

Accession No.: 2004-11

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Craig, Harmon Bushnell 1926-2003

Harmon Bushnell Craig Papers, 1934 - 2001

Physical Description: 29 mss, 4 mapcase folders

Description: The accession consists of the papers of geochemist Harmon Craig. The accession includes correspondence, subject files, manuscript and reprints of publications and other papers by Harmon Craig. The accession includes material documenting oceanographic expeditions including Argus, GEOSECS, Papatua, and Zetes. The accession also includes papers documenting ALVIN dives, hydrothermal vents, and research trips including China, and Lake Tanganyika.

GEOSECS (1973-1974); Papatua Expedition (1960-1961); Zetes Expedition (1966); Geochemistry ; Oceanography; Scientific Expeditions

**Harmon Bushnell Craig**  
**Papers, 1934-2001**  
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<b>BOX</b>	<b>FOLDER TITLE</b>
1	Lake Paugauyika, 1973
	LT 1975, Hydro [Lake Tanganyika]
	LT [1975-1978]
	LT-Shipping, Costs, etc. 1975
	LT-Expedition, Shipment Information, 1975
	“Geology of the Nakuru-Thomson’s Falls-Lake Hannington Area, 1967”
	[LT Data, 1975]
	LT-Ra228 Si32 [Radium and Silicon, 1973-1975]
	LT, Notes, Ferro-Sepr. Charts, 1973-75
	LT Data, 1975
	LT, Ra228, 1975
	LT 1975, Thode, S Isotopes
	LT-75, Hydro, copies
	LT-75, Hydro, Working copies
	LT-75, Hydrocasts
	LT-75; Cast Cards
2	LT-75, Hydro; Data Sheets
	LT-75, Amino Acids
	Various Articles, 1934-1984

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2	<p>Various Articles, 1943-1971</p> <p>Documents, Mailing List, 1980</p> <p>UN Investigation of Geothermal Resources for Power Development, NY 1973</p> <p>ET-76 (Ethiopia, 1976) Chemistry data</p> <p>ET-76, Neg Well Analyses</p> <p>SIO UCSD "Isotopic Geochemistry and Hydrology of Geothermal Waters in the Ethiopian Rift Valley" June 1977</p> <p>Kenya-Lakes, 1976</p> <p>Kenya Rift Papers, 1963-64</p> <p>Kenya Rift, HC Copies, Reprints, 1970</p> <p>Correspondence, 1987</p> <p>Africa Expedition, 1986-87</p>
3	<p>Tanzania Application Research and Letters, 1987</p> <p>Geothermal Gases, Worldwide, 1977</p> <p>"Preliminary Proposal to Form a Rare Isotope Measurement Lab", March 1993</p> <p>NOVA Expedition Data, 1971</p> <p>NOVA Expedition Data 1969</p> <p>DIFF DIFF 1485 (Latest April 16, 1970) Working Copy</p> <p>Charts, Graphs, Data, 1960-1988</p>
4	<p>(2) Charts Graphs, Data, 1960-1988</p> <p>Lassen: Shasta F. Well, "The Geysers" 1952-78</p> <p>Lassen-Radon Data, Nov. 1974</p> <p>Lassen-GC Calibrations, 1974</p>

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4	GC Calibrations, nd Data, Graphs, Charts, n.d. Mehetia, Tahiti, 1981-83 Data (Helium), Graphs, 1988 D/H Geothermal H <sub>2</sub> -CH <sub>4</sub> , (Horibe) “Geology of Korea” Scientific Articles, Physics Booklet, 1977-80
5	Kilauea, 1980 Research Letters, Articles, 1980-81 Helios Expedition, (Pac. Trans.) 1986-88 Articles, Data, Correspondence, Graphs, 1960-87 “Proceedings on Symposium on Qinghai-Xizang (Tibet) Plateau”, 1980 Computation Book, “N <sub>2</sub> O Analysis Using Gas Chromatography Aug. 1969-June 1970” Duncan: Pacific Hotspots, 1983 Articles, Publishing, 1986-1987 Geothermal/Hydrothermal Fields in China, Aricles 1986-1994 China: Correspondence 1976-77 Xenon CC Radon Figures-China (Peking) Radon Figures (made here) n.d. China: General Papers, 1970s China: Radon papers 1975-1976 “Geothermics: International Journal of Geothermal Research and its Applications” 1982

