NOAA's Archive Processes for Jason-2/OSTM - A Success Story in the Adoption of Standards

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The National Environmental Satellite, Data, and Information Service (NESDIS) under the National Oceanic and Atmospheric Administration (NOAA) is responsible for the collection, storage, and dissemination of environmental data collected by a variety of *in situ* and remote sensing observing systems operated by NOAA. To prepare for large increases in its data holdings, the NESDIS Office of Systems Development (OSD) is developing the Comprehensive Large Array-data Stewardship System (CLASS). CLASS currently provides data acquisition, storage, access, and dissemination at three distinct locations: the NOAA Satellite Operations Facility (NSOF) in Suitland, Maryland; the National Climatic Data Center (NCDC) in Asheville, North Carolina; and the National Geophysical Data Center (NGDC) in Boulder, Colorado. NOAA has designated the three NOAA National Data Centers (NNDCs), namely the National Oceanographic Data Center (NODC), NCDC and NGDC, collectively as the official NOAA archive. CLASS is responsible for implementing the IT components of the Archive.

CLASS currently holds data from Polar Operational Environmental Satellite (POES), Geostationary Operational Environmental Satellite (GOES), Defense Meteorological Satellite Program (DMSP), and Initial Joint Polar-Orbiting Operational Satellite System (IJPS) satellites, the Jason-2/Ocean Surface Topography Mission (OSTM) satellite, and derived products. Planned future data campaigns will add data from the Next Generation Weather Radar (NEXRAD) system, as well as the National Polar-orbiting Operational Environmental Satellite System (NPOESS), NPOESS Preparatory Project (NPP), and GOES-R series satellite systems.

As part of the Four Partner Agreement with NASA, EUMETSAT, and CNES, NOAA committed to provide Satellite Command, Control and Communications; near real time operational product processing and distribution; and Archive and Access for the Jason-2/OSTM mission. The National Oceanographic Data Center (NODC) became the lead NOAA Data Center for meeting the NOAA archive requirements of the mission. The archive strategy taken by NOAA involves using CLASS to provide the information technology infrastructure to support ingest, archival storage, and basic access mechanisms to the Jason-2 data. NODC provides overall stewardship of the mission data, through its internal activities and importantly through collaboration with NOAA's Lab for Satellite Altimetry (LSA).

CLASS and the NNDCs have adopted the recommendations of the Open Archival Information System Reference Model (OAIS-RM) and developed processes around these recommendations. The OAIS-RM identifies the development of Submission Agreements between the Producers and the Archive. This paper will present CLASS and NODC experiences developing Submission Agreements, data format standards (netCDF), FGDC standards compliant metadata, with Climate and Forecast (CF) attributes, and the benefits to standardize the archive and science support process for the overall program, that were drawn from the development of these Submission Agreements. CLASS and NODC experiences have shown that Submission Agreements are not only a way to document what data will be submitted for archival, but also, for new missions, a means to significantly help in the development, planning, implementation and stewardship. Layered within the Submission Agreement via NODC, is an in depth science understanding and community connections provided by the Center for Satellite Applications and Research (STAR) for the overall mission. The Submission Agreement serves to bond the various pieces of the overall NOAA stewardship system together. This will ensure the usefulness and deepen the understanding of the data for climate and other long-term applications. This paper will present initial long-term archive and stewardship steps. Subsequently, input from the community will be sought on key areas for improvement such as enhanced data access.