CTO-72

1980 - 5

TETRA TECH

TC 3438
DECEMBER, 1980

Volume 3
DATA REPORT

SOUTHWEST FLORIDA SHELF CIRCULATION MODEL

PREPARED FOR:

NEW ENGLAND COASTAL ENGINEERS, INC.
BANGOR, MAINE

TC 3438

DECEMBER, 1980

DATA REPORT

SOUTHWEST FLORIDA SHELF CIRCULATION MODEL

PREPARED FOR:

NEW ENGLAND COASTAL ENGINEERS, INC.

BANGOR, MAINE

TABLE OF CONTENTS

I. INTRODUCTION

During the month of November 1980, Tetra Tech, Inc. attempted to identify in as much detail as possible the body of oceanographic and meteorological knowledge presently available in the Eastern Gulf of Mexico and specifically the Southwest Florida Shelf. This service was performed to assist New England Coastal Engineers, Inc. to

- acquire a more comprehensive understanding of circulation in the Eastern Gulf of Mexico,

- assemble a large body of data and related literature with which to tune the numerical circulation model and perform sensitivity analyses so that appropriate driving mechanisms and boundary conditions could be implemented,

- collect a subset of the entire data base for direct computer input to the numerical model, and

- identify deficiencies in the existing data base so that suggestions and recommendations for future data collection efforts can be made.

The delineation of the data base in the Southwest Florida Shelf and Eastern Gulf of Mexico was done entirely through telephone communication as was the collection of the more pertinent data presently available.

Section 2 of this report describes the methodology used in making telephone contacts and summarizes, in table form, the individuals contacted and the information which was provided. Section 3 consists of a summary, also in tabular form, of the data base which has been established as a result of the telephone communications and which indicates which data were obtained, the location of the data, the period during which it was collected, and the source from which it was received. A more comprehensive list of literature, felt to be relevant to this study, is provided in section 4 and a general evaluation of the data collection effort is given in Section 5.

II. SOURCES CONTACTED

The manner in which the data base was established was through telephone communications with individuals directly involved in the study of the Eastern Gulf of Mexico or individuals knowledgeable of available data, literature, or researchers studying the Eastern Gulf of Mexico. To ensure that many individuals would be contacted, at least two telephone calls were attempted. When a telephone contact was established and either future communication or delivery of literature or data was promised but was not delivered within a reasonable period of time, at least one follow-up telephone call was made to establish the cause for delay. An attempt was made to contact thirty-nine (39) individuals, sixteen (16) in federal agencies, seventeen (17) in universities, and six (6) in private industry or private institutions. Thirty-seven (37) of the thirty-nine (39) individuals were successfully contacted. The names of the thirty-nine (39) individuals, along with their professional affiliation, telephone number, and the information which they provided appear in alphabetical order in the tables which follow.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(1) Irving Brooks	Gulf Research & Development Company Houston Technical Services Center P.O. Box 36506 Houston, TX 77036	(713)754-5298	Irving Brooks (1979) "Fluctuations in the Transport of the Florida Currents at Periods Between Tidal and Two Weeks," Journal of Physical Oceanography, Volume 9, pp 1048-1053. Advised to obtain: I. Brooks and P. Niiler (1975) "The Florida Current at Key West: Summer 1972," Journal of Marine Research, Volume 33, pp 83-92. I. Brooks and P. Niiler (1977) "Energetics of the Florida Current," Journal of Marine Research, Volume 35, pp 163-191. Referred to P. Niiler and C. Mooers for Southwest Florida Shelf Data.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(2) Sheng Chao	Nova University Ocean Sciences Department Dania, FL 33004	(305)475-7487	Referred to Irving Brooks (presently at Gulf Oil Company) Phone No. (713)778-5298 Chao works on the east coast of Florida. He thought Brooks worked the Florida Straits and the Southwest Florida Shelf. He was unaware of any current data tapes which may have been stored at Nova Univ. which were obtained from fieldwork done in the Southwest Florida Shelf.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(3a) Frank Chew	Atlantic Oceanographic and Meteorological Labs/NOAA 15 Richenbacker Causeway Miami, FL 33149	(305)361-4359	Chew, Frank (Jan. 1974) "The Turning Process in Meandering Currents: A Case Study," Journal of Physical Oceanography, Vol. 4, No. 1, pp 27-57. Chew, Frank, K.L. Drennan and W.J. Demoran (April 1962) "Some Results of Drift Bottle Studies off the Mississippi Delta," Limnology and Oceanography, Vol. 7, No. 2, pp 252-257. Chew, Frank (Dec. 1955) "On the Offshore Circulation and a Convergence Mechanism in the Red Tide Region off the West Coast of Florida," Transactions of the American Geophysical Union, Vol. 36, No. 6, pp 963-974. Chew, Frank (Oct. 1956) "Discussion of 'On the Offshore Circulation and a Convergence Mechanism in the Red Tide Region off the West Coast of Florida'," Transactions of the American Geophysical Union, Vol. 37, No. 5, pp 641-642. Chew, Frank, K.L. Drennan, and W.J. Demoran (Jan.1962) "On the Temperature Field East of the Mississippi Delta," Journal of Geophysical Research, Vol. 67, No. 1, pp 271-279. Chew, Frank (Aug. 1961) "Some Implications of the Highly Saline Water off the Southwest Coast of Florida," Journal of Geophysical Research, Vol. 66, No. 8, pp 2445-2454.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(3b) Frank Chew (cont'd)			Chew, Frank (Dec. 1955) "Red Tide and the Fluctuations of Conservative Concentrations at an Estuary Mouth," Bulletin of Marine Science of the Gulf and Caribbean, Vol. 5, No. 4, pp 321-330. Chew, Frank (Dec. 1956) "A Tentative Method for the Prediction of the Florida Red Tide Outbreaks," Bulletin of Marine Science of the Gulf and Caribbean, Vol. 6, No. 4, pp 292-304. Recommended acquiring: Molinari, R. L. and J. F. Festa (Oct. 1978) "Ocean Thermal and Velocity Characteristics of the Gulf of Mexico Relative to the Placement of a Moored OTEC Plant," NOAA Technical Memorandum ERL AOML-33.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(4) Mildred Corderelle	University of Miami Rosenstiel School of Marine and Atmospheric Sciences 4600 Rickenbacker Causeway Miami, FL 33149	(305)350-7560	Price, J.F. and C.N.K. Mooers (Dec. 1974) "Current Meter Data Report from Fall 1973," NSF Continental Shelf Dynamics Program, University of Miami, UM-RSMAS #74035. Price, J.F. and C.N.K. Mooers (June 1974) "Current Meter Data Report From Winter 1973," NSF Continental Shelf Dynamics Program, U. of Miami, UM-RSMAS #74020. Price, J.F. and C.N.K. Mooers (March 1974) "Hydrographic Data Report From Winter 1973," NSF Continental Shelf Dynamics Program, University of Miami, UM-RSMAS #74006. Price, J.F. and C.N.K. Mooers (April 1975) "Hydrographic Data Report from Fall 1973," NSF Continental Shelf Dynamics Program, University of Miami, UM-RSMAS #75018.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(5) John Ditmars	Water Resources Division Argonne National Lab. Argonne, Illinois 60439	(312)972-3784	Numerous attempts to contact J. Ditmars were unsuccessful.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(6) Douglas Evans	Evans-Hamilton, Inc. 4853 Cordell Ave. Bethesda, MD 20014	(301)652-5307	Doug referred me to: (1) Bob Molinari at AOML/NOAA to get a good description of the general circulation in the S.W. Florida Shelf area and what he considered to be the best current measurements. (2) Fred Vukovich at Triangle Research Institute to get satellite observations of surface temperature and currents in the S.W. Fla. Shelf area. (3) Frank Chew at AOML/NOAA to get literature on the Loop Current and Gulf Stream meanders. (4) Pete Niiler to get current meter data. (5) Charlie Bretschneider to get wave hindcast data at Tampa and Key West. Doug will send an "Environmental Data Package," a September 1979 Dept. of Energy publication which discusses Bretschneider's hindcasting work and SSMO data.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(7) Jack Fancher	National Ocean Survey/ NOAA Analysis Branch Rockville, MD 20852	(301)443-8311	Obtained on magnetic tape,hourly tidal elevations recorded at Key West, Clearwater, and Shell Point, FL from 1973 to the present. Obtained coefficients necessary to reference tidal elevations at the above 3 stations to NGVD and MSL, MLW, and MHW for the 1941-1959 epoch.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(8) Phala Franks	National Climatic Center Environmental Data Service/NOAA Federal Building Ashville, NC 28801	(704)258-2850	Obtained (on magnetic tape) meteorological data at Key West, Ft. Myers, Tampa, and Apalachicola, FL for the entire period of records. The data includes sky condition, visibility, dew point, sea level pressure, station pressure, wet bulb temperature, dry bulb temperature, relative humidity, wind speed and direction, and types of clouds at 4 levels. Also obtained the elevation of the anemometer above ground at each station. Location — Elev. Above Ground Key West — 23' Ft. Myers — 20' Tampa — 22' Apalachicola — 30'

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(9) Dr. Gust	Dept. of Marine Sciences U. of South Florida St. Petersburg, FL 33701	(813)898-7411	Recommended contacting: . Florida State University . Bill Behrens at the Florida Institute of Oceanography Gust is involved in deep sea research, not shelf research. The individual who might have been able to assist us, Dr. Ken Carder, is on sabbatical leave. Gust recalled seeing a JGR article on oceanographic processes in the Gulf of Mexico, determined from aerial photos. He said he would try to locate it and send it.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(10) Y. Hsueh	Department of Physical Oceanography Florida State University Tallahassee, FL 32306	(904)644-2525	Hsueh worked on a S.W. Florida Shelf modelling effort sponsored by NSF. Since Hsueh was currently at NSF on a sabbatical leave he did not have any material with him and differed to the principle investigator, George Marmorino.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(11) Dr. Norden Huang	Wallops Flight Center National Aeronautics and Space Administration Wallops Island, VA 23337	(804)824-3411	Dr. Huang indicated that a study had been performed to evaluate Gulf Stream currents and wave height information in the Gulf of Mexico from satellite photos. He will try to locate a copy of this BLM report and send us one.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(12) Gerhard Jirka	Dept. of Civil & Environmental Engineering Cornell University Ithaca, NY 14853	(607)256-5140	Advised to acquire: "Direct Measurement of Circulation on West Florida Continental Shelf," Koblinsky and Niiler (1980) Advised to contact: Robert Molinari at AOML/NOAA (to acquire OTEC/DOE reports) and Fred Vukovich at Triangle Research Institute (to acquire satellite analysis of Gulf of Mexico circulation).

