

National Aeronautics and Space Administration



Space Weather Tools Update

Marlo Maddox

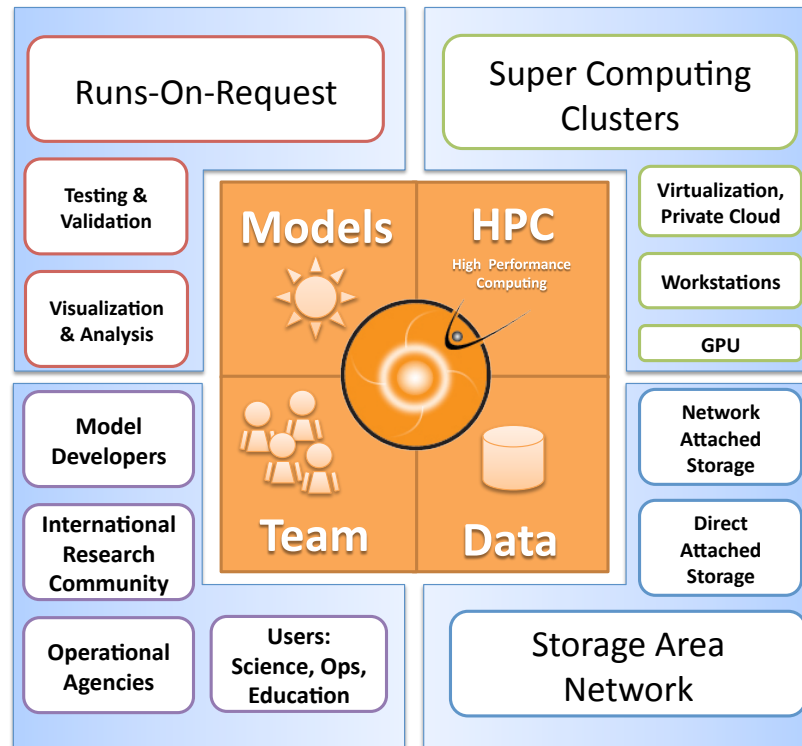
The 6th SWRC Workshop

<http://ccmc.gsfc.nasa.gov> <http://swrc.gsfc.nasa.gov>

