



Earth Information Center  
go.nasa.gov/eic



# Earth Now

NASA satellites provide data on Earth's land, ecosystems, water, air temperature, and climate - and have done so for more than 50 years. Earth information from space supports decision makers, partners, and people in developing the tools they need to mitigate, adapt, and respond to our changing planet.

## Image of the Day



**Foggy Nile**  
A blanket of morning fog in January made the Nile Delta look like a tuft of cotton.

## Vital Signs

**Global Temperature**  
↑ 1.1°C  
since preindustrial

**Sea Level**  
↑ 4"  
since January 1993

**Minimum Extent of Arctic Sea Ice**  
↓ 12.2%  
per decade since 1979

**Carbon Dioxide**  
↑ 419  
parts per million

**Methane**  
↑ 1924  
parts per billion

**Ice Sheets**  
↓ 424  
trillion metric tons per year

**Ocean Warming**  
↑ 345  
degrees since 1958



10 Jan 2021



10 Jan 2024



10 Jan 2024 14:30:00 EST



09 Jan 2024



NOAA GOES-East - 01/09/2024 11:50 EST



NOAA GOES-East - 01/09/2024 11:50 EST

Earth Information Center  
Link: go.nasa.gov/eic

For more than 50 years, NASA has provided open-source and public data on Earth's land, water, air, and climate. The Earth Information Center, along with other NASA programs, allows users to explore and understand how our planet is changing and provides information and resources that support decision makers in developing the tools they need to mitigate, adapt, and respond to our changing planet.

NASA created the Earth Information Center in partnership with FEMA, EPA, NOAA, and USGS. The Earth Information Center provides data from research conducted by NASA and its partners.

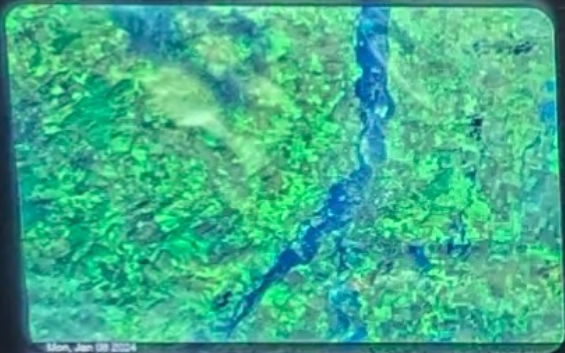




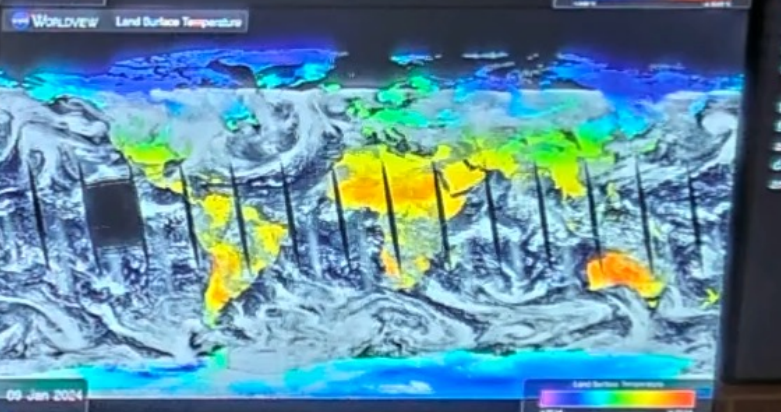
# Earth Now

NASA satellites provide data on Earth's land, ecosystems, water, air temperature, and climate - and have done so for more than 50 years. Earth information from space supports decision makers, partners, and people in developing the tools they need to mitigate, adapt, and respond to our changing planet.

## Image of the Day

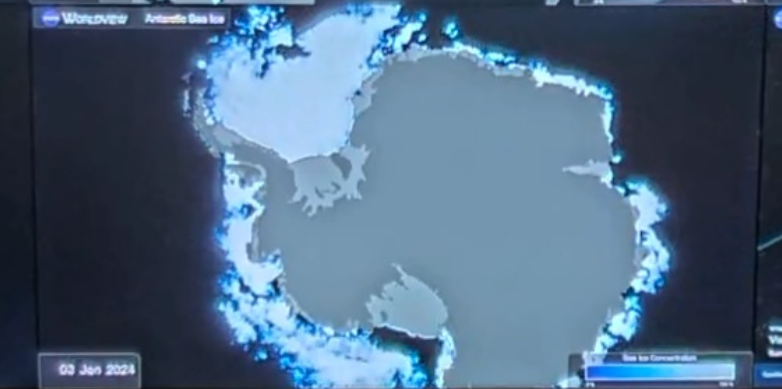


**Flooding Along the River Trent**  
In the aftermath of consecutive winter storms, rivers in central England overflowed their banks.



## Vital Signs

<p><b>Global Temperature</b> ↑ 1.1°C <small>since preindustrial</small></p>	<p><b>Sea Level</b> ↑ 4" <small>since January 1993</small></p>	<p><b>Minimum Extent of Arctic Sea Ice</b> ↓ 12.2% <small>per decade since 1979</small></p>
<p><b>Carbon Dioxide</b> ↑ 419 <small>parts per million</small></p>	<p><b>Methane</b> ↑ 1924 <small>parts per billion</small></p>	
<p><b>Ice Sheets</b> ↓ 424 <small>trillion metric tons per year</small></p>	<p><b>Ocean Warming</b> ↑ 345 <small>percentiles since 1958</small></p>	



Earth Information Center  
Link: go.nasa.gov/eic

For more than 50 years, NASA satellites provided open-source and publicly available data on Earth's land, water, air, and climate. The Earth Information Center allows users to see how the planet is changing and provides easy-to-use information and resources that support decision makers in developing the tools they need to mitigate, adapt, and respond to climate change.

NASA created the Earth Information Center with founding partners FEMA, EPA, NOAA, USACE, and USGS. The Earth Information Center draws data from research conducted by NASA's Earth Observing System and its partners.





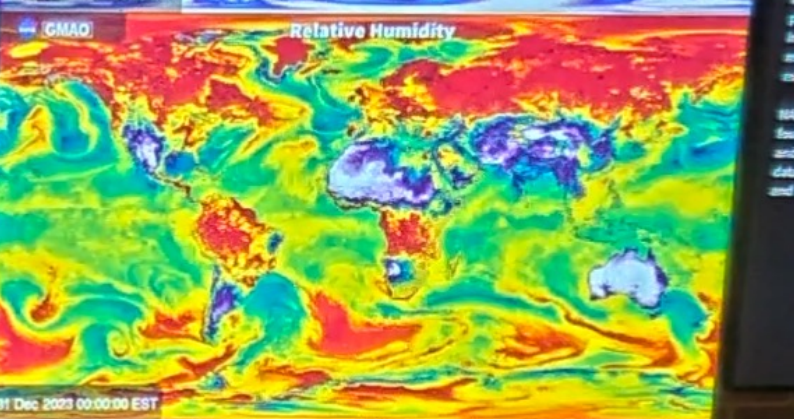
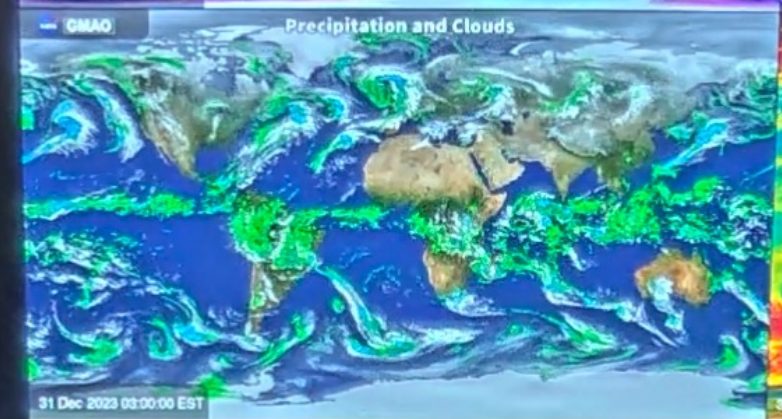
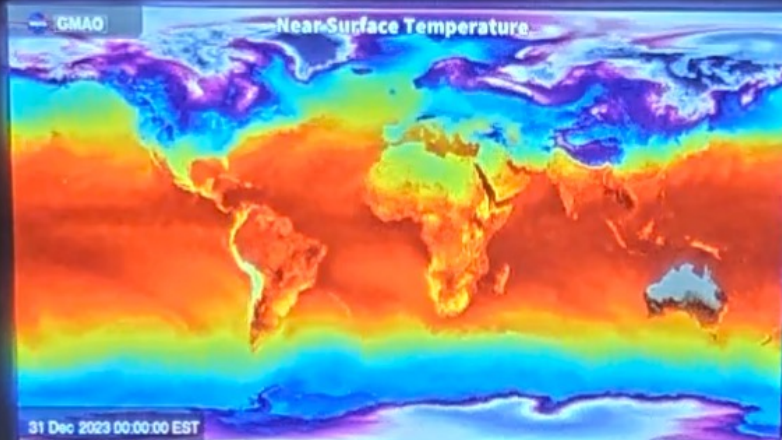
# Earth Now

NASA satellites provide data on Earth's land, ecosystems, water, air temperature, and climate - and have done so for more than 50 years. Earth information from space supports decision makers, partners, and people in developing the tools they need to mitigate, adapt, and respond to our changing planet.

