

G.S.A. ARCHIVES

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ORLANDO

1985 ANNUAL MEETING AND EXPOSITION

OCTOBER 28-31, 1985
ORANGE COUNTY CONVENTION/CIVIC CENTER
ORLANDO, FLORIDA

THE GEOLOGICAL SOCIETY OF AMERICA

TABLE OF CONTENTS

SPECIAL EVENTS	135-136	PROFESSIONAL HORIZONS	144-147
Walt Disney World Pass		GSA Courses	
Welcoming Party		Other Courses	
OGD 25th Anniversary Dinner		Forums, Workshops	
GSA Awards Luncheon		Science Theater	
Alumni Night		GUEST PROGRAM	148
Mardi Gras		EMPLOYMENT INTERVIEWS	149
Sea World Night		TRANSPORTATION	150
Meal Functions		HOUSING	151-154
Sports Events		CONVENIENCE INFORMATION	155
SYMPOSIA	137	ABSTRACTS WITH PROGRAMS	155
TECHNICAL PROGRAM	138-139	REGISTRATION	156-157
FIELD TRIPS	140-142		
EXHIBITS	143		

1985 ANNUAL MEETING LOCAL COMMITTEE

General Chairman	.....	Anthony F. Randazzo	... University of Florida
Co-Chairman	.....	Sam B. Upchurch	..... University of South Florida
Field Trip Chairman	.....	Douglas L. Smith	..... University of Florida
Co-Chairman	.....	Douglas S. Jones	..... University of Florida
Guest Program Chairman	.....	Lynne M. Randazzo	
Publicity Chairman	.....	Phillip Ware	..... Coastal Petroleum Co.
Science Theater Chairman	Frank B. Kujawa University of Central Florida
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Technical Program Chairman	James F. Tull Florida State University
Co-Chairman	Joseph Donoghue Florida State University
Technical Services Chairman	.....	James B. Cowart	..... Florida State University
Co-Chairman	.....	Michael R. Perfit	..... University of Florida
Transportation Chairman	.....	Richard N. Strom	..... University of South Florida

SINCERE THANKS

The Geological Society of America is grateful to and sincerely thanks all those who have contributed so much to the success of this meeting: the speakers for their excellent presentations; the exhibitors for their financial support, products, and information; the local committee for a lot of hard work; the associated societies for their programs and patience; and to you geoscientists for your attendance. To each and every one, a hearty thanks from the Council and staff of the Society.

SPECIAL EVENTS



ORLANDO WELCOME

Orlando, one of the world's most popular tourist destinations, offers endless entertainment. Within a 20-minute drive is the WALT DISNEY WORLD Complex, which includes the MAGIC KINGDOM® and EPCOT® Center. Sea World is around the corner from the Convention Center, and Kennedy Space Center is only an hour away. October offers entertainment for family and friends, good weather, and fewer tourists.

WALT DISNEY WORLD Resort: Special Two-Day Pass.

Anytime before, during, or after the GSA meeting, you and your family and friends may take advantage of the special two-day pass that will be available for GSA registrants and guests who want to visit the WALT DISNEY WORLD Resort. This special pass, available only through GSA, provides back-and-forth access to both the MAGIC KINGDOM® and EPCOT® Center during *any two days* between October 24 and November 3. The days do not have to be consecutive, and the pass includes all rides, attractions, adventures—and parking. The adult pass is offered at a 10% discount from the at-gate fees. Passes will be picked up with your preregistration materials on-site. Passes may also be sent by certified mail in advance of the meeting, if you note this request in writing. A note on the registration form will do.

Fee: \$32

WELCOMING PARTY

Convention Center
Sunday, October 27, 6:00 to 9:00 p.m.

You are cordially invited to attend the Society's reception to meet your old friends and to make new ones as well. The GSA shuttle will make continuous loops from the GSA hotels to the Center between 5:30 and 9:30 p.m. This is your opportunity to both register (registration will be open until 7:30 p.m.) and visit the 1985 technical and scientific exhibits. Cash bars remain open until 9:00 p.m. We hope you'll arrive in Orlando in time to join us.

ORGANIC GEOCHEMISTRY DIVISION 25th ANNIVERSARY DINNER

Marriott at International Drive
Sunday, October 27, 7:30 p.m.

The Organic Geochemistry Division of the Geochemical Society will hold a 25th Anniversary Dinner on Sunday evening. The dinner will be preceded by a cash bar beginning at 6:30 p.m. John M. Hunt, of the Woods Hole Oceanographic Institution and a former Treibs Award recipient, will be the featured speaker. You may register for the event on the GSA registration form.

Fee: \$22

GSA AWARDS LUNCHEON

Marriott at International Drive
Monday, October 28, 12:30 to 2:00 p.m.

GSA's luncheon honors Penrose Medalist Rudolf Trümpy and Day Medalist Freeman Gilbert, as well as the Society's 98th year in support of the geosciences. All geologists and their guests are welcome. This is the only official luncheon held on Monday, and is available by *preregistration only*.

Fee: \$14

GSA PRESIDENTIAL ADDRESS

Convention Center
Monday, October 28, 11:45 a.m. to 12:15 p.m.

Everyone is welcome to attend President Brian J. Skinner's address, which is followed immediately by the GSA Awards Luncheon at the Marriott. President Skinner will focus on the development of our knowledge, particularly during the past 30–40 years, of how mineral deposits have formed. He'll also offer his thoughts on the research challenges that lie ahead.

ALUMNI NIGHT

Marriott at International Drive
Monday, October 28, 6:00 to 9:00 p.m.

Pool night is alumni night. Bring your suit—waterproof or water-wearable. Marriott landscaping includes several large pools where alumni will gather to celebrate. Music is included. Special requests? Send them in writing to the Events Coordinator, GSA Headquarters. If your university wants to hold an alumni reception, please notify the Coordinator by September 1.

MARDI GRAS

The Mercado Center (next to the Marriott)
Tuesday, October 29, two shows, 6:00 and 9:00 p.m.

This is dinner theater à la New Orleans. Reserved seating is held for GSA during this dinner show produced by one of Orlando's best entertainers and restaurateurs. This newly launched show has been designed by an experienced director of Walt Disney productions. Mardi Gras is located footsteps away from the Marriott in the new Mercado Center. Mardi Gras leads off with mint juleps, followed by a four-course Creole dinner with wine. Then the New Orleans jazz band warms up the evening of international cabaret music, comedy, and dance. Shuttle is provided.

Fee: \$17 inclusive



ORLANDO • 1985 GSA ANNUAL MEETING & EXPOSITION

SEA WORLD

Wednesday, October 30, 6:00 to 11:00 p.m.

GSA's major special event evening begins with music, beer, and an outdoor dinner. Beverages courtesy of Academic Press. Four major shows follow: Shamu® Dolphins, Waterski, and Shark Encounter. Sea World of Orlando has earned its reputation as one of the nation's top attractions, setting the standard for aquatic zoological parks. More than 8,000 animals, including marine mammals, birds, reptiles, fish, invertebrates, and Shamu® the world's favorite killer whale, make their home at Sea World. Buses begin the loop from the hotels at 5:30 p.m. and return throughout the evening until 11:30 p.m.

Fee \$24 inclusive

SPORTS EVENTS

PRESIDENT'S INVITATIONAL TENNIS

Marriott at International Drive
Sunday, October 27, 8:00 a.m. to 12 noon

GSA's President Brian Skinner challenges tennis players to participate in an open round-robin doubles tournament on the Marriott courts. (The weather is guaranteed to be perfect.) The tournament is organized by a tennis professional. Bring a partner, or we'll assign you one on Sunday morning. No singles or mixed doubles will be played. Entry will be limited; first come, first served. The fee includes beverage, balls, and court fee.

Fee per person: \$6

ORLANDO 5K/10K RUN

Convention Center
Wednesday, October 30, 8:30 to 9:30 a.m.

The second annual 5K/10K races start from the Convention Center for a flat run in open spaces, palm trees, and warm breezes. Everyone is welcome: racers, joggers, walkers. Ribbons go to all finishers, and special prizes to the first-place winners. Our professional race director suggests that if you are not from Florida, you should be aware that the heat and humidity may affect your run; drink adequate fluids. Register now. Finnigan MAT, manufacturers of isotope ratio mass spectrometers, has graciously agreed to sponsor the race shirts.

Fee including t-shirt: \$7 Limit: 400

ICE HOCKEY GAME

A no-hit, no slapshot, pick-up ice hockey game is being organized for a night during the week of the Orlando GSA meeting. There will be a participation fee. Participation may be limited, so please contact the organizer soon: Don Dingwell, Geophysical Lab, Carnegie Institution, 2801 Upton Street, N.W., Washington, DC 20008; (202) 966-0334.

AWARDS LUNCHEONS AND OTHER TICKETED MEAL FUNCTIONS

Use the registration form to obtain tickets for the annual luncheons held by GSA, its divisions, and several of the associated societies. In addition, the Geochemical Society's Organic Geochemistry Division is celebrating with a 25th Anniversary dinner, and the Association of Women Geoscientists is having a breakfast meeting. Membership is not required to attend any of these functions.

Are you qualified by education, professional experience, and standing among your peers?

Why Not Join AIPG?

The Institute welcomes the membership application of those who may meet its high standards for acceptance as Certified Professional Geological Scientists.

AIPG services to its members, and to the public, include: certification, education, information, and representation.

If you'd like to know more, call or write Victor C. Tannehill, Executive Director.

American Institute of
Professional Geologists
7828 Vance Drive-Suite 103
Arvada, Colorado 80003
(303) 431-0831



SYMPOSIA



The technical program consists of volunteered papers that are presented in oral or poster session and invited papers presented in symposia. The symposia list appears below.

1. **Archaeological Sites: Their Adaptation to Marine Environments.** Archaeological Geology Division; Charles Vitaliano.
2. **The Peat to Lignite Transition.** Coal Geology Division; Arthur D. Cohen, C. Blaine Cecil.
3. **Engineering Geology of Low-Energy Coastlines.** Engineering Geology Division; Robert L. Schuster.
4. **Radiometric Calibration of Thermal History and Application to Geophysics.** Geophysics Division; Tullis C. Onstott, Rob Van Der Voo.
5. **History of Investigations of Recent and Ancient Reefs.** History of Geology Division; Joseph T. Gregory.
6. **Multiple Uses of Aquifers.** Hydrogeology Division; John Vecchioli.
7. **Rifting and Volcanism: The Planetary Perspective.** Planetary Geology Division; Victor R. Baker, D. Wise.
8. **Sedimentary Processes and Deposits of Low-Energy Coastlines.** Quaternary Geology and Geomorphology Division; Albert C. Hine, Daniel F. Belknap.
9. **Sedimentologic Consequences of Convulsive Geologic Events.** Sedimentary Geology Division; H. Edward Clifton.
10. **Caribbean Tectonics.** Structural Geology and Tectonics Division; Grenville Draper, Peter Mattson.
11. **Evolutionary Paleobiogeography I: Climate Change and the Species.** Cushman Foundation; Thomas M. Cronin, David E. Schindel.
12. **Proterozoic Massif-Type Anorthosites and Related Rocks: Their Origins and Implications for the Evolution of the Earth's Crust and Mantle.** Geochemical Society; E. Craig Simmons.
13. **Micros, Minis, and Geoscience Information.** Geoscience Information Society; Annette E. Bourgeois.
14. **Quantitative Petrology: Theory, Experiment, and Field. A Symposium in Honor of David R. Wones.** Mineralogical Society of America; Hans P. Eugster, D. B. Stewart.
15. **Recent Advances in Structural Geology: Implications for Instruction.** National Association of Geology Teachers; H. Robert Burger.
16. **Evolutionary Paleobiogeography II: Biogeographic Pattern and Evolutionary Process.** Paleontological Society; Karl W. Flessa, David Jablonski.
17. **Gold in Metamorphosed Terranes.** Society of Economic Geologists; Ulrich Petersen and Robert W. Hodder.
18. **Metamorphic Histories of Appalachian Terranes: Contrasts and Comparisons across Possible Microplate Boundaries.** Gail S. Russell, J. Laird, S. A. Kish.
19. **The First Fifty Million Years of Cenozoic Climate.** Thomas J. Crowley, Richard Z. Poore.
20. **Melanges and Olistostromes of the U.S. Appalachians,** J. Wright Horton, Nicholas Rast.
21. **Paleosols and Weathering through Geologic Time: Principles and Applications.** Wayne R. Sigleo, Juergen Reinhardt.
22. **Opportunities for Scientific Studies in the Proposed Appalachian Deep Core Hole (ADCOH).** Robert D. Hatcher, Jr., and Francis G. Stehli.
23. **DNAG: The Atlantic Coastal Plain and Continental Margin.** President's Symposium. John A. Grow and Robert E. Sheridan.
24. **Geochemical Fossils: Precambrian to Recent.** John Zumberge.
25. **Holocene Sea-Level History and Depositional Response along the U.S. Middle Atlantic and Southeastern Coast.** Frank W. Stapor.



