South Midcontinent Region PTTC

Regional Update

Vol. 4, No. 2

Spring 1999

Petroleum Technology Transfer Council (PTTC)
South Midcontinent Region

Oklahoma Geological Survey
Regional Lead Organization
Dr. Charles J. Mankin
PTTC Program Manager
Director, OGS

Mary K. Banken
PTTC Computer-System Mgt.
Geo Information Systems

Richard H. Chapman
PTTC Technology Transfer
Marginal Wells Commission

Mr. James E. Bruning
PTTC PAG Chair
Freedom Energy, Inc.

David P. Brown, GIS
User Technical Support
Richard H. Chapman, MWC
Education Coordinator
Connie G. Smith, OGS
Information, Newsletter Editor
Michelle J. Summers, OGS
Workshop Coordinator
Jane L. Weber, OGS
Computer Facility Supervisor

Oklahoma Geological Survey
100 E. Boyd, Rm. N-131
Norman, OK 73019-0628

405/325-3031 800/330-3996
Fax 405/325-7069
Publication Sales: 405/360-2886

Internet address
<http://www.ou.edu/special/ogs-pttc>

Don't Just Flip A Coin!

Make Better Decisions About Seismic!

A one-day workshop titled *2D–3D Seismic: Effective Application Can Improve Your Bottom Line,* will be presented in June or July in Oklahoma City. The purpose of the workshop is to help operators become more familiar with the benefits and pitfalls of 2-D and 3-D seismic exploration. The meeting will not present detailed technical information, but rather give those attending a better understanding of seismic work, and a better feel for how it can benefit them, when it can best be used, and what the costs will be.

Presenters for the workshop will be Deborah King Sacrey, a consulting geologist and owner of Auburn Energy of Houston, who has done a great deal of work in Oklahoma, and Raymon L. Brown, a seismologist with the Oklahoma Geological Survey.

The workshop presents a non-mathematical approach to the acquisition, processing and interpretation of seismic data to give a better understanding of when to use seismic methods, and what results to expect. The sessions will cover the basics of reflection seismic information, addressing both 2-D and 3-D seismic methods, and give a brief history of seismic exploration technology and its impact on Oklahoma.

The afternoon session will include a number of case histories in the Mid-Continent, West Texas, and Gulf Coast, to show how seismic data was used for field extensions, new field discoveries, and condemnation of areas when the geological information was sparse or inconclusive.

The presenters also will discuss advances in software and hardware, and discuss the availability of seismic data for small companies and independents. The primary goal of the workshop is to provide operators and other explorationists with a better understanding of when to use seismic methods, and, in that context, which methods to use.

For more information, contact the OGS at the address, phone number, or web site on the left side of this page.

Cleveland, Peru Play Workshop Scheduled in Half-Day Format

On the afternoon of April 30, a popular workshop on the Cleveland and Peru Play will be presented again in Oklahoma City. Sponsored by the Oklahoma City Geological Society, the Oklahoma Geological Survey, and PTTC, this half-day session omits the general geology presented in the previous full-day Fluvial-Dominated Deltaic (FDD) Reservoirs Workshop, and concentrates only on Cleveland and Peru specifics.

The Cleveland sand play is located in northeastern Oklahoma primarily on the Cherokee platform structural province. Hydrocarbons are trapped both structurally and stratigraphically in these Cleveland reservoirs, which have produced mostly oil—and locally gas—in central Oklahoma. First production was in July 1904, in Indian Territory, in what is now Pawnee County.

The Cleveland sand occurs in the stratigraphic interval between the Oologah (Big Lime) and Checkerboard Limestones. That interval is >700 ft thick in east-central Creek County, but is <100 ft thick in northern Osage County.

The Peru FDD play is centered on the Cherokee platform in northeastern Oklahoma, and extends into southern Kansas. It is not as prolific as some of the other Cherokee sands, and has long been overlooked as an objective reservoir. The Peru does produce oil, and can be economic in spite of its poor appearance on wireline logs.

