

SSA SWE Segment Prospects for Period 3

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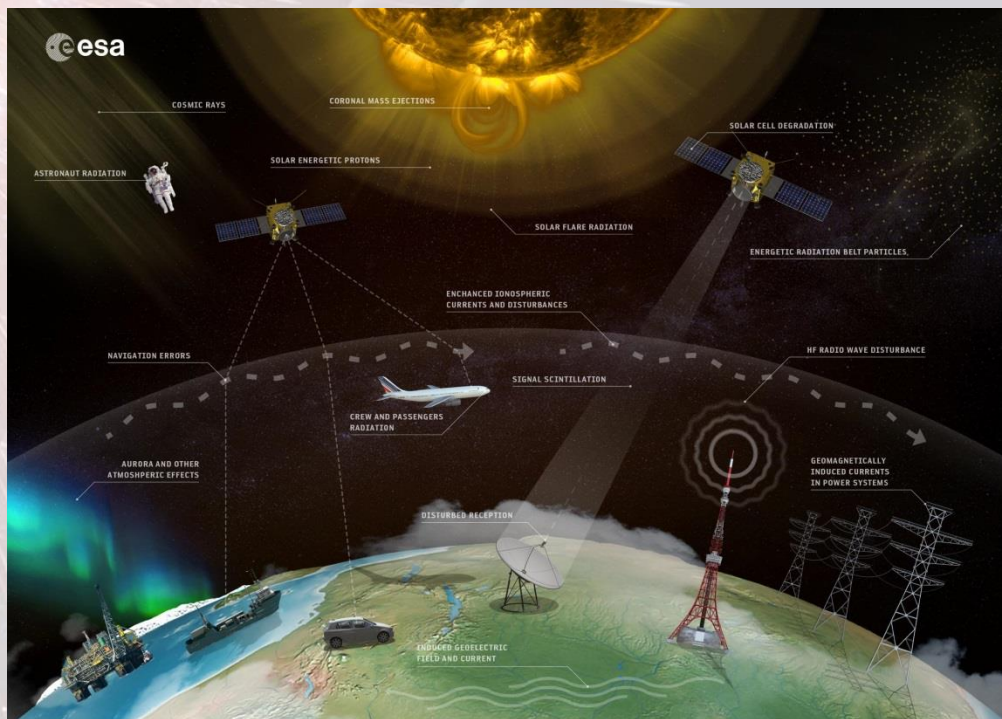
ESA & CNES Final Presentations
6-9 March 2017

“The objective of the Space Situational Awareness (SSA) programme is to support the European independent utilisation of, and **access to, space** for research or services, through the **provision of timely and quality data, information, services and knowledge regarding the space environment, the threats** and the sustainable exploitation of the outer space **surrounding our planet Earth.”**

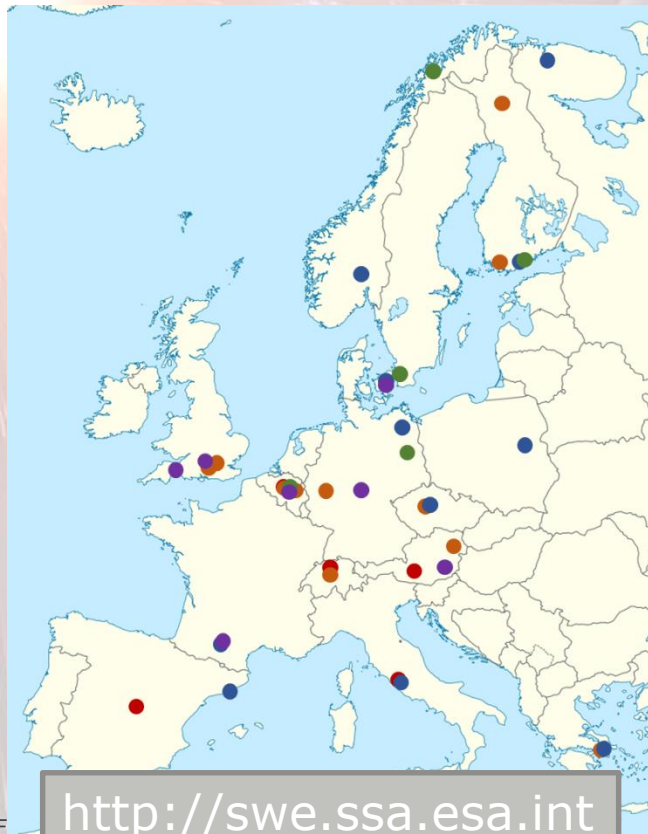
- **ESA Ministerial Council
November 2008**



