

52nd Annual
Highway Geology Symposium

PROCEEDINGS

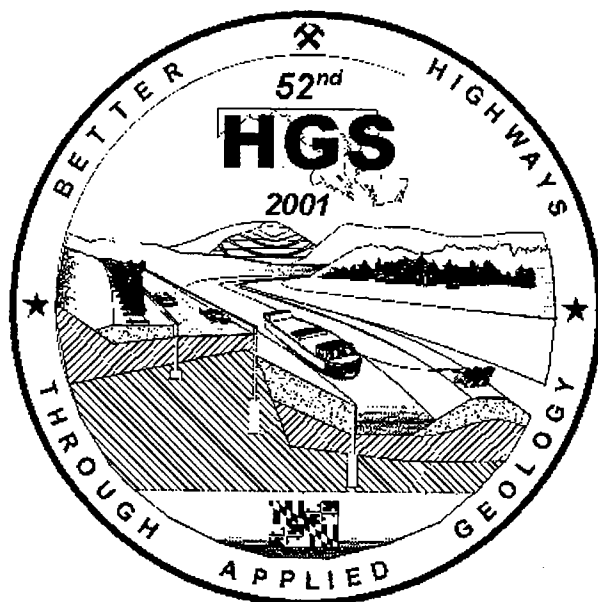


May 16 - 18, 2001
Rocky Gap State Park
Cumberland, Maryland

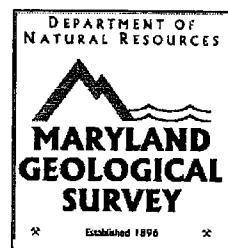
Sponsored By:
Maryland State Highway Administration
Maryland Geological Survey

52nd ANNUAL HIGHWAY GEOLOGY SYMPOSIUM

*May 16 - 18, 2001
Rocky Gap Lodge
Cumberland, Maryland*



HOSTED BY:
MARYLAND STATE HIGHWAY ADMINISTRATION
MARYLAND GEOLOGICAL SURVEY





52nd Annual Highway Geology Symposium

May 16 – 18, 2001

Rocky Gap State Park, Cumberland, Maryland

The Maryland State Highway Administration and the Maryland Geological Survey extend a warm welcome to highway geologists and geotechnical engineers from all over the United States and Canada.

We hope that our symposium increases your knowledge of our craft while enjoying the scenic beauty of western Maryland.

We welcome you to remain in the area after the symposium, to enjoy the rich scenery and heritage of our state.

A. David Martin, Maryland State Highway Administration
Dr. Emery Cleaves, State Geologist, Maryland Geological Survey



HIGHWAY GEOLOGY SYMPOSIUM

HISTORY, ORGANIZATION, AND FUNCTION

Established to foster a better understanding and closer cooperation between geologists and civil engineers in the highway industry, the Highway Geology Symposium (HGS) was organized and held its first meeting on March 14, 1950, in Richmond, Virginia. Attending the inaugural meeting were representatives from state highway departments (as referred to at the time) from Georgia, South Carolina, North Carolina, Virginia, Kentucky, West Virginia, Maryland, and Pennsylvania. In addition, a number of federal agencies and universities were represented. A total of nine technical papers were presented.

W.T. Parrott, an engineering geologist with the Virginia Department of Highways, chaired the first meeting. It is Mr. Parrott who originated the Highway Geology Symposium.

It was at the 1956 meeting that future HGS leader, A. C. Dodson, began his active role in participating in the Symposia. Mr. Dodson was the Chief Geologist for the North Carolina State Highway and Public Works Commission, which sponsored the 7th HGS meeting.

Since the initial meeting, 51 consecutive annual meetings have been held in 32 different states. Between 1950 and 1962, the meetings were held east of the Mississippi River, with Virginia, Ohio, West Virginia, Maryland, North Carolina, Pennsylvania, Georgia, Florida, and Tennessee serving as the host states.

