The Air Force Research Laboratory and Space Weather R2O

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DoD R2O

COMBATANT COMMANDS

SPACE WEATHER OPERATIONS

DoD R2O

COMBATANT COMMANDS

SPACE WEATHER OPERATIONS

BASIC RESEARCH

APPLIED RESEARCH & TECHNOLOGY DEVELOPMENT

REQUIREMENTS, ACQUISITION & SUSTAINMENT

Breaking the Stovepipes

COMBATANT COMMANDS

SERVICE & SUPPORT

FUNDAMENTAL RESEARCH

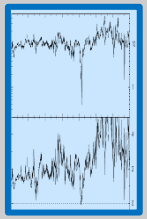
The best R2O outcomes involve continuous O2R activities conducted as a team

AFRL HERITAGE | 1917–2017

The Service Labs & Space Weather S&T

Energetic Charged Particles

Space Weather



Data

Space sensors
Ground sensors

SPACENEWS

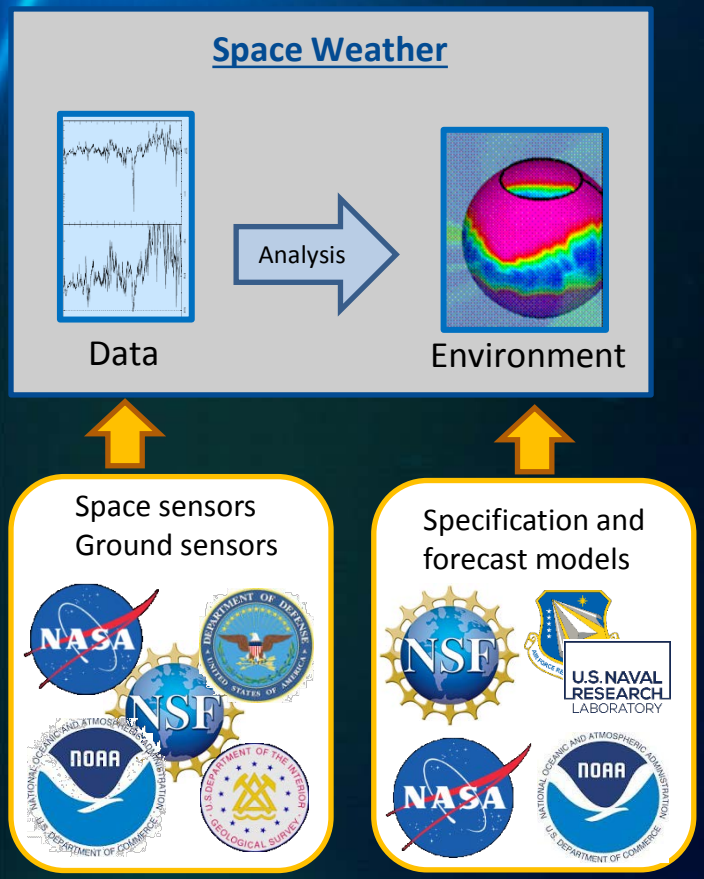
U.S. Plans $6 Billion Investment in Space Situational Awareness

by **Mike Gruss** — October 19, 2015

The Energetic Charged Particle sensor will monitor space radiation, data that will be used in part to distinguish between naturally occurring and man-made events. Earlier this year, Air Force Secretary Deborah Lee James mandated that all new satellite programs plan to include the Energetic Charged Particle sensor, prototypes of which are expected to be delivered in fiscal year 2018, the report said.

