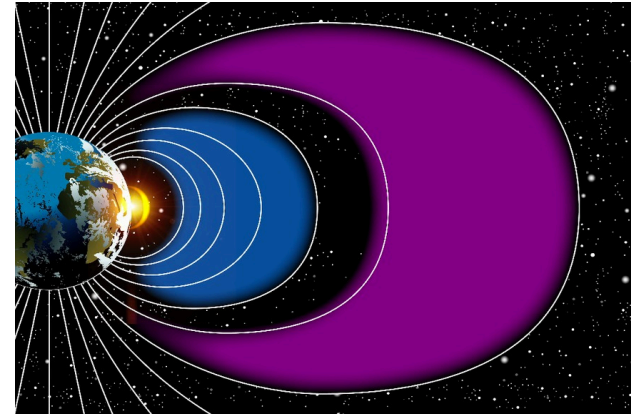
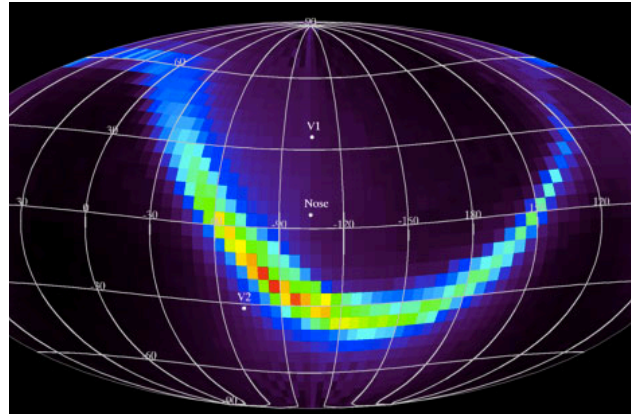
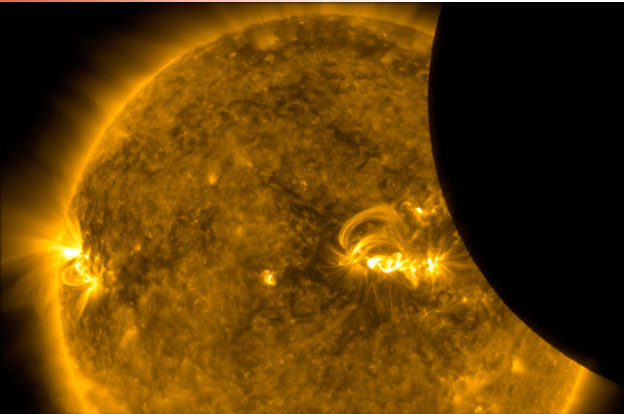




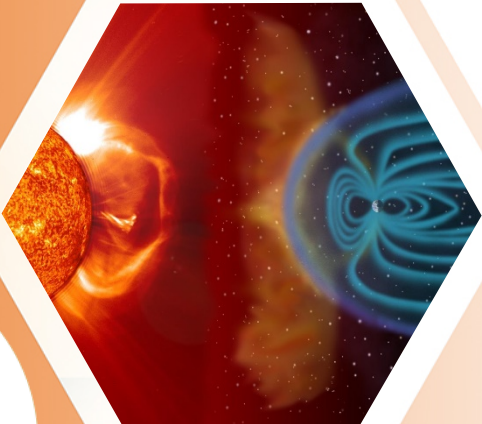
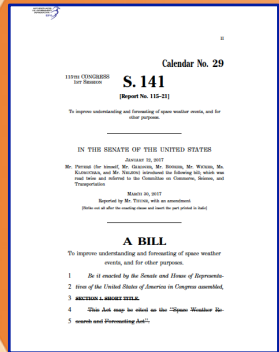
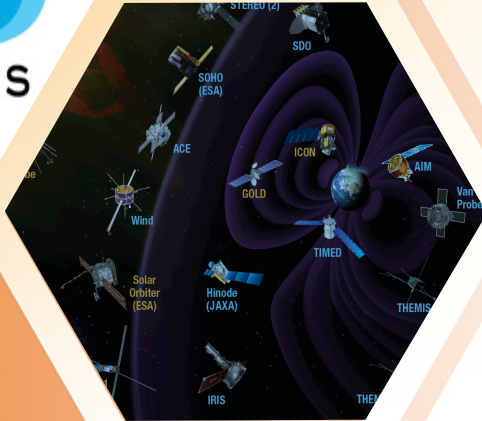
# SCIENCE



