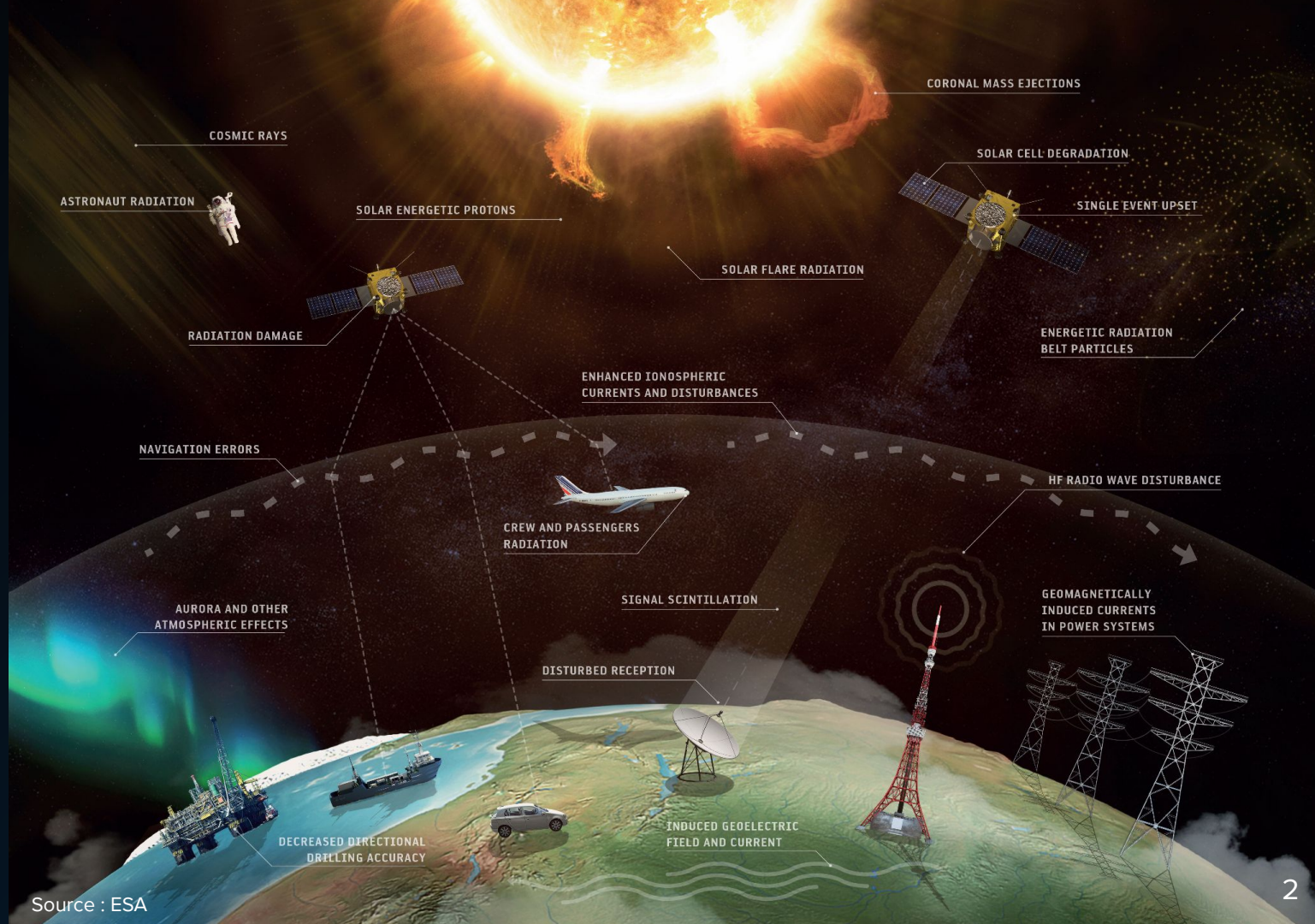


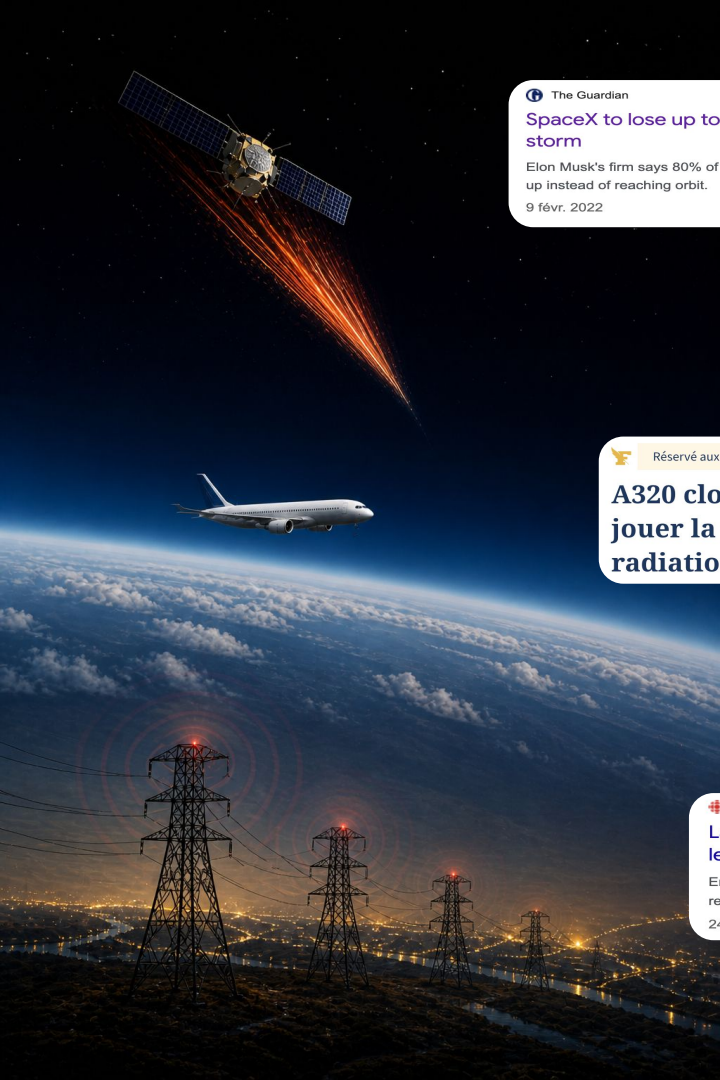
Augura Space

Space Weather Intelligence for Critical Systems

Space Weather Impacts Ground, Air & Space Critical Systems



Source : ESA



The Guardian

SpaceX to lose up to 40 Starlink satellites after geomagnetic storm

Elon Musk's firm says 80% of the satellites it launched last week are expected to burn up instead of reaching orbit.

9 févr. 2022



Réservé aux abonnés

A320 cloués au sol : pourquoi Airbus a préféré jouer la prudence face au grand danger des radiations solaires

Radio-Canada

La tempête solaire qui a plongé 6 millions de personnes dans le noir

En mars 1989, plus de six millions de personnes qui habitent l'est du Canada se retrouvent sans électricité à cause d'une tempête solaire.

