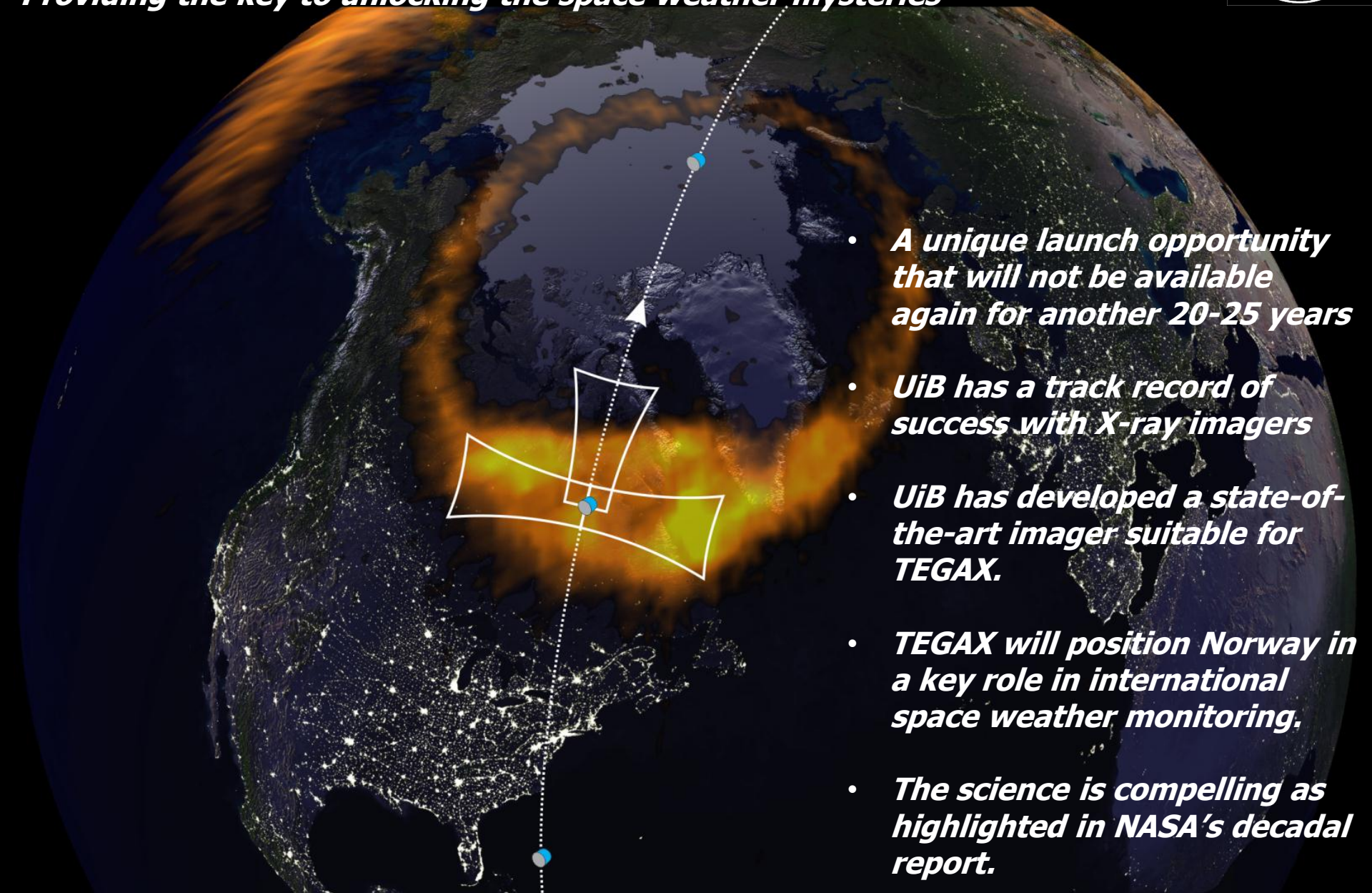
The TEGAX Mission

Providing the key to unlocking the space weather mysteries



- ***A unique launch opportunity that will not be available again for another 20-25 years***
- ***UiB has a track record of success with X-ray imagers***
- ***UiB has developed a state-of-the-art imager suitable for TEGAX.***
- ***TEGAX will position Norway in a key role in international space weather monitoring.***
- ***The science is compelling as highlighted in NASA's decadal report.***

The TEGAX Mission

Providing the key to unlocking the space weather mysteries

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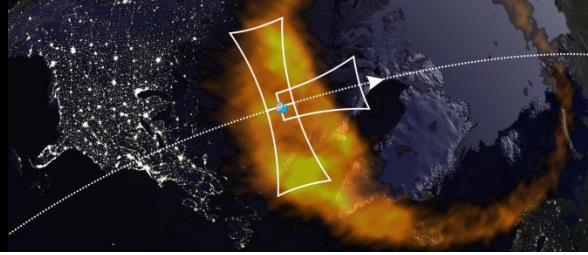


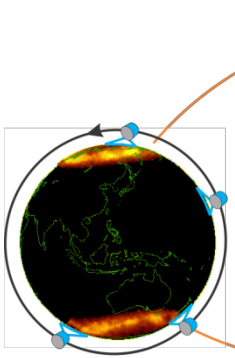
The TErrestrial GAmma- and X-ray (TEGAX) mission will position Norway in a key role in international space weather monitoring and enable closure to compelling science objectives as identified by NASA's decadal report.

Space Weather Context

TEGAX will provide nearly continous observations of the high energy electron precipitation in the auroral zone essential for space weather monitoring.

Science Objectives

- **To what extend is the energetic electron precipitation conjugate? And, what are the causes of possible non-conjugacy?**
- **What role does meso-scale features play in Magnetosphere-Ionosphere coupling?**
- **What is the X-ray signature of repeatable auroral morphologies?**
- **What is the variability of the auroral X-ray oval and the radiation belt (from <1 sec to minutes)?**



Realtime low altitude observations of the energetic particle precipitation is required for high altitude space weather monitoring.

Implementation

Utilizing the unique launch opportunity provided by the Iridium NEXT constellation.

TEGAX is:

- **Four spacecraft in a pearl-on a-string configuration.**
- **Unprecedented auroral monitoring, 100 km res., X-ray 15-150 keV, ~3000-km field of view.**
- **Three wide FOV X-ray imagers carried on each spacecraft.**

TEGAX is founded on UiB's successful science and engineering record with X-ray imagers.

Deliverables

Measured:

- **Realtime 2D total energy flux measurements from 4 spacecraft.**
- **Detailed measurements for post-processing.**
- **First ever conjugate auroral observations with identical imagers.**

Derived:

- **Realtime auroral X-ray oval.**
- **Realtime monitoring of the radiation belt.**

Science products:

- **Conjugate observations on every orbit.**
- **Variability of the system.**
- **Vastly improved resolution (time and space).**