CONTENTS OF TECHNICAL PROGRAM

SYMPOSIA

1. Archaeological Sites: Their Adaptation to Marine Environments	Oct. 29
2. The Peat to Lignite Transition	Oct. 28
3. Engineering Geology of Low-Energy Coastlines	Oct. 28
4. Radiometric Calibration of Thermal History and Applications to Geophysics	Oct. 31
5. History of Investigations of Recent and Ancient Reefs	Oct. 29
6. Multiple Uses of Aquifers	Oct. 30
7. Rifting and Volcanism: The Planetary Perspective	Oct. 29
8. Sedimentary Processes and Deposits of Low-Energy Coastlines	Oct. 28
9. Sedimentologic Consequences of Convulsive Geologic Events	Oct. 28
10. Caribbean Tectonics	Oct. 29
11. Evolutionary Paleobiogeography I: Climate Change and the Species	Oct. 28
12. Proterozoic Massif-Type Anorthosites and Related Rocks: Their Origins and Implications for the Evolution of the Earth's Crust and Mantle	Oct. 29
13. Micros, Minis, and Geoscience Information	Oct. 29
14. Quantitative Petrology: Theory, Experiment, and Field. A Symposium in Honor of David R. Wones	Oct. 28
15. Recent Advances in Structural Geology: Implications for Instruction	Oct. 30
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24. Geochemical Fossils: Precambrian to Recent	Oct. 27
25. Holocene Sea-Level History and Depositional Response along the U.S. Middle Atlantic and Southeastern Coast	Oct. 27

VOLUNTEERED SESSIONS

Archaeological Geology	Oct. 30
Coal Geology	Oct. 29
Economic Geology I	Oct. 28
Economic Geology II	Oct. 28
Economic Geology III	Oct. 30
Economic Geology IV	Oct. 31
Economic Geology V	Oct. 31
Engineering Geology	Oct. 29
Environmental Geology	Oct. 31
Experimental Petrology	Oct. 30
General Geology	Oct. 31
Geochemistry I	Oct. 28
Geochemistry II	Oct. 30
Geochemistry III	Oct. 31
Geochemistry IV	Oct. 31
Geological Education	Oct. 28
Geomorphology I	Oct. 31
Geomorphology II	Oct. 31
Geophysics	Oct. 30
Geoscience Information	Oct. 28
History of Geology	Oct. 30
Hydrogeology I	Oct. 30
Hydrogeology II	Oct. 31
Igneous Petrology I	Oct. 28
Igneous Petrology II	Oct. 29
Igneous Petrology III	Oct. 29
Igneous Petrology IV	Oct. 31
Marine Geology I	Oct. 29
Marine Geology II	Oct. 30
Marine Geology III	Oct. 31
Mathematical Geology	Oct. 28
Metamorphic Petrology I	Oct. 29
Metamorphic Petrology II	Oct. 30
Micropaleontology I	Oct. 31
Micropaleontology II	Oct. 31
Mineralogy	Oct. 28
Oceanography	Oct. 30
Paleontology I	Oct. 29
Paleontology II	Oct. 30
Paleontology III	Oct. 30
Paleontology IV	Oct. 31
Petroleum	Oct. 29
Planetary Geology	Oct. 28
Precambrian Geology I	Oct. 31
Precambrian Geology II	Oct. 31
Quaternary Geology	Oct. 29
Remote Sensing	Oct. 28
Sedimentary Petrology I	Oct. 28
Sedimentary Petrology II	Oct. 30
Sedimentary Geology I	Oct. 30
Sedimentary Geology II	Oct. 31
Sedimentary Geology III	Oct. 31

POSTER SESSIONS

Poster Session I	Oct. 28
General Geology, Geochemical, Geophysics, Hydrogeology	
Poster Session II	Oct. 28
Structure, Tectonics	
Poster Session III	Oct. 29
Marine, Sedimentary Geology	
Poster Session IV	Oct. 29
Micropaleontology, Oceanography, Paleontology, Quaternary, Geomorphology	
Poster Session V	Oct. 30
Coal, Economic, Precambrian	
Poster Session VI	Oct. 30
Geomorphology, Igneous Petrology, Mineralogy, Neotectonics	
Poster Session VII	Oct. 31
Archaeology, Engineering, Experimental Petrology, Geoscience Information, Igneous Petrology, Remote Sensing, Sedimentary Petrology, Stratigraphy, Volcanology	
Poster Session VIII	Oct. 31
Environmental, Geological Education, Glacial, Mathematical, Planetary	

TECHNICAL PROGRAM SCHEDULE • 1985

= SYMPOSIA IDENTIFICATION

UPPER/LOWER CASE = VOLUNTEERED SESSIONS ALL CAPS = POSTER SESSIONS

SUNDAY, OCT. 27	MONDAY, OCT. 28	TUESDAY, OCT. 29	WEDNESDAY, OCT. 30	THURSDAY, OCT. 31
8-11:00 AM * 6	8-11:30 AM * 5 # 2 Coal # 8 Quaternary # 11 Cushman	8 AM - 12 NOON * # 7 Planetary # 10 Structure # 19 Cenozoic	8 AM - 12 NOON * # 6 Hydro # 15 NACT # 20 Appalachian Melanges	8 AM - 12 NOON * # 4 Geophysics 8AB
# 17 SEG I 6	Economic I Ig Pet I Mineralogy Sed Pet I Structure I Tectonics I	Coal/Petroleum Engineering Ig Pet II Paleo I Quaternary Stratigraphy I	Arch/History Geochem II Met Pet II Paleo II Sed Pet II Tectonics III	Economic IV Environ/ Geomorph I Geochem III Hydro II Ig Pet IV Micropaleo I Precambrian I Sedimentary II
	GENERAL, GEOCHEM GEOPHYSICS, HYDRO	MARINE SEDIMENTARY	COAL, ECONOMIC PRECAMBRIAN	Economic V General Geochem IV Geomorph II Marine III Micropaleo II/ Paleo IV Precambrian II/ Tectonics V Sedimentary III Volcanology
LUNCHEONS:	GSA	Eng, GIS, History, Hydro MSA, NACT, Paleo	Coal, QG&G, SEG Geochem	ARCH, ENG, EX PET GIS, MET PET, REMOTE SED PET, STRAT, VOLC
1-5:00 PM	2-6:00 PM	1:30-5:30 PM	1:30 - 5:30 PM	1-5:00 PM
# 17 SEG II 6 # 24 Geochem Fossils 2 # 25 Holocene Sea Levels 5	# 3 Engineering 8CD # 9 Sedimentary B # 14 MSA 8AB # 16 Paleo 6 # 18 Appalachian Terranes 8GH Economic II A Geochem I C Planetary 8EF GIS, Geol Ed Math, Remote Sensing 5 STRUCTURE TECTONICS	# 1 Arch 8GH # 5 History 6 # 13 GIS 8EF # 21 Paleo 8CD # 12 Geochem A Ig Pet III 8AB Marine I 5 Met Pet I 7 Structure II C Tectonics II B MICROPALAEO, PALEO OCEAN, QUATERNARY	# 22 Deep Drill 6 # 23 Atlantic Margin:DNAG 8AB Economic III A Ex Pet 7 Hydro I 8GH Marine II/ Ocean/Strat II 5 Paleo III 8CD Sedimentary I 8EF Structure III/ Geophysics C Tectonics IV B GEOMORPH, IG PET MINERALOGY, NEOTECTONICS	

ALL TECHNICAL SESSIONS AT THE ORANGE COUNTY CONVENTION/CIVIC CENTER ALL LUNCHEONS AT THE MARRIOTT

* ROOM KEY: A, B, C = SOUTH HALL 8AB, CD, EF, GH = ORANGE BLOSSOM 7 = MAGNOLIA 6 = ORCHID 5 = CAMELLIA 2 = JASMINE



FIELD TRIPS

Orlando is centrally located in Florida and offers easy access to many interesting geological exposures. The oldest surficial rocks in Florida are middle Eocene. Miocene and younger sandstone, clay, and carbonate rocks, which are dominant, blanket most of the peninsula. Phosphatic sands, delicate environments of deposition, wetlands, and extensive karst topographies provide unique opportunities for local field trips. The proximity of Florida to the southern Appalachian Highlands, the Bahamas Platform, and the Caribbean Islands affords a basis for field trips to diverse and classic geologic features in these areas. Select a trip that touches your fancy: Appalachian geology, coastal processes, carbonate landforms, archaeology, Caribbean plate geology, Andean geology, and more.

All trips originate and end in Orlando, unless otherwise specified. Participants must provide their own transportation to the starting point and from the termination point, for those trips not originating or terminating in Orlando.

Trip costs include transportation for the trip itself and guidebook. They also may include costs of other services as noted by the following abbreviations: B—Breakfast; L—Lunch; D—Dinner; ON—Overnight lodging. Additional details will be provided on information sheets sent to trip registrants. Trips are technical in nature and can be physically rigorous.

Registration. Field trip registrants are required to be registered for the meeting. If you are unable to attend the meeting but will attend a field trip, you may register using the one-day registration fee. This will entitle you to a one-day badge for the day of your choice. Fee cannot be refunded and is not transferable.

PREREGISTRATION DEADLINE: Registration must be RECEIVED at GSA Headquarters no later than September 27.

Preregistration for a field trip is suggested. Participants will be selected on a first-come, first-served basis. Registration form and procedures are provided in this announcement. Registration for field trips after the deadline may be possible if trip logistics and space permit by contacting Field Trip Coordinator, GSA Headquarters, (303) 447-2020. On-site registration MAY be possible during the meeting at the Field Trip Desk, Convention Center, for mini-trips and postmeeting field trips.

GUIDEBOOKS may be purchased at the field trip desk during the meeting. After the meeting, contact Douglas L. Smith, Department of Geology, University of Florida, Gainesville, FL 32611, (904) 392-6766.

For further information, contact the designated leaders, Field Trip Chairman Douglas L. Smith, Department of Geology, University of Florida, Gainesville, FL 32611, (904) 392-6766, or GSA Field Trip Coordinator, GSA Headquarters, (303) 447-2020.

PREMEETING TRIPS

1. Sedimentology of a Barrier Island and Marsh-dominated Coast, West-Central Florida. Richard A. Davis, Jr., University of South Florida, Tampa; Albert C. Hine, University of South Florida, St. Petersburg; and Daniel E. Belknap, University of Maine, Orono. Three days (plus previous evening). Oct. 24, 25, 26, 27.

The trip will emphasize the two distinctively different coastal systems along the low-wave-energy, microtidal coast of west-central Florida: (1) an unusual barrier-island system having a prominent meso-tidal morphology, and (2) an open-marine, marsh shoreline largely dominated by a pronounced, underlying karst topography. Features include emergent barrier-bar systems, drumstick barriers, rapidly formed recurved spit systems, hundreds of rock-cored marsh islands, and enormous (10 km long) oyster-reefed bioherms. Access to the field area will be by boat; the trip will end with an overflight of the entire coast. Convenes in St. Petersburg, Florida, Thursday night, October 24, 8:00 p.m.

Limit: 22; 3 ON, 3L; Fee: \$250

2. Pleistocene and Holocene Carbonate Environments on San Salvador Island, Bahamas. H. Allen Curran, Smith College, Northampton, Massachusetts; Roger J. Bain, University of Akron, Akron, Ohio; James L. Carew, College of Charleston, Charleston, South Carolina; John E. Mylroie, Murray State University, Murray, Kentucky; James W. Teeter, University of Akron; and Brian White, Smith College. Three and one-half days, Oct. 24, 25, 26, 27.