The Service Labs & Space Weather S&T

Energetic Charged Particles



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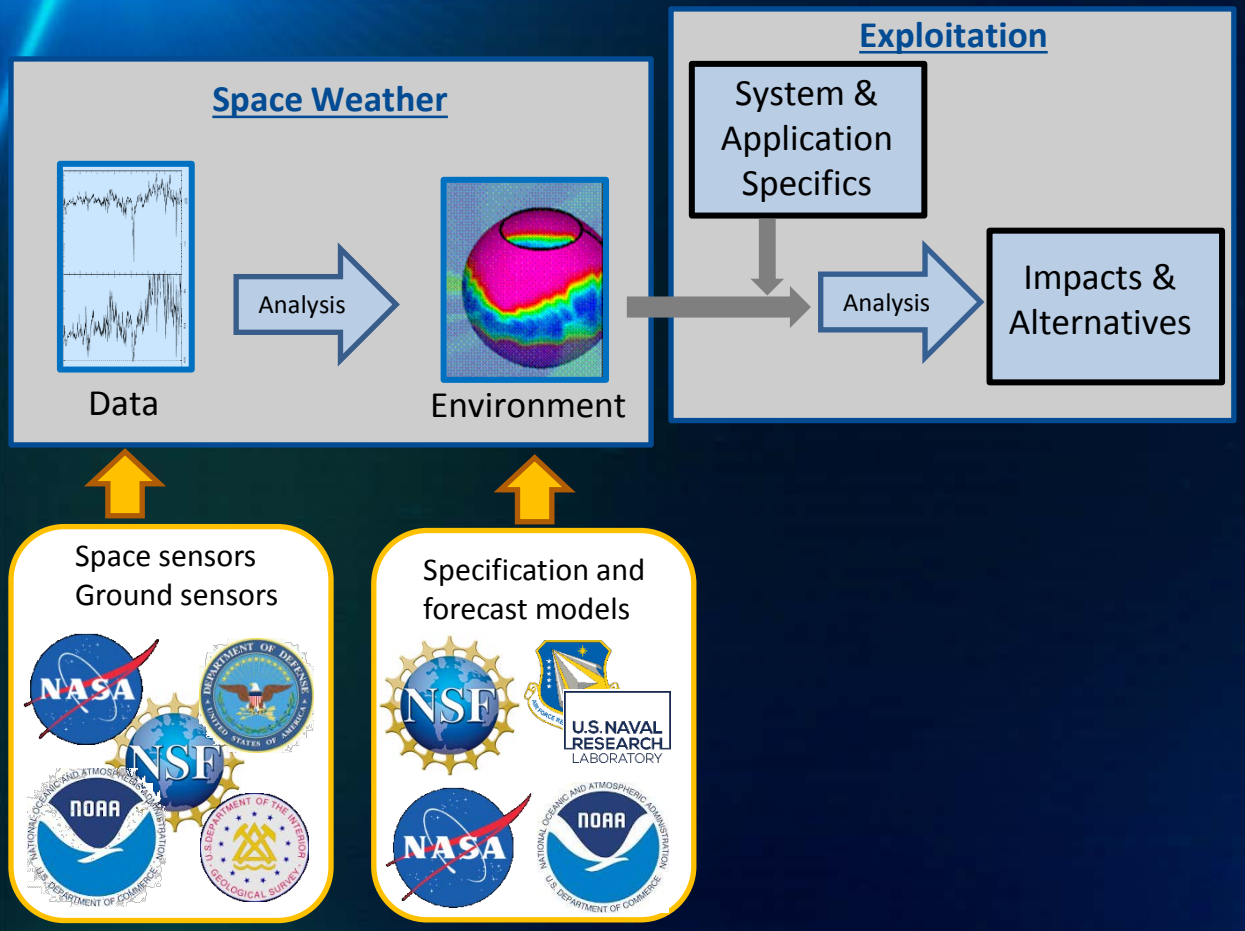
The Service Labs & Space Weather S&T

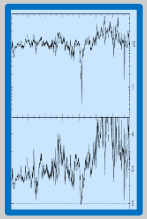
Energetic Charged Particles



The Service Labs & Space Weather S&T

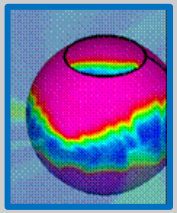
Energetic Charged Particles

Space Weather



Data

Analysis



Environment

Exploitation

System & Application Specifics

Analysis

Impacts & Alternatives

Other Information

Fusion

Actionable Knowledge for Decisions

Courses of Action

Space sensors
Ground sensors

Specification and forecast models

The service labs uniquely connect the elements between space weather research and operational applications

Next-Generation Systems are Expensive!

SPACENEWS

U.S. Plans $6 Billion Investment in Space Situational Awareness

by **Mike Gruss** — October 19, 2015

The Washington Post

White House proposes steep budget cut to leading climate science agency

By Steven Mufson, Jason Samenow and Brady Dennis March 3

SPACENEWS

Budget issues could delay space weather mission

by **Jeff Foust** — January 24, 2017

$186.1 million in 2019, the peak year of the program. The program has an estimated total life cycle cost of $757.7 million.

