

Gaia

Launched in 2013, Gaia's mission is to create the most accurate 3D map of the Universe to date.

Gaia orbits the Sun, at a distance of 1.5 million km beyond Earth's orbit, offering a clear view of the cosmos beyond.

You can see an [animation of how Gaia works from ESA](#).

[The third full dataset from Gaia was released in June 2022](#).

How does Gaia 'see' the Universe?

Gaia has two optical telescopes that work with three science instruments, it repeatedly scans the sky to precisely determine the location of stars and their velocity.

During its five-year mission, the spacecraft spins once every six hours, sweeping the two telescopes across the entire celestial sphere. As the detectors repeatedly measure the position of each celestial object, they will detect any changes in the object's motion through space.

UK leading the way on Gaia's images

The UK has major roles in the Gaia mission, both in building the spacecraft and delivering the science. UK industry won some 80 million euros of industrial contracts to build Gaia.

UK activities now centre around the data processing for the Gaia mission. These commitments are primarily in three areas: the photometric reductions, calibrating observed fluxes in broad band and low-dispersion spectra, where the developments are primarily carried out in Cambridge, and the implementation is in Cambridge; the pre-processing of the image data, where the development is done in Edinburgh and Leicester and the implementation at DPCB (Barcelona) and the processing of the data from the Radial Velocity Spectrometer, for which software developments and validation is done at Mullard Space Science Laboratory of University College London (MSSL), and implementation is at CNES (Toulouse).

Gaia will provide a huge census of the stars and the [Cambridge Gaia Data Processing Centre](#) will be the front line in processing Gaia's images, which will play an important role in the discovery of many thousands of transient stars and supernovae: these will be made immediately available to schools and the public for their participation in the research.

UK participation in the mission is funded by the UK Space Agency and scientists and engineers from around the UK have played key roles in the design and build of Gaia.

The UK Science and Technology Facilities Council (STFC) funded the early

development of the project, including the set-up of the data applications centre. STFC's current support involves the UK exploitation of the scientific data to be yielded from the mission.

Timeline

- Launch date: 19 December 2013
- Data Release Milestone 1: 14 September 2016
- Data Release Milestone 2: 25 April 2018
- Data Release Milestone 3: Due in two stages [early partial release on 3 December 2020](#), final full release June 2022
- Data Release Milestone 4: Expected after 2025
- Data Release Milestone 5: Final data release provisionally planned for 2030

What have we learnt?

Gaia sent back its first test images in 2014 and sent back pictures showing a dense cluster of stars in the Large Magellanic Cloud, a satellite galaxy of our Milky Way. [Read more here.](#)

The first data release was in September 2016 and the second in 2018 lead to a revolution in how we understand the Milky Way. [Read more here.](#)

[Watch a visual representation of the comparison of images from the two data releases, 1 and 2.](#)

[And recently the second release data has helped scientists understand the Milky Ways warp and how it is caused.](#)

Early data release 3 (EDR3) will be a new public release of Gaia data, the first part of its third release, based on the 34 months of mission data. It will cover [astrometric data \(positions, proper motions, parallaxes\) and photometric data \(magnitudes, colours\) for around 1.8 billion stars.](#)

Additional Info

[Foreign Secretary at COP27 pledges new support for developing countries to deal with climate change](#)

- Foreign Secretary travels to Egypt for COP27 climate change conference
- James Cleverly will today announce a range of investments worth over £100 million
- he will also urge international partners to speed up progress towards

delivering on COP26 targets

Foreign Secretary James Cleverly is in Sharm el-Sheikh at COP27 today to call for tangible action to deliver on the commitments made at COP26 in Glasgow and support developing economies to tackle the impacts of climate change.

The Foreign Secretary will today announce a range of significant UK investments worth more than £100 million to support developing economies to respond to climate-related disasters and adapt to the impacts of climate change, delivering on targets set at COP26.

The Prime Minister is expected to make a raft of adaptation-related announcements at the conference later today, including that the UK will triple funding for adaptation programmes from £500 million in 2019 to £1.5 billion in 2025

Mr Cleverly will also argue that long-term prosperity depends on taking action on climate change and ramping up investment in renewable energy across the world, pointing to the impact of Russia's illegal invasion of Ukraine on the global economy.

Foreign Secretary James Cleverly said:

The Glasgow Climate Pact gave the world the tools to limit the rise in global temperature to 1.5 degrees and build a secure and sustainable future.

Now is the time for all countries to step up their action on climate change and deliver the tangible change needed.

The UK will continue to play a leading role in this mission. The funding we have announced will support countries which are facing the devastating impact of climate change, to adapt effectively.