Check-in at Ft. Lauderdale airport at 12 noon on October 24, and begin with a low-altitude overflight to view features of the Bahamas platform enroute to San Salvador, an "out island" just beyond the eastern edge of the platform. On the island, modern subtidal (including coral reefs and a tidal delta), intertidal, beach, dune, lacustrine, and blue-hole carbonate environments will be examined and compared with rock-record analogs from the fine Pleistocene sections exposed here, including an exceptional fossil coral reef and subtidal through eolianite beds. There will be opportunities for snorkeling and scuba diving and for a cave trip.

Limit: 25; 3 ON, 3B, 3L, 3D, airfare; Fee: \$425

3. Karst Hydrogeology of Central and North Florida. Barry F. Beck, University of Central Florida, Orlando. One and one-half days, Oct. 26, 27.

Departs Orlando Convention Center, 3:00 p.m., Saturday October 26. The itinerary will contrast the geomorphic and hydrogeologic relationships between covered and "bare" karst areas. The hydrogeologic cycle will be traced in this trip from inputs at sinkholes and sinking streams to outflows at Florida's famous springs. Lithologic, hydrologic, and geomorphic characteristics of the limestone

will be examined in outcrop and quarry exposures.

Limit: 90; 1 B, 1 L, 1 D; Fee: \$65

4. Coastal Geology and the Occurrence of Beachrock: Central Florida Atlantic Coast. Donald K. Stauble, Florida Institute of Technology, Melbourne; and Donald F. McNeill, Environmental Science and Engineering, Inc., Gainesville, Florida. Three days. Oct. 25, 26, 27.

This trip examines the central Florida Atlantic coastline from near St. Augustine to near Palm Beach, which contains many interesting coastal geologic features. Exposures of modern coquina beachrock, in some locations forming a cliff-like shoreline in the surf zone, will be visited as well as exposures of the Pleistocene Anastasia Formation located near the coast. The dominant feature found along this coast is the cusped foreland of Cape Canaveral, which bisects the shoreline of the field trip and modifies the coastal processes and sedimentary dynamics with its offshore shoals. Stops at several inlets along this barrier island coast will show the interruption in longshore drift of sediment and coastal erosion problems. The trip includes visits to numerous beach-nourishment and sand-bypass projects that have been recently completed, and their modification of the dynamics of the beach profile and coastal sediment characteristics will be viewed. Departs from Orlando Marriott on International Drive.

Limit: 40; 2 ON, 2 B, 3 L, 3 D; Fee: \$200

5. Geology of the Southernmost Piedmont of Georgia. Stephen A. Kish, Florida State University, Tallahassee; Thomas B. Hanley, Columbus College, Columbus, Georgia; and Steven Schamel, University of South Carolina, Columbia. Three days (plus previous evening), Oct. 24, 25, 26, 27.

This trip is intended to introduce participants to the major stratigraphic, structural, and metamorphic features of the southernmost exposures of crystalline rocks in the Appalachians. A half-day will be spent in the Atlanta area examining the Brevard Zone and related geologic features. The remainder of the field trip will be based in Columbus, Georgia. Stops will include polymetamorphosed Grenville-age rocks of the Pine Mountain area and their overlying metasedimentary cover; granitic gneisses of the Inner Piedmont; and metavolcanic, metasedimentary, and migmatitic rocks of the Uchee belt. Several field-trip stops will feature cataclastic and mylonitic rocks of major fault zones in this region, including the Brevard, Towaliga, Bartlett's Ferry, and Goat Rocks fault zones. Pretrip meeting in Atlanta on the evening of October 24; trip begins in Atlanta 8:30 a.m., October 25, and ends in Orlando the evening of October 27.

Limit: 40; 2 ON, 2 L; Fee: \$200

6. Volcanic-Hosted Gold and High Alumina Rocks of the Carolina Slate Belt, North Carolina and South Carolina. Sponsored by Society of Economic Geologists.

See registration information after postmeeting trip descriptions.

7. Carboniferous Coal-Bearing Rocks and the Mississippian-Pennsylvanian Boundary in the Southern Appalachians. Kenneth J. Englund, USGS, Reston, Virginia; William H. Gillespie, USGS, Charleston, West Virginia; C. Blaine Cecil and John F. Windolph, Jr., USGS, Reston, Virginia; and Thomas J. Crawford, Western Georgia College, Carrollton. Four days, Oct. 24, 25, 26, 27.

Leave from Charleston, West Virginia, morning of October 24. Outcrops exhibiting the Mississippian-Pennsylvanian boundary and associated coal-bearing strata will be examined on the east flank of the Appalachian basin from West Virginia to Georgia. Emphasis will be on the lithostratigraphy and biostratigraphy, with detailed discussions of the depositional environment, geometry of sandstone beds, and models relating to the distribution and quality of coal deposits. Trip ends with a group flight from Chattanooga to Orlando. (Coal Division field trip)

Limit: 40; 3 ON, 3L, airfare; Fee: \$360

Optional fee for those not wishing to take advantage of airfare from Chattanooga to Orlando: \$196

DURING MEETING TRIP

8. Winter Park Sinkhole. Self-guided with handout prepared by Florida Sinkhole Research Institute. Transportation provided. Departs from Orlando Convention Center. Two separate one-half day afternoon trips, Oct. 29 or 30.

Limit: 40; Fee: \$7

POSTMEETING TRIPS

9. Florida Land-Pebble Phosphate District. James B. Cathcart, USGS, Denver; Mark J. Stewart, University of South Florida, Tampa; and Tom Scott, Florida Bureau of Geology, Tallahassee. Two days, Nov. 1, 2.

The trip begins Friday morning from the Orlando Convention Center and ends at Tampa International Airport, Saturday afternoon. The trip will examine the economic geology, groundwater hydrology, and stratigraphy of the land-pebble phosphate district from which is produced about one-third of the world's phosphate rock. The main emphasis will be on the contact between the classic Bone Valley area that will be mined out by the end of this century and the southern extension where future mining will be concentrated. (Society of Economic Geologists and Hydrogeology Division field trip)

Limit: 45; 1 ON, 2 L; Fee: \$100

10. Canceled. Jamaica.



11. Geology of Haiti. Florentin J.M. Maurrasse, Florida International University, Miami. Five days (meet previous evening), Oct. 31, Nov. 1, 2, 3, 4, 5.

A comprehensive 18-stop survey ranging from Cretaceous basalts with intercalated pelagic sediments and Miocene-Pliocene foraminiferal chinks on the southern peninsula to Pliocene limestones, island arc igneous rocks, and the clastic Trois Rivières Formation en route to Cap Haitien on the northern coast. Features visited include the island-diving graben with associated faults of the Enriquillo Plain, the Cretaceous-Tertiary boundary in the Beloc Formation, and the bauxite mining area at Paillant.

The trip originates at Miami Airport, Thursday, October 31, 6:00 p.m. and ends at Miami, Tuesday, November 5, p.m.

Limit: 40; 5 ON, 5 B, 5 L, 5 D, airfare Miami/Port-au-Prince/Miami; Fee: \$560

Optional fee for those who wish to make their own air arrangements to Port-au-Prince and return: \$322

12. Cenozoic Geology of the Apalachicola River Area, Northwest Florida. Walter Schmidt, Florida Bureau of Geology, Tallahassee; Jeffery Wagner, Northwest Florida Water Management District, Havana; and Howard Kirk, Floridian Clay Company, Quincy. One day, Nov. 1.

This trip leaves from and returns to Tallahassee on Friday, November 1, 7:00 a.m. to 7:00 p.m. It will visit five sites where Oligocene-Holocene deposits have been exposed by river erosion. A sixth site will be an active fuller's earth mine where the Miocene Hawthorn Formation has been deposited in a Tertiary "trough." Included among the stops will be Alum Bluff, an excellent Neogene fossil collecting site and a "classic" Florida outcrop.

Limit: 30; 1 L; Fee: \$25

13. Coastal Morphology of Southwest Florida and its Relevance to Past Human Occupation of That Coast.

John A. Gifford, University of Miami, Coral Gables, Florida; and Thomas M. Missimer, Missimer and Associates, Cape Coral, Florida. Two days (meet previous evening), Oct. 31, Nov. 1, 2.

Trip leaves from Orlando, October 31, 5:00 p.m., and ends at Southwest Florida Regional Airport in Ft. Myers on Saturday, November 2. The Sanibel Island-Mound Key-Pine Island region of Lee County (near Ft. Myers) will be the basis of a case study to illustrate archaeological sites and barrier island formations. The excursion will also visit Little Salt Springs and the cenote containing Paleo-Indian and Late Archaic human remains and artifacts. (Archaeological Division field trip)

Limit: 18; 2 ON, 2 L, 1 D; Fee: \$195

Galapagos Islands

Geology of the Darwin Archipelago (Galapagos Islands) and the Andes of Ecuador. Michael R. Perfit, University of Florida, Gainesville. Ten days, Oct. 31, Nov. 1, 2, 3, 4, 5, 6, 7, 8, 9.

Fly from Orlando to the Galapagos via Miami and Guayaquil, Ecuador, and board the luxury cruise liner, M.V. *Santa Cruz* is your hotel during the expedition. Visits to volcanic exposures, the Tower Island caldera, and many other local islands. Excellent opportunities for snorkeling, observing exotic wildlife species, and photogenic scenery. Two days will be spent in the graben valley of the Ibarra Region near Quito, Ecuador. Andean geology in that region includes two rows of extinct volcanos, ash and pumice deposits, stepped terraces, and active faults. Trip ends with flight back to Miami. For registration information, contact Mike Perfit or Giovanna Holbrook, Holbrook Travel, Inc., 3540 N.W. 13th Street, Gainesville, FL 32609; (904) 377-7111.

Limit: 90; 9 ON, 9 B, 9 L, 9 D, all transportation; Fee \$2,259 (double accommodations), \$2,059 (triple accommodations)

SEG-Sponsored Field Trip

Volcanic-Hosted Gold and High-Alumina Rocks of the Carolina Slate Belt, North Carolina and South Carolina. P. Geoffrey Feiss, University of North Carolina, Chapel Hill; J. Robert Butler, University of North Carolina; and Terrence L. Klein and Robert G. Schmidt, USGS, Reston, Virginia. Four days, Oct. 24, 25, 26, 27.

The trip begins in Raleigh, North Carolina, and visits pyrophyllite/kyanite alteration zones and associated gold, topaz, and base-metal mineralization in the Carolina Volcanic Slate Belt. Past producers, prospects, and exploration targets will be visited in North and South Carolina. Trip ends at Charlotte on Sunday, October 27. (Society of Economic Geologists field trip)

Limit: 80; 4 ON, 4 L, 1 D; Fee: \$280

For further information and registration contact Western Experience, 2450 Central Avenue, Suite P2, Boulder, CO 80302; (303) 449-3352.

EXHIBITS



Exhibits open at 6:00 p.m., Sunday, October 27, at the Convention Center. They will stay open throughout the Welcoming Party until 9:00 p.m. Hours during the week will be: 9:00 a.m. to 5:00 p.m., Monday and Tuesday, and 9:00 a.m. to 2:00 p.m., Wednesday.

