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Starbrook

Starbrook: overview

Electro-optical sensor for surveillance of high Earth orbits

Designed for, and dedicated to, SSA

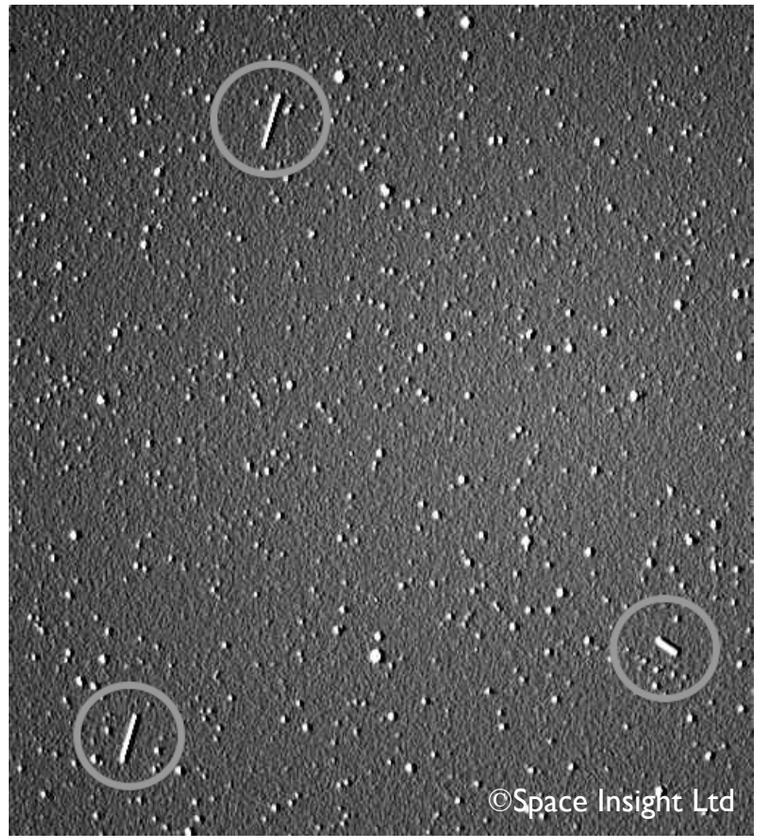
Astrograph

Wide field of view optics for surveying

Flexible electro–optical configuration

Highly automated

Operational since 2006



Full Moon (0.2 sq°):

Typical Starbrook field of view (20 sq°):

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Current Starbrook sites: Cyprus

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Current Starbrook sites: Cyprus

Troodos

Mt Olympus

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Advantages of Troodos/Mt Olympus sites

