

# Satellite Products and Services Review Board (SPSRB) Process and Improvement Working Group (SPI WG) and CLASS Operations Working Group (COWG)

## Guidance on Data Center Interaction February 11, 2011

### 1 General

These procedures provide guidance to NESDIS (National Environmental Satellite, Data and Information Service) STAR (Center for Satellite Applications and Research) and OSPO (Office of Satellite and Product Operations) personnel on the request-to-archive process for satellite data and higher-level products at the NOAA Data Centers. The NOAA Data Centers follow the *NOAA Procedure for Scientific Records Appraisal and Archive Approval*<sup>1</sup>, as mandated by the NOAA Observing System Council. Any request-to-archive involving operational NESDIS products will likely involve the use of the Comprehensive Large Array-Data Stewardship System (CLASS), which is a shared Data Center resource governed by the CLASS Operations and Planning Board (COPB) and its technical team, the CLASS Operations Working Group (COWG). The Data Centers also work toward adherence with the ISO (International Organization for Standards) standard for digital archives, known as the *Reference Model for an Open Archival Information System (OAIS)*<sup>2</sup>.

The NOAA Data Centers' detailed implementation procedures for requesting archive of data are evolving. As a result, these archive guidance procedures will be reviewed annually by the SPI WG and COWG and updated as needed.

### 2 The NOAA Data Centers

NOAA maintains three National Data Centers, which among other functions provide long-term preservation and scientific data stewardship services. Each serves a particular domain of interest as described below.

The National Geophysical Data Center (NGDC) provides long-term scientific data stewardship for the Nation's geophysical data, ensuring quality, integrity, and accessibility (<http://www.ngdc.noaa.gov/ngdcinfo/aboutngdc.html>).

The National Oceanographic Data Center (NODC) provides scientific stewardship of national and international marine environmental and ecosystem data and information (<http://www.nodc.noaa.gov/General/NODC-About/NODC-overview.html>).

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<sup>1</sup> [http://www.nosc.noaa.gov/docs/products/NOAA\\_Records\\_Brochure\\_4\\_pages\\_Dec\\_9.pdf](http://www.nosc.noaa.gov/docs/products/NOAA_Records_Brochure_4_pages_Dec_9.pdf)

<sup>2</sup> ISO 14721 and CCSDS 650.0-B-1 Blue Book, January 2002

The National Climatic Data Center (NCDC) provides access to and stewardship of the Nation's global climate and weather related data and information, and assesses and monitors climate variation and change (<http://www.ncdc.noaa.gov/oa/about/whatisncdc.html>).

### 3 SPSRB Guidance

The SPSRB project leads should strive to accomplish archive tasks in a timely manner and encourage active participation by an archive Integrated Product Team (IPT) member. At a minimum, an archive IPT member should participate in appropriate design reviews and be kept involved in the annual updates to project plans. Archival related goals within standard product development project milestones are shown below:

#### *Development phase*

Initial Archive Requirements Identified: identify relevant Data Center and conduct Initial Request (see Section 5).

Preliminary Design Review: identify the initial set of archive requirements

Critical Design Review: finalize the set of archive requirements (e.g., metadata requirements, search and display criteria, etc.)

#### *Pre-operational phase*

Data Submission Agreement (SA) nearly complete

Test data transfer

Finalize SA

#### *Operational phase*

Data are archived

Implementation of requested Archive services

Archive IPT members can provide specific resources, tools, experience, and guidance on appropriate procedures and standards. SPSRB policy guidance ([http://projects.osd.noaa.gov/spsrb/standards\\_docs/SPSRB\\_NetCDF\\_Policy.pdf](http://projects.osd.noaa.gov/spsrb/standards_docs/SPSRB_NetCDF_Policy.pdf)) has identified netCDF-4 with Climate and Forecast (CF) conventions as the default specification for file formats, and Data Center best practice for metadata records is to use the following ISO metadata standards:

- ISO 19115-2003 (Geographic information - Metadata)
- ISO 19115-2 2009 (Geographic information - Metadata - Part 2 Extensions for imagery and gridded data)
- ISO 19139:2007 (Geographic information - Metadata - XML schema implementation)

They are available from the ISO Store at

[http://www.iso.org/iso/iso\\_catalogue/catalogue\\_tc/catalogue\\_tc\\_browse.htm?commid=54904](http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_tc_browse.htm?commid=54904). The NOAA metadata community has posted many examples and practices for ISO metadata development at the NOSC wiki:

[https://nosc.ngdc.noaa.gov/dmc/swg/wiki/index.php?title=Category:ISO\\_19115](https://nosc.ngdc.noaa.gov/dmc/swg/wiki/index.php?title=Category:ISO_19115).