## Image of the Day



**Foggy Nile**  
 A blanket of morning fog in January made the Nile Delta look like a tuft of cotton.



## Vital Signs

<p><b>Global Temperature</b>        ↑ 1.1°C  <small>since preindustrial</small></p>	<p><b>Sea Level</b>        ↑ 4"  <small>since January 1993</small></p>	<p><b>Minimum Extent of Arctic Sea Ice</b>        ↓ 12.2%  <small>per decade since 1979</small></p>
<p><b>Carbon Dioxide</b>        ↑ 419  <small>parts per million</small></p>	<p><b>Methane</b>        ↑ 1924  <small>parts per billion</small></p>	
<p><b>Ice Sheets</b>        ↓ 424  <small>trillion metric tons per year</small></p>	<p><b>Ocean Warming</b>        ↑ 345  <small>percentiles since 1958</small></p>	



Visible Earth  
 Sun: 00:00 - 00:00 (UTC)

Earth Information Center  
 Link: go.nasa.gov/eic

For more than 50 years, NASA satellites provided open-source and publicly available data on Earth's land, water, air, and climate. The Earth Information Center allows users to see the data and provides easy-to-use information and resources that support decision makers in developing the tools they need to mitigate, adapt, and respond to climate change.

NASA created the Earth Information Center with founding partners FEMA, EPA, NOAA, USACE, and USGS. The Earth Information Center draws data from research conducted by NASA's Earth Science Data Team and its partners.





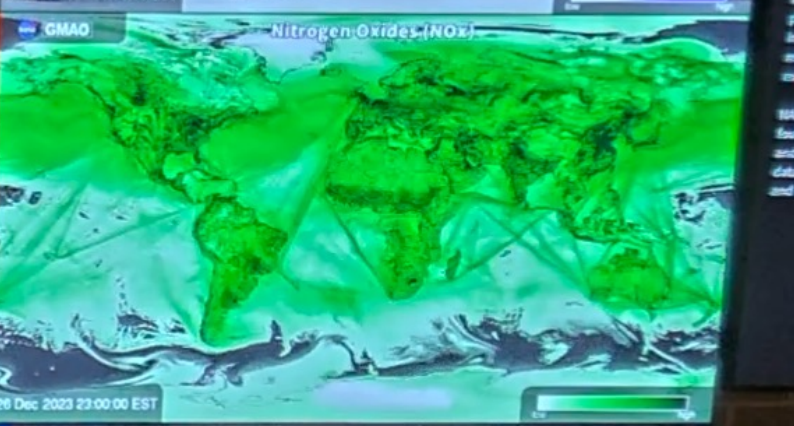
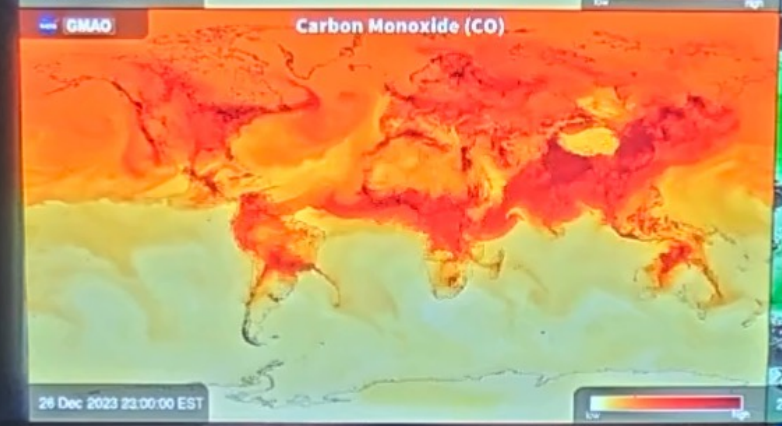
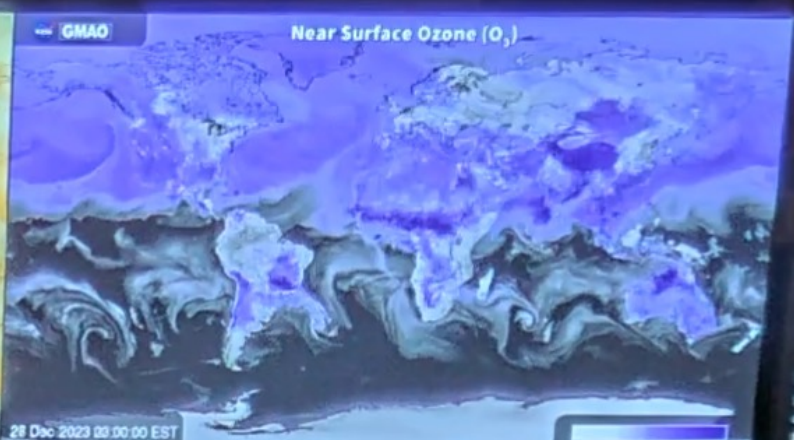
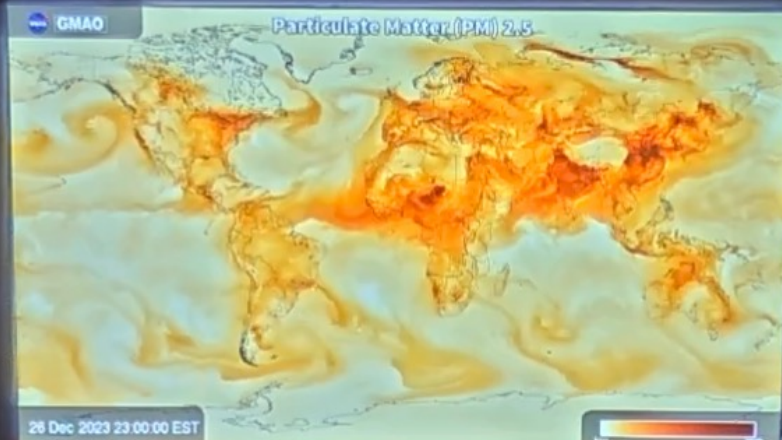
# Earth Now

NASA satellites provide data on Earth's land, ecosystems, water, air temperature, and climate - and have done so for more than 50 years. Earth information from space supports decision makers, partners, and people in developing the tools they need to mitigate, adapt, and respond to our changing planet.

## Image of the Day



**Foggy Nile**  
 A blanket of morning fog in January made the Nile Delta look like a tuft of cotton.



## Vital Signs

<p><b>Global Temperature</b>                  ↑ <b>1.1°C</b>  <small>since preindustrial</small></p>	<p><b>Sea Level</b>                  ↑ <b>4"</b>  <small>since January 1993</small></p>	<p><b>Minimum Extent of Arctic Sea Ice</b>                  ↓ <b>12.2%</b>  <small>per decade since 1979</small></p>
<p><b>Carbon Dioxide</b>                  ↑ <b>419</b>  <small>parts per million</small></p>	<p><b>Methane</b>                  ↑ <b>1924</b>  <small>parts per billion</small></p>	
<p><b>Ice Sheets</b>                  ↓ <b>424</b>  <small>billion metric tons per year</small></p>	<p><b>Ocean Warming</b>                  ↑ <b>345</b>  <small>degrees since 1958</small></p>	



**Earth Information Center**  
 Link: [go.nasa.gov/eic](https://go.nasa.gov/eic)

For more than 50 years, NASA satellites provided open-source and publicly available data on Earth's land, water, air, and climate. The Earth Information Center allows users to see how the planet is changing and provides easy-to-use information and resources that support decision makers in developing the tools they need to mitigate, adapt, and respond to climate change.

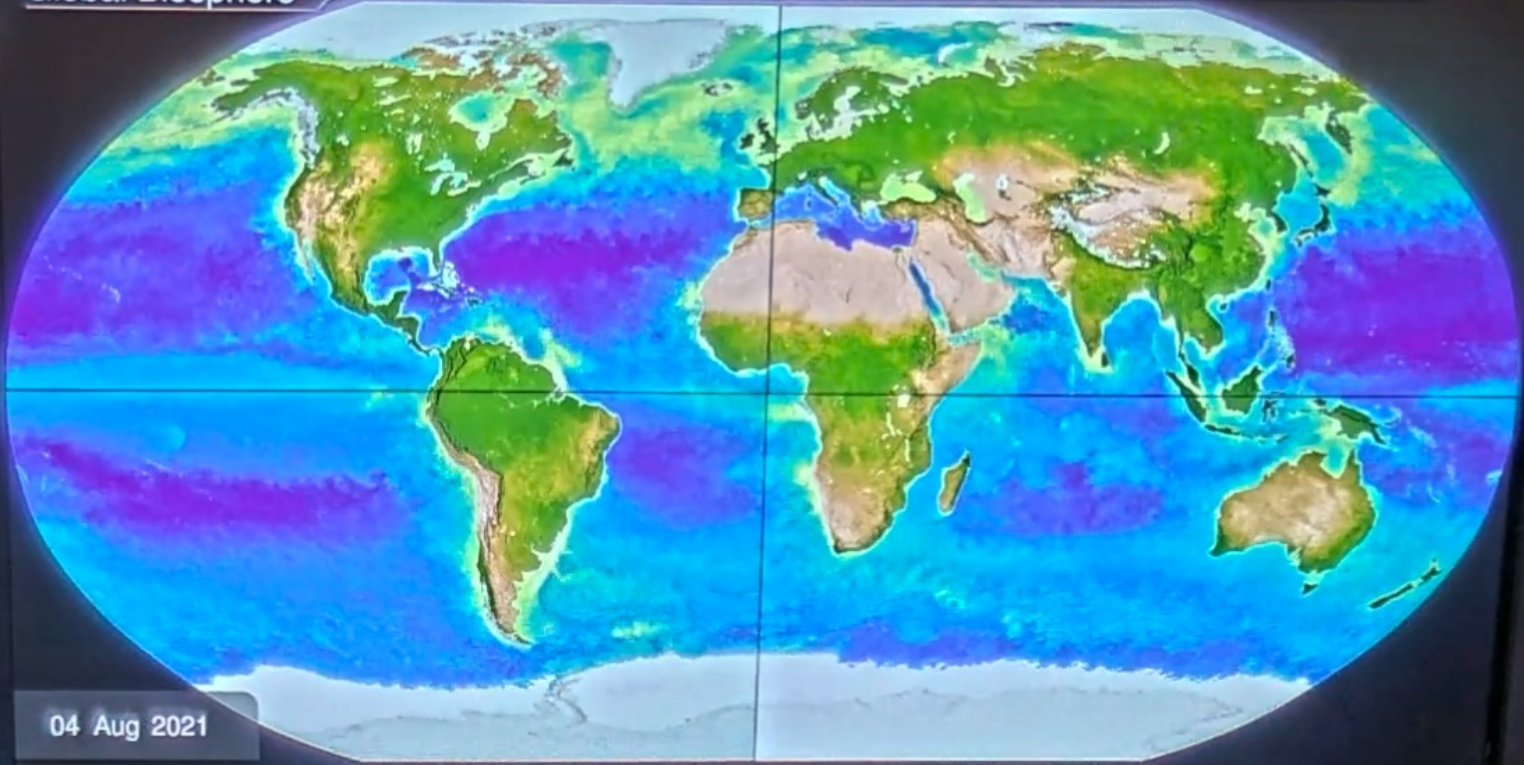
NASA created the Earth Information Center with founding partners FEMA, EPA, NOAA, USACE, and USGS. The Earth Information Center draws data from research conducted by NASA's Earth Observing System and its partners.