Dark sky

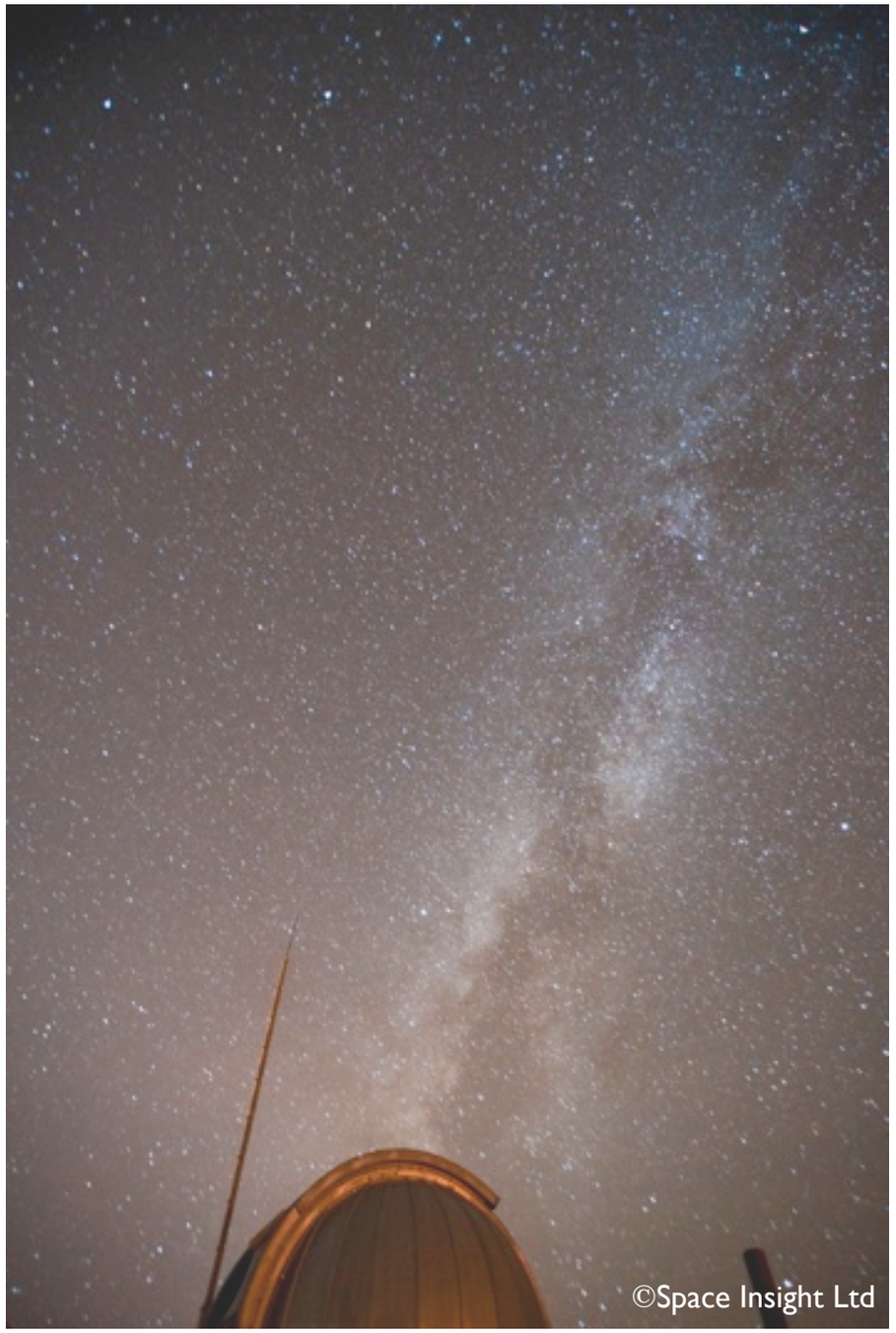
Long nights all year (7 to 12 hours)

Frequent (75%) cloudless night sky

2 km altitude ensures air clarity

Secure UK MoD facilities

Utilities infrastructure on sites



Starbrook operational capabilities

Orbit coverage

- simultaneous detection of all high Earth objects in field of view

Operational parameters

- 500+ sq°/hr : thousands of observations, hundreds of objects per night
- J2000 celestial position fixes; 0.0015° accuracy
- 1 m detection size

Complements other UK sensor assets

- overlap with mid-European GEO sector
- adds weather redundancy and bistatic opportunities
- greater eastern reach than other European sensors

