ASTROS solutions

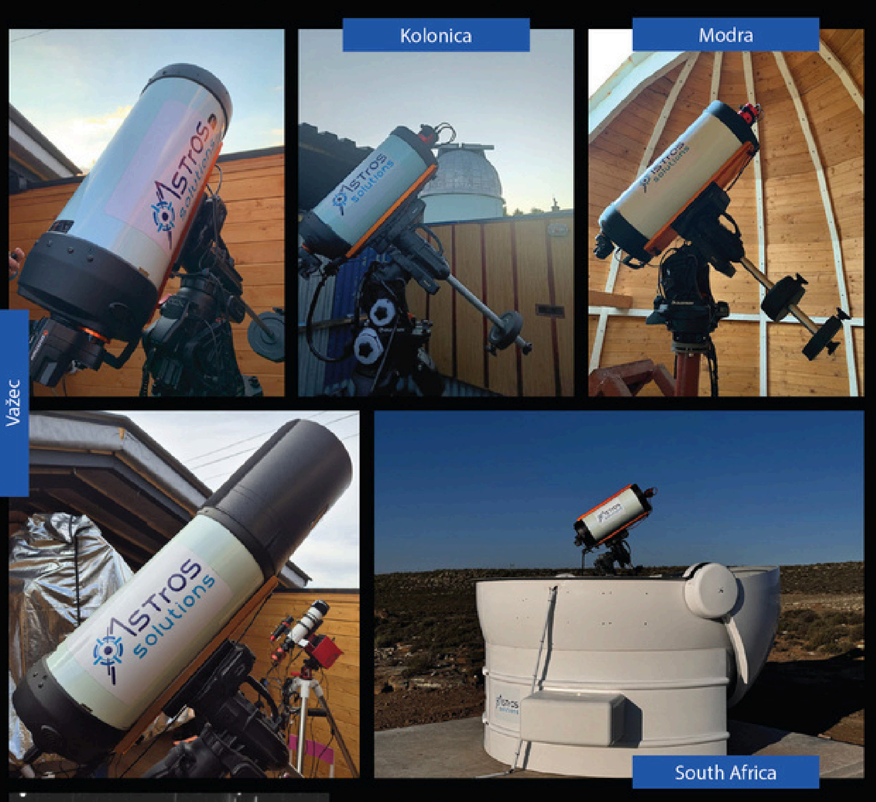
DEDICATED TO SPACE SAFETY AND LONG-TERM SUSTAINABILITY

FIND MORE ABOUT OUR COMPANY

VIDEO PRESENTAION ABOUT OUR COMPANY

SENSOR NETWORK

Astros owns and operates five optical telescopes: four in Slovakia and one in South Africa. The sensors are equipped with 8- and 11-inch tubes installed on equatorial mounts with high tracking angular velocities of several degrees per second.



CAPABILITIES

Sensors are optimized for sky surveys and space object tracking, allowing for the observation of multiple targets across orbital regions from Low Earth Orbit (LEO) up to Geosynchronous Orbit (GEO). Simultaneous observations of objects from different locations are also possible.

Each sensor regularly observes calibration objects to monitor and verify performance.

PRODUCTS

Observations generate the following data products:

