

NDSF Data Management

DESSC
November 2006

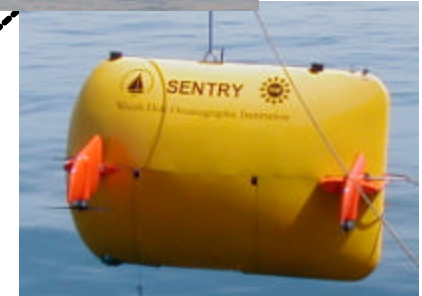
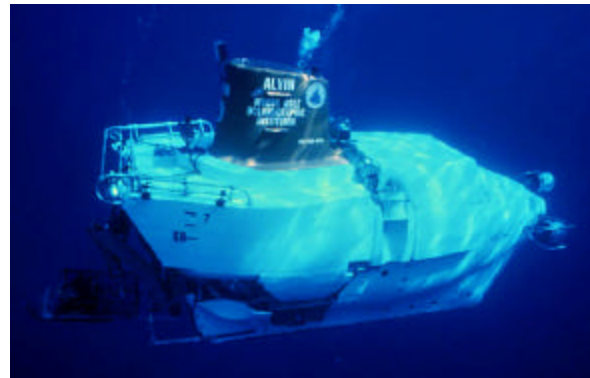
Outline

- **New NDSF Data Management Structure**
- **NDSF Data Update**
- **Data Archiving**



NDSF Data Management Structure

DESSC
November 2006



NDSF DATA MANAGEMENT

1

**Video and
Imaging Systems**

2

**Real-Time Data
Logging
and Display**

3

**Pre-Cruise and
Post-Cruise
Coordination**

4

**At-Sea Processing
Pipeline and QC**

5

**Processing
Tools**

**NDSF Data
Archives**

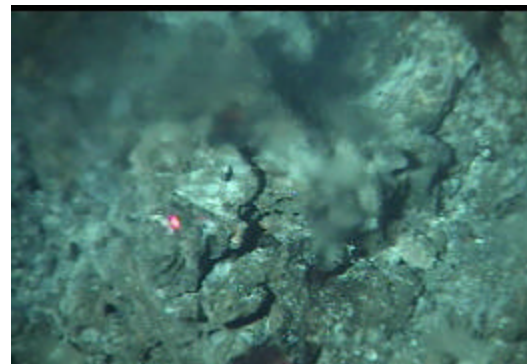
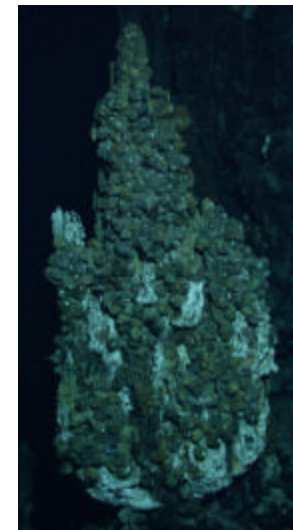
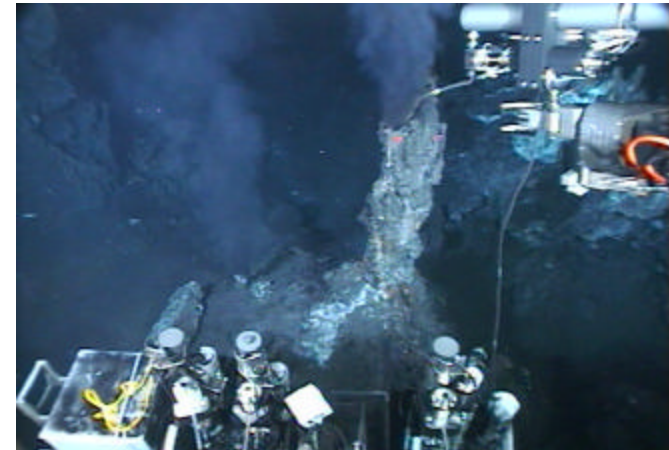


NDSF Data Management Structure

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1. Video and Imaging Systems