The workshop will cover the geology of the Cleveland and Peru, reservoir stimulation of a Cleveland sand reservoir, and the Hogshooter Field.

The workshop will be held at the National Cowboy Hall of Fame, 1700 NE 63 St., in Oklahoma City. The meeting begins at 1 p.m.and will end no later than 5 p.m. The cost is $30 for OCGS members, and $35 for nonmembers. Reservations may be made by phone at 405/236-8086 or 235-3648, ext. 40. For further information, call Carol Jones at 405/236-8086, ext. 11.

Fall Workshops Include Waterflooding, Bartlesville, Morrow, and Coalbed Methane

A busy lineup of meetings is planned for PTTC and the OGS this fall, as workshops are scheduled on waterflooding, the Bartlesville Play, the Morrow Play, and coalbed methane.

In September, the PTTC, OCGS, and OGS will present a half-day version of the Bartlesville Play workshop. This repeat of the FDD series omits the general geology section, and concentrates on the material specific to the Bartlesville Play. The workshop will be held September 29 in Oklahoma City.

Another waterflood workshop meets in September in Oklahoma City. Kurt Rottmann will carry on the work begun last year at the first meeting, which dealt with the concepts a geologist would employ during review and evaluation of a project.

This new workshop will concentrate on rock and fluid properties a geologist or engineer would incorporate into a preliminary evaluation of a waterflood. The topics presented will include material balance and formation volume, secondary recovery production estimates, and rock and fluid properties.

Upcoming Workshops

September—Bartlesville
September–Waterflood
October—Coalbed Methane
November—Morrow

In October, Brian Cardott, OGS coal geologist, will present the Coalbed Methane Workshop to continue and expand material he presented at the recent Hartshorne workshop. This has been a topic of much interest recently, and is expected to be a popular meeting.

Rick Andrews, OGS geologist, is at work on a new Morrow workshop focusing primarily on gas reservoirs in the Anadarko basin and shelf areas. While the previous Morrow workshop was limited mostly to fluvial-dominated deltaic oil reservoirs in the shallow shelf areas of western Oklahoma and the Panhandle, this one will examine Morrow sandstone zones from the upper Morrow chert conglomerates in the deep basin to the more shallow lower Morrow and Primrose sands along the eastern and northern play boundaries.

For more specific details on these meetings, watch the next newsletter, call the OGS, or check the web pages! If you do not receive PTTC mailings, contact the Survey to be added to the list.

Upcoming Events

April

4/7 Plugging Workshop, Broken Arrow, *MWC, PTTC
4/14 GIS Day at the Capitol, Oklahoma City
4/15 Plugging Workshop, Oklahoma City, *MWC, PTTC
4/21 Plugging Workshop, Woodward, *MWC, PTTC
4/30 Cleveland and Peru Play Workshop, Oklahoma City, *OCGS, OGS, PTTC

May

5/13 Petroleum Industry Trade Fair, Ponca City, *MWC

June

2D–3D Seismic: Effective Application Can Improve Your Bottom Line, Oklahoma City, *OGS, PTTC–WILL BE PRESENTED IN LATE JUNE OR JULY
6/2 Selected Forms, OKC Zoo, Oklahoma City, *MWC
6/30 Selected Forms, Tulsa Technology Center, SE Campus, Tulsa, *MWC

August

8/18 Due Diligence, OKC Zoo, Oklahoma City, *MWC

September

Waterflood Workshop Phase II, Oklahoma City, *OGS, PTTC
9/29 Bartlesville Play Workshop, Oklahoma City, *OCGS, OGS, PTTC

October

Coalbed Methane Workshop, Oklahoma City, *OGS, PTTC

November

Morrow Play Workshop, Oklahoma City, *OGS, PTTC

*OGS=Oklahoma Geological Survey, 405/325-3031 or 800/330-3996
*MWC=Marginal Wells Commission, 405/366-8688; 800/390-0460
*OIPA=Oklahoma Independent Petroleum Association 405/942-2334 or 800/838-6472
*OCGS=Oklahoma City Geological Society, 405/236-8086

