

The Integrated Space Weather Analysis System Version 1.0

Demo

January 28, 2010

<http://iswa.gsfc.nasa.gov>

...for unprecedented analysis of present and future space weather impacts on virtually all NASA human and robotic missions



ISWA Project Overview

OCE Technical Excellence Initiative Project

- Partnership between NASA HQ OCE, SWL, CCMC, & AETD
- Address technical challenges in acquiring space weather environment information
- Began March 2008
- Version 1.0 deployed November 2009

Fundamental Challenges To Be Addressed

- Existing space weather resources are diverse and scattered
- Data accessibility
- Accurate real time now-casting & forecasting of the space environment
- Historical space weather impact analysis

Initial Requirements Gathering

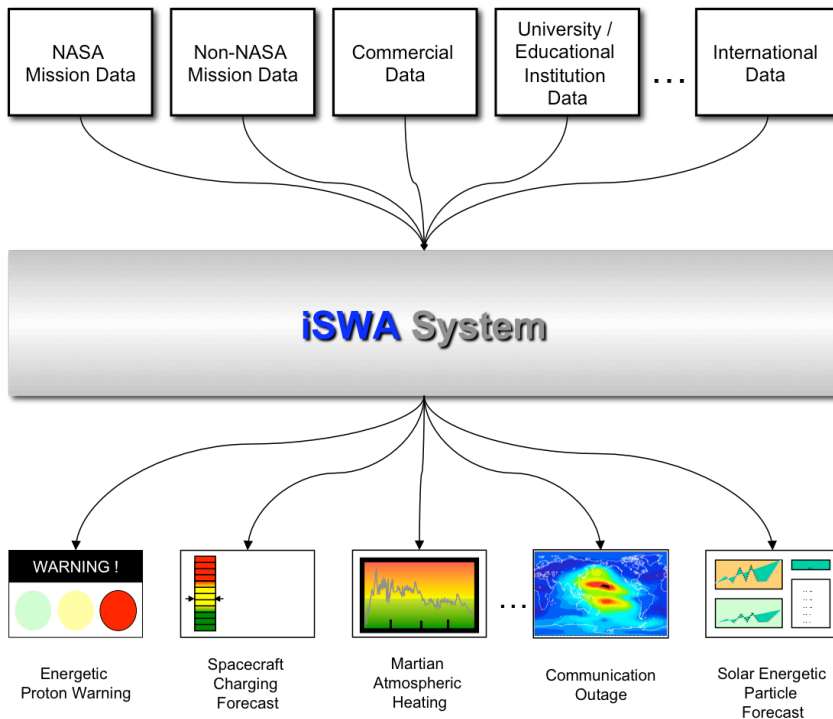
- GSFC SSMO, JSFC SRAG

Refined Requirements

- Space Weather Workshop for NASA Robotic Missions

iSWA Solution and System Deliverables

INTEGRATED SPACE WEATHER ANALYSIS SYSTEM



Highly diverse and distributed space weather data consisting of the latest observational data along with the most advanced space weather model simulation output.

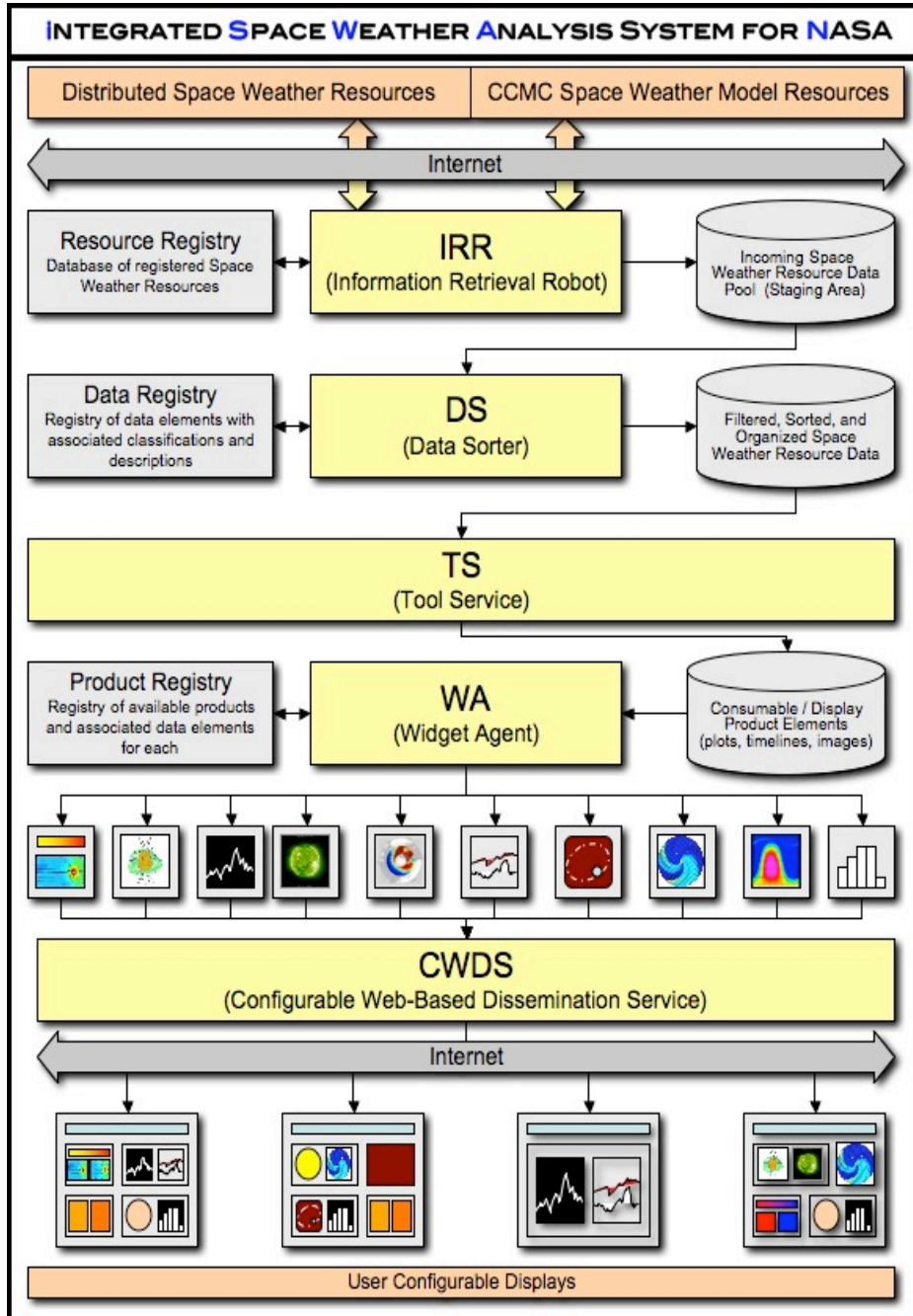
iSWA system collects data from a large and evolving list of sources. Data is sorted, characterized, and processed into 'mission decision supporting' products in response to individual user queries.