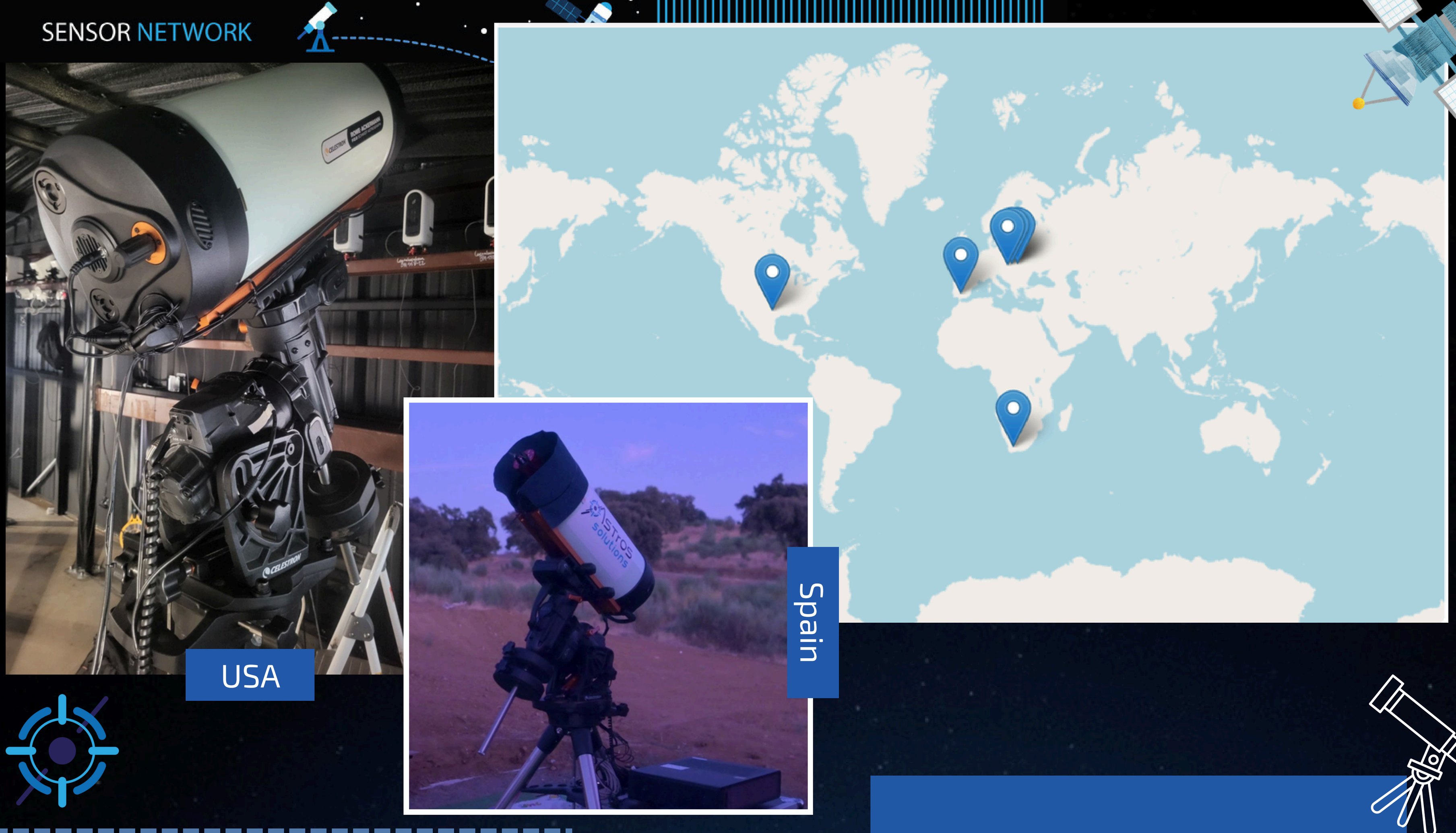
- astrometric positions in Tracking Data Message (TDM) v2 format
- photometric magnitudes in Clear and Sloan passband filters
- original images in FITS format

PRICING

Sensor time is charged based on the amount of allocated time used for successful observations. For pricing details, please contact: office@astros.eu.

Prices are independent of the number of delivered series (tracklets). Observations of calibration objects are provided free of charge.

SENSOR NETWORK



RESEARCH & DEVELOPMENT

ASTROS MEETS DRACO

Destructive Re-entry Assessment Container Object (DRACO) mission is a washing-machine-sized satellite with a single mission to re-enter the atmosphere from Low Earth orbit and measure all conditions and processes during the re-entry. Astros is responsible for the development of the marker components, which will serve as back-up validation of the conditions at specific points of the re-entry, in case the on-board detection instruments fail. Furthermore, the markers will serve as a reference for the independent airborne mission observing the DRACO re-entry.

