

Anthropocene In C Major

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Abstract

‘Anthropocene In C Major’ is an experience of impact on earth, felt through an immersive AV installation that turns data into sound. From 12,000 years ago to the present, participants will hear breakthroughs like the invention of the wheel and the Industrial Revolution, but also data trends that show the exploitation of people and the planet. At what now seems like a breaking point for our species, what can we learn from listening to the past, and what meaning can this bring to our present? Anthropocene In C Major provokes a response to climate change for a species paralysed by its own extractive structures. It invites us to confront and understand our own ecological and systemic grief, through the form of sonification, and within the scale of our modern existence on Earth.

Description of the work

The ICAD version of Anthropocene In C Major (1) is an embedded online stereo film. As sound follows movement of data events over the time, visuals mirror the data type with a horizontal band of archive footage. For example at the beginning of the Holocene we see Global CO₂ & Sea Level data as a split screen of sea and sky, with archive footage of a hunting expedition representing a period of Megafauna Extinction (see fig 1). Over the course of the piece, the representations become more layered and complex as we move forward in time, reaching an intense conclusion as we join the present day (see fig 2 & 3). Anthropocene In C Major represents twenty-three earth system and socioeconomic data trends, a fraction of the planet’s data stories, but even this becomes an overwhelming narrative that is almost impossible to follow. At times this complexity is turned into a Rorschach reflection of the images about the screen’s central axis, described in recent reviews as “nature looking back at you” and a “creation born of our own anthropocentric hubris”.

Artist’s statement

“Sonifying an object to feel the issues and information within it is a small act in provoking response. In listening it is now a way to confront, express and experience the issues behind climate change, a practice that breaks down aspects of a seemingly impenetrable hyper-object. What is revealed is that whether we see it or not we are all somewhere in the stages of ecological grief with inexorable links to consistent, inherited, systemic trauma. We’re also trying to navigate change through increasingly muddy water; it’s difficult to know which way to turn. So how do we not become paralysed? How do we find hope and reconstruction? What’s the process of getting to a place where we can respond? I now consistently question the structures that have, only relatively recently, put us on an adversarial course with the natural systems that sustain us. Through sound practice, we learn how to listen. Listen to nature. Listen to our indigenous, our youth, our marginalised. They know how to deconstruct false binaries. They know how to flatten the curve of our colonial trajectory, and joyfully rewild its perpetuated myths. I’m still learning how to listen.”

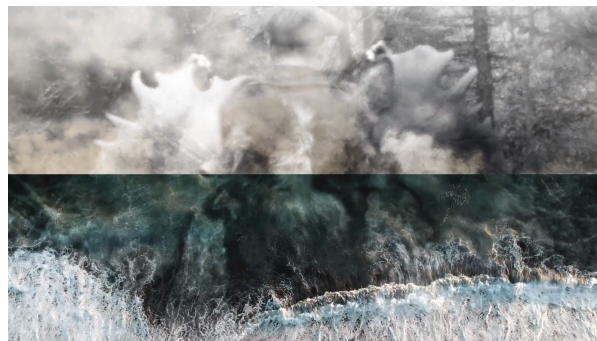


Fig 1. Anthropocene In C Major - image - snapshot at 10,000 BCE. Global Co₂ Levels represented by sky archive footage (top half of screen). Global Sea Level represented by ocean waves archive footage (bottom half of screen). Superimposed over Megafauna Extinction represented by archive hunting footage. Copyright Jamie Perera



Fig 2. Anthropocene In C Major - image - snapshot @ 16:42 in date range -3,000 to -500 KYA. Global Surface Temperature Levels represented by desert sun archive footage (top quarter of screen). Global Co₂ Levels represented by birds on poles archive footage (second from top quarter of screen). Global Population represented by digging workers archive footage (third from top quarter of screen). Global Sea Level represented by ocean waves archive footage (bottom quarter of screen). Superimposed over Creation of anthropogenic soils represented by farmer archive footage. Copyright Jamie Perera.



Fig 3. Anthropocene In C Major - images - various screenshots. Copyright Jamie Perera.

