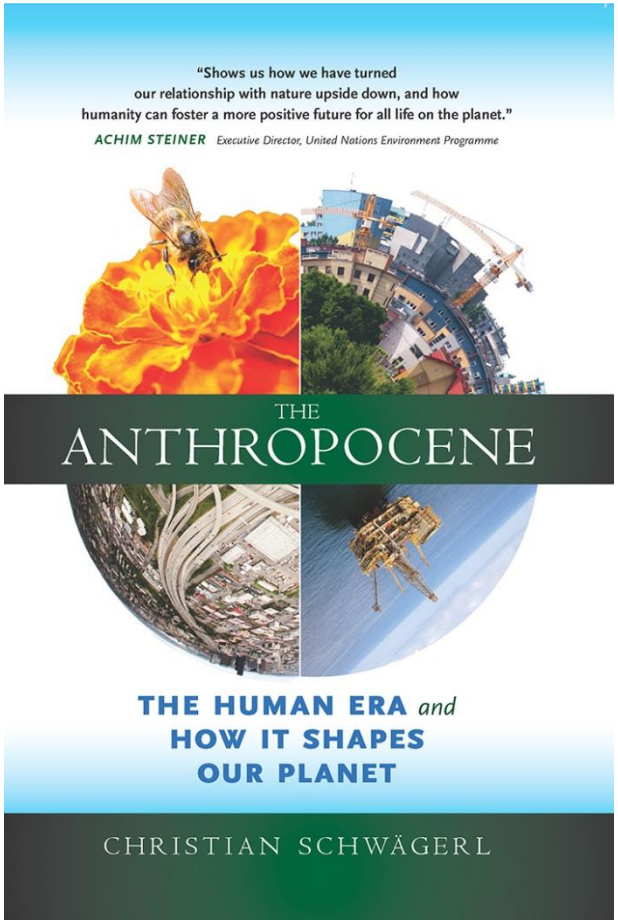
Modifisert terreng: >50 %

Nye stratigrafier

Hvem er hvem i antropocen?

- **Viktige forskere** (Paul Crutzen, Jan Zalasiewich)
- **Tenkere** (Christian Schwagerl, Bruno Latour,)
- **Skeptikere** (ikke mange)
- **Debatter**

(i Norge: Vagant)



The Antropocene Working Group

- Del av den Intern. Commission on Stratigraphy
- Skal rapportere i August 2016
- Aktive for å etablere antropocen

antropocen = geologi?

www.geologicnow.com

MAKING THE GEOLOGIC NOW

RESPONSES TO MATERIAL CONDITIONS OF CONTEMPORARY LIFE

edited by
Elizabeth Ellsworth + Jamie Krus

Er geologene de nye heltene?

«Og hvis vi lever i antropocen, betyr det at vi har våre *géologues* som opplysningstiden hadde sine *philosophes*? Nei. Åpenbart ikke.»

Kristian Bjørkdahl

Vagant 1/2015

Mennesket som en geologisk kraft

Metafor

“Intellectually as well as materially, the Anthropocene is a deeply cultural phenomenon.”

“…the Anthropocene is a grand tale about humanity and its place in the world told using a repertoire of tropes.”

“For all its talk of rocks, species and the deep past, it is as much as about imagination, futures, and the divine as it is about scientific knowledge, practices, and institutions.»

Rickards 2015, Geographical Research.

Når?