24 mars 2019



\$100M

a few hours after their launch

\$1B+

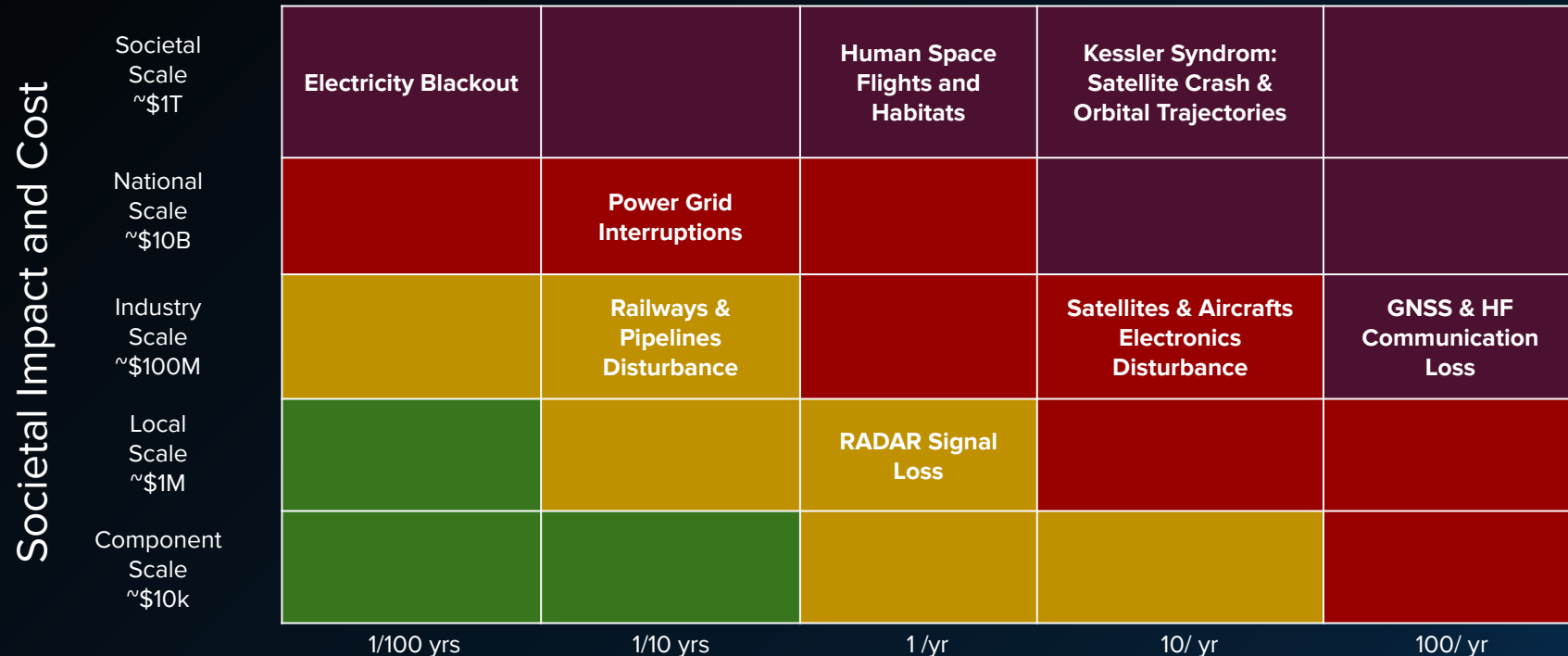
in a WE for the entire Sector

\$6B+

Multi-Sector Global Loss