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6	Chinese Papers, 1974
	China: News Releases 1975
	China Administrative Atlas, 1969-1970
	China-Notes, n.d.
	China Report, Second Copy, 1974-75
	China, articles, 1978-79
	Catalogues, Articles, Correspondence, 1976-1990
	GAD Reports (English and Chinese) n.d.
	China: Geology, Tectonics, 1984-86
	Bai Kal C02 Data 1989
	Indonesia Data, 1987-89
	Japan Volcano Data, (usually Hakone, etc), 1988
	MacDonald Seamount, 1988
	Miscellaneous Data, 1988-89
	Papatua Data, 1987
	"The Measurement of Oxygen Isotope Paleotemperatures", July 1965, untitled chart
	Air Flask Data Sheets, Geosecs and Indian Ocean, 1973-78
7	AMAX (Exploration, Inc. 1975)
	Argonne Lab, 1981-82
	Azores, 1976
	Baja California, 1977
	Bern, 1968

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7	China, Tibet, Taiwan, 1978-81
	Christmas Island, 1975-1981
	Ethiopia, 1976
	Greece, Egelsee, 1968
	Lake Tahoe, (Dieter Imboden) 1973
	LT and Malawi: Stations 1-5 and Rivers, n.d.
	LT and Malawi: Stations 7 and 10, 1975
	LT and Malawi, 1975
	Bea's C <sup>12</sup> Stripping Data, 1975
	LT and Malawi: Ruzizi, 1973-74
	LT and Malawi: O.S. 1974-75
	LT and Malawi: Interstitial Water Vapors, 1975
	Vulcan, n.d.
	Weiss-Glacier Deuterium and O <sup>18</sup> , 1975
	Welhan Nitrogen, 1977
	Hudson <sup>70</sup> , 1970-75
	Instructions or Procedures in Lab, 1986-89
	Instructions or Procedures in Lab, Hydrogen Preparation Manual, 1972-77
	Savannah River Data Sheets, 1972
	Prep and Extraction Procedures, "Isotopic Standards for Carbon and Oxygen and Correction Factors for Mass Spectrometric Analysis of Carbon Dioxide" 1957
	Ice, 1980-82
	South Pacific Islands, Hawaii, Tahiti, Fiji, 1975

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7	<p>D.180, Eco 2, L. Nyasa and Malawi Exp. 963</p> <p>African and South American Rivers and lakes, 1973, African Lakes 1975</p> <p>Miscellaneous, 1974</p> <p>New Zealand-Fiji Streams, 1978</p> <p>pH Effect on waters, 1960</p> <p>Rocks, 1975-1983</p> <p>Chlorine, 1967-74</p> <p>Sulfate Analysis Manuals, n.d.</p>
8	<p>“Data Report Papatua Expedition Legs V and VI,” Feb. 1, 1986-March 15, 1986</p> <p>“Vostok Time Scales”, n.d.</p> <p>Loihi Rock Samples, 1988</p> <p>Technical Report Number 20, “Investigation of Radon and Helium At Possible Fluid Phase Precursors to Earthquakes” 1983-1986</p> <p>“L.T. Geochemical and Hydrographic Study: 1973 Expedition” 1974</p> <p>Status Reports, 2001</p> <p>Data (Caroline Islands, South Pacific Islands), 1995</p> <p>Helios Expedition, Samples, 1987</p> <p>The New Geothermal Extraction Line, Book 1, March 1, 1980-Feb. 8, 1982</p>
9	<p>Larderello 67, Data</p> <p>Larderello-Chemistry of Gases, 1957-66</p> <p>Larderello, 1934-1963</p> <p>Rare Gases, Argon Partition, Reservoir CACC’s 1969</p> <p>Italian Samples, Larderello, Tivoli 1954-58</p>