# Global Biosphere



04 Aug 2021

Earth Information Center  
Link: go.nasa.gov/eic

For more than 50 years, NASA satellites provided open-source and publicly available data on Earth's land, water, air, and climate. The Earth Information Center allows users to see how the planet is changing and provides easy-to-use information and resources that support decision makers in developing the tools they need to mitigate, adapt, and respond to climate change.

NASA created the Earth Information Center with funding partners FEMA, EPA, NOAA, USAID, and USGS. The Earth Information Center displays data from research conducted by NASA's Earth Observing System and its partners.



# Earth Now

NASA satellites provide data on Earth's land, ecosystems, water, air temperature, and climate - and have done so for more than 50 years. Earth information from space supports decision makers, partners, and people in developing the tools they need to mitigate, adapt, and respond to our changing planet.

## Image of the Day



Map, Jan 09, 2024

### Flooding Along the River Trent

In the aftermath of consecutive winter storms, rivers in central England overflowed their banks.

## Vital Signs

**Global Temperature**  
↑ 1.1°C  
since pre-industrial

**Sea Level**  
↑ 4"  
since January 1993

**Minimum Extent of Arctic Sea Ice**  
↓ 12.2%  
per decade since 1979

**Carbon Dioxide**  
↑ 419  
parts per million

**Methane**  
↑ 1924  
parts per billion

**Ice Sheets**  
↓ 424  
million metric tons per year

**Ocean Warming**  
↑ 345  
percent since 1958

NASA measurements track the growth of life on land and in the ocean. The global biosphere has been helping to offset some of the excess carbon dioxide people have been pumping into the atmosphere.





# Sea Surface Temperature

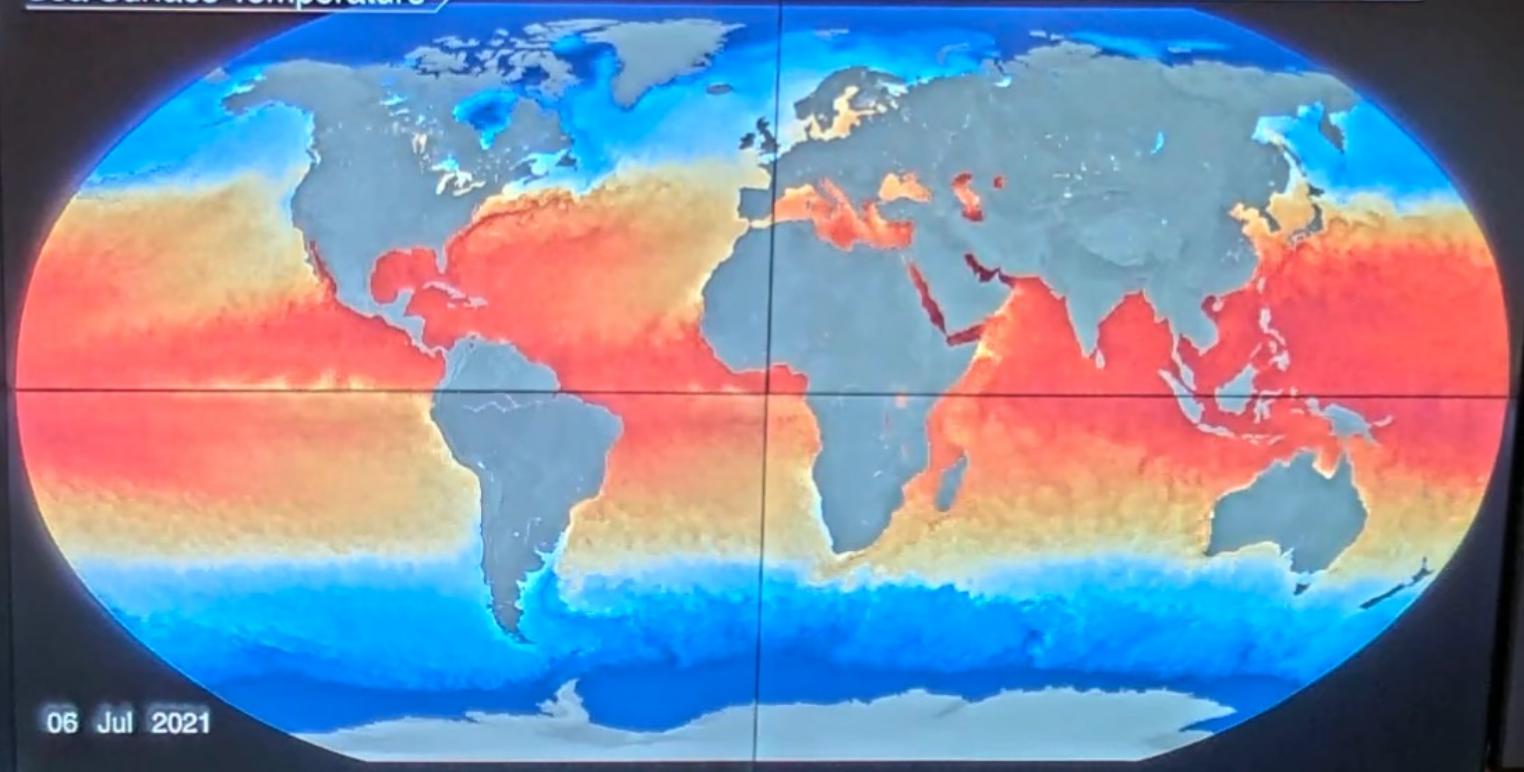
## Earth Now

NASA satellites provide data on Earth's land, ecosystems, water, air temperature, and climate - and have done so for more than 50 years. Earth information from space supports decision makers, partners, and people in developing the tools they need to mitigate, adapt, and respond to our changing planet.

### Image of the Day



06 Jul 2021  
**Flooding Along the River Trent**  
In the aftermath of consecutive winter storms, rivers in central England overflowed their banks.



06 Jul 2021

NASA has observed sea surface temperature since 1981 and it provides one of the longest satellite-based records of any Earth climate measurement.

### Vital Signs

**Global Temperature**  
↑ 1.1°C  
since pre-industrial

**Sea Level**  
↑ 4"  
since January 1993

**Minimum Extent of Arctic Sea Ice**  
↓ 12.2%  
per decade since 1979

**Carbon Dioxide**  
↑ 419  
parts per million

**Methane**  
↑ 1924  
parts per billion

**Ice Sheets**  
↓ 424  
trillion metric tons per year

**Ocean Warming**  
↑ 345  
trillion metric tons since 1993

Earth Information Center  
Link: go.nasa.gov/eic

For more than 50 years, NASA satellites provided open-source and publicly available data on Earth's land, water, air, and climate. The Earth Information Center allows users to see how the planet is changing and provides easy-to-use information and resources that support decision makers in developing the tools they need to mitigate, adapt, and respond to climate change.

NASA created the Earth Information Center with founding partners FEMA, EPA, NOAA, USACE, and USGS. The Earth Information Center draws data from research conducted by NASA's Earth Observing System and its partners.







# Earth Now

NASA satellites provide data on Earth's land, ecosystems, water, air temperature, and climate - and have done so for more than 50 years. Earth information from space supports decision makers, partners, and people in developing the tools they need to mitigate, adapt, and respond to our changing planet.

## Image of the Day



11am, Jan 08 2024

### Colorful Swirls in the Gulf of Alaska

The burst of turquoise and tan hues in Alaskan waters is in stark contrast to the snowy shoreline.

## Earth's Active Fires



## Earth Information Center

Link: go.nasa.gov/eic

For more than 50 years, NASA has provided open-access and public information on Earth's land, water, air, and climate. The Earth Information Center, along with other NASA programs, allows users to explore how our planet is changing and provides information and resources that support decision makers in developing the tools they need to mitigate, adapt, and respond to our changing planet.

NASA created the Earth Information Center with founding partners FEMA, EPA, NOAA, and USFWS. The Earth Information Center provides data from research conducted by NASA and its partners.