- Video & still cameras
- Real-time display and control
- Quality control
- Logging hardware and media
- Video overlay
- Video duplication and editing capabilities
- Documentation

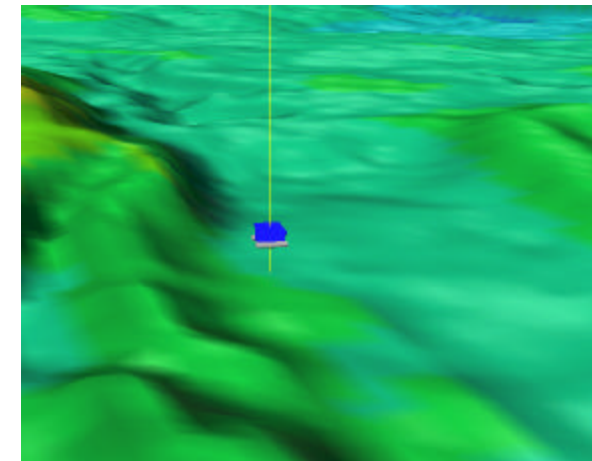
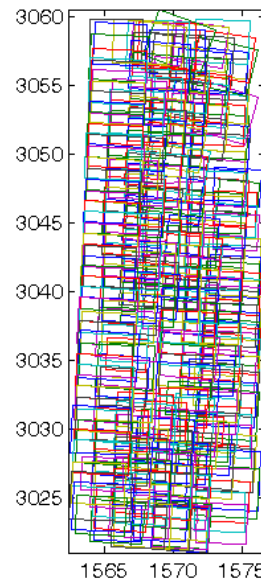
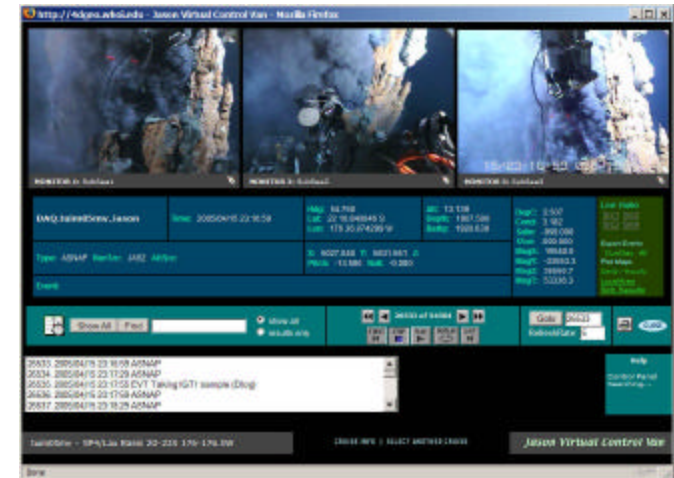


NDSF Data Management Structure

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November 2006

2. Real-Time Data Logging and Display

- Hardware
- Logging and management of native data formats for vehicle sensors
- Digital event loggers
- At-sea digital metadata generation
- Virtual Van / FrameGrabber and beyond...
- Real-Time display
 - ? Sensor data
 - ? Survey coverage
- Documentation
 - ? For at-sea personnel
 - ? Data formats



NDSF Data Management Structure

3. Pre-Cruise/Post-Cruise Coordination

- On-shore POC for data issues
 - ? Pre-cruise planning science liaison
 - ? Advise on data capabilities, acquisition protocols and products
 - ? On-shore liaison to handle/direct at-sea data issues as they arise
- Documentation of standard and archived data products
- Order/inventory media for at-sea data backup/archival/deliverables
- Inventory and deliver data to archive
 - ? Upload Virtual Van / FrameGrabber data
 - ? Upload metadata
- Gather and post appropriate documentation
 - ? Survey design
 - ? Data acquisition
 - ? Data products
 - ? Web site content



NDSF Data Management Structure

4. At-sea / Near RT Processing and QC for Core Systems

- Data processing pipeline
 - At-sea renav ingestion
- Develop, test and implement QC tools
- Transmission of QC reports to shore via HiSeasNet every dive
 - Navigation, standard sensors
- Documentation
 - For at-sea personnel
 - Data pipeline
 - Data product formats