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9	<p>PK O<sup>18</sup> Carbon Dioxide, MSS [“Isotopic Fractionations During Oxygen Consumption and Carbonate Dissolution within the North Atlantic Deep Water,” P Kroopnick, 1979]</p> <p>C<sup>13</sup> N03 etc. OR Plots, 1980</p> <p>Oxygen Isotope Fractionation Between CO<sub>2</sub> and Water and the Isotopic Conjunction of Marine Atmosphere Carbon Dioxide, Y. Battings and H. Craig. Carbon Dioxide-C<sup>13</sup> O<sub>18</sub>, 1958-66</p> <p>Craig, North Atlantic Ocean, n.d.</p> <p>Kroonpick O<sup>18</sup> Profiles n.d.</p> <p>Francois Data: O<sup>18</sup> n.d.</p> <p>“Cruise Report SONNE 65-Midplate II Hotspot Volcanism in the Central South Pacific,” 1989</p> <p>“Notice Explicative sur la Feuille Hualtine,” 1965</p>
10	<p>PASC 03 WT Archive, SWATH #16, Begin: 1331Z/21 March 1983 End: 0130Z/23 March 1983</p> <p>Oil Well, Brines, 1947-1966</p> <p>M.S. Graphs 1973-76</p> <p>Expedition 1974-77</p> <p>Vulcan, TP1S, CH<sub>4</sub>, 1981</p> <p>Certificates and Data, 1987-97</p> <p>Pluto: He Data 1983</p> <p>He<sup>3</sup>:pluto (Vulcan) 1980-81</p> <p>Vulcan: CH<sub>4</sub> USD and He<sup>3</sup> 1988</p>
11	<p>Spanish Documents, data, 1979-88</p> <p>Vulcan Data Lists, He<sup>3</sup> and TS, 1986</p>



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11	<p>IND OC RS Brines, He<sup>3</sup> Program, 1988</p> <p>Mariana Trough, CE23, He<sup>3</sup> Data and CH<sub>4</sub>, 1983</p> <p>PASCUA: CH<sub>4</sub>, He<sup>3</sup> Plots, Final Data, (KK), 1983</p> <p>Bonin Trough, 1984-1996</p> <p>Marianas: Data, Horibe Samples 1983</p> <p>Marianas: Data Plots and Hydro Data, CH<sub>4</sub> and He, 1983-1996</p> <p>Data Reports, Charts, Graphs for Expeditions, 1971-1988</p> <p>BASALT Samples, 1987</p> <p>Correspondence, Geological Data, 1989-1997</p> <p>Isotope Laboratory Collection, n.d.</p> <p>Antipode Miscellaneous, 1968</p> <p>“Physical and Chemical Data from the Scorpio Expedition in the South Pacific Ocean, 1967”</p> <p>Wiens Data Reductions, 1988-89</p>
12	<p>MSN Zetes NOVA Carr., Hydro Data, 1960-66</p> <p>“The Geothermal Characterization of Gases in the Deep Hole of the Siljan Ring Structure, Sweden...Final Reports-January 1989”</p> <p>Stan Hart’s Diary, 1967-1972</p> <p>Papatua Expedition, Legs V and VI, Feb. 1, 1986-March 15, 1986; “Studies of Methane and Helium in Hydrothermal Vent Plumes, Spreading-Axis Basalt and Volcanic Islands Lavas and Gases in Southwest Pacific Marginal Basins, May 26, 1987”</p> <p>Papatua 5,6 RPT, 1986</p> <p>Expedition Report, n.d.</p> <p>SIO References Series, [Papatua Expedition Legs V and VI, n.d.]</p>

