Formulation of NOAA's Space Weather Next Program

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NOAA's Office of Space Weather Observations (SWO) is formulating the Space Weather Next Program to provide the continuity and enhancements beyond the current program of record to support operational space weather monitoring and forecasting.

SW Next is a loosely coupled program consisting of multiple flight and instrument projects as well as partner contributions and commercial data. Observation objectives span multiple domains.



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To inform formulation decisions and justify the investment, SWO is conducting a benefits study to assess the value of space weather information enabled by the Space Weather Next Observations.

Category	Data Products
Solar Observations	Coronagraph Imagery (SEL and Off-SEL)
	Photospheric Magnetograph Imagery (SEL and Off-SEL)
	Solar EUV Imagery (SEL)
	Solar X-ray Irradiance (SEL)
	Solar EUV Irradiance (SEL)
Heliospheric Observations	Heliospheric Imagery (SEL and Off-SEL)
	Solar Wind Density, Velocity, and Temperature (SEL and Off-SEL)
	Heliospheric Magnetic Field (SEL and Off-SEL)
	Suprathermal Ion Flux (SEL and Off-SEL)
	Solar Energetic Particles (SEL and Off-SEL)
Magnetospheric	Magnetic Field (GEO and throughout magnetosphere)
Observations	Energetic Particle Flux (GEO and throughout magnetosphere)
	Electron Density Profiles
	Total Electron Content
	Ionospheric Irregularities (Scintillation)
Ionospheric	Ion Drift Velocity
and Thermospheric	Auroral Imagery
Observations	Energetic Particle Differential Flux
	Upper Thermospheric Density
	Thermospheric O/N2 Ratio
	Thermospheric Neutral Winds



Economic Benefits Analysis for NOAA's Space Weather Next

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Methodology:

- Employ value of information theory (via Value Chains) to underpin benefit estimates by tracing SW observations to intermediate NOAA products and ultimately external beneficiaries
- The Economic benefits (or valuation) of a program will be measured against a no-action baseline or counterfactual.
- Alternative Program Approaches: OMB guidance requires at least three options for each key attribute or provision be analyzed.
- Uncertainty: Leverage Monte Carlo approach to simulate expected space weather events and industry impacts.