## Vital Signs

Global Temperature  
↑ 1.1°C  
since preindustrial

Sea Level  
↑ 4"  
since January 1993

Minimum Extent of Arctic Sea Ice  
↓ 12.2%  
per decade since 1979

Carbon Dioxide  
↑ 419  
parts per million

Methane  
↑ 1924  
parts per billion

Ice Sheets  
↓ 424  
billion metric tons per year

Ocean Warming  
↑ 345  
degrees since 1958

NASA uses satellite observations to detect active fires and delivers this information to decision makers in near real-time.





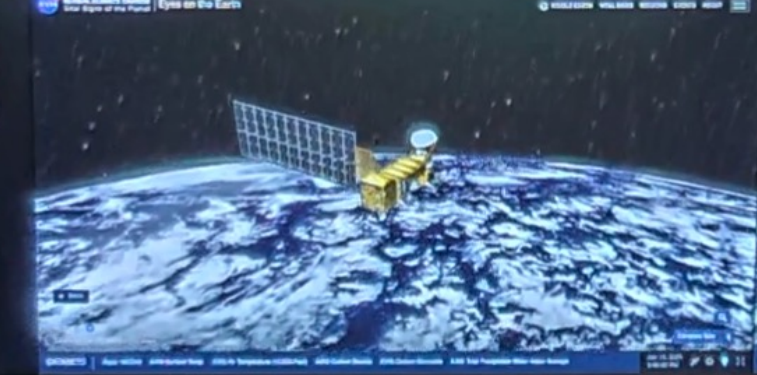
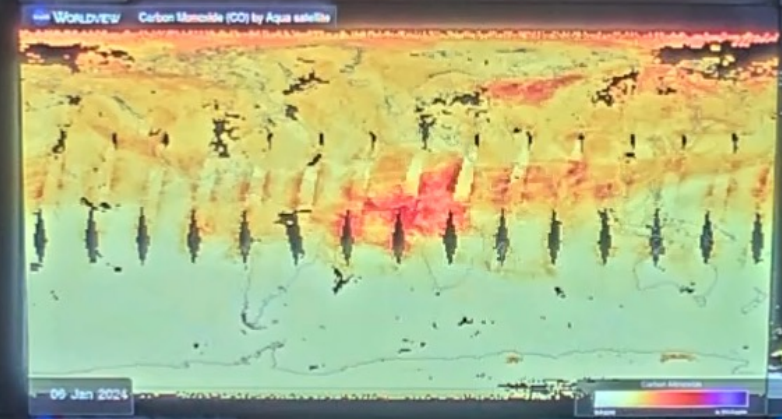
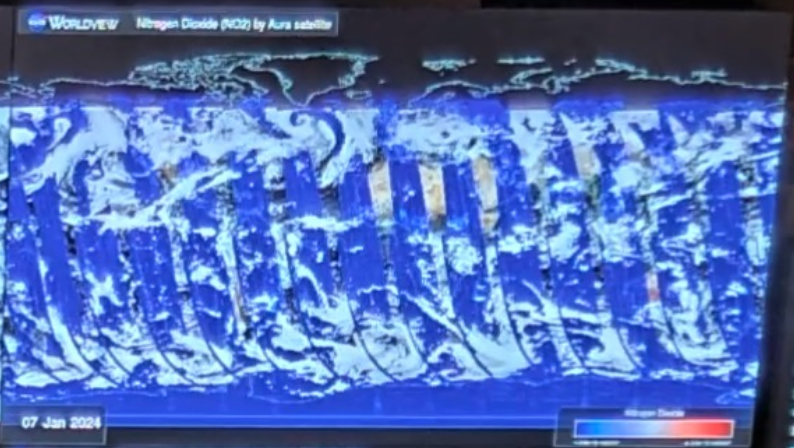
# Air Quality

Instruments onboard NASA's Earth observing satellites monitor air pollutants around the world. The data collected are used by air quality experts and researchers studying the impacts of air pollution.

## Effects on Health



Poor air quality has negative implications on human health. PM 2.5 measures the concentration of tiny particles less than 2.5 microns in diameter. When breathed in, these particles are absorbed into the lungs and may enter the bloodstream. Continued exposure to such particles can damage the lungs and the cardiovascular system over time.



Earth Information Center  
Link: go.nasa.gov/eic

For more than 50 years, NASA satellites provided open-source and publicly available data on Earth's land, water, air, and climate. The Earth Information Center allows users to see how the planet is changing and provides easy-to-use information and resources that support decision makers in developing the tools they need to mitigate, adapt, and respond to climate change.

NASA created the Earth Information Center with founding partners FEMA, EPA, NOAA, USACE, and USGS. The Earth Information Center displays data from research conducted by NASA's centers and its partners.







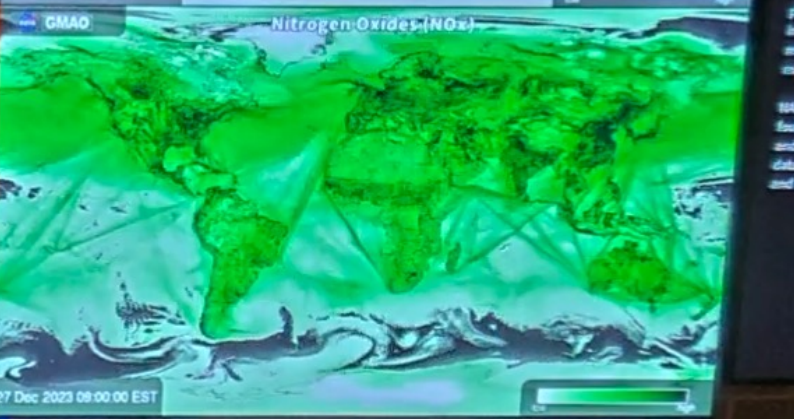
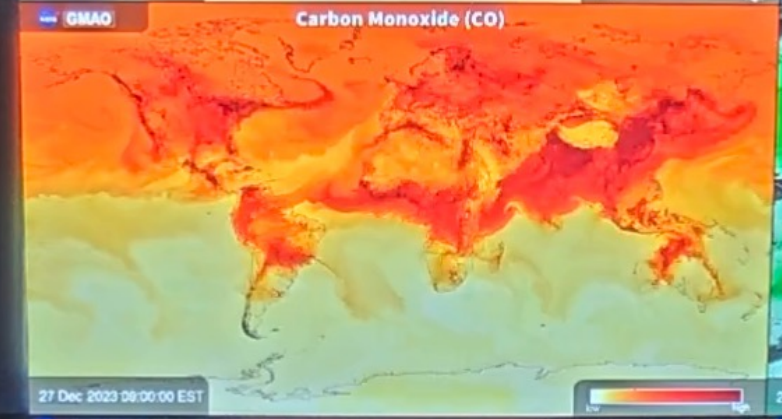
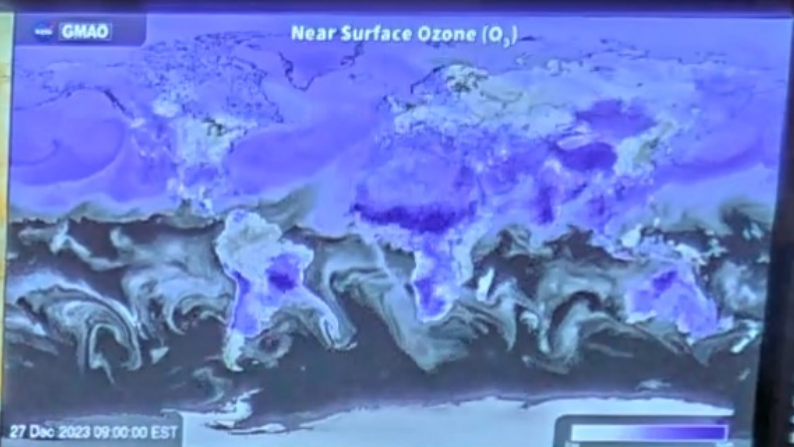
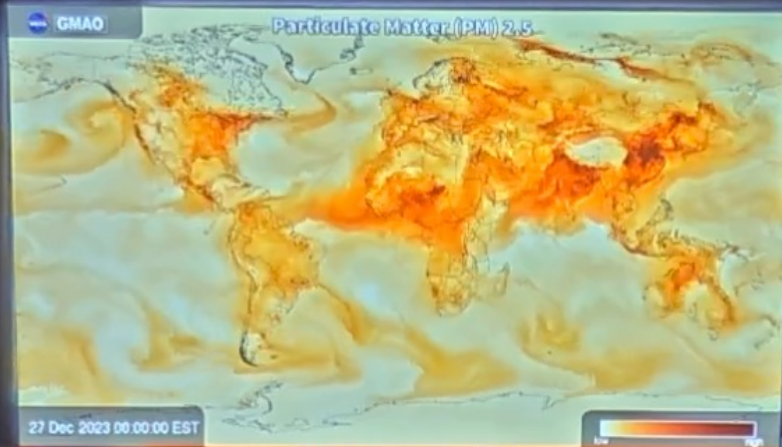
# Air Quality

Instruments onboard NASA's Earth observing satellites monitor air pollutants around the world. The data collected are used by air quality experts and researchers studying the impacts of air pollution.

## Effects on Plants



Characteristic Ozone (O<sub>3</sub>) induced injury to green bean plants is evident as a tan to dark colored stippling pattern on the upper leaf surface that accumulates during the growing season. Ozone injury symptoms often vary with different crops and reduces crop yields.



Earth Information Center  
Link: go.nasa.gov/eic

For more than 50 years, NASA satellites provided open-source and publicly available data on Earth's land, water, air, and climate. The Earth Information Center allows users to see how the planet is changing and provides easy-to-use information and resources that support decision makers in developing the tools they need to mitigate, adapt, and respond to climate change.

NASA created the Earth Information Center with founding partners FEMA, EPA, NOAA, USACE, and USGS. The Earth Information Center draws data from research conducted by NASA's centers and its partners.