<b>BOX</b>	<b>FOLDER TITLE</b>
12	<p>Papatua Expedition Legs V and VI, March 1986</p> <p>Papatua Legs V and VI, Correspondence with Foreign Governments and with Foreign Participants, 1985-86</p> <p>Papatua Schedules, 1985</p> <p>Mauns Basin Charts, Distribution List, n.d.</p> <p>Papatua Expedition Reports, Legs V and VI, H. Craig, 1986</p>
13	<p>“Informal Report and Index of Navigation, Depth, Magnetic and Subbottom Profiler Data, Issues June 1986”</p> <p>PPT 5, Lau Basin, 1986-87</p> <p>PPT 6.9, Manus Basin, 1983-89</p> <p>Data Report, Papatua Expedition, Legs V and VI, Feb. 1, 1986-March 15, 1986, June 1987</p> <p>Articles, 1960s</p> <p>A Marine Geological and Geophysical Survey of the Northern Tonga Ridge and Adjacent Lau Basin, 1985</p> <p>Pascua Data, etc. 1983</p> <p>Data, no name, n.d.</p> <p>Papatua Data, Legs 5 and 6, 1987</p> <p>Journals, Photocopies of Articles, 1970s</p>
14	<p>Dredges, PPTU 5 and 6, 1986</p> <p>Data, 1986</p> <p>PPT Data, 1986</p> <p>Photocopies of Articles, 1951-1976</p> <p>Correspondence 1985-86</p>

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14	Articles, Data, 1980s  Papatua Report, Original 1986-87  Data Report, Charts, 1975-86  MS 677, 1980s  Angus Plots, April 1987  Alvin, Mariana, Refs-Reports, 1978-87
15	Progress Reports on Various Projects, 1981-89  Alvin transcript [Dive 1979, n.d.]  Loihi, Alvin Loihi, Original Submission, Weather etc. 1982-83  Loihi Run 1, n.d.  Dive Records, Charts, n.d.  Benthic Expedition, Legs 1-3, 1982  Expedition Data, 1987  Methane Analysis, May 1, 1986  Dive Data, 1987  Charts, Graphs, n.d.
16	Alvin Dives, Mariana Trough, 1987-88  Alvin Loihi, 1987  (3) AII 118 Leg 13 Guam-Saipan, ACNAVP, Printed O/P, Book 1 of 2, April 6-9, 1987, Angus #279, 280, 281, 282 (Abort), Net Crunch, Origin Crunch  (2) AII 118 Leg 13, Guam-Saipan, ACNAVP, Printed O/P Book 2 of 2, April 10-15, 1987, Angus #283-Angus #288
17	AII 118 Leg 13, Guam-Saipan, ACNAVP, Printed O/P Book 2 of 2, April 10-15, 1987, Angus #283-Angus #288

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17	<p>H. Craig, Navigation/Net, 1984</p> <p>13 Degrees North, Gas Extraction line, April-May 1984</p> <p>Miscellaneous Documents, 1980s</p> <p>Mariana Proposal Notes, 1980s</p> <p>Mariana: Other Proposals, 1983-85</p> <p>Miscellaneous Faxes, Reports, Data, Charts, 1986-89</p> <p>Mariana Rocks, 1989</p>
18	<p>Mariana Gas Chemicals, 1987-89</p> <p><math>^{13}\text{C}</math> and <math>\text{O}^{18}</math> Marianas, 1988-89</p> <p>Dive 1800 Data, 1987</p> <p>Dive 1799 Data, 1987</p> <p>Dive 1798 Data, 1987</p> <p>Dive 1797 Data, 1987</p> <p>Dive 1796 Data, 1987</p> <p>Earthquake Maps, Oct. 1967</p> <p>Earthquake Field Manual, Oct. 1976, Lab Copy</p> <p>Technical Report #1, Investigation of Radon and Helium as Possible Fluid Phase Precursors to Earthquakes, SIO Ref. No. 75-15, HC Marked Copy with <math>\frac{3}{4}</math> Data, March 1975</p> <p>Appendix III, Locations and Sketch Maps, n.d.</p> <p>Data-"Radon in the Liquid Phase," Sep. 29, 1976</p> <p>Technical Report #2, Investigation of Radon and Helium as possible Fluid Phase Precursors to Earthquakes, SIO Ref. No. 75-23, Aug. 1975</p>