AAPG Bookstore
AAPG Visiting Petroleum Geologists Program
Academic Press, Inc.
Allen & Unwin, Inc.
American Geological Institute
American Geophysical Union
American Institute of Professional Geologists
American Society of Photogrammetry & Remote Sensing
Blackwell Scientific Publications
Blake Industries, Inc.
British Antarctic Survey/Lamont-Doherty Geol. Obs.
William C. Brown Publishers
Buehler, Ltd.
Burgess Publishing Company
CCFL Bahamian Field Station
Cambridge University Press
Cameca Instruments, Inc.
Canadian Society of Petroleum Geologists
Chapman & Hall
Circum-Pacific Council
Circum-Pacific Map Project
Cushman Foundation
D. J. Mineral Kit Company
Dapple Systems
Earth Observation Satellite Company
Economic Geology Publishing, SEG
EDAX International
Elsevier Science Publishing Co.
EMTEK
Encyclopaedia Britannica USA
Enraf-Nonius
Finnigan MAT
Florida Geological Survey
Florida State University/Southeastern Geological Soc.
Forestry Suppliers, Inc.
W. H. Freeman Company
GSA Bookstore
GSA DNAG
GSA Combined Publishers Display
GSA Sections
General Supply Corporation
Geologic Times
Geological Association of Canada
Geoscience Information Society
Geoscience Resources, Inc.
Hillquist
Hunter Textbooks Inc.
International Association for Mathematical Geology
JCPDS
JENA/Seiler Instruments Company
JEOL U.S.A. Inc.
Kendall/Hunt Publishing Company

Keve Corporation
Krieger Publishing Company
Krueger Enterprises, Inc.
E. Leitz, Inc.
Logitech, Inc.
Ben Meadows Company
C. E. Merrill Publishing Company
Mineralogical Society of America
Minerals America
NAGT
National Science Foundation
Nature's Own
Nicolet X-Ray Instruments
Nikon Inc., Instrument Group
NSA/Hitachi
Oklahoma Geological Survey
Olympus Corporation
Oxford University Press
Paleontological Society
Pennsylvania Geological Survey
Pergamon Press, Inc.
Permian Basin-SEPM
Philips Electronic Instruments
Plenum Publishing Corporation
Prentice-Hall Inc.
Princeton University Press
Rigaku, USA
Rocklabs
RockWare, Inc.
Schonsted Instrument Company
Scientific & Medical Publ. of France
Scintag, Inc.
SEPM
SPI Supplies, Div. Structure Probe
Sigma Gamma Epsilon
Spectral Data Corporation
Spectrex Corporation
Springer-Verlag New York, Inc.
Terra-Mar
Trail & Ski
Ulrich's Fossil Fish
U.S. Geological Survey
University of Arkansas
University of Florida/University of South Florida
University of Miami
Van Nostrand Reinhold
VG Instruments
Washington State University
Wildlife Supply Company
John Wiley & Sons, Inc.
Williams and Heintz Map Corp.
X-Ray Assay Labs Ltd.



ORLANDO • 1985 GSA ANNUAL MEETING & EXPOSITION

PROFESSIONAL HORIZONS

GSA SHORT COURSES

Courses sponsored by GSA will be held before and after the meeting. The courses will be in several different hotels near the Convention Center. Each hotel has an outdoor swimming pool and good restaurants, so you can both expand your professional knowledge and enjoy the surrounding comforts found in Orlando. The courses are arranged so that you will be able to enjoy a day at one of Orlando's many attractions with family and friends, since the best airfares are for trips that include a Saturday-night stay.

Enrollment. Course participation is open to GSA members and nonmembers. You may enroll on the preregistration form, even though registration for the meeting is not necessary. **PREREGISTRATION DEADLINE IS SEPTEMBER 27.** On-site registration will be \$10 additional.

Cancellations. Fees will be refunded if we are notified by October 4. Substitutions may be made at any time. No refunds will be made following the course.

For more information, contact
Course Registrar
GSA Headquarters
P.O. Box 9140
Boulder, CO 80301
(303) 447-2020

Geowriting

Two one-day workshops on Saturday, October 26, and Sunday, October 27, 8:00 a.m. to 5:00 p.m., Marriott Hotel

This is a *practical* workshop that will help you break writer's block, organize for fast, efficient writing, and work smoothly with editors. It includes an easy method for dealing with grammar without pain, and also an introduction to writing in the computer age.

Faculty: Wendell Cochran, science writer, editor, and photographer. He was editor of *Geotimes* for more than 20 years, and is senior editor of *Geowriting* and co-author of *Into Print*. Cochran holds a master's degree in geology as well as a degree in journalism. He is a charter member of the Society for Scholarly Publishing and of the Association of Earth Science Editors. Since 1979 he has held many workshops on science writing, notably at the annual meetings of GSA and AAPG.

Limit: 25, Fee: \$75

Introduction to Planetary Geology

Saturday, October 26, and Sunday, October 27, 8:00 a.m. to 5:00 p.m., Holiday Inn International, Orlando.

Co-sponsors: GSA Planetary Geology Division and NASA, Office of Planetary Geology

This course is for junior faculty members who want to broaden their knowledge of planetary geology. The objec-

tive is to provide an introduction to the methods used in the geological study of the planets and to discuss past, current, and planned activities in NASA's program of solar system exploration. The method of instruction involves lectures by active planetary geology investigators, demonstrations to illustrate important planetary processes, and "hands-on" activities. The fee includes planetary maps, photographs, lecture notes, and NASA books. It also includes a reception the evening of Friday, October 25, and a dinner the evening of Saturday, October 26. The dinner speaker will be Arden Albee, California Institute of Technology, addressing "Future Missions and Long-Term Goals of NASA for Solar System Exploration."

Organizer: Ronald Greeley, principal investigator, NASA Planetary Geology Program

Principal faculty: Kathryn Sullivan, geologist-astronaut, Johnson Space Center; James Head and Paul Schultz, Brown University; and Ray Arvidson, Washington University. Four other leading planetary geoscientists will also participate.

Limit: 60, Fee: \$100.

An Outline of Balanced Cross Sections

Friday, November 1, and Saturday, November 2, 8:00 a.m. to 5:00 p.m., Marriott Hotel, Orlando.

Co-sponsor: GSA Structural Geology and Tectonics Division

The objective is to present how and why balanced, or retrodeformable, cross sections work and are useful and to teach the techniques of constructing balanced sections. Topics to be covered include a review of thrust belt geometries, the fundamentals of the methods of section construction, practical assumptions of retrodeformable sections, the use of relationships between fold and fault shapes (dip-spectral analysis; fault-bend folding; fault-propagation folding), restoring other people's sections, drawing a retrodeformable section, and applications to seismic interpretation. The two-day course will be divided into seven lecture blocks (four on the first day and three on the second) and seven sets of exercises, which alternate. The first day covers the fundamentals, and the second covers applications. Participants are encouraged to bring their own geologic or seismic sections to contribute to the discussion on the second morning. Participants are expected to be at the graduate level and to have a nodding acquaintance with thrust and fold belts.

Faculty: Steven E. Boyer, senior petroleum geologist at Sohio Petroleum Company, has twelve years of experience working in the Appalachian Blue Ridge province and throughout the Rocky Mountain Region; his paper with David Elliot on thrust systems (*AAPG Bulletin*) is a landmark in thrust belt studies. John Suppe, professor of geology at Princeton University, has twenty years experience in thrust-faulted terrains in the western U.S. and the Far East; he is the author of a new, advanced-level

structural geology text, and his "Geometry and Kinematics of Fault-Bend Folding" (*American Journal of Science*) places the geometric organization of thrust and fold belts onto a new clear footing. Nicholas B. Woodward, assistant professor at the University of Tennessee, has eleven years experience in mapping and structure studies in the Rocky Mountains, the southern Appalachians, northern New England, and Alaska; he has edited a compilation of thirty-four balanced sections of the central and southern Appalachians (University of Tennessee Studies in Geology).

The fee includes course notes, lunch both days, and a reception the evening of Thursday, October 31.

Limit: 60, Fee: \$160

Remote Sensing for Earth Scientists

Sunday, October 27, 8:00 a.m. to 5:00 p.m., Marriott Hotel.

The course provides equal time for lectures and "hands-on" interpretation of representative images by participants. Lectures and interpretation projects cover the major aspects of remote sensing—Landsat, thermal infrared, and radar images, plus digital processing of image data. Course fee includes copies of the "Remote Sensing Laboratory Manual" and "Instructors Key."

Faculty: F. F. Sabins, Senior Research Associate, Chevron Oil Field Research Company. Sabins holds a B.S. degree from the University of Texas, Austin, and his Ph.D. from Yale University. He has been with Chevron since 1955. He also teaches in the Earth and Space Sciences Department at UCLA, received the Allan Gordon Award from the American Society of Photogrammetry, and most recently was recognized with the 1983 Pecora Award, given by the Department of the Interior and NASA for contributions to the science of remote sensing. Sabins wrote the widely used text *Remote Sensing—Principles and Interpretation*.

Limit: 100; Fee: \$100

Making Use of UNIX in Geological Applications

Sunday, October 27, 8:00 a.m. to 5:00 p.m., Marriott Hotel

The objective of the course is to introduce geologists to this state-of-the-art operating system, which has become the de facto standard for the geoscientist. UNIX is a remarkable programming and engineering computing environment. UNIX, now available on many types of hardware, has emerged as the only truly portable multiuser operating system on the horizon within the constructs of software engineering.

The course will demonstrate the variety of effective software tools provided by the system. UNIX is an extremely portable (machine independent) system allowing applications to move between different computing environments along with system-independent implementation of data, programming constructs, I/O, and data manipulation. The system employs the powerful C language and is extremely user friendly.

The course gives an overview of the applications for

UNIX, as well as hands-on exercises. This includes discussion of the UNIX environment, C language, and program development. The fee includes computer access, course notes, and lunch.

Faculty: Fritz W. Ehlers, senior analyst, UNIX system, Sperry Corporation, has had 13 years of experience in computers and the geosciences. He has also been employed by Boeing Corp., and Moore McCormick Co. Resources. He is a member of AAAS, GSA, IEEE, and ACM.

Limit: 60; Fee: \$100

OTHER COURSES

The Epithermal Environment

Thursday, October 24 through Sunday, October 27. Sandpiper Bay Hotel, Port St. Lucie, Florida. Sponsored by the Society of Economic Geologists.

The second Society of Economic Geologists Short Course will summarize the current state of understanding of epithermal ore deposits as deduced from a comparative evaluation of their characteristics in the light of our knowledge of active geothermal systems in similar petrotectonic settings. In addition, workshops will develop the systematics of fluid-inclusion and stable-isotope approaches, of metal and gangue mineral transport and deposition, and of geochemical modeling. The course will end with an evaluation of approaches for the integration of such information in the development of exploration strategies. Conveners: Philip M. Bethke and Byron R. Berger. Additional faculty will be: Samuel S. Adams, William C. Bagby, Robert J. Bodnar, Cyrus W. Field, Robert O. Fournier, Daniel O. Hayba, R. W. Henley, C. A. Kuehn, Mark H. Reed, T. J. Reynolds, and M. L. Silverman.

Fee: \$500, includes double occupancy lodging, meals, transportation from Orlando to Port St. Lucie and return, and short course notes. For information/registration: Lois Elms, Western Experience, 2450 Central Avenue, Suite P-2, Boulder, CO 80302; (303) 449-3352.

Mathematical Crystallography

Thursday, October 24 to Saturday, October 26, 8:00 a.m. to 5:00 p.m. and Sunday, October 27, 8:00 a.m. to 12 noon. Holiday Inn International, Orlando. Sponsored by the Mineralogical Society of America.

The primary goal of the course is to show that a rigorous approach based firmly on mathematical principles is easier to understand and apply than the phenomenological approach used in standard mineralogy texts. The course will present mathematical development of the point groups and space groups and explain how the mathematical underpinnings of the subject can be applied to the solution of numerous crystallographic problems. Extensive prior knowledge of the subjects is not required. Instructors: M. B. Boisen, Jr., and G. V. Gibbs of Virginia Polytechnic Institute & State University. Fee: MSA members \$200, nonmembers \$235, MSA student members \$150, nonmem-



ber students \$165. Fee includes lunch (Friday and Saturday), a reception (Wednesday evening, October 23), individual use of computers in the evenings, and *Reviews in Mineralogy*, Volume 15 (course text).

Enrollment is limited to 35 people on a first-come, first-served basis. For information/registration: G. V. Gibbs, Dept. of Geological Sciences, 5057 Derring Hall, VPI & State University, Blacksburg, VA 24061, (703) 961-6521 or 961-6330.

Modern and Ancient Deep-Sea Fan Sedimentation

Saturday, October 26 to Sunday, October 27. Marriott Hotel. Sponsored by the Society of Economic Paleontologists and Mineralogists.

The course is a thorough and up-to-date review of deep-sea fan sandstone reservoirs, comparing the stratigraphy, geometry, morphology, depositional processes, textures, dispersal patterns, and petrography of various modern and ancient deep-sea fan systems. Variations dependent upon tectonic framework and type and amount of sediment will be discussed. This presentation is advisable for industry geologists and geophysicists involved in exploration for hydrocarbons, and for university professors, advanced students, and government earth scientists involved in studies of modern marine geology and ancient turbidite systems. Lecturers: C. Hans Nelson and Tor H. Nilsen.