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(13) Andy Johnson	National Data Buoy Office/NOAA NSTL Station Mississippi 39529	(601)688-2836	NDBO has a data buoy (#42003) at 26° N 86° W. Information available from the buoy is given below: . wind speed . wind direction . barometric pressure . air temperature . water temperature . significant wave height and period The buoy has been operating continuously since July, 1977. A second buoy was located at 27.5° N 85.5° W for a short period of time but the data was considered to be unreliable. While the system is not presently operational, prototype systems are being deployed and tested which will gather subsurface temperature and pressure data. The NDBO meteorological data is available through the National Climatic Center, Ashville, NC.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(14) Tom Keffer	Department of Oceanography Oregon State University Corvallis, Oregon 97331	(503)754-3382	Tom is a student of P. Niiler. He referred me to: . P. Niiler at the U. of Hawaii (808)948-8082 . Chet Koblinsky at Scripps Institute at La Jolla He suggested getting the following report from Niiler: Koblinsky, C.J. and P.P. Niiler (March, 1980) "Summary Data Report on Direct Measurements of Circulation on West Florida Continental Shelf, January 1973-May 1975," NSF Shelf Dynamics Program, School of Oceanography, Oregon State University, Data Report 76, Reference 79-13.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(15) Thomas Kinder	Oceanography Division Naval Ocean Research and Development Activity NSTL Station, MS 39529	(601)688-4733	Repeated attempts to contact Tom Kinder were unsuccessful.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(16a) Chet Koblinsky	A-030 University of California Scripps Institution of Oceanography La Jolla, CA 92093	(741)452-4775	Koblinsky indicated that P. Niiler, not C. Mooers, has the data which was collected through the joint U. Of Miami/Nova U. field program done for NSF. The study consisted of operating 6 current meter arrays between Jan. 1973 and May 1975. The locations were along the 26° N latitude and extended as far as 84° W. Bottom pressure data, bottom temperatures, and sea level data were obtained. Sea level wind data was interpolated from NWS surface weather charts and ship wind logs at 26° N, 84° w. He has a copy of the data on mag tape but would not release it without the word from P. Niiler. While he did not have a final copy he did send a rough draft of Koblinsky and Niiler (1980) "Direct Measurements of Circulation on West Florida Continental Shelf." He also sent: Koblinsky, C.J. (1980) "The M2 Tide on the West Florida Shelf," submitted for publication 10/17/80 to DSR. Price, James F. (1976) "Several Aspects of the Response of Shelf Waters to a Cold Front Passage," Mémiores de la Société Royale des Sciences de Liège, Sixième Série, Tome X, pp 201-208.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(16b) Chet Koblinsky (cont'd)			Niiler, Pearn P. (1976) "Observations of Low-Frequency Currents on the West Florida Continental Shelf," Mémoires de la Société Royale des Sciences de Liège, Sixième Série, Tome X, pp 331-358. Koblinsky suggested getting in touch with Mark Wimbush (Nova U.) and Larry Larson at the U. of Washington if we wanted to acquire bottom pressure data. The 1973 Hydrographic data from the study is available through NODC. Koblinsky suggested picking up the following reports: . UM-RSMAS-74006 . UM-RSMAS-74020 . UM-RSMAS-74035 . UM-RSMAS-74018 . "Current Meter Data Report" Plaisted, Waters, and Niiler, 1975, Nova U. The Nova report can be obtained through Jan Witte, (305)587-6660. Koblinsky indicated he had found evidence that currents in the area are dominated by the Loop Current but he doesn't know how far onto the shelf the effect is felt and the work has not been published yet.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(17) Jud Ladd	National Climatic Center Environmental Data Service/NOAA Federal Building Ashville, NC 28801	(704)258-2850	The meteorological data from NDBO buoy #42003 was obtained on magnetic tape for the entire period of operation. The buoy has been operating during the following periods: . June 1970 . Nov. - Dec. 1976 . Jan. 1977 . July 1977 - July 1979 (possibly Dec.)

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(18) Mr. Landsbergis	Requirements Branch National Ocean Survey/ NOAA Rockville, MD	(301)443-8807	The following information regarding tide gauge stations was provided over the phone:

STATION LOCATION	DATE GAUGE ESTABLISHED	TYPE OF GUAGE
Key West	1926	Harbor (Exposed)
Naples	1965	Exposed
Fort Myers	1965	River
Clearwater	1973	Exposed
St. Petersburg	1947	Bay (Protected)
Cedar Key	1939	Exposed
St. Mark's River Entrance	1973 (Pulled 1977)	River
Shell Point	1973	Bay (Exposed)
Turkey Point	?	Bay (Exposed)
Apalachicola	1968(Non-continuous Opr.)	Behind Dog Is.
Panama City	1973	Protected
Navarre Beach	1978	?
Pensacola	1923	Protected

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(19a) Lucille Lehmann	Coastal Engineering Archives University of Florida 433 Weil Hall Gainesville, FL 32611	(904)392-2710	A computer search of the Environmental Data and Information Service's files, ENDEX (Environmental Data Index) and OASIS (Oceanic and Atmospheric Scientific Information System) can be performed by contacting: Robert Ting NOAA Miami Library AOML 15 Rickenbacker Causeway Miami, Florida 33149 (305)361-4428 The following universities may be able to provide data, reports, or contacts of assistance: . Florida Atlantic University, Boca Raton . Florida Institute of Technology, Melbourne . Florida International, Miami . Florida State University, Tallahassee . Gulf Coast Community College, Panama City . Miami Dade Community College, Miami . University of Florida, Gainesville . University of Miami, Miami . University of South Florida, St. Petersburg . University of West Florida, Pensacola The following references were obtained: Ichiye, Takashi, Han-Hsiung Kuo, and Michael R. Carnes (1973) "Assessment of Currents and Hydrography of the Eastern Gulf of Mexico," Contribution Number 601,

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(19b) Lucille Lehmann (cont'd)			Department of Oceanography, College of Geosciences, Texas A & M University. Mofjeld, Harold O. (1976) "Tidal Currents on the West Florida Shelf," Proceedings of Marine Environmental Implications of Offshore Drilling Eastern Gulf of Mexico: 1974, Collected Reprints - 1974, Vol. 1, Atlantic Oceanographic and Meteorological Laboratories, pp 598-602. Chew, Frank (1955) "On the Offshore Circulation and Convergence Mechanism in the Red Tide Region off the West Coast of Florida," Transactions of the American Geophysical Union, Vol. 36, No. 6, pp 963 - 974. Price, James F. and Christopher N.K. Mooers (1974) "Current Meter Data Report From the Winter 1973 National Science Foundation Continental Shelf Dynamics Program," Scientific Report, University of Miami, Rosenstiel School of Marine and Atmospheric Science. U.S. Bureau of Land Management (1976) Gulf Continental Shelf Surface Currents Map, Outer Continental Shelf, Eastern Gulf of Mexico, Visual No. 6.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(20a) Bernard LeMehaute	Rosenstiel School of Marine and Atmospheric Sciences University of Miami 4600 Rickenbacker Cwy. Miami, FL 33149	(305)350-7560	Suggested obtaining the following references all of which are available from the U.S. Gov't. Printing Office. . "Oceanographic Atlas for Tampa Bay and Adjacent Waters, Gulf of Mexico," Dracovich and Sykes, Fish and Wildlife Service, Bureau of Commercial Fisheries, Circular 255. . "Temperature, Salinity, Oxygen, and Phosphate in Waters off the U.S.," Vol. II, Gulf of Mexico, NOAA. . "Water Mass and Density Stratification," National Oceanographic Data Center, Publication G9, 1967, Vol. I, General Series, Western North Atlantic Document. . "Mean Monthly Temperature and Salinity of the Surface Layer," 1976, Naval Oceanographic Office. . "Tide Tables," NOAA . "Oceanographic Atlas of the North Atlantic Ocean," Section I - Tides and currents Section II - Physical properties Section IV - Sea and swell