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Technical report #3, Investigation of Radon and Helium as possible Fluid Phase Precursors to Earthquakes, SIO Ref No. 75-35, Dec. 1975

Technical Report #4, Investigation of Radon and Helium as possible fluid phase precursors to earthquakes, SIO Ref No. 76-9, May 1976

Technical Report #5, Investigations of Radon and Helium as Possible Fluid Phase Precursors to Earthquakes, SIO Ref No. 76-15, Oct. 1976

Technical Report #6, Investigation of Radon and Helium as Possible Fluid Phase Precursors to Earthquakes; Technical Report #1, Additional Task: Radon, Helium, and Geochemical Monitoring of the Palmdale Uplift, SIO Ref No. 77-6, April 1977

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Technical Report #7, Investigation of Radon and Helium as Possible Fluid Phase Precursors to Earthquakes; Technical Report #2, Additional Task: Radon, Helium, and Geochemical Monitoring of the Palmdale Uplift (Final Report) SIO Ref No. 77-21, Oct. 1977

Technical Report #8, Investigation of Radon and Helium as Possible Fluid Phase Precursors to Earthquakes, SIO Ref. No. 78-11, April 1978

Technical Report #9, Investigation of Radon and Helium as Possible Fluid Phase Precursors to Earthquakes, SIO Ref No. 78-29, Oct. 1978

Technical Report #10, Investigation of Radon and Helium as Possible Fluid Phase Precursors to Earthquakes, SIO Ref No. 79-10, April 1979

Technical Report #11, Investigation of Radon and Helium as Possible Fluid Phase Precursors to Earthquakes, SIO Ref No. 79-31, Dec. 1979

Technical Report #12, Investigation of Radon and Helium as Possible Fluid Phase Precursors to Earthquakes, SIO Ref No. 80-8, May 1980

Technical Report #13, Investigation of Radon and Helium as Possible Fluid Phase Precursors to Earthquakes, SIO Ref No. 80-40, Dec. 1980

Technical Report #14, Investigation of Radon and Helium as Possible Fluid Phase Precursors to Earthquakes, SIO Ref No. 81-11, April 1981

Technical Report #15, Investigation of Radon and Helium as Possible Fluid Phase Precursors to Earthquakes, SIO Ref No. 81-37, Oct. 1981

Technical Report #16, Investigation of Radon and Helium as Possible Fluid Phase Precursors to Earthquakes, SIO Ref No. 82-12, May 1982

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19	<p>Technical report #17, Investigation of Radon and Helium as possible Fluid Phase Precursors to Earthquakes, SIO Ref No. 82-26, Nov. 1982</p> <p>Technical Report #18, Investigation of Radon and Helium as possible fluid phase precursors to earthquakes, SIO Ref No. 83-21, Oct. 1983</p> <p>USA Calif. "A Reservoir Assessment of the Geysers Geothermal Field, 1981"</p> <p>Kenya-Olcaria, n.d.</p> <p>Tanzania Collections, 1987</p>
20	<p>Ethiopia, (U.N.), 1973</p> <p>Reference for Worldwide Geothermal Studies, 1965</p> <p>Dead Sea Gases, 1984</p> <p>China Radon Studies, 1976</p> <p>Use: Data Programs, 1989</p> <p>Zetes Expedition Specimen Record, 1950</p> <p>Zn Data, Deuterium runs, Recalculated, Old Analysis and KIOA Evaluations, n.d.</p> <p>Steamboat Springs Contents, 1953</p> <p>Hydrogen Analyses, 1955-58</p> <p>Standards and Checks Summary, n.d.</p> <p>pH Data and HCO<sub>3</sub> Analysis, Chicago Lab, pH Measurements (Hot Springs) and Volume Measurements on CO<sub>2</sub> from waters, 1950s</p> <p>D/H Standards, n.d.</p>
21	<p>Y. Horibe, 1963</p> <p>Instrumentation Vacuum Systems Calibrations (Dowd), N<sub>2</sub>O Geochemistry (Experimental Technique No. 1) Nov. 9, 1962-Aug. 1968</p> <p>Isotope Lab/SIO, Krypton 81 Extraction 1993</p>

