Astroscale – who are we?

Our Vision: Safe and sustainable development of space for the benefit of future generations.

Our Mission: Develop innovative technologies, advance business cases, and inform international policies that reduce orbital debris and support long-term, sustainable use of space.

Founded: May 4, 2013
Team: ~185 (75% engineers)
Capital: $191M
Our Activities

ELSA-d Mission – the world’s first commercial demonstration of Active Debris Removal (ADR)

Working on ESA Sunrise Programme with OneWeb towards a future large constellation End-of-Life (EOL) service.

Astroscale selected for ADRAS-J inspection mission, part of JAXA’s Commercial Removal of Debris Demonstration (CRD2) project

Recent acquisition of Effective Space into Astroscale Israel, moving towards GEO Life Extension (LEX) missions

Prime developer for UK National In-orbit servicing (IOS) Facility, Catapult, Harwell

Ground segment capability: Totsuka Ground Station, Yokohama, Japan
ELSA-d

ELSA-d will be the world’s first End-Of-Life (EOL) demonstration proving end-to-end debris removal technologies

Consisting of two spacecraft
• Servicer: 180 kg (Japan)
• Client: 20 kg (UK)

A ferromagnetic Docking Plate allows prepared servicing of client using the proprietary capture system.

Successfully launched on March 22nd 2021 by GK Launch Services on Soyuz 2 from Baikonur Cosmodrome.

Designed to explore the full phases of operations that would be necessary for a full EOL service, including client search, inspection, capture, re-orbit and de-orbit.

Successfully licensed through the UK following a detailed review and oversight process by UKSA under the Outer Space Act.
ELSA-d mission plan overview

Mission video: https://youtu.be/HCWxdK7l0hI
ELSA-d mission status

Pre-launch

Phase 1: LEOPS

Mar 22nd 2021:
 Launch from Baikonur Cosmodrome
 Successful injection into 550km SSO

Operations from In-orbit Service Control Centre (Harwell, UK)
 Signal acquisition
 Solar array deployment

Phase 2: Commissioning

April 2021 +
 Test interfaces with the ground segment
 Ensure subsystems are calibrated
 Client activation

Phase 3: First demo

Summer 2021
 Demo phases begin
 First one is capture without tumbling

We are here

Feb 2021
 Pre-launch checks
ELSA-d and Long Term Sustainability

Astroscale supports industry implementation of the 21 LTS guidelines

- ELSA-d design and behaviour is underpinned by **international standards** and industry **best practice**

- Ensuring public **transparency** and **communication** of the ELSA-d mission, in advance and during operations

- **Conjunction analysis, coordination and data sharing** with other spacecraft operators and SSA service providers
The ELSA-m (multi-client) programme

- **ELSA-m** is a UK-led programme, following on from the ELSA-d mission.

- For almost 2 years we have been working on ESA/OneWeb Sunrise programme to develop a servicer capable of de-orbiting constellation spacecraft.

- ELSA-m is designed to
  - service multiple full-size clients
  - use electric propulsion ensure efficient orbital transfers
  - use a ferromagnetic capture system to dock with a compatible client docking plates
  - be modular, scalable and relatively customer agnostic for a variety of clients masses and sizes.

- PDR successfully completed with ESA (Oct 2020).

- Targeting a 2024 launch of the ELSA-m In-orbit Demonstrator service of a third party LEO spacecraft.

- Expect a scaled-production of ELSA commercial service from 2024 onwards.
Astroscale is the sole provider dedicated to in-orbit services across all orbits, bringing flexibility, sustainability and resiliency to space.

ELSA-d will soon demonstrate key technologies for future ADR and EOL missions such as ELSA-m.

Astroscale’s services will support future space sustainability in a safe and transparent manner.

Summary

Contact Astroscale

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