



# UK Civil SST Activities

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# Today's presentation

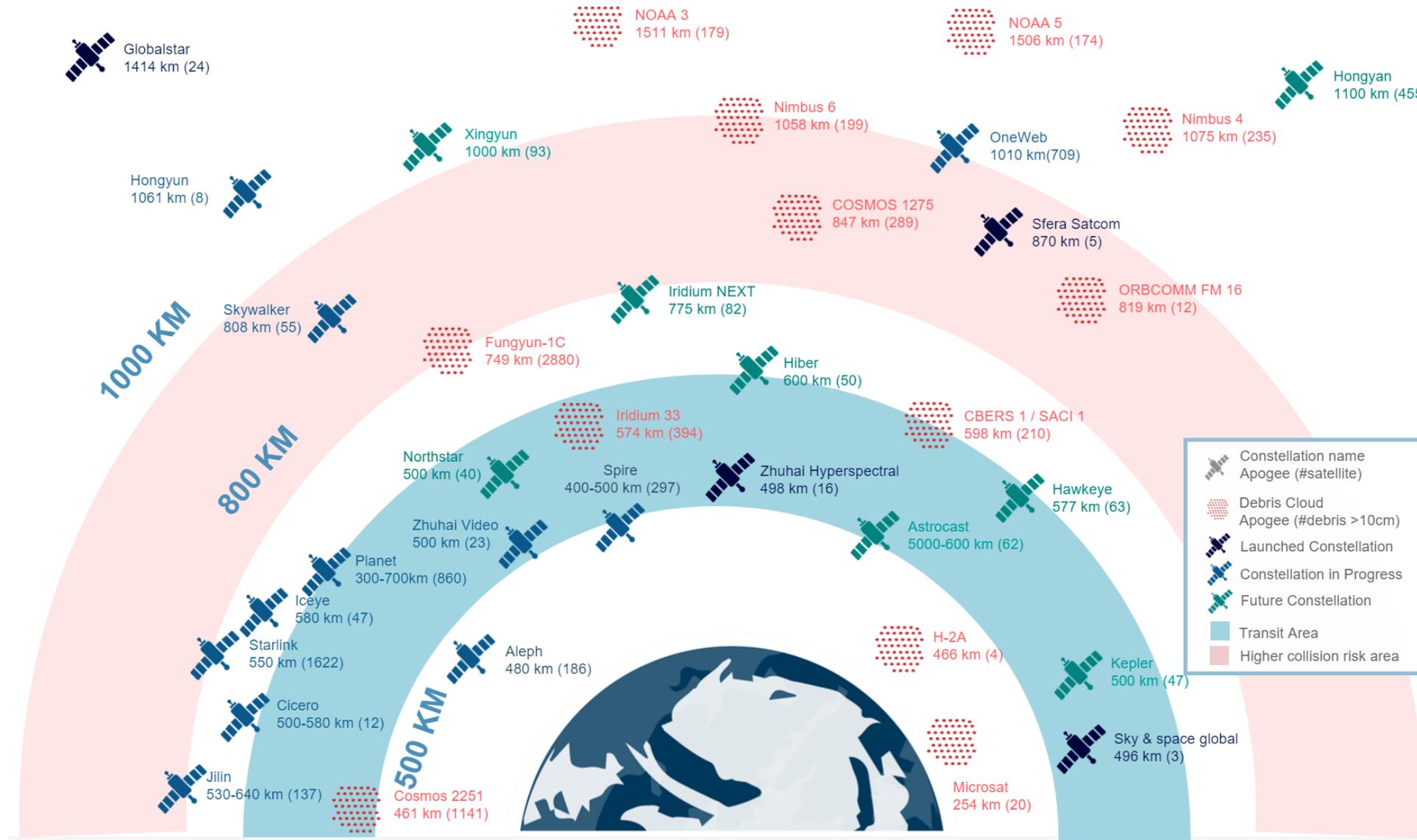
By developing the UK's Space Surveillance and Tracking capability we are supporting guidelines:

- B2: Improve accuracy of orbital data on space objects and enhance the practice and utility of sharing orbital information on space objects
- B3: Promote the collection, sharing and dissemination of space debris monitoring information
- B4: Perform conjunction assessment during all orbital phases of controlled flight

By investing in ESA and national research and development we are supporting guidelines:

