LAMONT DATA REDUCTION CRUISE SUMMARY

CRUISE: EW9001

START: 13 June 1990 [164] New Orleans, Louisiana

END: 18 June 1990 [169] Miami, 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:
sf2 used in final navigation, except on the afternoon and evening of jday 165 when there were no sf2 fixes, used 3 fixes from sf1

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:

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
165	0026	gps1 starts with acceptable fixes
165	1021	gp2 starts with acceptable fixes
169	0436	gp2 ends with acceptable fixes
169	0533	gp1 ends with acceptable fixes

The gps coverage is not continuous during this cruise.

BATHYMETRY:

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
165	0253	Hydrosweep logging started
165	0307-0310	gap
165	0857-0859	gap
165	1159-1204	gap
165	1207-1208	gap
165	1613-1614	gap
165	1716-1717	gap
165	1725-1726	gap
165	1737-1740	gap
165	1830-1831	gap
165	1841-1848	gap
165	2359	hydrosweep stops with a long gap to
169	0356	when hydrosweep restarts
169	1602	Hydrosweep logging ended

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
165	?	PDR starts
169	~1600	PDR ends

Could not fill in hydrosweep data gaps with PDR readings, because

there were not enought times written on the records to tell when the records were created.

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:

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
168	0346	Magnetics starts
168	0350-0351	gap
168	0358-0359	gap
168	0838-0839	gap
168	0844-0845	gap
168	0938-0939	gap
168	1017-1019	gap
168	1031-1032	gap
168	1132-1133	gap
168	1342-1343	gap
168-169	1440-0718	gap
169	0909-0912	gap
169	0946-0947	gap
169	1020-1022	gap
169	1024-1026	gap
169	1044-1046	gap
169	1048-1049	gap
169	1142-1143	gap
169	1218	Magnetics ends

GRAVITY:

Not collected