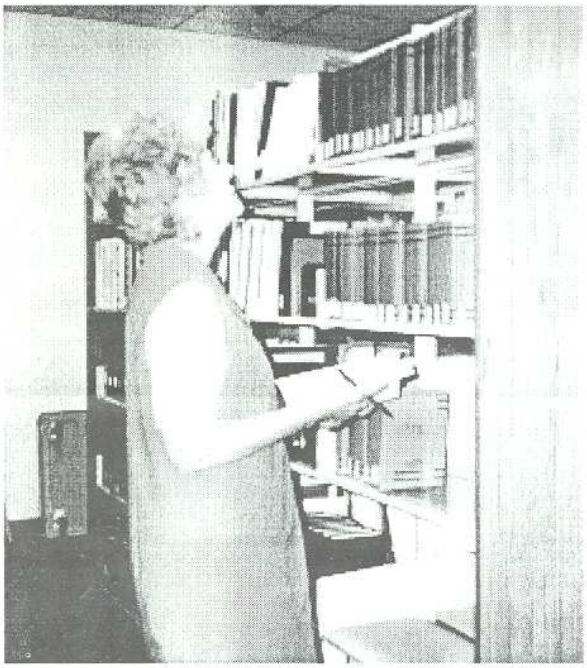
Library Materials Available for Loan from PTTC

The Oklahoma Commission on Marginally Producing Oil and Gas Wells (MWC), the Oklahoma Geological Survey (OGS), and the Interstate Oil and Gas Compact Commission (IOGCC), have joined forces to integrate library materials for the benefit of users in the South Midcontinent Region of PTTC. Efforts toward accomplishing this goal began in the fall of 1997 at the site of the PTTC Resource Center on Rock Creek Road in Norman.

The MWC matched a grant with the PTTC and hired library sciences graduate student Robin Insalaco to coordinate the management and database design. To reach Robin for more information on membership privileges, the library e-mail address is: mwclib@mhs.oklaosf.state.ok.us.

More information is available about the library at the Marginal Wells Commission's web page, which is located at: <http://www.state.ok.us/~marginal/>.

Currently, more than 2,000 items are entered in the library's computerized catalog, and more than 13,000 historical reference documents remain to be entered. Offerings include books, journals, video cassettes, computer software manuals, workshop manuals, and instruction material covering a diverse range of energy-related fields. Suggestions from patrons as to additional needs for the integrated library are always welcome.



Lakita Marty, Marginal Wells Commission, helps reshelve material in the new library.

Membership privileges include a loan period of six weeks for most items. Telephone requests can be honored, and the material is mailed within 72 hours. The outbound postage fees are paid by the library, but return postage is the responsibility of the borrower. For more information, contact the MWC at 405/366-8688 or 800/390-0460.

The library makes a great resource center available to you from your home or office. Please let us know how useful this is to you, and give us any suggestions for improving our services or holdings. If you are in Norman, visit the library at 1218-B West Rock Creek Road.

FDD Publications Available

All FDD publications are now available from the OGS. This series of Special Publications covers the material presented in the highly successful series of FDD workshops.

These books and maps cover both basic fluvial-dominated deltaic geology and the geology and reservoir studies specific to each play. Prices range from $6 to $8. Contact the OGS for more information.

MORROW PLAY - SP95-1
BOOCH PLAY - SP95-3
LAYTON & OSAGE PLAYS - SP96-1
SKINNER & PRUE PLAYS - SP96-2
RED FORK PLAY-SP97-1
TONKAWA PLAY-SP97-3
CLEVELAND & PERU PLAYS -SP97-5
BARTLESVILLE PLAY -SP97-6

SPOTLIGHT ON: Moving to Digital Mapping at the OGS

T. Wayne Furr, OGS Manager of Cartography

For more than 70 years, county mapping has been the cornerstone of geological investigations at the Oklahoma Geological Survey. Located in north-central Oklahoma, Kay County is the most recent mapping in this series, with a study under way in the western part of Osage County. Traditionally, investigations in the county geological mapping program are released in the Survey's Bulletin and Circular series with maps at a scale of 1:63,360.