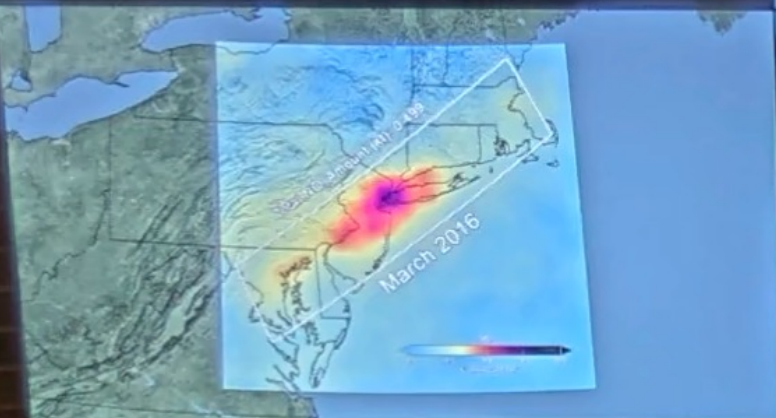




# Air Quality

Instruments onboard NASA's Earth observing satellites monitor air pollutants around the world. The data collected are used by air quality experts and researchers studying the impacts of air pollution.

## COVID-19 Impacts on Air Pollution



Efforts to contain the spread of COVID-19 led to reduction of air pollution levels around the world. Data from NASA satellites show that on March 2020 Nitrogen Dioxide (NO<sub>2</sub>) levels had the lowest March values during the entire record (2005-2020).

## Air Pollutants Observed from Space



Earth Information Center  
Link: go.nasa.gov/eic

For more than 50 years, NASA has provided open-source and public data on Earth's land, water, air, and climate. The Earth Information Center, along with other NASA centers, allows users to explore how our planet is changing and provides information and resources that help decision makers in developing the tools to mitigate, adapt, and respond to climate change.

NASA created the Earth Information Center with founding partners FEMA, EPA, NOAA, and USGS. The Earth Information Center provides data from research conducted by NASA and its partners.







Earth Information Center  
go.nasa.gov/eic



# Air Quality

Instruments onboard NASA's Earth observing satellites monitor air pollutants around the world. The data collected are used by air quality experts and researchers studying the impacts of air pollution.

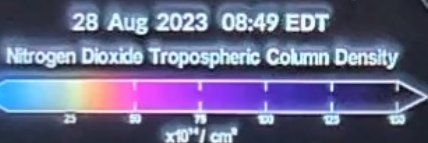
## TEMPO's data scans



TEMPO measurements of air pollution over the areas of Detroit, Chicago and Toronto. High levels of Nitrogen Dioxide (NO<sub>2</sub>) can be seen over urban areas during the rush hours of the day.



## Revolutionizing our understanding with NASA's TEMPO mission



NASA's TEMPO, or Tropospheric Emissions: Monitoring of Pollution, is the first space-based instrument designed to continuously measure air quality above North America with the resolution of a few square miles. High levels of nitrogen dioxide can be seen over multiple areas across the United States, Canada, Mexico and the Caribbean.

TEMPO uses visible sunlight to take hourly scans of North America's atmosphere and can not see pollution below clouds or at night (*missing data in the visualization*).

Earth Information Center  
Link: go.nasa.gov/eic

For more than 50 years, NASA has provided open-source and public information on Earth's land, water, air, and space. The Earth Information Center, allows users to explore how our planet is changing and provides information and resources that help us understand the risks and how to mitigate, adapt, and respond to them.

NASA created the Earth Information Center in partnership with FEMA, EPA, NOAA, and USGS. The Earth Information Center is a result of research conducted by NASA and its partners.







Earth Information Center  
go.nasa.gov/eic



# Climate Vital Signs

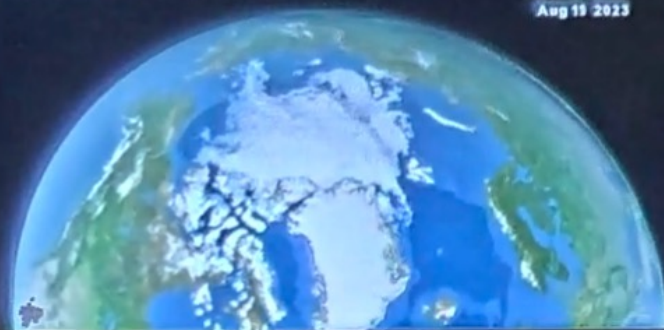
NASA monitors the health of our planet to benefit humankind. NASA missions track key climate indicators and we share these with the world.

## Greenhouse Gas Levels are Increasing



## Arctic Sea Ice is Shrinking

Aug 11 2023



## Global Temperatures are Rising



## Vital Signs

**Global Temperature**  
↑ 1.1°C  
since preindustrial

**Sea Level**  
↑ 4"  
since January 1993

**Minimum Extent of Arctic Sea Ice**  
↓ 12.2%  
per decade since 1979

**Ocean Warming**  
↑ 345  
zettajoules since 1955

**Carbon Dioxide**  
↑ 419  
current parts per million

**Methane**  
↑ 1924  
current parts per billion

**Ice Sheets**  
↓ 424  
billion metric tons per year

Earth Information Center  
Link: go.nasa.gov/eic

For more than 50 years, NASA has provided open-access and public information on Earth's land, water, air, and space. The Earth Information Center, along with other NASA programs, allows users to explore information and resources that are critical to understanding our planet as it changes and provides information and resources that are critical to understanding our planet as it changes and provides information and resources that are critical to understanding our planet as it changes.

NASA created the Earth Information Center with founding partners FEMA, EPA, NOAA, and USGS. The Earth Information Center data from research conducted by NASA and its partners.



eic-climatevitalsigns-001.hwshow

PLEASE DO NOT TOUCH SCREENS

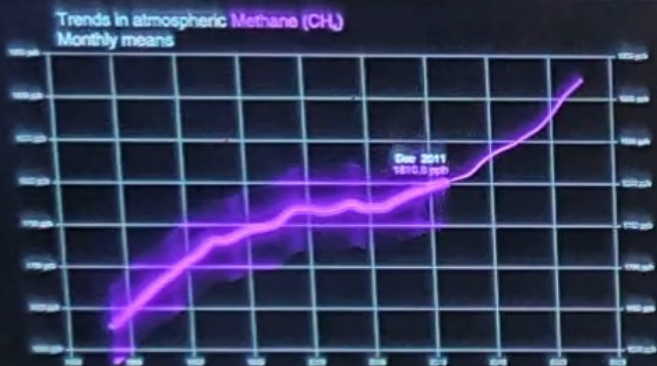




# Climate Vital Signs

NASA monitors the health of our planet to benefit humankind. NASA missions track key climate indicators and we share these with the world.

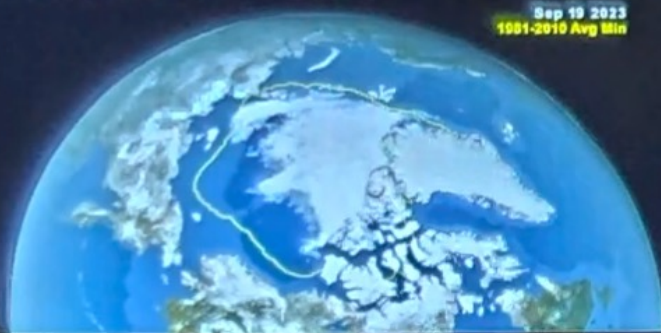
## Greenhouse Gas Levels are Increasing



## Global Temperatures are Rising



## Arctic Sea Ice is Shrinking



## Vital Signs

**Global Temperature**  
↑ 1.1°C  
since preindustrial

**Sea Level**  
↑ 4"  
since January 1993

**Minimum Extent of Arctic Sea Ice**  
↓ 12.2%  
per decade since 1979

**Ocean Warming**  
↑ 345  
zettajoules since 1955

**Carbon Dioxide**  
↑ 419  
current parts per million

**Methane**  
↑ 1924  
current parts per billion

**Ice Sheets**  
↓ 424  
billion metric tons per year

Earth Information Center  
Link: go.nasa.gov/eic

For more than 50 years, NASA has provided open-access and public information on Earth's land, water, air, and space. The Earth Information Center, along with other NASA programs, allows users to explore how our planet is changing and provides information and resources that help us understand the tools to mitigate, adapt, and respond to climate change.

NASA created the Earth Information Center with founding partners FEMA, EPA, NOAA, and USGS. The Earth Information Center data from research conducted by NASA and its partners.







Earth Information Center  
go.nasa.gov/eic

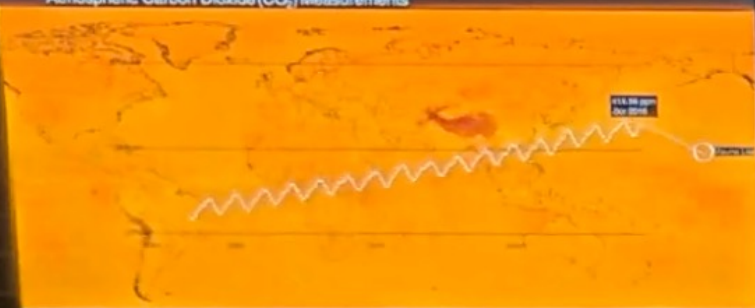


# Climate Vital Signs

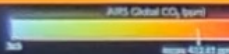
NASA monitors the health of our planet to benefit humankind. NASA missions track key climate indicators and we share these with the world.