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(20b) B. LeMehaute (cont'd)			. "U.S. Navy Marine Climatic Atlas of the World, North Atlantic Ocean" . U.S. Oceanographic Office Special Publication on Surface Currents.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(21a) Lloyd Lewis	U.S. Dept. of Energy Ocean Energy Systems Div. Room 421 600 E Street N.W. Washington, DC 20585	(202)376-4835	Referred to Molinari and Maul (AOML) to acquire physical data in the S.W. Fla. Shelf area. . Molinari should have 5 - 6 reports which describe currents and hydrographic data. . Molinari can also provide "Direct Measurement of Circulation on the West Florida Shelf" by Koblinsky and Niiler. This report presents historical data gathered, under an NSF contract, between 1973 and '75. . Maul, along with Fred Vukovich (Triangle Research Institute) can provide at least 2 data reports which present satellite observations of the surface temperature and loop current location. Recently they had some luck correlating satellite and in-situ observations of temperature and loop current behavior. Referred to Jack Ditmar and George Mellor to acquire information regarding modelling of Gulf circulation. Referred to Pat Lilde at Lawrence Berkeley regarding Temperature and Salinity work in the S.W. Fla. Shelf. DOE has not done current measurements on the shelf. Deep water work has been done off Tampa (Molinari) and in about 4000 ft. of water off Mobile.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(21b) Lloyd Lewis (cont'd)			DOE has done no direct measurements of waves although Charlie Bretschneider (U. of Hawaii) has done some wave hindcasting work at Key West and at Tampa. A relatively old summary of data can be obtained from Doug Evans at Evans-Hamilton called "Environmental Data Package." This Sept., 1979 DOE publication primarily compares SSMO data to Bretschneider's hindcasting work.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(22) George Marmorino	Dept. of Oceanography Florida State University Tallahassee, FL 32306	(904)644-6700	Referred to Peter Niiler at Oregon State University and Chet Koblinsky at Scripps Institute. Indicated that current data had been collected under an NSF project between 1973 and 1975. The data was collected along the 26° N latitude from about the 50 M. contour to about the 200 M. contour. Koblinsky and Niiler wrote the data into a report. Marmorino was fairly confident that the current data had been filed with NODC. Advised to pick up Koblinsky's Ph.D. thesis. Marmorino was not aware of anyone working in the Florida Straits although he suggested verifying this with George Maul or Bob Molinari at AOML. Peter Niiler should be able to refer us to the right person if bottom pressure data is required.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(23) George Maul	Atlantic Oceanographic and Meteorological Labs/NOAA 15 Rickenbacker Causeway Miami, FL 33149	(305)361-4343	Was unable to speak to George Maul directly but his secretary said she would have him send out the following 3 references. Maul, G.A., D.R. Norris, and W.R. Johnson (1974) "Satellite Photography of Eddies in the Gulf Loop Current," Geophysical Research Letter, Volume 1, Number 6, pp 256-258. Maul, G.A., Jr. (1975) "An Evaluation of the Use of the Earth Resources Technology Satellite for Observing Ocean Current Boundaries in the Gulf Stream System," NOAA Technical Report ERL-335, AOML-18, 125 pp. Maul, G.A., P.W. deWitt, A. Yanaway, and S.R. Baig (1978) "Geostationary Satellite Observations of Gulf Stream Meanders: Infrared Measurements and Time Series Analysis, Journal of Geophysical Research, Volume 83, pp 6123-6135.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(24) Gary Mitchum	Dept. of Oceanography Florida State University Tallahassee, FL 32306	(904)644-6700	Gary, a student of Dr. Wilton Sturges, was quite familiar with the field work performed by Dr. Struges and would be the individual to deliver the data on tape. U and V current components and temperature data was collected almost directly off of Cedar Keys, Fla. between 25 February and 21 March, 1978. A pair of current meters were moored at 2 sites. The first site was approximately 75 km off Cedar Keys, in about 22 M.of water and the second site was approximately 150 km offshore in about 45 M. of water. At the first site, one meter was located 5 M. from the bottom and the second meter was located 10 M. from the bottom. At the second site, one meter was located 10 M. from the bottom and the second meter was located 35 M. from the bottom. Dr. Sturges has instructed Gary to provide the raw data or filterd data on a magnetic tape, as requested.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(25a) Robert Molinari	Atlantic Oceanographic and Meteorological Labs/ NOAA 15 Rickenbacker Causeway Miami, FL 33149	(305)361-4344	Molinari has done work for DOE and BLM. His work has been performed at 27.5° N, 85.5° W. It involved the collection of current meter data, temperature, and salinity. While he has the data available on tape in 1 hour increments, he indicated that they are quite busy at AOML and would prefer it if we obtained the data from NODC, where it has been filed. He advised contacting Dr. P. Niiler at Oregon State to get current meter, temperature, and salinity data collected under the NSF West Florida Continental Shelf Program (3 year study period). Molinari also advised contacting Maurice Rinkel. Literature sent: Molinari, Robert L. and Dennis Mayer (1980) "Physical Oceanographic Conditions at a Potential OTEC Site in the Gulf of Mexico; 27.5° N, 85.5° W," NOAA Technical Memorandum ERL AOML-42, Atlantic Oceanographic and Meteorological Laboratories, Miami, FL. Koblinsky, C. J. and P.P. Niiler (1980) "Summary Data Report on Direct Measurements of Circulation on West Florida Continental Shelf January 1973-May 1974," Data Report 76, Reference 79-13, School of Oceanography, Oregon St. U., Corvallis, Oregon.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(25b) Robert Molinari (cont'd)			Molinari, R.L. (1974). Data from the NOAA Ship VIRGINIA KEY and the SUSIO Ship BELLOWS during CICAR Survey Month II. NOAA Tech. Memo. ERL AOML-22, 153 pp. Molinari, R. L. (1974). Synoptic and mean monthly 20°C topographies in the eastern Gulf of Mexico. NOAA Tech. Memo. ERL AOML-27, 33 pp. Molinari, R. L. (1979). Ocean thermal and current velocity data requirements for design of an OTEC plant - an update. To appear in: Proceedings 6th OTEC Conference. Molinari, R. L. (1980). Current variability and its relation to sea-surface topography in the Caribbean Sea and Gulf of Mexico. To appear in: Journal of Marine Geodesy. Since he did not have an extra copy of: Molinari, R. L., J. Hazelworth and D. Ortman (1979). Data from OTEC site characteristics studies in the Gulf of Mexico and tropical South Atlantic. NOAA Tech. Memo. AOML-39. Molinari advised getting this from NTIS.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(26) Chris Mooers	Dept. of Oceanography Naval Postgraduate School Monterey, CA 93940	(408)646-2673	Repeated attempts to get through to C. Mooers were unsuccessful.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(27) David Mountain	U. S. Coast Guard Oceanographic Research Section Washington, DC	(202)426-4634	The U.S.C.G. does not have any hydrographic data available in that area. Approximately 10 years ago a current meter was located near Sanibel Island, but they have not been able to locate the data. This data may be listed with NODC as being available but they do not know where it is. Mountain advised contacting P. Niiler at Oregon State for current meter data located farther offshore. Mountain also advised calling FSU.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(28a) Pearn P. Niiler	Dept. of Oceanography Oregon State University Corvallis, Oregon 97331	(503)754-3382	Niiler's work on the shelf was along the 26° N latitude. It has been written up in "Direct Measurement of Circulation on West Florida Continental Shelf," He will send a copy. Niiler suggested contacting Triangle Research Institute and the University of South Florida to get information regarding the loop current. Triangle Research has written a report on the intrusion of the loop current. Niiler suggested contacting Koblinsky at Scripps Institute regarding tidal circulation in the S.W. Fla. Shelf area. Niiler indicated Molinari (AOML/NOAA) had done an extensive survey of hydrographic data in the study area. If we need background information on modelling, Niiler suggested calling: . Dr. George Mellor - Princeton University . Dr. Steve Piascek - US Naval Research Fac. . Phil Schuch - NSF Physical Oceanography Department . Jim O'Brien - Dept. of Meteorology, FSU He did not think any of these individuals would be able to provide data, however.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(28b) Pearn P. Niiler (cont'd)			Advised acquiring "Circulation in the Gulf of Mexico," by Wilton Sturges and S.L. Shang, Dept. of Oceanography, FSU, Tallahassee, FL, 32306, Dec., 1978. Niiler indicated that Maurice Rinkel (U.of S. Fla.) had compiled a large report for BLM on the data available in the Florida Shelf region. He also indicated that Chris Mooers (Naval Postgraduate School) had prepared a report for BLM which discussed the data collected by Niiler and Mooers. Niiler will send Koblinsky and Niiler (March 1980) and other related papers. He would rather we obtain the actual data through NODC than through him.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(29) W. Henry Odum	National Oceanographic Data Center Washington, D.C.	(202)634-7500	"User's Guide to NODC's Data Services (revised Feb. 1974)" U.S. Dept. of Comm., NOAA, EDS, Washington, DC, reprinted 1980. Oceanographic Station Data Parameter Inventory from 1938 to the present in the region defined by 81^{o} W - 85^{o} W, 24^{o} N - 30^{o} N and an explanation of the OSDP Inventory. Because NODC is in the process of converting from an IBM 370 to a UNIVAC computer there are some difficulties in isolating specific data files. Henry is presently trying to determine the most efficient, cost effective manner to provide the available hydrographic data. When this is determined, delivery of the data should take approximately 3 days.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(30) Allen Reece	Shell Oil Co. Houston, TX	(713)663-2437	Shell Oil Co. does not have any drilling activities underway on the Florida Shelf. Current data at a deepwater (1000 ft.) site off the Mississippi Delta could be made available for the study if we required it. He felt Exxon was the only company doing work off the west coast of Florida and that Jagat Sharma should be contacted.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(31) Maurice Rinkel	Institute of Oceanography St. Petersburg, Fl.	(813)893-9100	Maurice Rinkel was contacted for Tetra Tech, Inc. by Dr. Wilton Sturges. Rinkel put together a report for BLM which was a summary of data available in the Eastern Gulf of Mexico. It was felt that the information contained in that report has presently been published by others, such as Molinari, in far more detail. Rinkel also indicated that BLM maintains a library which probably is the most comprehensive source of data and information relating to the Eastern Gulf of Mexico and the Southeast Florida Shelf. It is Rinkel's understanding that Ed Wood is the individual in charge of maintaining the library and that the references comprising the library are available to contractors doing work in this area of the Gulf.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(32) Haywood Shirer	Data Services/NODC Washington, DC	(202)634-7439	Haywood located Molinari's current meter data off of Tampa Bay and will provide it to NECE on magnetic tape (9 track, 1600 bpi, EBCDIC). Haywood has completed a computer search of data provided by the University of Miami and has been unable to locate the current meter data collected by Niiler and Mooers along the 26° N latitude. He is presently performing a computer search of Nova University data and if this fails he will contact Niiler and Mooers to find out how the data was filed with NODC. Once the data is located, we will be advised of the cost and the data will be provided on magnetic tape.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(33) Ray Smith	National Ocean Survey/ NOAA Datums and Information Br. Rockville, MD 20852	(301)443-8467	R. Smith agreed to inform us, in writing, of the following facts regarding the 13 tidal stations referenced by Mr. Landsbergis: . Which of the stations have continuous hourly tidal elevations between 1970 and 1980. . Whether there is a break in the tidal record at any station where only highs and lows are available and the date of the break. . Whether all the data at each of these stations is available on mag tape, and if not, where the breaking point is. . The coefficients necessary to reference the tidal elevations to NGVD. . Whether harmonic constants are available at each station and the period of record used to determine the constants at each station. He also agreed to provide gauge location maps.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(34) Dr. Stauble	Florida Institute of Technology Department of Oceanography Melbourne, FL	(305)723-3701	Dr. Stauble indicated that FIT does work primarily on the Atlantic coast. As far as he knew they could not provide any data or reports from studies performed in the S.W. Fla. Shelf area. He suggested calling FSU, AOML/NOAA, and the Marine Sciences Department of the U. of South Florida.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(35a) Wilton Sturges	Dept. of Oceanography Florida State Univ. Tallahassee, FL 32306	(904)644-6700	Current Meter data and Meteorological data off Cedar Keys, Fla. on magnetic tape (via Gary Mitchum). The following references: Cragg, John and Wilton Sturges (1974) "Wind-Induced Currents and Sea Surface Slopes in the Eastern Gulf of Mexico," Technical Report, Dept. of Oceanography, Florida State University, Tallahassee, Florida. Sturges, Wilton and S.L. Shang (Dec. 1978) "Circulation in the Gulf of Mexico," Summary Report of a Working Conference, Dept. of Oceanography, Florida State Univ., Tallahassee, Florida. Collected Reprints: 1978 (Dec. 1979) Atlantic Oceanographic and Meteorological Labs., Miami, Florida. Camerlengo, Alejandro L. and James J. O'Brien (Mar. 1980) "Open Boundary Conditions in Rotating Fluids," Journal of Computational Physics, Vol. 35, No. 1, pp 12-35. Hansen, Donald V. and Robert L. Molinari (Jan. 1979) "Deep Currents in the Yucatan Strait," Journal of Geophysical Research, Vol. 84, No. C1, pp 359-362.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(35b) Wilton Sturges (cont'd)			Molinari, Robert L., John F. Festa and David W. Behringer (Nov. 1978) "The Circulation in the Gulf of Mexico Derived from Estimated Dynamic Height Fields," Journal of Physical Oceanography, Vol. 8, No. 6, pp 987-996. Molinari, Robert L. (Sept. 1978) "The Relationship of the Curl of the Local Wind Stress to the Circulation of the Cayman Sea and the Gulf of Mexico," Journal of Physical Oceanography, Vol. 8, No. 5, pp 779-784. Price, J.F. and C.N.K. Mooers (April 1975) "Hydrographic Data Report from Fall 1973," NSF Continental Shelf Dynamics Program, University of Miami, UM-RSMAS #75018. Price, J.F. and C.N.K. Mooers (Dec. 1974) "Current Meter Data Report from Fall 1973," NSF Continental Shelf Dynamics Program, University of Miami, UM-RSMAS #74035. Price, J.F. and C.N.K. Mooers (March 1974) "Hydrographic Data Report from Winter 1973)," NSF Continental Shelf Dynamics Program University of Miami, UM-RSMAS #74006. Price, J.F. and C.N.K. Mooers (June 1974) "Current Meter Data Report from Winter 1973," NSF Continental Shelf Dynamics Program, University of Miami, UM-RSMAS #74020.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(35c) Wilton Sturges (cont'd)			Molinari, Robert L., David W. Behringer, and John F. Festa (May 1976) "Model Studies of the Circulation in the Gulf of Mexico," Final Report submitted to the Bureau of Land Management. Mooers, Christopher N.K., Jose Fernandez-Partagas, and James F. Price (June 1975) "An Evaluation of Meteorological Data from Several Buoys of the NOAA Data Buoy Office (Eastern Gulf of Mexico, 1973-1974)," Univ. of Miami Tech Rept. UM-RSMAS #75030. Van Leer, John C., Walter R. Johnson and Emanuel Mehr (Nov. 1974) "Cyclesonde Data Report from the Winter 1973," NSF Continental Shelf Dynamics Program, University of Miami Scientific Report, UM-RSMAS #74033. Gunn, John T. (Dec. 1978) "Wind Driven Transport in 1975, Atlantic Coast and Gulf of Mexico," NOAA Tech. Report NMFS Circular 416, Ocean Variability: Effects on U.S. Marine Fisheries Resources - 1975, ed. Julien R. Goulet, Jr. and Elizabeth D. Haynes, pp 229-239. Tidwell, Darrell, Carol Cardwell, Robert Molinari, and Donald Ortman (Jan. 1978) "Data from the Atlantic Oceanographic and Meteorological Laboratories Loop Current Monitoring Cruises, May 1975 through August 1976," NOAA Technical Memorandum ERL AOML-29.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(35d) Wilton Sturges (cont'd)			Molinari, Robert L., Dennis Mayer and Frank Chew (Nov. 1979) "Physical Oceanographic Conditions at a Potential OTEC Site in the Gulf of Mexico; 88° W, 29° N, NOAA Tech. Memo. ERL AOML-41. "A Summary of Knowledge of the Eastern Gulf of Mexico, 1973," Coordinated by the State University System of Florida Institute of Oceanography, St. Petersburg, Florida, ed. James I. Jones, Ronald E. Ring, Maurice O. Rinkel, and Robert E. Smith, March 1973. Referrals: . Oceanographic Research Section, USCG . National Data Buoy Office . Wallops Flight Center . Dr. Y. Hsueh, FSU . U. of Miami . Nova University . Naval Ocean Research Center (NORDA) . U. of Florida (Gainesville) . Institute of Oceanography, St. Petersburg . U. of South Florida . Henry Odum @ NODC . Lloyd Lewis @ DOE . John Ditmars @ Argonne National Labs. . Al Blumberg @ Princeton U. . Doug Evans @ Evans-Hamilton, Inc. . Fred Vukovich @ Research Triangle Inst.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(36) Al Summy	United States Coast Guard Oceanographic Research Section Washington, DC	(202)426-4634	He was not aware of any hydrographic, current, or meteorological data that the USCG had collected in the study area but he felt certain that if they had, it was available through NODC. He then referred me to the Division Chief, David Mountain.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(37) Dr. Vargo	Institute of Oceanography St. Petersburg, FL	(813)893-9100	Although it may be out of print, Dr. Vargo will attempt to find and send a copy of "A Summary of Knowledge of the Gulf of Mexico, 1973." She will also speak to Maurice Rinkel to see if he is aware of any current data on the shelf other than that of Molinari, Niiler and Mooers, and Sturges

