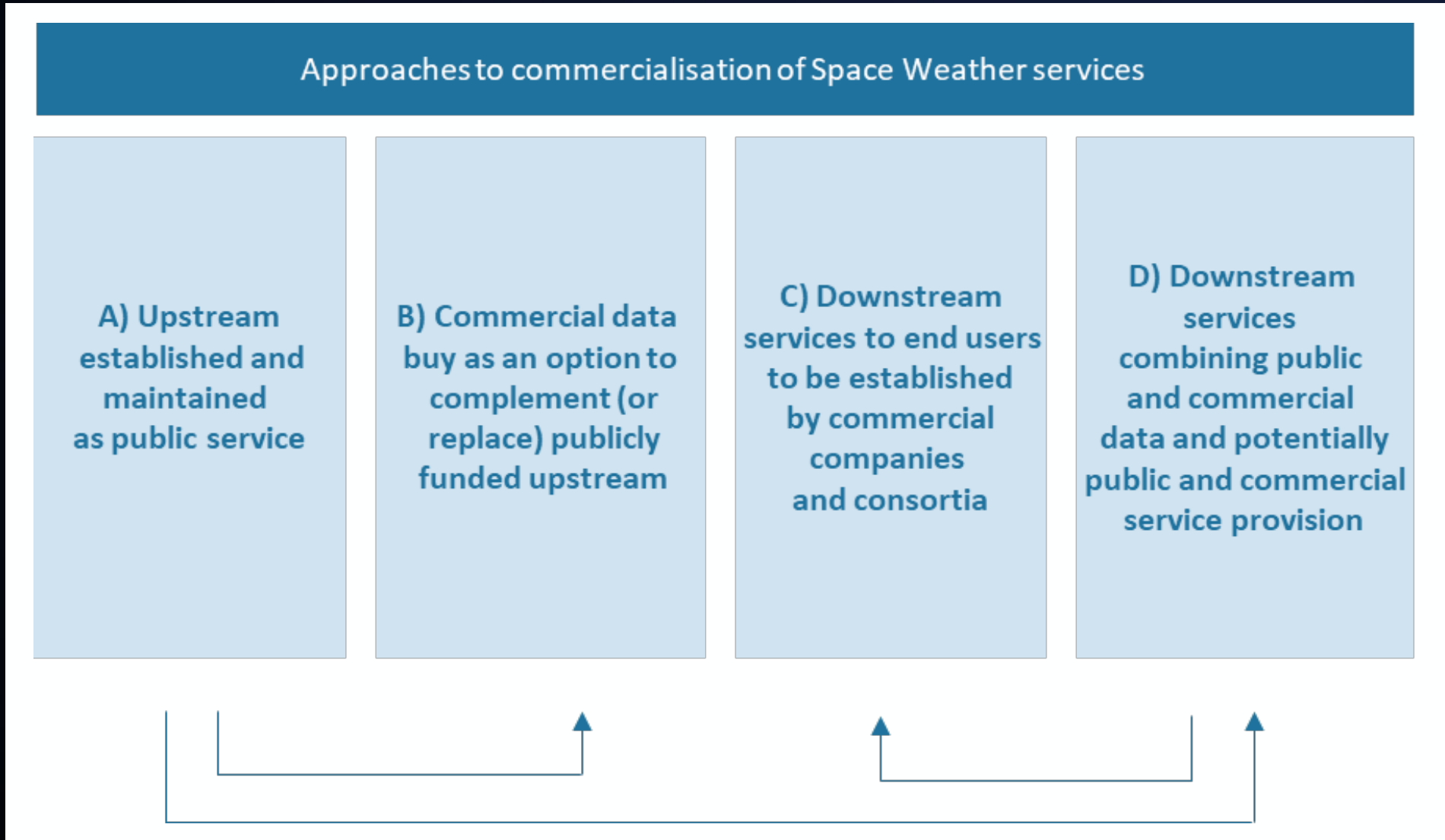


ESA S2P Approach on Space Weather Commercialisation

Juha-Pekka Luntama
Head of Space Weather Office
Space Safety Programme

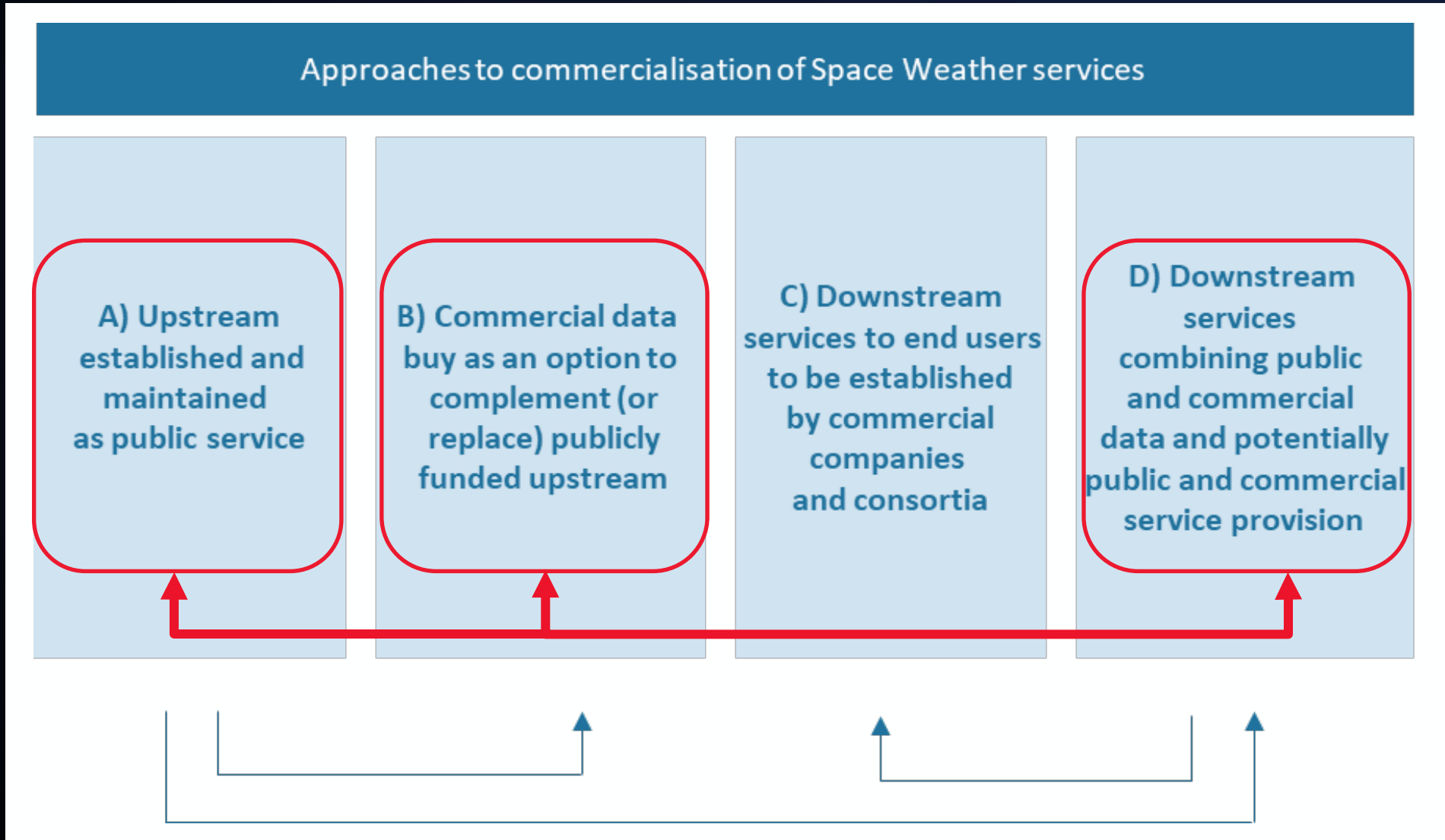
06.02.2025

Space Weather Commercialisation Approaches

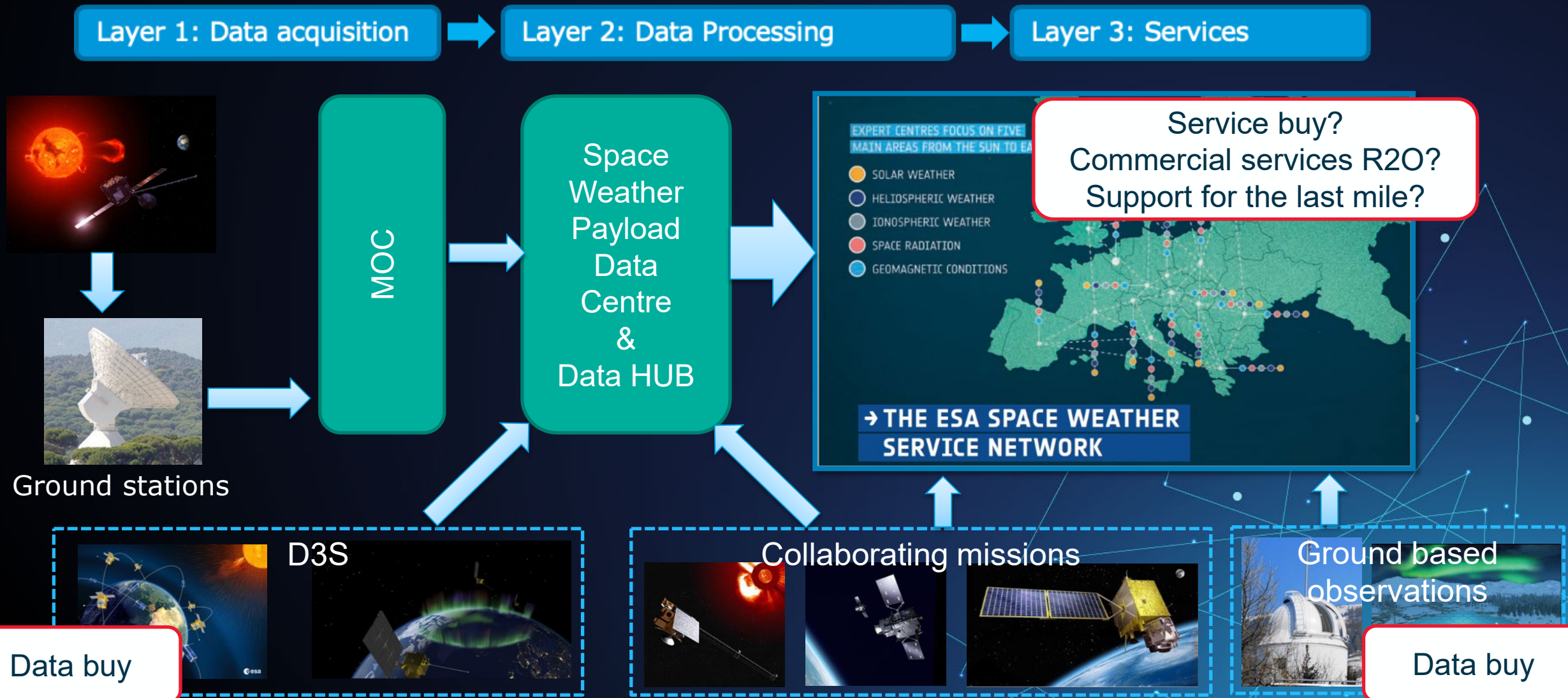


- Understanding of Space Weather services as public goods with subsequent provisions funded by governments for the protection of their critical national infrastructure
- Availability of relatively reliable free services (Note: ESA has adopted an NCC)
- Limited accuracy of nowcast and forecasts
- Enduring limited understanding of customer impact
- Lack of clear customer economic benefit related to Space Weather service provision, particularly with respect to risks where benefits are perceived as too intangible or too distant in time.
- The lack of recent events creating significant impacts
 - => Complete commercialisation of all space weather services would include unacceptable risk for long term sustainability
 - => Public baseline service complemented with commercial elements most attractive option

Space Weather Commercialisation Approaches