Sources: www.esa.int, www.indico.esa.int

ROSIE TEAM EFFORT

As a very first ESA Space Safety activity awarded to Slovak industrial entity, ROSIE activity is one of the great accomplishments of Astros. Under this activity Astros is responsible for the logistics and management of the airborne mission towards the re-entry of the Cluster-II satellites. With our partners from IRS/HEFDiG, USQ, HTG and FMPH, we conducted the successful daylight airborne observation of the Salsa satellite in September 2024. The unprecedented Salsa dataset is currently being processed and ROSIE team is preparing for the next mission to the Cluster satellites' re-entry in 2026.

Credits: University of Southern Queensland

STEPHANIK PLATFORM

In recent years, the Slovak space ecosystem started to grow. STEPHANIK activity, funded under EU Reconstruction and Resilience Plan, is the major outcome. The aim of the activity is to reach TRL 4 for the modular smallsat platform, which can be used for different mission types. Astros is responsible for the alignment with ESA Zero-Debris guidelines and identification of suitable orbital regions with low population density and low risks.

NEW PRODUCTS to be released in 2026

Thanks to the 2nd Slovak ESA RPA call, Astros is developing two new products under EE4LMT and ADreS-SK activities. The Ephemeris Enhancement is designed to increase the TLE accuracy for short time intervals to 5 arcseconds to improve the Laser Ranging station efficiency. Attitude Determination module will provide a fast preliminary assessment of the target satellite's attitude based on the IOTA forward modeling tool.

OTHER ACTIVITIES

- Slovak Automated Space Surveillance and Tracking Optical System - Slovak SST
- Validation of re-entry models by using real optical measurements obtained by AMOS global network
- Proposal for Slovak universities curriculum adaptation toward S2P market
- Robotic Telescopes Demonstration
- Slovak National Space Safety Programme (S2P) Study (SK-S2P)
- Utilizing IOTA for the initial Attitude Determination in a fast-response service based on multistation photometric data
- Ephemeris Enhancement with Optical Passive Sensors for Laser Tracking in Momentum Transfer Applications
- Artificial space objects characterization using laboratory and ground-based optical measurements (ArtSPOC)
- Setup, Run, And Collaborate in International Remote Re-Entry Observation Campaigns (ROSIE)
- Benchmarking and Inversion of Light Curve for Attitude Reconstruction with Expert Centre Support
- DRACO consolidation phase B/C - Marker design
- Roadmap generation for EuroQCI ground station deployment in Slovakia (study)

PROJECTS SUMMARY

5 FINISHED

7 ON-GOING

SatField

Your guide to hectic sky

Online tool for space object tracking, planning, and star field contamination

SatField is a platform-independent service designed to help assess and mitigate the negative impact of artificial space objects on the night sky. It provides sky positions and brightness predictions for selected artificial objects at any location on Earth. To ensure accurate results and seamless experience, SatField is supported by several external databases.

FEATURES

- Calculate satellite and debris ephemerides
- Asses field-of-view contamination with satellite and debris streaks
- Select an MPC* observatory or set a custom location
- Choose a star field to investigate
- Select an object to observe
- Obtain the apparent visual brightness of the selected object

DATA

- SGP4 model
- TLE data
- MPC* observatories
- Phase functions
- Light curves
- www.sdlcd.space-debris.sk

* Minor Planet Center

Available at: satfield.astros.eu

COMENIUS UNIVERSITY BRATISLAVA

Visualize the EPHEMERIS of your object

Check for CONTAMINATION of your field of view

Check the VISIBILITY of objects from your location

Take a look at SatField

GET IN TOUCH TODAY

ADDRESS

Mlynska Dolina F1, 842 48 Bratislava, Slovakia

EMAIL ADDRESS

office@astros.eu