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(38) Fred Vukovich	Geosciences Department Energy and Environmental Research Division Research Triangle Institute Research Triangle Park North Carolina 27709	(919)541-6000	Provided two references on satellite observations of the Gulf of Mexico and the Loop Current. Vukovich, Fred M., Bobby W. Crissman, Mark Bushnell, and William J. King (Dec. 1979) "Some Aspects of the Oceanography of the Gulf of Mexico Using Satellite and In-situ Data," Journal of Geophysical Research, Vol. 84, Number C12, pp 7749-7768. Vukovich, F.M., B.W. Crissman, and D. Erlich (Sept. 1980) "Sea-Surface Temperature Variability Analysis of Potential OTEC Sites in the Eastern Gulf of Mexico Utilizing Satellite Data," Interim Report prepared for AOML/NOAA, Research Triangle Institute, Research Triangle Park, NC, 36 pp Fred indicated that a conclusion drawn during a recent meeting of OTEC people in Princeton, NJ was that there does not yet exist a large enough data set in the Florida Shelf area (i.e., long time series of oceanographic and meteorological covering a large area) to accurately calibrate a numerical circulation model.

SOURCES CONTACTED

NAME	ORGANIZATION	TEL. NO.	INFORMATION OBTAINED
(39) Jan Witte	Physical Oceanography Lab. Nova University 8000 N. Ocean Dr. Dania, FL 33004	(305)475-7487	Plaisted, R.O., K.M. Waters, and P.P. Niiler, (Jan. 1975), "Current Meter Data Report," NSF Shelf Dynamics Program, Physical Oceanographic Laboratory, Nova University.

III. DATA SUMMARY

The information which was provided through telephone communications falls into five (5) general categories:

- o Literature,
- o Recommended Literature,
- o Meteorological Data,
- o Oceanographic Data, and
- o Referrals

The tables which follow, collect the information obtained during telephone communications into the five (5) basic groupings. Listed under Literature is any technical report, data report, journal article, or reprint provided to Tetra Tech, Inc. by an individual who was contacted. Recommended Literature consist of any technical report, data report, journal article, or reprint whose acquisition was suggested by an individual who was contacted. Meteorological data is comprised of wind speed and direction, station pressure, sky condition, visibility, dew point, sea level pressure, wet bulb temperature, dry bulb temperature, relative humidity, cloud type, or anemometer elevation. Included under Oceanographic Data is significant wave height and period, tidal elevations and datums, current meter observations, bottom pressure, temperature profiles, density profiles, salinity profiles, and sea level data. Referrals consist of individuals or institutions which Tetra Tech, Inc. was advised to contact to further develop the data base.

Under the Literature category, the name of the reference is given under the heading "Data Type," the individual who agreed to provide the reference is listed under "Source," and type of reference, i.e., Tech. Memo., Data Report, Reprint, etc., is given under "Data Format." Under the heading "Acquired" will be a "yes" or a "no" indicating whether the material has actually been received by Tetra Tech, Inc.

Under this section and all four subsequent sections, the sources are indicated by numbers. These numbers refer back to the individuals as they appear in the "Sources Contacted" summary table of Section II.

The table summary of "Recommended Literature" is laid out in the same manner as "Literature" except the recommended reference is given under the heading "Data Type," the individual who suggested acquiring the reference is given under "Source" and a "yes" or a "no" appears under the heading "Acquired" if the recommended reference was acquired by Tetra Tech, Inc.

Under the "Meteorological" and "Oceanographic" sections of the data summary table, the particular meteorological or oceanographic data which is available is listed under "Data Type," the individual through which the data can be obtained is given under "Source," the location where the data was collected is given under "Sampling Location(s)," the period during which the data was collected is given under "Period of Record," and the form in which the data is available, i.e., mag. tape, maps, correspondence, etc., is given under "Data Format." Under the heading "Acquired" will be a "yes" or a "no." A "yes" in this column of the Meteorological and Oceanographic

data summary will indicate that the data has been received by Tetra Tech, Inc. or has been ordered by Tetra Tech, Inc. A "no" indicates that the data has neither been obtained nor ordered by Tetra Tech, Inc. The "Remarks" column will clarify whether data was obtained or ordered and if it was ordered it will indicate the date of the order, the estimated time until delivery, and the point of delivery, i.e., NECE or Tetra Tech, Inc.

The "Referral" section of the data summary lists the individuals or institutions suggested for a telephone contact under the heading "Data Type." The individual who provided the referral is listed under "Source" and the reasons behind the referral are given under the heading "Remarks."

Every effort was made to make the data base as extensive as possible and to try to follow up on referrals. Given the limited time for the data collection effort and the economic constraints, however, a cutoff point had to be set. Data which were collected were restricted to the immediate study area whenever possible and to the time periods where the broadest selection of meteorological and oceanographic data existed simultaneously. Not all the referrals which were made were pursued. An effort was made to pursue those sources of information which appeared most promising and important to the immediate concerns of this data collection effort, however. Similarly, to collect all the literature pertinent to this study would be a formidable task. As a result only that literature which was felt to be the most important was collected and a more comprehensive reference list was prepared should more background information be required. The reference list is presented in Section IV.

SUMMARY OF DATA

DATA TYPE	SOURCE	SAMPLING LOCATION(S)	PERIOD OF RECORD	DATA FORMAT	ACQUIRED	REMARKS
LITERATURE:						
I. Brooks and P. Niiler (Sept. 1979)	(1)			Reprint	yes	See source (1) for full reference.
I. Brooks and P. Niiler (1975)	(1)			Reprint	yes	See source (1) for full reference.
J. Price and C. Mooers (March 1974)	(4)			Data Report	yes	See source (4) for full reference.
J. Price and C. Mooers (June 1974)	(4)			Data Report	yes	See source (4) for full reference.
J. Price and C. Mooers (Dec. 1974)	(4)			Data Report	yes	See source (4) for full reference.
J. Price and C. Mooers (April 1975)	(4)			Data Report	yes	See source (4) for full reference.
T. Ichiye, H.H. Kuo, and M. Carnes (1973)	(19)			Technical Report	yes	See source (19) for full reference.
H. Mofjeld (1976)	(19)			Reprint	yes	See source (19) for full reference.
F. Chew (1955)	(19)			Reprint	yes	See source (19) for full reference.