In 1962, the Symposium moved west for the first time to Phoenix, Arizona where the 13th annual HGS meeting was held. Since then, it has alternated, for the most part, back and forth from east to west. Following meetings in Texas and Missouri in 1963 and 1964, the Annual Symposium moved to different locations as follows:

List of Highway Geology Symposium Meetings

<u>NO.</u>	<u>Year</u>	<u>HGS Location</u>	<u>NO</u>	<u>Year</u>	<u>HGS Location</u>
1 st	1950	Richmond, VA	2 nd	1951	Richmond, VA
3 rd	1952	Lexington, VA	4 th	1953	Charleston, W VA
5 th	1954	Columbus, OH	6 th	1955	Baltimore, MD
7 th	1956	Raleigh, NC	8 th	1957	State College, PA
9 th	1958	Charlottesville, VA	10 th	1959	Atlanta, GA
11 th	1960	Tallahassee, FL	12 th	1961	Knoxville, TN
13 th	1962	Phoenix, AZ	14 th	1963	College Station, TX
15 th	1964	Rolla, MO	16 th	1965	Lexington, KY
17 th	1966	Ames, IA	18 th	1967	Lafayette, IN
19 th	1968	Morgantown, WV	20 th	1969	Urbana, IL
21 st	1970	Lawrence, KS	22 nd	1971	Norman, OK
23 rd	1972	Old Point Comfort, VA	24 th	1973	Sheridan, WY
25 th	1974	Raleigh, NC	26 th	1975	Coeur d'Alene, ID
27 th	1976	Orlando, FL	28 th	1977	Rapid City, SD
29 th	1978	Annapolis, MD	30 th	1979	Portland, OR
31 st	1980	Austin, TX	32 nd	1981	Gatlinburg, TN
33 rd	1982	Vail, CO	34 th	1983	Stone Mountain, GA
35 th	1984	San Jose, CA	36 th	1985	Clarksville, IN
37 th	1986	Helena, MT	38 th	1987	Pittsburgh, PA
39 th	1988	Park City, UT	40 th	1989	Birmingham, AL
41 st	1990	Albuquerque, NM	42 nd	1991	Albany, NY
43 rd	1992	Fayetteville, AR	44 th	1993	Tampa, FL
45 th	1994	Portland, OR	46 th	1995	Charleston, WV
47 th	1996	Cody, WY	48 th	1997	Knoxville, TN
49 th	1998	Prescott, AZ	50 th	1999	Roanoke, VA
51 st	2000	Seattle, WA	52 nd	2001	Cumberland, MD

Unlike most groups and organizations that meet on a regular basis, the Highway Geology Symposium has no central headquarters, no annual dues, and no formal membership requirements. The governing body of the Symposium is a steering committee composed of approximately 20-25 engineering geologists and geotechnical engineers from state and federal agencies, colleges and universities, as well as private service companies and consulting firms throughout the country. Steering committee members are elected for three-year terms, with their elections and re-elections being determined principally by their interests and participation in and contribution to the Symposium. The officers include a chairman, vice chairman, secretary, and treasurer, all of whom are elected for a two-year term. Officers, except for the treasurer, may only succeed themselves for one additional term.

A number of three-member standing committees conduct the affairs of the organization. The lack of rigid requirements, routing, and the relatively relaxed overall functioning of the organization is what attracts many of the participants.

Meeting sites are chosen two or four years in advance and are selected by the Steering Committee following presentations made by representatives of potential host states. These presentations are usually made at the steering committee meeting, which is held during the Annual Symposium. Upon selection, the state representative becomes the state chairman and a member protem of the Steering Committee.

The symposia are generally for two and one-half days, with a day-and-a-half for technical papers and a full day for the field trip. The Symposium usually begins with a full day of technical sessions. The field trip is usually the second day, followed by the annual banquet that evening. The final technical session generally ends by noon on the third day. Eastern states favor the spring of the year, while western states schedule their symposiums in the summer and fall to better accommodate climate conditions and tourism benefits.

The field trip is the focus of the meeting. In most cases, the trips cover approximately from 150 to 200 miles, provide for six to eight scheduled stops, and require about eight hours. Occasionally, cultural stops are scheduled around geological and geotechnical points of interest. To cite a few examples: in Wyoming (1973), the group viewed landslides in the Big Horn Mountains; Florida's trip (in 1976) included a tour of Cape Canaveral and the NASA space installation; the Idaho and South Dakota trips dealt principally with mining activities; North Carolina provided stops at a quarry site, a dam construction site, and a nuclear generating site; in Maryland, the group visited the Chesapeake Bay hydraulic model and the Goddard Space Center; the Oregon trip included visits to the Columbia River Gorge and Mount Hood; the Central Mineral Region was visited in Texas; and the Tennessee meeting in 1981 provided stops at several repaired landslides in Appalachia regions of East Tennessee.

In Utah (1988) the field trip visited sites in Provo Canyon and stopped at the famous Thistle Landslide, while in New Mexico in 1990 the emphasis was on rockfall treatment in the Rio Grand River canyon and included a stop at the Brugg Wire Rope headquarters in Santa Fe.