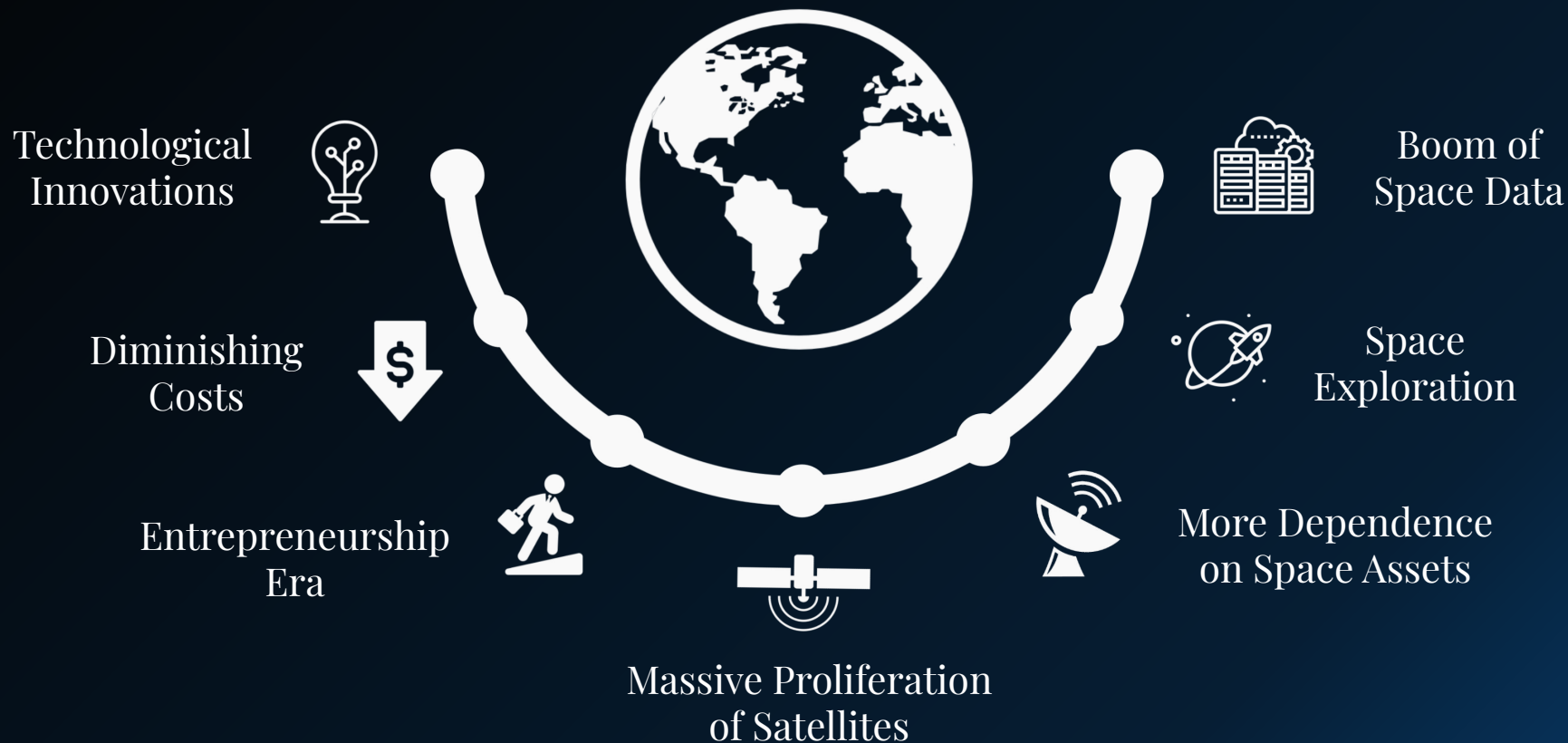
Space Weather Disruptions Constitute a **Major Economic Pain** For **Critical Systems Operations** and Are Currently **Not Properly Mitigated**