SUMMARY OF DATA

DATA TYPE	SOURCE	SAMPLING LOCATION(S)	PERIOD OF RECORD	DATA FORMAT	ACQUIRED	REMARKS
LITERATURE (cont'd)						
J. Price and C. Mooers (June 1974)	(19)			Data Report	no	See source (19) for full reference. This report was obtained from (4).
U.S. BLM (1976)	(19)			Map of Surface Currents	yes	See source (19) for full reference.
C. Koblinsky and P. Niiler (1980)	(16)			Rough draft of NOAA data report	yes	See (16) for full ref. Finished version of this report was provided by R. Molinari.
C. Koblinsky (1980)	(16)			Rough draft of journal paper	yes	See (16) for full ref.
J. Price (1976)	(16)			Xerox of journal article	yes	See (16) for full ref.
P. Niiler (1976)	(16)			Xerox of journal article	yes	See (16) for full ref.
G. Maul, D. Norris, and W. Johnson (1974)	(23)			Journal article	no	See source (23) for full ref. Requested 19 Nov. 80 but have not yet received it.
G. Maul (1975)	(23)			Technical report	no	Same as above.
G. Maul, P. deWitt, A. Yanaway, and S. Baig (1978)	(23)			Journal reprint	yes	See source (23) for full ref. This ref. was received from source(35).

SUMMARY OF DATA

DATA TYPE	SOURCE	SAMPLING LOCATION(S)	PERIOD OF RECORD	DATA FORMAT	ACQUIRED	REMARKS
LITERATURE: (cont'd)						
R. Plaisted, K. Waters, and P. Niiler (1975)	(39)			Data Report	yes	See source (39) for full reference.
NODC (1974)	(29)			User's Guide	yes	Guide assists effort to acquire hydrographic data.
Oceanographic Station Data Parameter Inventory	(29)	81°W - 85°W 24°N - 30°N	1938 - Present	Computer File Listings	yes	Inventory of various hydrographic parameters measured in study area.
W. Sturges and S. Shang (1978)	(35)			Summary report of a working conference on circulation in the Gulf of Mexico	yes	See source(35) for full reference.
R. Molinari and D. Mayer (1980)	(25)			Technical Memorandum	yes	See source(25) for full reference.
C. Koblinsky and P. Niiler (1980)	(25)			Data Report	yes	Same as above
R. Molinari (1974a)	(25)			Technical Memorandum	yes	Same as above
R. Molinari (1974b)	(25)			Technical Memorandum	yes	Same as above

SUMMARY OF DATA

DATA TYPE	SOURCE	SAMPLING LOCATION(S)	PERIOD OF RECORD	DATA FORMAT	ACQUIRED	REMARKS
LITERATURE (cont'd)						
F. Chew (Jan. 1974)	(3)			Reprint	yes	See source (3) for detailed ref.
F. Chew K.L. Drennan W.J. Demoran (April 1962)	(3)			Reprint	yes	See source (3) for detailed ref.
F. Chew (Dec. 1955)	(3)			Reprint	yes	See source (3) for detailed ref.
F. Chew (Oct. 1956)	(3)			Reprint	yes	See source (3) for detailed ref.
F. Chew K.L. Drennan W. J. Demoran (Jan. 1962)	(3)			Reprint	yes	See source (3) for detailed ref.
F. Chew (Aug. 1961)	(3)			Reprint	yes	See source (3) for detailed ref.
F. Chew (Dec. 1955)	(3)			Reprint	yes	See source (3) for detailed ref.
F. Chew (Dec. 1956)	(3)			Reprint	yes	see source (3) for detailed ref.

SUMMARY OF DATA

DATA TYPE	SOURCE	SAMPLING LOCATION(S)	PERIOD OF RECORD	DATA FORMAT	ACQUIRED	REMARKS
LITERATURE (cont'd)						
Cragg and Sturges (1974)	(35)			Tech. Report	yes	See source (35) for full reference.
Collected Reprints: 1978 (1979)	(35)			Collection of Reprints	yes	See source (35) for full reference.
Camerlengo and O' Brien (1980)	(35)			Journal Article	yes	See source (35) for full reference.
Hansen and Molinari (1979)	(35)			Journal Article	yes	See source (35) for full reference.
Molinari, Festa, Beringer (1978)	(35)			Journal Article	yes	See source (35) for full reference.
Molinari (1978)	(35)			Journal Article	yes	See source (35) for full reference.
Price and Mooers (April 1975)	(35)			Data Report	no	Obtained from source (4)
Price and Mooers (Dec. 1974)	(35)			Data Report	no	Obtained from source (4)
Price and Mooers (March 1974)	(35)			Data Report	no	Obtained from source (4)

SUMMARY OF DATA

DATA TYPE	SOURCE	SAMPLING LOCATION(S)	PERIOD OF RECORD	DATA FORMAT	ACQUIRED	REMARKS
LITERATURE (cont'd)						
Price and Mooers (June 1974)	(35)			Data Report	no	Obtained from source (4)
Molinari, Behringer, and Festa (1976)	(35)			BLM Report	yes	See source (35) for detailed ref. Sent to NECE for review and Xeroxing.
Mooers, Fernandez-Partagas, and Price (1975)	(35)			Tech Report	yes	See source (35) for detailed ref. Sent to NECE for review and Xeroxing.
Van Leer, Johnson, and Mehr (1974)	(35)			Scientific Report		See source (35) for detailed ref. Sent to NECE for review and Xeroxing.
Gunn (1978)	(35)			Tech. Report	yes	See source (35) for detailed ref. Sent to NECE for review and Xeroxing.
Tidwell, Cardwell, Molinari, and Ortman (1978)	(35)			Tech. Memo.	yes	See source (35) for detailed ref. Sent to NECE for review and Xeroxing.
Molinari, Mayer, and Chew (1979)	(35)			Tech. Memo.	yes	See source (35) for detailed ref. Sent to NECE for review and Xeroxing.

SUMMARY OF DATA

DATA TYPE	SOURCE	SAMPLING LOCATION(S)	PERIOD OF RECORD	DATA FORMAT	ACQUIRED	REMARKS
LITERATURE (cont'd)						
"A Summary of Knowledge of the Eastern Gulf of Mexico, 1973" Florida Inst. of Oceanography	(35)			Information Summary	yes	See source (35) for detailed ref. Sent to NECE for review and Xeroxing. Source (37) is attempting to locate a copy of this report for NECE.

SUMMARY OF DATA

DATA TYPE	SOURCE	SAMPLING LOCATION(S)	PERIOD OF RECORD	DATA FORMAT	ACQUIRED	REMARKS
LITERATURE: (cont'd)						
R. Molinari (1979)	(25)			Xerox of Proceedings Article	yes	See source (25) for full reference.
R. Molinari (1980)	(25)			Reprint	yes	Same as above.
F. Vukovich, B. Crissman, M. Bushnell, and W. King (1979)	(38)			Reprint	yes	See source (38) for full reference.
F. Vukovich, B. Crissman, and D. Erlich (1980)	(38)			Interim Report	yes	Same as above.

SUMMARY OF DATA

DATA TYPE	SOURCE	SAMPLING LOCATION(S)	PERIOD OF RECORD	DATA FORMAT	ACQUIRED	REMARKS
RECOMMENDED LITERATURE:						
I. Brooks and P. Niiler (1977)	(1)			Reprint	yes	See source (1) for full reference Source (1) provided.
C. Koblinsky and P. Niiler (March 1980)	(14)			Data Report	yes	See (14) for full reference. This report was obtained from R. Molinari.
J. Price and C. Mooers (March 1974)	(16)			Data Report	yes	See (4) for full ref. Acquired through (4).
J. Price and C. Mooers (June 1974)	(16)			Data Report	yes	Same as above.
J. Price and C. Mooers (Dec. 1974)	(16)			Data Report	yes	Same as above.
J. Price and C. Mooers (April 1975)	(16)			Data Report	yes	Same as above.
Plaisted, Waters and Niiler (1975)	(16)			Data Report	yes	See(39) for full ref. Acquired through (39)
C. Koblinsky and P. Niiler (March 1980)	(16)			Data Report	yes	See(14) for full ref. This report was obtained from R. Molinari.

SUMMARY OF DATA

DATA TYPE	SOURCE	SAMPLING LOCATION(S)	PERIOD OF RECORD	DATA FORMAT	ACQUIRED	REMARKS
RECOMMENDED LITERATURE: (cont'd)						
C. Koblinsky's Ph. D. thesis	(22)			Thesis	no	
W. Sturges and S. Shang (1978)	(28)			Summary Report	yes	Refer to source (28). for detailed ref. obtained from source (35).
R. Molinari, J. Hazelworth, and D. Ortman (1979)	(25)				yes	Refer to source (25) for full ref. Acquired through source (19).
C. Koblinsky and P. Niiler (1980)	(12)			Data Report	yes	Refer to source (12) for full reference. Acquired through source (25).
R.L. Molinari, and J.F. Festa (Oct. 1978)	(3)			Tech. Memo.	no	Refer to source (3) for full reference.

SUMMARY OF DATA

DATA TYPE	SOURCE	SAMPLING LOCATION(S)	PERIOD OF RECORD	DATA FORMAT	ACQUIRED	REMARKS
METEOROLOGICAL:						
Wind Speed and Direction, Barometric Pressure Air Temp., Water Temp., Significant Wave Ht. and Period	(13, 17)	Data Buoy #42003 26° N, 86° W	Nov.-Dec. 1976, Jan. 1977, July 1977-July 1979	9 track IBM Standard Label Tape, 1600 bpi, 140 byte record length, blocking factor of 10, EBCDIC character format	yes	These data ordered 17 Nov. 1980. Delivery will be made directly to NECE. Processing requires approximately 4 weeks. Reference manual to be included.
Same as above	(13)	27.5° N, 35.5° W	? (Short Record)	?	No	NDBO considered these data to be unreliable.
Sky condition, visibility, dew point, sea level pressure, station pressure, wet bulb temp., dry bulb temp., relative humidity, wind speed and direction, types of clouds at 4 levels.	(8)	Key West Fort Myers Tampa Apalachicola	1948-June 1953 July 1957-Dec. 1979 1948-1954 1965-1979 1948-1979 1948, June 1975-Dec. 1979	9 track, 1600 bpi, EBCDIC, 495 block 10, unlabeled tape	yes	These data ordered 18 Nov. 1980. Delivery will be made directly to NECE. Processing requires 3-4 weeks. Reference Manual to be included. The data over the entire period of record at each station will be given at 3 hour intervals.
Anemometer Elevations		Key West Fort Myers Tampa Apalachicola			yes	Refer to source (8) for the values.

