

2 November 2009
1:00 pm Surface Commons

MBARI Project 900907 Meeting
High Resolution Near-Surface Seismic Refraction Tomography

Attending: David Caress, Rich Henthorn, Mark Chaffey, Hans Thomas, Charlie Paull

1. Review what we've achieved

- Engineering / operations effort successful - we collected the data required to test the concept
- Development of chirp processing successful - match filtering clearly works.
- Data are clear that ROV Ventana is too noisy to observe any refracted subsurface arrivals.

2. Looking forward - the situation

- We are scheduled to conduct an ROV based experiment on a January 28-February 10 Flyer cruise.
- The acoustic source system is working as desired.
 - o Gene wishes for us to keep the electronics package intact and to buy him limited replacements for his ongoing work.
- We cannot take delivery of higher gain sondes before after this cruise.
- ROV Ricketts probably at least as noisy as Ventana
- Ergo - success in proceeding as scheduled is unlikely.

3. What options do we have?

- End the project
- Move the source to an AUV platform

4. Options moving onto AUV

- Build new midbody incorporating existing acoustic source
 - o Integrate with which AUV tail?
 - o How long to achieve this?
- Upgrade Mapping AUV to use the 1-6 kHz transducer and current Edgetech electronics. Have Edgetech provide desired pulse files.
 - o Still keep acoustic source package intact for general purpose work.
 - o How long to achieve this?

5. Sonde options

- Can get higher gain sondes by March
- If we conduct experiments from the Zephyr, we'll need to deploy and recover the sondes from the surface
 - Need to package sondes with acoustic releases.

6. Operational Options

- Go in January as scheduled, but operate AUV off Flyer.
- Go later in year on Flyer by moving two Paull days off early cruise and tack them on to later Scholin cruise.
- Move entire Paull Flyer cruise to later in year.
- Perform experiment later in year from Zephyr - requires deploying sondes from surface with acoustic releases

7. What is our plan?

- Three months time to either
 - o Modify Mapping AUV to run 1-6 kHz subbottom
 - o Put source package into Benthic Imaging AUV
- Either way, have to figure out timing for source on AUV – buy rubidium standard?
- Bigger expensive deal to add acoustic releases to sondes
 - o Better to plan on ROV deployment/recovery

Preferred plan is the following:

- Upgrade subbottom on Mapping AUV to 1-6 kHz using the large transducer
- Run Zephyr and Flyer together in Santa Monica
- Deploy and recover sondes using ROV Ricketts
- Run Mapping AUV refraction profiles from Zephyr

Alternative plan is to run entirely off Western Flyer

- Probably requires personnel swap in Santa Monica

To do:

Work with Chris Grech on scheduling issues

Order sondes

Order Gene's replacements

Scope cost and effort requirements for Mapping AUV mods