| Instrument Lab<br>Lamont-Doherty Earth Observatory of Columbia University<br>61 Route 9W<br>Palisades, NY 10964 | |
|---|---|
| Subject: | Summary of equipment demonstration |
| Project: | Hudson River and multibeam |
| Created: | August 21, 2001 |
| Updated: | |
| Engineer: | Dale Chayes |
| Doc No.: | -NA- |
| Revision: | - |

Richard Byrd and Richard Andrews of Odom Hydrographic Systems (http://www.odomhydrographic.com/) demonstrated a Fansweep 20 multibeam sonar made by STN Atlas Marine Electronics in the Hudson River from their boat.

They arrived (from Portsmouth, NH) by truck, towing their boat on a trailer. The boat is a custom-built 27-foot aluminum boat built by Thomas Marine of Long Island. The boat has a special slot in the bow to accommodate the Fansweep 20 transducer.

**Figure 1: The M/V Echotrack. This picture was taken from the Odom web site and shows a different sonar mounted on the bow. The Fansweep 20 transducer is shown in the bow mounting in Figure 3.**

The boat has two 150 horsepower counter rotating Mercury outboard motors and a very small (Ender?) German made generator mounted in the transom wall.

The heading reference is an S.G. Brown gyrocompass. Vertical reference for the Fansweep is a DMS-2-05 from TSS. Position reference is a USCG beacon, differential GPS.

The Fansweep20 demonstrated was a 200 kiloHertz version.

## 1 Schedule of events

### 1.1 Saturday (August 18, 2001)

Byrd and Andrews arrived at Lamont from Portsmouth, NH about 1445. Leave boat and trailer in the Instrument Lab parking lot overnight.

### 1.2 Sunday (August 19):

Rendezvous at the Instrument lab about 8:00am. Launch at the Nyack ramp about 9am.

Kastens, Chayes, Andrews and Byrd departed from boat-launching ramp about 10am and ended at Julias Petersens boat yard about 11am.

Left boat overnight at Petersens.

### 1.3 Monday (August 20):

Departed Nyack boat ramp at 8am. Fueled in Tarrytown (~30 gallons) and checked out the Fansweep 20 and the Bathyscan (Odom's own sonar.)

**Figure 2: David Andrews of Odom at the Hypack display.**

Departed Nyack boat ramp about 9:30am with Bob Arko, Angela Slagle and Frank Tischer aboard and returned at about 11am.

Departed Nyack boat ramp about 1105am with Bohnenstiehl, Nitsche and Weiss. Returned about noon.

Departed about 1205 with Brusa after checking in with Lyn Shaterian who had not heard from John Mutter

The boat was recovered onto trailer in poring rain about 1300 at the Nyack boat ramp.

**Figure 3: The Fansweep20 transducer in the stowed position in the custom-made bow. A hydraulic mechanism tilts the transducer 180 degrees through the slot into the working position.**

## 2 Performance

The Fansweep was configured to produce 600 beams over a swath of about 6 times the water depth. Data quality as judged from the real-time displays provided by the Fansweep console and by the HYPACK logging system were very good.

Several passes were made parallel to the channel to explore a channel parallel gouge that is about 2 meters wide and a quarter of a meter deep. The Fansweep shows clear evidence of “berms” on both sides. Our best guess is that this evidence of a ship dragging an anchor while steaming up the channel.

A small sample of digital data was recorded in the raw format of the Fansweep 20 but downloading was aborted due to weather and recovery. The data sample will be provided by Odom after they get the boat back to Baton Rouge.

## 3 Participants:

| | |
|---|---|
| Kim Kastens | Senior Research Scientist |
| Dale Chayes | Senior Staff Associate |
| Robert Arko | Software engineer |
| Dr. Frank Nitsche, | Postdoc with Robin Bell |

| | |
|---|---|
| Angela Slagle | Graduate student |
| Michael Tischer | Graduate student |
| Del Bohnenstiehl | Graduate student, Faculty Fellow |
| Daniel Weiss | Technician |
| Douglas Brusa | Purchasing Supervisor |

4 The ones who got away:

G. Michael Purdy (Director, L-DEO), John Mutter (Executive Deputy Director, LDEO and Associate Vice Provost of the Columbia Earth Institute), and Robin Bell (Senior Research Scientist) expressed interest but were not able to participate.