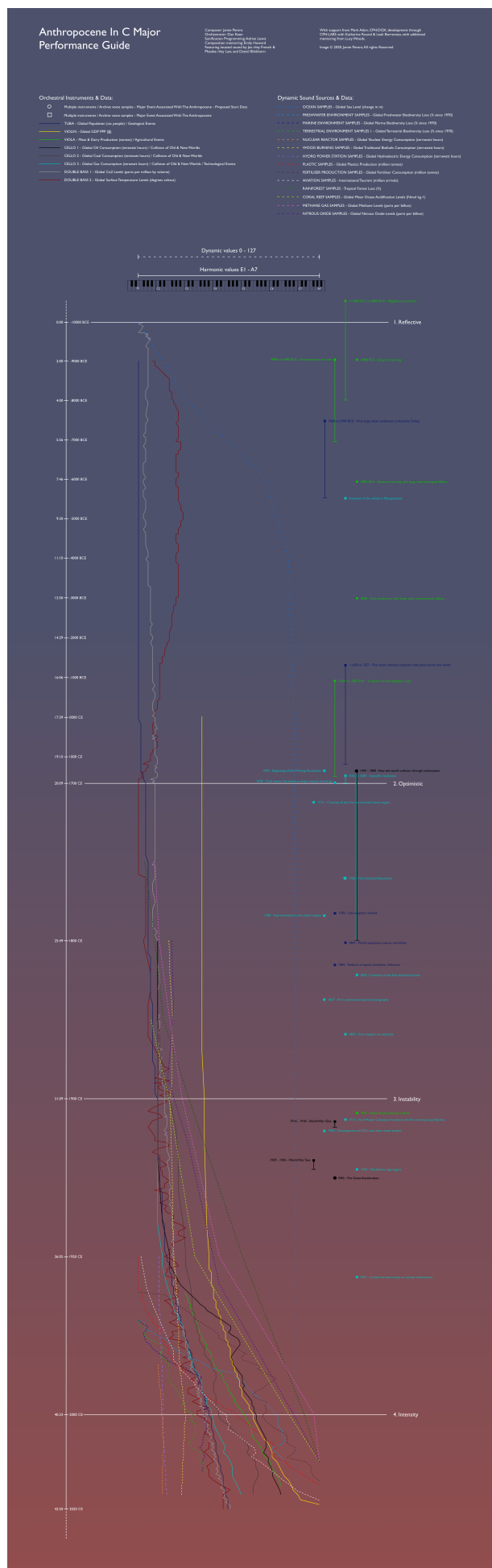


Fig 4. (left column on this page) Anthropocene In C Major - image - Performance Guide. Copyright Jamie Perera.

Sonification method

Harmonic (chromatic note value) sonifications are used for data types represented by instruments (tuba, violin, viola, cello and double Bass), using the highest / lowest note of each instrument to correspond to the highest / lowest value of the dataset it is representing, with all data points in between mapped within the scale this creates. Values are kept relative within Global Primary Energy Consumption data set between Oil, Coal and Gas. For Major Events Associated with the Anthropocene, multiple instruments play harmonic riffs spanning time periods, or single notes for single events. Choices on which instrument plays for which event / period is determined by how similar the event / period is to that instrument's dataset. For example I chose viola to represent agricultural events like "The Origin of Farming" as its main dataset is "Meat and Dairy Production".

Dynamic sonifications are used for all other datasets, within a dynamic range of 1 – 127, using the highest / lowest volume value to correspond to the highest / lowest value of the dataset it is representing, with all data points in between mapped within the scale this creates. Values are kept relative within Global Biodiversity Decline dataset between Ocean, Freshwater and Marine categories. Values are kept relative within Global Primary Energy Consumption dataset between Nuclear, Traditional Biofuels and Hydroelectric categories.

See fig 4 for a visual guide to the piece. To download the full resolution vertical chart visit this link: <https://tinyurl.com/mryek42m>. For a detailed breakdown of sonification methods and data sources refer to "<https://tinyurl.com/4f26y5yf>".

Data type & corresponding instrument / sound

Data type (global):

Major Anthropogenic events (2)

Human population (3)

GDP PP (4)

Meat & dairy production (5)

Oil consumption (6)

Coal consumption (6)

Gas consumption (6)

Co2 levels (7)

Surface temperature (8)

Sea level (9)

Freshwater biodiversity loss (10)

Marine biodiversity loss (10)

Terrestrial biodiversity loss (10)

Nuclear energy use (6)

Trad. Biofuels energy use (6)

Hydroelectric energy use (6)

Plastics production (11)

Fertiliser consumption (12)

Tourism (13)

Tropical forest loss (14)

Mean ocean acidification (15)

Methane levels (16)

Nitrous oxide levels (17)

Instrument / sound:

Multiple instruments /
Archive voice samples

Tuba

Violin

Viola

Cello 1

Cello 2

Cello 3

Double Bass 1

Double Bass 2

Ocean samples

Freshwater samples

Marine samples

Terrestrial samples

Nuclear samples

Biofuel samples

Hydroelectric samples

Plastic samples

Fertiliser samples

Aviation samples

Rainforest samples

Coral samples

Methane samples

Nitrous oxide samples

Sonification issues and considerations

Every sonification considers issues of accuracy, agency, accessibility, narrative and art around objects to be sonified.