SUMMARY OF DATA

DATA TYPE	SOURCE	SAMPLING LOCATION(S)	PERIOD OF RECORD	DATA FORMAT	ACQUIRED	REMARKS
OCEANOGRAPHIC:						
Hourly readings of Tidal Elevations and Coefficients necessary to reference elevations to NGVD and 1941-59 MSL, MLW, AND MHW.	(7)	Key West, Fl Clearwater, Fl Shell Point, Fl	1973-Present 1973-Present 1973-Present	9 Track Magnetic Tape, ASCII, Univac Character Format, Density & Blocking to be specified upon delivery of tape	yes	This set of data was ordered 18 Nov. 1980. It will be delivered directly to NECE. Processing time requires 60-90 days.
Current Meter Array Data, bottom pressure, sea level data, sea level wind data.	(16)	26° N lat.	Feb. 1973 - May 1975	Magnetic Tape	no	C. Koblinsky said he could not release the data without permission from P. Niiler.
Current Meter Array Data (U & V components) and temperature data.	(24)	75 km and 150 km offshore Cedar Keys	25 Feb. 1978 to 21 March 1978	9 Track Magnetic Tape in format agreed upon by C. Cooper (NECE) and G. Mitchum	yes	These data requested October 1980 through Dr. Wilton Sturges at FSU.
Tidal Elevations	(27)	Sanibel Is.	?	?	no	Approximately 10 years ago current meter data was collected but the USCG has not been able to locate the data.
Current Data	(30)	South of Mississippi Delta (1000' depth contour)	?	?	no	Data considered to be too far from study area.

SUMMARY OF DATA

DATA TYPE	SOURCE	SAMPLING LOCATION(S)	PERIOD OF RECORD	DATA FORMAT	ACQUIRED	REMARKS
OCEANOGRAPHIC: (cont'd)						
Summary of avialable tidal records at 13 stations along the Gulf Coast of Florida.	(33)			Correspondence, tables and maps	yes	Requested 5 Nov. 1980, has not yet been received. Refer to source (33) for details on the type of info. requested.
List of 13 tide gauge stations on Gulf Coast of Florida, dates gauges were established, and type of gauge.	(18)			Information transmitted through telephone communications	yes	Refer to source (18) for details.
Current Meter Array data	(32)	27.5°N, 85.5°W	6 months - June through October, 1978	9 track tape, 1600 bpi, EBCDIC character format	yes	Requested 27 Nov. 80. Delivery expected 1 December 80.
Current Meter Array Data, bottom pressure, sea level data, sea level wind data	(32)	26°N latitude	Feb. 1973 - May 1975	Magnetic tape	no	NODC still trying to locate this data.

SUMMARY OF DATA

DATA TYPE	SOURCE	SAMPLING LOCATION(S)	PERIOD OF RECORD	DATA FORMAT	ACQUIRED	REMARKS
OCEANOGRAPHIC: (cont'd)						
Hydrographic Data	(29)	1^{o} Squares Within $81^{o}W - 85^{o}W$, $24^{o}N - 30^{o}N$	1938 to present	Magnetic Tape	no	NODC is still trying to identify the most efficient manner to deliver this data. Conversion to a different computer system has caused the delay.

SUMMARY OF DATA

DATA TYPE	SOURCE	SAMPLING LOCATION(S)	PERIOD OF RECORD	DATA FORMAT	ACQUIRED	REMARKS
REFERRAL:						
. P.Niiler	(1)					Did field work S.W.F.S.
. C. Mooers	(1)					Did field work S.W.F.S.
. I. Brooks	(2)					Did work in Fla. Straits
. G. Marmorino	(10)					Principle investigator in S.W.F.S. modelling effort for NSF.
. Florida Atl. University	(19)					The 10 universities and colleges listed were recommended as possible sources of data, literature, or professional assistance
. Fla. Inst. of Technology	(19)					
. Fla. International	(19)					
. Fla. State University	(19)					
. Gulf Coast Com. College	(19)					
. Miami-Dade Community College	(19)					
. U. of Florida	(19)					
. U. of Miami	(19)					

SUMMARY OF DATA

DATA TYPE	SOURCE	SAMPLING LOCATION(S)	PERIOD OF RECORD	DATA FORMAT	ACQUIRED	REMARKS
REFERRAL: (cont'd)						
. U. of S. Fla.	(19)					
. U. of W. Fla.	(19)					
Robert Ting AOML/NOAA Library	(19)					R. Ting was recommended to perform a computer aided literature search if such a search was desired. The search was not performed.
R. Molinari	(21)					Source of data reports and data resulting from SWFS investigations
G. Maul or F. Vukovich	(21)					Source of at least 2 data reports on satellite studies of Gulf circulation, surface temperature, and Loop Current.
J. Ditmar or G. Mellor	(21)					Sources of information on modelling of Gulf circulation.
P. Lilde	(21)					Source of temperature and salinity work in SWFS.

SUMMARY OF DATA

DATA TYPE	SOURCE	SAMPLING LOCATION(S)	PERIOD OF RECORD	DATA FORMAT	ACQUIRED	REMARKS
REFERRAL: (cont'd)						
C. Bretschneider	(21)					Source of wave hind-casting work at Key West and Tampa.
D. Evans	(21)					Acquire "Environmental Data Package," 1979, DOE publication from him.
P. Niiler	(14)					Has done work in SWFS.
C. Koblinsky	(14)					Has done work in SWFS.
M. Wimbush or L. Larson	(16)					Contact either man if bottom pressure data is required.
NODC	(16)					Hydrographic data from 1973 field work along 26° N available at NODC.
Jan Witte	(16)					Acquire Nova U. "Current Meter Data Report" from Jan Witte.
Peter Niiler	(22)					Person familiar w/SWFS studies & data avail.
Chet Koblinsky	(22)					Person familiar w/SWFS studies & data avail.

SUMMARY OF DATA

DATA TYPE	SOURCE	SAMPLING LOCATION(S)	PERIOD OF RECORD	DATA FORMAT	ACQUIRED	REMARKS
REFERRAL: (cont'd)						
G. Maul or R. Molinari	(22)					Contact either individual about work done in the Florida Straits.
NODC	(22)					Marmorino felt current meter data written in Koblinsky and Niiler report was filed with NODC.
P. Niiler	(27)					Contact to acquire current meter data taken in SWFS.
Florida State University	(27)					Contact for general information about work done in SWFS.
Triangle Research Institute	(28)					Contact regarding Loop Current study.
Univ. of South Florida	(28)					Same as above.
C. Koblinsky	(28)					Contact regarding tidal circulation in the SWFS.
R. Molinari	(28)					Contact regarding hydrographic data available in SWFS.

SUMMARY OF DATA

DATA TYPE	SOURCE	SAMPLING LOCATION(S)	PERIOD OF RECORD	DATA FORMAT	ACQUIRED	REMARKS
REFERRAL: (cont'd)						
G. Mellor, S. Piascek, P. Schuch, and J. O'Brien	(28)					Contact regarding modelling efforts.
M. Rinkel	(28)					It was Niiler's impression that Rinkel had compiled a report for BLM which defined the data available on the Florida Shelf.
C. Mooers	(28)					It was Niiler's impression that Mooers had prepared a report for BLM which discussed the data collected by Niiler and Mooers along the 26° N latitude.
NODC	(28)					Advised acquiring current meter data and hydrographic data collected along the 26° N latitude of the SWFS (1973-75) from NODC.
NODC	(25)					Suggested acquiring current meter, temp., and salinity data collected at 27.5° N, 85.5° W for DOE and BLM from NODC.

SUMMARY OF DATA

DATA TYPE	SOURCE	SAMPLING LOCATION(S)	PERIOD OF RECORD	DATA FORMAT	ACQUIRED	REMARKS
REFERRAL: (cont'd)						
P. Niiler	(25)					Suggested contacting P. Niiler to acquire current meter, temp., and salinity data collected under the NSF West Florida Continental Shelf Program.
M. Rinkel	(25)					Aware of work performed in SWFS.
FSU	(34)					Contact in reference to S.W. Fla. Shelf Studies.
AOML/NOAA	(34)					Same as above.
U. of S. Fla.	(34)					Same as above.
D. Mountain	(36)					Advised speaking to D. Mountain in ref. to USCG work performed in SWFS.
NODC	(36)					Hydrographic data available here.
FSU	(9)					FSU actively involved in SWFS
Bill Behrens	(9)					May be able to assist us because he is the director of the Fla. Inst. of Oceanography

SUMMARY OF DATA

DATA TYPE	SOURCE	SAMPLING LOCATION(S)	PERIOD OF RECORD	DATA FORMAT	ACQUIRED	REMARKS
REFERRAL: (cont'd)						
R. Molinari	(12)					Can provide OTEC/DOE funded data reports.
F. Vukevich	(12)					Has done satellite analysis of circulation in Gulf of Mexico.

SUMMARY OF DATA

DATA TYPE	SOURCE	SAMPLING LOCATION(S)	PERIOD OF RECORD	DATA FORMAT	ACQUIRED	REMARKS
REFERRAL: (cont'd)						
Oceanographic Research Section, USCG	(35)					
National Data Buoy Office	(35)					
Wallops Flight Center	(35)					
Dr. Y. Hsueh	(35)					
U. of Miami	(35)					
Nova Univ.	(35)					
NORDA	(35)					
Univ. of Fla.	(35)					
Inst. of Oceanography	(35)					
U. of S. Fla.	(35)					
H. Odum (NODC)	(35)					
L. Lewis (DOE)	(35)					
J. Ditmars	(35)					
A. Blumberg	(35)					

SUMMARY OF DATA

DATA TYPE	SOURCE	SAMPLING LOCATION(S)	PERIOD OF RECORD	DATA FORMAT	ACQUIRED	REMARKS
REFERRAL: (cont'd)						
D. Evans	(35)					
F. Vukovich	(35)					

IV. REFERENCES

"A Summary of Knowledge of the Eastern Gulf of Mexico, 1973," Coordinated by the State University System of Florida Institute of Oceanography, St. Petersburg, Florida, ed. James I. Jones, Ronald E. Ring, Maurice O. Rinkel, and Robert E. Smith, March, 1973.

Behringer, D.W., R. L. Molinari, and J.F. Festa (1977) "The Variability of Anticyclonic Current Patterns in the Gulf of Mexico, J. Geophys. Res., Vol. 82, pp 5469-5478.

Blaha, John P. and Wilton Sturges (Nov. 1978) "Evidence for Wind Forced Circulation in the Gulf of Mexico," Tech. Report, Dept. of Oceanography, Florida State University.

Bretschneider, C.L. (1979) "Hurricane Design Winds and Waves and Current Criteria. Univ. Hawaii, Look. Lab., Rept. 79-45.