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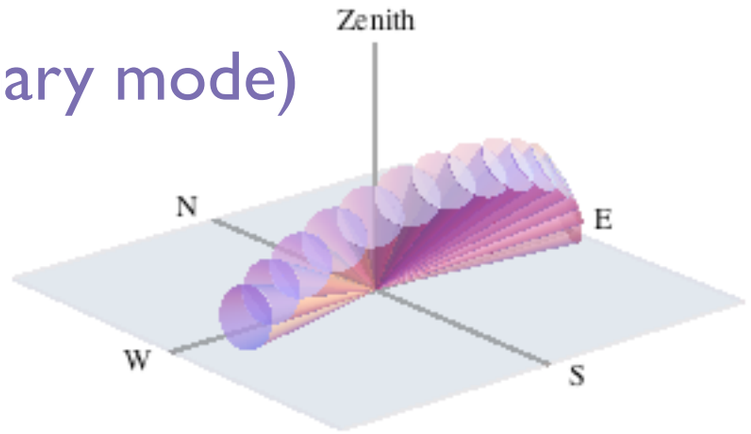
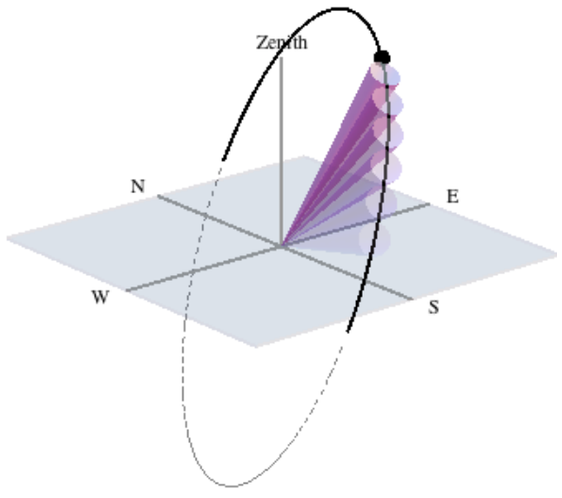
Starbrook observing modes

Multi-object multi-mode scheduling

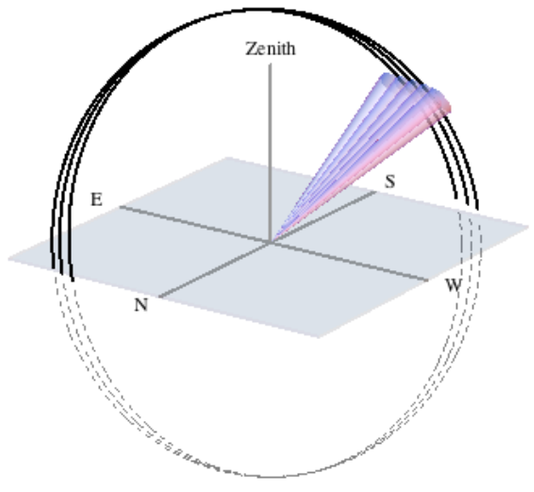
Survey (primary mode)



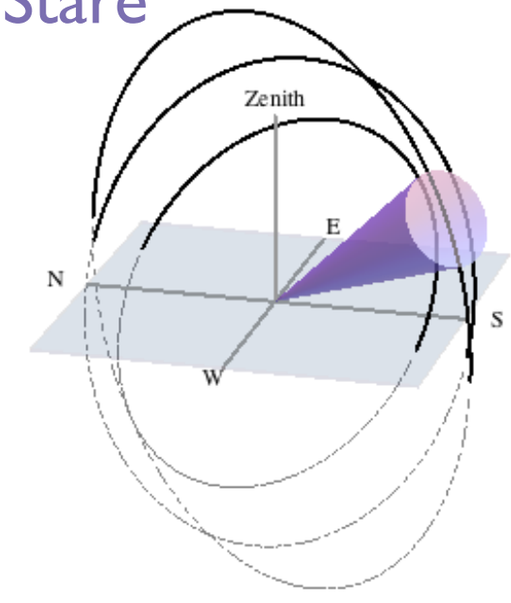
Object track



Orbit fence



Stare



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SSA products from Starbrook

Observation–catalogue correlation

- observation correlation with US Space-Track TLE catalogue
- UXO detection capability (new launch, manoeuvre, break-up monitoring)
- CCSDS-TDM, B3 Transmit, and other export formats available

Orbit update and conjunction support

- observations for update of orbits (catalogue and conjunction support)
- short– and long–arc orbit determination (TLE or SV product)

Object characterisation

- photometric observations and model comparison
- simultaneous collection on all objects in field of view