The Foreign Secretary will announce today that the UK will provide £20.7 million in Disaster Risk Financing to support countries which face climate-related disasters, helping them to afford insurance and to access reliable funding, more quickly, after a disaster.

As an example, this funding will allow the World Food Programme to insure food supplies for almost 5 million people across 23 vulnerable countries in cases of climate-related disasters, and will help small island developing states build resilience to extreme weather events.

This support is part of the [commitment made in 2021 at the UK G7 in Carbis Bay, Cornwall, to spend £120 million on Disaster Risk Financing](#).

The UK will also announce several new funding allocations to support countries to adapt to the impacts of climate change over the longer-term. The UK will spend £13 million to support vulnerable countries to adapt to climate impacts, and towards efforts to avert, minimise and address loss and damage,

including through new funding for the Santiago Network, an organisation set up to support vulnerable countries to access technical assistance.

In Nigeria, the UK will provide a £95 million investment to support the development of climate-resilient agriculture programmes, for example through scaling up heat tolerant crop varieties. The funding will support more than 4 million people, including 2 million women, to increase productivity while reducing emissions.

At a meeting with his Colombian counterparts, the Foreign Secretary will also sign a Memorandum of Understanding with Colombia to renew their [Partnership for Sustainable Growth](#), deepening bilateral cooperation on climate change and increasing efforts to protect and restore nature and biodiversity in land and marine ecosystems.

Under the UK's COP Presidency, almost all developed country climate finance providers made new, forward-looking climate finance commitments, with many doubling or even quadrupling support for developing countries to take climate action.

The [Climate Finance Delivery Plan Progress Report](#) has reaffirmed that the climate finance goal will be met by developed countries by 2023 latest, with over \$500 billion mobilised over the 5-year period 2021 to 2025.

The [COP26 Outcomes report \(PDF, 37.05MB\)](#) details key achievements across the UK Presidency's 4 overarching goals of mitigation, adaptation, loss and damage, finance and collaboration. Highlights from COP26 and the UK Presidency include:

- keeping 1.5 degrees alive: Over 90% of the world's GDP, up from 30% when the UK took on the COP presidency, is now covered by net zero commitments with over 153 countries putting forward new 2030 climate plans, known as nationally determined contributions
- increasing funding and launching UN work for dealing with climate impacts: record amounts of adaptation finance have been pledged to the Adaptation Fund and the Least Developed Country Fund under the UK Presidency. In addition at COP26, countries agreed to double 2019 levels of adaptation finance by 2025, the first quantified adaptation finance target
- accelerating unprecedented sectoral transitions with commitments covering the energy, coal, methane, fossil fuel financing, forests and land, and transport sectors, including the first reference to coal in a cover decision agreed by 197 Parties

Additional information

The £13 million Adaptation and Loss and Damage package includes £5 million for the Santiago Network and £4 million for Climate Risk Management including the Risk-Informed Early Action Partnership (REAP).

[British Embassy Tokyo joins Remembrance Day Commemorations 2022](#)

World news story

The Tokyo District Remembrance Day Ceremony will be held on Sunday 13th November 2022.



The location will be the Commonwealth War Cemetery, Hodogaya, commencing around 10:40am. The ceremony will be a multi-denominational service held on the main grounds in front of the British Cross of Sacrifice.

Commonwealth civic organisations, Veteran and POW societies as well as the Embassies and Armed forces of Commonwealth Nations will be represented. Members of the public are welcome to attend.

If you are not able to attend the Ceremony but would like to remember this important occasion in your own way, you can make use of the Royal British Legion resources and suggestions at <https://www.britishlegion.org.uk/get-involved/remembrance>. The Department for Veterans Affairs of the Australian Government also has very useful resources at <https://anzacportal.dva.gov.au/resources/remembrance-day-kitbag>.

Further information below on travel to the Commonwealth War Cemetery

- Parking is not available within Hodogaya Cemetery except for Religious Officials and event organisers
- Visitors with mobility issues will be permitted to park within the cemetery – please ask on arrival
- Visitors are encouraged to use public transport (Bus route 53 from Hodogaya station to Nagatadai Kouenmae)
- Local Police have asked that visitors do not park on roads as this distresses the local residents
- Public Car park near the cemetery will be used for official visitors
- A taxi from Hodogaya Station should take 9 minutes and cost

approximately 1,000 yen

Published 7 November 2022

[UK's first large-scale merchant lithium refinery announced](#)

News story

Business Secretary Grant Shapps is visiting Teesside to announce the UK's first large-scale merchant lithium refinery, providing battery grade materials for use in the electric vehicle, renewable energy and consumer technology supply chains.



Today the Business Secretary Grant Shapps is visiting Teesside to announce the UK's first large-scale merchant lithium refinery, providing battery grade materials for use in the electric vehicle, renewable energy and consumer technology supply chains.