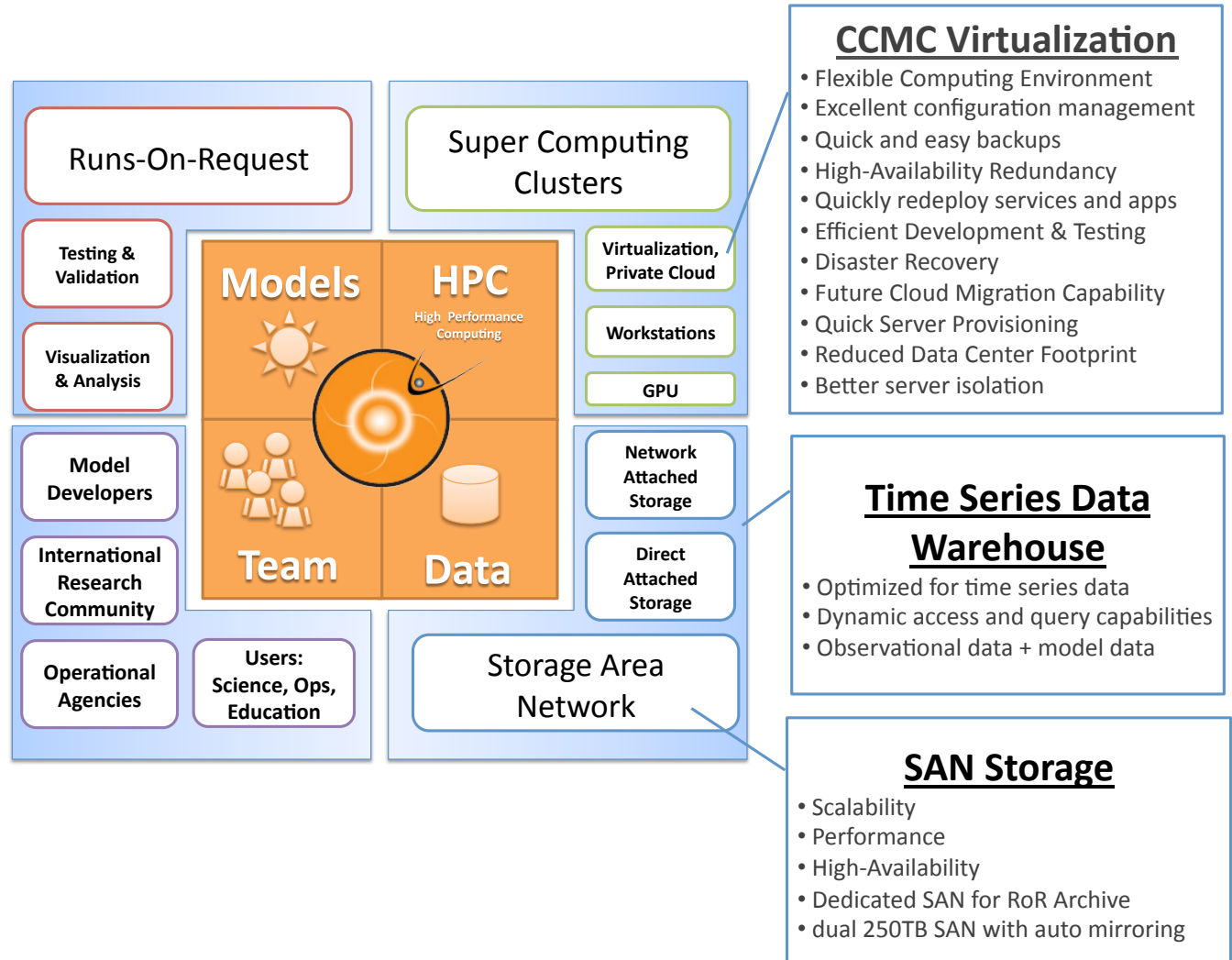
www.nasa.gov



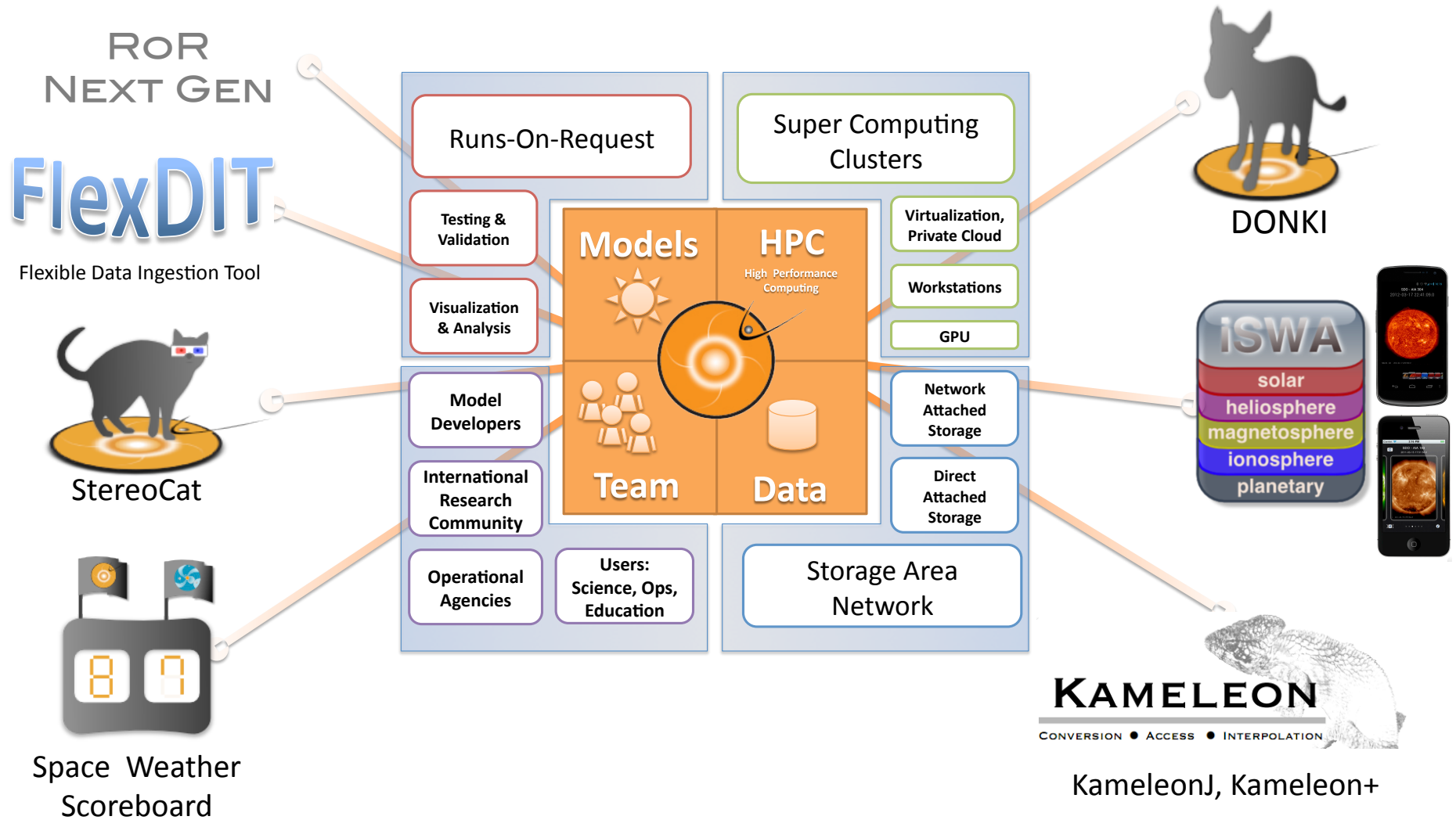
CCMC Infrastructure



CCMC Infrastructure (Behind The Scenes Highlights)