Fee: \$325, includes course notes, coffee breaks and lunches. For information/registration: Joni C. Merkel, SEPM, P.O. Box 4756, Tulsa, OK 74159-0756, (918) 743-2498.

Mollusks

Sunday, October 27, 8:00 a.m. to 5:00 p.m. Marriott Hotel. Sponsored by the Paleontological Society.

This course is designed to provide an overview of recent paleobiological research on mollusks. The course emphasizes functional morphology, evolutionary history, and paleoecology of the three major classes (bivalves, gastropods, cephalopods), and also treats the minor classes, molluscan origins, development, shell structure, shell growth patterns and geochemistry, and use of mollusks in biostratigraphy. Authors/speakers: E. L. Yochelson (USGS), B. Runnegar (University of New England, Australia), D. Jablonski (University of Chicago), J. G. Carter (University of North Carolina), D. S. Jones (University of Florida), A. Seilacher (Universitat Tübingen), J. Pojeta, Jr. (USGS), D. J. Bottjer (University of Southern California), C. S. Hickman (University of California, Berkeley), P. W. Signor (University of California, Davis), A. J. Kohn (University of Washington), D. Bandel (Universitat Hamburg), C. Teichert (University of Rochester), P. D. Ward (University of Washington), D. R. Lindberg (University of California, Berkeley), N. F. Sohl (USGS), S. J. Gould (Harvard University).

There is no fee. Course notes will be available for purchase. All registration is at the door. For information/registration: D. J. Bottjer, Dept. of Geological Sciences, Univ. of Southern California, Los Angeles, CA 90089; (213) 743-8913; C. S. Hickman, Dept. of Paleontology, Univ. of California, Berkeley, CA 94720; (415) 642-3429; or P. D. Ward, Dept. of Geological Sciences, Univ. of Washington, Seattle, WA 98195; (206) 543-4434.

WORKSHOPS

Antarctic Glacial Marine Sedimentation

Sunday, October 27, 8:00 a.m. to 5:00 p.m. Marriott Hotel. Sponsored by the GSA Quaternary Geology and Geomorphology Division.

Because of its glacial setting, great depth, and rugged shelf topography, the seafloor surrounding Antarctica is one of the most unusual sedimentary environments on Earth. During recent years there has been a concentrated marine geologic survey of the continental margin, resulting in the acquisition of hundreds of piston cores and thousands of kilometres of high-resolution seismic records. This new information has resulted in a much greater understanding of sedimentation in this unique setting. This workshop will consist of combined lectures and examination of seismic records and cores. Emphasis will be placed on sedimentary processes, facies models, and applications to ancient glacial deposits. Faculty: John B. Anderson, Rice University. Anderson has participated in eight marine geologic expeditions to the Antarctic region. His research over the past eight years has been dedicated to establishing a better awareness of sedimentation on the Antarctic continental margin. He has written and co-written numerous papers on the subject.

Fee: \$50, includes course notes. For information/registration: John B. Anderson, Department of Geology, Rice University, P.O. Box 1892, Houston, TX 77251; (713) 527-4884.

The Earth as a Planet

Sunday, October 27, 7:30 a.m. to 6:00 p.m., Marriott Hotel. Sponsored by the GSA Planetary Geology Division and Lunar and Planetary Institute.

The one-day workshop with four sessions will include the following general themes: megageomorphology; the mantle (the largest part of Earth); early Earth (a typical young planet?) and new methods of remote sensing of the Earth and the planets. Conveners: Donald L. Anderson, California Institute of Technology, and Kevin Burke, Director, Lunar & Planetary Institute.

Fee: \$10. For information/registration: Pam Jones, Lunar & Planetary Institute, 3303 NASA Road 1, Houston, TX 77058-4399; (713) 486-2150.

GEOREF Round-Table for Advanced Users

Monday, October 28, 8:30 a.m. to 12:00 noon. Marriott Hotel. Sponsored by GIS and AGI.

Intermediate and advanced users are invited. The session will provide the opportunity to refine search techniques share ideas, and see demonstrations of "front-end" systems (software packages that simplify bibliographic searching). Panelists: Marilyn Stark, Head, Reference Services Colorado School of Mines, Golden; MaryAnn Whitney Chief Librarian, Chevron Exploration & Production Library San Ramon, California; G. N. Rassam, Assistant Director of GeoRef and Chief Editor, AGI, Alexandria, Virginia. Panelists will address such questions as how to find maps in the database, how to limit a search to English documents, how to eliminate abstracts, how to search or

ordinates and the constraints of coordinate searching, and how to retrieve a monographic reference without also getting references for individual chapters or sections. A discussion period will allow time for search-technique questions from the floor and for sharing ideas and relating techniques for training end users, introducing GeoRef searching to students, and using microcomputers. John Mulvihill, Director of GeoRef, will demonstrate using "front-end" systems, to search GeoRef on a microcomputer. By structuring a search offline and by handling routine operations such as logging on and off, such software systems offer users potential savings of up to 80% on connect-time charges. They also facilitate downloading for subsequent editing.

There is no preregistration or charge. For information: Julie Jackson, AGI, 4220 King Street, Alexandria, VA 22302; (303) 336-4764 (outside Virginia), or (703) 379-2480.

GEOREF Workshop: Learn to Search the Geological Literature by Computer

Thursday, October 31, 8:30 a.m. to 12:00 noon. Marriott Hotel. Sponsored by GIS and AGI.

Learn how to access more than a million geological references from 1785 to the present by searching the American Geological Institute's GeoRef (geological references) database online. Jim O'Donnell, Science Librarian, Trinity University, San Antonio, Texas; Barbara Pearson, Research Librarian, Exxon Production Research Company, Houston, Texas; Miriam Sheaves, Librarian, Geology Library, University of North Carolina, Chapel Hill. Basic information will be provided for beginning searchers: What the GeoRef database is and what literature it covers; Boolean logic; search commands, search strategies, and sample searches; and using the GeoRef Thesaurus and other GeoRef user aids. John Mulvihill, Director of GeoRef will demonstrate software packages that simplify bibliographic searching on a microcomputer. These "front-end" systems handle routine operations such as logging on and off; they also provide menus that enable a searcher to type the search before connecting with the online search service and provide for saving the search results on disk. The saved citations can then be edited, used for bibliographies for papers and to build a personal database.

There is no preregistration or charge. For information: Julie Jackson, AGI, 4220 King Street, Alexandria, VA 22302; (800) 336-4764 (outside Virginia), or (703) 379-2480.

FORUMS

GSA Employment Service Forum: Future Employment Opportunities in the Geological Sciences

Monday, October 28, 2:00 to 4:00 p.m., Marriott Hotel.

Are you interested in salary scales, tips for successful interviews, and an overview of employment opportunities? What are the current trends in academia, government, industry, or consulting? Attend the GSA Employment Ser-

vice Forum on Monday, October 28, to hear from six experts. Each panel member will speak briefly on the outlook in his or her special area and answer questions from the audience. The 1985 speakers are Chairman Dick Paull, University of Wisconsin; Penny Hanshaw, USGS; J. D. Edwards, Pecten International Company; Tony Neathery, Alabama Geological Survey; Jack Frost, Exxon Minerals Company; and Dave Stephenson, Dames and Moore. For information: Clara Hodgson, Membership Coordinator, GSA, P.O. Box 9140, Boulder, CO 80301; (303) 447-2020.

Perspectives on the Management and Disposal of Hazardous Wastes

Tuesday, October 29, 5:30 to 7:30 p.m., Marriott Hotel.

The GSA Committee on Geology and Public Policy will present a forum on nonradioactive hazardous wastes. The forum is cosponsored by the Hydrogeology Division. The goal of the forum is to alert and inform geologists and other interested citizens about the role of earth science information in a major public policy issue. Recommendations from the discussion will be published by GSA and will focus on methods for improving the communication of relevant geological information to policy makers. Discussion will begin with presentations by a panel of representatives from various segments of the public and private sectors who are involved in different aspects of hazardous-waste management. Panelists will include Mark Stewart (University of South Florida); Rodney Dehan (Florida Department of Environmental Resources); Linda Greer (Environmental Defense Fund); David Miller (Geraghty and Miller, Inc.); Richard A. Frandsen (U.S. House of Representatives, Committee on Energy and Commerce, Subcommittee on Oversight and Investigations); Russell Susag (3M Company); Marian Mlay (U.S. Environmental Protection Agency); and a representative from the Office of Technology Assessment. After the formal presentations, moderator Harry Smedes (consultant) will lead the audience and panelists in an informal discussion. Convener of the forum is Terry W. Offield (U.S. Geological Survey).

SCIENCE THEATER

Monday to Thursday, October 28-31, 9:00 a.m. to 5:00 p.m., Convention Center.

In keeping with central Florida's growing emphasis on high technology, the Science Theater will expand its program to include a variety of audio-visual media. Of particular note is the day-long demonstration of the state-of-the-art GE Talaria "light valve" television projector, which produces a bright, clear image on screens up to 30 ft across, using video tapes, cameras, laser disks, or computers. Member-produced programs were solicited in the June issue of *GSA News & Information*. In addition to these programs and new films, we expect to show the new seven-hour PBS "Planet Earth" series.





GUEST PROGRAM

The Orlando Guest Committee presents a program that highlights the attractions of the area.

Please note that registration as a guest at the Annual Meeting is a prerequisite for participation in the Guest Program and for use of the Hospitality Room. However, guest registration does not include admission to the Technical Program.

The Hospitality Room is in the Hibiscus Room of the Marriott. Hours are from noon to 4:00 p.m. Sunday and from 9:00 a.m. to 4:30 p.m. Monday through Thursday. Light refreshments and a place to relax will be provided to those registered as guests. Please wear your badge. Each registered guest who visits the Hospitality Room will receive a gift. Hostesses will be in the Hospitality Room to help you in any way they can. The Local Committee welcomes you to Orlando and hopes that you enjoy your visit.

NONTECHNICAL PROGRAM

Sinkholes. Everything you ever wanted to know about sinkholes—the origin and impact of sinkhole formation on Florida living. Monday, October 28, 9:00 a.m., Marriott. Frank Kujawa, Department of Chemistry, University of Central Florida, will give a slide presentation. Guests may register for the half-day sinkhole field trips.

Citrus. Monday, October 28, 10:00 a.m., Marriott. John Jackson, Citrus Specialist for Orange County, will offer a slide/lecture presentation on citrus culture, history, varieties, location, effects of weather, etc.

TOURS

All tours depart from and return to the East Entrance of the Marriott. Tours will depart as scheduled. All tours are escorted and narrated by professional guides. Reservations for these tours will be accepted on a first-come, first-served basis. Please make note of registration and cancellation deadlines.

Foliage Tour

Monday, October 28, 11:30 a.m. to 4:00 p.m.

Depart the hotel to travel to Apopka, the indoor foliage capital of the world. Enjoy a soup/salad/sandwich buffet with wine at the exclusive Errol Estates Resort and Country Club. This is the estate of the late millionaire Scotsman John Pirie, and features rolling hills and large blue waterways surrounded by tall oaks and pines. Next, take a guided tour in one of the area's fine nurseries.

Fee: \$25

Kennedy Space Center

Tuesday, October 29, 8:00 a.m. to 4:00 p.m.

Depart the hotel to travel through central Florida's coastal plains to the Kennedy Space Center. Tour on a Space Center bus to see rockets, missiles, spacecraft, a lunar rover, the actual space ship used in the United States-Soviet rendezvous in space, the new Hall of History, and the IMAX Theater, showing the first voyage of the Space Shuttle *Columbia*. The Theater is optional at \$2 adult and \$1 youth admission; tickets may be purchased once you arrive at the Space Center. Enjoy a seafood luncheon at the Sand Point Inn overlooking the scenic Indian River. Wine and soft drinks to be served en route to the restaurant.

Fee: \$30

Winter Park Whirl-Around

Wednesday, October 30, 10:00 a.m. to 4:00 p.m.