NDSF Data Management Structure

5. New Software Development and Transition to NDSF

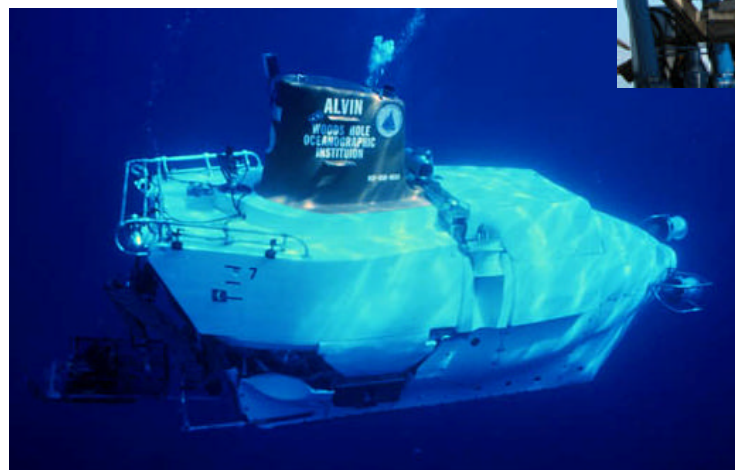
- Continued development and generalization of post-processing software tools
 - Navigational processing
 - Bathymetric sonars
 - Image processing
- Maintenance of software
- Transition of tools to NDSF shore personnel
- Generate and transmit data acquisition protocol to ops groups
- Documentation / technical reports



NDSF Data Management

NDSF Data Update

- 2006 Highlights
- Future Plans



NDSF Data Update

1. Video and Imaging Systems

- Video overlay software
- Video duplication and editing capabilities
- Documentation



DSL Overlay Server

INDEX	X	Y	DATA TYPE	LABEL
1	15	0	Time	
2	0	15	JasX	X=
3	15	15	JasY	Y=
4	0	16	JZDepth	
5	15	16	JZHead	
6	32	16	JZAlt	
7	30	15	Temperature	T=
8	0	11	Med2JsnBrq	B2J=
9	0	9	Range	RNG=
10	0	10	Jan2MedBrq	B2M=
11	0	11	NONE	
12	0	12	MedK	MedK=
13	0	13	MedY	MedY=
14	0	3	JZLat	
15	0	4	JZLon	
16	0	12	NONE	