Beginning in 1985, a program to map the northern part of the Ouachita Mountains fold-and-thrust belt and the southern part of the Arkoma foreland basin was conducted. Maps in this series are designed to support natural-gas exploration, coal development, and environmental hazard reduction efforts. The Survey produced twenty-two maps as Open-File Reports under the COGEOMAP program.

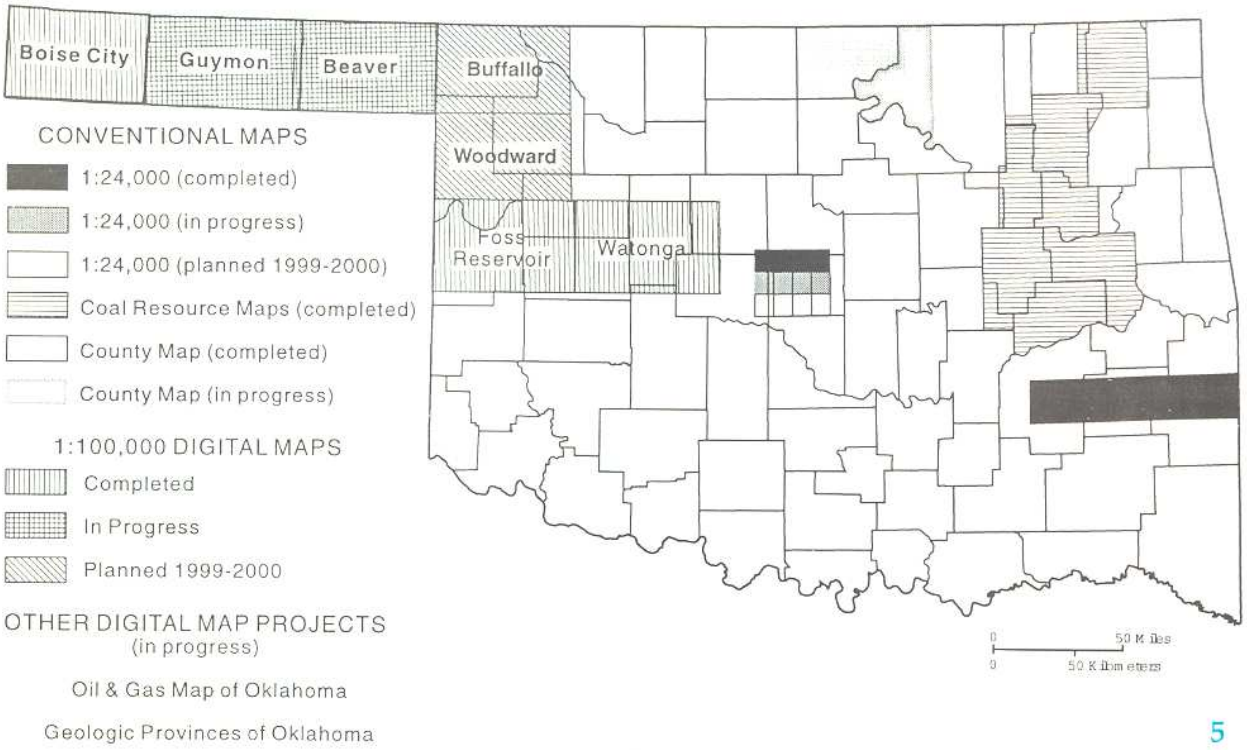
In 1998, the Survey shifted mapping efforts to the northern Oklahoma City area, selecting twelve 7.5-minute quadrangles. This mapping will provide area planners with detailed geologic maps that will enable them to make informed decisions with regard to aquifer protection, resource development, and highway construction. To date, two Open-File reports, each containing two 7.5-minute geologic quadrangles, have been produced. Completion of mapping in the Oklahoma City area is expected by July 2000.