Depart the hotel for a champagne brunch at the Maison & Jardin, a restaurant of country estate elegance. Interior architecture features 18th-century murals and a collection of antique furniture, porcelains, and statuary. A whirl-around tour of the charming city of Winter Park to see parks, lakes, tree-lined streets, old mansions and estates, and the famous Alabama Hotel and Rollins College will include a stop at the Morse Gallery of Art, where the world's largest private collection of Tiffany glass is on exhibit. Next, proceed down Park Avenue (Little Europe), seeing the sights and shopping in the many fine shops, boutiques, and galleries. An optional boat cruise on the Chain of Lakes can be taken to see estates, Rollins College, and beautiful gardens and canals. (Admission \$3.75 purchased in Winter Park.)

Fee: \$30

EMPLOYMENT INTERVIEWS



Do you need qualified earth scientists to fill staff needs? Are you looking for employment in the earth-sciences fields? Organizations seeking qualified earth scientists to fill staff needs and persons seeking employment in the earth-sciences fields are invited to participate in the GSA Employment Interview Service. The Employment Interview Service will be conducted in the Orange County Convention/Civic Center.

All interested organizations are urged to submit notices of their vacancies and their requests for computer listings of applicants. The minimum fee for a printout of two specialty listings is \$125. A specialty code narrows the field of your search. For example, a geologist with background in geochemistry will be listed under the "geochemistry" specialty code.

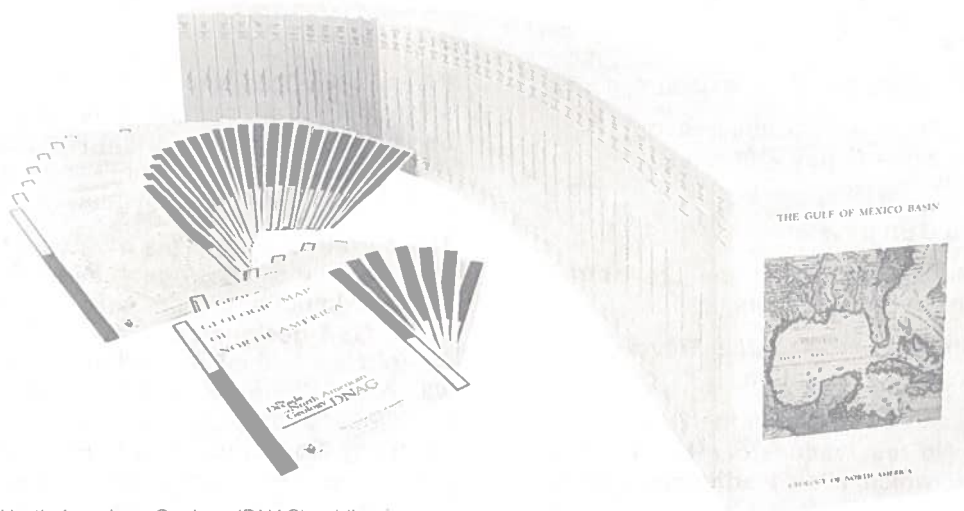
Interview booths may be rented at a nominal fee in half-day increments from Monday through Wednesday, October 28–30. GSA staff will handle all interview scheduling with Employment Service applicants. [Request forms are in the March and July issues of *GSA News & Information*.

sent to all GSA members, or they may be obtained by contacting Clara Hodgson, Membership Coordinator, Geological Society of America, P.O. Box 9140, Boulder, CO 80301, (303) 447-2020.]

Job seekers have found the Employment Interview Service critical to their successful search for positions. The one-year registration fee is \$25 for GSA Members and Student Associates in good standing and \$50 for nonmembers. This applicant fee includes the interview service at the Annual Meeting. [Employment Service forms are in the March and July issues of *GSA News & Information* or may be obtained by contacting the Membership Department, P.O. Box 9140, Boulder, CO 80301; (303) 447-2020.]

Note to Applicants: If we receive your materials by **August 12**, your record will be included in the information that **employers** receive prior to the meeting. Submit your forms early to receive maximum exposure! Don't forget to indicate on your application form that you would like to interview in October.

The Decade of North American Geology DNAG



Publications begin arriving this fall!

Watch for your personal prospectus coming in early September describing this new synthesis of the geology of North America and adjacent ocean regions.

The Decade of North American Geology (DNAG) publications will include 28 volumes of geology, 6 field guides, 4 special volumes, 23 continent-ocean transects, and 7 continent scale geologic maps of North America. The project is sponsored by the Geological Society of America to celebrate its centennial decade, 1980-1989. Publications will appear throughout the decade.

Geological Society of America
3300 Penrose Place • P.O. Box 9140
Boulder, Colorado 80301
(303) 447-2020



TRANSPORTATION



AIR TRANSPORTATION

The major carriers into Orlando are USAir, United, Delta, and Eastern. The new Orlando airport is one of the most convenient in the world.

GSA has designated the Cain Travel Group of Boulder, Colorado, as the official airline reservation agent for the Orlando meeting.

Cain Travel is a resource for those who want to work with a travel agent in determining the best possible airfares. Reduced rates at up to 50% off coach have been negotiated with several major carriers. These rates have restrictions such as 45-day and 30-day booking, so call early to take advantage of the savings. These rates will only be available to GSA participants through Cain Travel.

All GSA participants booking through Cain Travel will automatically become eligible for inclusion in a drawing for a **Free Vacation Package for two**: 4 days, 3 nights in either Cancun or Puerto Vallarta, including hotel (double occupancy), transfers, and airfare from Dallas. The first two hundred participants booking through Cain Travel will receive double eligibility for the drawing—your name will be placed in the drawing pool twice.

Round trip travel; Sunday and Thursday:

Boston	\$198
New York	\$198
Atlanta	\$154
Chicago	\$279
Denver	\$279
Dallas	\$254
Los Angeles	\$344
San Francisco	\$225

Reservation Procedures

1. Book early. Understand the restrictions on fare, if any.
2. Call Cain Travel at (800) 346-4747 (toll free) or (303) 443-2246, Monday – Friday, 7:00 a.m. to 5:30 p.m. MST.
3. Identify yourself as a GSA traveler.
4. The agent will quote you the discounted fare for your itinerary and confirm your reservation.
5. Payment options: Check payable to Cain Travel Group; major credit card; invoice to your firm.
6. All payment must reach Cain no later than seven days prior to departure. **No reservations can be accepted after this deadline, which allows adequate mailing time.**
7. Tickets will be sent to you via Certified Mail upon receipt of payment or credit card authorization.
8. We advise use of your home address for mailing, if this is more reliable than your business address.

Tickets lost in the mail will be reissued only when new payment is made. In order to receive reimbursement, the passenger must file a lost-ticket application with the airline. This time-consuming process is the same for all airlines and agencies.

9. In the event of a decrease in your airfare after the ticket has been issued, call Cain Travel and they will re-ticket you at the lower fare.

The Cain Travel Group will provide a customer service desk at the Convention Center. Reservationists will be available to assist you with your travel needs and will be glad to help you make your visit to Orlando convenient and enjoyable.

GROUND TRANSPORTATION

A Welcome Hostess will be at the Main Information Desk at the Orlando airport. Information on transportation, hotels, restaurants, and entertainment will be available.

The 20-minute trip from the airport to the Convention Center area can be made by limousine, taxi, or car.

1. Airport Limousine

American Sight Seeing is offering a special rate to GSA registrants of \$3.50 one-way or \$7 round trip. This is bus transportation to and from the airport, offered at half the usual rate. Buses are dispatched from the American Sight Seeing desk in the baggage area. Say you're with GSA, and you'll be boarded at the discounted fare. You may book your return to the airport at the Convention Center.

2. Taxi

Please note: Taxis are unregulated in Orlando. Only taxis servicing the airport are required to be metered. Do not use an unmetered cab without establishing the rate first. Ask for Yellow, City, or Checker cabs, which are metered and offer an unconditional guarantee.

The current cab rates (as of June 1985) are \$1.80 for the first mile and \$1.20 for each mile thereafter which should be a maximum of \$18 per cab ride from the airport to any of the **GSA-designated** hotels and a maximum of \$4 from outer hotels to the Convention Center. To hold a cab, you will pay \$12 per hour. Note that rates are subject to change and are applicable for Yellow Cab, City Cab Company, and Checker Cab. Rates are a per-cab charge (not per person). Share a cab and save 50%. **IMPORTANT:** Be sure that the driver turns on the meter once you are settled in the car. Unless bags are unreasonably excessive, you should not be charged outside the metered rate. Drivers feel that a 12%–15% tip is an accepted average. If you experience problems with any of the above statements, call (305) 422-4455.

3. GSA Shuttle

The free GSA shuttle will make stops at the GSA meeting hotels (see Housing) for transportation to and from the Convention Center, where most of the activities will take place, between Sunday, October 27, and Thursday, October 31. Shuttle schedules will be posted in the lobbies of each hotel. The shuttle will run at 15-minute intervals throughout the day, 6:30 a.m. to 6:00 p.m. Monday through Thursday. On Sunday, the shuttle will run between 5:30 a.m. and 9:30 p.m. so that attendees may attend the Welcoming Reception at the Convention Center. There will be no service between the hotels and the airport.

4. Car Rental

Orlando has many attractions, but they are spread out. Taxi service is expensive. Bus fare is reasonably priced, but buses reach only specific destinations. Car rental in Orlando is reasonable and very convenient. Orlando is known for its excellent daily and weekly rates. Mileage is unlimited, there are no drop charges within Florida, and rates are guaranteed. Special low rates are offered by National, which is the official GSA car rental agency for this meeting. Sample daily/weekly rates: Economy \$18/69; compact \$20/79; Intermediate \$24/99. Advance reservations are not required but are highly recommended. Call National at 1-800-328-7949. In Orlando call: (305) 351-5555.



HOUSING

GSA has blocked rooms at ten hotels: The Marriott Inn on International Drive (headquarters), Days Inn Civic Center, Days Inn International, Hilton Inn Florida Center, Holiday Inn International, Howard Johnson's International, Quality Inn International, Quality Inn Plaza, Radisson Inn & Aquatic Center, and Rodeway International. GSA endorses these hotels for quality, cleanliness, and service.

The Orlando/Orange County Convention & Visitors Bureau will coordinate ALL reservations. Your choice of hotel accommodations and rates will be honored, if possible, although rooms will be confirmed on a first-come, first-served basis. If your first choice is unavailable, a comparable reservation will be made. All reservations must be submitted on the GSA Housing Form. Telephone requests will not be honored.

Descriptions of hotels are given on the following page. Be prepared: **ALL ORLANDO HOTELS REQUIRE A FIRST NIGHT'S DEPOSIT.** You may send a room deposit by check or credit card with your housing form. Make a check payable to "GSA Housing Bureau" **OR** send deposit directly to hotel once you have received your confirmation. Note: A confirmation is not a guarantee. Your room is

guaranteed **ONLY** after the hotel receives your room deposit. Hotels **WILL NOT** hold a room without a deposit.

Cancellations should be made directly to the hotel and received by the hotel no later than 48 hours prior to scheduled arrival to receive a refund. **IF YOU CANCEL, BE SURE TO ASK FOR YOUR CANCELLATION NUMBER.**

If any problems occur with your reservation, GSA would appreciate it if you would stop by the Annual Meeting Office at the Marriott, at your convenience during the meeting, to let us know how your problem was resolved.

DEADLINE FOR RECEIPT OF HOTEL RESERVATIONS IS OCTOBER 4. Reservations after that date must be made directly with the hotel. To take advantage of the special GSA convention rate, be sure to indicate that you are a GSA registrant.

In the International Drive area, there are many properties with the same name. Be specific about which Days Inn or Quality Inn you want. **Use the full name of the hotel** on the housing form and with all instructions you leave at your office or home.