Brooks, D.A., and C.N.K. Mooers (1977) "Wind Forced Continental Shelf Waves in the Florida Current," J. Geophys. Res., 82, 2569-2576.

Brooks, Irving H. (Sept. 1979) "Fluctuations in the Transport of the Florida Current at Periods Between Tidal and Two Weeks," Journal of Physical Oceanography, Vol. 9, No. 5, pp 1048-1053.

Brooks, Irving H. and Pearn P. Niiler (1975) "The Florida Current at Key West: Summer 1972," Journal of Marine Research, Vol. 33, No. 1, pp 83-92.

Camerlengo, Alejandro L. and James J. O'Brien (Mar. 1980) "Open Boundary Conditions in Rotating Fluids," Journal of Computational Physics, Vol. 35, No. 1, pp 12-35.

Caruthers, J.W. (1972) "Water Masses at Intermediate Depth," Contributions on the Physical Oceanography of the Gulf of Mexico, ed. L. Capurro & J. L. Reid, Gulf Publishing Co., 1-51.

Chew, F.,(1974) "The Turning Process in Meandering Currents: A Case Study, J. Phys. Oceanogr., 4 (1): 27-57.

Chew, Frank (Dec. 1955) "On the Offshore Circulation and Convergence Mechanism in the Red Tide Region off the West Coast of Florida," Transactions of the American Geophysical Union, Vol. 36, No. 6, pp 963-974.

Cochrane, J.D. (1972) "Separation of an Anticyclone and Subsequent developments in the Loop Current (1969). Contributions on the Physical Oceanography of the Gulf of Mexico (ed. L. Capurro & J.L. Reid), Gulf Publishing Co., 91-106.

Cragg, John and Wilton Sturges (June 1974) "Wind-Induced Currents and Sea Surface Slopes in the Eastern Gulf of Mexico," Tech. Report, Dept. of Oceanography, Florida State University, Tallahassee, Florida.

Durham, D.L. (1972) "Estimates of Diurnal Tidal Volume Transports Through the Yucatan Channel," Dissertation, Texas A & M University.

Fernandez-Partagas, J. and C.N.K. Mooers (1975). A subsynoptic study of cold fronts in Florida. Mon. Wea. Rev., 103, pp 742-744.

Fernandez-Partagas, J. and C.N.K. Mooers (1975). Some front characteristics over the eastern Gulf of Mexico and surrounding land areas. In: Final Report to BLM under Contract No. 08550-CT4-L6, with State University System of Florida Institute of Oceanogrphy.

Gründlingh, M.L. (1974) "A Description of Inshore Current Reversals off Richards Bay based on Airborne Radiation Thermometry," Deep-Sea Res. 21, 47-55.

Gunn, John T. (Dec. 1978) "Wind Driven Transport in 1975, Atlantic Coast and Gulf of Mexico," NOAA Tech. Report NMFS Circular 416, Ocean Variability: Effects on U.S. Marine Fisheries Resources - 1975, ed. Julien R. Goulet, Jr. and Elizabeth D. Haynes, pp 229-239.

Hansen, Donald V. and Robert L. Molinari (Jan. 1979) "Deep Currents in the Yucatan Strait," Journal of Geophysical Research, Vol. 84, No. C1, pp 359-362.

Ichiye, T. (1962) "Circulation and Water Mass Distribution in the Gulf of Mexico," Geofisica International (Mexico City), 2 (3), 47-76.

Ichiye, Takashi, Han-Hsiung Kuo, and Michael R. Carnes (Sept. 1973) "Assessment of Currents and Hydrography of the Eastern Gulf of Mexico," Contribution No. 601, Dept. of Oceanography, College of Geosciences, Texas A & M University.

Jordan, C.L. (1973) Climate. In: A Summary of Knowledge of the Eastern Gulf of Mexico, 1973. Coordinated by State University System of Florida Institute of Oceanography, St. Petersburg, Florida.

Koblinsky, C.J. (1980) "The M2 Tide on the West Florida Shelf," Submitted for publication 10/17/80 to Deep Sea Research.

Koblinsky, C.J. and P.P. Niiler (March 1980) "Summary Data Report on Direct Measurements of Circulation on West Florida Continental Shelf January 1973 - May 1974," Data Report 76, Ref. 79-13, School of Oceanography, Oregon State University, Corvallis, Oregon.

Kroll, J., and P.P. Niiler (1975) "The Transmission and Decay of Barotropic Topographical Rossby Waves Incident on a Continental Shelf," Jour. Phys. Ocn., In Press.

Legeckis, R. (1975) "Application of Synchronous Meterological Satellite Data to the Study of Time Dependent Sea-Surface Temperature Changes Along the Boundary at the Gulf Stream, Geophys. Res. Lett., 2, 435-438.

Legeckis, R. (1979) "Satellite Observations of the Influence of Bottom Topography on the Seaward Reflection of the Gulf Stream off Charleston, S.C.," J. Phys. Oceanogr., 9, 483-497.

Leipper, D.F. (1970) "A Sequence of Current Patterns in the Gulf of Mexico," J. Geophys. Res., 75(3), 637-657.

Leipper, D.F., Cochrane, J.D., and Hewitt, J.F. (1970) "A Detached Eddy and Subsequent Changes (1965)," Contributions on the Physical Oceanography of the Gulf of Mexico, ed. L. Capurro & J. L. Reid, Gulf Publishing Co., 107-117.

Marcus, S. O.,Jr. (1973) "Environmental Conditions Within Specified Geographical Areas," Offshore East and West Coasts of the United States and in the Gulf of Mexico. NDBO, April, 1973.

Maul, G. A. (1977) "The Annual Cycle of the Loop Current, Part I: Observations During a One-Year Time Series," J. Marine Res., 35, pp 29-47.

Maul, G. A., Jr. (1975) "An Evaluation of the Use of the Earth Resources Technology Satellite for Observing Ocean Current Boundaries in the Gulf Stream System," NOAA Tech. Rpt. ERL-335, AOML-18, 125 pp.

Maul, G. A., P.W. deWitt, A. Yanaway and S.R. Baig (1978) "Geostationary Satellite Observations of Gulf Stream Meanders: Infrared Measurements and Time Series Analysis. J. Geophys. Res., 83, pp 6123-6135.

Maul, G. A., D. R. Norris, and W. R. Johnson (1974) "Satellite Photography of Eddies in the Gulf Loop Current," Geophysical Research Letter, Vol. 1, No. 6, pp 256-258.

Mofjeld, Harold O. (Sept. 1976) "Tidal Currents on the West Florida Shelf," Proceedings of Marine Environmental Implications of Offshore Drilling Eastern Gulf of Mexico: 1974, Collected Reprints - 1974, Vol. 1, Atlantic Oceanographic and Meteorological Laboratories, pp 598-602.

Molinari, R. L. (1980) "Current Variability and its Relation to Sea-Surface Topography in the Caribbean Sea and Gulf of Mexico," Journal of Marine Geodesy, Vol. 3, pp 409-436.

Molinari, R. L. (Aug. 1974) "Data from the NOAA Ship VIRGINIA KEY and the SUSIO Ship BELLOWS During CICAR Survey Month II," NOAA Tech. Memo. ERL AOML-22, 153 pp.

Molinari, R. L. (June 1974) "Synoptic and Mean Monthly 20^{o}C Topographies in the Eastern Gulf of Mexico," NOAA Tech. Memo. ERL AOML-27, 33 pp.

Molinari, Robert L. (Sept. 1978) "The Relationship of the Curl of the Local Wind Stress to the Circulation of the Cayman Sea and the Gulf of Mexico," Journal of Physical Oceanography, Vol. 8, No. 5, pp 779-784

Molinari, Robert L. (1979) "Thermal and Current Data From the Gulf of Mexico and South Atlantic Relative to Placement of OTEC Plants," Proceedings of the 6th OTEC Conference, Washington, DC, Vol. 2, pp 13.3-1 - 13.3-9.

Molinari, R. L., S. Baig, D.W. Behringer, G.A. Maul, and R. Legeckis (1977) "Winter Intrusions of the Loop Current." Science, 198, pp 505-507.

Molinari, Robert L., David W. Behringer, and John F. Festa (May 1976) "Model studies of the Circulation in the Gulf of Mexico," Final Rept. submitted to the Bureau of Land Management.

Molinari, R. L., and J. D. Cochrane (1972) The effect of topography on the Yucatan Current. Contributions on the Physical Oceanography of the Gulf of Mexico (ed. L. Capurro & J. L. Reid) Gulf Publishing Company, pp 149-155.

Molinari, R. L. and J. F. Festa (1978) "Ocean Thermal and Current Velocity Data Requirements for Design of an OTEC Demonstration Plant," NOAA Tech. Memo. ERL-AOML-30, 18 pp.

Molinari, R. L. and J. F. Festa (1978) "Ocean Thermal and Velocity Characteristics of the Gulf of Mexico Relative to the Placement of a Moored OTEC Plant," NOAA Tech. Memo. ERL-AOML-33.

Molinari, Robert L., John F. Festa and David W. Behringer (Nov. 1978) "The Circulation in the Gulf of Mexico Derived from Estimated Dynamic Height Fields," Journal of Physical Oceanography, Vol. 8, No. 6, pp 987-996.

Molinari, R. L., J. Hazelworth and D. Ortman (1979) Data from OTEC site characteristics studies in the Gulf of Mexico and tropical South Atlantic. NOAA Tech. Memo. AOML-39.

Molinari, Robert L. and Dennis Mayer (May 1980) "Physical Oceanographic Conditions at a Potential OTEC Site in the Gulf of Mexico; 27.5° N, 85.5° W," NOAA Tech. Memo. ERL AOML-42, Atlantic Oceanographic and Meteorological Laboratories, Miami, Florida.

Molinari, Robert L., Dennis Mayer and Frank Chew (Nov. 1979) "Physical Oceanographic Conditions at a Potential OTEC Site in the Gulf of Mexico; 88° W, 29° N, NOAA Tech. Memo. ERL AOML-41.

Mooers, C.N.K., and D.A. Brooks (1977) "Fluctuations in the Florida Current, Summer 1970," Deep Sea Res., 24, pp 399-425.

Mooers, Christopher N.K., Jose Fernandez-Partagas, and James F. Price (June 1975) "An Evaluation of Meteorological Data from Several Buoys of the NOAA Data Buoy Office (Eastern Gulf of Mexico, 1973-1974)," U. of Miami Tech. Rept. UM-RSMAS #75030.

Niiler, Pearn P. (1976) "Observations of Low-Frequency Currents on the West Florida Continental Shelf," Mémoires de la Société Royale des Sciences de Liège, Sixième Série, Tome X, pp 331-358.