## Greenhouse Gas Levels are Increasing

Atmospheric Carbon Dioxide (CO<sub>2</sub>) Measurements

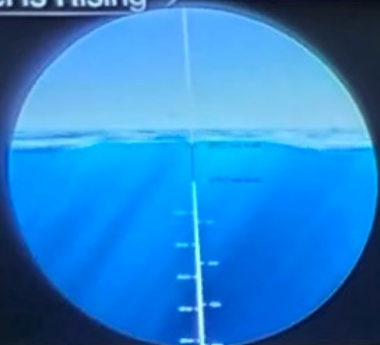


Jan 2019



Low data quality

## Sea Level is Rising



## Polar Sea Ice is Shrinking

31 Dec 2023



Arctic Sea Ice



Antarctic Sea Ice

The quantity of sea ice at each pole varies seasonally. In the Arctic, it reaches maximum in March and minimum in September; in the Antarctic the seasons are reversed. The extent of Arctic sea ice is steadily decreasing. While Antarctic sea ice has generally remained stable, 2023 has shown a rapid decline by setting a record low maximum since 1979.

## Vital Signs

**Global Temperature**

↑ 1.1°C  
since preindustrial

**Sea Level**

↑ 4"  
since January 1993

**Minimum Extent of Arctic Sea Ice**

↓ 12.2%  
per decade since 1979

**Ocean Warming**

↑ 345  
zettajoules since 1955

**Carbon Dioxide**

↑ 419  
current parts per million

**Methane**

↑ 1924  
current parts per billion

**Ice Sheets**

↓ 424  
billion metric tons per year

Earth Information Center  
Link: go.nasa.gov/eic

For more than 50 years, NASA satellites provided open-source and publicly available data on Earth's land, water, air, and climate. The Earth Information Center, allows users to see how the planet is changing and provides easy-to-use information and resources that support decision makers in developing the tools they need to mitigate, adapt, and respond to climate change.

NASA created the Earth Information Center with funding partners FEMA, EPA, NOAA, USAID, and USGS. The Earth Information Center provides data from research conducted by NASA's Earth Observing System and its partners.







Earth Information Center  
go.nasa.gov/eic

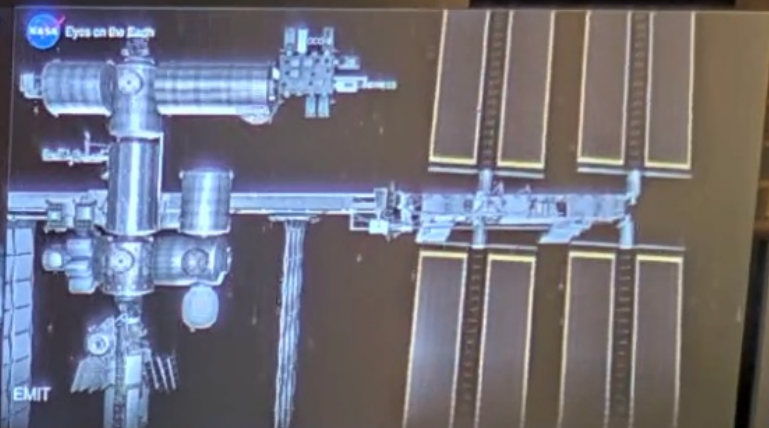
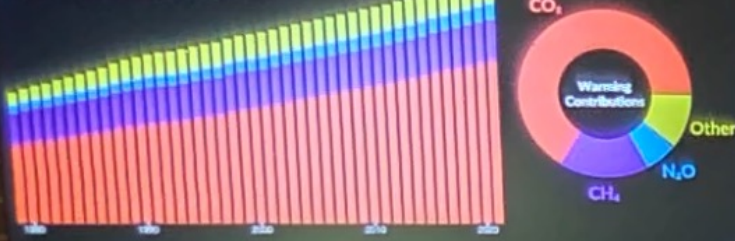


# Greenhouse Gases

NASA and its partner agencies track greenhouse gases from space, air, and ground. Our scientists model the flow of these gases across our planet.

## Greenhouse Gas Warming Contributions

NOAA Annual Greenhouse Gas Index



Net Ecosystem CO<sub>2</sub> Exchange



Methane Emissions from Wetlands

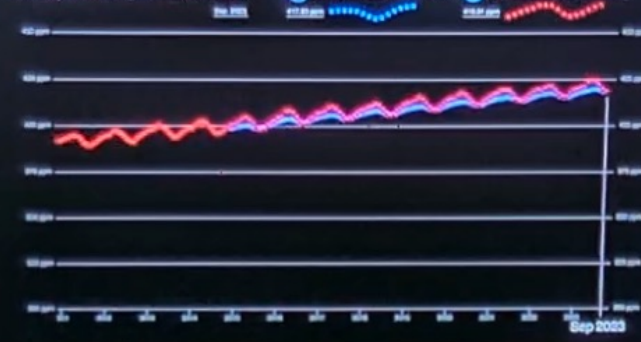


## Earth's Energy Balance

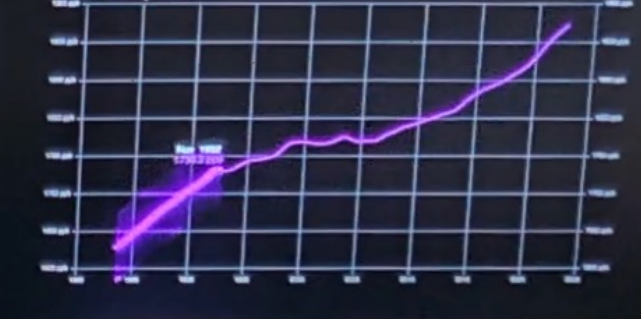
Cumulative Planetary Heat Content Anomaly of Earth, Observed by CERES



Atmospheric CO<sub>2</sub> Concentrations



Trends in atmospheric Methane (CH<sub>4</sub>)  
Monthly means



Earth Information  
Link: go.nasa.gov

For more than 50 years, NASA has provided open-source and public information on Earth's land, water, air, and climate. The Earth Information Center, allows users to explore data from space and provides information and resources that support decision makers in developing the tools they need to mitigate, adapt, and respond to climate change.

NASA created the Earth Information Center in partnership with FEMA, EPA, NOAA, and USGS. The Earth Information Center data from research conducted by NASA and its partners.







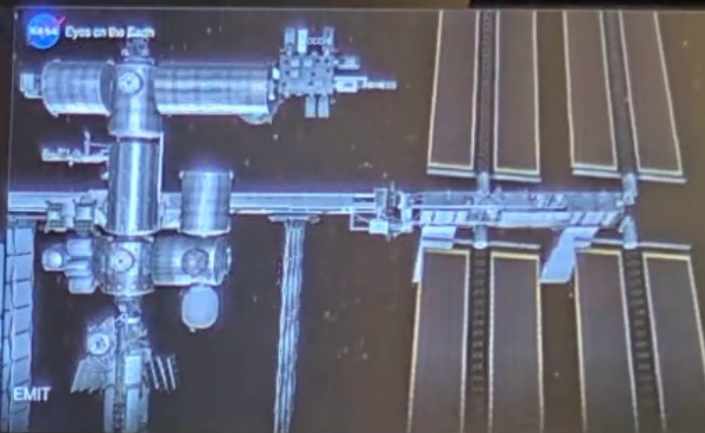
Earth Information Center  
go.nasa.gov/eic



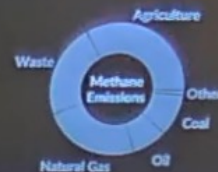
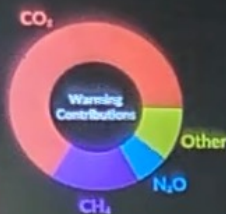
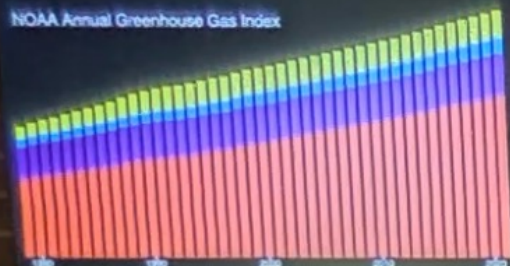
# Greenhouse Gases

NASA and its partner agencies track greenhouse gases from space, air, and ground. Our scientists model the flow of these gases across our planet.

## Greenhouse Gas Warming Contributions



NOAA Annual Greenhouse Gas Index



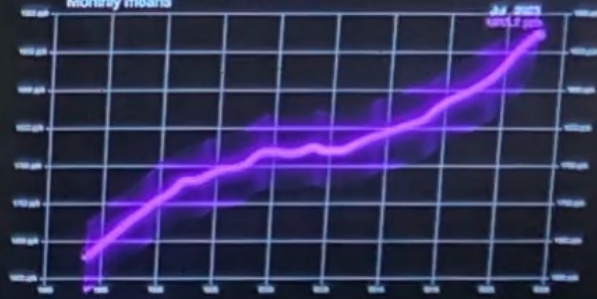
Trends in atmospheric Nitrous Oxide (N<sub>2</sub>O)  
Monthly means



Atmospheric Carbon Dioxide (CO<sub>2</sub>) Measurements



Trends in atmospheric Methane (CH<sub>4</sub>)  
Monthly means



Earth Information  
Link: go.nasa.gov

For more than 50 years, NASA has provided open-source and public data on Earth's land, water, air, and climate. The Earth Information Center, allows users to explore data from research conducted by NASA and its partners.

