NOAA Video Data Management System (VDMS): Archiving, Preserving, and Accessing Online Oceanographic Information

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ABSTRACT:

To address the increasing requirements for archiving, preserving and managing digital videos, still images, and audio resources, the National Oceanic and Atmospheric Administration's (NOAA) Office of Ocean Exploration (OE) embarked upon the Video Data Management System (VDMS) Pilot Project, in collaboration with the National Oceanographic Data Center (NODC), National Coastal Data Development Center (NCDDC), and the NOAA Central Library (NCL). Since 2002, the OE Integrated Product Team (IPT) has been developing a standardized capability for archiving these disparate types of data and information.

NCL staff led the development of the Video Data Management System (VDMS) Project Plan, which is part of a larger comprehensive OE Data Management Project. The VDMS team was asked to define and establish 'best practices' to support OE video data management requirements. They developed metadata guidelines for digital video (DV12) and digital still images (DI12) to help scientists and data managers in the field create complete metadata about their data. These guidelines also facilitate creation of MARC21, FGDC, or Dublin Core standard metadata records. They also proposed a work-flow for managing digital videos by defining the process for moving video data from ship to library to archive, including steps for creating archival backup copies and Web-accessible video clips and highlights.

The VDMS Project presently manages offline access to more than 1500 MiniDV and 500 DVCAM tapes, over 1000 DVDs, and online access to more than 100 digital video clips and highlights collected during NOAA ocean exploration cruises. Currently, access to the NOAA cruise video highlights and related documents is provided through NOAALINC, the NCL online catalog at http://www.lib.noaa.gov. A growing collection of digital data obtained during OE cruises, including video, still images, and in situ ocean observations, is archived at NODC. These data are accessible through the search and retrieval functions of the NODC Ocean Archive System (OAS) at http://www.nodc.noaa.gov/Archive/Search/.

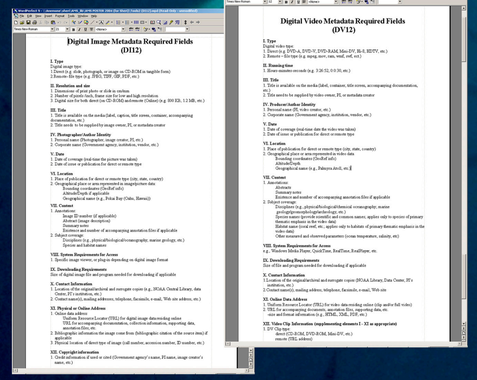
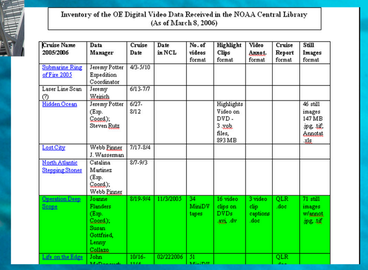


Figure 1. Metadata guidelines for digital video (DV-12) and digital still images (DI-12) help scientists and data managers in the field create complete metadata to document their data.



Inventory of the OE Digital Video Data Received in the NOAA Central Library (As of March 8, 2006)

Cruise Name 2005/2006	Data Manager	Cruise Date	Date in NCL	No. of videos format	Highlight Clips format	Video Annot. format	Cruise Report format	Still Images format
Submarine Ring of Fire 2003	Jeremy Potter Expedition Coordinator	4/5-5/10						
Laser Line Scan (?)	Jeremy Wrasch	6/13-7/7						
Hidden Ocean	Jeremy Potter (Exp. Coord.); Steven Ruiz	6/27-8/12			Highlights Video on DVD - 3 mpb files, 897MB			46 still images 147 MB jpg, tif, Annotation
Lost City	Webb Pinner J. Wasserman	7/17-8/4						
North Atlantic Stepping Stones	Catalina Martinez (Exp. Coord.); Webb Pinner	8/7-9/3						
Operation Deep Scope	Daniel Plaudes (Exp. Coord.); Dawn Gonfard, Lenny Colburn	8/19-9/4	11/3/2003	34 MiniDV tapes	18 video clips on DVDs avi, dv	3 video clip captions .doc	QLR .doc	71 still images 97 annot. jpg, tif
Life on the Edge	John Alderdice	10/16-10/[illegible]	02/22/2006	21 [illegible]			QLR	

Figure 2. Selected page of the Inventory of OE video collections in the NOAA Central Library Archive.

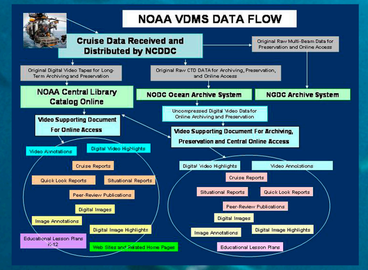


Figure 3. Schematic diagram of OE video and related data flow in VDMS system.