## NASA Heliophysics Division Space Weather Update *Community Coordinated Modeling Center Workshop*

**James Spann**  
Acting Chief Scientist  
Heliophysics Division

24 April 2018

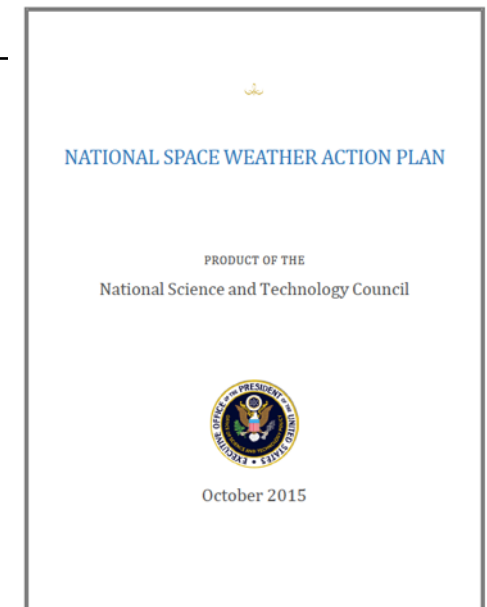
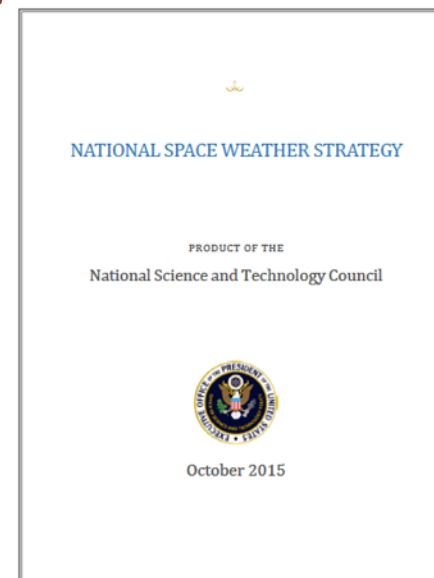
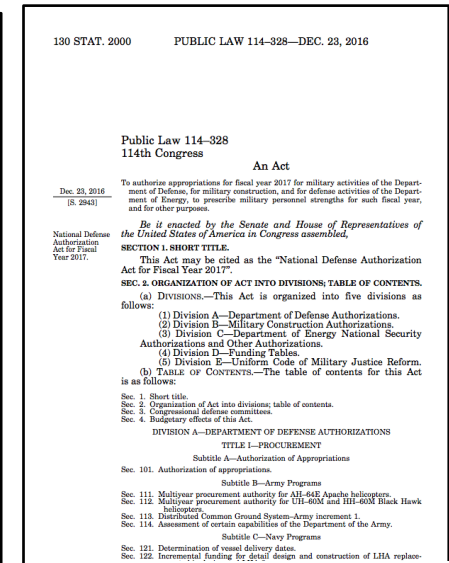
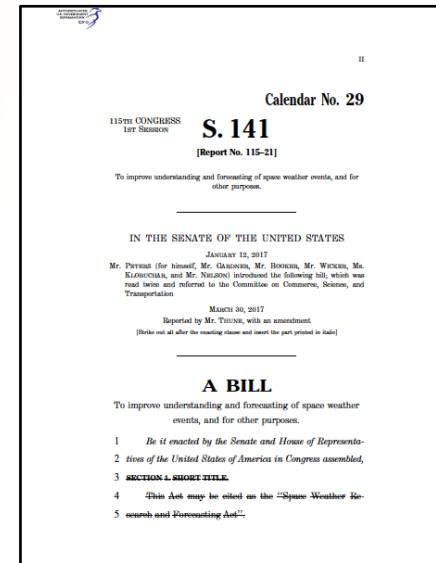