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21	Book II, Don Burtner, Methane (CH <sub>4</sub> ) and Trace Gases in Ice, 1987  Kurt Kyser, H <sub>2</sub> S-CO <sub>2</sub> , n.d.
L	“Geological-Geothermal Report on the Central Part of the Ethiopian Rift Valley” by GM Di Paola, 1970
L	Zetes VII 24 July 1966-7 Aug. 1966
22	Corrected Hydrogen Results, From Run #1500-2693, 1950s  La Jolla Rain Samples, 1958 (and snow samples)  NOVA 1967 V-1,2,3, Station II, Traces before V-1, Leg III  NOVA Leg III, End of Leg III, July 8, 1967, Finished V-28  Argo-NOVA, Leg III, Sep. 18, 1967  BERN 1968 Roll 1  BERN 1968 Roll 2  General Instruments, 1968  Sniffer V, May 1986, Helium Leak Detector  New Geothermal Extraction Line, Feb. 9, 1982-March 22, 1985 (Book II)
23	Book III, Geothermal Extraction Line, March 28, 1985-Nov. 2, 1996  Book III, Ellen Linck, N <sub>2</sub> O/CO <sub>2</sub> , May 19, 1976  Carousel, etc. Atmospheric Geochemistry Sample Collection Data, Book II, Dowd, May 20, 1964  CO <sub>2</sub> -N <sub>2</sub> O Extractions from Flask Samples, Project CO <sub>2</sub> -Isotope Extract Aug. 1961-Aug. 1966  Ethiopia, Helium Sniffer, 1976  Daria Alexandria Rothe, Book II, Feb. 29, 1960-May 10, 1960 (Only HC Knows what this is)

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23	<p>Atmospheric Nitrous Oxide, William L. Dowd, 1960s</p> <p>Rolodex Entries, 2001</p> <p>“Results of 1969 GEOSECS Volume 75, #36, 1970,” (Geochemical Ocean Selections), charts</p> <p>GEOSECS n.d.</p>
24	<p>H. Craig, R/V Melville, 1977</p> <p>Notebook with GEOSECS and Helium Data, n.d.</p> <p>GEOSECS Atmospheric Samples, Sample Log, n.d.</p> <p>Leg IV, GEOSECS Pacific Expedition, 1973</p> <p>GEOSECS Pacific Expedition, Underway Log Sheets Leg 5 (=E) 1973</p> <p>GEOSECS Pacific Expedition, Underway Log Sheets, Leg 6(=F) 1974</p> <p>GEOSECS Pacific Expedition Underway Log Sheets, Leg 3(=C), 1973</p>
25	<p>GEOSECS Communications, R/V Knorr, 1972-73</p> <p>GEOSECS II, C<sup>14</sup> 1971-72</p> <p>(Micah) GEOSECS: Indian Ocean, Red Sea, Gulf of Aden, Stations 405-413 and 428 (inter Calibrations), 1961-84</p> <p>GEOSECS Gulf of Aden, Stations 409-413, 1985</p> <p>GEOSECS, Pacific, 1974-85</p> <p>Correspondence, Data Reports, 1980</p> <p>GEOSECS C<sup>13</sup> ECO<sub>2</sub>, 1975-78</p> <p>Letters: PK (Peter Kroopnick, 1979-80)</p> <p>PK: C<sup>13</sup> Measurements (Correspondence, Reports, 1979-80)</p> <p>Article, “GEOSECS is like the Yankees: Everybody hates it and it always wins,” 1978</p>



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25	Book: "Results from 1976-79, GEOSECS (Reprinted) from Earth and Planetary Science Letters, Volume 49, 1980"  Alvin Dives, Computer Printed Data, n.d., Folder 1 of 20
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29	Folder 18 of 20  Folders 19, 20 of 20  EPR Data, Alvin Dives, Nov. 1979  GEOSECS Atlantic Expedition, 1972-73

