

## Video: EDRS: the space data highway

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The European Data Relay System, or EDRS, uses cutting-edge laser technology to greatly reduce the time it takes for information to be sent from low-Earth orbiting spacecraft—such as the Earth observing Sentinel satellites—to Earth.

The system makes Earth observation information available in almost real-time, which can help disaster management workers and the [emergency services](#) accelerate their responses to natural crises.

Known as the "space data highway," it currently consists of an extensive network of European ground stations and control centres, and two sister satellites: EDRS-A and EDRS-C. Both are in [geostationary orbit](#) at an altitude of around 36 000 km, far higher than low-Earth orbiting spacecraft, which typically have an altitude of below 1000 km.

Thanks to the orbital position of the system's satellites, low-Earth orbiting spacecraft lie within the field of view of EDRS for extended periods. At the same time, EDRS has a permanent connection to its own ground stations located on European soil.

Traditionally, when a low-Earth orbiting [satellite](#) sends information to Earth, it must wait until it has a direct line of sight to a ground station. This can lead to delays of up to 90 minutes.

Instead, the EDRS satellites relay data from spacecraft within their field of view, allowing people on Earth to receive Earth observation information in almost [real-time](#).

EDRS-A relays a command to the low-Earth orbiting satellite, instructing it to point its sensors towards the area of interest on Earth. Once the data—such as an image—is acquired, it is sent to EDRS-C using laser technology. The data is then relayed to an EDRS [ground station](#) via a radio frequency link.

EDRS is a new, independent European satellite system, and is a Partnership Project between ESA and operator Airbus. It forms part of ESA's efforts to federate industry around large-scale programmes, stimulating technology developments to achieve economic benefits.

Provided by European Space Agency

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