

# Update from NDSF Data Manager

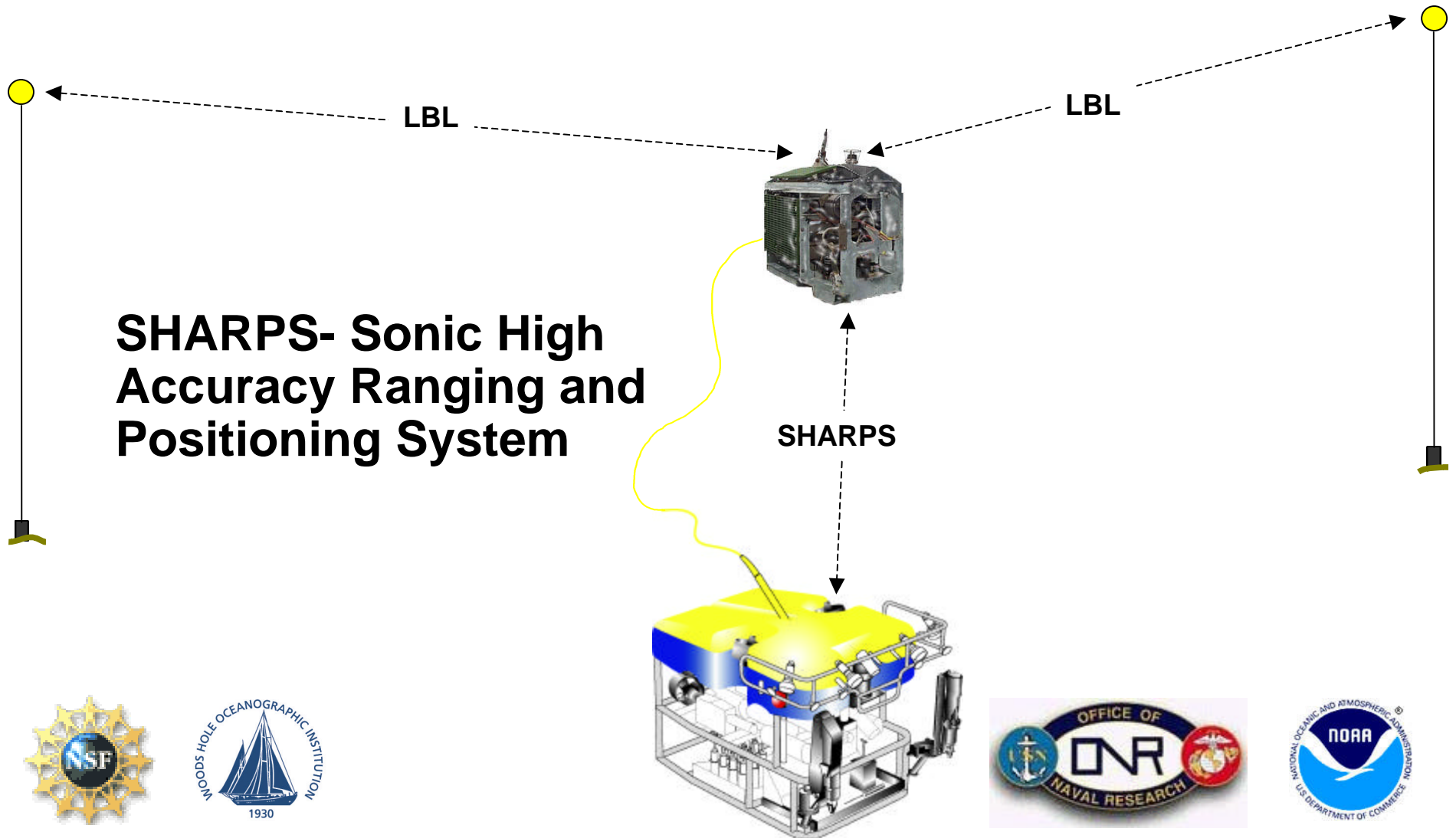
DESSC  
May 2006

V.L. Ferrini

- **Navigation**
- **Virtual Van/Framegrabber**
- **Video**
- **Bathymetric sonars**
- **Available software**
- **Documentation**
- **Future directions**



## Navigation



## Navigation

- Continued development and implementation of Navproc software
- SHARPS data in lieu of J2 LBL fixes
- Renavigation now possible via Least Squares or Complementary Filter
- *Alvin* Nav QC scripts installed on *Atlantis* - daily transmission of output to WHOI.
- July meeting planned with J. Kinsey (JHU) to refine Navproc software and QC scripts. Implementation planned by end of summer
- NDSF Navigation Upgrade – J. Howland





## Video

- RT video overlay on DVD
- Option to modify overlay
  - Date, GMT, JasX, JasY, Depth, Heading, Altitude, LoweringID, CruiseID, OrigLat, OrigLon



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	J2Depth	
5	15	16	J2Heed	
6	32	16	J2Alt	
7	30	15	Temperature	T=
8	0	11	Med2JenBig	B2J=
9	0	9	Range	RNG=
10	0	10	Jen2MedBig	B2M=
11	0	11	NONE	
12	0	12	MedX	MedX=
13	0	13	MedY	MedY=
14	0	3	J2Lat	
15	0	4	J2Lon	
16	0	12	NONE	

Transparency = 255    Display Offset = -5

Submit    Reset

For each desired overlay text position enter an X and Y value for the first character. The range is 0 to 39 for the X and 0 to 16 for the Y. Example 0,0 is the upper left hand corner. Select a Data Type to be displayed or chose "NONE" if the overlay index position is not used or if a text only overlay is desired. Enter text in the Label box if desired. The label text is displayed before the Data and is typically used to identify the data type. Example: "X = ". Be sure to include spaces where desired as they are not inserted automatically. The Transparency of the overlays can be set from a range of 0 to 255 where 0 is nearly invisible and 255 is fully opaque. The vertical screen position can be adjusted to compensate for over/under scan conditions by setting the "Display Offset". Valid pixel ranges are -9 to +100. Click "Submit" to write data to Overlay Processor.  
Note: Writing the data to the cards flash memory may require waiting several seconds before the page is re-displayed.





## Video

- **Video *Alvin* Overlay**

Via DV tape audio channel or datalogger file

Date, GMT, AlvX, AlvY, Heading, Depth, Altitude,  
(Lat, Long\*\*)

- **Video Duplication/Editing**

*Alvin*

Duplication station

iMacs

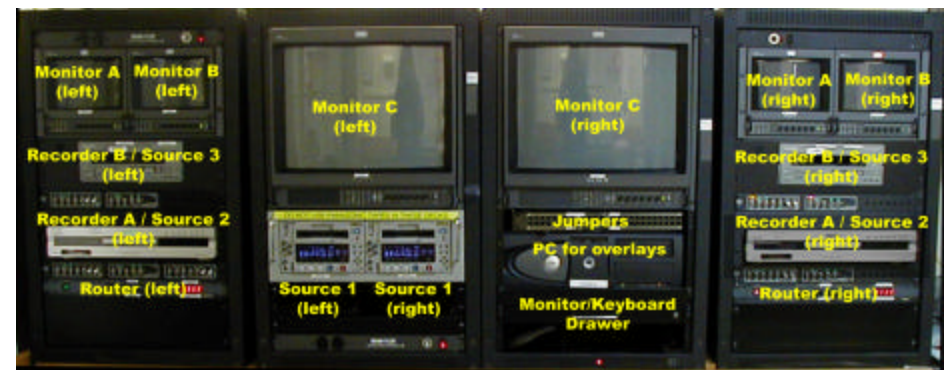
*Jason*

iMac data station

Editing software available

Final Cut Pro

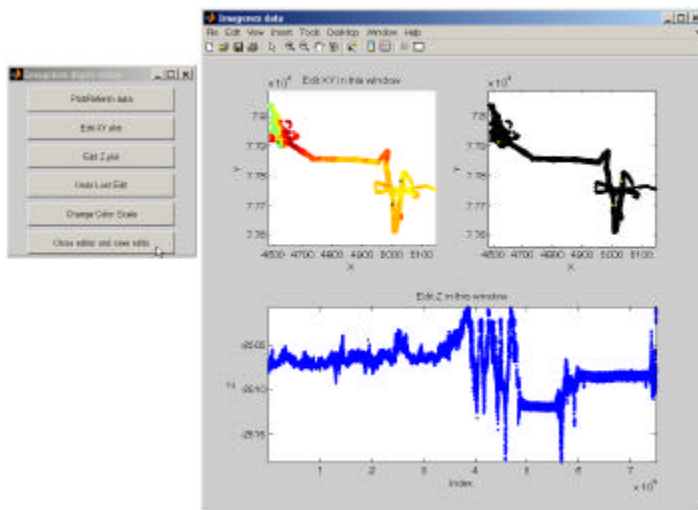
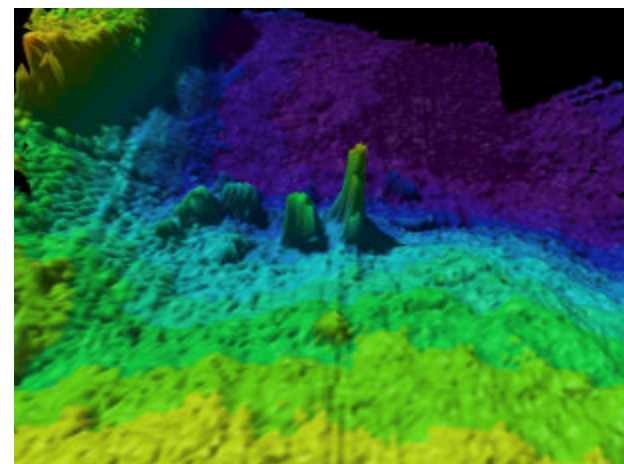
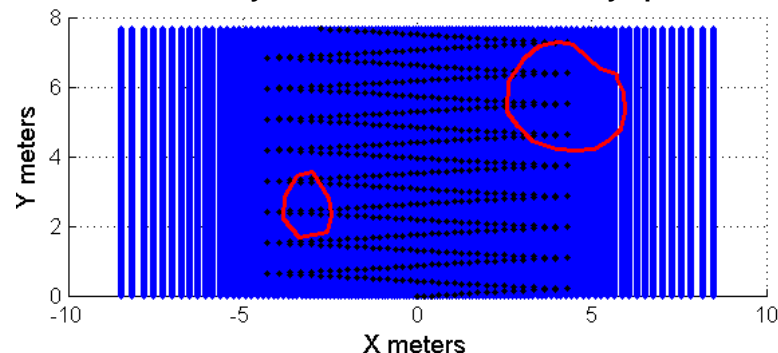
iMovie