MARRIOTT INN INTERNATIONAL—HEADQUARTERS

8001 International Drive, Orlando, FL 32819
305/351-2420 (800 rooms)

Single: \$65 Double: \$75 Double/Double: \$85
(Suite range: \$200–\$450)

Children under 18 sharing room with parent—FREE

Parking—FREE

4 tennis courts, outdoor Jacuzzi, 3 large outdoor swimming pools,
2 kiddie pools, poolside bars, children's playground, game room
Concierge Desk

Check-in: 4:00 p.m. Check-out: 11:00 a.m. CC: AX, D

DAY'S INN CIVIC CENTER

9990 International Drive, Orlando, FL 32809
305/352-8700 (100 rooms)

Single/Double: \$34
(No suites available)

Children under 18 sharing room with parent—FREE

Parking—FREE

Outdoor swimming pool, children's playground

Check-in: 4:00 p.m. Check-out: 12:00 noon CC: AX, V, MC, D

DAY'S INN INTERNATIONAL

7200 International Drive, Orlando, FL 32801
305/351-1200 (75 rooms)

Single/Double: \$34
(No suites available)

Children under 18 sharing room with parent—FREE

Children under 12—FREE food (at hotel restaurant)

Parking—FREE

Outdoor swimming pool, children's playground

Check-in: 4:00 p.m. Check-out: 12:00 noon CC: AX, V, MC, D

HILTON INN FLORIDA CENTER

7400 International Drive, Orlando, FL 32819
305/351-4600 (100 rooms)

Single/Double: \$50
(Suite range: \$125–\$350)

Children under 18 sharing room with parent—FREE

Parking—FREE

2 outdoor swimming pools, game room, children's playground

Check-in: 3:00 p.m. Check-out: 12:00 noon CC: AX, D, CB

HOLIDAY INN INTERNATIONAL

6515 International Drive, Orlando, FL 32819
305/351-3500 (300 rooms)

Single: \$47 Double: \$53
(Suite range: \$116–\$250)

Children under 18 sharing room with parent—FREE

Parking—FREE

Heated outdoor swimming pool, children's playground
with kiddie pool, volleyball and shuffleboard
Free in-room movies
Concierge Desk

Check-in: 4:00 p.m. Check-out: 11:00 a.m. CC: AX, V, MC

HOWARD JOHNSON'S INTERNATIONAL

8020 International Drive, Orlando, FL 32819
305/351-1730 (100 rooms)

Single: \$45 Double: \$50
(No suites available)

Children under 18 sharing room with parent—FREE

Parking—FREE

Outdoor heated swimming pool, 2 lighted tennis courts, game room,
children's playground

Check-in: 3:00 p.m. Check-out: 12:00 noon CC: AX, V, MC

QUALITY INN INTERNATIONAL

7600 International Drive, Orlando, FL 32819
305/351-1600 (300 rooms)

Single/Double: \$29
(No suites available)

Children under 18 sharing room with parent—FREE

Parking—FREE

2 outdoor swimming pools, game room

Check-in: 3:00 p.m. Check-out: 11:00 a.m. CC: AX

QUALITY INN PLAZA

9000 International Drive, Orlando, FL 32819
305/345-8585 (250 rooms)

Single/Double: \$29
(No suites available)

Children under 17 sharing room with parent—FREE

Parking—FREE

2 outdoor swimming pools

Check-in: 3:00 p.m. Check-out: 11:00 a.m. CC: AX

RADISSON INN & AQUATIC CENTER

8444 International Drive, Orlando, FL 32819
305/345-0505 (250 rooms)

Single: \$50 Double: \$55 (2 suites available at \$200)
Children under 18 sharing room with parent—FREE

Parking—FREE

Outdoor recreational pool, tennis court, 3/4 mile jogging trail,
children's playground, and golf privileges (at cost). Also, a center for
world-class aquatic training and competition which includes indoor
Olympic pool and competitive diving well. Complete fitness center
and health club (at \$7/day), and racquetball/handball courts
(at \$8/hour)

Check-in: 3:00 p.m. Check-out: 12:00 noon CC: AX, V, MC

RODEWAY INTERNATIONAL

9956 Hawaiian Court, Orlando, FL 32819
305/351-5100 (100 rooms)

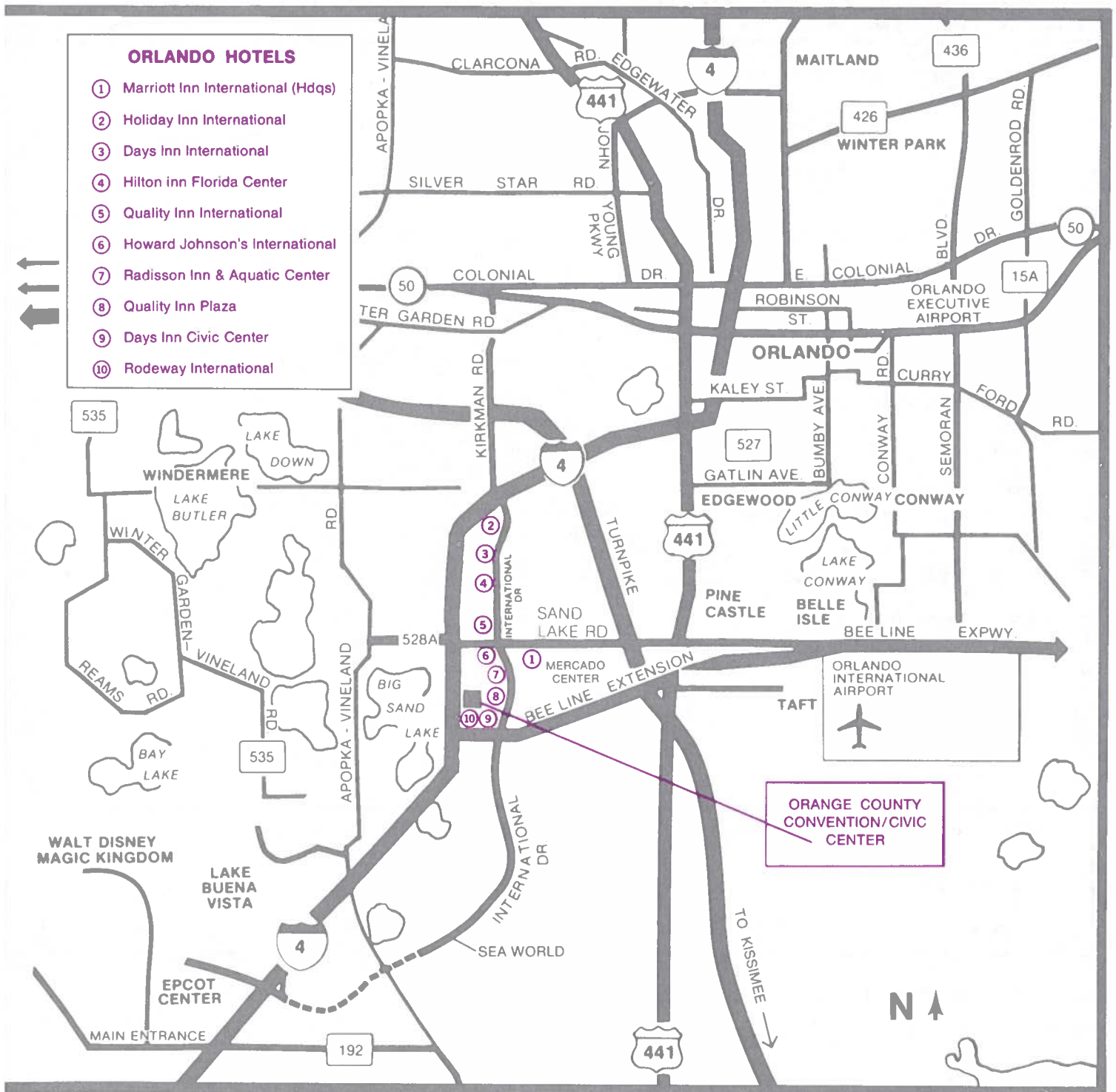
Single: \$33 Double: \$46
(8 suites overlooking pool available at \$56)

Children under 18 sharing room with parent—FREE

Parking—FREE

Outdoor swimming pool, hot tub, children's playground
Continental breakfast, evening cocktails; no other food service
Restaurants nearby. Concierge Desk

Check-in: 4:00 p.m. Check-out: 12:00 noon CC: AX, V, MC, D, CB



ORLANDO AREA

ORLANDO • 1985 GSA ANNUAL MEETING & EXPOSITION



OFFICIAL HOUSING FORM

Please complete and return by **October 4** to:

HOUSING BUREAU FOR GSA
ORLANDO/ORANGE COUNTY CONVENTION & VISITORS BUREAU
7600 DR. PHILLIPS BLVD., SUITE 6
ORLANDO, FL 32818

Please print or type:

Hotel/Motel Preference (give complete name of property)

1. _____
2. _____
3. _____

Type of Accommodations

(send one reservation form per room)

- | | |
|--|---|
| <input type="checkbox"/> Single (1 bed, 1 person) | <input type="checkbox"/> 1 Bedroom Suite |
| <input type="checkbox"/> Double (1 bed, 2 persons) | <input type="checkbox"/> 2 Bedroom Suite |
| <input type="checkbox"/> Dbl/Dbf (2 beds, 2 persons) | <input type="checkbox"/> Add rollaway to room |
| <input type="checkbox"/> Triple (2 beds, 3 persons) | |
| <input type="checkbox"/> Quad (2 beds, 4 persons) | |

Rate Requested* _____

* Subject to 7% tax

ARRIVAL DAY/DATE _____ TIME _____ a.m./p.m.

DEPARTURE DAY/DATE _____ TIME _____ a.m./p.m.

NAMES OF OCCUPANTS

1. _____ 3. _____
2. _____ 4. _____

If sending deposit with this form: Remit in U.S. funds to "GSA Housing Bureau" or charge:
_____Master Card _____Visa _____American Express

Card Expires: _____ / _____ | | | | | | | | | | | | | | | | | | | | | |
mo. yr. card #

Signature _____

MAIL CONFIRMATION TO (type or print with dark ink):

Name _____ Phone (_____) _____

University or Company _____

Address _____
street city state zip

1. First night's deposit is required. Credit cards and checks will be accepted. Deposit due with housing form OR to hotel after receiving confirmation.
2. Notify hotel directly for any changes in arrival/departure or type of accommodations.
3. Cancellation 48 hours in advance of arrival is required for refund. Request cancellation number at that time.

CONVENIENCE INFORMATION



INFORMATION/MESSAGES

SA information and message desks will be located at both the Convention Center and the Marriott Hotel, Friday, October 25, through Thursday, October 31. The desks will be staffed by the Convention and Visitors Bureau to answer your questions about the meeting as well as Orlando and the surrounding area.

One of the most frustrating events at a meeting can be trying to get a message to an attendee. Please leave the exact name and phone number of your hotel with home and office, for it is the best way to contact you in Orlando. Convention Center Information number: (305) 345-9500; Messages: (305) 345-9501.

TAX DEDUCTION

Tax deduction of expenses is generally permitted by treasury regulation 1.162-5 for education expenses (registration fees, cost of travel, meals, and lodging) undertaken to (1) maintain or improve skills required in one's employment, or (2) meet expressed requirements of an employer.

CLIMATE/CLOTHING

The average daytime temperatures for October in Orlando are about 75° high and 65° low. Lightweight, informal clothing is suggested, and a sweater or jacket is recommended for evening. Rainwear may be needed.

CHILD CARE SERVICE

GSA does not make arrangements for babysitting services. Please contact the Housekeeping Department or the Front Desk Manager in your hotel for information and services.

Parents who are willing to take part in co-operative child care should send their names, addresses, phone numbers, and ages of children to the Event Coordinator, GSA Headquarters, by OCTOBER 1. A list of all those showing interest will be sent to respondents by OCTOBER 10. Parents can then contact others on the list to set up an exchange of services.

ABSTRACTS WITH PROGRAMS

Not previously purchased, *Abstracts with Programs* for the 1985 Annual Meeting is available four ways:

Advance Mailing: If you complete the order form below and mail it so as to be RECEIVED at GSA by September 1, 1985, U.S. copies should arrive on or before October 18, providing excessive delays in the postal system are not encountered. Price for nonmembers is \$15; for GSA members \$12.

Reserved On-Site in Orlando: If you would like a copy

reserved for pickup at the Annual Meeting or for extra copies, purchase from the "Abstracts" line on the Preregistration Form. Pick up your copy in the Registration Area, Convention Center. Price \$18.

3. **Open On-Site:** Purchase on-site from a limited quantity available. Price \$18.

4. **Membership Dues Form:** You may have already ordered a copy when you paid your dues. If so, placing an order under option 1 or 2 will give you a duplicate copy.

CUT & MAIL

USE THIS FORM FOR OPTION (1) ADVANCE MAILING ONLY.

