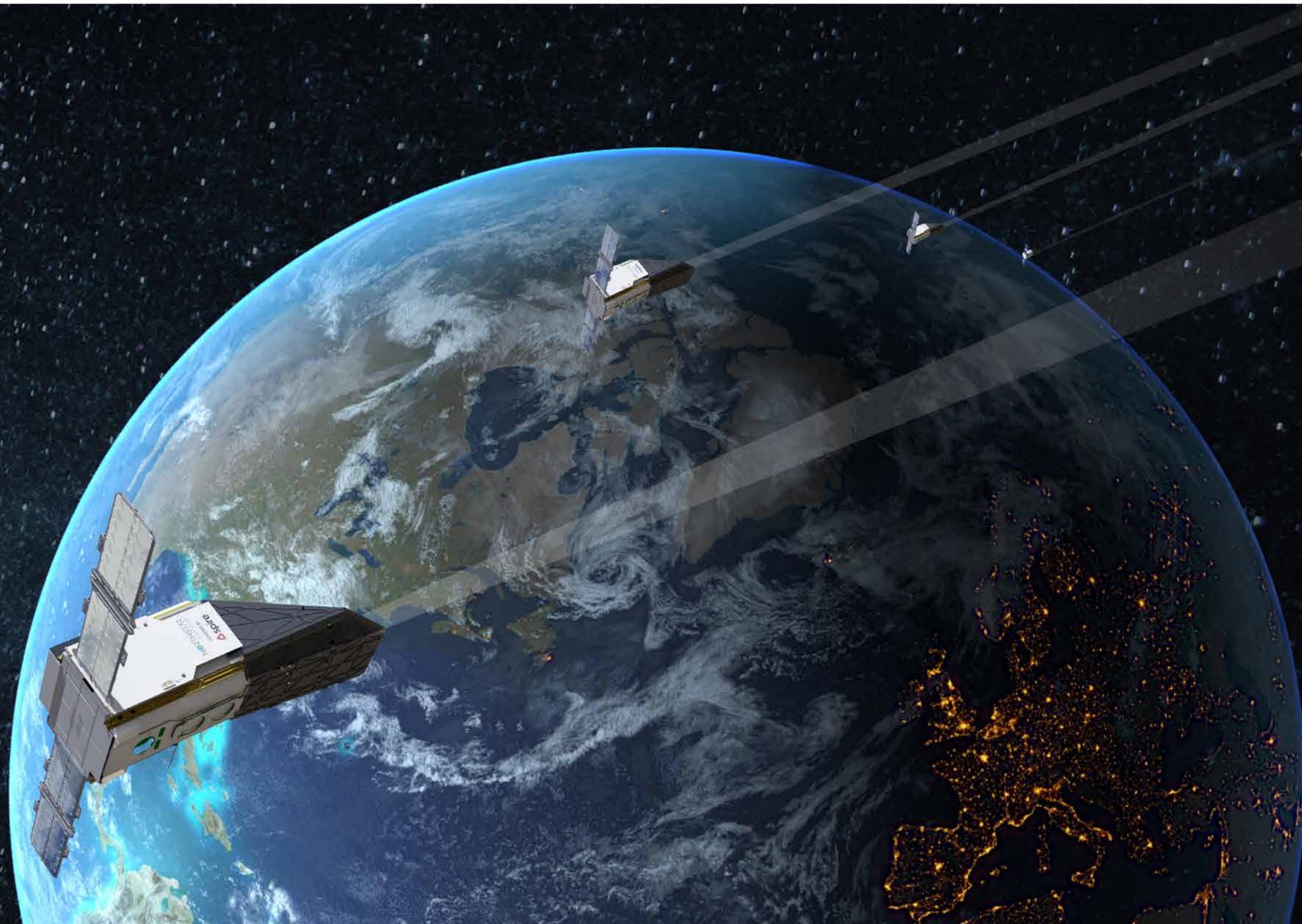


FIRST-IN-CLASS
SPACE-BASED SSA
Object Tracking Service



