26 February 2009
10:00 am Ocean View Conference Room

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

Attending: David Caress, Rich Henthorn, Mark Chaffey

PDR

- PDR was held last Friday. We had good attendence and comments.
- Important points raised:
    - Need minimal phase distortion at high end of band – does the analog filter applied before A/D introduce any distortion? Does the filter change with changes in sampling rate? What sampling rate should we choose?
    - May want to use IRIG-B backup for timing.
    - Alternative timing backup from Hans: Make a pinger with a really really good clock that would be deployed in the center of the receiver array. This would ping at a defined interval during the experiment with a signal that is easily distinguishable from the refraction chirps by match filtering.

Action Items

- Action Items
    - Generate project schedule. (Chaffey)
        - August 1 – Phase 1 proposals due
        - July 7 – Caress gone on vacation and at sea through August 15 – need to have proposal largely done.
        - Three Lobos days May 27, June 8, TBD
        - Tank testing prior to first Lobos day, when Sondes arrive.
        - Sondes delivered first week May.
    - Need source specifications (Caress)
    - Need engineering design requirements for topside application (Caress + Henthorn)
    - Characterize the input filter of the Sonde (Chaffey)
    - Characterize the clock of the Sonde (Henthorn + Chaffey)
    - Procure/liberate housing for ROV electronics (Chaffey)
    - Specify the CRIO I/O card – two possibilities (Henthorn + Chaffey)
    - Need a LabView diagram that will drive the source – start with Gene Massion's approach. (Henthorn)
    - Need a LabView diagram for realtime timing function (PLL). (Henthorn)

- Figure out how and where to log the time stamps with source signature – want to log time stamps of actual sonar pings (Henthorn + Chaffey)
- Port the irOBEX protocol to the laptop. (Henthorn)
- Identify IR port hardware to use on ROV (Chaffey)
- Reschedule first Lobos day (Caress)
- Write code to merge Sonde data with timestamp data and output SEGY format data (Caress).
- Write code perform match filtering of SEGY format data (Caress).
- Port old refraction analysis and modeling software to current Macs (Caress).

Timing Test from Bill Burgess

From: Bill Burgess <burgess@greeneridge.com>
Date: Wed, 25 Feb 2009 15:19:48 -0800
To: Paul McGill <mcgill@mbari.org>, Rich Henthorn <henthorn@mbari.org>
Subject: First drift test

Hi Paul, Rich,

You'll be interested to know I did my first drift test using optical synchronization. Just the start and endpoint using a GPS-synchronized Truetime-style clock as the standard. Over 4440 seconds the drift was 116 microseconds. That includes linear drift; the oscillator voltage control was set to value determined for a different unit.

Not too bad for the first try, anyway.

--Bill