## 4 Overview of Request to Archive Procedures

The *NOAA Procedure for Scientific Records Appraisal and Archive Approval* establishes four key phases in the process for determining what new data and/or products will be archived in a NOAA data facility. These phases are: Identify Records, Appraise Records, Decision/Approval Process, and Implement the Decision. Following these phases and other mandates of the *NOAA Procedure*, the COPB has established a formal workflow for conducting requests-to-archive. This workflow is shown below in Figure 1. While all three Data Centers follow this workflow, some differences do exist in the way each center conducts the steps.

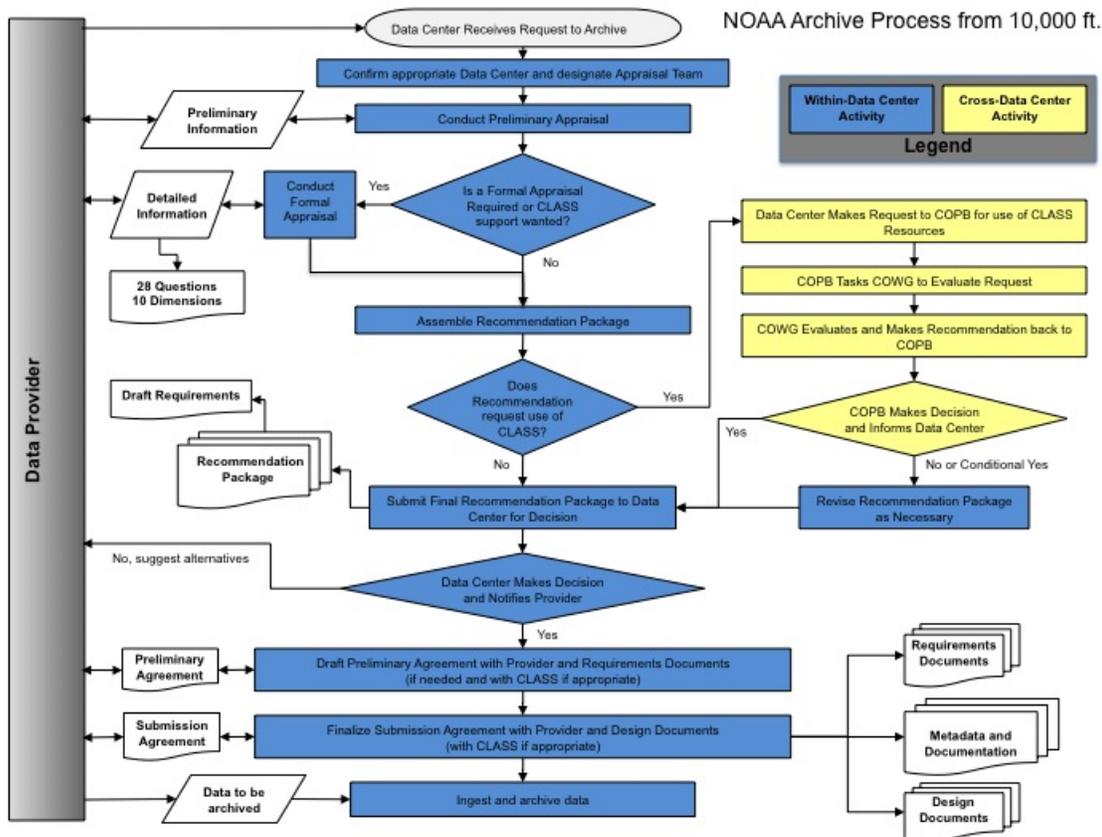


Figure 1: NOAA archive approval procedure for cases involving CLASS, as approved by the COPB in September 2009.

## 5 Detailed Request to Archive Procedures

**Step 1 - Initial Request:** Send an email to the relevant Data Center as early as possible in the planning of your product, outlining your request.

If you are not sure which Data Center to contact, pick the one that seems most appropriate:

NGDC: [Dan.Kowal@noaa.gov](mailto:Dan.Kowal@noaa.gov)  
NODC: [NODC.DataOfficer@noaa.gov](mailto:NODC.DataOfficer@noaa.gov)  
NCDC: [Nancy.Ritchey@noaa.gov](mailto:Nancy.Ritchey@noaa.gov)

All active SPSRB projects proposing long term archive at a NOAA Data Center that have not performed this step should follow this procedure. Submit an email “Initial Request for Archive” to the appropriate Data Center contact. Recommend that the OSPO project lead perform this action. If OSPO wants STAR to take the lead for submitting the initial request for archive, then the OSPO lead should ensure that this responsibility is handed over to STAR. If your project already has a Data Center POC and are already working archive actions (e.g., a submission agreement), state all relevant background information in your email.

