NESDIS OSGS Annual End of Year Report 2022

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The Office of Satellite Ground Services (OSGS) is a vital element of the NOAA's value chain to deliver products and services from its vast Earth and Space observing platforms and systems. The OSGS plans and executes common ground services for NOAA's satellite, data, and information capabilities. It develops and sustains services to acquire, process, and manage environmental data from NOAA's satellite missions, facilitate access to non-NOAA domestic and international satellites and commercially acquired data, and provide the infrastructure to archive and steward data to benefit the broader Earth Observing enterprise.
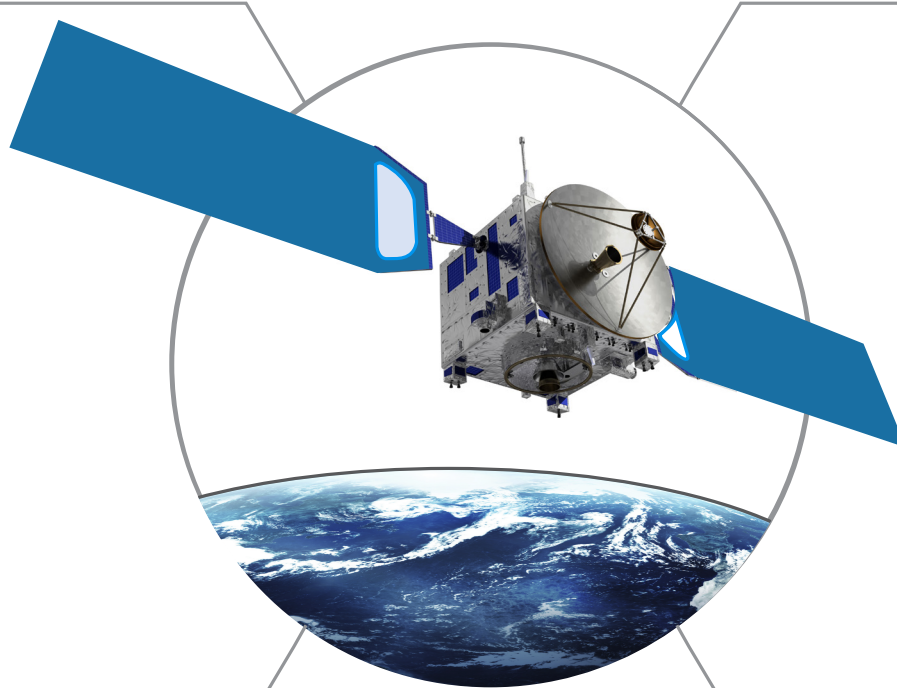
New Mission Areas

Product Portfolio Management (PPM):
Lead product portfolio management and the transition to operations of science applications across the organization

NESDIS Common Cloud Framework (NCCF):
Build out, sustain, and optimize the NCCF and migrate capability to common services

NESDIS Ground Enterprise (NGE):
Support the definition and evolution of the future NESDIS ground enterprise

On-premises Systems:
Develop, sustain, and optimize enterprise on-premises systems

NESDIS' Common Cloud Framework is a collection of cloud services that provide end-to-end ground service functionality and will replace elements of the on-premises enterprise in a phased approach. OSGS is architecting and building a set of core enterprise services that the organization can leverage to do its future data management, which includes ingest, compute, product generation, product distribution and access, and archive.