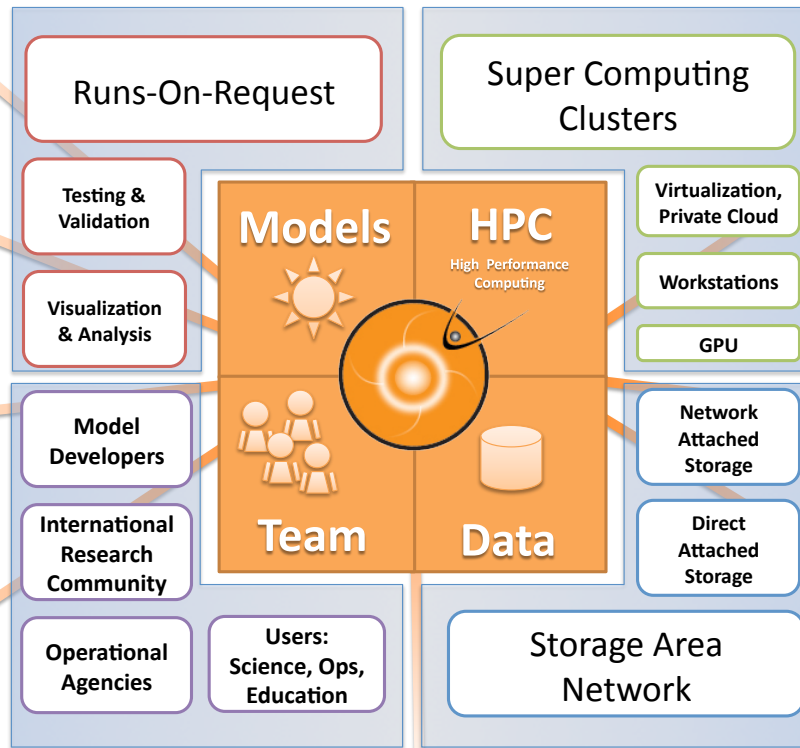
Space Weather Tools



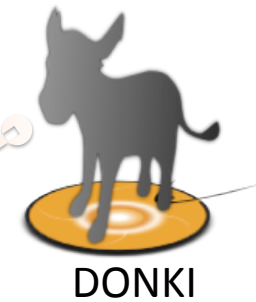
ROR
NEXT GEN

FlexDIT

Flexible Data Ingestion Tool



SEA5

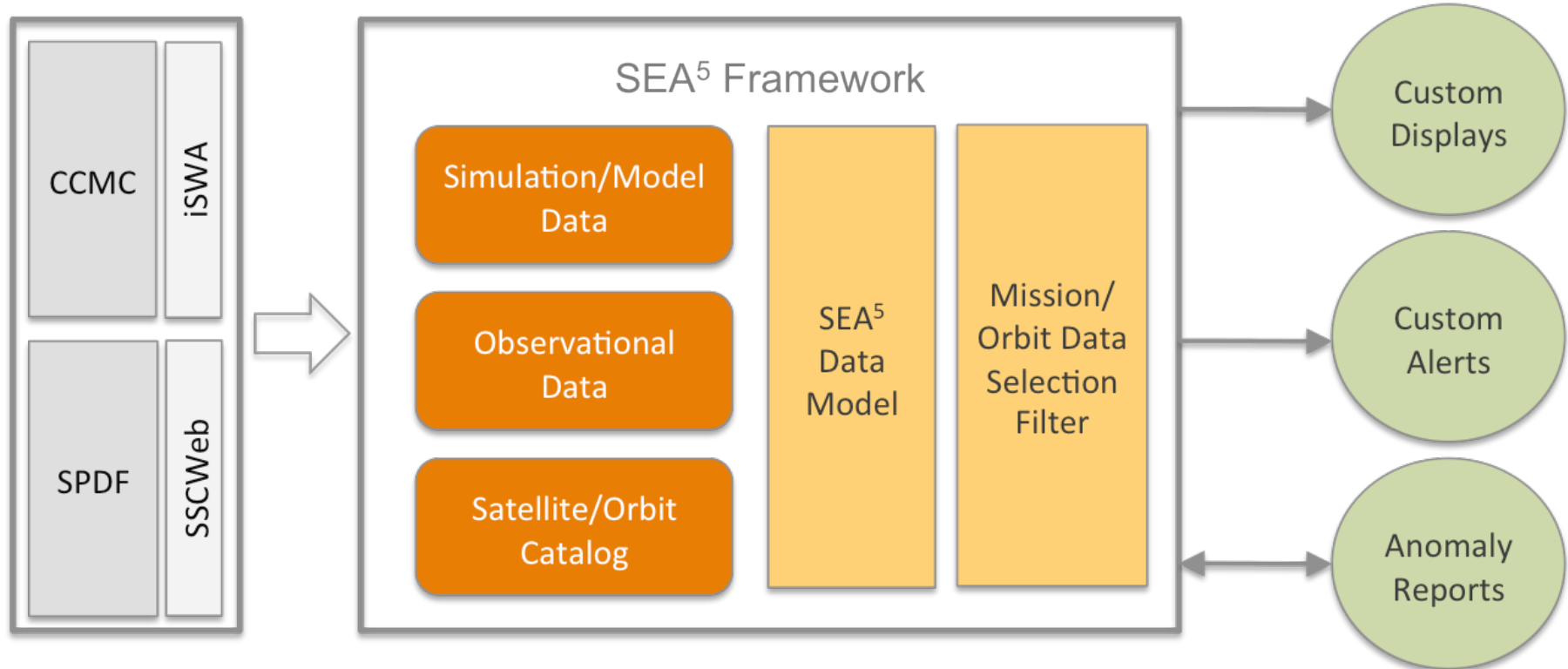


KameleonJ, Kameleon+

SEA⁵: Space Environment Automated Alerts & Anomaly Analysis Assistant

...an extensible software system for NASA that provides an unprecedented capability for:

- viewing space environment conditions for specific missions/orbits
- providing automated space weather alerts
- assimilating and displaying spacecraft anomaly information
- displaying spacecraft/mission data



SEA5 DEMO



Search for satellites...