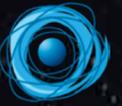
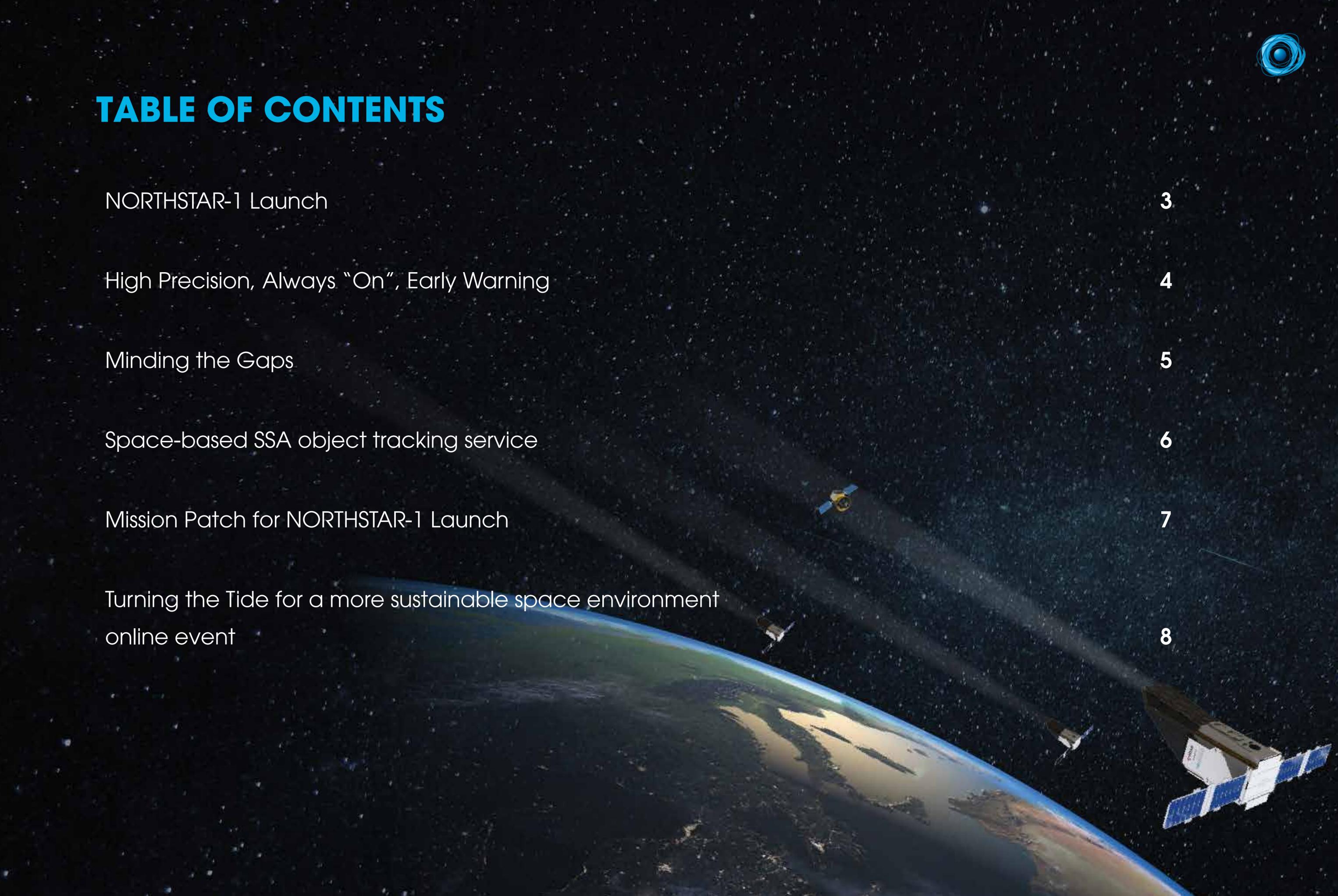