From Daily Disruptions to Catastrophic Risks

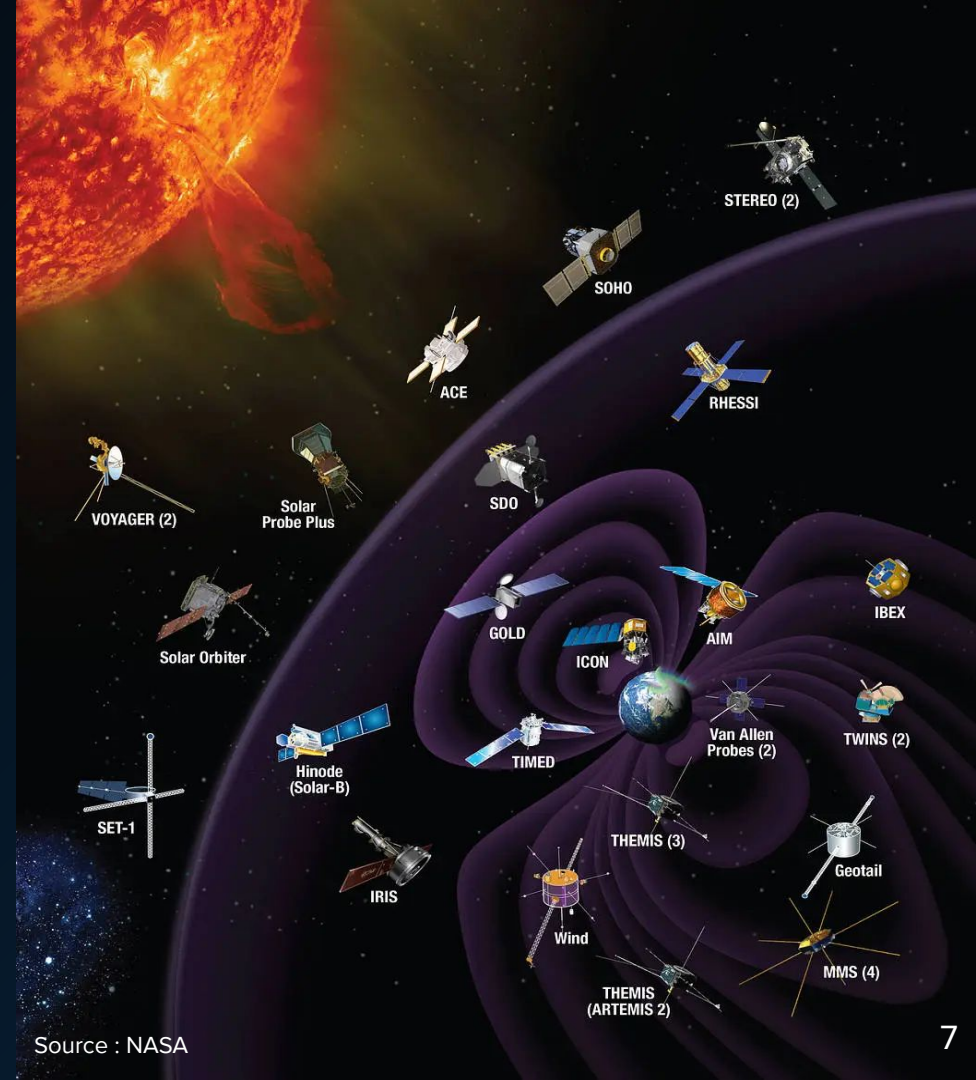


Likelihood : Frequency and Probability of Occurrence

New Space Ecosystem Is **Rising**

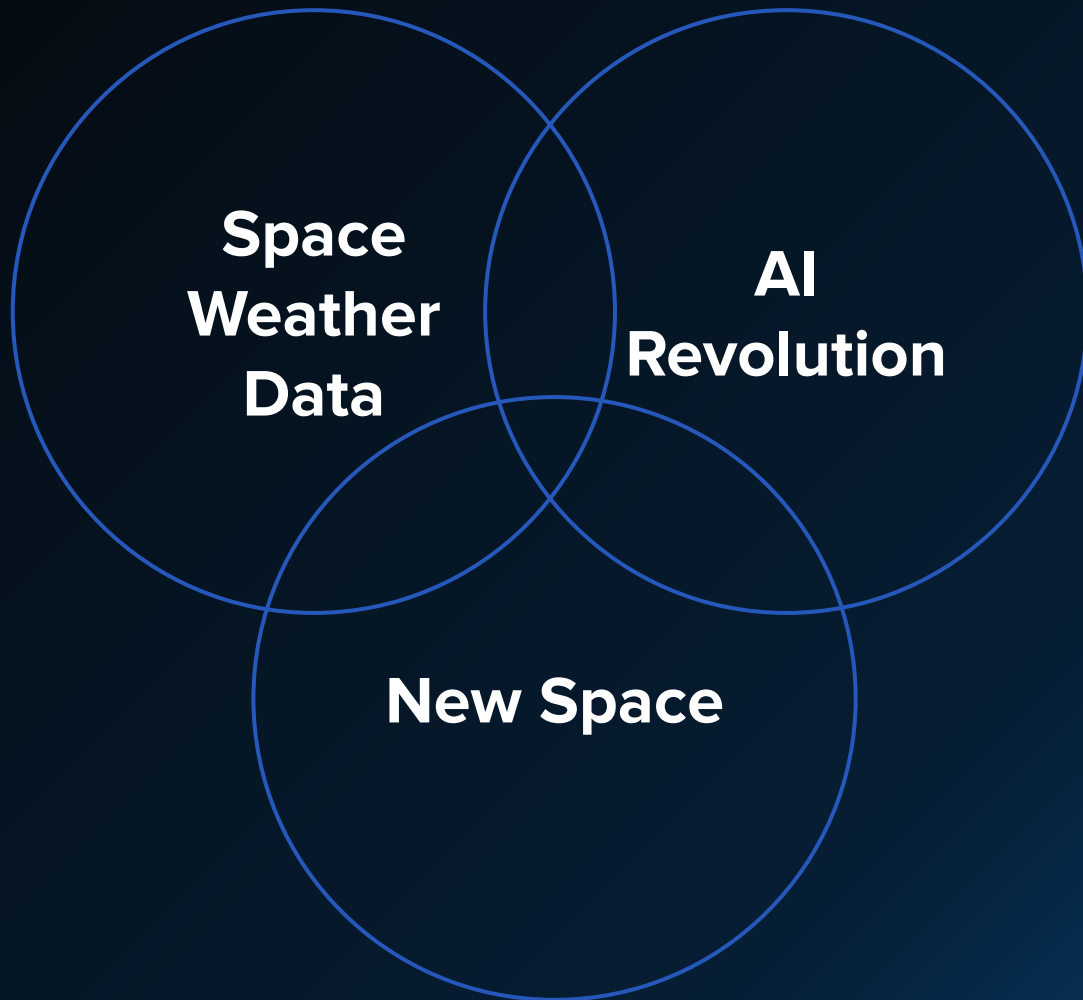


3 TB/day of Space Weather Data Awaiting To Be Monetized



Source : NASA

Why Now



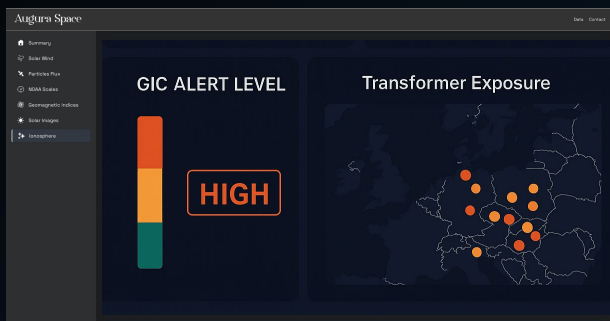
Our Value Proposition

Helping **Infrastructure Operators** to **Mitigate** Solar
Events Through **Customized AI-Powered Space**
Weather Intelligence Services

Comprehensive Services Across **Past, Present & Future** For Impacted Infrastructures

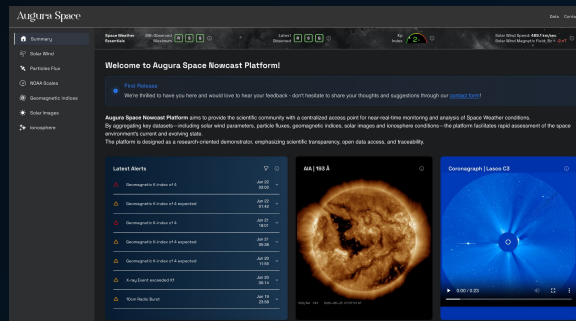
 Space	Radiation History • Satellite anomaly forensics • Historical radiation catalogs • SEP event correlation reports	Orbital Environment • Live LEO/MEO/GEO dosimetry • On-board sensor alerts • Solar wind & SEP watches	Radiation & Drag Forecasts • 2–72 h risk probability maps • Radiation & SEP forecasts • Thermospheric expansion
 Air	Navigation Incidents • Flight-path radiation diagnostics • GNSS outage attribution • HF blackout post-mortems	Navigation Status • Live dosimetry dashboards • GNSS & HF confidence alerts • Custom notification system	Route Optimization • Route risk probability maps • Fuel-optimized reroute advice • Crew dose forecasts
 Ground	GIC Analysis • GIC fault root-cause reports • Historical GNSS timing logs • Ionospheric disturbance	Infrastructure Alert • Live GIC exposure maps • GNSS fallback alerts	Asset Protection • Predictive GIC risk advice • GNSS fallback planning
 Post-Event Diagnosis  Real-Time Monitoring  AI-powered Forecasting			