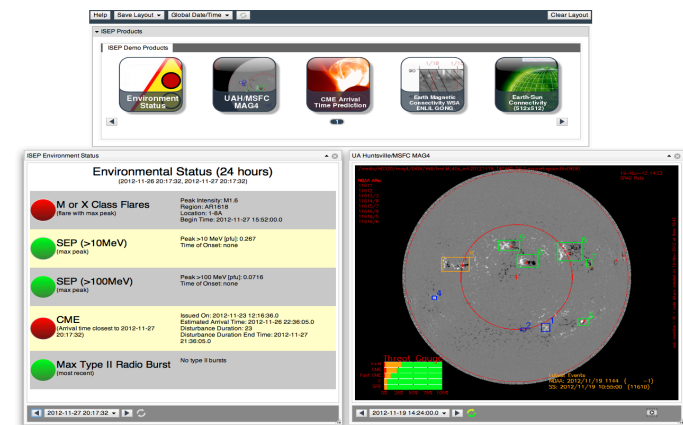


iSWA Updates/Activities



New Systems/Extensions Powered by iSWA

- Project Specific Implementations with Full iSWA Feature Set, Infrastructure
- Customized Cygnet/Product Catalog
- **I**ntegrated **S**olar **E**nergetic **P**roton Event Alert Warning System – Advanced Radiation Protection Project (STMD Game Changing Office)



Expanded Numerical Database

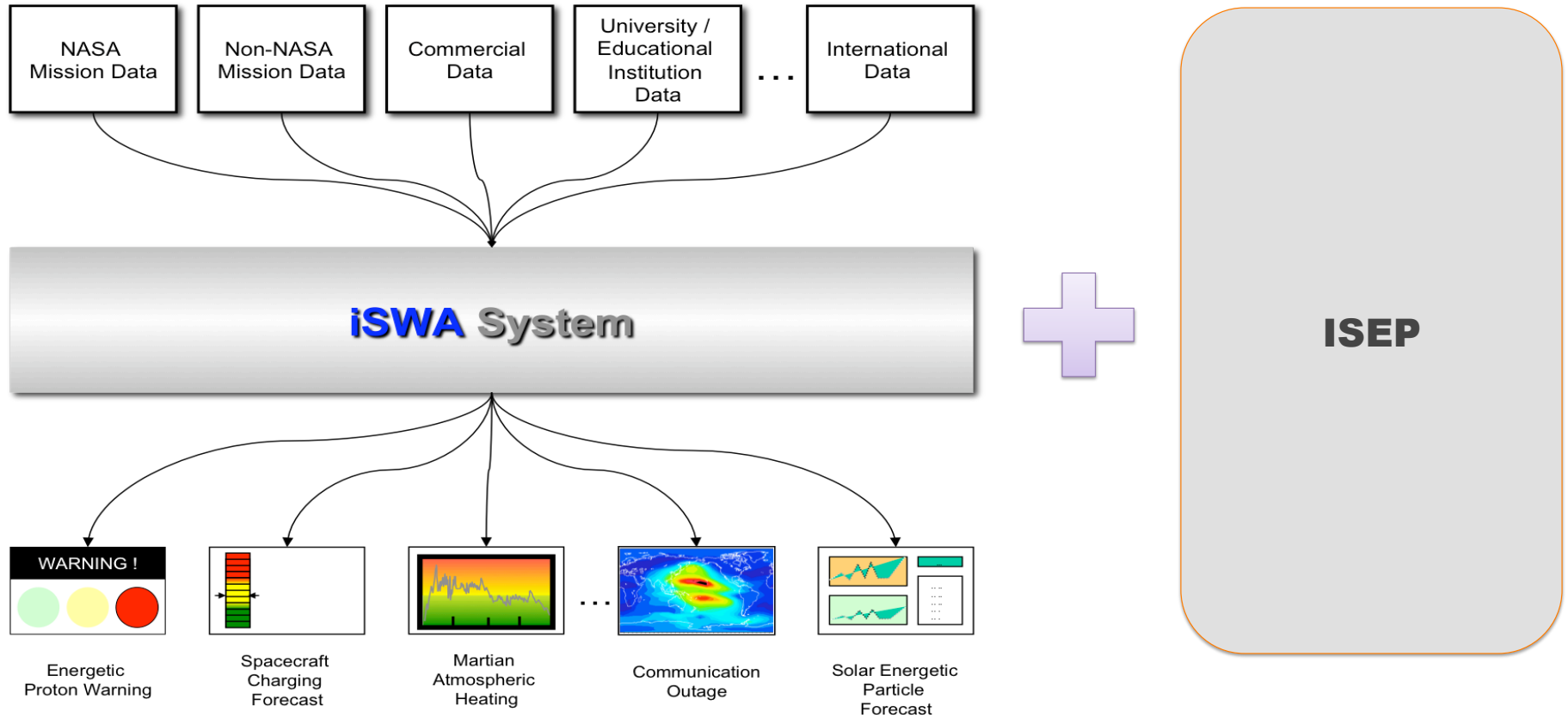
- New parameters
- Custom alerts
- Dynamically generated products
- Data streaming for external applications