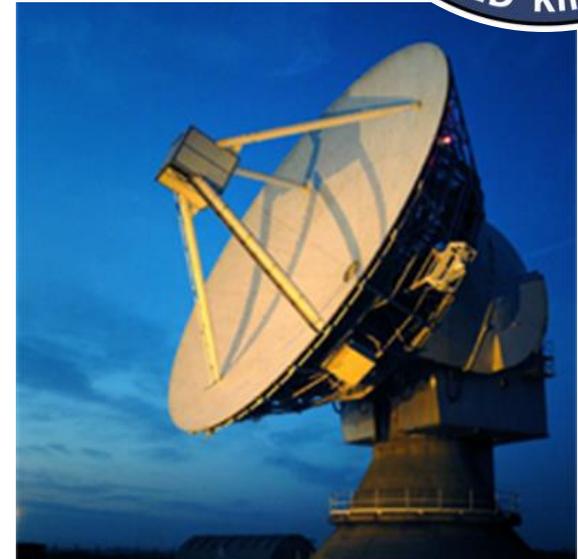
- B6: Share operational space weather data and forecasts
- D1: Promote and support research and development of ways to support sustainable... use of outer space
- D2: Investigate and consider new measures to manage the space debris population in the long term

# The Space Surveillance Challenge



# Space Surveillance and Tracking in the UK

- The UK Space Operations Centre was created in 2008 by the Royal Air Force
- Civil analysts working alongside military colleagues from 2016
- Collaboration with others is key:
  - UK co-founded the EU SST consortium in 2015 to monitor orbital events
  - UK embeds in the US Combined Space Operations Center
  - Actively supporting COPUOS and IADC analysis
- Joint civil/military initiative to consider a 'National Space Operations Centre' started in 2018



# How we are developing the UK's SST capability

## Sensors

- Awarding grants to industry to develop new lower-cost sensor technologies
- Maintaining and utilising current UK sensors
- Sharing data with academic partners

## Data Processing

- Developing UK software in collaboration with MOD
- Awarding grants to industry to use AI & Machine Learning for SST

## Analysis

- Building skills and expertise in our civil and military Orbital Analysts
- Investigating cutting edge algorithms for SST analysis



UK investment in ESA Space Safety programme

# UK investment in ESA and national R&D

# UK investment in ESA Space Safety programme

Brings together activities towards addressing threats originating in space

- Mitigates the Space Weather risk through an innovative mission that secures and enhances the observational data necessary for Forecasting.
- Demonstrates in-orbit servicing missions and technologies.
- Underpinning research in debris detection, cataloguing and mitigation

UK is leading contributor with a total investment of €95.5m



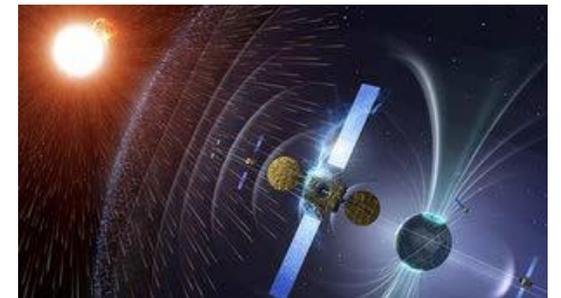
**Core activities:** €12.5m

**Lagrange (L5):** €70m  
Space weather observation and forecasting

**Hera:** --- (Not subscribed)  
Asteroid observations

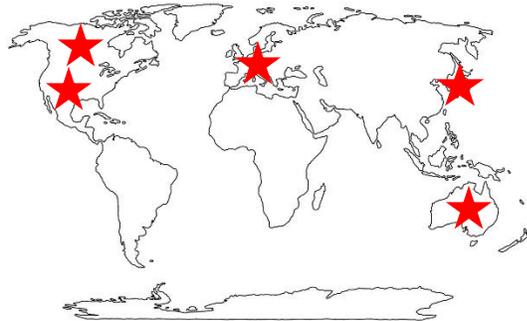
**ADRIOS:** €12m  
Active Debris Removal and In Orbit Servicing

**CREAM:** €1m  
Collision Risk Estimation and Automated Mitigation



# Growing commercial SST expertise

- Part of the UK Space Agency's plans to grow its national (SST) capability and, working with international partners, become a global leader in space sustainability
- UK Space Agency is providing grant funding to support pioneering projects to advance SST in the UK space sector
- Supporting businesses ranging from large to small companies to develop cutting-edge innovations to combat space debris.
- Introduce competitive new SST technology and services, potentially delivering new national sensors



# Questions?