FRAME | RATE
Pulse of the Earth

"A landscape painting made of billions of digital points that you can 'live' inside"

Will Hodgkinson - The Times

22nd March - 21st April 2025
Sun - Thurs 11:00 - 16:00, Fri - Sat 11:00 - 18:00

ScanLAB Projects

SXSW

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MOSTRA INTERNAZIONALE
D'ARTE CINEMATOGRAFICA
LA BIENNALE DI VENEZIA

BFI LONDON
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About FRAMERATE: Pulse of the Earth

FRAMERATE: Pulse of the Earth's hypnotic imagery bears witness to landscapes in flux. The impact of human behaviour and the immense force of nature unfolds around you across an array of screens. This is a space where your perspective may shift.

FRAMERATE: Pulse of the Earth is an immersive installation created from thousands of daily 3D timelapse scans of British landscapes. The work observes change on a scale impossible to see with the lens of traditional cameras.

The work reveals alterations caused by human-centred industry and the immense forces of nature; destruction, extraction, habitation, construction, harvests, growth, and erosion. Three-dimensional stories unfold across an array of screens. Hypnotic imagery surrounds you. Audio shifts through the space. Spring breaks, summer sun shines through the leaves as they turn amber and fall a second later. In a quaint English garden a pumpkin grows. A thousand tonnes of steel are crushed. Sand ebbs and flows while a cliff retreats. 268 cows are milked. 519 pints are drunk.
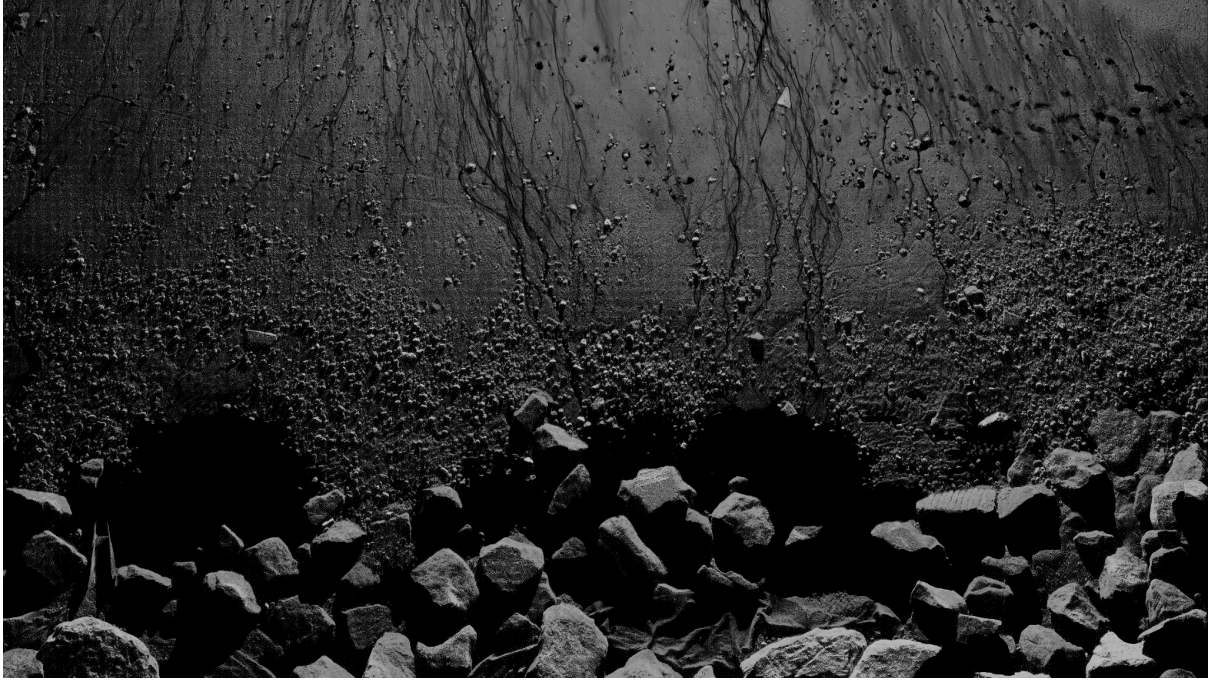
The technology behind FRAMERATE: Pulse of the Earth

FRAMERATE is created using 3D LiDAR scans.

LiDAR (Light Detection and Ranging) is a remote sensing technology that uses laser pulses to measure distances and create highly detailed, three-dimensional maps of surfaces and environments. By emitting laser beams and measuring the time it takes for them to reflect back from objects, LiDAR can capture precise data about landscapes, buildings, vegetation, and more. This technology is widely used in fields like surveying, metrology, geography, archaeology, and environmental science to map physical environments, study ecosystems, and model terrain, as well as in autonomous vehicles for navigation.

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Curriculum links

FRAMERATE: Pulse of the Earth is relevant to many aspects of the GCSE and A Level science, geography, and art curricula. The installation is about environmental change; it offers a unique perspective on landscape-scale change over time as a result of not only human behaviour but the forces of nature. It does so using cutting-edge technology. At the same time, it is an artwork which invites its audience to observe in another way; to think and feel in another time scale.