Transparency = 255 Display Offset = -5

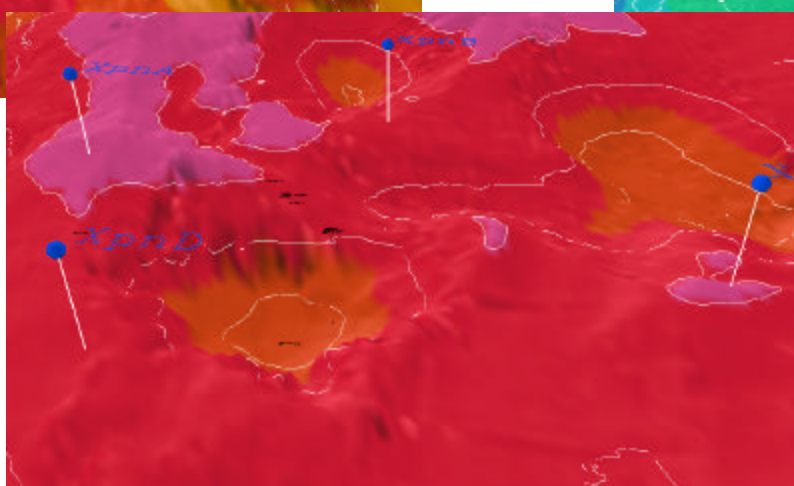
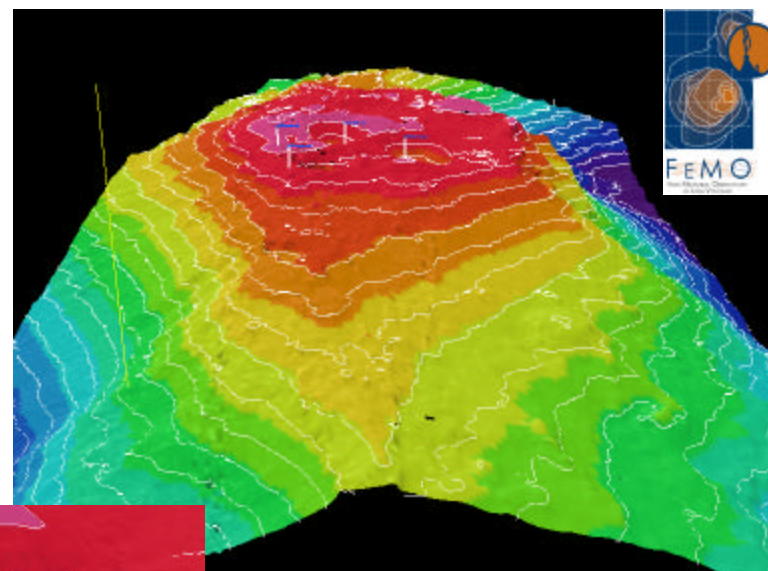
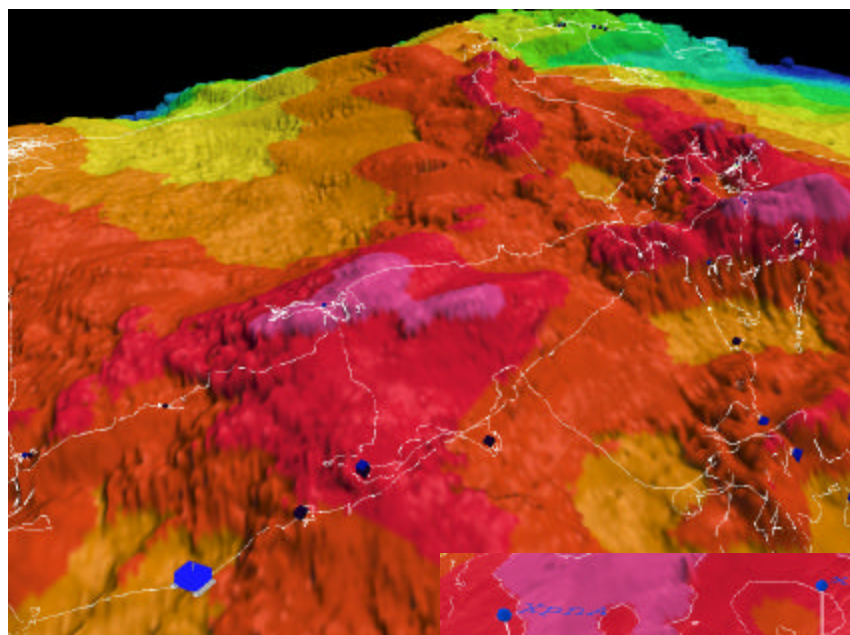
Submit Reset



NDSF Data Update

2. Real-Time Data Logging and Display

- Fledermaus with RT nav display in *Jason* control van



NDSF Data Update

2. Real-Time Data Logging and Display – Virtual Van Upgrades

- Lowering ID ingestion
- Evaluation of new digital event loggers

The screenshot displays the 'Jason Virtual Control Van' interface in Mozilla Firefox. The main window shows two sub-sea monitors (MONITOR 1: SubSea1 and MONITOR 2: SubSea2) with 3D reconstructions of the sub-sea environment. Below the monitors, a data panel shows 'DAQ-tuim05mv Jason' with a 'Lowering: J2-124' circled in yellow. The data includes coordinates (Lat: 20.3, Lon: 176.8) and depth (0.000). A 'Nav Quality' panel shows 'Unknown' selected. A dropdown menu is open, listing categories like 'Temp', 'Gas Tight', 'Fauna', 'Flow Measurement', 'Flange', 'chimneys', 'Buoyant Plume', and 'Frame Grab'. A 'Frame Grab' button is visible. The interface also features a search bar, a list of events (e.g., 1000: 2005/04/05 04:39:47 ASNAP), and a 'LogEvent' dialog box with a 'Category' grid and an 'Observation' list.



