

SMC 80

Accession No.: 2000-01

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Willoughby, David Franklin, 1946-

David F. Willoughby slides, 1973-1990

Physical Description: ca. 250 color 35mm slides, in one half archives box

Arrangement of Collection: numerical by slide number

Description: Approximately 250 color 35mm slides taken during the period 1973-1990 depicting oceanographic work at sea and experiments conducted by scientists at Scripps Institution of Oceanography. Almost all images were taken by David F. Willoughby, an engineer at SIO's Institute of Geophysics and Planetary Physics. The collection includes four images of Willoughby taken by Janice Allan. Willoughby created a list of slide captions arranged by slide number, including the date and subject of each slide, the names of vessels and/or experiments, the names of individuals in each image, and other identifying information. Willoughby selected these images from all of his slides of work at sea as his best images, and prepared the list of captions at the request of the SIO Archives.

The slides include many images of Leroy M. Dorman, Robert D. Moore, John A. Orcutt, William A. Prothero and their projects including the digital ocean-bottom seismometer (OSB) project. Many other scientists, technicians, seamen, and graduate students include: Albert Arsenault, Dave Berliner, Fred Boatright, L. Dale Biebee, John Boaz, D.E. 'Tony' Boegeman, Mark Burnett, Karen Chass, Garret Coleman, Robert Dietrich, Marv Elston, Jan Garmany, Robert B. Haines, Marilee Henry, Crispin Hollingshead, Randy Jacobson, Jeff Johnson, Tom Jordan, Warren Keith, Isaac Kim, Curtis D. Johnson, Hadley Johnson, Steve Johnson, James S. McClain, Kenneth C. MacDonald, Marcia McNutt, Deni Williams Menegus, Henry William Menard, Seth Mogk, R.C. Newbegin, Dale Newhouse, Al Pelz, Alan Phinney, Russell W. Raitt, Ian Reid, Mark A. Riedesel, Allen W. Sauter, Peter Shearer, George G. Shor, Fred N. Spiess, Paul Spudich, Keith Sverdrup, M.I. 'Maja' Tolstoy, Robert C. Wilson, Steve Zeilikovitz, and Louis Zimm.

The slides include images of vessels including R/V Alexander Agassiz, ALVIN, R/V Ellen B. Scripps, R/V Endeavor, D/V Glomar Challenger, R/V Melville, R/V Thomas Washington, R/V Wecoma. The slides include images documenting the LONGLINES refraction seismology experiment of 1977, ROSE experiment of 1979, MAGMA, SAMSON and VENT experiments in 1980, and NGENDEI experiment in 1983. The images were taken on many expeditions including TEBLORES, SIQUEROS Expedition (1974), FDRAKE77 (1977) WELCO77 (1977).

David Franklin Willoughby was hired as a technician for William A. Prothero's ocean bottom seismology project at the Institute for Geophysics and Planetary Physics at Scripps Institution of Oceanography in 1972. He was promoted to engineer in 1976.

The following persons appear repeatedly in the slides, so context is presented here for reference, rather than with each slide:

Leroy M. Dorman: Along with Orcutt, principal Investigator responsible for digital ocean-bottom seismometer (OBS) project after departure of Prothero (see below).

Robt. D. Moore: Held research position at IGPP until 1972. Assumed responsibilities of Chief Engineer for digital OBS project at GRD in July 1976. Developed first microprocessor-based Scripps OBS.

John A. Orcutt: Principal Investigator responsible for IGPP OBS project since 1989.

William A. Prothero: As Research Associate, assumed responsibility for projects of Robert D. Moore at IGPP in 1972. Developed digital recording OBS at IGPP starting in late 1972. Left SIO for Professorship at UC Santa Barbara in July 1976.

David F. Willoughby (Photographer): Hired as technician for Prothero's OBS project, 1972. Promoted to Engineer, 1976. Assumed responsibilities of Chief Engineer for OBS project upon Moore's departure in 1984.

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**David Franklin Willoughby Photographs, 1973-1990**  
**Accession Number 2000-01**

<b>Number</b>	<b>Slide Caption</b>
	<b>SHEET 0. Slides submitted to NSF for their use via J. Duermeyer, Director's Office, in 1994</b>
011	The late afternoon sun reflects off the Pacific as the R/V Ellen B. Scripps returns to San Diego after an instrument test cruise in 1973. An extra anchor for the geophysical survey instrument Cindhi remains on the fantail.
012	Scripps microprocessor-based OBS Phred resting on the seafloor along the East Pacific Rise at 21deg North during the RISE experiment in 1979. Photograph taken by John Orcutt from the Woods Hole submersible Alvin
014	The Deep Sea Drilling Project's R/V Glomar Challenger viewed from the deck of R/V Melville at dawn during the NGENDEI experiment in 1983. The purpose of this experiment was to deploy a seismograph in an ocean bottom borehole drilled by the Challenger.
	<b>SHEETS 1-2. Portraits of John Orcutt</b>
111	Thos. H. Jordan, John Orcutt and Henry William Menard aboard R/V Melville during the NGENDEI experiment in the South Pacific, 1983.
112	Orcutt, August 1980
113	Orcutt aboard R/V Melville, 1982
114	Orcutt (then a graduate student) at sea in 1974.
121	Orcutt, climbing out of the ocean after a swim call during the WELOC77 expedition aboard Oregon State University's R/V Wecoma, March 1977.
122	Orcutt with one of the digital OBS's developed by Prothero aboard R/V Thomas Washington, 1976.
123	Orcutt in Scripps OBS group's portable laboratory, 1977
124	Orcutt in Scripps OBS group's portable laboratory, 1976
131	Orcutt strolling down a pier in Panama prior to WELOC expedition, March 1977.
132	Orcutt in Scripps OBS group's portable laboratory during SAMSON experiment aboard Univ. of Rhode Island's R/V Endeavour, 1990