Web Services

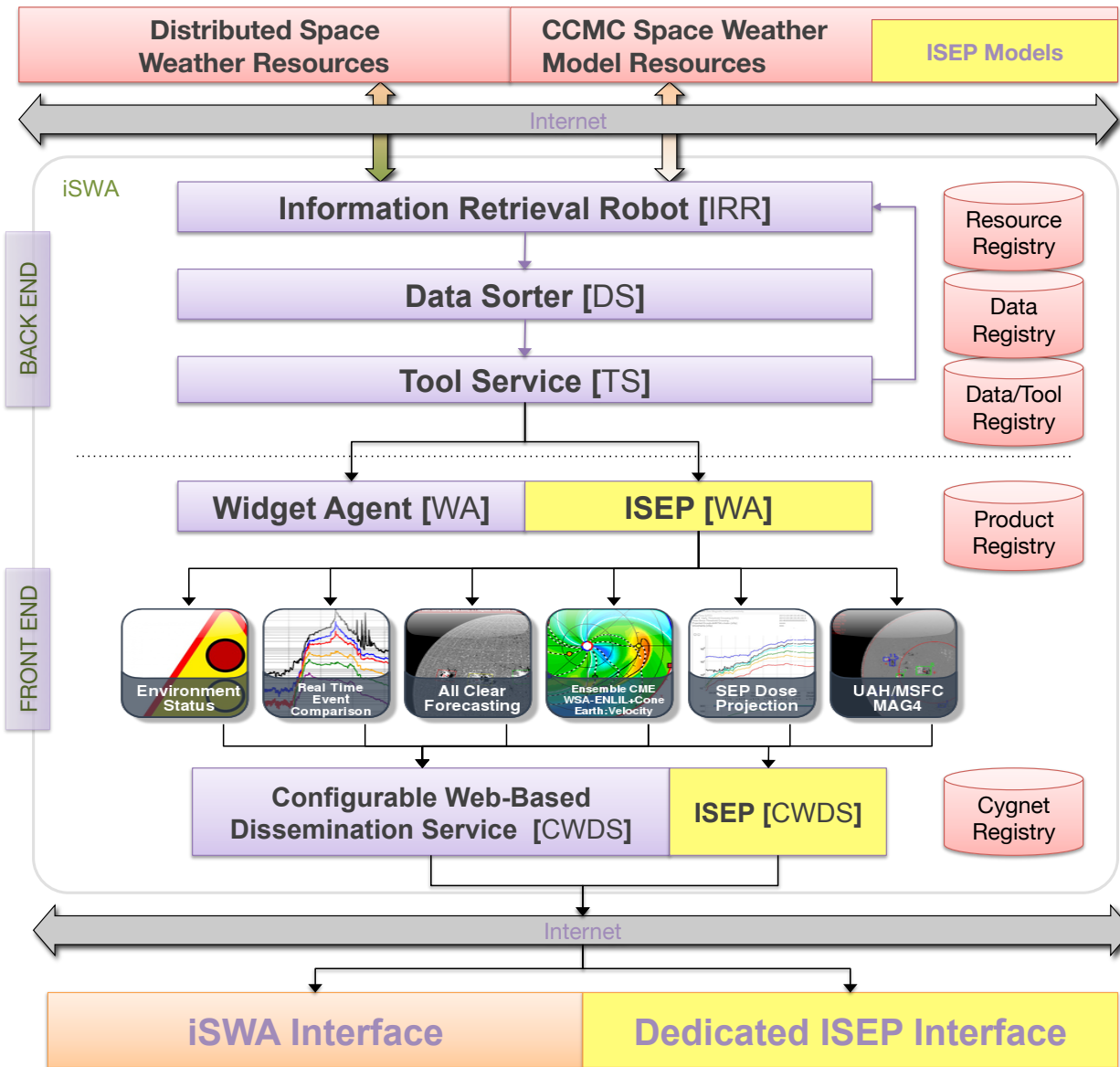
- Building web-based interfaces for machine-to-machine interaction
- Enabling external systems to query, access, and link to iSWA data