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NORTHSTAR-1 Launch

Rocket Lab Launch Complex 1 (LC1), in Mahia New Zealand
31 January 2024



01:15 AM EST
Montreal

07:15 AM CET
Luxembourg

15:15 PM JST
Tokyo

19:15 PM NZD
Auckland

[LIVE COVERAGE LINK](#)

Image courtesy of Rocket Lab



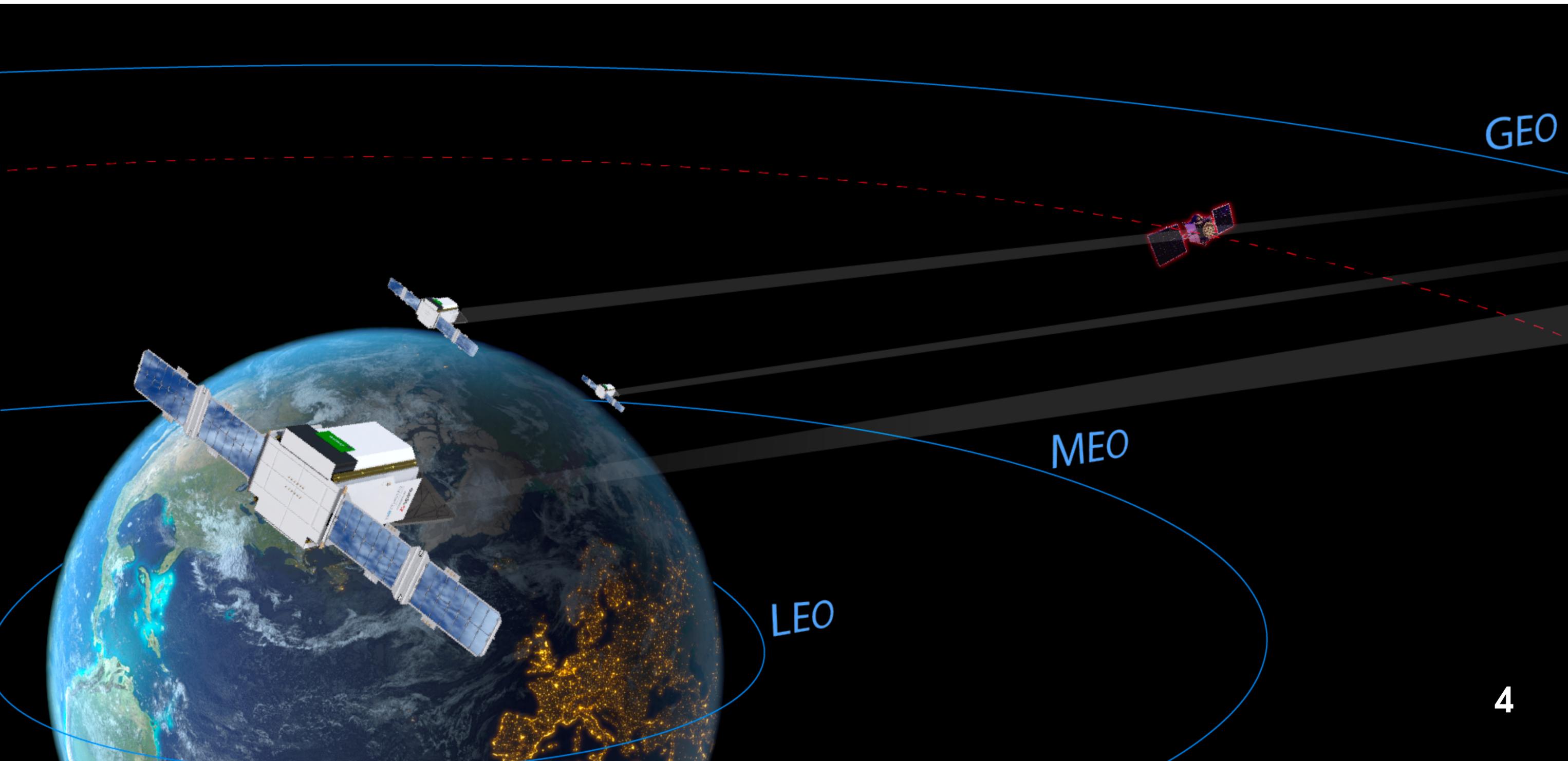
High Precision, Always "On", Early Warning

Combining ground and space-based data for near synoptic coverage.