NDSF Data Update

3. Pre-Cruise/Post-Cruise Coordination

- Ongoing development of new NDSF website

National Deep Submergence Facility

About NDSF

NDSF Vehicles

Data

- Acquisition and Capabilities
- Products
- Processing Tools
- Policies
- Data Holdings
- Other Databases Serving NDSF Data
- FAQs

Cruise Planning

Highlights

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Ships Underwater Vehicles National Deep Submergence Facility Instruments Observing Systems Cruise Planning

National Deep Submergence Facility

About NDSF

NDSF Vehicles

- HOV Alvin
- ROV Jason/Medea
- AUV ABE/Sentry

Data

Cruise Planning

Highlights

NDSF Vehicles

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HOV Alvin
Alvin is a 3-person research submarine that takes scientists deep into the ocean. Since its launch in 1964, the Alvin has taken more than 12,000 scientists, engineers and observers to visit the floor of the deep sea.

ROV Jason/Medea
Jason is a remote-controlled deep-diving vessel that gives shipboard scientists immediate, real-time access to the sea floor. Instead of making short, expensive dives in a submarine, scientists can stay on deck and guide Jason as deep as 6,500 meters (4 miles) to explore for days on end.

AUV ABE/Sentry
ABE is a robotic vehicle that can be programmed to explore the ocean and map the deep-sea floor to depths of 5,000 meters (3 miles). ABE carries no pilot, so it's not limited by an air supply and can stay at work deep below the surface for days at a time before its batteries run out.

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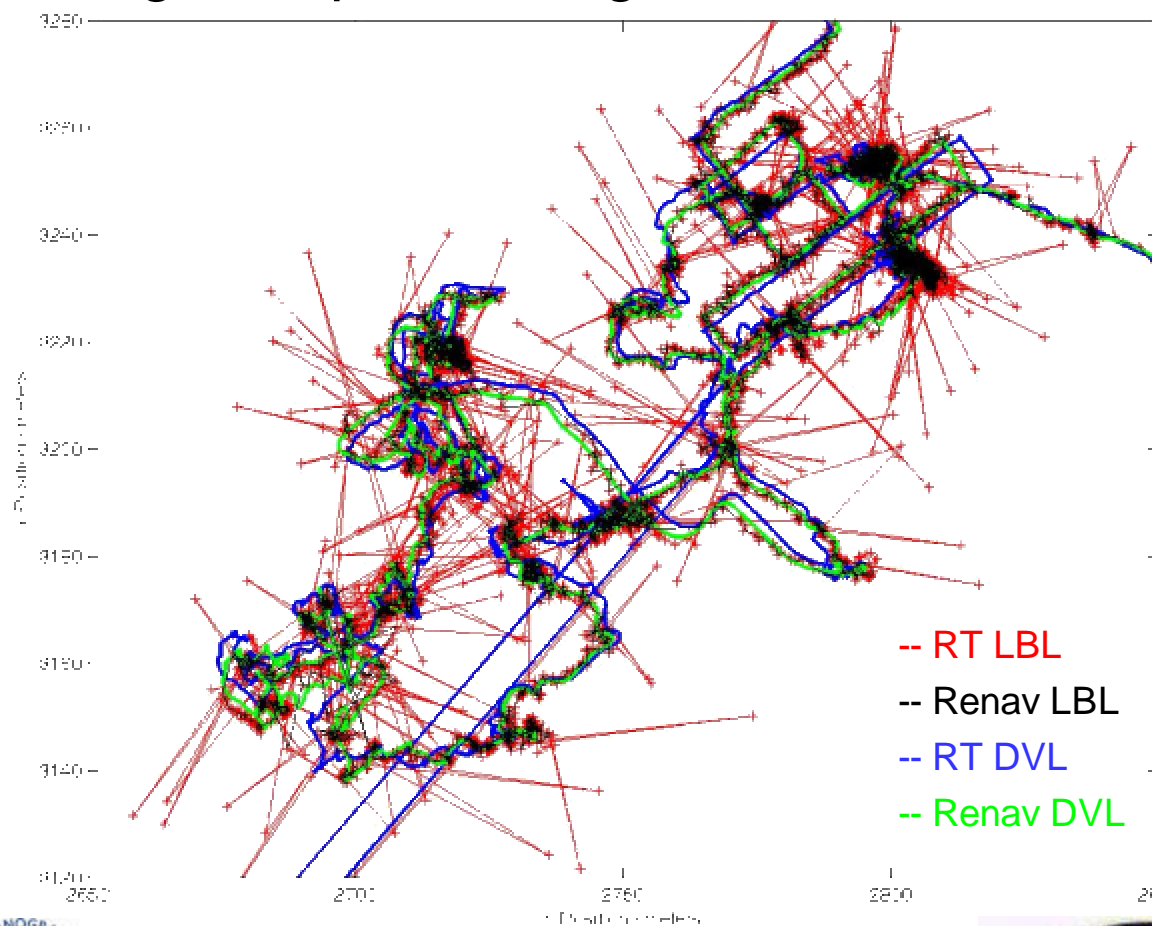
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NDSF Data Update