In 2022, OSGS successfully delivered the NCCF's archive service initial Minimum Viable Product (MVP). Additionally, the architecture plan for the MVP Archive Service deployment into the NESDIS NCCF development environment was completed. The organization awarded its Enterprise Cloud Contract for flat-rate egress, storage, Deep Glacier, and labor. And the NMITS $184M contract award for cloud development and support was officially approved. New operational NCCF products including MetOp-B/C Clouds, Winds, and IASI Soundings were implemented in the cloud and are currently under user acceptance testing.
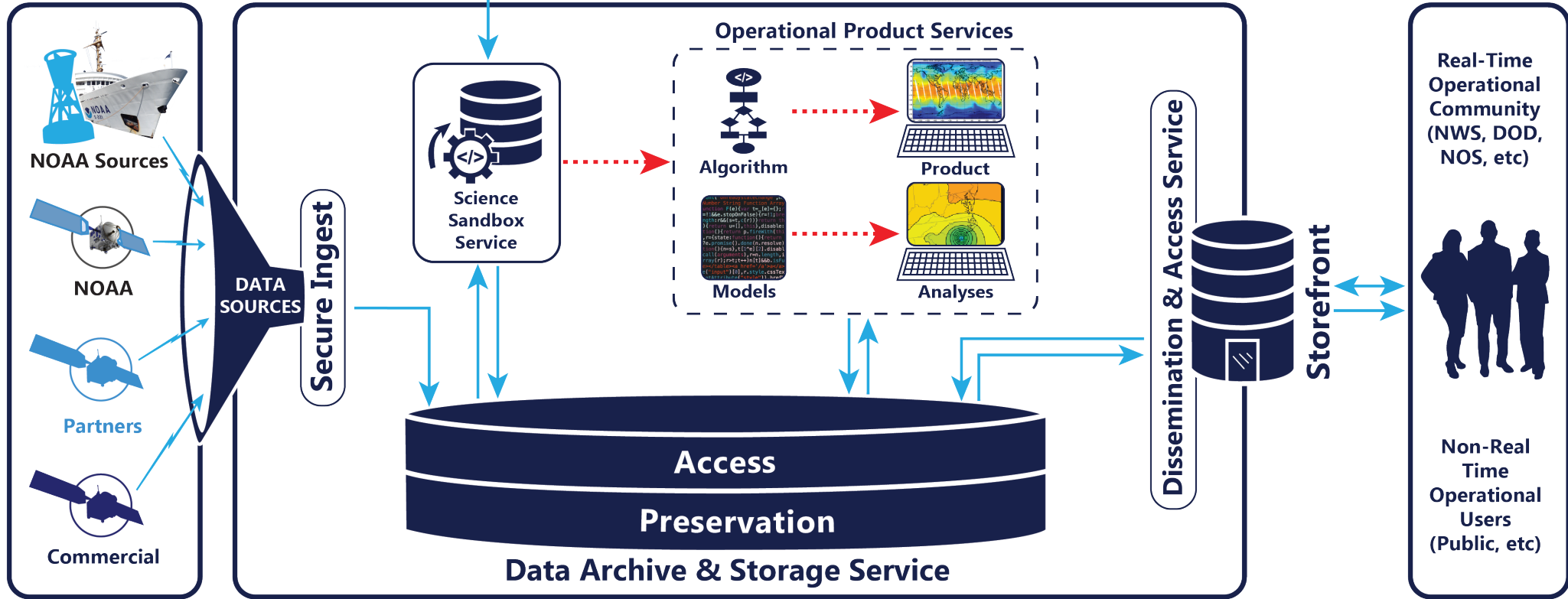
OSGS is leading the efforts and man aging the data that moves into the NCCF. This requires OSGS to make an initial assessment and create a scope for what will migrate to the cloud or be retired. Regarding its legacy systems, OSGS successfully completed Hurricane Rated (HR2) antenna feed upgrades which included the Antenna Control Systems, Up/Down Converters, Frequency Distribution Systems, and Solid-State Power Amplifiers (SSPAs). Additionally, RFIMS obtained the Authority to Operate (ATO) for the Central Monitoring System (CMS) and executed a contract mod for the procurement of an additional RFIMS unit.