A **SaaS** Giving Access to **Customized Services Across Time Horizons And Industries**



Diagnose

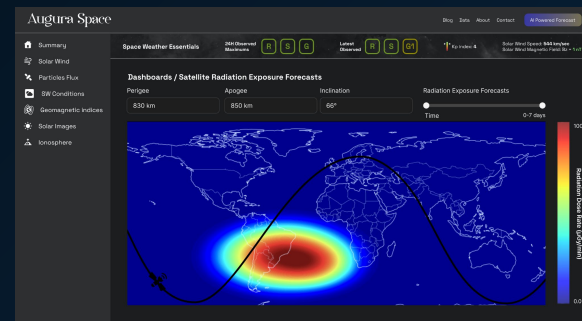
→ Available within Q2 2026



Monitor

→ Free research-oriented V1 already available:

<https://platform.auguraspace.com/>

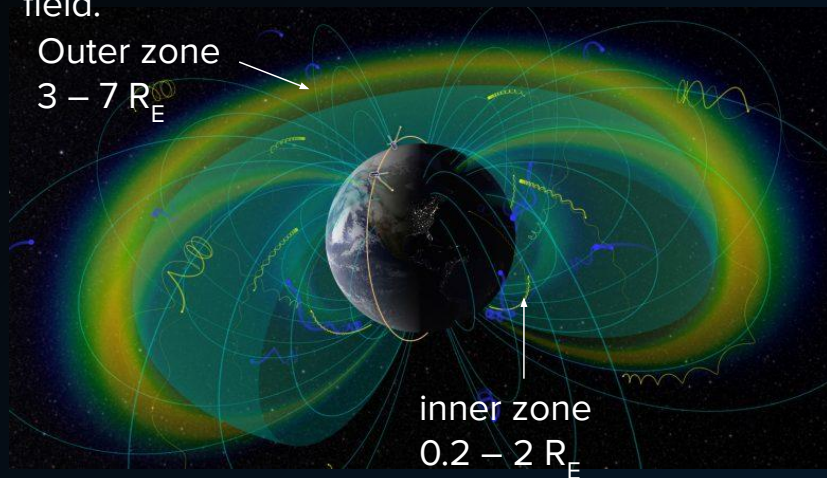


Predict

→ Available within Q2 2026
(Funded POC by CNES)

Van Allen Radiation Zone

Region of space filled with energetic charged particles (e^- , p^+) that are captured by Earth's magnetic field.



Its properties vary according to the solar activity.

Challenge: How the charged particles are accelerated to very high energies of several million e^- volt (MeV) ?

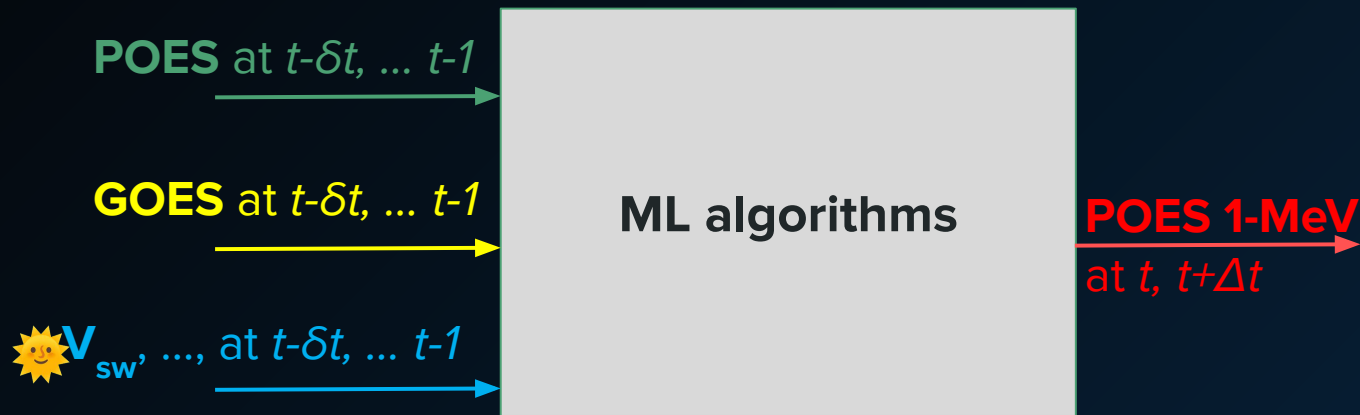
Radiation hazard for manmade space systems :