- **Objective: Protection of European infrastructure from SWE impacts**



SSA Service Provision System



<http://swe.ssa.esa.int>

- ### Data archives
- SSA SWE Data Centre (Redu)
 - Federated data repositories

- ### SSA SWE Coordination Centre
- User Helpdesk
 - Space Pole, Belgium

SWE Expert Service Centres (ESCs)

Solar Weather 	Ionospheric Weather 	Space Radiation 	Geomagnetic Conditions 	Heliospheric Weather
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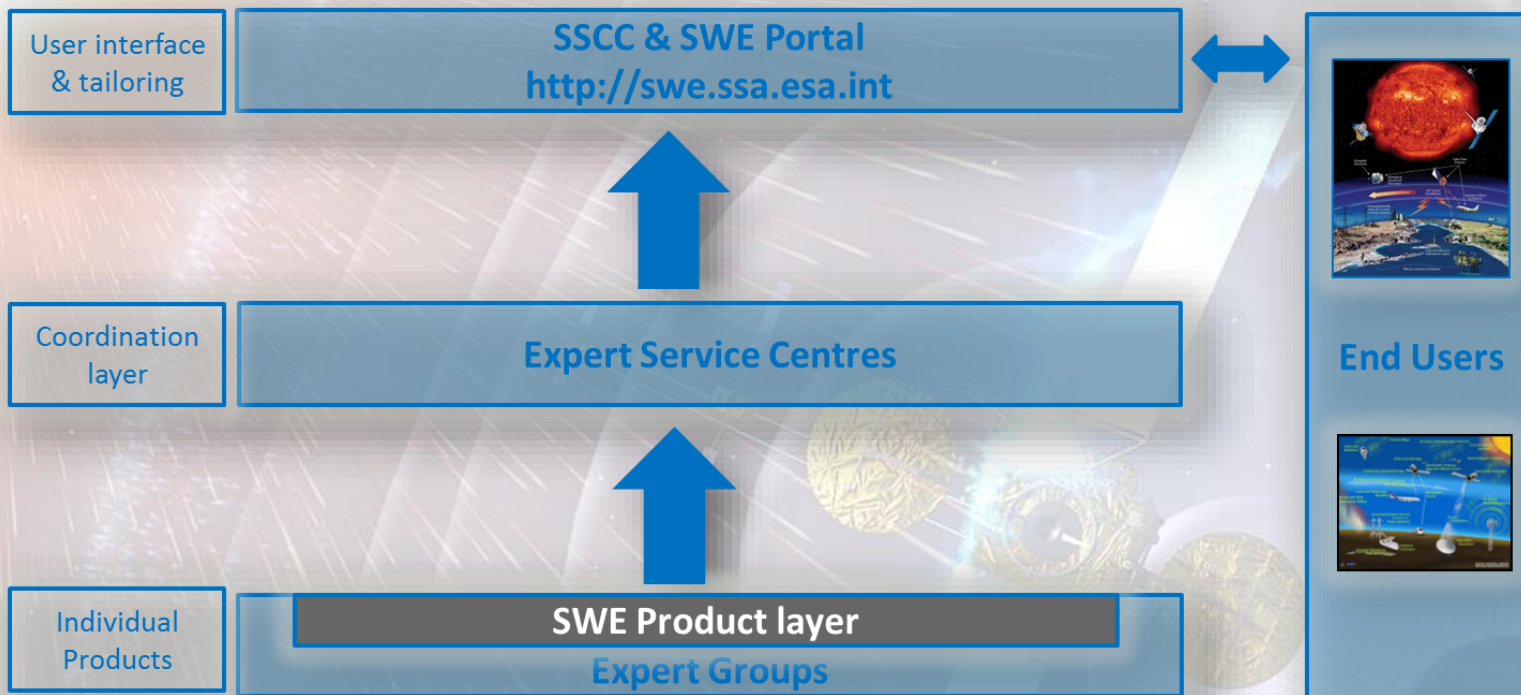
European expert groups and centres of excellence