ABSTRACTS WITH PROGRAMS 1985 ANNUAL MEETING

MAIL SEPARATELY TO: GSA Publication Sales, P.O. Box 9140, Boulder, CO 80301.

Ship _____ advance copies of ABSTRACTS WITH PROGRAMS 1985 at \$15* per copy (\$12* for GSA member; write your membership number here _____).

_____ Enclosed is check/money order in US funds for \$_____ (make checks payable to GSA Publication Sales)

_____ Charge to MasterCard/VISA (circle one)

Account # _____ Exp. Date _____

Telephone (work) _____ (home) _____

Signature _____

Name _____

Address _____

City/State _____ Zip/Country _____

*Colorado residents add sales tax.



ORLANDO • 1985 GSA ANNUAL MEETING & EXPOSITION

REGISTRATION



PREREGISTRATION DEADLINE: MUST BE RECEIVED NO LATER THAN SEPTEMBER 27.

1. There is a 20% savings in meeting registration fees if you register before September 27! Advance registration is also suggested for many of the special activities because of participation limits. Use the preregistration form provided in this announcement.

2. Registration is required for all attendees, including field-trip participants and guests. Badges will be required for ALL activities 10:00 a.m. Sunday through 5:00 p.m. Thursday. There will be a fee charged for all lost badges.

3. A \$35 member discount on registration applies to any professional member of GSA or an Associated Society. The Associated Societies that qualify are listed on the registration form. Professional registrants who paid the nonmember registration fee and apply for GSA membership by March 31, 1986, will be entitled to a \$35 reduction in the 1986 membership fee. GSA Student Associates will receive a \$10 discount. Only ONE discount will apply per person. In order to receive the reduction, the meeting registration form must be attached to the membership application. Membership applications are available from GSA Headquarters. During the meeting, you can pick up applications at the GSA Bookstore (Exhibit Hall, Booth #328), GSA Employment Service, or Membership Desk, Registration area, Convention Center.

4. Current student IDs are required to obtain student rates at both the on-site and preregistration counters.

5. Full payment MUST accompany registration. Unpaid purchase orders are not accepted as valid registration. Charge cards are accepted as indicated on the preregistration form. If using a charge card, please recheck the card number; errors will delay your registration.

6. Register one professional or student per form. Copy the form for your records. Your check will be your receipt.

7. Guest registration is required for guests attending guest activities, special events, and luncheons. The registration fee does not include admission to the technical sessions. Guest registrants MUST be accompanied by either a professional or student registrant.

REFUNDS

GSA will refund advance registration fees for all cancellations received in writing by October 4. NO refunds will be made on cancellation notices received after this date. Refunds will be mailed from GSA after the meeting and subject to a \$10 processing fee. NO refunds for on-site registration.

REGISTRATION SCHEDULE:

Convention Center, North Hall

Sunday, October 27	10:00 a.m. to 7:30 p.m.
Monday, October 28	7:30 a.m. to 5:00 p.m.
Tuesday, October 29	7:30 a.m. to 5:00 p.m.
Wednesday, October 30	7:30 a.m. to 2:00 p.m.
Thursday, October 31	7:30 a.m. to 2:00 p.m.

REGISTRATION FEES

	<u>Advance*</u>	<u>On-Site</u>	<u>One-Day</u>
Professional—Member	80.00	95.00	50.00
Professional—Nonmember	115.00	130.00	65.00
Student—Member	40.00	45.00	25.00
Student—Nonmember	55.00	65.00	35.00
Guest	30.00	45.00	N/A

*Registration fees received before September 27, 1985

ASSOCIATED SOCIETIES MEETING WITH GSA

Cushman Foundation
Geochemical Society
Geoscience Information Society
Mineralogical Society
National Association of Geology Teachers
Paleontological Society
Society of Economic Geologists

PREREGISTRATION FORM

PREREGISTRATION must be RECEIVED by September 27. Unpaid purchase orders NOT accepted as valid registration. Full payment MUST accompany all preregistration requests. One form per registrant. Participants in all events, short courses excluded, must pay a preregistration fee. CANCELLATION requests must be received in writing by October 4. NO refunds after this date.

Type or print ** Copy for your records

Name (Last) _____ (First) _____
 Institution/Employer _____ Nickname for badge _____
 Mailing Address _____
 City _____ State _____ Zip code _____
 Country _____ Business phone _____ Home phone _____
 Guest/Spouse Name (Last) _____ (First) _____
 City _____ State/Country _____
 Member Affiliations: (1)GSA _____ (2)CF _____ (3)GS _____ (4)GIS _____ (5)MSA _____
 (6)NAGT _____ (7)PS _____ (8)SEG _____ Member # _____

PREREGISTRATION FEES

	Column A	Column B
	Qty	Amount
Professional Member (per affiliation above)	(1)	\$ 80
One-Day (circle day S M T W T)	(2)	\$ 50
Professional Nonmember	(3)	\$ 115
One-Day (circle day S M T W T)	(4)	\$ 65
Student Member (per affiliation above)	(5)	\$ 40
One-Day (circle day S M T W T)	(6)	\$ 25
Student Nonmember	(7)	\$ 55
One-Day (circle day S M T W T)	(8)	\$ 35
Guest (fill in name above)	(9)	\$ 30
Abstracts with Programs (on-site pickup)	(10)	\$ 18

GUEST PROGRAM

Foliage Tour	Oct 28 (11)	\$ 25
Kennedy Space Center Luncheon	Oct 29 (12)	\$ 30
Winter Park Whirl-Around	Oct 30 (13)	\$ 30

SPECIAL EVENTS

Invitational Tennis	Oct 27 (14)	\$ 6
Wait Disney World (Two-Day Pass)	All days (15)	\$ 32
Mardi Gras (6 p.m.)	Oct 29 (16)	\$ 17
Mardi Gras (9 p.m.)	Oct 29 (17)	\$ 17
Sea World	Oct 30 (18)	\$ 24
Orlando 10k Run	Oct 30 (19)	\$ 7
Orlando 5k Run	Oct 30 (20)	\$ 7
Circle T-Shirt Size: S M L		
Total of Column A		\$ _____

ORLANDO • 1985 GSA ANNUAL MEETING & EXPOSITION

TRIGGERED MEAL FUNCTIONS (incheons unless noted)

	Column B	Column B
	Qty	Amount
Organic Geochemistry Dinner	Oct 27 (21)	\$ 22
GSA Awards	Oct 28 (22)	\$ 13
Engineering Geology	Oct 29 (23)	\$ 13
GIS	Oct 29 (24)	\$ 13
History of Geology	Oct 29 (25)	\$ 13
Hydrogeology	Oct 29 (26)	\$ 13
MSA	Oct 29 (27)	\$ 13
NAGT	Oct 29 (28)	\$ 13
Paleo Society	Oct 29 (29)	\$ 13
Women Geoscientists Breakfast	Oct 29 (30)	\$ 10
Coal Geology	Oct 30 (31)	\$ 13
Geochemical Society	Oct 30 (32)	\$ 13
Quaternary & Geomorphology	Oct 30 (33)	\$ 13
SEG	Oct 30 (34)	\$ 13

FIELD TRIPS

1 Barrier Island/Marsh	Oct 24-27 (35)	\$ 250
2 San Salvador Island	Oct 24-27 (36)	\$ 425
3 Hydrogeol Central/N FI	Oct 26-27 (37)	\$ 65
4 Coastal Geol/Beachrock	Oct 25-27 (38)	\$ 200
5 Geol S Georgia	Oct 24-27 (39)	\$ 200
7a Carbon Coal-bearing Rocks	Oct 24-27 (40)	\$ 360
7b #7 without airfare	Oct 24-27 (41)	\$ 196
8a Winter Park Sinkhole	Oct 29 (42)	\$ 7
8b Winter Park Sinkhole (repeat)	Oct 30 (43)	\$ 7
9 Land Pebble Phosphates	Nov 1-2 (44)	\$ 100
11a Haiti	Oct 31-Nov 5 (45)	\$ 560
11b #11 without airfare	Oct 31-Nov 5 (46)	\$ 322
12 Apalachicola River	Nov 1 (47)	\$ 25
13 Coastal Morphology	Oct 31-Nov 2 (48)	\$ 195

SHORT COURSES

Geowriting	Oct 26 (49)	\$ 75
Planetary Geology	Oct 26-27 (50)	\$ 100
Geowriting (repeat)	Oct 27 (51)	\$ 75
Remote Sensing	Oct 27 (52)	\$ 100
UNIX	Oct 27 (53)	\$ 100
Balancing Cross Sections	Nov 1-2 (54)	\$ 160
Total Column B		\$ _____
Total Column A		\$ _____
Column A + B = Total Remittance		\$ _____

REMIT IN U.S. FUNDS, PAYABLE TO 1985 GSA ANNUAL MEETING

OR CHARGE: MASTERCARD VISA American Express

Card expires: mo / yr _____ card number _____

Signature _____

FOR OFFICE USE ONLY

Deposit Date _____ Refund Date _____
 Balance Due \$ _____ A/R Comment _____
 Refund \$ _____ A/P _____
 Refund Ck # _____

MAIL TO:

1985 GSA ANNUAL MEETING, P.O. BOX 9140, BOULDER, CO 80301.



The
Earth
has a
Spirit
of
Growth

For membership information, contact:

The Geological Society of America
Membership Department, P.O. Box 9140
3300 Penrose Place, Boulder, CO 80301
(303) 447-2020



GROW WITH US

CLASSIFIEDS

Ads (or cancellations) for the September issue must reach the GSA office by August 15. Contact Advertising Department (303) 447-2020.

Per line per issue	1x	3x	6x	12x
Situations Wanted:	\$1.25	\$1.10	\$.95	\$.85
Positions Open:	\$3.00	\$2.64	\$2.28	\$2.04
Consultants:	\$3.00	\$2.64	\$2.28	\$2.04
Services & Supplies:	\$3.20	\$2.81	\$2.43	\$2.17
Code number \$2.75 extra.				

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Positions Open

SEDIMENTOLOGIST/SEDIMENTARY PETROLOGIST

The Mackay School of Mines, University of Nevada-Reno seeks to fill a tenure-track teaching and research position in sedimentology/sedimentary petrology by the 1986-87 academic year. Applicants should have expertise in one or more of the following fields: clastic and/or carbonate sedimentology, sedimentary petrology, depositional systems, physical stratigraphy. This position will be filled at the assistant or associate level. Ph.D. must be in hand at time of hire. The successful candidate will have opportunity to develop their research in modern surroundings with up-to-date equipment, in a stimulating environment with more than 100 graduate students and 17 faculty. Doctoral degrees are awarded in Geology, Geophysics, and Hydrogeology. Master of Science degrees are also awarded in Geological Engineering and Geochemistry. Bachelor of Science degrees are awarded in all of the above except Hydrogeology and Geochemistry. We welcome applications from candidates with a willingness to teach at both undergraduate and graduate levels, and an ability to pursue and publish research. Applicants should send a letter of application, resume,

transcripts and arrange to have at least three letters of recommendation sent to: Chairman, Sedimentologist Search Committee, Department of Geological Sciences, University of Nevada, Reno 89557-0047 before October 10, 1985. The University of Nevada-Reno is an equal opportunity, affirmative action employer.

SEDIMENTARY PETROLOGIST WRIGHT STATE UNIVERSITY

The Department of Geological Sciences invites applications for a tenure-track position in Sedimentary petrology at the assistant professor or associated professor level, beginning September 1986 or sooner. Candidates must have interest in carbonate rocks and basin analysis. The successful candidate will be expected to initiate a strong research program and to supervise graduate student work in sedimentary petrology. Teaching duties will include graduate courses in sedimentary petrology and related areas and an introductory paleontology course at the undergraduate level. The Department has a large M.S. program and wishes to expand the Sedimentary geology group. Wright State offers excellent research facilities and competitive remuneration. Rank and salary commensurate with experience. Ph.D. required (may be near completion for assistant professor level applicants). Closing date for applications is November 15, 1985. Send resume and three letters of reference to Chairman, Search Committee, Department of Geological Sciences, 260 Brehm Laboratory, Wright State University, Dayton, Ohio 45435. Wright State University is an equal opportunity, affirmative action employer.

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