ESA Space Weather Services Business Logic



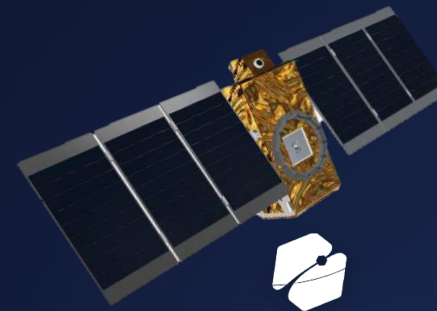
D3S: Space Weather “Missions as Service”

Mission objectives:

- Demonstrate “new space” and commercialisation approach with mission/data-as-a-service
=> Industry responsible for implementation, mission operation & Level 1 data processing
=> ESA an anchor customer

Baseline measurements of 1st mission: SWING

- High energy radiation environment, solar X-ray spectrum
- 3D electron density in the ionosphere, RO
- Launch: 2026



hemeria

2nd mission in preparation:

- LEO magnetic field, radiowaves, plasma monitoring
- Launch: 2028



creotech

Key factors for “mission as service”:

- **Mature platforms and instruments** available => low technology and schedule risk
- **Promising market** for data/products + **clear user need** for the data <=>
- Observation: industry has increasing **appetite to sell services** to public and private customers

COSMIC – Competitiveness Segment

The competitiveness segment in ESA's Space Safety Programme aims at developing the space safety market and at exploiting commercialisation dimensions.

→ Use of a two-staged industry-driven procurement process via Call for Proposals (CfP)

→ Call is open for all types of proposals (service, data buy, mission, technology,...)

Status Fall 2024 (rolling approach)

11 outline proposals iterated

10 outline proposals positively evaluated

9 activities have implementation recommended

8 activities have been kicked-off



Activities and products promoted through ESA S2P websites

End user involvement required from the beginning

ESA as partner and enabler

- ESA S2P is implementing actions to support commercialisation of space weather
 - Supporting industry in “mission as service” projects
 - ESA S2P Commercialisation Segment
 - Availability of data and technologies for European industry
- Many challenges remain
 - Where should the boundary between public and commercial services be?
 - How to combine open data policy and commercial business case?
 - WMO approach: core data should be freely and openly available
 - Who should be responsible for long term valorisation of the data?
 - Long term planning and maintenance of the observation systems?
 - How to maintain commercial interest during long periods of solar activity?
 - ...

THANK YOU

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