Sensor systems

ESA UNCLASSIF



SWE Services Business Logic



SWE Segment Strategic Objectives for Period 3



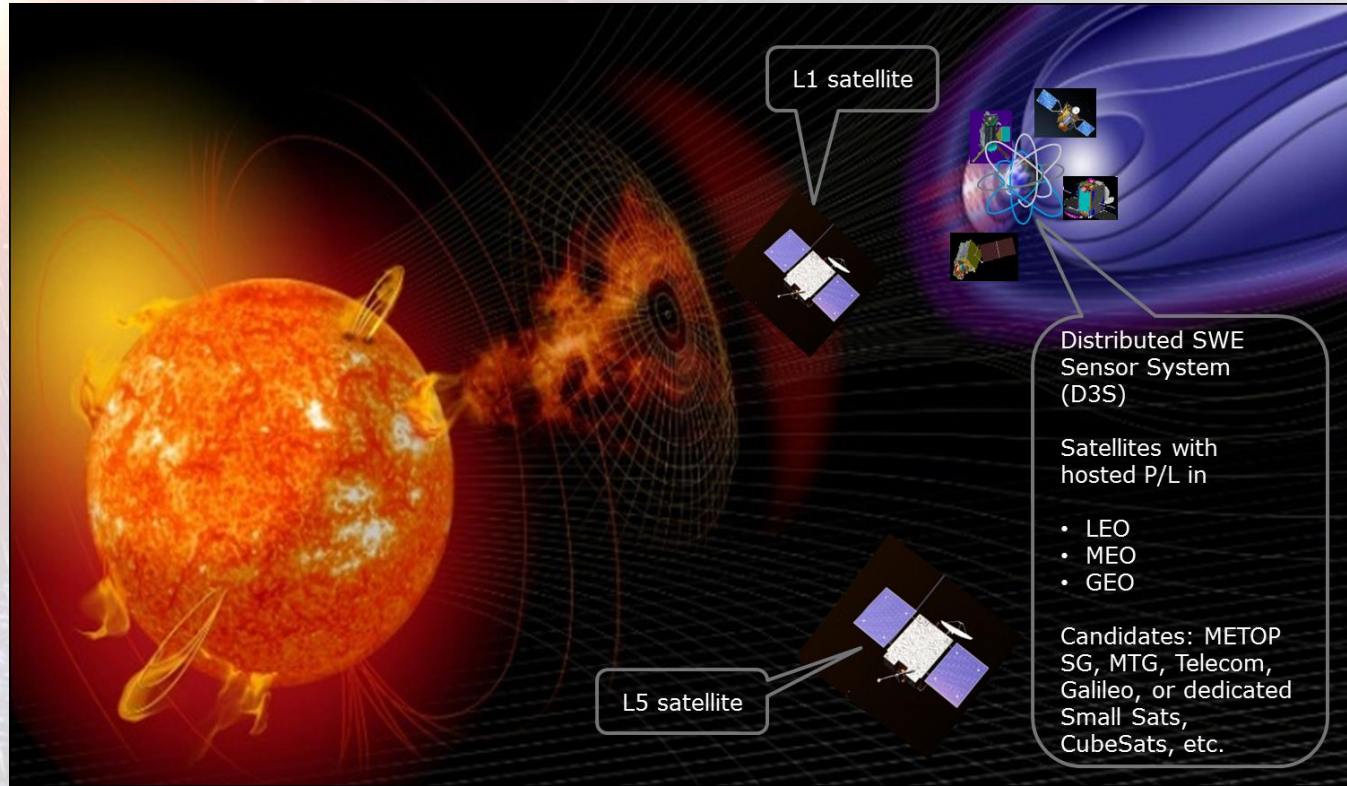
1. Reinforce and mature the SWE system
2. Reduce the dependence on non-European systems
3. Begin to transition towards an operational system.