ESPC Sustainment operationalized major software releases, hardware installations, and security-focused advancements to ensure system uptime and availability, all while enabling simultaneous downlink of 3 JPSS satellites, exceeding its requirement. This reduced risks and greatly simplified the JPSS launch, related activities, and onward through the testing and checkout phases.
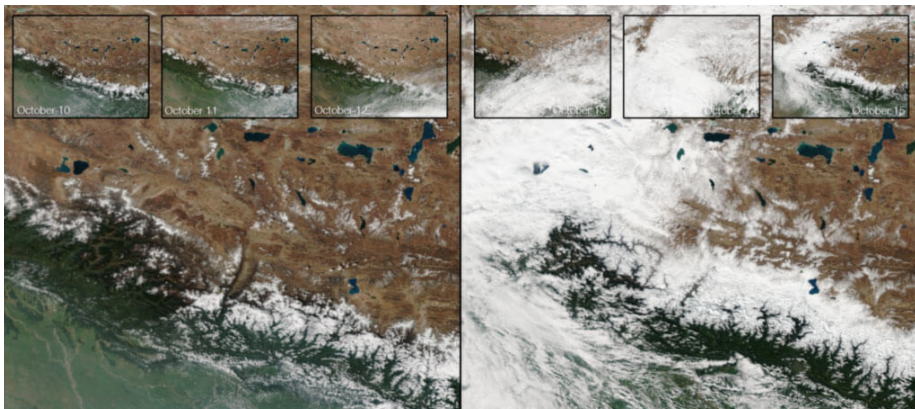
Finally, the Comprehensive Large Array-data Stewardship System (CLASS) achieved 1.5M in cost avoidance by migrating to a more efficient database solution, performed multiple Continuity of Operations (COOP) exercises in the Cloud, transitioned four major sustainment releases to operations, achieved full compliance with Defense Information Systems Agency (DISA) Security Technical Implementation Guides (STIG) for the CLASS system on-premise and in the cloud, delivered data to 3897 unique customers, a 32% increase over the previous year, primarily in the Commercial and International Sectors, added 3.6 petabytes of new data from providers growing the archive to over 20 PB comprised of over 1 billion files, delivered 8.2 petabytes of data to CLASS Consumers, completed the shutdown and decommissioning of the hardware at the CLASS Boulder archive node reducing the operational footprint, and achieved annual ATO.

OSGS continues to support the definition and evolution of its future ground systems. Taking the functionality of these systems and migrating them to the cloud, will provide NESDIS with a flexible and scalable resource that can continue to evolve with the necessary funding. In 2022, OSGS' ground system teams completed a first-ever Cooperative Research and Development Agreement (CRADA) with Microsoft's Azure Orbital. The agreement proved commercial cloud services can provide satellite mission management for NOAA's legacy polar satellites and demonstrated security controls in both a timely and effective manner, which proved pivotal in solidifying ground station as a service.

The Fifteen-Year Follow On (FYFY) after-action and EAP studies resulted in the establishment of a Federal Augmentation initiative, baselined a 15-year capacity assessment for NESDIS Ground Enterprise, and delivered an initial Space Weather L1 Antenna Capacity Report.