In a boost for Levelling Up and government plans to make the UK the best place in the world to do business, Green Lithium has unveiled Teesport in Middlesbrough as the site for their forthcoming lithium refinery, delivering more than 1,000 jobs in construction and 250 long-term high-skill jobs for local people once up and running. 89% of the world's lithium processing currently takes place in East Asia and there are currently no lithium refineries in Europe. Green Lithium aims for this to be the first merchant lithium refinery outside of Asia.

The UK Government has backed Green Lithium with a grant of over £600,000 through the Automotive Transformation Fund.

Lithium is an essential component of batteries and a secure supply will be critical for our automotive and energy industries. Critical minerals are irreplaceable in products essential to our everyday lives – such as mobile

phones, wind turbines and fighter jets.

Critical minerals are at high risk of supply disruption, because of volatile markets and complex supply chains. The world in 2040 is projected to need four times more critical minerals than it does today.

Business Secretary Grant Shapps said:

We're backing companies, like Green Lithium here in Teesside, to grow the new, green industries across the UK, sparking jobs and growth for decades to come.

This is levelling up in action. The refinery will deliver more than 1,000 jobs during its construction and 250 long-term, high-skill jobs for local people when in operation.

It is also allowing us to move quickly to secure our supply chains of critical minerals, as we know that geopolitical threats and global events beyond our control can severely impact the supply of key components that could delay the rollout of electric vehicles in the UK.

Published 7 November 2022

[UK strengthens Taiwan trade ties as Minister visits Taipei](#)

- Trade Policy Minister Greg Hands heads to Taiwan for first in-person trade talks since pandemic
- During a two-day visit, he will meet President Tsai Ing-wen and co-host the 25th annual UK-Taiwan Trade Talks
- The Minister will use talks to tackle barriers to trade and promote UK expertise in areas like offshore wind and hydrogen

Trade Minister Greg Hands will co-host the UK-Taiwan 25th annual Trade Talks in Taipei to boost trade and future-proof our economy through collaboration on green trade and supply chains.

With its advanced, high-tech economy, a GDP of over \$770 billion, and strong economic growth – averaging 4% over the last 30 years – Taiwan is an important trading partner for the UK.

Visiting Taiwan in person is a clear signal of the UK's commitment to boosting UK-Taiwan trade ties. Like the UK, Taiwan is a champion of free and

fair trade underpinned by a rules-based global trading system.

The talks with Minister Chern-Chyi Chen will look at tackling barriers to trade in sectors like fintech, food and drink and pharma, aimed at helping more UK firms export and invest in Taiwan. The Minister will also promote UK expertise in offshore wind, hydrogen and electric vehicles in discussions on areas of mutual interest such as renewables and science and innovation.

Minister of State for Trade Policy Greg Hands said:

“I first visited Taiwan 31 years ago in 1991 and it’s been fantastic to see the growth of this dynamic, vibrant economy. I’m thrilled to be the first Trade Minister here post-pandemic and to be celebrating the 25th anniversary of trade talks.

“Boosting trade with this vital partner is part of the UK’s post-Brexit tilt towards the Indo-Pacific and closer collaboration will help us future-proof our economy in the decades to come.”

Our thriving £8bn trade partnership has gone up 14% in the last two years, with UK exports to Taiwan also increasing in that time. The Government’s most recent annual business survey showed the overwhelming majority of UK companies operating in Taiwan are optimistic about its economy and prospects.

During the Trade Talks, Innovate UK will sign a Memorandum of Understanding (MoU) with the Ministry of Economic Affairs in Taiwan, pledging to increase collaboration on technology and innovation. This includes a £5m funding commitment through to 2025 and support to UK businesses via a bespoke Innovation Programme in Taiwan.

As a leading manufacturer of semiconductors – the chips used in electronic devices like iPhones and electric vehicles – Taiwan is a key player in global supply chains. The Minister will use meetings with President Tsai Ing-wen, Vice Premier Shen Jong-chin, Minister of Economic Affairs Wang Mei-Hua, Minister of Digital Affairs Audrey Tang, Minister Kung Ming-Hsin and Minister John Deng – to promote diversified, resilient supply chains and greater economic cooperation.

Thanks to the UK’s unmatched offshore wind experience and expertise, the UK is already a major partner in Taiwan’s green transition, with more than 38 British companies already having set up offices in Taiwan. The Minister will visit the Formosa 2 offshore wind site – the first international offshore wind project supported by UK Export Finance – which more than 10 British companies are involved in.

Luxfer Gas Cylinders, a British company based in Nottingham (UK), has just signed a contract to supply cylinders for Taiwan’s first pilot hydrogen bus project.

Notes to Editors: