

Space Details

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Name:	900821 Seafloor Imaging of Marine Protected Area
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Home

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SIMPA Home

This is the home page for the 900821 - Seafloor Imaging of Marine Protected Area space.

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Dives

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Dives

- [V3200](#)
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About the Data

Image Orientation

From an email from Kiran Murthy on 2008-07-16:

[Brian Schlining](#): **What is the heading relative to? It looks like its the initial direction of the ROV but I just want to confirm that. Which direction is positive, clockwise or counter-clockwise?**

[Kiran](#): Indeed, the heading is relative to the initial direction of the ROV. Thus, we have:

$\text{rovHeading} = \text{initialHeading} + \text{relativeHeading}$

We're taking images from the main camera pointed straight down. Thus, the top of the image corresponds with the ROV's forward direction, and positive heading corresponds to the ROV rotating from north to east,

[Brian Schlining](#): **Also, if the camera has 0 pitch and 0 roll where is it pointing? What directions are positive pitch and roll?**

[Kiran](#): Zero pitch/roll corresponds to the camera pointing straight down. Positive pitch is ROV bow up and positive roll is ROV port up.

To clarify a bit further, you can imagine a "camera frame" with its origin at the image center. In this frame, x points toward the top of the image, y points toward the right side of the image, and z points into the image (away from the camera). Heading/pitch/roll then form a ZYX Euler angle triplet that describes the orientation of the camera frame with respect to a frame oriented $(x,y,z) = (\text{North}, \text{East}, \text{Down})$.

-Kiran

V3200

This page last changed on May 20, 2008 by [brian](#).

V3200

Data

- [Updated Tile Data](#)
- [Original Tile Data](#)

About Dates in Original Tile Data Text File

From: Kiran Murthy kmurthy@stanford.edu

Sent: Thursday, May 15, 2008 4:48 PM

To: Rock, Steve

Subject: Updated Spreadsheet

Here's the spreadsheet updated with the new tile time tags. The time tags are given in local (Pacific) time. Let me know if you see less than 874 entries on the spreadsheet.

The time data came from bytes 33-36 of the Ventana serial string, interpreted as an integer. DJ was looking into the how to convert this integer into GMT, but I'm fairly certain that the integer's eight digits should be interpreted as hhmmssdd (h = hours, m = minutes, s = seconds, d = hundredths of seconds).

Thanks,

Circle

Second SIMPA dive

- Need to get dive info from [Michael Risi](#)

From Kiran Murthy:

During Steve Rock's 20 June dive, we were able to take a 30x10 m benthic mosaic near the Portuguese Ledge waypoint. Per Steve's instructions, I'm sending you the mosaic tile metadata in the [attached Excel spreadsheet](#). I can also send tab-delimited data files upon request.

The spreadsheet is formatted the same as the last (5 May) mosaic. I've made one change to the image size column titles, which now read "Cropped image size (meters)." The numbers in these columns represent the size of the cropped and scaled (with altitude) images comprising the navigation grade mosaic. The numbers' representation is the same as the last mosaic, but I changed the column titles to clarify the meaning of "image size."

I'd like to get you the batch of low-resolution tiles (original and cropped/scaled) that was used to construct the mosaic. I have MBARI VPN access - is there a drop box where I can place the tiles?

Meeting Minutes

This page last changed on Jan 08, 2010 by [brian](#).

Meetings

- [2010-01-08](#)
- [2008-07-24](#)
- [2008-05-20](#)
- [2008-05-13](#)

2008-05-13

This page last changed on May 13, 2008 by [brian](#).

2008-05-13

In attendance: [Brian Schlining](#), [Lonny Lundsten](#), Steve Rock

Bathymetry

[David Caress](#) has mapped the seafloor of both MPAs of interest with the AUV

Dive V3200

Steve ran mosaic with old navigation software. New ROV nav software (being worked on by [Michael Risi](#)) should be on the ROV in June. There are currently 2 pieces of code:

1. Pilot navigation interface
2. Near real-time mosaic generation.

The mosaic on this dive is 20m x 30m, consisting of about 800 tiles. The precision navigation data is attached as [V3200-simpaData.txt](#). The original email with the data is attached as [Mosaic Tile Data.pdf](#)

What now?

- Correlate GMT time of precision nav with tape timecode.
 - GMT in the data file is in a wierd format.
 - Confirm the format with Kiran Murthy (kmurthy@stanford.edu) as well as which computer was producing GMT time. Was that computer NTP'd?

Other

From [Lonny Lundsten](#)

Brian,
Steve Rock's last dive (from Portuguese Ledge) is Ventana #3200.
Also, here's a cool little mac app that gets pixel coordinates from still images - it's got a nice GUI.
<http://www.bentleydrummer.nl/software/CoordsClick.dmg>

2008-05-20

This page last changed on May 20, 2008 by [brian](#).

Brief Meeting

In attendance: [Brian Schlining](#), Steve Rock

Notes

- Tiles are NOT georeferenced. The USBL navigation is way too bad. All positions (for now) will be calculated relative to the origin (0, 0) of the first tile.
- Next year we can work on ways to improve the USBL in order to georeference each tile.
- Next dive is on June 10th 2008. Mike Risi will be lead, Steve Rock will be away in antartica. The missions is testing the station-keeping software but CircleK will try to run a test in the MPA and generate a small tile set.
- The data files has breaks in GMT time where the tape was started and stopped. I need to be aware of those when I'm running interpolations of GMT time in order to calculate the correct time-code.
- Keep Hanu in the loop. WHOI isn't too interested in area based surveys but Hanu is and he may like to be involved with the software we're working on. [Lonny Lundsten will contact Hanu and request Fish_rock](#). Fish_rock is Matlab based BUT we may learn a few lessons from it for simpa-annotation.

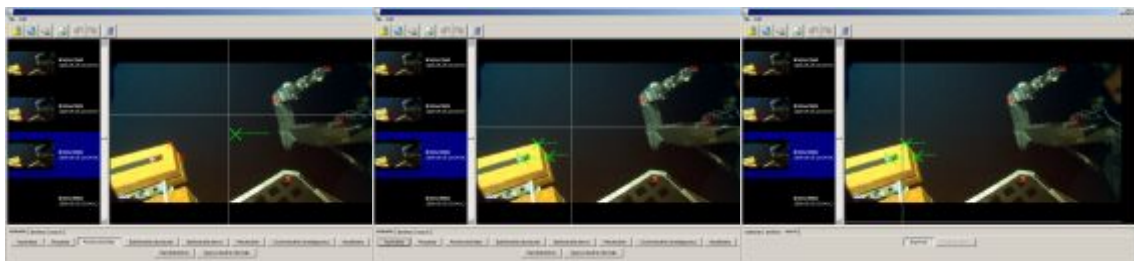
SIMPA

In attendance: [Brian Schlining](#), [Steve Rock](#)

Notes

- Keep working on prototype as is. Still need to add the display of annotations from other tiles within the current working tile.
- For V2.0, want to be able to specify a radius and have the all annotations from other tiles within that radius display too.
 - also add way to select an annotation from another tile and jump to that tile.
- Want to add a mechanism for linking an annotation between 2 tiles. This link would indicate that the annotations are marking the same thing. These could then be used to improve navigation and image registration
- Next dive is 7/31 then there's another in early august. Send a draft of what kind of metadata we should include in the text data I get from CircleK
- For the 2009 proposal, get Steve the following:
 - Annotated screen shots of simpa-annotation-1.0-SNAPSHOT
 - Are we on track to complete this years tasks in the allocated time?
 - How much of my time is needed for next year? What are my tasks for next year? Scope of work needed for simpa-annotation-2.0. Keep in mind that we're working with the video lab so we don't know exactly what we'll need until after the video lab has worked with simpa-annotation.

([view as slideshow](#))



Annotated
Screen
shot

2010-01-08

This page last changed on Jan 08, 2010 by [brian](#).

2008-05-13

In attendance: [Brian Schlining](#), [Lonny Lundsten](#), Steve Rock

Minutes

Steve presented his 'quick click' method of annotating in Matlab. He uses low-res images and clicks on every single seapen that he sees. After annotating he post processes the annotations and aggregates groups of seapens (within about +/- 10-15 cm) of each other into single annotations.

He also discussed identifying drift in the navigation over time that appears to be drift in the DVL accuracy over the course of a dive.

At this point, there is no defined date for completing milestones in SIMPA, this is the last year of the project so there is no need to complete the work before the mid-year proposal process.

Steve's group is working on a technique to subset the number of tiles in a mosaic set. This will greatly simplify [Lonny Lundsten](#)'s job of annotating.