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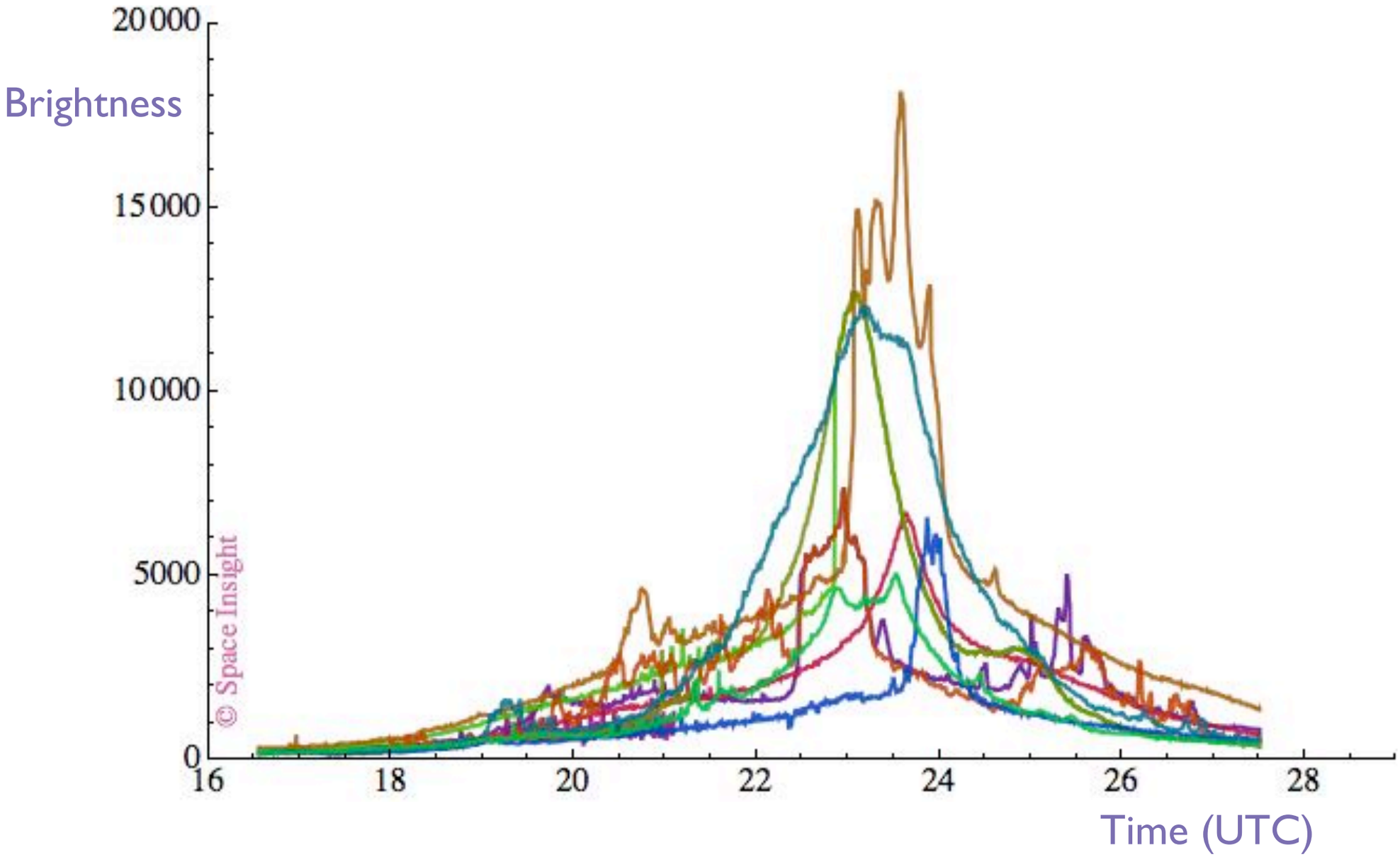
Starbrook photometry

Photometric signatures of all in–view objects collected simultaneously



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