- 133 Orcutt, 1980
- 134 Orcutt with Robert Dietrich, aboard R/V Thomas Washington on SIQUEROS expedition, 1974, when both were Scripps graduate students.
- 141 Orcutt inspecting an o-ring used in sealing underwater instruments in Scripps OBS group's portable laboratory, March 1977
- 142 Orcutt during deck operations at sea, 1990.
- 143 Orcutt and Kenneth C. MacDonald served as Co-Chief Scientists for the MAGMA Experiment, July, 1980
- 144 Orcutt and MacDonald examine charts while directing the Magma Experiment.
- 151 Orcutt and L. Dale Bibee playing cards aboard Oregon State University's R/V Wecoma during WELOC77 experiment, March 1977.
- 152 Orcutt operates a "Daybrook" crane used for deck operations aboard the R/V Melville during the Vent experiment, June 1982.
- 153 Orcutt during a quiet moment, February 1976.
- 154 Orcutt (center) examining plots of OBS data with students L. Dale Bibee and Paul Spudich in the Scripps OBS group's portable laboratory in 1976.
- 211 Orcutt in Scripps OBS group's portable laboratory, 1976.
- 212 Orcutt about to hose down the photographer aboard R/V Melville, 1980.
- 213 Orcutt in Scripps OBS group's portable laboratory after the air conditioning failed during the NGENDEI experiment, March 1983.
- 214 Orcutt, climbing out of the ocean after a swim call during the WELOC77 expedition aboard Oregon State University's R/V Wecoma, March 1977.
- 221 Orcutt rigging a "Daybrook" crane used for deck operations aboard the R/V Melville during the Vent experiment, June 1982.
- 222 Orcutt rides an OBS (actually he's sitting on it to apply additional pressure to help it seal) in the Scripps OBS group's portable laboratory, 1976.
- 223 Engineer David Willoughby (left) with Orcutt in Scripps OBS group's portable laboratory in 1977. John is wearing headphones that make it easier to hear acoustic signals from instruments on the ocean bottom. Photo by Janice Allan.

- 224 Orcutt at sea, 1980.
- 231 Orcutt rides an OBS (see 222).
- 232 Orcutt watching the wake of the R/V Melville, 1975.
- 233 Student Mark A. Riedesel with Orcutt aboard R/V Melville, 1980.
- 241 Orcutt rides an OBS (see 222).
- 242 Student Peter Shearer photographing the photographer while Orcutt looks on, 1980.
- 243 Orcutt listening for an acoustic reply from an instrument in the OBS group's portable laboratory, February, 1976.
- 244 Precision machining at sea! Orcutt operates the drill motor while Leroy Dorman checks the alignment. Drilling mounting holes in an OBS frame aboard R/V Thomas Washington, February 1976.
- 251 Look out, Paul! Orcutt has the hose aimed at graduate student Paul Spudich. R/V Thomas Washington, February 1976.
- 252 Orcutt chatting with development technician Conrad Young (center). Identity of third person at right unknown. TEBLORES expedition, R/V Melville, June 1975.

### **SHEET 3. Assorted cruises with Scripps OBS group**

- 311 Chief Mate Al Pelz and Boatswain Whitey?? lifting an OBS from the cart on which it was rolled out of the portable laboratory aboard the R/V Alexander Aggasiz, March 1975.
- 312 Chief Mate Pelz directs the deployment of the OBS, with assistance from volunteer John Rotsart (bottom) and an unidentified volunteer handling tag lines. (see 311)
- 313 The OBS goes over the side. (see 311)
- 321 Personnel gather around a University of Washington OBS during the LONGLINES refraction seismology experiment, 1977. From left, student Randy Jacobson, Resident Marine Technician Robert C. Wilson, Brian Lewis of the Univ. of Washington and Washington technician Mike (?).