Within this there are a few decisions I've made for Anthropocene in C Major that should be noted here:

Data selection criteria:

Data has been selected by reviewing studies on anthropogenic events, earth system trends and socioeconomic trends. A key guide that brings together many papers on the anthropocene has been "Welcome to the Anthropocene" an online resource created by Albaeco, Commonwealth Scientific and Industrial Research Organization (CSIRO), Globaia, International Geosphere-Biosphere Programme (IGBP), International Human Dimensions Programme on Global Environmental Change (IHDP), Stockholm Resilience Centre and Stockholm Environment Institute (18). This defines major events in the Anthropocene, and trends that have played a central role in the formalisation of the Anthropocene epoch in Earth history. I've selected data using this resource, and then researched and included data in areas that I believe to be salient in the public discourse on climate change, such as fossil fuel consumption and biodiversity loss.

Data omissions:

There are a number of data trends that have been omitted either because there were not enough instruments available in the original commission (see fig 5), or they would have been inaudible. There some data threads that upon review I would like to include in a future update when resources are available, for example socio-economic and earth system trends such as Water Use and Domesticated Land (see further examples at <https://www.anthropocene.info/great-acceleration.php>). Examples of data trends that were omitted due to being inaudible are solar and wind power consumption which are dwarfed by other energy sources such as oil, coal and gas.

Fig. 5 Anthropocene In C Major - images - score excerpts highlighting the four movements - Reflective (-9980 BCE to 1700), Optimistic (1700 to 1900), Instability (1900 - 2000) and Intensity (2000 - present).

Global tempo:

For aesthetic purposes, the tempo of the piece slows dramatically once we reach 1700 CE, slows again when we reach 1900 CE, and a final time when we reach 2000 CE, creating four movements named "Reflective", "Optimistic", "Instability" and "Intensity". This is because most of the data that describes our "great acceleration" into the present starts from 1700 onwards, and there are only four data threads that start at or near the beginning of the Holocene – Surface Temperature Anomalies, Global Sea Level Rise, World Population, and Global Co2 Levels. There is a case for a version of Anthropocene In C Major consisting of many hours of monotonous drone for the sake of temporal accuracy, but in order to fit the piece into a digestible format I've chosen not to go down that route for now.

Credits:

Composer: Jamie Perera
AICM Abstract film: Jamie Perera
AICM Live film: Katharine Round
Orchestrator: Dan Keen
Sonification Programming: Adrian Lewis
Composition mentoring: Emily Howard
Located sound by Jez Riley French and Pheobe Riley Law
Development: Developed in CPH:LABS as part of the Climate Symphony works by Jamie Perera, Katharine Round and Leah Borromeo.

Author Biography

Jamie Perera uses sound to deconstruct objects in ways that create provoking experiences for listeners. His work explores radical deconstruction, re-imagining and reclamation, whilst challenging the conventions between music, sound and data.

He is the first artist to sonify the Holocene period with the score "Anthropocene In C Major", now touring internationally, with excerpt "Oil, Coal & Gas for 3 Cellos" commissioned by the Serpentine's General Ecology Project. Other notable work includes sonifying Twitter with intersectional voices for the FT's COP26 Global Gallery, using radio static for an Emmy nominated film about child poverty in the USA, making music from mathematical proofs with mathematician Marcus Du Sautoy, generating a sonic "elephant in the room" to highlight data privacy issues for Mozilla, representing deaths from Coronavirus in the UK in a twenty four day performance, using sound to show differences in conscious state with neuroscientist Anil Seth and creating a soundtrack out of guns for Amnesty International. He has given talks on his practice that include The Royal College of Art, The Financial Times, RNCM, WMA Hong Kong, the AKV Joost Ecology Futures MA, We Make Tomorrow Summit, and participated in the Serpentine's Back to Earth Summit with Hans Ulrich Obrist and Brian Eno. He is an associate of PRISM, the RNCM Centre for Practice & Research in Science & Music, and part of the Crossover Labs, Forma and Liquid Architecture Art collectives. Jamie has been released worldwide as Lo Freq alongside Cinematic Orchestra, Mark Ronson and Matthew Herbert. His writing collaboration with Lubomyr Melnyk on his album Rivers and Streams on Erased Tapes Records received five stars in The Guardian with critical acclaim around the world. He is credited on over 40 films including winners of The Grierson Award, RTS Award, and BAFTA and EMMY nominations, with mentions in numerous publications including Forbes, WIRED, The Guardian, Pitchfork, and the FT. His passion is in challenging the conventions between music, sound and societal issues, whilst still making accessible work, and encouraging 'happy accidents' in interactions and creation.

Copyright and affiliations

The Anthropocene in C Major score, recording, various iterations, performance guide and AICM abstract film and images are wholly owned by Jamie Perera.

Weblinks

Access the ICAD installation of Anthropocene In C Major at this link: <https://vimeo.com/721061525/8d10667338>.

To download the vertical chart visit this link: <https://tinyurl.com/mryek42m>.

For a detailed breakdown of sonification methods and data sources refer to <https://tinyurl.com/4f26ySyf>

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