NorthStar's 'always on' constellation will enable continuous monitoring of resident space objects (RSOs) across LEO, MEO, and GEO orbits.

This CONOPS will provide more complete, frequent, and precise observations to increase trajectory model accuracy.

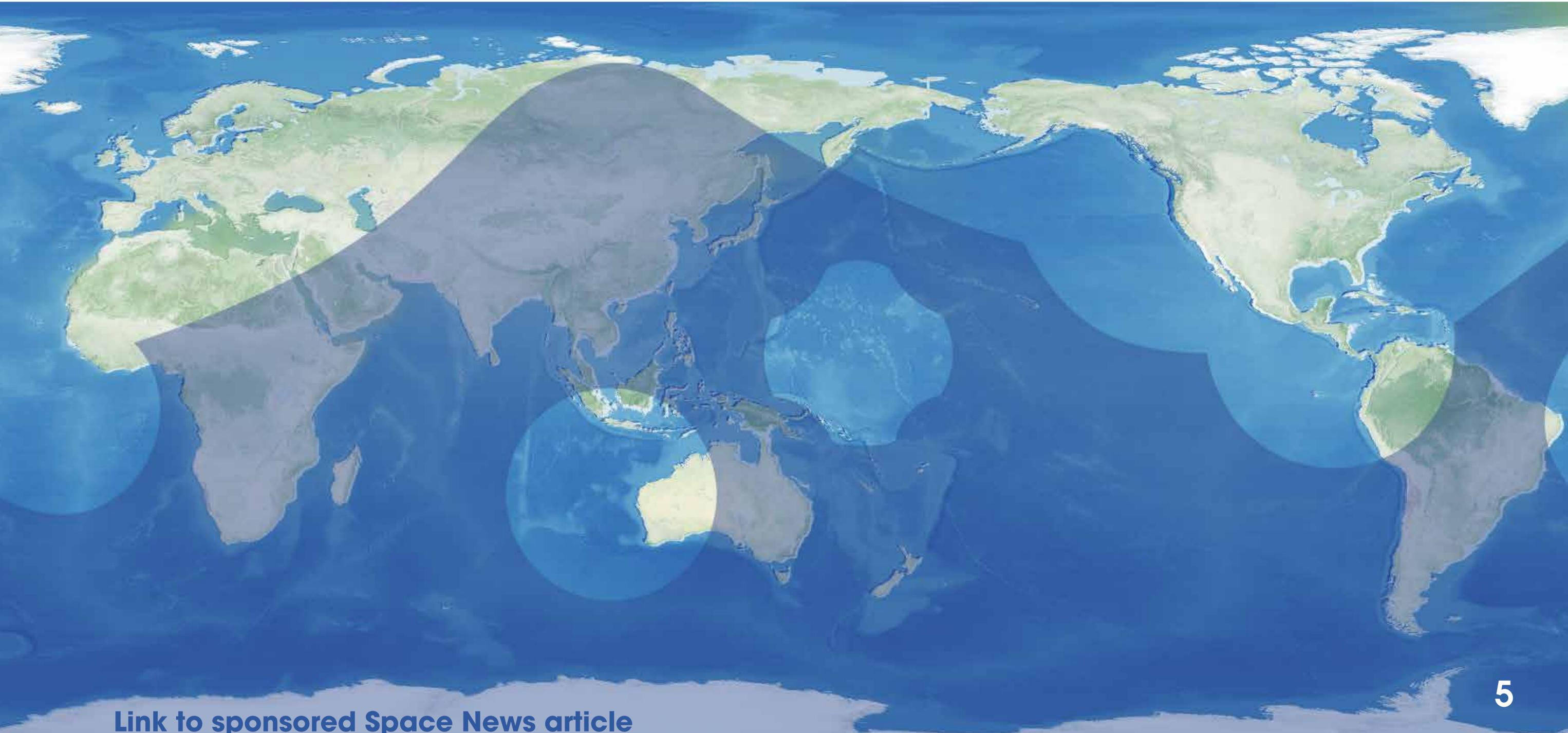


Minding the Gaps

Space Information & Intelligence (Si²)

The picture depicts the current gap in geo-centric observability of the LEO regime. LEO tracking today relies entirely on ground-based RADAR and a few commercial optical sensors. Optimal Space Domain Awareness requires continuous tracking.

No matter how much ground systems are scaled up, 71% of the globe remains water and unsuitable for monitoring. The only way to cover this huge gap is to go to space. From a geographic perspective, NorthStar has no gaps.



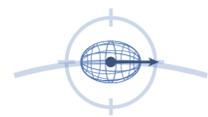
[Link to sponsored Space News article](#)

Space-based SSA object tracking service

Space Information & Intelligence (Si²)

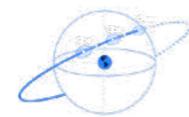


Initial services will include manoeuvre detection, identifying anomalies, & conjunction warnings



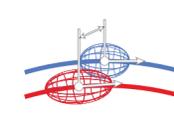
Observations

Data traceability & data integrity.
Global geographical coverage.
Consistent coverage in all atmospheric & weather conditions. Simultaneous & continuous surveying of all orbital regimes.



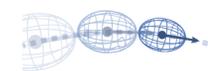
Space Objects Catalogue

Data from multi-sensor fusion. Non-publicly catalogued objects. Calibrated Orbit Determination. Advanced validation of orbital solution.



Event Detection

Continuous monitoring for objects' position and all vicinity objects. Pattern of Life (including next planned tracks to filter out false alarms).



Ephemerides

State Covariance time series.
NorthStar Target name/id. OD Calibration (applied biases inferred from Cal Sat data).