- Long-term electron dose effects
- Surface and deep-dielectric charging



As of Oct 2025 (<https://orbit.ing-now.com/>)
~14000 space objects in orbit including
6961 in LEO, 521 in GEO, and 191 in MEO.

SPARTAI – developing our own pipeline



SPARTAI – our development results

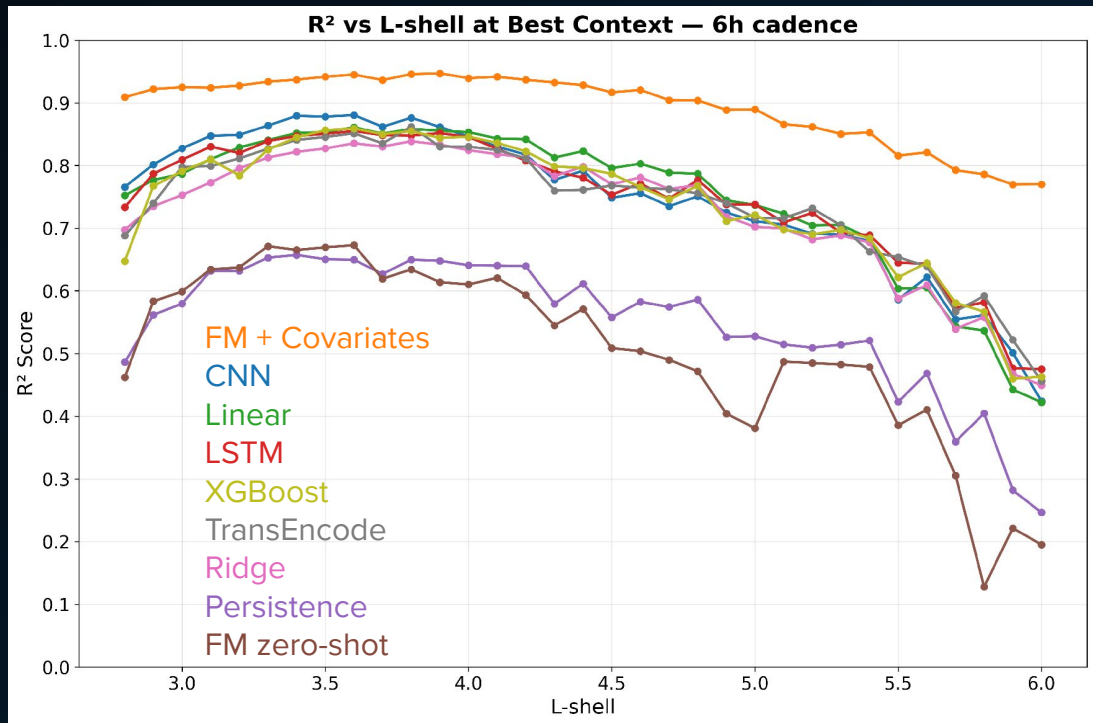
R^2 score for 6h forecast (Jan – June 2024)

Linear, CNN, LSTM are identical to the benchmarking experiment.

Persistence: use last value as prediction.

Other models: simplest working architectures with no fine-tuning.