4. At-Sea / Near RT Processing and QC for Core Systems

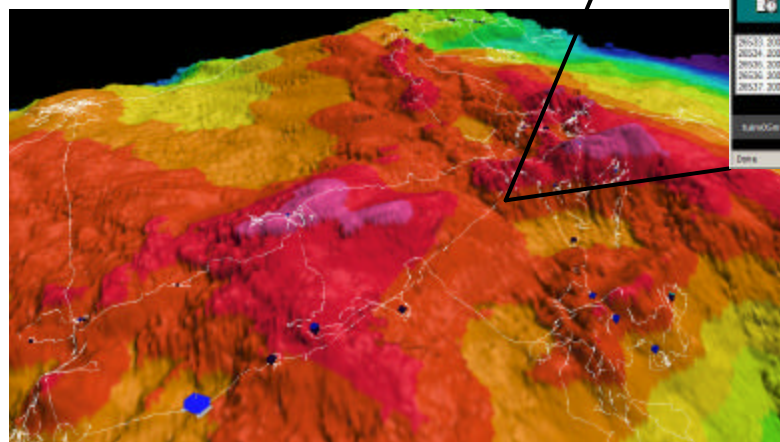
- At-sea navigation processing



NDSF Data Update

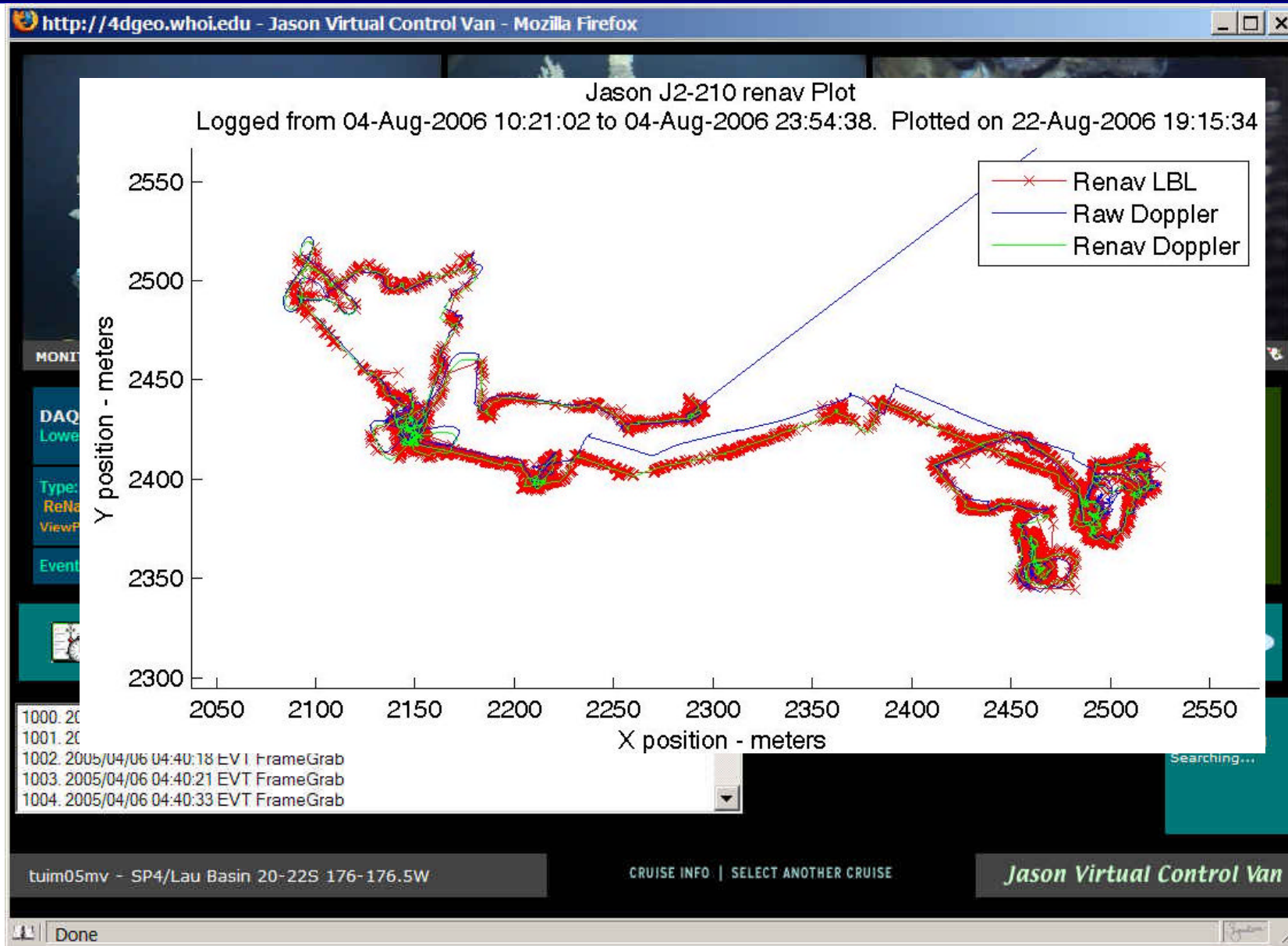
4. At-Sea / Near RT Processing and QC for Core Systems

- **2006 Virtual Van upgrades:**
 - ? Export events by lowering
? *grep*
 - ? Renav ingestion
- **Future upgrades:**
 - Renav ingestion into FrameGrabber
 - Improved *Alvin* digital event logging
 - Interface with 3D visualization tools