iSWA generates and provides a user-configurable display panel that can be accessed from a standard web browser. The end user can then customize their display to focus on specific products of interest.

INTEGRATED SPACE WEATHER ANALYSIS SYSTEM

- Acquire, ingest, and produce NASA relevant space weather information
- Utilize both observational and simulation/model data
- Categorize and archive data for historical impact analysis
- Produce and provide real-time data streams
- Provide customizable and highly configurable displays
- Disseminate through the most widely deployed and accessible interface – the web

iSWA Implementation



IRR

- Routinely ingest and receive external data streams.
- Automatically configures / re-configures via a resource registry database

DS

- data is registered in database, time-tagged, sorted, categorized, and archived in a data tree

TS

- New data products are created using raw data and combinations of existing data products

WA

- data products are registered and packaged for display in iSWA system

CWDS

- iSWA System Interface provides a highly configurable control panel to present operators with only the products and tools of interest

iSWA Statistics as of 01.27.2010

- 171 Unique Data Feeds
- 6 Million Data Files Registered and Archived
- 135 Consumable Display Products currently available in iSWA Cygnet Catalog

ISWA Design Highlights

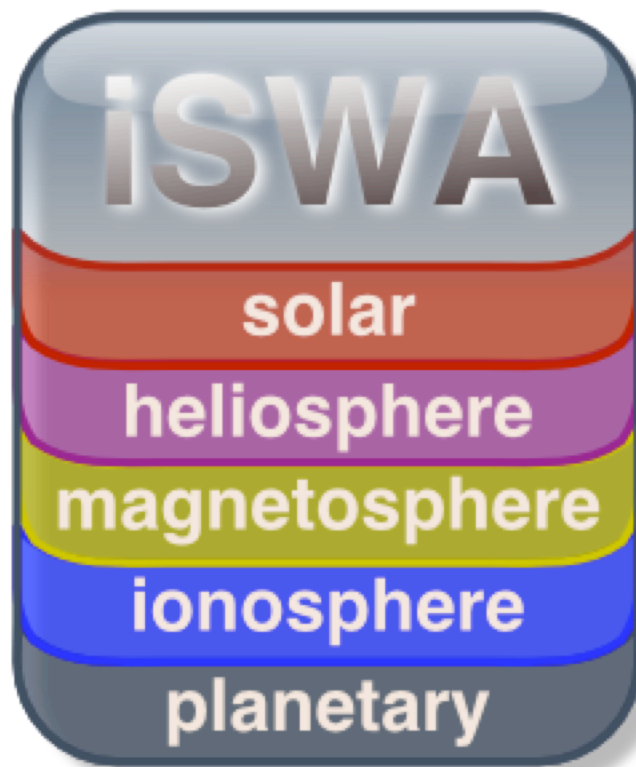
Back End

- Comprehensive data model that drives the system
 - Minimizes need for actual code modifications
 - Allows rapid additions and modifications to data feeds and display products
- Every granule of data is registered, cataloged, and archived
 - Access data products for any available time period
 - Generate new tools and functionality using multiple existing data products

Front End

- Consistent Interface with uniquely identifiable product icons
- Customizable layout
 - automatically saved on browser exit
 - can be bookmarked and shared
- Auto updating products and tools
- Individual and global date search functionality for historical impact analysis
- Detailed descriptions for data products

ISWA Demonstration



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