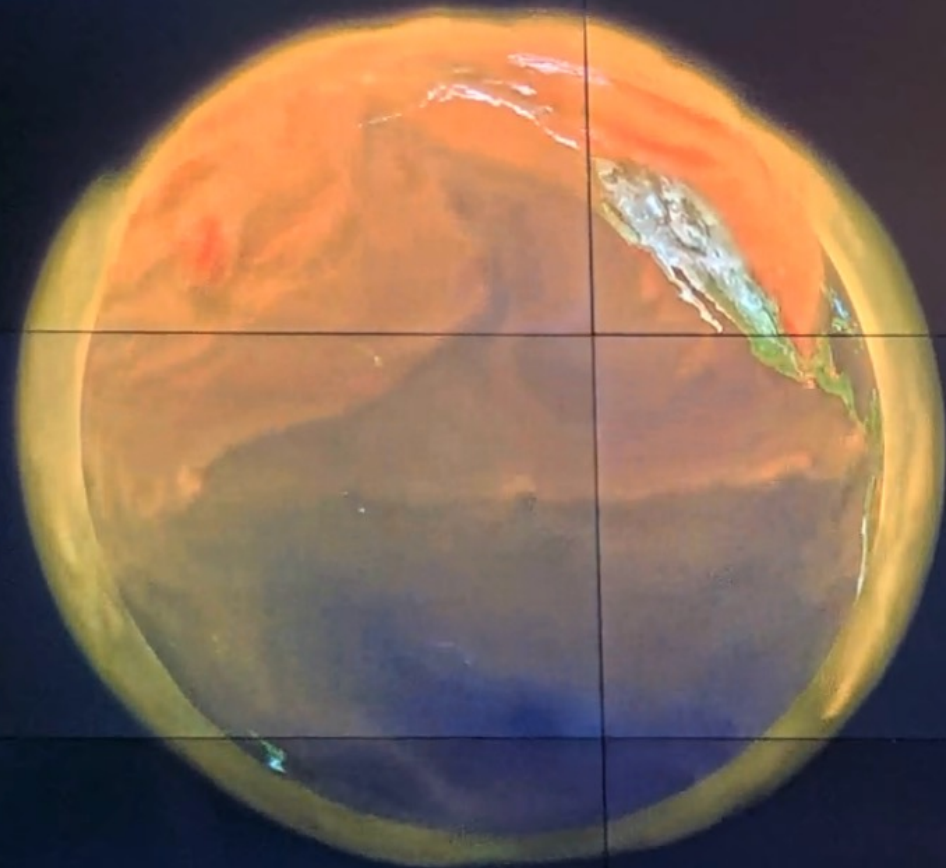
NASA created the Earth Information Center in partnership with FEMA, EPA, NOAA, and USGS. The Earth Information Center provides information and resources that support decision makers in developing the tools they need to mitigate, adapt, and respond to climate change.







## A Year in the Life of Greenhouse Gases



Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

### Carbon Dioxide (CO<sub>2</sub>)

3D CO<sub>2</sub> concentrations produced by merging OCO-2 observations with NASA's GEOS model to provide a best estimate of the processes controlling climate change.



### Methane (CH<sub>4</sub>)

3D CH<sub>4</sub> concentrations from the GEOS model incorporate emissions estimates from human activities, wetlands, fires, and winds informed by millions of satellite observations.

Earth Information Center  
Link: go.nasa.gov/eic

For more than 50 years, NASA has provided open-source and public data on Earth's land, water, air, and climate. The Earth Information Center, along with other NASA centers, allows users to explore the planet's changing climate and provides essential information and resources that support decision makers in developing the tools they need to mitigate, adapt, and respond to climate change.

NASA created the Earth Information Center with funding partners FEMA, EPA, NOAA, and USGS. The Earth Information Center data from research conducted by NASA and its partners.







Earth Information Center  
go.nasa.gov/eic



# Carbon Dioxide Sources & Sinks

NASA models the flow of carbon dioxide, its emission and transport around the globe, and its absorption by the ocean and biosphere.

## Global Fossil Fuel Emissions



## National Carbon Dioxide (CO<sub>2</sub>) Budgets

### Terrestrial Carbon Stock Change (2015-2020)



National mean of carbon stored in organic matter on land, called terrestrial carbon stock change for over 100 countries around the world for the period 2015-2020. Activities such as improved stewardship and deforestation, which are more extensive in the tropics than other regions, affect these stock changes.

The emissions (sources) and removals (sinks) of carbon dioxide (CO<sub>2</sub>) are informed by observations of atmospheric CO<sub>2</sub> observed by a network of ground-based sites and NASA's Orbiting Carbon Observatory 2 (OCO-2), which has mapped CO<sub>2</sub> around the globe since 2014.

Earth Information Center  
Link: go.nasa.gov/eic

For more than 50 years, NASA has provided open source and public information on Earth's land, water, air, and climate. The Earth Information Center, allows users to explore the planet is changing and provides essential information and resources that support decision makers in developing the tools they need to mitigate, adapt, and respond to climate change.

NASA created the Earth Information Center with funding partners FERA, EPA, NOAA, and USGS. The Earth Information Center data from research conducted by NASA and its partners.



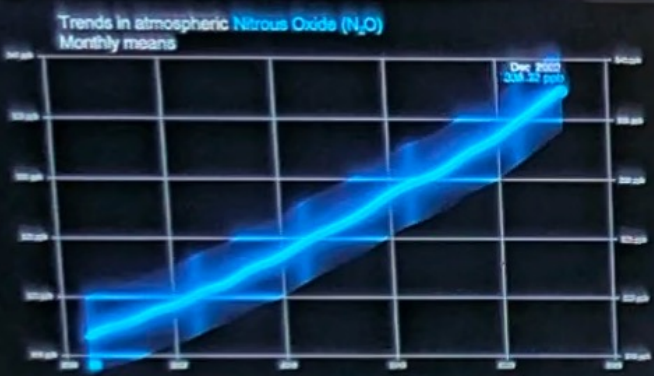




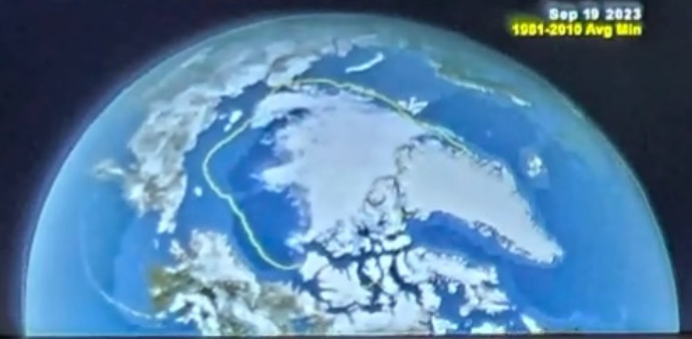
# Climate Vital Signs

NASA monitors the health of our planet to benefit humankind. NASA missions track key climate indicators and we share these with the world.

## Greenhouse Gas Levels are Increasing



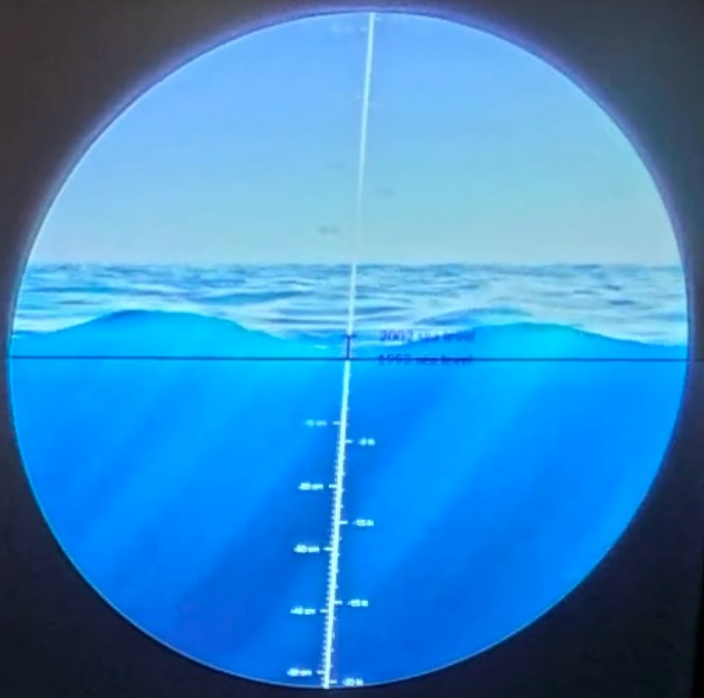
## Arctic Sea Ice is Shrinking



## Global Temperatures are Spiraling



## Sea Level is Rising



## Vital Signs

<b>Global Temperature</b> ↑ 1.1°C <small>since preindustrial</small>	<b>Sea Level</b> ↑ 4" <small>since January 1993</small>	<b>Minimum Extent of Arctic Sea Ice</b> ↓ 12.2% <small>per decade since 1979</small>	<b>Ocean Warming</b> ↑ 345 <small>zettajoules since 1955</small>
<b>Carbon Dioxide</b> ↑ 419 <small>current parts per million</small>	<b>Methane</b> ↑ 1924 <small>current parts per billion</small>	<b>Ice Sheets</b> ↓ 424 <small>billion metric tons per year</small>	

Earth Information Center  
Link: go.nasa.gov/eic

For more than 50 years, NASA satellites provided open-source and publicly available data on Earth's land, water, air, and climate. The Earth Information Center, allows users to see how the planet is changing and provides easy-to-use information and resources that support decision makers in developing the tools they need to mitigate, adapt, and respond to climate change.

NASA created the Earth Information Center with founding partners FEMA, EPA, NOAA, USACE, and USGS. The Earth Information Center draws data from research conducted by NASA's centers and its partners.