# Overview

- Space Weather Strategy
- SWx Science Applications Project – SnAP

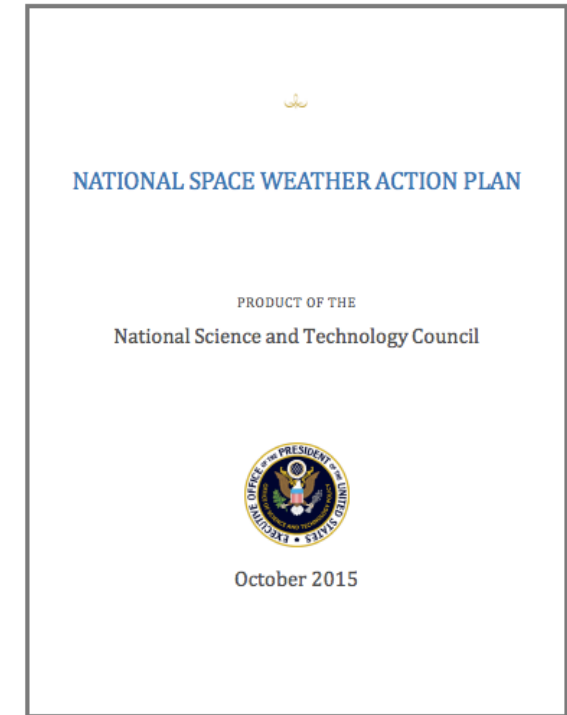
# Recent National Space Weather Strategy

- Space Weather Research and Forecasting Act (S. 141), amended May 2017
  - Currently being reviewed by House of Representatives Subcommittee on Strategic Forces
- National Defense Authorization Act, 2017
  - Strategy to prepare for natural and adversarial electromagnetic pulses
- National Space Weather Strategy and Space Weather Action Plan, released October 2015
  - Details the activities, outcomes and timelines that will be undertaken by U.S. federal departments and agencies for the Nation to make progress toward the strategic goals
- Space Weather Operations, Research, and Mitigation (SWORM) Task Force, established by OSTP National Science and Technology Council – 2014



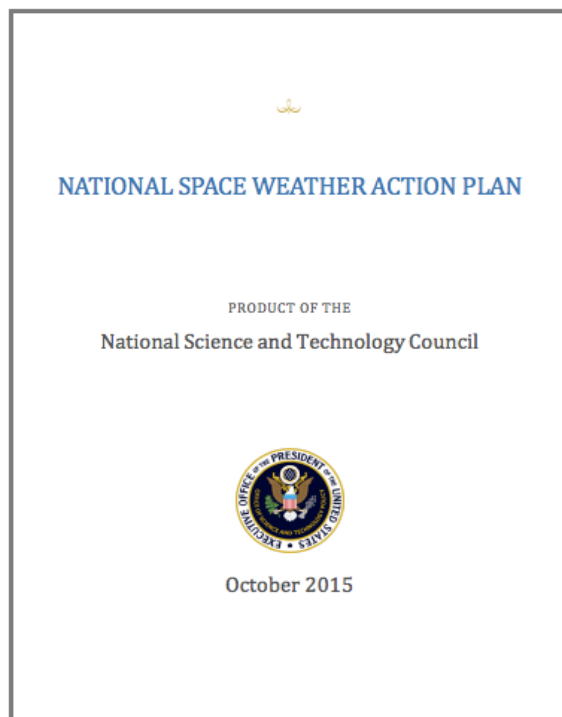
# SWORM Goal 1, 4, and 5 Summary

- Goal 1: Benchmarks
  - Provide a clear description of space weather events based on scientific and historical knowledge; Phase 1 document released
  - Next Step: Broader national and international input will be obtained through upcoming community meetings
- Goal 4: Impacts on critical infrastructure - Economic Impact Study
  - Final Report released in September 2017
- Goal 5: Improve services through advancing understanding
  - Coordinated interagency space weather research funding
  - Tri-agency MOU released between NASA, NOAA, and NSF
  - Joint NASA/NOAA Operations-to-Research solicitations