Mount St. Helens was visited by the field trip in 1994 when the meeting was in Portland, Oregon, while in 1995 the West Virginia meeting took us to the New River Gorge bridge that has a deck elevation 876 feet above the river.

In Cody, Wyoming the 1996 field trip visited the Chief Joseph Scenic Highway and the Beartooth uplift in northwestern Wyoming. In 1997 the Meeting in Tennessee visited the newly constructed future I-26 highway in the Blue Ridge of East Tennessee. The Arizona meeting in 1998 visited Oak Creek Canyon near Sedona and a mining ghost town at Jerome, Arizona.

At the technical sessions, case histories and state-of-the-art papers are most common; with highly theoretical papers the exception. The papers presented at the technical sessions are published in the annual proceedings. Some of the more recent proceedings may be obtained from the Treasurer of the Symposium.

Banquet speakers are also a highlight and have been varied through the years

A Medallion Award was initiated in 1970 to honor those persons who have made significant contributions to the Highway Geology Symposium. The selection was and is currently made from the members of the national steering committee of the HGS.

A number of past members of the National Steering Committee have been granted Emeritus status. These individuals, usually retired, resigned from the HGS Steering Committee, or are deceased, have made significant contributions to the Highway Geology Symposium. A total of 20 persons have been granted the Emeritus status. Ten are now deceased

Several Proceedings volumes have been dedicated to past HGS Steering Committee members who have passed away. The 36th HGS Proceedings were dedicated to David L. Royster (1931-1985, Tennessee) at the Clarksville, Indiana meeting in 1985. In 1991 the Proceedings of the 42nd HGS meeting held in Albany, New York was dedicated to Burrell S. Whitlow (1929-1990, Virginia).

**HIGHWAY GEOLOGY SYMPOSIUM
STEERING COMMITTEE OFFICERS**

Mr. Robert W. Henthorn, Chair
Kansas Department of Transportation
Box 498
411 W. 14th Street
Chanute, Kansas 66720-0498
PH: 316-431-1000 Ext. 47

Mr. Michael Hager, Vice Chair
Wyoming DOT
P.O. Box 1708
Cheyenne, WY 82003-1708

Mr. Richard Cross, Secretary
New York State Thruway Authority
200 Southern Blvd.
P. O. Box 189
Albany, NY 12201-0189
PH: 518-471-4277

Mr. Russell Glass, Treasurer
Area Geologist
Geotechnical Unit
North Carolina Department of Transportation
Asheville, North Carolina 28802
PH: 828-298-3874

**NATIONAL STEERING COMMITTEE 2001
HIGHWAY GEOLOGY SYMPOSIUM**

NAME/ADDRESS

PHONE/FAX/E-MAIL

**Ken Ashton
West Virginia Geological Survey
P.O. Box 879
Morgantown, WV 26507-0879**

**PH 304-594-2331
FX 304-594-2575
E-MAIL ashton@geosrv.wvnet.edu**

**John Baldwin
West Virginia Div. of Highways
312 Michigan Ave.
jbaldwin@mail.dot.state.wv.us
Charleston, WV 25311**

**PH 304-558-3084
FX 304-558-0253
E-MAIL**

**Vernon Bump
South Dakota DOT
Geotech. Engr. Activity
700 E. Broadway Ave.
Pierre, SD 57501-2586**

**PH 605-773-3401
FX 605-773-5867
E-MAIL vern.bump@state.sd.us**

**Richard Cross
New York State Thruway Authority
200 Southern Blvd.
P.O. Box 189
Albany, NY 12201-0189**

**PH 518-471-4277
FX 518-436-3096
E-MAIL cross-r@eng.nystwy.com**

**Jeff Dean
Oklahoma DOT
200 NE 21ST St.
jdean@fd9ns01.okladot.state.ok.us
Oklahoma City, OK 73015**

**PH 405-522-4994
FX 405-522-0552
E-MAIL**

**John Duffy
California Dept. of Transportation
50 Higuera Street
San Luis Obispo, CA 93401**

**PH
FX
E-MAIL**

**Russell Glass
North Carolina DOT, Geotechnical Section
100 Wolfe Cove Rd.
Asheville, NC 28804**

**PH 828-298-3874
FX 828-299-1273
E-MAIL rglass@dot.state.nc.us**

**Robert Goddard
National High Magnetic Field Lab
Florida State University
1800 E. Paul Dirac Dr.
Tallahassee, FL 32306-4005**

