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                   LAMONT DATA REDUCTION CRUISE SUMMARY
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CRUISE:  EW9005


START:   19 July 1990  [200]  Reykjavik, Iceland


END:     22 July 1990  [203]  Reykjavik, Iceland


PURPOSE: To recover a mooring


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



SPEED AND HEADING:
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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:
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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
Notes:
       None used in final navigation.



GPS SATELLITE FIXES:
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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
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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
Notes:
        Used T-Set #2 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, starting at 1840 July 19 (200) and
           ending at 1715 July 22 (203)
Notes:
       Only GPS fixes used on this cruise.
       GPS starts at 1307 on jday 200
       GPS ends at 1715 on jday 203

BATHYMETRY:

Instrument: Krupp-Atlas Hydrosweep DS
Logging: each ping
Checking: visual check of plot of data; bad points removed with an
    interactive graphics editor.
Interpolation: interpolated depth value at 00 seconds of each minute
Lamont data base: interpolated depth value at 00 seconds of each minute.
           Depth is in fathoms.
Notes:
     day   time   comment
     ---   ---------   -------
     201   0215   hydrosweep starts
     201   0237-0238   gap
       201   2011-2359   gap
       202   0000-0851   gap
       202   1126-1141   gap
       203   0000-0003   gap
       203   1510-1511   gap
       203   1514   hydrosweep ends

    These readings in meters are from the center beam of the swaths during the
    actual survey using whatever sound velocity was in effect at the time.

MAGNETICS:

Not collected

BGM-3 GRAVITY:

Instrument: Bell Aerospace BGM-3 marine gravity meter
Logging: 1 second counts
Notes:
       The BGM-3 during the period of July 1990 to October 1991 had
       an abnormally high drift. The BGM-3 data during this cruise
       was not reduced, as the data had duplicate counts due to a
       bug in the hardware interface.

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KSS-30 GRAVITY:
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Instrument: Bodenseewerks KSS-30 Marine Gravity meter
Logging: mGal at 6 second intervals
Smoothing: mean values at 00 seconds of each minute calculated from the
     logged values +30 seconds of this time. This stage also adjusts the
     times of the smoothed values for a 75 delay due to the filtering of
     the gravity by the KSS-30
Merge with navigation: calculate Eotvos correction and Free Air Anomaly.
Checking: visual check of plot of data to determine satisfactory Eotvos
     corrections, reject spikes of data at turns
Velocity smoothing: 5 point running average of velocities from the navigation
Dc shift: -980170.29 mGal
Drift rate: -0.1675 mGal/day
Lamont database: Free Air Anomaly value at 00 seconds of
     each minute.  1930 theoretical gravity formula.

Notes:
      day     time        comment
      ---   ---------   --------
      200     1257       starts
      201   0251-0319    gap in collection of data
      201   2020-2359    gap in collection of data
      202   0000-1059    gap in collection of data
      203     1749       ends

    Gravity starts before and ends after navigation, but not in the database.
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