# Goal 5: Improve Services Through Advancing Understanding

## 5.6 Improve Effectiveness and Timeliness of the Process that Transitions Research to Operations



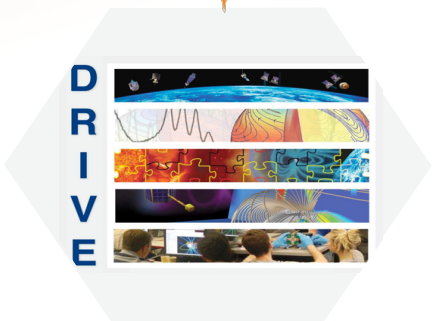
Action 5.6.1: Enhance coordination between research modeling centers and forecasting centers for sustaining and improving models that transition into operations.

- CCMC-SWPC MOU signed

Action 5.6.2: Develop a plan for improving, testing, and maintenance of operational models, which may include a center.

- O2R plan submitted – to be released

# Interagency Actions



- CCMC – SWPC activities under MOU
  - WSA-Enlil and Adapt-Enlil assessment
- 2017 Operations-to-Research opportunity
  - Announcement of opportunity released January, 2018
  - Focus on solar wind and coronal mass ejections
  - 21 proposals received March 30
- 2018 Operations-to-Research opportunity
  - New call could be released in April/May in response to FY18 funds
  - Tri-Agency MOU drafted to allow full participation (NASA, NOAA, NSF)
  - Second 2018 announcement of opportunity could be released this summer

# SWx Science Applications Project – SnAP

## Focus and Objectives

### Goal

- The goal of SnAP is to effectively transition heliophysics science investigation output to products that enhance the user communities' ability to address impacts caused by the dynamic space environment.

### Description

- SnAP is a Heliophysics Division managed project that enables transition of heliophysics science results to application products. The drivers for SnAP are the expressed needs of user communities such as engineering, industry, service providers, and operational agencies, that are impacted by the dynamic space environment. SnAP competes ideas and products, leverages existing Agency capabilities, collaborates with other agencies, and partners with the user communities.

# SnAP Consistent with National Space Weather Policy

- Presidential Priorities
  - Promote Leadership, technology, and innovation
  - Promote American resilience to threat of natural and induced space weather disasters
  - + - Enhance space weather forecasts, alerts and services
  - Strengthen space weather capabilities to enhance National Security
  - Advance American influence and leadership in space
- SWAP Goal 5
- NASA Strategic Plan – Safeguarding and Improving Life on Earth
- 2012 Decadal Survey “Solar and Space Physics: A Science for a Technological Society” Action 4.3



# SnAP General Construct and Content

## SMD Heliophysics Division managed

- Light touch independent project management at a field center
- Draws on expertise across the agency
- + - Multiagency Collaborations – NSF, NOAA, DoD

## + 1. Competed elements

- Applied Research focused on transitioning science to applications
- Technology development for observations and informatics required to improve space weather prediction
- Small Business Innovation Research (SBIR)
- *Mission of Opportunity or Small Explorer – focused on observations to improve space weather prediction*

## 2. Enhanced capabilities

- CCMC enhancement for model assessment and transition
- High-End Computing capability to enable large scale predictive modeling development

## 3. Generates responses to National Space Weather actions (e.g. SWORM/SWAP)

# SnAP Research Implementation

- New approach to connect research and services
  - Targeted focus
  - Flexible implementation
  - Responsive to evolving priorities and capabilities
- ROSES 2017 Space Weather Operations-to-Research opportunity
  - Announcement of opportunity released January 2018
  - Focus on solar wind structures and coronal mass ejections
  - 21 proposals received March 30; reviewed June 5-8
- ROSES 2018 Space Weather Operations-to-Research opportunity
  - New call released in response to FY18 funds
  - Tri-Agency MOU drafted to allow full participation (NASA, NOAA, NSF)
  - Second 2018 announcement of opportunity released Summer 2018
- Full integration of multi-agency capabilities
  - Community Coordinated Modeling Center, Living With a Star, user requirements surveys, etc.