Integrated Solar Energetic Proton Event Alert Warning System

<http://iSWA.gsfc.nasa.gov/ISEP>



...flexible and robust decisional support tool for space weather



ISEP System

ISEP components are integrated into the iSWA system framework providing a solid development and operational platform. A modular architecture ensures new models, data, features, and functionality can be added to the system.

ISEP Interface Beta

Integrated Solar Energetic Proton Event Alert Warning System (ISEP) : iswa 2:isep : Version 0.0.2 [Interface Prototype Baseline 12.21.2012]

iswa2.ccmc.gsfc.nasa.gov/iswaSystemWebApp/isep.jsp

Layout & Global Controls

ISEP Control Panel

ISEP Specific Products

Environment Status

UAH/MSFC MAG4

Real Time Event Comparison

All Clear Forecasting

SEP Dose Projection

ISEP SEP Dose Projection

SEP Event Detected In Current Data Viewing Window	
Date/Time [UTC]	2012-03-08 12:15:00.0
>10 @ 10pfu Threshold Crossing [UTC]	2012-03-07 04:55:00.0
Time Since Threshold Crossing	31.333333333333332 h
Projected D ₁₀ [cGy]	280.2
Uncertainty [cGy]	16%(50cGy)

Environmental Status (24 hours)
(2012-03-06 12:18:21, 2012-03-07 12:18:21)

- M or X Class Flares** (flare with max peak)
Peak Intensity: X5.4
Region: AR1429
Location: 1-BA
Begin Time: 2012-03-07 00:02:00.0
- SEP (>10MeV)** (max peak)
Peak >10 MeV [pfu]: 555
Time of Onset: 2012-03-07 05:10:00.0
- SEP (>100MeV)** (max peak)
Peak >100 MeV [pfu]: 48.3
Time of Onset: 2012-03-07 04:05:00.0
- CME**
(Arrival time closest to 2012-03-07 12:18:21)
Issued On: 2012-03-07 16:52:21.0
Estimated Arrival Time: 2012-03-08 06:25:05.0
Disturbance Duration: 6.2
Disturbance Duration End Time: 2012-03-08 12:25:05.0
- Max Type II Radio Burst** (most recent)
No type II bursts

Customizable Products. Date Manipulation Controls. Save Layout Features.

Integrated Solar Energetic Proton Event Alert Warning System

<http://iSWA.gsfc.nasa.gov/ISEP>

- Real Time Info
- Interactive
- Web Accessible
- User Customizable
- Extensible