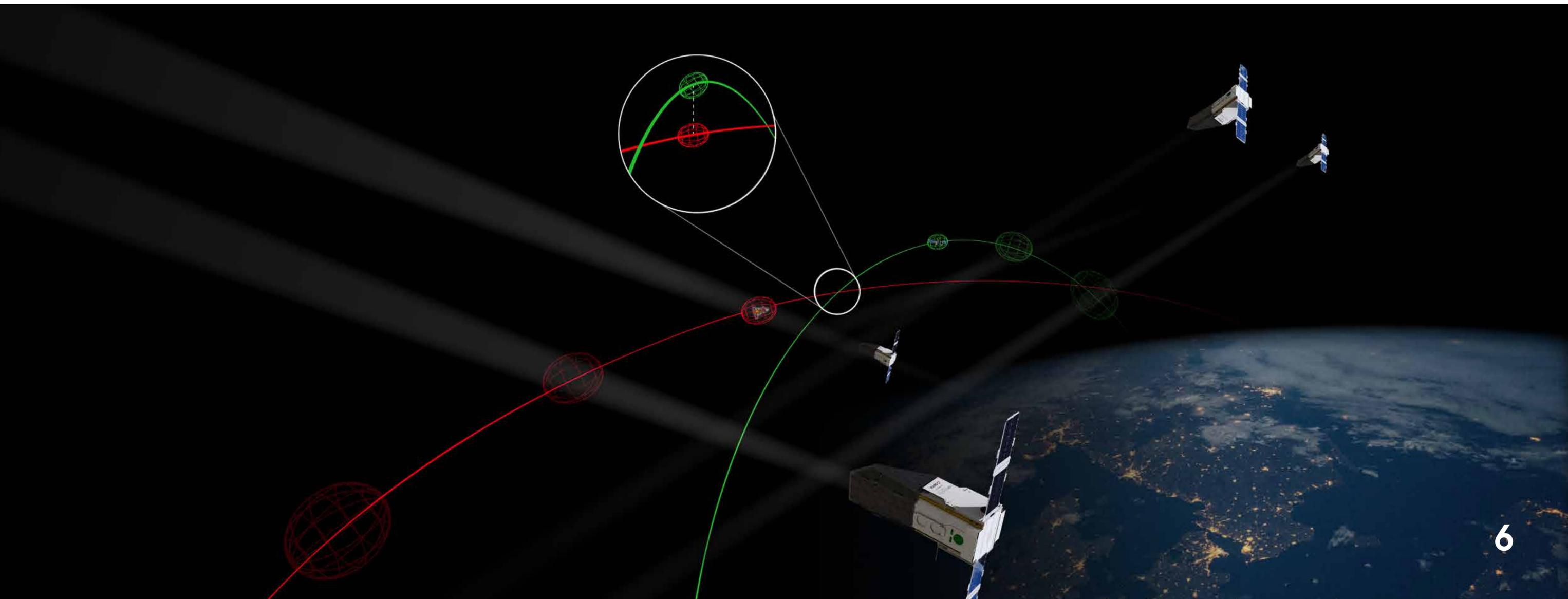
Conjunction Warning

Minimizes false alerts, empowering operators to make confident decisions. Tracks objects often missed by current SSA/STM systems, including hazardous debris. CWS product latency: 75 min.



Flight Plan Validation

Set flight boundaries and get automatic alerts for deviations. Regular interval and on demand coordinate comparison processing with customer's telemetry or flight plans.



MISSION PATCH FOR NORTHSTAR-1 LAUNCH



Queen's Jazz Album



On 1st January 2019, NorthStar Chief Scientist Fred Pelletier and Queen lead guitarist and astrophysicist Brian May joined together with the entire NASA New Horizons team and their young families to celebrate the historic achievement of reaching the outer limits of our solar system.

With Brian's support and inspired by Queen's 7th studio album Jazz released in 1978, NorthStar's mission patch and anthem for this inaugural launch symbolize our continuing endeavour to push the limits of human innovation in an unstoppable effort to focus on the young and coming generations who deserve a clean space environment to continue our exploration of this endless frontier. The patch depicts the four NorthStar satellites as blue rectangles on orbital paths that are reminiscent of the grooves of the Jazz album. The Earth is oriented such that the orbits are polar and clean.

