

# Gaia: Establishing the World's First Climate Command and Control (C2) Centre

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## SUMMARY

Establishing Gaia, a Command-and-Control Centre focused on climate activity, based in Wales. It aims to apply command and control principles to the evolving map of climate data and explore how such data can be integrated with policy, and with other information: resources and vulnerabilities to influence behaviour change on a regional and national level.

## KEYWORDS

Climate Ergonomics, Climate Change, Command and Control, C2.

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## Introduction

This paper sets out a vision for the launch of Gaia, a new collaborative facility that seeks to bring together climate thinking, Command and Control (C2) and coordination/integration of subjects with an express aim of supporting climate-based decision making at local, regional and national levels.

Gaia is the world's first C2 Centre: a new collaborative endeavour between industry (K Sharp Ltd) and academia (Cardiff University) in Wales (UK). Gaia aims to apply C2 principles to inform and support decision making activity relating to climate change. The Gaia C2 centre will aggregate and exploit diverse data associated with the Earth's changing climate and human operatives. This will be possible by relying on effective human-computer interaction and transdisciplinary collaboration to educate, empower and revolutionise scientific endeavours to tackling human accelerated climate change.

Social science research conducted through the pandemic<sup>1</sup> has shown that the ability to gather large amounts of data about human behaviour is possible on a scale that has been previously unthought of. This type of research has been able to influence the national messaging on virus protection activities such as social distancing and vaccination.

Gaia is a concept that will seek to utilise similar research concepts but focused on climate change and climate action. Gaia will have two main aims: research and action. The initial and ongoing research will develop a deep and dynamic understanding of attitudes to climate change through avenues such as social media and how they relate to climate action, or lack of. The action will look at how social data, in combination with physical climate data from disparate sources, can inform and coordinate decision making and visualise the outcomes.

## What capability will it provide?

Gaia offers the ability to conduct cutting-edge interdisciplinary research that looks to better understand how technology and ergonomic principles can enable individuals, organisations and

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<sup>1</sup> <https://www.scientificamerican.com/article/how-covid-is-changing-the-study-of-human-behavior/>

governments to make climate conscious decisions. The centre will have a strong focus on both practical application and empirical research. The Gaia C2 centre embodies a new area of research: Climate Ergonomics (Kirby & Gamble, 2022; Kirby, Gamble, Kirby, Morrisette & Morgan, 2021). In practical terms, Gaia aims to operate in five domains:

1. Climate Data Augmentation – Dynamically integrating large climate data sources.
2. Climate Data Visualisation – Presenting climate information in a meaningful way.
3. Climate Attitudes, Behaviour & Society – Identifying and informing effective interventions.
4. Climate Communications – Influencing climate action through effective communications.
5. Climate Insights and Decision Making – Exploiting data to underpin decision making.

The current discourse around climate change is data driven, with targets being set for limiting temperature rises and businesses being urged to measure their carbon use whilst driving for the net zero outcome. However, there is a gap in the ability to measure, understand and communicate the current data position and aggregate it with social positioning. Gaia will utilise current techniques to augment global data that is publicly available, with hyper local data available through IOT networks to provide a rich information resource that can be interrogated for decision making, as well as a basis for future research.

The impact of climate change is not simply a technical/scientific endeavour, fundamentally it will take people to change their behaviour on a day-to-day level to make significant change. Gaia will seek to further understanding and planning of how to utilise influence (reciprocity, commitment, consistency, social proof, liking, authority, scarcity and curiosity). The ability to quantify the impact of “fake news” and the ability to visualise the impacts of climate change against deprivation, as well as equality, diversity and inclusion factors will have a significant impact in how change is engaged with.

Presenting information in a meaningful way during decision making tends to lend itself to displaying data in a visual form. The meaning of that information is dependent on who is making use of it. The scope of Gaia focuses on decision making for local and national government, but the research element will seek to inform communications to the public, at both a business and an individual level, specifically focused on how best to influence climate behaviour change. To enable this, Gaia will seek to display climate data in meaningful ways appropriate for the recipients. This will include traditional data displays, but also bring in the use of virtual reality (VR) and augmented reality (AR). One of the key issues around climate change and pollution is that many of the factors are not always discernible to the naked eye. The research element of Gaia will seek to understand how best to present climate information that may typically be neglected or unknown to users in a meaningful way to overcome this issue.

## Summary

Gaia, the world’s first Climate Command and Control (C2) Centre, is a collaborative endeavour between academia and industry that aims to apply command and control principles to climate change. The innovative Gaia C2 project is going to bring together future leaning technologies to enable and empower individuals, industry and governments to visualise climate change and make climate-based decisions in a meaningful human-centred manner.

## References

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