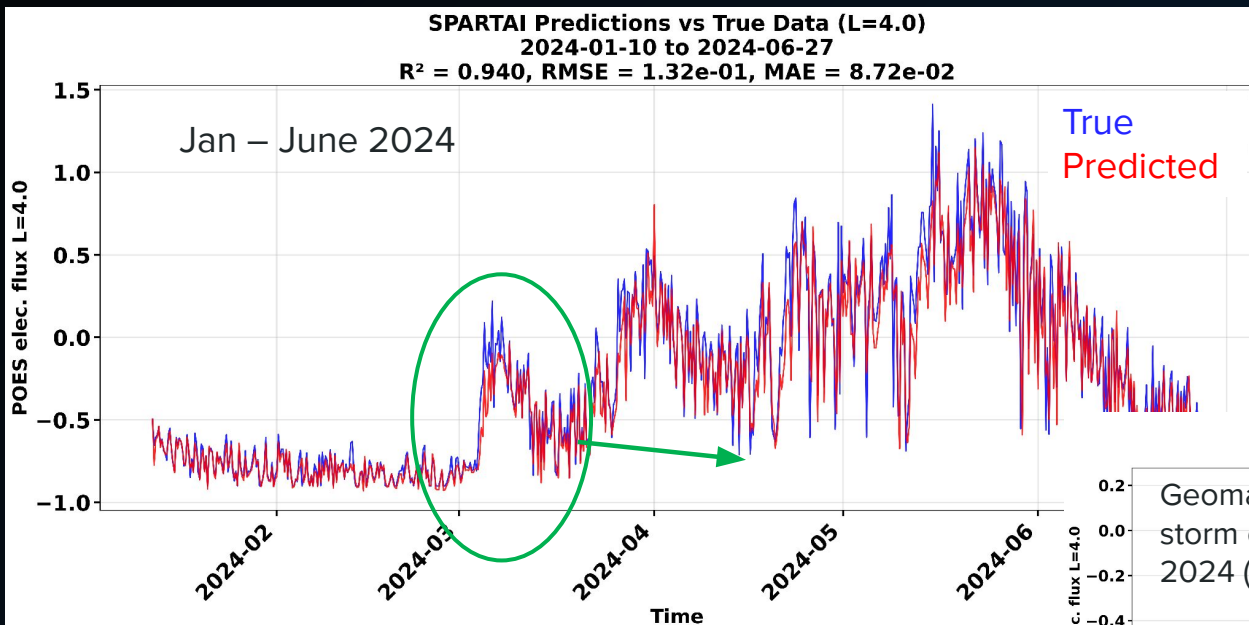
We performed experiments to find best context length (history length used for prediction). No R^2 improvement for > 24 hours.



The **TimesFM + covariates** outperforms all models for all L-shells, reaching R^2 over 0.9 for $L < 4.6$.

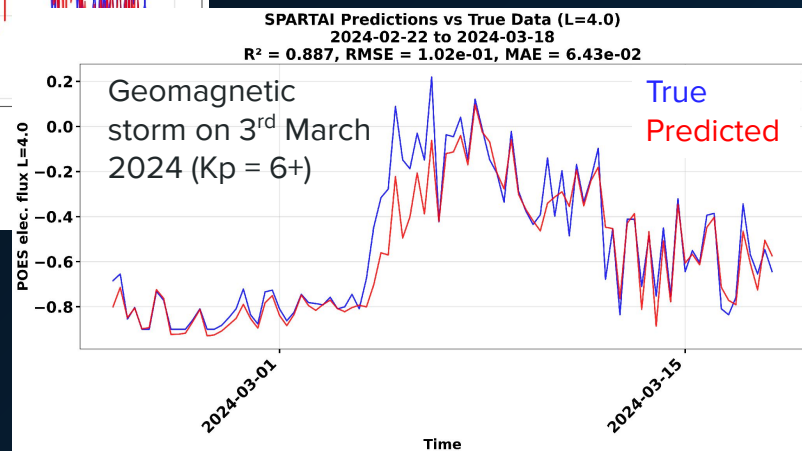
SPARTAI – inference example

TimesFM + covariates 1-MeV e^- flux prediction for $L=4.0$



Some underestimated peaks and delay during 1-MeV e^- flux enhancement during the storm

Large-scale variations including 1-MeV e^- flux enhancements during storms are reproduced



A Scientific Validation



• Scientific Visibility & Recognition

- **3 posters** and **2 oral presentations** across major international conferences: ML-Helio and European Space Weather Week
- A submitted article to JGR: Space Physics

• Breakthrough Results With Our In-House Foundation Model

Comparing to SOTA

- Misses twice less Extreme events
- Divide by 1.5 the false alerts rate

Space Weather

RESEARCH ARTICLE

XX.XXX/2025SW043600

SPARTAI—An AI-based forecasting pipeline for energetic electrons in Earth's radiation belts

Rungployphan Kieokaew^{1,2}, Ryad Guezzi^{1,2}, François Ginisty^{1,2}
Hadrien Mariaccia¹

¹Augura Space, Paris, France

²INRIA

³IRAP (Toulouse)

From a CNES PhD, with SW and AI experts

Full time



François Ginisty
Co-founder & CEO
PhD in Space Weather



Léa Zuili
ISAE, 2 YOY ESA;
Research Engineer



Bartholomé Duboc
CentraleSupélec
Data Scientist



Timothée Perez
Edhec Business School
Market Research Analyst



Hadrien Mariaccia



**Rungployphan
Kieokaew**

Part time (20%)



Louis de Lastic
Cybersecurity Consultant
Head of Tech



Sébastien Farges
Serial CTO &
Start Up builder
Head of Product



Florian Roselli
ex NASA, CNES
Chief of Staff



Thank you ! Questions ?

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