# Carbon Dioxide Sources & Sinks

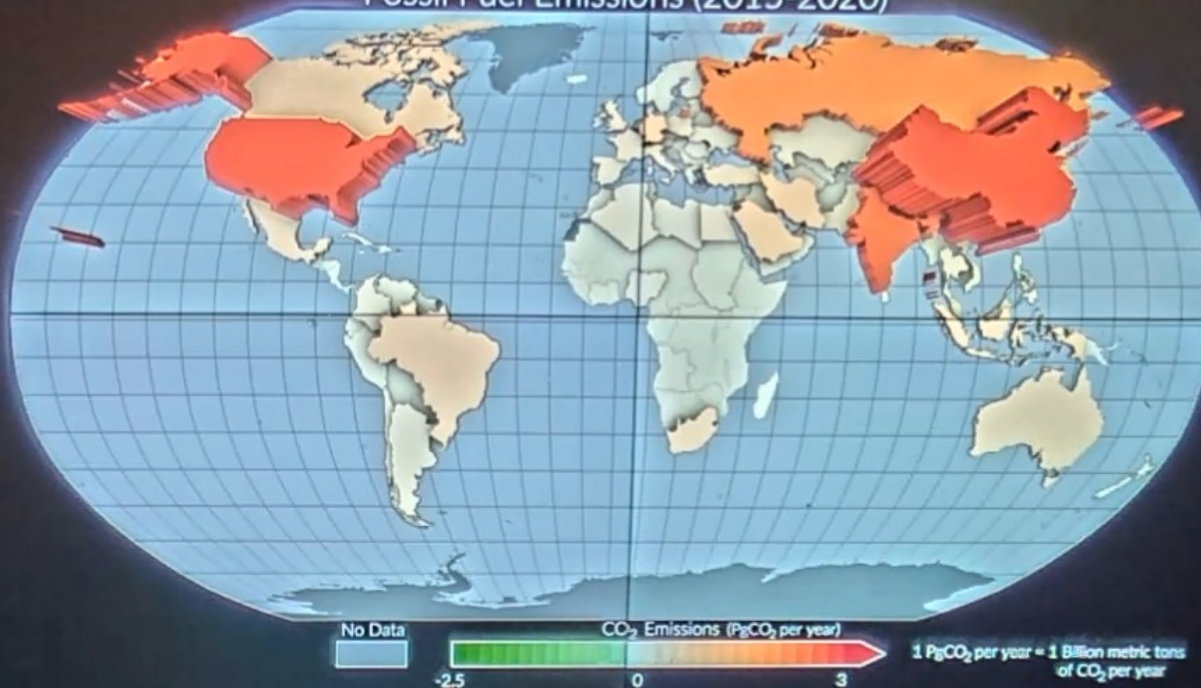
NASA models the flow of carbon dioxide, its emission and transport around the globe, and its absorption by the ocean and biosphere.

## Global Fossil Fuel Emissions



## National Carbon Dioxide (CO<sub>2</sub>) Budgets

### Fossil Fuel Emissions (2015-2020)



National mean fossil fuel emissions for over 100 countries around the world for the period 2015-2020. Fossil fuel emissions drive net emissions of CO<sub>2</sub> to the atmosphere, which are in turn driving climate change.

The emissions (sources) and removals (sinks) of carbon dioxide (CO<sub>2</sub>) are informed by observations of atmospheric CO<sub>2</sub> observed by a network of ground-based sites and NASA's Orbiting Carbon Observatory 2 (OCO-2), which has mapped CO<sub>2</sub> around the globe since 2014.

Earth information  
Link: go.nasa.gov/e

For more than 50 years, NASA satellites provided open-source and publicly accessible data on Earth's land, water, air, and climate. The Earth Information Center, allows users to see how the planet is changing and provides easy-to-use information and resources that support decision-makers in developing the tools they need to mitigate, adapt, and respond to climate change.

NASA created the Earth Information Center with founding partners FEMA, EPA, NOAA, USGS, and USFWS. The Earth Information Center draws data from research conducted by NASA and its partners.



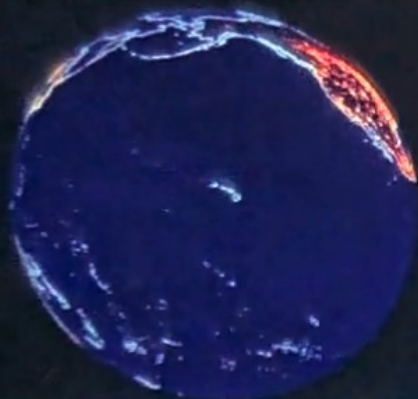




# Carbon Dioxide Sources & Sinks

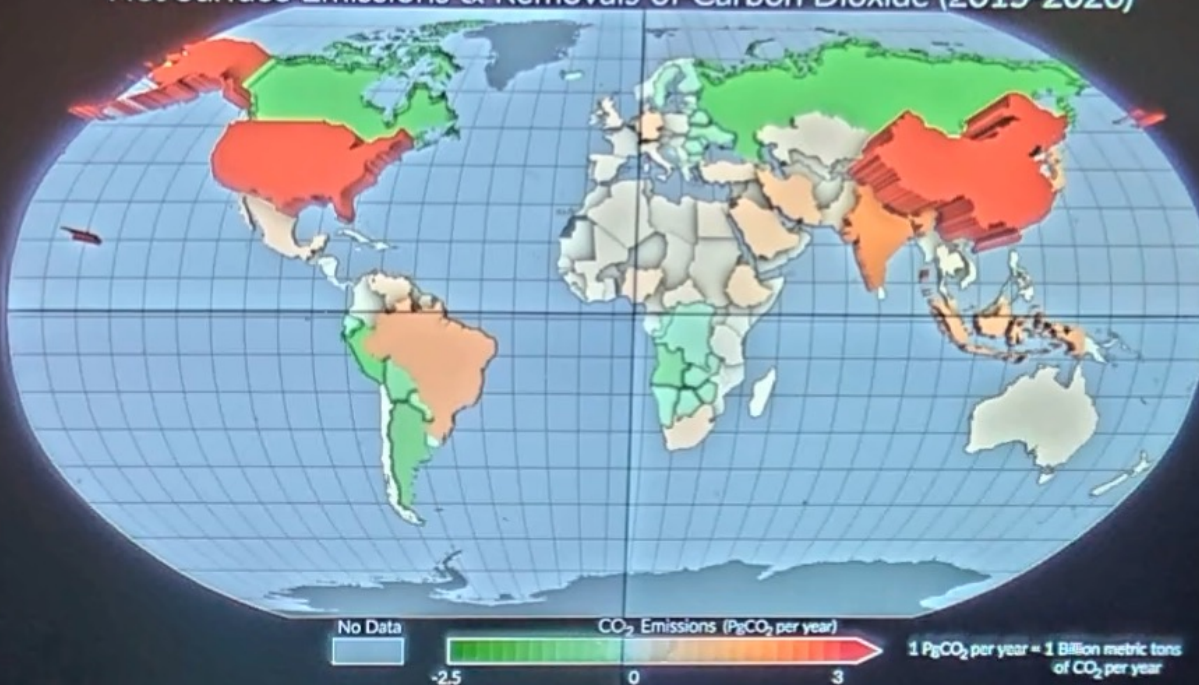
NASA models the flow of carbon dioxide, its emission and transport around the globe, and its absorption by the ocean and biosphere.

## Global Fossil Fuel Emissions



## National Carbon Dioxide (CO<sub>2</sub>) Budgets

### Net Surface Emissions & Removals of Carbon Dioxide (2015-2020)



National mean net surface emissions and removals of carbon dioxide (CO<sub>2</sub>) for over 100 countries around the world for the period 2015-2020. The net emissions and removals are the combined impact of fossil fuel emissions and land carbon stock changes.

The emissions (sources) and removals (sinks) of carbon dioxide (CO<sub>2</sub>) are informed by observations of atmospheric CO<sub>2</sub> observed by a network of ground-based sites and NASA's Orbiting Carbon Observatory 2 (OCO-2), which has mapped CO<sub>2</sub> around the globe since 2014.

Earth Information Center  
Link: go.nasa.gov/eic

For more than 50 years, NASA has provided open-access and public information on Earth's land, water, air, and space. The Earth Information Center, along with other NASA centers, allows users to explore how our planet is changing and provides information and resources that help decision makers in developing the tools to mitigate, adapt, and respond to climate change.

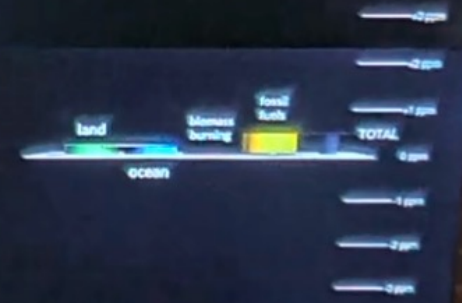
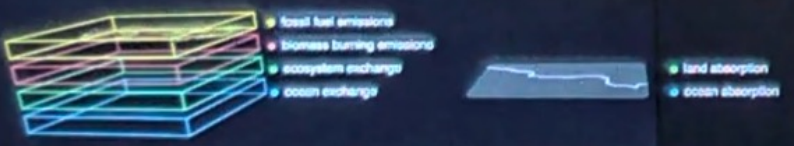
NASA created the Earth Information Center with founding partners FEMA, EPA, NOAA, and USGS. The Earth Information Center provides data from research conducted by NASA and its partners.







Pulses at the surface represent the daily cycle of photosynthesis. You're seeing about 4 days per second!



Earth Information  
Link: [go.nasa.gov](https://go.nasa.gov)

For more than 50 years, NASA has provided open access and public information on Earth's land, water, air, and space. The Earth Information Center, allows users to explore information and resources that are critical to understanding the planet as it is changing and provides information and resources that are critical to understanding the planet as it is changing and provides information and resources that are critical to understanding the planet as it is changing.

NASA created the Earth Information Center in 2002, with founding partners FEMA, EPA, NOAA, and USGS. The Earth Information Center provides data from research conducted by NASA and its partners.