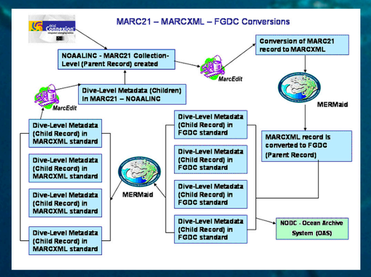


Figure 4. MARC21 to MARCXML to FGDC conversion workflow.

VDMS Project Objectives:

- Provide timely online information about NOAA's Office of Exploration video data to the general public.
- Archive and preserve unique video and related data for future generations.
- Educate our Nation about NOAA oceanographic expeditions and underwater explorations through digital video and related data.
- Foster collaboration between NOAA librarians, data managers, and scientists from different NOAA offices and programs.
- Use or extend existing library tools, guidelines, and metadata standards to support new media formats: digital video, digital image, and digital text documents.
- Enhance data access and metadata sharing between NCL NOAALINC, NODC Ocean Archive System (OAS), and NCDDC MerMaid catalogs.

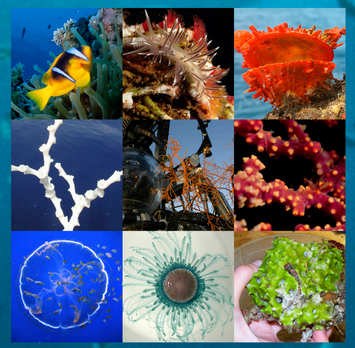


Figure 5. VDMS mascot - Charlie the Crab.

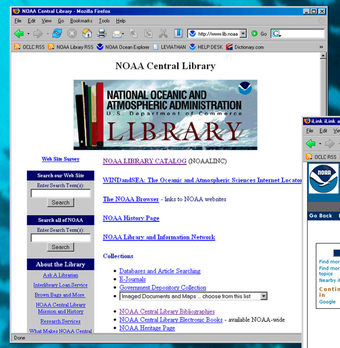


Figure 6. NOAA Central Library home page http://www.lib.noaa.gov.

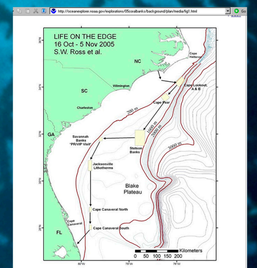


Figure 7. Digital map of area investigated.

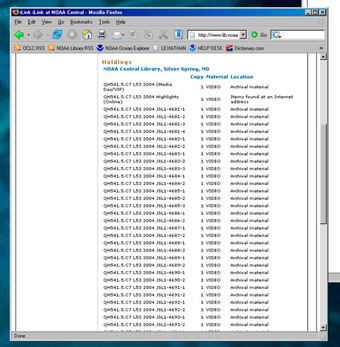


Figure 8. Library's collection-level metadata record in MARC21 standard provides online access to OE digital video highlights, video clips, entire video footage annotations, digital images and image annotations, cruise reports, scientific datasets, lesson plans, digital maps, expedition Websites, etc.

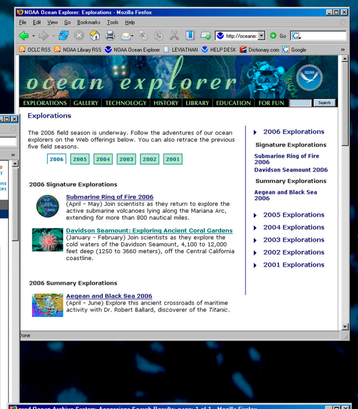


Figure 9. NODC Ocean Archive System (OAS) results page.

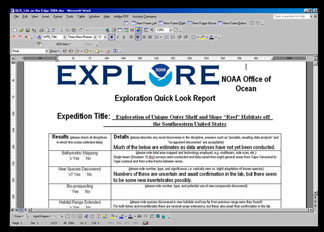


Figure 10. Cruise reports in Word or PDF formats.

NOAA Central Library, May 2006

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Poster also available online at URL: http://docs.lib.noaa.gov/OEDV/VDMS_Poster_2006.pdf
VDMD demo available online in RealPlayer, ca. 20 min. runtime:
http://docs.lib.noaa.gov/OEDV/VDMS_DEMO_2005/noaavdmsdemo.rmvb
Archiving 2006 conference paper: http://docs.lib.noaa.gov/OEDV/VDMS_DOCS/Archiving2006_Paper45.pdf