Please join NorthStar and our partners at Spire and Rocket Lab in the pride that we all share to launch this first of a kind mission to keep Space accessible, safe and #sustainable.



FIRST-IN-CLASS SPACE-BASED SSA

Mission Space for Future Generations

* The north star guiding us to contribute to a sustainable future



Earth "on its side" to align with polar orbits



Clean orbits are precision managed to ensure satellites operate safely



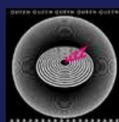
4 NorthStar satellites in blue orbiting the Earth



Near-earth space is a critical part of the Earth environment



Surveying all orbital regimes for precise always on early warning space-based ssa



Orbits are reminiscent of the grooves of Queen's Jazz album

Anthem Don't stop me now



NORTHSTAR-1 Launch Mission Patch



OUR FUTURE
IN SPACE

Turning the Tide
for a more sustainable space environment



25 January 2024
Ruth Stilwell & Stewart Bain
moderated by
Kevin O'Connell

NORTHSTAR-1 LAUNCH SPACE-BASED SSA





northstar-data.com

media@northstar-data.com



Headquarters

Canada
384 Rue Saint-Jacques #300
Montreal, Quebec
H2Y 1S1

United States Office
1751 Pinnacle Drive, Suite 600
McLean, Virginia
22102

Europe Office
124, Boulevard de la Pétrusse,
L-2330
Luxembourg