Maximum alignment of civil, DoD and allied investments is essential to affordably bring next-generation capabilities to our end users

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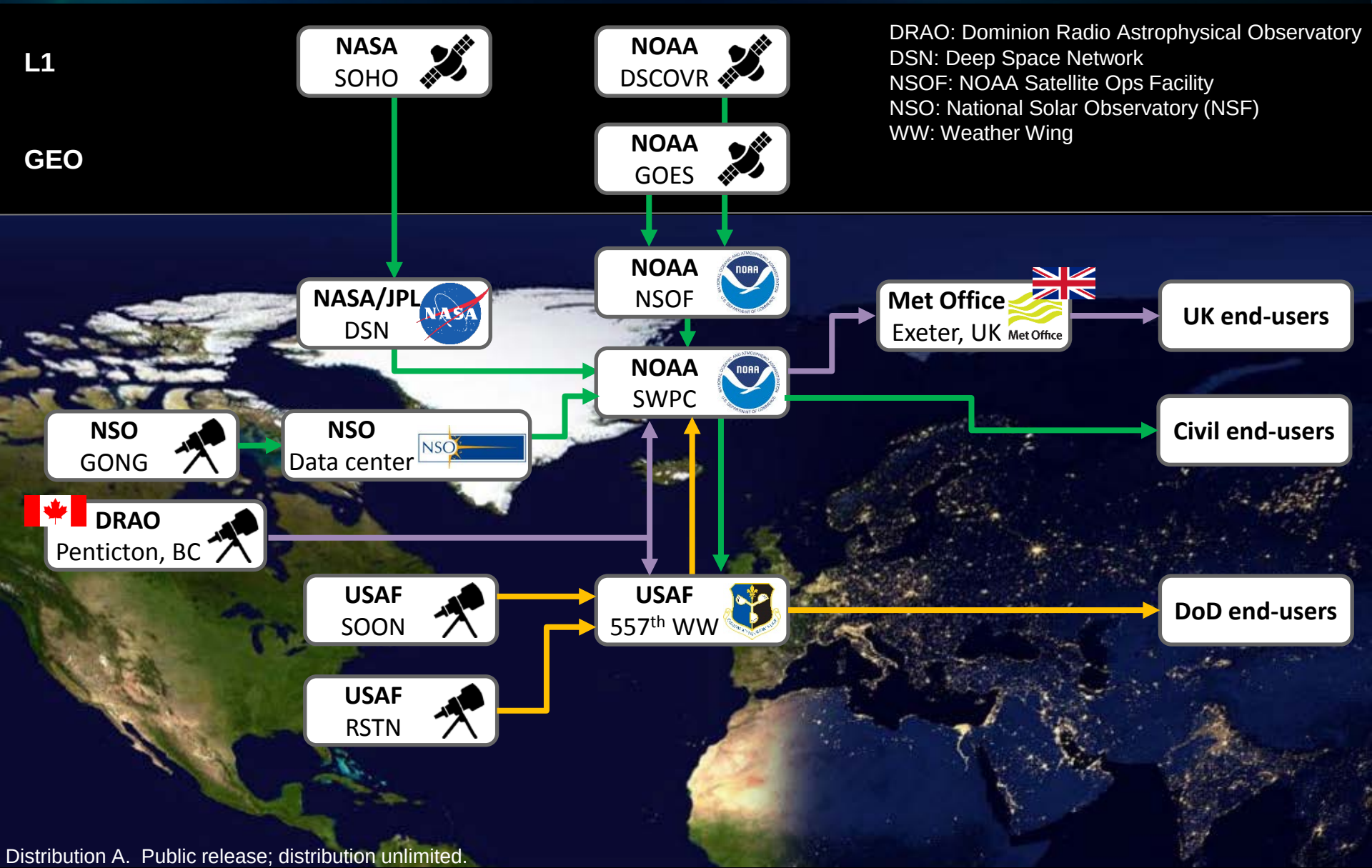
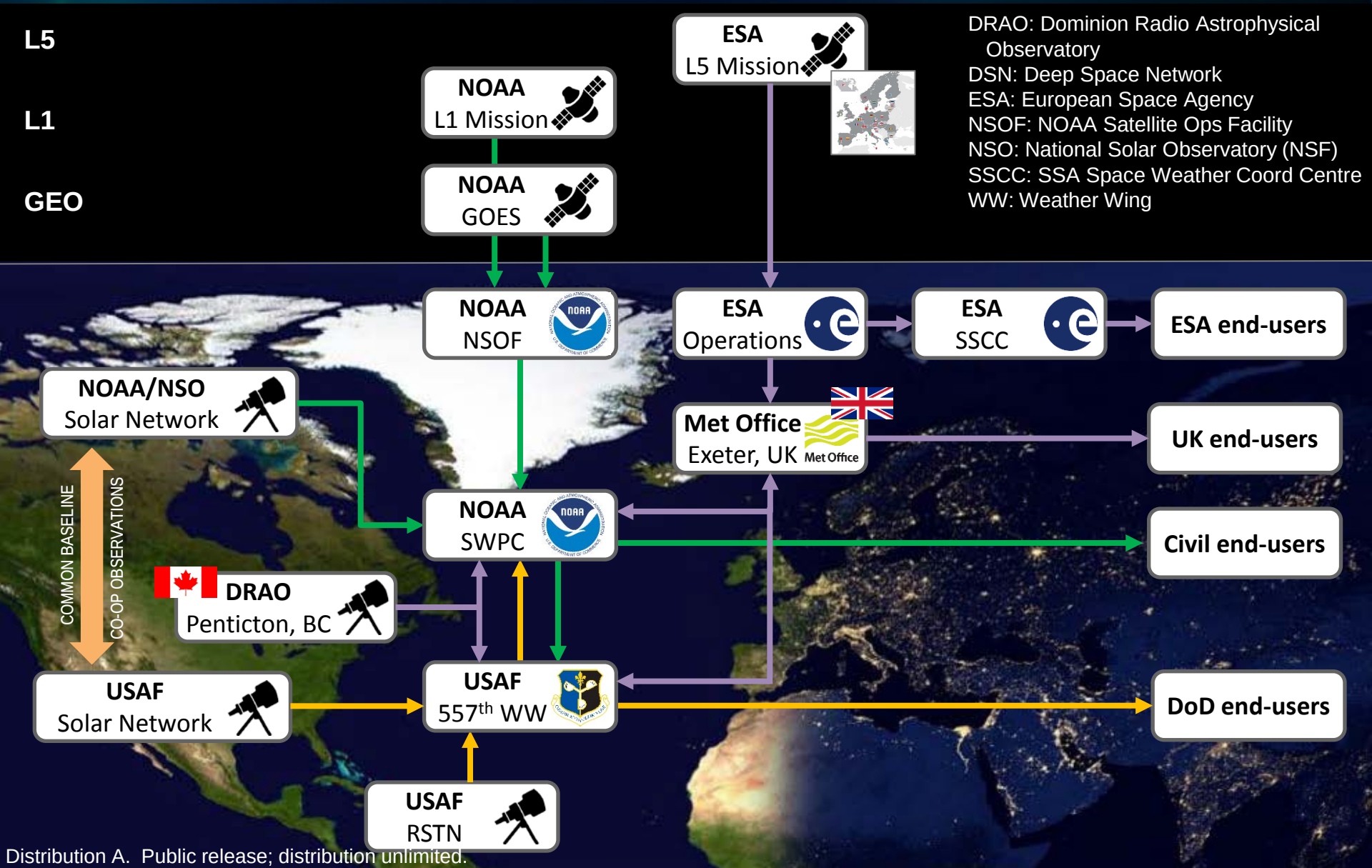
Solar Observing: Current Architecture



Solar Observing: Could-Be Architecture



The Story So Far…

- Significant research investments have unlocked secrets of the space environment
- All of the existing systems are built on the work of this community
- Space weather impacts and operations are becoming mainstream topics
- Commercial and allied partners are well-positioned as partners

But There Are Challenges…

- Need closer coordination of end-user needs with ops and underlying research
- Infrastructure is in need of recapitalization to enable next-generation capabilities

The next chapter demands all stakeholders be on the same page, and working together toward next-generation space weather capabilities