THE ANTHROPOGENIC GREENHOUSE ERA BEGAN THOUSANDS OF YEARS AGO

WILLIAM F. RUDDIMAN

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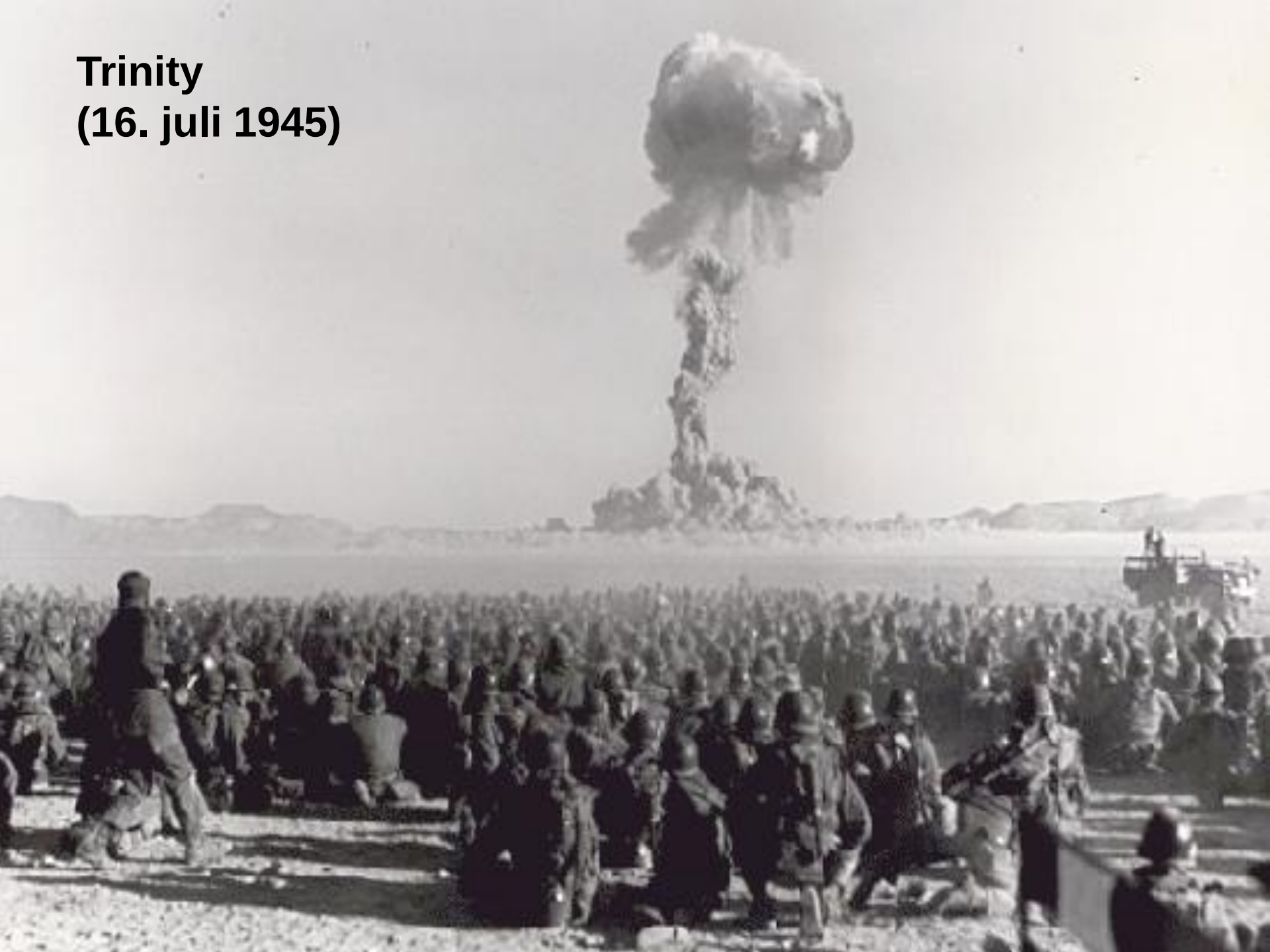
Abstract. The anthropogenic era is generally thought to have begun 150 to 200 years ago, when the industrial revolution began producing CO_2 and CH_4 at rates sufficient to alter their compositions in the atmosphere. A different hypothesis is posed here: anthropogenic emissions of these gases first altered atmospheric concentrations thousands of years ago. This hypothesis is based on three arguments. (1) Cyclic variations in CO_2 and CH_4 driven by Earth-orbital changes during the last 350,000 years predict decreases throughout the Holocene, but the CO_2 trend began an anomalous increase 8000 years ago, and the CH_4 trend did so 5000 years ago. (2) Published explanations for these mid- to late-Holocene gas increases based on natural forcing can be rejected based on paleoclimatic evidence. (3) A wide array of archeological, cultural, historical and geologic evidence points to viable explanations tied to anthropogenic changes resulting from early agriculture in Eurasia, including the start of forest clearance by 8000 years ago and of rice irrigation by 5000 years ago. In


Trinity
(16. juli 1945)

Fremtiden

Dikotomier

→ **Integrering vs dominans**

→ **Determinisme vs ikke-determinisme**

- Den eneste epoken definert av aktivitetene til en art
- Vi kjenner ikke konsekvensene
- Den har ingen ende
- Åpner opp nye kunnskapsfelt
- Nytt og uutforsket rom mellom oss, naturen og den dype tiden