NDSF Data Update

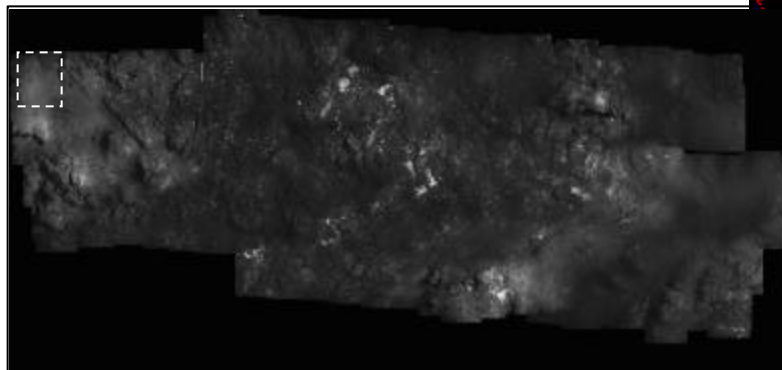
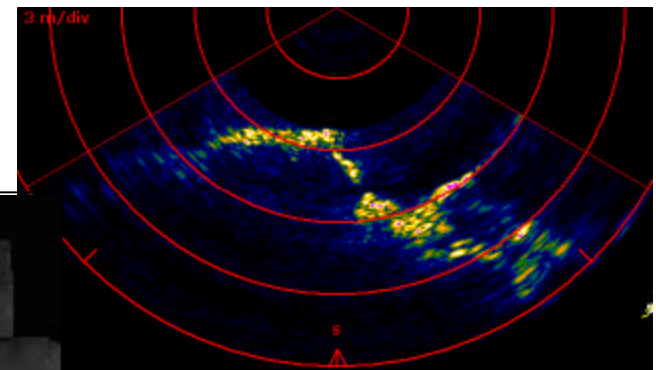
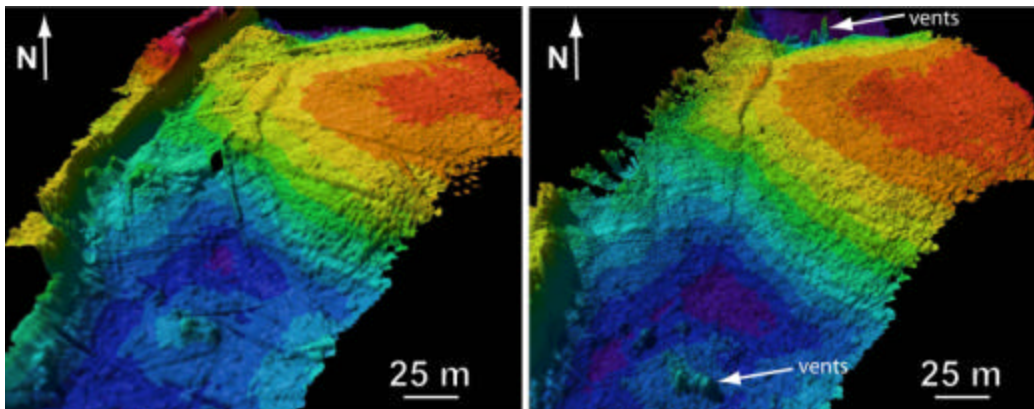
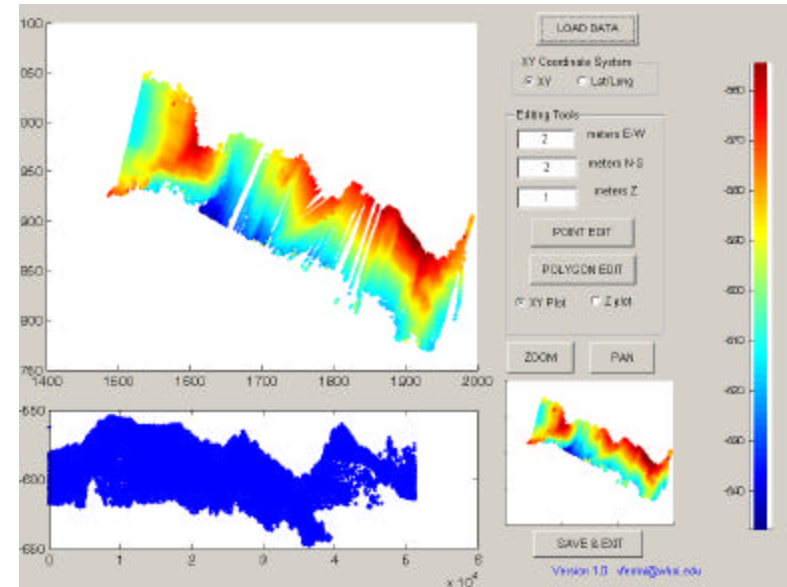
4. At-Sea / Near RT Processing and QC for Core Systems



NDSF Data Update

5. New Software Tool Development and Transition to NDSF

- Sonar processing tools
- Image processing
 - ? *Photo-mosaic*
 - ? *Color correction*



NDSF Data Update

Data Archives

- **Archive Policy**

<http://www.whoi.edu/marops/vehicles/archiving.html>

- **Data archive inventories**

- ? Vehicle data
- ? Cruise data
- ? At-risk digital data
- ? Hardware for reading media

- **Metadata**

- ? Standardization of metadata
- ? At-sea digital generation of metadata