## Bathymetric Sonars

- **Alvin Imagenex scanning sonar**  
QC scripts with daily transmission to WHOI  
New version of processing code available
- **Jason SM2000 multibeam sonar**
- **Bathymetry editing tools**

Estimated Data Density: Scanning (Black) vs. Multibeam (Blue)  
5 m survey altitude and 0.5 knot survey speed



## Available Software

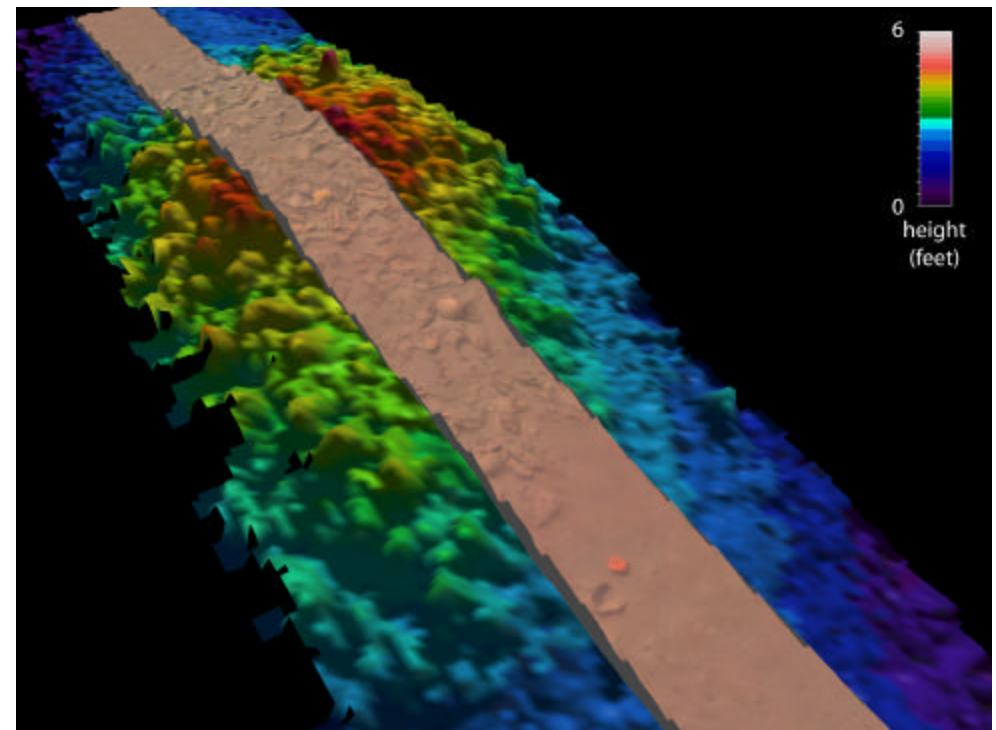
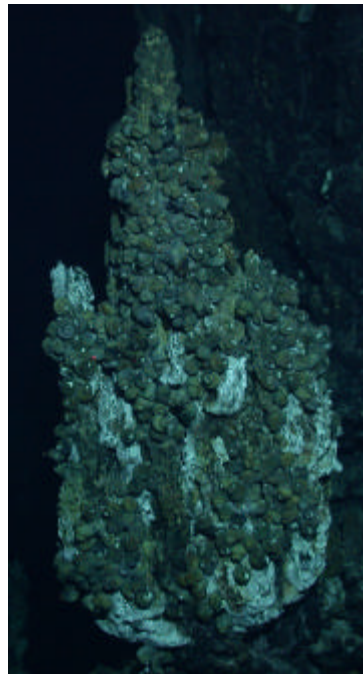
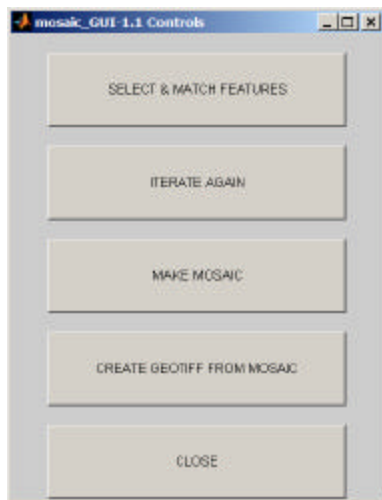
- **Commercial software/freeware**
  - iView 3D/Fledermaus
  - Matlab
  - GMT
  - Photoshop
  - Illustrator
- **DSL software**
  - Photo mosaics
  - Bottom photo analysis
  - Bathymetric submapping
  - Grid rectification



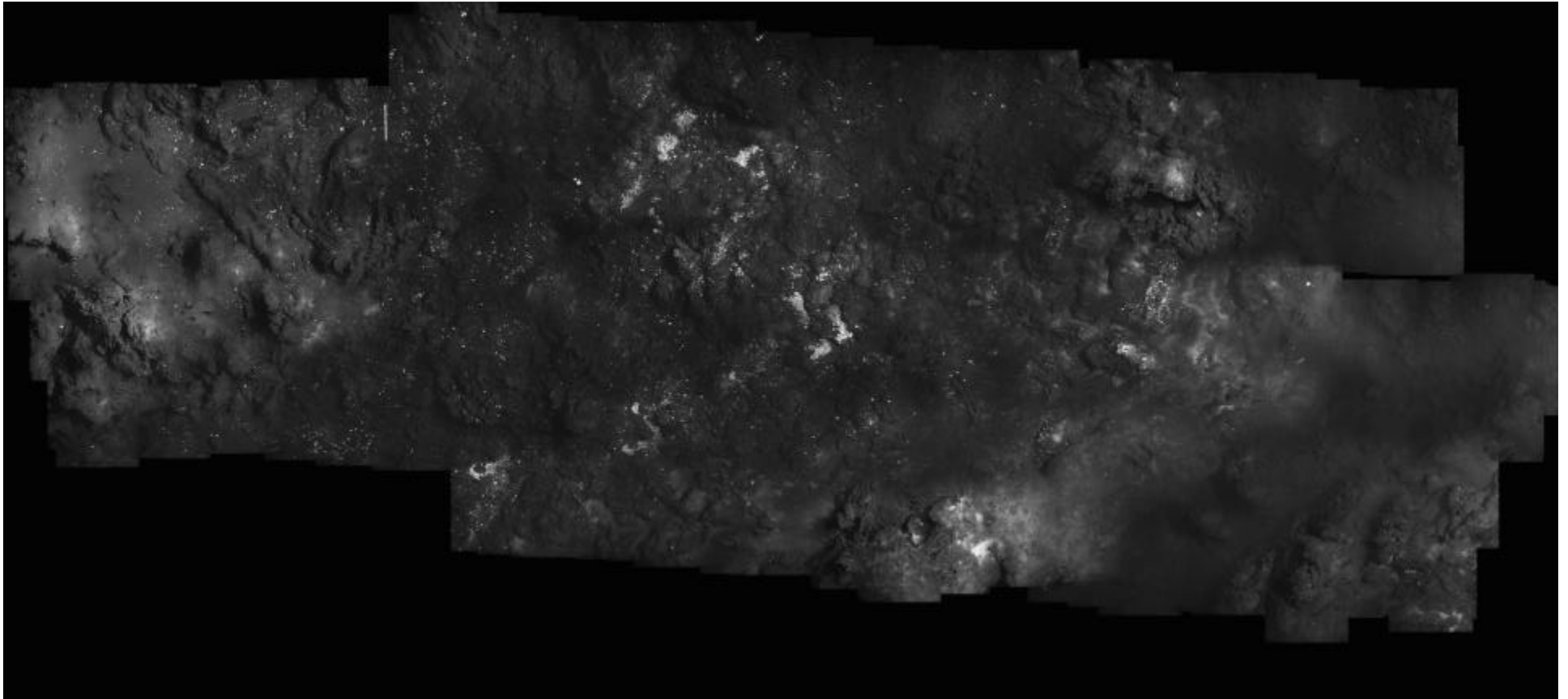


## Photo Mosaics

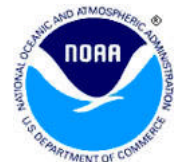
- **Photomosaic capabilities**
  - DSL Matlab-based software available (Pizarro, Ferrini, Singh)
    - Simple user interface
    - Color or B&W images
  - Prototype of geotiff creation functionality enabled.

