

Earth from Above

Humans are fascinated by looking at Earth from above.

It's only in recent human history that we've been able to send things upwards so they can look backwards. It can be a strange perspective too, changing something ordinary into something spectacular.

It's also vital in our quest to understand more about our planet, how it works and how it's changing, so we can best address Climate Change.



Earth Observation Satellites are objects that have been intentionally placed into orbit to observe the Earth from up high. They are tools used by scientists that can view the entire globe.

The satellites carry a range of instruments that collect different types of environmental data. This data along with information collected from aircrafts and instruments on the ground allow scientists to map and monitor local and global changes in our environment.

These satellites are often looking for Essential Climate Variables. They are physical, chemical or biological factors that tell us what is happening in the world, from the ocean, land and air.



For example it's useful to know how much ice is covering the Earth now compared to the last 100 years.

Satellites are useful because they can see and measure our planet on a scale that we would never be able to over land or sea. They are versatile, measuring one aspect for a long time, or seeing the whole planet at once.

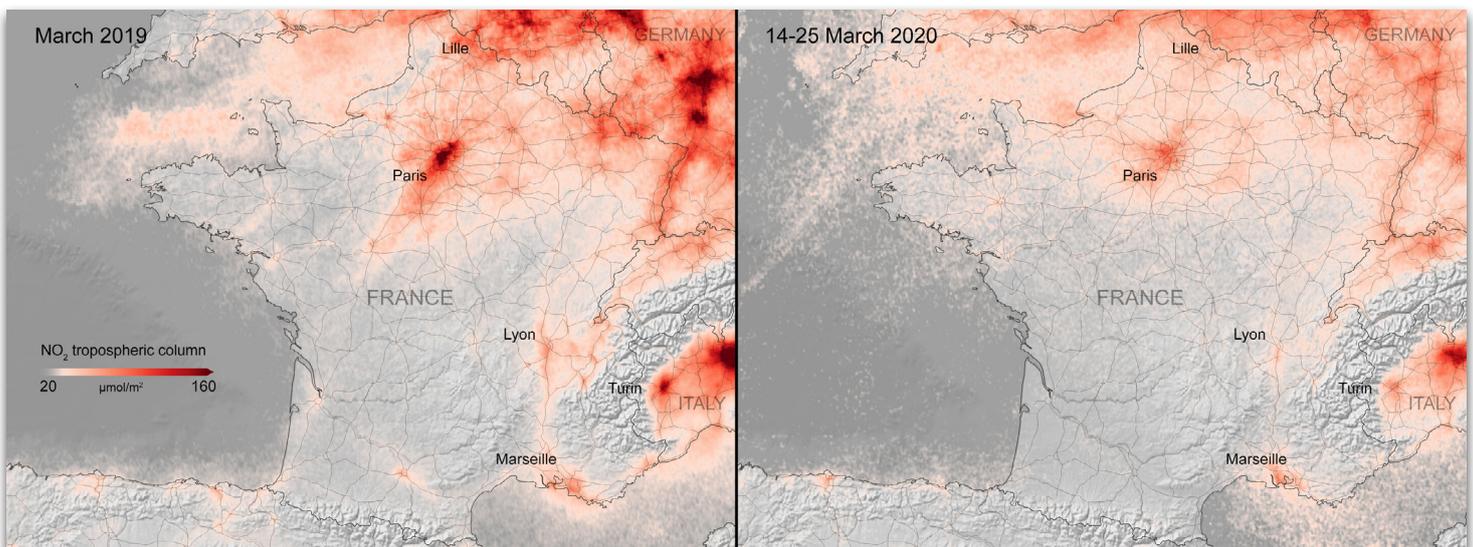
Seeing like a satellite



To see and measure the planet, there's a variety of equipment on board satellites. We are used to seeing images of our planet as if they've popped out a digital or phone camera. In this image we are able to see tiny creatures called Phytoplankton blooming in the ocean.

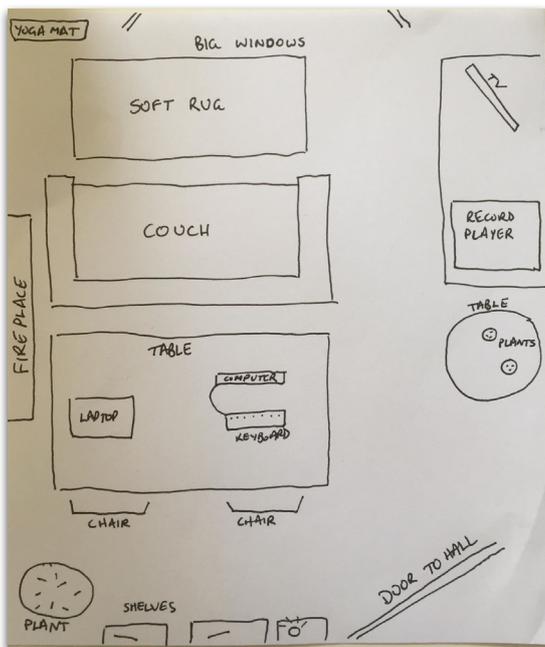
Some information can't be seen in the same way as the above image, so it is displayed using colour spectrums or symbols. For example you might be used to seeing temperature displayed using colours.

This image shows the levels of the gas Nitrogen Dioxide in the atmosphere over France in recent months, as measured by a European Space Agency satellite called Sentinel-5P.



Activity

1. Imagine you are a satellite flying over the Earth. Can you find your own house? What would it look like from space? You could even look it up on [Google Earth](#)
2. Now move a little closer to home. What does your living room, kitchen or garden look like from above? Stand in the middle of the space and look around.
3. Find some paper and something to draw with. Make a list of things you can see. Which of these things are visible from above?
4. Start your drawing by marking in any windows or doors - this will help you orientate your drawing. What's near to them? Continue to add things to your drawing. Remember, some of the things you can see might not be visible from above.
5. Why not try again on a different day and see what's changed. You could also try other places, like your street or local park.



Here's an example of a living room. How do you think this picture changes when it gets messy?!

Further exploration

Have a look at [these images](#) and see if you can spot the differences over time. What is changing?

Find out what scientists are [looking for](#) to tackle Climate Change.

Check out the [Destination Space](#) website for more information and activities.