- 322 Preparing to deploy a Univ. of Washington OBS during LONG LINES. Left to right, Brian Lewis, Scripps Resident Technician Bob Wilson, Scripps OBS engineer David Willoughby (with red visor). Others unidentified. A Scripps digital OBS is at right. Photo by Janice Allan. (see 321)
- 323 Deployment of a Scripps OBS during LONGLINES. Engineer David Willoughby operating crane, student Marilee Henry handling tag line. Others unidentified. Photo by Janice Allan. (see 321)
- 324 Putting the crane away after the OBS deployment (see 323).
- 331 Engineer David Willoughby takes a break from serving as crane operator, while Resident Marine Technician Bob Wilson and John Orcutt assemble an explosives shot made up of three barrels of Tovex in the background. LONGLINES Experiment, 1977. Photo by Janice Allan.
- 332 Resident Technician Bob Wilson, Seaman Tony?, John Orcutt, Chief Scientist Leroy Dorman and computer engineer Mike Moore confer while constructing another shot of Tovex. LONGLINES Experiment, 1977.
- 341 John Orcutt and technician Fred Boatright chat while engineer Dave Berliner and Marcia McNutt prepare a small explosives shot of Tovex on the shooting table during the WELOC77 experiment aboard the Univ. of Oregon's R/V Wecoma, 1977.
- 342 Steve Johnson of Oregon State University and Scripps student Jeff Johnson manage data recording during the WELOC77 experiment.
- 351 Leroy Dorman observes while student Marilee Henry operates the data recording system aboard USNS DeSteiguer during the ROSE experiment, January 1979. An unidentified technician from U.C. Santa Barbara and Scripps engineer Dave Berliner are at right.
- 352 Students Marilee Henry and Steve Zeilikovitz recording shot information in the lab of the USNS DeSteiguer during the ROSE experiment. An unidentified technician from U.C. Santa Barbara is in the background.
- 353 Scripps OBSs aboard USNS DeSteiguer during the ROSE experiment, 1979. Leroy Dorman (left) and Bob Moore handle tag lines.

#### **SHEET 4. Scripps OBS group office staff and gatherings**

- 411 Scripps OBS group Administrative Assistant (1976-1983) Karen Chass, ca. 1980
- 421 Karen Chass at her desk

- 422 Karen really did not like being photographed.
- 431 William A. Prothero (center) with IGPP Administrative Assistant Deni Williams (later Deni Menegus) ca. 1975.
- 432 Lynn Williams, who worked part-time as a secretary for the OBS group, in 1980. She became the Administrative Assistant responsible for Personnel and Payroll at IGPP.
- 433 Lynn Williams.
- 441 A party with the Scripps OBS group in April, 1977, at the home of photographer David Willoughby. Clockwise from lower left: Bob Moore (sitting), Graduate student Paul Spudich (standing), unidentified woman, Leroy Dorman, Sharyn Orcutt, Inez Dorman, John Orcutt.
- 442 More from the party. Left to right: Administrative Asst. Karen Chass, Paul Spudich, unidentified woman, Leroy Dorman, Sharyn Orcutt.
- 443 More from the party. Personnel as above, with Kathy McDonald (later Mrs. Duncan Agnew) and Ken MacDonald at right.
- 444 Two cakes for the party, one made to look as much like a Scripps Ocean Bottom Seismometer as a cake can.
- 451 Administrative Asst. Karen Chass and graduate student Paul Spudich at the party.

#### **SHEET 5. Portraits of Robert D. Moore**

- 511 In the lab in Ritter Hall in 1977
- 512 In the OBS group's portable laboratory, after being awakened in the wee hours of the morning to solve a technical problem, 1979.
- 513 Same as 512.
- 514 Aboard R/V Melville during the VENT experiment, 1980
- 521 Aboard the USNS De Steiguer during the ROSE Experiment, January-February 1979.
- 522 Same as 521.
- 523 Ready to go on deck in inclement weather.

- 524 In the La Paz, B.C., Mexico airport, returning from a cruise. Student Mark Riedesel is taking a nap on the floor in the foreground.
- 531 Aboard the USNS De Steiguer during the ROSE Experiment, January-February 1979, with two unidentified crew members.
- 532 Swim call during the MAGMA Experiment aboard R/V Melville, 1980.
- 533 Relaxing at a party aboard R/V Melville in Papeete, Tahiti, at the conclusion of the NGENDEI experiment, March 1983.
- 534 Taking a smoke break aboard R/V Melville during the VENT Experiment, 1980.
- 541 During the party aboard R/V Melville in Papeete, Tahiti, at the conclusion of the NGENDEI experiment (see 533).

#### **SHEET 6. Portraits of Leroy M. Dorman and other OBS group personnel**

- 611 Leroy M. Dorman, at sea, Fall 1977.
- 612 Dorman in the ocean at a swim call during the WELOC77 expedition aboard Oregon State University's R/V Wecoma, March 1977.
- 613 Leroy M. Dorman, at sea, March 1976.
- 614 Dorman at Nimitz Marine Facility, preparing to board R/V Thomas Washington to depart on the SIQUEROS Expedition, July 1974. At the far left is Chief Resident Marine Technician Jim Coatsworth, then, left to right, John Orcutt and a research assistant from the University of Washington.
- 621 Dorman ponders the next step in conducting an OBS refraction experiment, while at sea, March 1977.
- 622 Dorman at sea during the SIQUEROS Expedition, July 1974.
- 623 Research Assistant Technician Fred Boatright polishes the surface of a connector seal on a Scripps OBS while Dorman observes and inspects. January, 1980.
- 624 Dorman at sea aboard R/V Thomas Washington, November 1977.
- 631 Dorman and graduate student Paul Spudich scan the horizon for an instrument from the bridge wing of R/V Thomas Washington, January 1976.
- 632 Technician Fred Boatright and graduate student Allan W. Sauter in July 1981. Sauter serves as the chief engineer for Dorman's ONR OBS program.