New Tasks

<https://oceana.mbari.org/jira/browse/SIMPA-12>

<https://oceana.mbari.org/jira/browse/SIMPA-13>

SIMPA Annotation

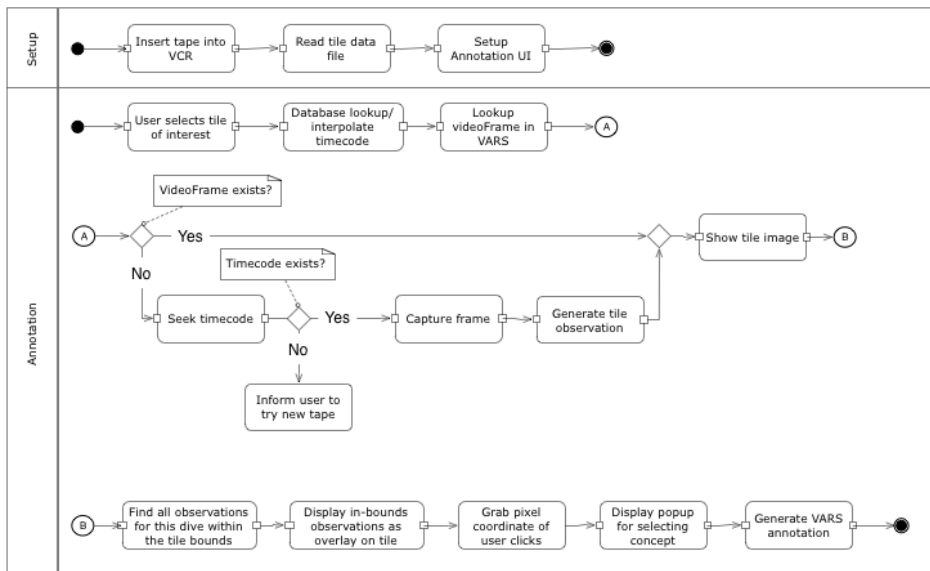
simpa-annotation is an area-based annotation application with 2 design goals:

1. Minimize duplicate annotations that can arise from the time lag between adjacent frames that occur as the ROV 'mows the lawn'.
2. Leverage the VARS annotation database.

Additional Design Goals:

1. Improve navigation by the addition of anchor points
 - [Anchor point user-interface](#)

Activity Diagram



Other workflows

Tile load path options

1. Load the *tile description file* using a script that automates the capture of the framegrabs and uploads them into VARS. The SIMPA annotation UI would then open a completely loaded tile set for the user to annotate.
 - **PROS:**
 - Easy for the user
 - Loading is encapsulated in a single script
 - Simplifies UI development. There's no image capture involved in the UI
 - **CONS:**
 - User must run the script that loads the tile info and captures the images
 - Grabbing images from multiple tapes will be a pain.
2. Open a *tile description file* directly from the UI.
 - **PROS:**
 - All work is done from a single application. So conceptually simpler for a user; easier to remember what to do.
 - Can either load a file or open an existing Mosaic that's been stored in the VARS database.
 - Image capture is done as needed. It will slow down the annotation flow slightly as the UI seeks the correct timecode and loads the image though.

- If an image can't be captured from the current video source, a dialog can be displayed to prompt the user to select a different video source and or change the tape.
- **CONS:**
 - Need logic for capturing images and controlling the Video Source in the UI
 - How do we upload the captured images from the UI to a directory on a web server?
Should we pop up a dialog showing the target directory? The user will need to know the URL used to mount the target directory on a web server.

SIMPA-annotation Anchor Points UI

This page last changed on Jun 29, 2009 by [brian](#).

[edit this mockup](#)

UI Notes

Creating Anchor Point

Clicking the *Add Anchor* button would display a dialog allowing the user to name the anchor point. When the dialog's *OK* button is clicked the new named anchor point will be added to the tree.

Adding an Anchor Point to an existing image

Adding is done as follows:

1. Select the desired anchor point in the tree, highlighting it.
2. Click on the point in the image where the anchor point should be placed
3. A listing of the current image timecode will appear as a child of the anchor point in the tree

Removing an Anchor Point from an existing image

1. Select the timecode of the image underneath the anchor point in the tree. Right-click and select remove from the pop-up menu.
(or we can add a small - button next to each anchor in the tree.)

Data Storage of Anchor Points

The easist approach is to store the anchor point info as associations. Is this the best approach?

.bookmarks

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900821 Seafloor Imaging of Marine Protected Area Bookmarks

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