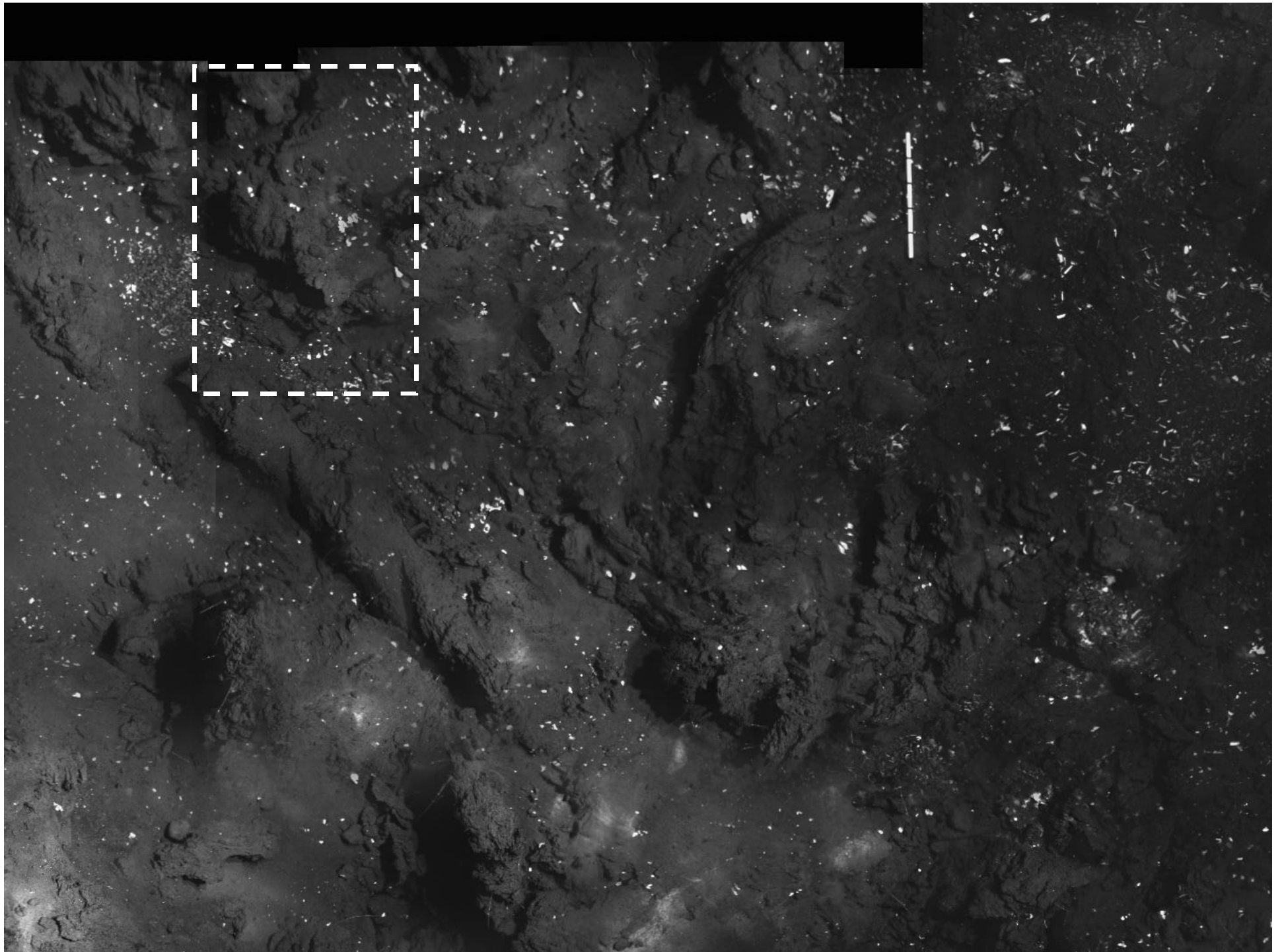


# Photo Mosaics



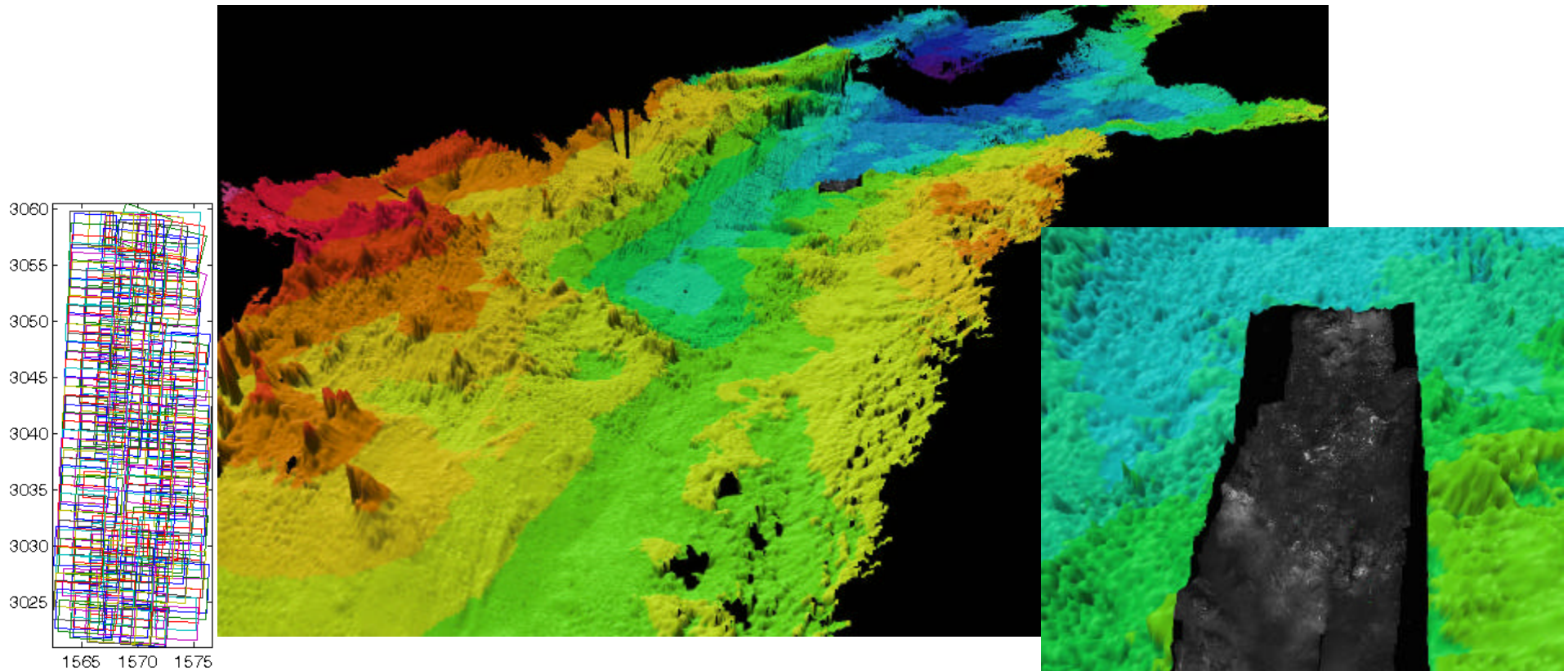
>200 images



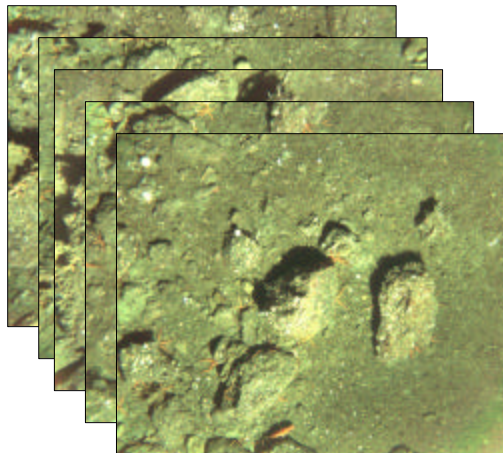




# Photo Mosaics



## FISH\_ROCK



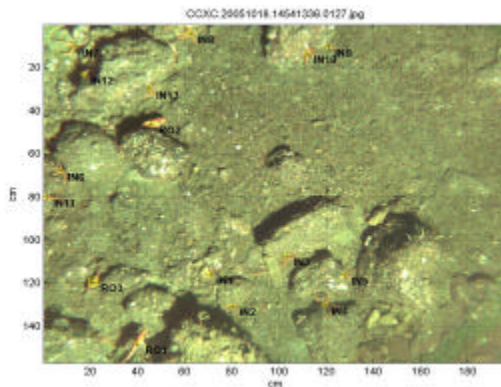
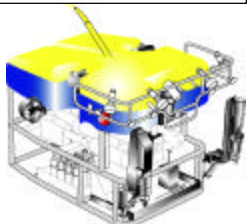
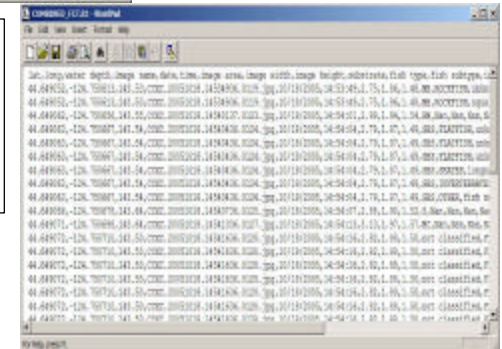
Near-bottom  
Photos

Precision  
navigation

FISH\_ROCK  
GUI

Digital  
Database  
(\* .fct file)

Annotated  
\*.tif files





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## FISH\_ROCK

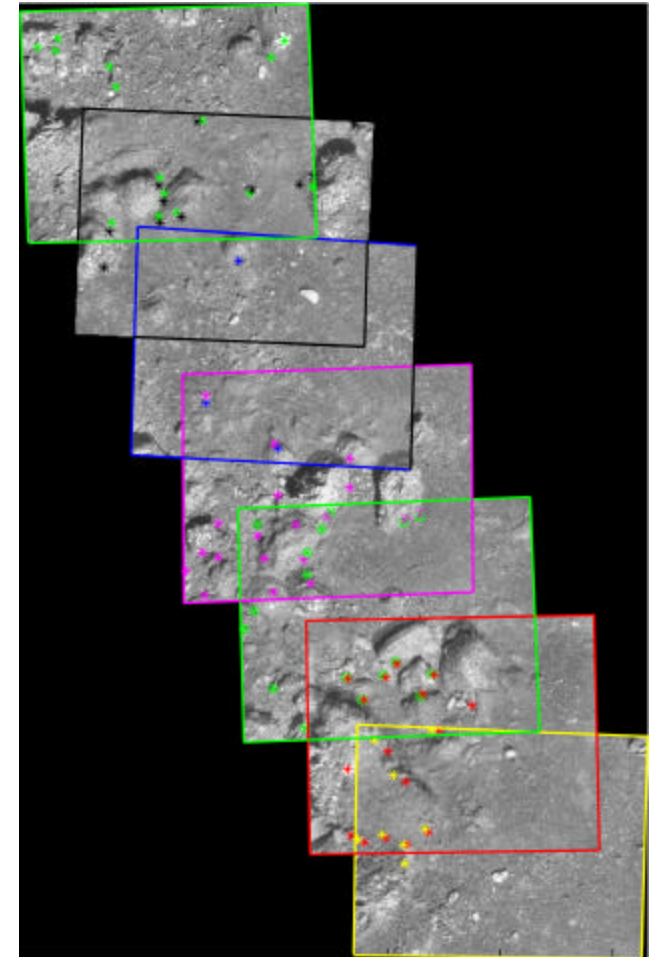
The screenshot displays the FISH\_ROCK software interface. At the top, the file name is "CCXC.20051018.14541336.0127.jpg". The main window shows a seabed image with three regions of interest (ROIs) labeled RO1, RO2, and RO3. The image has a coordinate grid with x-axis from 0 to 180 and y-axis from 0 to 140. To the right of the image is a panel for "IMAGE DATA" containing the following information:

DATE:	10/18/2005
TIME:	14:54:13
LATITUDE:	44 38.9443'
LONGITUDE:	-124 45.0419'
WATER DEPTH:	143.64
ALTITUDE:	2.546 m
IMAGE AREA:	3.098 m <sup>2</sup>

Below the image data are buttons for "ZOOM IN", "ZOOM OUT", "GRID ON", and "ENABLE PAN". At the bottom of the interface are several tool panels:

- DATABASE TOOLS:** Includes "COUNT" and "RESET" buttons, and radio buttons for "ROCKFISH", "FLATFISH", "SKATES", "ROUND FISH", "INVERTS", and "OTHER". Each radio button is associated with a dropdown menu.
- MEASUREMENT TOOLS:** Includes a "LENGTH" field showing "11.4 cm", a "LENGTH" button, and an "AREA" button.
- SUBSTRATE TYPE:** Includes two dropdown menus for "unknown" and "unknown", a "Scheme Info" button, and a "COMMENT:" field.
- Other buttons:** "PREVIOUS IMAGE", "ADVANCE TO NEXT IMAGE", "SAVE ANNOTATED TIF", and "CLOSE".

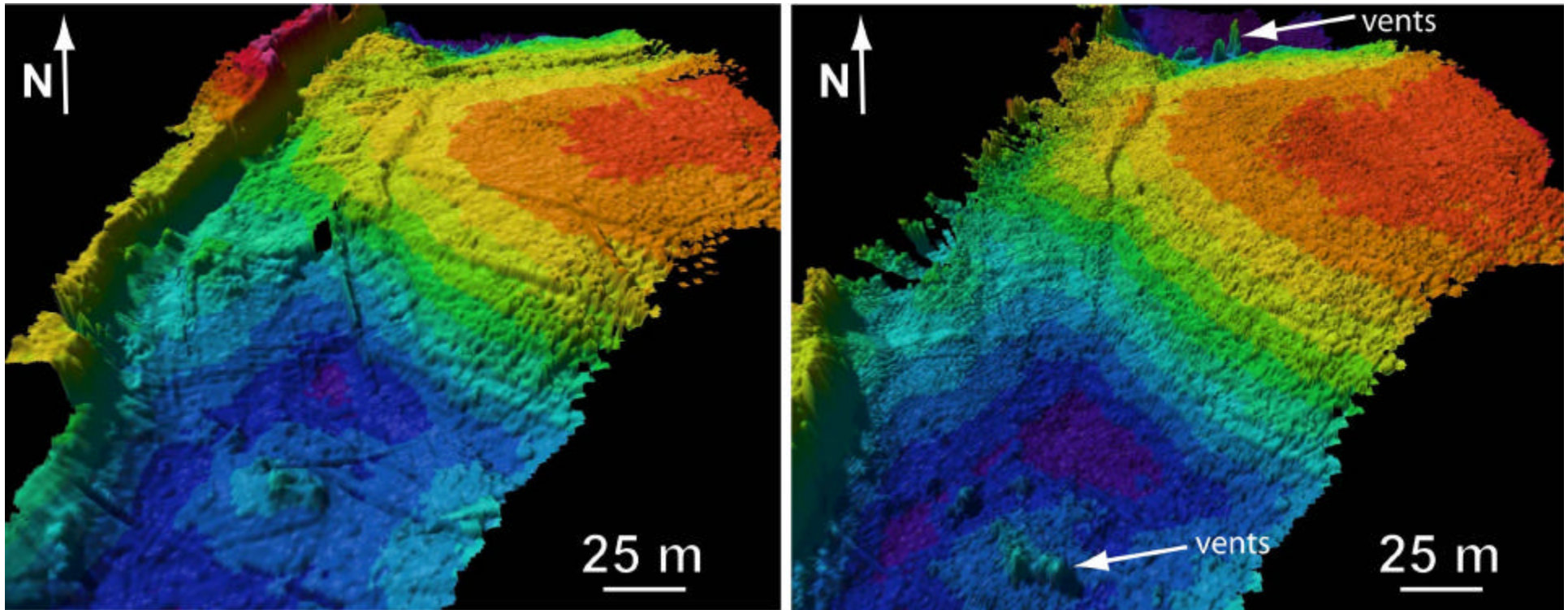
At the bottom right of the interface, it says "FISH\_ROCK version 1.1" and "vleninh@ahoi.edu".



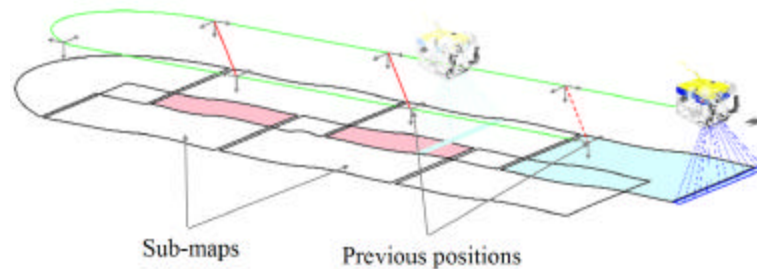
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## Bathymetric Submapping

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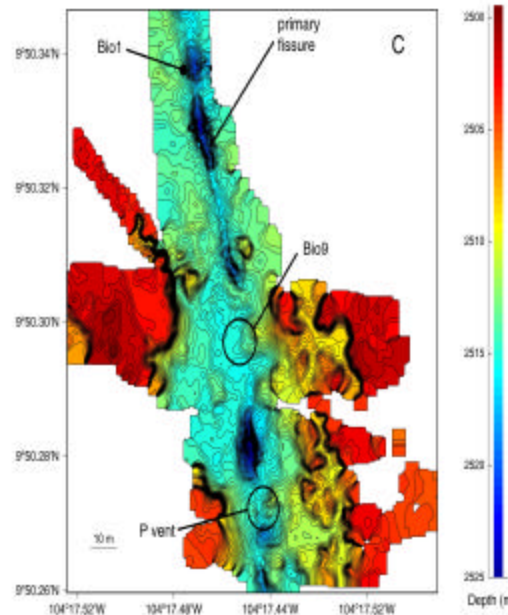
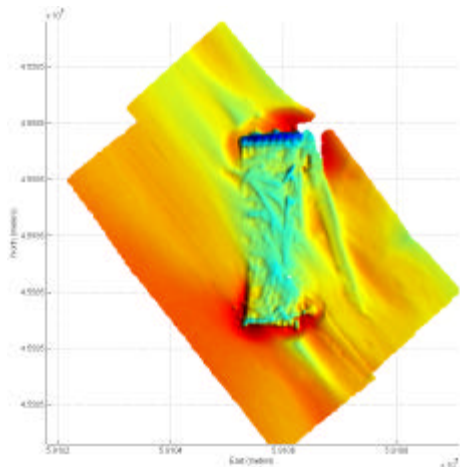
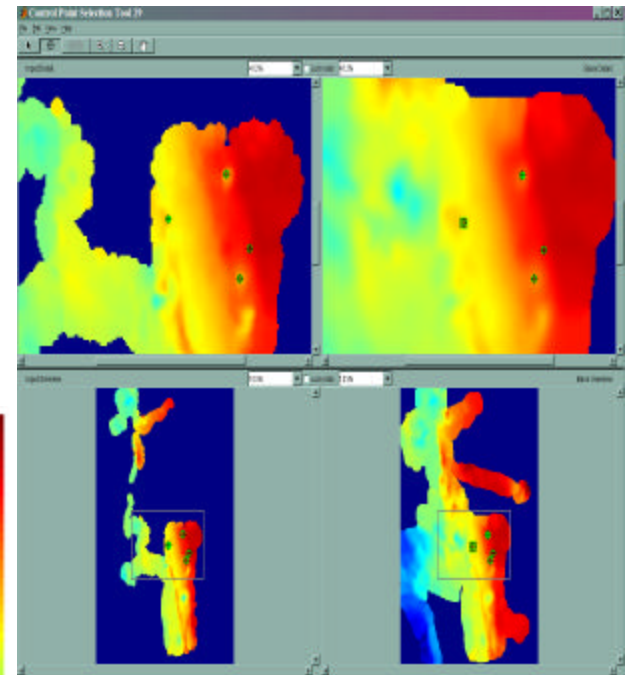
SM2000 survey of TowCam Vent Field – Lau Basin





## Grid Rectification

- Created to combine *Alvin* Imagenex data from multiple dives into high-resolution composite maps (*Ferrini et al., submitted*)
- Can be used with other data



## Documentation

- **Jason User Manual** (*in progress*):  
<http://www.whoi.edu/marops/vehicles/jason/index.html>
- **Alvin overlay and video duplication system documentation**
- **Alvin Imagenex processing documentation**
- **Photo mosaic – WHOI Technical Report** (*in progress*)
- **Navproc - NDSF User Manual** (*in progress*)
- **FISH\_ROCK – WHOI Technical Report** (*WHOI-2006-01*)



## Future Directions

- Continued development of existing software tools
- Sample position extraction and error estimator
- Real-time data display
- Survey planning tools
- Bathymetry data error estimator (Roman and Singh, 2006)
- AUV data