633. Dorman on the deck of the Thomas Washington, April 1981.
- 634 Technician Dave Weeks rigging a small crane for an OBS deployment, July 1982
- 641 OBS engineer David Willoughby prepared to recover an OBS at sea. Photo by Janice Allan.
- 642 OBS engineer David Willoughby prepared to recover an OBS at sea in the rain. Photo by Janice Allan.
- SHEETS 7-8. Various Scripps faculty and staff members**
- 711 Russell W. Raitt on the fantail of the R/V Thomas Washington, SIQUEROS expedition, July, 1974.
- 712 Russ Raitt, as above.
- 713 George G. Shor aboard R/V Thomas Washington, October 1978.
- 714 George G. Shor (left) and Resident Marine Technician Robert C. Wilson (right) aboard R/V Thomas Washington, October 1978.
- 721 Fred N. Spiess aboard R/V Melville, FDRAKE77 expedition, July, 1977.
- 722 Fred N. Spiess catching a rare moment of rest aboard R/V Melville, July, 1977.
- 723 D.E. "Tony" Boegeman, long time Deep Tow Chief Engineer, putting tension on the winch wire, aboard R/V Melville, July, 1977.
724. Left-to-right, graduate student Jeff Johnson and Leroy Dorman and John Orcutt at the Panama railroad station, March 1977.
731. Graduate student Marcia McNutt serving as explosives shooter for a refraction survey. WELOC77 expedition aboard Oregon State University's R/V Wecoma, March 1977.
- 751 Dale Newhouse preparing a large shot of explosives for a refraction survey aboard R/V Thomas Washington, 1981.
- 752 Marv Elston, Shipboard Computer Engineer, in the OBS lab in 1977.
- 811 George Hammond, Nimitz Marine Facilities shop foreman, operating a crane loading equipment aboard ship, January 1980.
- 821 Resident Marine Technician Robert C. Wilson deploying a 600-pound shot of Tovex explosives for a long-distance refraction survey aboard R/V Thomas

Washington in 1981. These shots consisted of 6 barrels of Tovex each. Here, Bob is signaling the crane to lift the palette that will dump the shot over the fantail into the ships wake. At this point, the fuse has been lit.

822 Resident Marine Technician Bob Wilson preparing one of the shots described above.

823 Bob Wilson deploying another large Tovex shot (see 821).

824 Resident Marine Technician Robert C. Wilson aboard R/V Melville during the NGENDEI expedition, March 1983.

831 Resident Marine Technician Seth Mogk, April 1990.

832 Resident Marine Technician John Boaz aboard R/V Thomas Washington

834 One of the 600-pound Tovex shots described above (see 821).

841 Resident marine technician Warren Keith operating the crane aboard R/V Melville, August 1980.

842 Resident marine technician Warren Keith deploying a 120-pound Tovex shot for a refraction survey aboard R/V Ellen B. Scripps off the Northern California coast in June 1976.

843 Warren Keith preparing the shot described above (see 842).

844 Warren Keith, aboard R/V Thomas Washington, January 1976.

### **SHEET 9. Scripps graduate students**

911 Isaac Kim, geophysics student. Isaac is wearing the commemorative shirt from the NGENDEI experiment

912 Isaac Kim aboard R/V Melville during the NGENDEI experiment, March 1983.

913 M. I. "Maya" Tolstoy, geophysics student, aboard R/V Thomas Washington, April 1990.

914 Allan W. Sauter, applied ocean science student, preparing balloon floats for refraction survey shots aboard R/V Melville, July, 1982.

921 Ian Reid, geophysics student, 1974.

922 Michael Reichle, geophysics student, 1974.

923 Robert Deitrich, geophysics student, aboard R/V Thomas Washington during the SIQUEROS expedition, July 1974.

**SHEET 9. Scripps graduate students (continued)**

924 Steve Zeilikovitz, applied ocean science student, aboard R/V Ellen B. Scripps in June 1976.

931 Paul Spudich, geophysics student, with a snack from the galley, February 1976.

932 Paul Spudich relaxing in a deck chair aboard R/V Thomas Washington, 1976.

933 Paul Spudich enjoying a morning cup of coffee, sitting on the capstan of R/V Thomas Washington. SIQUEROS expedition, July 1974.

934 Paul Spudich enjoying a late-night snack of kippers and Oly, January 1976. At that time, vending machines aboard the Melville and Washington dispensed beer.