The Data Center will refer your request to the appropriate personnel at the Data Center, establish a point of contact (POC) for your request, or redirect your request to a more appropriate Data Center if necessary. The POC will respond and guide you through the remaining steps. This person will also generally serve as the IPT archive representative.

**Step 2 - Preliminary Appraisal:** An initial conversation to get a sense of the project and appropriateness for archiving will be held. The Data Center POC will request some basic information about the product, including what parameters are to be generated, levels of metadata and documentation anticipated, data formats, and any backlogged volumes and future daily volume rates. In addition, clarity on any restrictions to access of the data will be obtained. This step is known as the *Preliminary Appraisal* step. For NESDIS operational products, this step will nearly always involve the use of CLASS resources and thus require a *Formal Appraisal* as well, according to the *NOAA Procedure for Scientific Records Appraisal and Archive Approval*.

**Step 3 - Decision to Proceed to Formal Appraisal:** If the data set is deemed inappropriate for the Data Center, alternative options will be presented to you. If there is agreement to proceed with the request to archive at the Data Center, your point of contact will ask you to send an official memo or email to the relevant Data Center Director. This memo serves to alert the Director and give Data Center staff permission to engage in the more time intensive *Formal Appraisal* process.

Recommend the OSPO project lead draft an official memo from OSPO Satellite Products and Services Division (i.e., Dave Benner) to the appropriate Data Center Director. If STAR is going to draft the memo, it should be signed by your Division Chief.

The following template using NODC as an example may be used for the letter:

**Error! Reference source not found.**

To: Margarita Gregg, Director, NODC  
From: *Name, Role, Project or Program*  
Date: *Date*  
Re: Request to Archive *Product Name*

*Brief overview of Program and Product, as relevant. Brief justification for archive. Brief identification of resources available.* We request archive of this product at NODC.

The *Project or Program* consulted with *name of NODC contact*, who directed us to make this formal request. Please advise on next steps.

The other Data Center Directors are: NOAA NCDC Acting Director is Scott Hausman and NOAA NGDC Director is Christopher Fox.

Based on this letter and the *Preliminary Appraisal*, the Director will determine whether to proceed with the *Formal Appraisal* of the requested data set.

**Step 4 - Formal Appraisal:** If approval is granted, your Data Center contact will provide you with the steps needed to generate a formal appraisal at that Data Center. This step includes responding to the 28 Questions in the Appraisal Questionnaire of the *NOAA Procedure for Scientific Records Appraisal and Archive Approval* and includes cost estimations. The formal appraisal and related information is assembled into a *Recommendation Package*, for presentation to the COPB. See Section 6 below for more information regarding archive costs.

**Step 5 - Recommendation Package Presented to COPB:** For archive requests involving CLASS resources, your Data Center will present this *Recommendation package* to the CLASS Operations and Planning Board (COPB), requesting the use of those CLASS resources. The COPB deliberates and can approve, disapprove, or make other recommendations back to the Data Center on the use of those CLASS resources. The COPB does not decide whether the data set will be ultimately archived or not, only whether the Data Center can use CLASS resources to archive the proposed data set.

**Step 6 - Director Makes Decision.** The Director of the Data Center receives the decision of the COPB and factors that into the final determination of whether to accept the archive request or not. You will be notified of the Director's decision via an official memo. If the decision is not to archive the data set, then alternative options will be provided. If the decision is to archive, the official memo will normally include language that indicates the archive request has been accepted *pending available resources*. This caveat separates the decision to archive a particular data set from the sometimes more onerous process of finding resources to implement that decision.

**Step 7 - Implementing the Decision.** After approval, your Data Center point of contact will continue to work with you to complete any remaining questions, finalize a Submission Agreement, establish any other necessary documentation (e.g., provisions for metadata) and procedures, and to identify resources needed to complete the archive procedures.

## 6 Cost of Archive

For any project proposing the archive of data, the Data Center will work with you to determine a cost estimate for establishing the archive processes and for maintaining those processes over time. The Data Centers understand that research to operations efforts reflected in SPSRB project plans are normally funded by NESDIS/OSD and these funds support initial development costs and not long term maintenance costs, but these longer term costs will typically be estimated to help the Data Centers better assess the full costs associated with archiving any new data. The COWG is developing common cost estimate models for the use of CLASS resources and the Data Centers have unique but similar methods for estimating cost at their local facilities. Project leads should contact the appropriate Data Center POC as soon as possible for cost guidance so that archive costs can be included in project budgets.

If archive costs are not identified after a project plan is approved for execution, the project leads will identify unfunded archive requirements when they update their project plan during the Annual Review for Satellite Product Development process.