# LAMONT DATA REDUCTION CRUISE SUMMARY

CRUISE: EW9002

START: 20 June 1990 [171] Miami, Florida

END: 24 June 1990 [175] Port Everglades, Florida

PURPOSE: Transit and shakedown

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DATA REDUCTION: Stefanus Budhypramono and Thomas D. Aitken

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TIME:

Instrument: Kinemetrics True Time clock model 468 DC
2 clocks designated "tr1" and "tr2"
Logging: 60 second intervals
Note:
Used tr1 clock for this leg.

SPEED AND HEADING:

Instrument: Furuno CI-30 2-axis doppler speed log, Sperry MK-27 gyro
Logging: 3 second intervals
Checking: visual check of plot of data
Smoothing: mean value of all good values within the same minute

TRANSIT SATELLITE FIXES:

Instrument: Magnavox MX-1107RS dual frequency Transit satellite receiver
Logging: all fixes
Checking: reject receiver flagged fixes, fixes with high drifts in navigation and fixes producing Eotvos correction errors in gravity
Note:
sf1 used in final navigation.

GPS SATELLITE FIXES:

Instrument: Magnavox T-Set Global Positioning System 5 channel receiver
Logging: T-Set #1 at 2 second intervals, T-Set #2 at 20 second intervals.
Note: T-Set #1 is logged at 2 second intervals to provide realtime postioning for the Hydrosweep; this GPS data is decimated to 20 second intervals before used in reduction.
Checking:
minimun number of sats: 3
dilution of precision maximum: north = 4.0, east = 4.0
carrier signal-noise ratio minimun: 35.0
compared GPS speed and course with Furuno smooth speed and heading

compared positions with Transit-Furuno navigation
reject fixes producing Eotvos correction errors in gravity
Interpolation: interpolated positions at 00, 30 seconds of each minute
Smoothing: smoothed interpolated positions with 9 point running average
Note:
Used T-Set #1 for navigation

NAVIGATION:
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A "1 minute navigation" is produced from the above sources. Acceptable fixes are merged at 1 per minute with priority given to GPS, then to Transit. The smooth speed and heading data is used to fill any gaps of 2 minutes or longer between fixes by computing 1 minute DR'ed positions corrected for set and drift between fixes. The DR'ed positions are produced at 00 seconds of each minute.
Lamont data base: 1 minute navigation
Notes:

| day | time | comment |
|---|---|---|
| 171 | 1530 | gps1 starts |
| 171 | 2236 | gp2 starts |
| 175 | 0820 | gp1 and gp2 ends |

The gps coverage is not continuous during this cruise.

BATHYMETRY:
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Instrument: Krupp-Atlas Hydrosweep DS
Logging: each ping
Checking: visual check of plot of data; bad points removed
Interpolation: interpolated depth value at 00 seconds of each minute
Notes:

| day | time | comment |
|---|---|---|
| 173 | 0201 | Hydrosweep logging started |
| 173 | 1842-1846 | gap |
| 173 | 2114-2115 | gap |
| 173 | 2128-2140 | gap |
| 173 | 2233-2238 | gap |
| 173 | 2304-2307 | gap |
| 174 | 0018-0022 | gap |
| 174 | 1044-1148 | gap |
| 174 | 1306-1311 | gap |
| 174 | 1317-1353 | gap |
| 174 | 1958 | Hydrosweep logging ended |

Filled in hydrosweep data gaps with PDR readings where possible.

Instrument: Precision Depth Recorder (PDR) at 3.5 khz
Logging: values read from PDR every 5 minutes in meters
Checking: visual check of plot of data.
Notes:

| day | time | comment |
|---|---|---|
| 171 | 1540 | PDR starts |
| 171 | 1812-1819 | gap, changed PDR paper |
| 174 | 2206-2238 | gap |
| 174 | 2307 | start gap |
| 175 | 0232 | end gap |
| 175 | 0311 | PDR ends |

The above readings in meters use 1500 meters/second sound velocity

Lamont data base: Depth is in uncorrected fathoms using a sound velocity 0f 800 fathoms/second.

MAGNETICS:
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Instrument: Varian V75 magnetometer
Logging: 20 second intervals
Checking: visual check of plot of data
Reference field: International Geomagnetic Reference Field 1985 ( IGRF 1985 ) model of the main field at 1985.0 and a predictive model of the secular variation for adjusting to dates between 1985.0 and 1990.0
Residual field: Applied by bilinear interpolation across a 1 degree square.

Notes:

| day | time | comment |
|---|---|---|
| 174 | 0116 | Magnetics starts |
| 174 | 0134-0137 | gap |
| 174 | 0155-0156 | gap |
| 174 | 0300-0302 | gap |
| 174 | 0310-0311 | gap |
| 174 | 0600-0607 | gap |
| 174 | 0707-0709 | gap |
| 174 | 0818-0823 | gap |
| 174 | 0927-0928 | gap |
| 174 | 1500-1501 | gap |
| 174 | 1557-1558 | gap |
| 174 | 1603-1604 | gap |
| 174 | 1711-1712 | gap |
| 174 | 1737-1738 | gap |
| 174 | 1814-1815 | gap |
| 174 | 1827-1828 | gap |
| 174 | 1958-2001 | gap |
| 174 | 2009-2010 | gap |
| 174 | 2027-2028 | gap |
| 174 | 2035-2044 | gap |
| 174 | 2132-2135 | gap |
| 174 | 2236 | Magnetics ends |

GRAVITY:
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Not collected