Specific Implementation Targets for P3

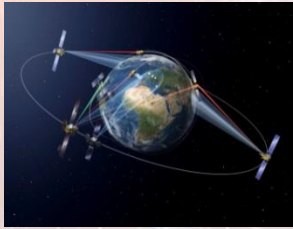
- Establish robust R2O process for models and tools developed within or outside the Programme
- Mature elements of the SSA SWE system for transitioning to operations
- Develop and validate improved services for key user domains
=> develop required models and applications
- Continue development of the SWE mission to L1/L5 with Phase A/B studies
- Develop Distributed SWE Sensor System (D3S) with additional hosted payload missions
- Develop SWE instruments required by L5 mission and D3S

Enhanced SWE observation system

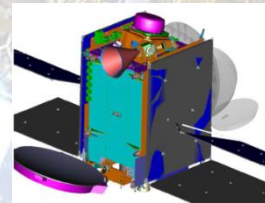
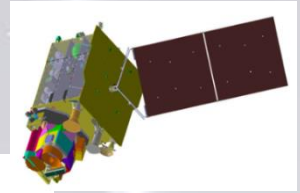
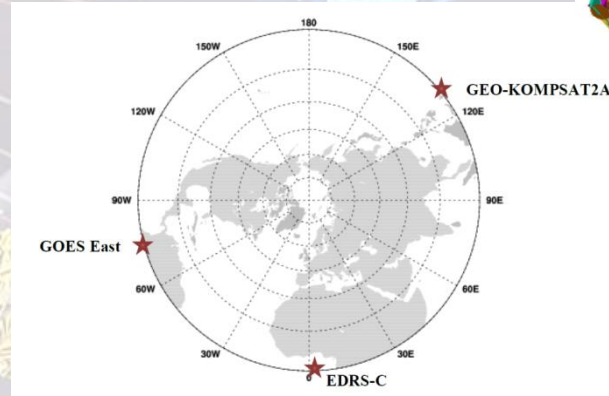


SSA SWE D3S Precursors

- Next Generation Radiation Monitor (NGRM)
=> ARTES 7, EDRS-C



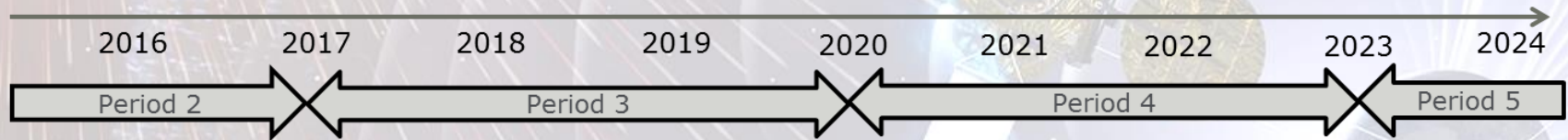
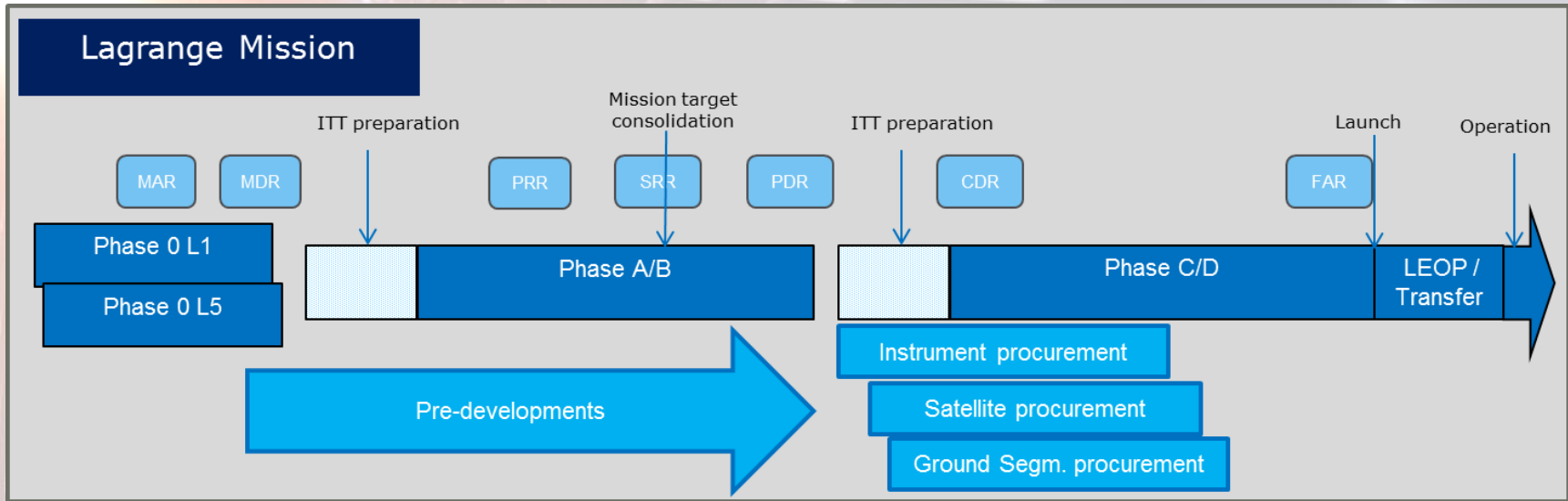
Service Oriented Spacecraft Magnetometer (SOSMAG)
=> GEO-KOMPSAT-2A