Additionally, a 15-year Antenna Study was improved to factor in risk assessment, policy considerations, upcoming missions, and partnership missions.
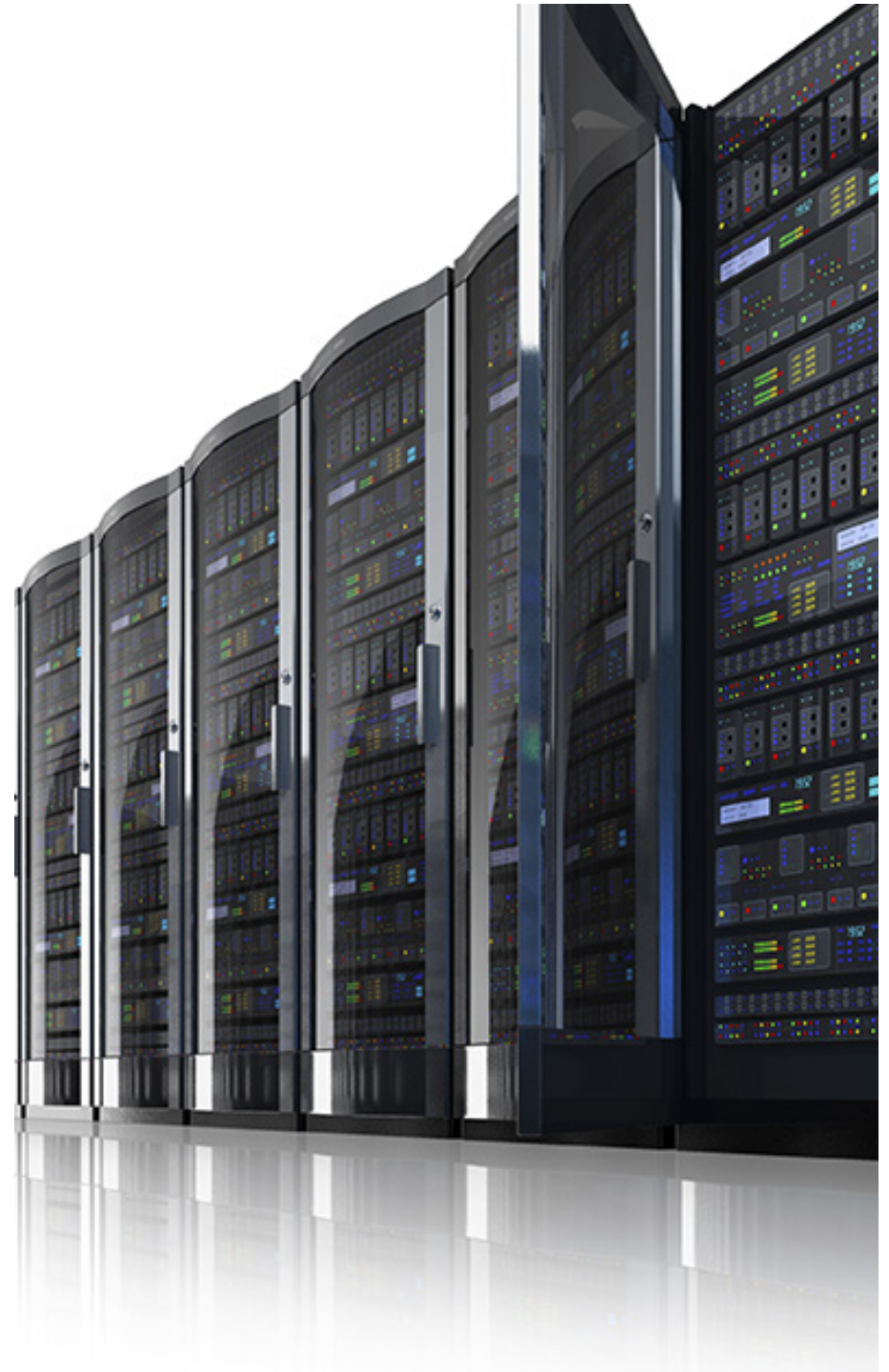
PPM

Product Portfolio Management (PPM) invests in products to support NOAA's mission, capitalizes on scientific advances, and exploits new satellite capabilities. It aims to work across NESDIS and connect with NOAA line offices to enhance and create powerful products, reacting to emerging needs. In 2022, OSGS' Product Portfolio Management successfully planned, implemented, led, and reported on its Ocean and Coastal Workshop and served as co-developer for the Fire Weather Workshop. Additionally, 63 Enterprise Algorithm Project Plans were developed to document the NESDIS satellite transition to operation projects.

Finally, OSGS led the Continuous Integration (CI) and Continuous Delivery/Deployment (CD) workshop to capture its current CI/CD activities and to coordinate these activities across NESDIS. And closed out the calendar year delivering 47 algorithm packages for operational implementation with 16 packages in review.

NOAA Line Offices

NMFS
NWS
NOS
OAR

Line Office Missions

Mission Programs Operations

GEO
LEO
SWO
OSPO
STAR
NCEI

Robust Operations

Innovation Research & Development

GEO
LEO
SWO
EPG

Scientific Advancements

NESDIS Product Portfolio Management
OCS OSPO SAE STAR NCEI GEO LEO SWO

FY24 Investments $