Nowlin, W. D., Jr. (1972) "Winter Circulation Patterns and Property Distributions," Contributions on the Physical Oceanography of the Gulf of Mexico, ed. L. Capurro & J. L. Reid, Gulf Publishing Co., pp 1-51.

Nowlin, W. D., Jr. and J. M. Hubertz (1972) "Contrasting Summer Circulation Patterns for the Eastern Gulf," Contributions on the Physical Oceanography of the Gulf of Mexico, ed. L. Capurro & J. L. Reid, Gulf Publishing Company, pp 119-137.

Pequegnat, W. E. (1972) "A Deep Bottom Current on the Mississippi Cone," Contributions on the Physical Oceanography of the Gulf of Mexico, ed. L. Capurro & J. L. Reid, Gulf Publishing Company, pp 65-87.

Plaisted, Robert O, Keith M. Waters and Pearn P. Niiler (Jan. 1975) "Current Meter Data Report," NSF Shelf Dynamics Program, Physical Oceanographic Laboratory, Nova University.

Price, James F. (1976) "Several Aspects of the Response of Shelf Waters to a Cold Front Passage," Mémiores de la Société Royale des Sciences de Liège, Sixième Série, Tome X, pp 201-208.

Price, J. F. and C.N.K. Mooers (April 1975) "Hydrographic Data Report from Fall 1973," NSF Continental Shelf Dynamics Program, University of Miami, UM-RSMAS #75018.

Price, J. F. and C.N.K. Mooers (Dec. 1974) "Current Meter Data Report from Fall 1973," NSF Continental Shelf Dynamics Program, University of Miami, UM-RSMAS #74035.

Price, J. F. and C.N.K. Mooers (March 1974) "Hydrographic Data Report from Winter 1973," NSF Continental Shelf Dynamics Program, University of Miami, UM-RSMAS #74006.

Price, J. F. and C.N.K. Mooers (June 1974) "Current Meter Data Report from Winter 1973," NSF Continental Shelf Dynamics Program, University of Miami, UM-RSMAS #74020.

Rao, P.K., A.E. Strong and R. Koffler (1971) "Gulf Stream Meanders and Eddies as seen in Satellite Infrared Imagery," Journal Phys. Oceanogr. 3, pp 238-239.

Rattray, M., Jr. (1957) "On the Offshore Distribution of Tide and Tidal Current," Transactions, American Geophysical Union, Vol. 38, pp 675-680.

Redfield, A.C. (1958) "The Influence of the Continental Shelf on the Tides of the Atlantic Coast of the United States," Journal of Marine Research, Vol. 17, pp 432-448.

Robinson, A. E. (1964) "Continental Shelf Waves and the Response of the Sea Level to Weather Systems," J. Geophys. Res., Vol. 69, pp 367-368.

Robinson, M. K. (1973) "Atlas of Monthly Mean Sea-Surface and Subsurface Temperature and Depth of the Top of the Thermocline, Gulf of Mexico and Caribbean Sea," Scripps Institute Oceanographic Reference, La Jolla, California, pp 73.

Saunders, P.M. (1971) "Anticyclonic Eddies formed from Shoreward Meanders of the Gulf Stream," Deep-Sea Res., Vol. 18(2), pp 1207-1219.

Snyder, R. L. and M. Sidjabat, and J. H. Filloux (1979) "A Study of Tides, Setup, and Bottom Friction in a Shallow Semi-Enclosed Basin, Part II: Theory and Comparison with Data," Journal of Physical Oceanography, Vol. 9, 170-188.

Sturges, Wilton and S. L. Shang (Dec. 1978) "A Working Conference on Circulation in the Gulf of Mexico," Summary Report, Dept. of Oceanography, Florida State University, Tallahassee, Florida.

Thomas, G.T., S.M. Minton and R. L. Molinari (1979) Data from AOML OTEC site studies in the Gulf of Mexico, July, 1977. NOAA Tech. Memo. ERL-AOML-34.

Thompson, J.D., H.E. Hulbert and P.J. Martin (Feb. 20-28, 1978) Results from the Gulf of Mexico-OTEC far field numerical model, paper presented at 5th Ocean Thermal Energy Conversion Conference, Miami, Florida.

Tidwell, Darrell, Carol Cardwell, Robert Molinari, and Donald Ortman (Jan. 1978) "Data From the Atlantic Oceanographic and Meteorological Laboratories Loop Current Monitoring Cruises, May 1975 through August 1976," NOAA Technical Memorandum ERL AOML-29.

U.S. Bureau of Land Management (1976) Gulf Continental Shelf Surface Currents Map, Outer Continental Shelf, Eastern Gulf of Mexico, Visual No. 6.

Van Leer, John C., Walter R. Johnson and Emanuel Mehr (Nov. 1974) "Cyclesonde Data Report from the Winter 1973," NSF Continental Shelf Dynamics Program, University of Miami Scientific Report, UM-RSMAS #74033.

Vukovich, F.M. (1976) "An Investigation of a Cold Eddy on the Eastern Side of the Gulf Stream using NOAA 2 and NOAA 3 Satellite Data and Ship Data," J. Phys. Oceanogr., Vol. 6, pp 605-612.

Vukovich, F.M. and B.C. Crissman (1978) "Further Studies of a Cold Eddy on the Eastern Side of the Gulf Stream Using Satellite and Ship Data," J. Phys. Oceanogr., Vol. 8(5), pp 838-845.

Vukovich, F.M., B.W. Crissman and D. Erlich (Sept. 1980) "Sea Surface Temperature Variability Analysis of Potential OTEC Sites in the Eastern Gulf of Mexico Utilizing Satellite Data," Interim Report prepared for AOML/NOAA, Triangle Research Institute, Research Triangle Park, North Carolina, 36 pp.

Vukovich, F.M., B.C. Crissman, M. Bushnell and W.J. King (1978) "Sea-Surface Temperature Variability Analysis of Potential OTEC Sites Utilizing Satellite Data," Final Report DOE Contract No. EG-77-C 05-0544, Research Triangle Institute, Research Triangle Park, North Carolina 27709, 153 pp.

Vukovich, Fred M., Bobby W. Crissman, Mark Bushnell and William J. King (Dec. 1979) "Some Aspects of the Oceanography of the Gulf of Mexico Using Satellite and In-Situ Data," Journal of Geophysical Research, Vol. 84, No. C12, pp 7749-7768.

Webb, D.J. (1976) "A Model of Continental Shelf Resonances," Deep-Sea Research, Vol. 23, pp 1-15.

Whitaker, R.E. (1971) "Seasonal Variation of Steric and Recorded Sea Level of the Gulf of Mexico," Masters Thesis, Texas A & M University, Department of Oceanography, College Station, 109 pp.

Wolff, P., H. Levit, J. Shuckart and William Wolff (1977) "OTEC Thermal Resource Report for Central Gulf of Mexico," Prepared for the U.S. Department of Energy under Contract No. EC-77-C-01-4028, Ocean Data Systems, Inc., Monterey, California.

Zetler, B.D. (1971) "Radiational Ocean Tides Along the Coasts of the United States," Journal of Physical Oceanography, Vol. 1, pp 34-38.

Zetler, B.D. and D. V. Hansen (1972) "Tides in the Gulf of Mexico," Contributions on the Physical Oceanography of the Gulf of Mexico, ed. L. Capurro & J.L. Reid, Gulf Publishing Company, pp 265-275.

V. SUMMARY AND CONCLUSIONS

The data collection effort met with considerable success. Thirty-seven of the thirty-nine potential telephone contacts were completed with success in developing the data base, and a good cross-section of industries, universities, and federal agencies was achieved. The most productive avenue pursued was following up referrals made by individuals directly involved in Eastern Gulf of Mexico or Southwest Florida Shelf studies. The least productive avenue was that of contacting universities and trying to identify departments, individuals, and literature which might be of assistance. The referrals most commonly made were to P. Niiler, NODC, Molinari, and FSU. The most commonly sited literature were the Koblinski and Niiler (1980) data report, the 4 University of Miami data reports by Price and Mooers, and the Nova University data report by Plaisted, Waters, and Niiler (1975).

The most assistence was provided by Dr. Wilton Sturges of Florida State University, who was able to provide referrals, literature, and pertinent oceanographic data. Much useful literature was also provided by Molinari, Koblinsky, Corderelle, Brooks, and Vukovich. The National Climatic Center in Ashville, North Carolina and NODC in Rockville, Maryland should be commended for their cooperation, assistance, and efficiency in locating and providing meteorological and oceanographic data.

After having briefly reviewed the available data it appears that sufficient time series of tidal elevations, wind data, and barometric pressure exists along the gulf coast of Florida to establish driving mechanisms and boundary conditions along that boundary. Similarly, a vast amount of

hydrographic data is available from NODC in the Eastern Gulf of Mexico and the Southwest Florida Shelf. Limited amounts of meteorological, current, and surface elevation data exist along the shelf boundary, but a considerable amount of literature exists about the Loop Current and this may help, at least in a qualitative sense, to establish the correct driving mechanisms and boundary conditions for input into the numerical model along the outer boundary. By far the most deficient pool of data is that of current data. It appears that only 3 sources of current data exist, data collected by Wilton Sturges off Cedar Keys, data collected by Robert Molinari off Tampa, and data collected by P. Niiler and C. Mooers along the 26^{o} N latitude. Each of these data sets consist of fairly short time series records, each taken during different years. This, in combination with the fact that only three sets of current data exist which examine deeper currents as well as surface currents may cause difficulties in accurately tuning the numerical model.

The Department of the Interior Mission

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The Department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

The Minerals Management Service Mission

As a bureau of the Department of the Interior, the Minerals Management Service's (MMS) primary responsibilities are to manage the mineral resources located on the Nation's Outer Continental Shelf (OCS), collect revenue from the Federal OCS and onshore Federal and Indian lands, and distribute those revenues.

Moreover, in working to meet its responsibilities, the **Offshore Minerals Management Program** administers the OCS competitive leasing program and oversees the safe and environmentally sound exploration and production of our Nation's offshore natural gas, oil and other mineral resources. The MMS **Minerals Revenue Management** meets its responsibilities by ensuring the efficient, timely and accurate collection and disbursement of revenue from mineral leasing and production due to Indian tribes and allottees, States and the U.S. Treasury.

The MMS strives to fulfill its responsibilities through the general guiding principles of: (1) being responsive to the public's concerns and interests by maintaining a dialogue with all potentially affected parties and (2) carrying out its programs with an emphasis on working to enhance the quality of life for all Americans by lending MMS assistance and expertise to economic development and environmental protection.