Summary

FRAMERATE ties in with the following syllabus points:

		Themes
Geography	**GCSE**	*The Challenge of Natural Hazards*: Climate change, causes and evidence, and management strategies. *Physical Landscapes in the UK*: Processes of change and human impacts on the natural environment. *The Living World*: Ecosystems, biodiversity, and sustainable management. *Urban Issues and Challenges*: The environmental impact of urban growth.
	A-Level	*Water and Carbon Cycles*: The interplay of natural systems and human impact on these cycles. *Contemporary Urban Environments*: Sustainable management and monitoring environmental change. *Hazards*: Climate change as a contributing factor to natural hazards. *Geographical Skills*: Use of technology like Lidar in data collection and visualization.
Biology	**GCSE**	*Ecosystems*: Interdependence, biodiversity, and the impact of human activity. *The Environment*: Evidence and impacts of climate change.
	A-Level	*Biodiversity and Ecosystems*: Human influence on ecosystems, conservation biology.
Physics	**GCSE**	*Waves and Light*: Principles behind Lidar technology.

		Forces and Motion: Environmental changes observed over time.
	A-Level	*Imaging Technologies*: Applications of Lidar and its principles.
		Mechanics: Understanding motion and change within natural systems.
Art & Design	**GCSE**	*Critical Understanding*: Analyzing how artists explore environmental and social issues.
		Creative Response: Using mixed media and technology in creative practice.
	A-Level	*Interdisciplinary Practice*: Combining technology and fine art.
		Critical Contexts: Exploring contemporary approaches to environmental art.
		Sustainability: Addressing global issues through artistic practice.

Deep Dive: Coastal Erosion

Coastal erosion is a significant issue along the Norfolk coast, where the combination of natural processes and human activity is causing some of the fastest rates of erosion in Europe - some of the areas along the North Norfolk coast are eroding at a rate of on average 2m/year. The soft cliffs along much of the coastline, composed of sand, clay, and gravel, are particularly vulnerable to erosion by wave action, tidal currents, and weathering. This is further exacerbated by the fact that Norfolk is vulnerable to North Sea storm surges, which can lead to significant coastal flooding and accelerate erosion, and rising sea levels more generally.

One of the locations that was scanned for FRAMERATE was Happisburgh, which is suffering erosion at a rate of 2-5m per year.

The unique perspective offered by the scan allows us to see the beach change over time. Furthermore, the LiDAR scans have formed a dataset invaluable to scientists looking to understand the process of coastal erosion; this dataset was published in [Nature Scientific Data](#).

Deep Dive: Technology and Art

ScanLAB's practice is itself an exploration of the role of technology in art. We see LiDAR scanners as the future of photography; the data we have captured for FRAMERATE is, in its raw form, an invaluable scientific resource, but processed through our software and shown on the screens that surround you in the installation, it becomes an artwork.

We are running a series of participatory workshops alongside the exhibition on 3D scanning and its implications for art and creative practice; we would love to invite any A Level students who are interested in exploring this to one of the workshops. To find out more, please email emilia@scanlabprojects.co.uk.

Deep Dive: Environmental Change

FRAMERATE: Pulse of the Earth is an installation about environmental change, be it driven by human action or the forces of nature. We know that we are living in a climate crisis; FRAMERATE: Pulse of the Earth offers us a different perspective on the way that the world around us is changing, from the growth of a vegetable garden and the process of 500 cows being milked over the course of a day, to a building being erected in a busy city centre and the erosion of a beach.

Activities and discussion questions

General

- FRAMERATE uses technology to visualise environmental change. How do digital and artistic representations of data help us understand issues like climate change differently from traditional graphs and reports?
- How do you think that seeing environmental change in a high-detail, timelapse format influences people's perception of climate change and sustainability?
- Should artists and scientists work together more often? Why, or why not?
- How could immersive installations like FRAMERATE: Pulse of the Earth be used to influence policy and public behaviour regarding environmental issues?

Geography

- How does FRAMERATE: Pulse of the Earth help us understand the impact of physical processes like erosion, flooding, and land use?
- Why is monitoring environmental change over time important for managing natural resources and landscapes?
- What factors contribute to coastal erosion in places like the Norfolk coast, and how might technology like LiDAR help in managing these issues?
- How do different coastal management strategies impact both the environment and human communities?
- What challenges do coastal communities face when adapting to environmental change, and what role does government policy play in this?

Science

- How does LiDAR work, and what makes it useful for monitoring environmental change?
- What evidence do scientists use to track climate change, and how does FRAMERATE contribute to this body of evidence?
- How do natural and human-induced processes interact to shape the landscapes we see in FRAMERATE?
- What are the limitations of using technology like LiDAR in environmental research?

Art

- How does FRAMERATE transform scientific data into an artistic experience?
- Do you think immersive art experiences are more effective in communicating environmental issues than traditional media? Why or why not?
- What techniques do artists use to create emotional responses in their audience, and how does FRAMERATE do this?
- How can artists use data and technology to create meaningful work about social and environmental issues?

Visiting the installation

The installation will be open from the 22nd March to the 21st April. Opening times will be 11am - 4pm Sun - Thurs, and 11am - 6pm Fri - Sat. To organise a school visit, please email Emilia Clark on emilia@scanlabprojects.co.uk.