

EY Space for Earth

Earth observation made easy

The better we understand our world, the safer, more sustainable it will be

Earth observation data has the power to significantly improve life on earth and has been widely available since 2008. However, until now, the tools available to obtain useful insights requires users to have a PhD in geospatial data science to understand them.

- EY Space for Earth is a growing suite of solutions developed by the EY Space Tech Lab.
- Supported by satellite technology, machine learning and artificial intelligence, these easy-to-use products provide valuable insights about our world to help improve business operations.
- EY Space for Earth is an essential tool for businesses across a multitude of sectors, including Power and Utilities, Transport, Mining, Insurance, Government, Defence and Logistics.
- The challenges that these sectors face include widespread asset distribution across harsh terrain, limited resources, increasing risks as a result of climate change and inconsistent data sources and are all addressed by EY Space for Earth's powerful and easy-to-use suite of solutions.

Solution description

EY Space for Earth is a first of its kind, easy-to-use tool that doesn't require a PhD in geospatial data science. The tailored insights produced by EY Space for Earth help users to make better decisions ahead of time and drive better outcomes for businesses.

Current and upcoming features of EY Space for Earth include:

- **Landcover mapping:** helps companies improve their asset management approaches and decisions and is critical for the successful operations of many businesses.
- **Object detection:** automatically identifies and classifies assets or items of interest shown via satellite imagery.
- **Proximity detection:** creates deeper and actionable insights such as tracking encroachment of vegetation across vast rail networks.
- **Water anomalies:** identifies water anomalies, indicates leaks from burst pipes or tracks water pooling on roads and critical infrastructure.
- **Fire management:** classifies vegetation health, tracks burn scars and identifies active fires to assist authorities in planning and helping in managing emergent situations.
- **Satellite tasking:** allows users to place orders on demand, to obtain satellite imagery of their chosen area of interest and preferred date.

Microsoft technologies leveraged

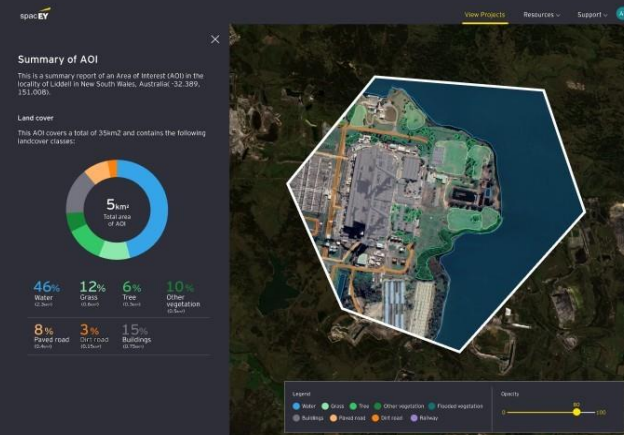
EY Space for Earth utilizes a variety of Microsoft technologies, including:

- Azure ML for Training and Hosting models
- Azure for hosting the EY Space for Earth platform
- Microsoft Planetary Computer for satellite imagery

What problems can be addressed?

EY Space for Earth monitors all kinds of things on earth, revealing information that cannot be seen by the human eye—from urban infrastructure to remote assets, weeds to water leaks, and bushfires to biodiversity. The EY Space for Earth helps gather tailored insights for better decision-making activities. With EY Space for Earth you can:

- Conduct virtual asset inspections across entire network of assets in near real time, not limited by difficult terrain or remote locations
- Identify vegetation encroachment on assets, and prioritize maintenance efforts to reduce service disruption, improve safety and increase efficiency
- Access near real-time information of the landscape composition to inform bushfire management plans
- Validate reports of safety hazards and identify new risks, like flooding across a road



EY Space for Earth solution in action

Improving water security with space technology and AI

Globally, 10-50% of drinking water is lost through leaking pipes every year. Finding the exact location of leaking pipes can take days, resulting in the loss of huge amounts of precious drinking water. Supporting field technicians with views from space can dramatically reduce the time required to find and fix leaking pipes. Managing water better is at the heart of adaptation to climate change and achieving Goal 6 of the UN's 2030 Sustainable Development Goals.

Client challenges

- A water authority in Oceania manages a network of more than 9,000 km of water pipes distributed over a 1,000 km² footprint.
- Annually, more than 1,000 leaking pipe events are reported by customers. Leaks occur when pipes degrade over time and are damaged by human activities.
- Finding and fixing these leaks can take days because leaks can be very difficult to locate. Some pipes leak for weeks or months as field crews struggle to locate the source of the leak.
- As a result, more than 50m litres (approx. 13%) of drinking water is lost from the network every day through leaking pipes.

Client benefits

- Working collaboratively, the water authority, Swinburne University and EY teams developed a proof of concept (PoC) using historical data, satellite images and computer vision approaches.
- EY teams explored an archive of 10m spatial resolution images captured by the Sentinel-2 satellite over a 12-month period looking for evidence of leaking pipes (or 'water anomalies').
- Several hundred water anomalies were detected in the images and further investigations were conducted by the water authority to validate if they were indeed related to known leaks.

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Every day, throughout the world, businesses, governments, and capital markets rely on EY business ingenuity and the power of Microsoft technology to solve the most challenging global issues.

EY and Microsoft bring a compelling formula to spark the potential of the cloud and unlock the power of data. We solve our clients' most challenging issues by blending trusted industry expertise with innovative cloud technology. Our strategic relationship draws on decades of success developing visionary solutions that provide lasting value.

Together, we empower organizations to create exceptional experiences that help the world work better and achieve more.

For more information, visit: ey.com/Microsoft.

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