941 Marcia McNutt, geophysics student, at the shooting table aboard R/V Thomas Washington, February, 1976.

942 Bruce Rosendahl, examining seismic records aboard R/V Thomas Washington during the SIQUEROS experiment, July 1974.

944 Mark A. Riedesel, geophysics student, in the OBS groups portable laboratory, July 1982.

951 Mark Riedesel aboard USNS DeSteiguer during the ROSE experiment, January 1979.

952 Mark Riedesel aboard R/V Melville, July 1982

953-54 Mark Riedesel aboard USNS DeSteiguer during the ROSE experiment, January 1979.

**SHEET 10. Group shots at sea.**

1011 Graduate student Peter Shearer and an undergraduate from U.C. Davis aboard R/V Thomas Washington, 1985.

1012 Graduate students Mark Burnett and Peter Shearer after spending a night in hammocks on the flying bridge of the Thomas Washington during the NGENDEI experiment, February 1983.

1013 Burnett and Shearer, as above. In the background, left to right, Tom Jordan (standing), Isaac Kim (seated), unknown (with camera), John Orcutt, unknown.

- 1014 The "hot tub" on the Melville, filled with 80° tropical seawater. From the top, Resident Marine Technician John Boaz, Tom Jordan, John Orcutt. NGENDEI Experiment, February 1983.
- 1021 Graduate students Phil Hammer, Dalia Lahav and Mark Stevenson aboard the R/V Robert Gordon Sproul passing Point Loma, November 1987.
- 1022 Left-to-right: graduate student Paul Spudich, Resident Marine Technician Robert C. Wilson, graduate student Mark Riedesel, air gun engineer Perry Crampton, volunteer Jim Davidson aboard R/V Thomas Washington, July 1978.
- 1023 Left-to-right: resident technician Bob Wilson, graduate students Paul Spudich, Jan Garmany, Marcia McNutt aboard R/V Thomas Washington, February 1976.
- 1024 Left-to-right: unidentified, John Orcutt, graduate student Graham Kent, OBS engineer Crispin Hollinshead, graduate student Hadley Johnson, in the OBS group's portable laboratory, November, 1990.
- 1031 Preparing to leave Panama to begin the WELOC77 expedition aboard Oregon State University's R/V Wecoma, March 1977. Left-to-right: unidentified, OBS technician Fred Boatright, unidentified, John Orcutt, graduate students Jeff Johnson and Marcia McNutt.
- 1032 Recreation aboard the Wecoma. Left-to-right: John Orcutt, graduate students L. Dale Bibee, Marcia McNutt, and Jeff Johnson.

### **SHEET 11. Miscellaneous people**

- 1111 Left to right: Administrative assistant Deni Menegus, William A. Prothero, unidentified, graduate student Ian Reid, technician Mark Hernandez, at a party at IGPP in 1975.
- 1112 William A. Prothero in the OBS group's portable laboratory, June 1976.
- 1113 Graduate student Keith Sverdrup in 1989. Keith is a distant relative of the late Scripps Director Harald U. Sverdrup.
- 1114 Left-to-right: Ken MacDonald, Resident Marine Technician Warren Keith, volunteer Gwen Leister aboard the R/V Ellen B. Scripps.
- 1121 Ken MacDonald, asleep in his hotel room before a trip, 1977.
- 1122 Ken MacDonald, aboard the R/V Melville, FDRAKE77 expedition, July 1977.
- 1123 Ken Mac Donald in mid-sneeze, MAGMA expedition, 1980.

- 1124 Ken MacDonald aboard the R/V Melville, FDRAKE77 expedition, July 1977. at sea, no one really cares if your socks don't match.
- 1131-32 Ken MacDonald and OBS engineer David Willoughby, at a hotel in Mexico before the MAGMA II cruise, August, 1980.
- 1133-34 Ready to party! Ken MacDonald, August 1980.
- 1141 James S. McClain aboard R/V Thomas Washington, November 1985.
- 1142-43 McClain under a University of Washington Ocean Bottom Seismometer, trying to get the magnetic release to work. Aboard R/V Melville, MAGMA expedition, July 1980.
- 1151-52 Graduate student Hadley Johnson aboard the University of Rhode Island's R/V Endeavour during the SAMSON experiment, October, 1980.
- 1153-54 Graduate student Randy Jacobson in the OBS lab, June 1980.

#### **SHEET 12. SIO ships' crew members**

- 1211 Capt. R.C. Newbegin on the bridge of the R/V Ellen B. Scripps, July 1976.
- 1212 Dinner aboard the Ellen B. Scripps. Left-to-right: Ken MacDonald (barely visible), graduate student Steve Zeilikovitz, Capt. Newbegin ("Newby") and William A. Prothero.
- 1213 Capt. Albert Arsenault on the bridge wing of the R/V Thomas Washington, February 1976.
- 1214 Same as above, 1990. The person to his left is believed to be a Guatemalan ships' pilot.
- 1221 Capt. Garret W. Coleman on the bridge wing of the R/V Thomas Washington, SIQUEROS expedition, July 1974.
- 1222-23 Capt. Curtis D. Johnson on the bridge wing of the R/V Thomas Washington, November 1978.
- 1224 Capt. Robert B. Haines aboard R/V Thomas Washington, November 1977.
- 1231 Capt. Alan Phinney aboard R/V Melville, July 1980.
- 1232 Chief Engineer "Bob" Fish (right) with an unidentified crew member, aboard R/V Melville, April 1983.

- 1233 Engineer Bob Briggs aboard R/V Ellen B. Scripps, April 1974.
- 1234 Chief Engineer Gene Trease, looking out of the winch shack aboard R/V Thomas Washington, July 1974.
- 1241 Seaman "Bamboo."
- 1242 Left-to-right: Deck boss Elmer Kizer (in blue coveralls), Resident Marine Technician Bob Wilson, unidentified, Tom Jordan, John Orcutt, Capt. Robert B. Haines. Aboard R/V Melville during the NGENDEI experiment, March, 1983.
- 1243 Left-to-right: Unidentified crew member, Capt. Tom Beattie (now retired), Chief Mate Louis Zimm (now captain of the Sproul), Resident Technician Bob Wilson, unidentified. Dinner aboard the R/V Ellen B. Scripps, August, 1983.
- 1244 Chief Mate Louis Zimm and OBS group engineer Marty Vogel aboard R/V Ellen B. Scripps, August 1983.

#### **SHEETS 13-14. Operations on various cruises**

- 1311 NGENDEI Experiment. Named after a Polynesian God, the NGENDEI experiment was an attempt to deploy a borehole seismometer in the deep ocean. The borehole package was developed by private contractors for the Office of Naval Research. Scripps' OBS group participated by supplying its ocean bottom seismometers for comparison with the borehole signals. This photograph shows a group of scientists, technicians and students on the flying bridge of the R/V Melville, as the ship heads for the experiment site. The photos shown here were taken in January and February 1983.
- 1312 NGENDEI Experiment. This high-capacity winch was used to bring the borehole system data recording package up from the seafloor. A crew experienced in offshore oil operations performed the recovery operation. At left (in blue coveralls) is Deck Boss Elmer Kizer, who, incidentally, had previously served in the same capacity when a sunken Russian nuclear submarine was raised from the depths and taken aboard the Glomar Explorer.
- 1313 NGENDEI Experiment. The line used to haul the data recording package to the surface was fed into this open-topped 20' shipping container.
- 1314 NGENDEI Experiment. Winch operations continued 'round the clock for several days.
- 1321 NGENDEI Experiment. Left-to-right: Deck Boss Elmer Kizer, resident marine technician Bob Wilson and a marine technician from the Naval Oceanographic

Research and Development Activity, name unknown. The latter is attempting to grab a tangle in the wire rope connected to the recording package.

- 1322 NGENDEI Experiment. The data recording package is lifted up the stern ramp of the Melville.
- 1323 NGENDEI Experiment. A close-up of the data recording package. Unfortunately, this system failed, as the pressure case containing the batteries flooded with seawater soon after deployment.
- 1331 MAGMA Experiment. This was a seismic refraction experiment conducted in 1980, the purpose of which was to create a cross-sectional map of the magma chamber of an underwater volcano. Scientists, students and crew are shown along the fantail of R/V Melville just before departure from San Diego. Left-to-right: OBS technician Fred D. Boatright, graduate student Mark Riedesel, graduate student Randy Jacobson, John Orcutt, graduate student Jeff Park, Jim McClain, OBS engineer Dave Berliner, unknown.
- 1334 VENT Experiment. Another seismic refraction experiment, this time to determine the details of the structure around a group of seafloor plumes on the East Pacific Rise. Left to right: graduate student Kevin MacKenzie, OBS technician Tony Aja and volunteer Gwen Leister.
- 1341 VENT Experiment. Waiting for an acoustic release command to be acknowledged in the OBS group's portable lab. Left-to-right: graduate student Peter Shaw, OBS engineer Dave Berliner, graduate student Mark Riedesel, OBS technician Crispin Hollinshead (bending over), John Orcutt, OBS technician Dave Weeks.
- 1342 VENT Experiment. Deploying a Scripps ocean bottom seismometer, which has been rolled out of the portable laboratory on a small cart that runs on rails. Left-to-right: OBS technician Dave Weeks (partly hidden), OBS engineer Dave Berliner (operating crane), graduate student Kevin MacKenzie, John Orcutt, and graduate students Laura Stokking (foreground), Allan Sauter and Peter Shearer.
- 1343 VENT Experiment. Operations on various cruises. Recovering a Scripps OBS after it has released its anchor. On the left, Jim McClain tending a tag line, on the right OBS engineer Dave Berliner operating crane.
- 1344 VENT Experiment. Deploying the OBS. This scene immediately followed 1342. Same personnel.
- 1351 OBS engineer David Willoughby (left) and graduate student Jan Garmany (right) performing tests on one of Scripps first generation of ocean bottom seismographs, January 1976.

- 1352 Chief Mate Scotty Horn directs the ship's crane during an OBS deployment at night. John Orcutt is at bottom center; other person not identified. R/V Thomas Washington, January 1976.
- 1353 John Orcutt demonstrates the simplest method for deploying an instrument: cut the rope! R/V Thomas Washington, January 1976.
- 1411 SAMSON Experiment. A seismic noise survey off the Atlantic coast, from summer to fall 1990. Scripps' OBSs deployed from the University of Rhode Island's Endeavour. This photograph shows Scripps graduate students and staff in the OBS group's portable laboratory. Left-to-right: student Evan Newell, student Graham Kent, engineer Crispin Hollinshead, student Hadley Johnson.
- 1412 SAMSON. Cris Hollinshead and Hadley Johnson are preparing to swing a boom around and use the chain hoist to move an OBS outside from the portable lab.
- 1413 SAMSON. Preparing a line to attach the OBS to the ship's crane. Left-to-right: Evan Newell, Hadley Johnson, Maya Tolstoy.
- 1414 SAMSON. The OBS has been moved out of the portable lab onto the deck. Left-to-right: Evan Newell, Hadley Johnson, Maya Tolstoy. Maya is holding the clipboard with the deployment checklist.
- 1431 LONG LINES cruise, 1981. Preparing another large shot of Tovex for a refraction survey. Left-to-right: L. Dale Bibee, Leroy Dorman, OBS engineer Dave Berliner.
- 1432 MAGMA expedition group photo, 1986 aboard R/V Thomas Washington. Clockwise along the rail: SIO shipboard computer group programmer George Bouchard, SIO geological research specialist and curator of the geological archives, Stuart Smith, SIO shipboard computer group supervisor J. Linn Abbott, UC Davis undergraduate Ken Werner, SIO graduate students Isaac Kim and Mark Burnett, UC Davis undergraduate Peggy????, SIO graduate student Peter Shearer, resident marine technician Gene Pillard, UC Davis undergraduates Kevin ???? and Jim Dooher, UC Davis Professor Jim McClain, SIO OBS engineer David Willoughby, UC Davis staff member Mona Wright, resident marine technician John Boaz, UC Davis staff member Pat Winton, SIO OBS engineer Marty Vogel. At center: UC Davis undergraduate (?) and SIO graduate student Laura Stokking.
- 1433 The R/V Thomas Washington leaving a port stop in Agana, Guam, March 1981. At center: shooter Dale Newhouse, left, and Leroy Dorman, right. Others not identified.
- 1434 Working on a Scripps OBS in the portable lab, January 1976. Left-to-right: Tom Jordan, graduate students Paul Spudich and Jan Garmany.
- 1441 A gathering on the fantail of the Washington at sea, 1976. At left, top-to-bottom,



graduate students Jeff Johnson (white t-shirt), Marcia McNutt and Paul Spudich (back to camera.) At center: two crew members, not wearing shirts. At right, left to right, John Orcutt (back to camera), Leroy Dorman, technician Joe McKee, graduate student Jan Garmany.

- 1442 Along the fantail of the Washington at sunset, 1982. Left-to-right, computer technician George Bouchard, graduate students Mark Riedesel and Ken Craeger, resident marine technician Ron Comer, OBS engineer David Willoughby.
- 1443 Moving the cart back into the portable laboratory after an OBS deployment, February 1976. Left-to-right: OBS technician Crispin Hollinshead, graduate student Jan Garmany, resident marine technician Warren Keith, shooter Dale Newhouse.
- 1451 Swim call on the Thomas Washington, October 1987. Until a shark attack led to the prohibition of recreational swimming from UNOLS ships, a "swim call" was often arranged during long cruises if the schedule permitted. Here, a rope has been arranged for swinging off the fantail and diving into the ocean.
- 1452 Geological Research Specialist Stuart Smith dives the rope a try.
- 1453 After the swimming was over there was a "scientific party" on the fantail. Left-to-right: IGPP administrative assistant Judy Lancaster, graduate student Dave Caress, resident marine technician Gene Pillard, graduate students Mike Hedlin, Mary Kappus, Dalia Lahav, (person behind Dalia Lahav not identified), Mark Burnett and Isaac Kim.
- 1454 Same as above, except that John Orcutt is now second from right instead of student Mark Burnett.
- 1511 William A. Prothero with one of SIO's first digital recording ocean bottom seismographs, which he developed. Aboard R/V Ellen B. Scripps, July 1976.
- 1512 One of Scripps' first digital OBS's on the rail-mounted cart outside the portable laboratory, ready to be deployed. Aboard R/V Ellen B. Scripps, July 1976. Left-to-right: graduate students Ian Reid and Marilee Henry, William Prothero, resident marine technician Warren Keith.
- 1513 Ocean Bottom Seismographs "Doe" and "Gwen," side-by-side on deck.
- 1514 Two generations of Scripps' OBS's. The lighter orange instruments were the first digital OBSs, the larger, darker ones were the first to employ a microprocessor. The development of the microprocessor-based instruments was led by Bob Moore, sitting on the table in the background, wearing a purple shirt. Taken during the ROSE experiment, aboard USNS De Steiguer, January-February 1979.