**PH 850-644-4304
FX 850-644-0687
E-MAIL goddard@magnet.fsu.edu**

**NATIONAL STEERING COMMITTEE 2001
HIGHWAY GEOLOGY SYMPOSIUM**

**G. Michael Hager
Wyoming DOT
P.O. Box 1708
Cheyenne, WY 82003-1708**

**PH 307-777-4205
FX 307-777-3994
E-MAIL Mhager@missc.state.wy.us**

**Robert W. Henthorne
Kansas DOT
P.O. Box 498
roberth@dttdist4.wpo.state.ks.us
411 W. 14TH St.
Chanute, KS 66720-0498**

**PH 316-431-1000 EXT 47
FX 316-431-6941
E-MAIL**

**Richard Humphries
Golder Associates
3730 Chamblee Tucker Rd.
Atlanta, GA 30341**

**PH 770-496-1893
FX 770-934-9476
E-MAIL rhumphries@Golder.com**

**A. David Martin
Maryland State Highway Administration
Office of Materials & Research
2323 W. Joppa Road
Brooklandville, MD 21022**

**PH 410-321-3107
FX 410-321-3099
EMAIL dmartin@sha.state.md.us**

**Henry Mathis, PE
223-8632
Mathis Geotechnical Consulting, Inc.
561 Marblerock Way
Lexington, KY 40503**

**PH 606-296-5664 Home: 606-
FX 606-296-5664
E-MAIL hmathis@iglou.com**

**Harry Moore
Tennessee DOT
P.O. Box 58
Knoxville, TN 37901**

**PH 423-594-9436
FX 423-594-9310
E-MAIL hmoore@mail.state.tn.us**

**Nick Priznar
Arizona DOT
1221 N 21st Ave.
Phoenix, AZ 85009-3740**

**PH
FX
E_MAIL**

**Christopher A. Ruppen
Michael Baker Jr. Inc.
4301 Dutch Ridge Rd.
Beaver, PA 15009-9600**

**PH 724-495-4079
FX 724-495-4017
E-MAIL cruppen@mbakercorp.com**

**NATIONAL STEERING COMMITTEE 2001
HIGHWAY GEOLOGY SYMPOSIUM**

Steve Senior
Ministry of Transportation
Rm 220, Central Bldg
1201 Wilson Ave.,
Downsview, ON M3M 1J6, Canada

PH 416-235-3743
FX 416-235-4101
E-MAIL senior@mto.gov.on.ca

Willard L. Sitz
Alabama DOT
1409 Coliseum Blvd.
Montgomery, AL 36110-2060

PH 334-206-2279
FX 334-264-6263
E-MAIL sitzw@dot.state.al.us

Jim Stroud
Vulcan Materials Co.
4401 N. Patterson Ave.
P.O. Box 4239
Winston-Salem, NC 27115

PH 336-767-4600
FX 336-744-2019
E-MAIL stroudj@vmcmail.com

John Szturo
HNTB Corporation
1201 Walnut, Suite 700
Kansas City, MO 64106

PH
FX
E-MAIL

Michael P. Vierling
New York State DOT
State Office Building Campus
Bldg. 7, Rm. 104
1220 Washington Ave.
Albany, NY 12232-0863

PH 518-457-4727
FX 518-457-8080
E-MAIL mvierling@gw.dot.state.ny.us

Terry West
Purdue University
Earth and Atmospheric Science Dept.
West Lafayette, IN 47907-1397

PH 765-494-3296
FX 765-496-1210
E-MAIL trwest@omni.cc.purdue.edu

W. A. Wisner
Martin Marietta Materials
2710 Wycliff Rd.,
Raleigh, NC 27607

PH 919-783-4649
FX 919-783-4552
E-MAIL billwisner@martinmarietta

HIGHWAY GEOLOGY SYMPOSIUM

EMERITUS MEMBERS OF THE STEERING COMMITTEE

Emeritus Status is granted by the Steering Committee.

R. F. Baker*
David Bingham
Virgil E. Burgat*
Robert G. Charboneau*
Hugh Chase*
A.C. Dodson*
Walter F. Fredericksen
Brandy Gilmore
Joseph Gutierrez
Charles T. Janik
John Lemish
Bill Lovell
George S. Meadors, Jr.*
Willard McCasland
David Mitchell
W. T. Parrot*
Paul Price*
David L. Royster*
Bill Sherman
Mitchell Smith
Sam Thornton
Berke Thompson*
Burrell Whitlow*
Earl Wright
Ed J. Zeigler
Steve Sweeney

*Deceased

