

# Key facts about Spire



## What

Spire Global maintains a large, operational **LEMUR (Low Earth orbit Multi-Use Receiver) constellation of shoe-box sized CubeSats**. Each of Spire's CubeSats contains flexible and powerful software defined radio payloads, which can be re-programmed in orbit to receive and process various radio signal types. The LEMUR constellation provides global coverage, short revisit times and near real-time data

## When

Beginning of launch

2013

Spire first began launching satellites in 2013 and since then has launched more than 160 satellites in a variety of low Earth orbits

## Applications

Spire's data have the potential to serve a range of applications, in areas such as:



**Global shipping - identity, position and speed of marine vessels**



**Aviation monitoring services**



**Numerical Weather Prediction (NWP)**

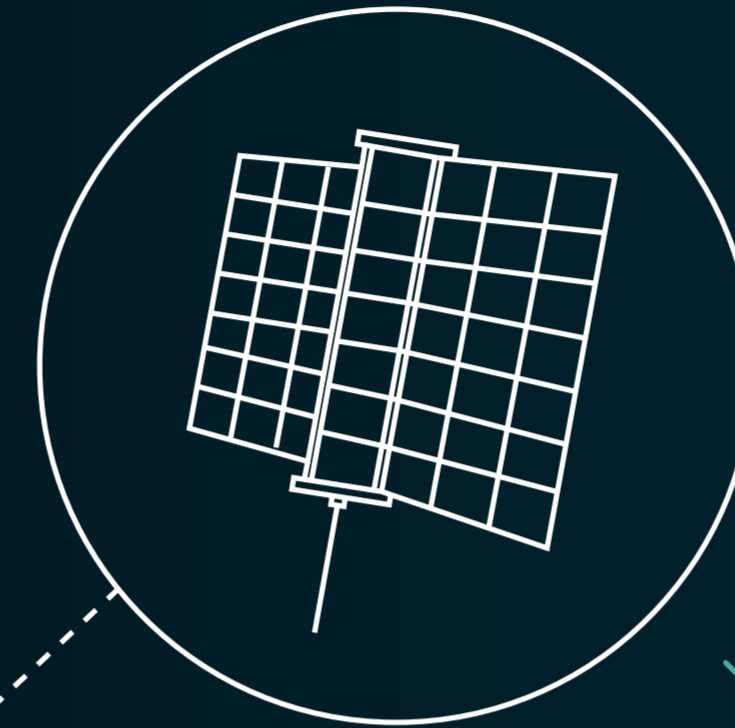


**Tracking Earth's surface properties - sea surface wind, sea ice and surface soil moisture**



**Space weather observations for monitoring and research**

≈ 100  
Spire satellites  
in orbit



SPIRE



EARTHNET

## Built by

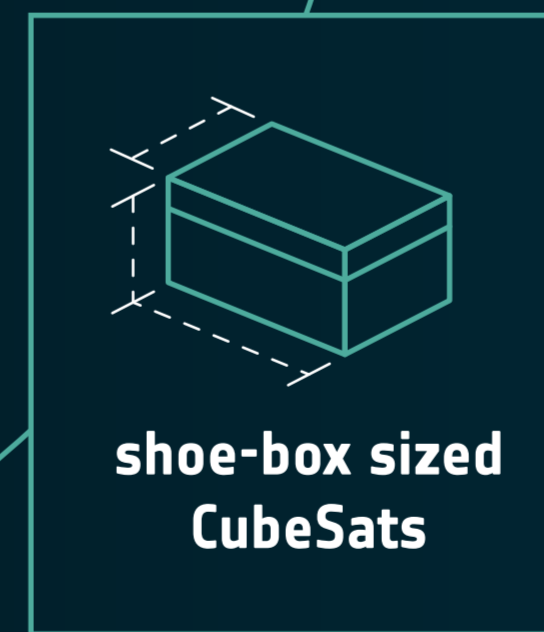
The satellites are designed, built and operated by Spire's UK office in Glasgow and its European headquarters in Luxembourg

## Payloads

- GNSS Radio Occultation (GNSS-RO)
- GNSS Reflectometry (GNSS-R)
- Automatic Identification System (AIS)
- Automatic Dependent Surveillance-Broadcast (ADS-B)

Since 2021, Spire satellites have evolved including additional capabilities such as:

- GNSS-RO polarimetric (GNSS-PRO)
- GNSS-R in grazing angle geometry



shoe-box sized  
CubeSats

## Data access

Through ESA's Third Party Missions programme, a range of stakeholders carrying out research and development, may receive Spire data on a free basis by submitting a project proposal, which is then evaluated on scientific objectives, cost and feasibility [here](#)