Products and related Instruments - consolidated

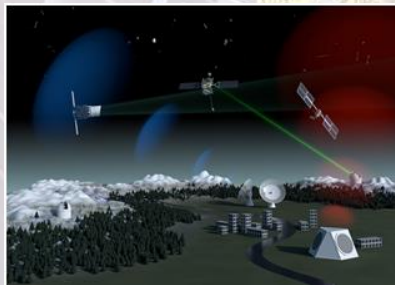
#	Product Name	Observation / measurement	Classification	Instrument
1	Interplanetary Magnetic-Field (IMF)	IMF properties and dynamics	High priority	Magnetometer
2	Solar-Wind Properties	Solar-wind velocity, bulk-density and temperature	High priority	Plasma Analyser
3	Photospheric Solar Disk Magnetic Field	Magnetic-field mapping of the photosphere	High priority	Magnetograph
4	White-light wide-angle Coronagraph Images	Intensity Mapping of outer corona	High priority	Coronagraph
5	Coronal EUV Images of the Sun	Intensity mapping of the low Corona	High priority	EUV imager
6	Heliospheric Images	Intensity Mapping of Heliosphere	High priority	Heliospheric Imager
7	Solar X-ray flux	X-ray flux monitoring	High priority	X-ray monitor
8	High Energy Protons	Energy distribution and flux dynamics with E>10 MeV	High priority (L1) Enhancing (L5)	Radiation monitor
9	Medium-Energy ions	Detection of Solar-Wind Ions with E = 30keV/nuc to 1 MeV/nuc	High priority (L1) Enhancing (L5)	Medium Energy Particle Spectrometer
10	Medium-Energy electrons	Solar-Wind Electron flux and energy distribution with E = 30 keV to 8 MeV	High priority (L1) Enhancing (L5)	Medium Energy Particle Spectrometer
11	Solar radio-spectrographic emissions	Detection of radio burst/flare signatures and associated outward expanding shocks	Enhancing	Radio burst spectrograph
12	Medium-Energy Ions	Solar-Wind Ion flux and energy distribution with E = 1 to 10 MeV/nuc	Enhancing	Medium Energy Particle Spectrometer
13	High-Energy Ions	Solar-Wind Ion flux and energy distribution with E >10 MeV/nuc	Enhancing	Radiation monitor

L1/L5 Mission Schedule



SSA Industry Day: 16 March in ESOC

- European industry is invited to hear about future activities currently planned for SSA Period 3
- Main technology domains for the building blocks of the SSA systems are: Ground segment, data systems, software, products and related IT infrastructure, mission analysis, services, space and ground segment developments / instrumentation and satellites
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THANK YOU

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