- 1521 One of the first microprocessor-based OBSs. These were developed under an ONR contract, and two of the units were delivered to the Navy after completion. The one shown here is the US Naval Seismometer Hugo F. Bezdek, named after one of the Navy's contract monitors. In the background, left-to-right: engineer Dave Berliner and programmer Chen-Yin Huang, who were members of the team led by Bob Moore that developed the instruments.
- 1522 Two UC Santa Barbara staff members prepare one of their Ocean Bottom Seismographs. Scripps OBSs are in the foreground.
- 1531 A Scripps OBS on the cart behind the portable laboratory, which was a converted shipping container. Technicians Dave Weeks, left, and Dave Berliner, right, are steadying the instrument as it is lifted by the crane. Taken during the VENT experiment aboard R/V Melville, July 1982.
- 1533 VENT experiment aboard R/V Melville, July 1982. Scripps OBS's line the deck in the foreground, while the cook and a helper prepare for the weekly ships' barbecue in the background.
- 1541 The fantail of a research boat is usually cluttered with equipment, and the Thomas Washington was no exception. While John Orcutt (barely visible) and graduate student Paul Spudich rig an OBS for deployment, other look on. Left-to-right: resident marine technician Robert C. Wilson, air gun technician Roger Beatty, graduate student Marcia McNutt, 2 persons not identified, shipboard computer technician Mike Moore behind graduate student L. Dale Bibee (seated), cook Alex Velasco (behind crane). Unidentified University of Washington student on upper deck.

#### **SHEET 16. Ships.**

- 1611 R/V Thomas Washington at the Nimitz Marine Facilities pier, July 1974.
- 1612 With pipes hanging from the ceiling, the interior decor of the Washington was rather austere.
- 1613 View of R/V Thomas Washington from the tip of the forecastle, March 1976.
- 1614 The steering station on the R/V Thomas Washington, March 1976.
- 1621 R/V Melville at the pier in Papeete, Tahiti, March 1983.
- 1622 R/V Melville leaving San Diego harbor, in May 1986. Shot from the R/V Robert Gordon Sproul. The Melville sure could use fresh paint!
- 1623 R/V Melville, same as above, rear view.

- 1624 The controls for R/V Melville's unique original propulsion system, which consisted of two omnidirectional Voith-Schneider "cycloid" thrusters, one forward, one aft. The two joysticks used to control the thrusters undoubtedly perplexed more than a few of the harbor pilots who came aboard, as these systems were extremely rare on ocean-going ships. This propulsion system was never very reliable, and was completely replaced when the Melville was lengthened in 1980??
- 1631 R/V Ellen B. Scripps, foreground and R/V Melville on the other side of the Marine Facilities pier, January 1980. At the time, the R/V Ellen B. Scripps and the R/V Melville were Scripps' smallest and largest ships, respectively.
- 1632 R/V Ellen B. Scripps at the pier in Mexico, in 1974. A couple of Mexican students sent along as observers completely missed the little boat as they walked along the pier; later they said they had thought they were looking for something a bit bigger.
- 1633 Golden Gate Bridge as seen from the deck of R/V Ellen B. Scripps, June 1976.
- 1634 The interior of the R/V Ellen B. Scripps as seen through the only entry hatch. Graduate student Ian Reid is plotting a course by hand on the table in the "lab."
- 1641 This view shows almost the entire interior of the R/V Ellen B. Scripps: Lab table in the foreground; Galley and mess table in the background. There were also two 4-man staterooms for scientists, a common head (toilet, sink and shower), and sleeping space for the crew on the deck above.
- 1642 Meal time aboard the R/V Ellen B. Scripps. Left-to-right: Chief Mate Louis Zip, unknown crew member, resident technician Bob Wilson, another unidentified crew member.
- 1643 Gathered to watch TV in the galley after dinner. Left-to-right: graduate student Steve Zeilikovitz, volunteer Gwen Leister, William Prothero, graduate student Marilee Henry, Ken MacDonald.
- 1644 Same as 1643. Graduate student Ian Reid at right.
- 1651 Crew member trying to minimize seasickness, a common malady aboard the little R/V Ellen B. Scripps.
- 1652 Looking up the ladder from the galley to the wheelhouse on the R/V Ellen B. Scripps.
- 1653 A view of the R/V Ellen B. Scripps' wheelhouse. Seaman John Howe (?) at right.
- 1654 Volunteer Gwen Leister enjoying one of the few entertainment opportunities aboard the R/V Ellen B. Scripps.

- 1711 R/V Thomas Washington at the pier in San Jose, Guatemala, November 1987.
- 1712 A typical stateroom aboard the R/V Thomas Washington. Not fancy, to say the least! The photographers are staff volunteers Crispin Hollinshead and Gary Illig. Hollinshead was later hired as a technician, then became an engineer with the OBS group.
- 1713 The aft steering station on the R/V Thomas Washington.
- 1721 OBS engineer Crispin Hollinshead watches the sunrise from the visually cluttered fantail of the R/V Melville. NGENDEI experiment, February 1983.
- 1731 View from the fantail of the R/V Ellen B. Scripps leaving San Francisco harbor. One didn't have to go very far out to sea before the R/V Ellen B. Scripps started rolling.
- 1751 R/V New Horizon at the quay wall at Scripps' Nimitz Marine Facility.