The Oklahoma Geologic Mapping Advisory Committee (OGMAC) recommended that the Survey prepare a series of geologic maps at a scale of 1:100,000 for the entire State using digital technology in late 1994. These investigations provide a Geographical Information System (GIS) geologic-data base for industry, public officials, area planners, and other interested parties. This series will provide the foundation for a new 1:500,000 geologic map of the State. Maps in the 1:100,000 series are compilations of geologic investigations from various sources, with field checks used to fill gaps and improve on earlier mapping efforts.

In 1996-1997, in the Watonga and Foss Reservoir quadrangles in western Oklahoma were selected and compiled to test the Survey's compilation efforts and digital capabilities. This area was chosen because the bedrock geology, consisting mostly of gently dipping Permian redbeds, is relatively simple and well known. Also, in September 1996, OGMAC recommended that the Survey concentrate on the quadrangles covering the Oklahoma Panhandle. The mapping will complement ongoing studies in the area conducted by the Oklahoma Water Resources Board and Water Resources Division of the USGS. Investigations by each agency will provide a better understanding of environ

(see MAPS—page 6)

STATUS OF RECENT GEOLOGIC MAPPING



MAPS—*continued from page 5*

mental issues associated with an increasing transportation infrastructure, numbers of feed lots, and meat-processing plants. Survey geologists started compiling the geology on the Boise City map in 1997. The Guymon and Beaver maps are expected to be completed in June 1999.

In addition to the GIS format, Survey Director, Dr. Charles J. Mankin, expressed the need to publish each geologic quadrangle in the Survey's Geologic Map Series. The biggest complaint expressed by reviewers of the printed GIS maps was graphic presentation. Users expected to see traditional-looking maps with standard geologic colors, lettering, and symbols. The problem, graphic presentation has never been a strong point in GIS programs. A GIS is an analysis tool, designed to evaluate a range of possible scenarios. By evaluating different possibilities, a course of action can be considered, before irrevocable mistakes are made in the landscape itself. In other words, a GIS was never intended to be the computer toolbox for designing, drafting, and printing maps in the traditional way. However, as a state agency, the OGS must meet the needs of the citizens by providing printed maps, as well as GIS databases of geological resources.

The Survey's Cartographic Section found a way to combine the GIS data to produce traditional-looking geologic maps. The 1:100,000 geologic map series is the Survey's first attempt at using GIS concepts and graphics software jointly to produce maps for printing. The various geological mapping programs at the Survey are expected to expand as experience is gained. With materials and support for traditional cartographic methods diminishing, the need to totally convert to digital production for all maps at the Survey is rapidly approaching.

Mapping for the year 2000 will include four additional 7.5-minute quadrangles in the Oklahoma City area and one or two additional 1:100,000 quadrangle(s) in western Oklahoma. Additional projects being considered are the OIL AND GAS MAP OF OKLAHOMA at 1:500,000 and the GEOLOGIC PROVINCE MAP OF OKLAHOMA at 1:750,000. In addition to the geologic mapping programs, an inventory of all geologic maps published by Survey is being compiled into the USGS National Geologic Map Catalog.

MWC Explains Forms

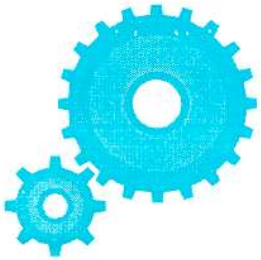
The Marginal Wells Commission offers sessions on 23 of the most used Oklahoma forms on June 2, in Oklahoma City, and June 30, in Tulsa. Corporation Commission employees will be on hand to answer questions and give examples, and an instructional video is available for later reference.

Workshops begin promptly at 9:30 a.m. and end at 3:30 p.m. The fee is $45. For more information, contact Elizabeth Fagen at the MWC at 405/366-8688 or 800/390-0460.

TRADE FAIR

May 13, Ponca City

Hutchins Memorial Auditorium, 9:30 a.m. to 3:30 p.m.
Free lunch served



Exhibits

Fair exhibitors will display machinery, hardware, and technology aimed and priced specifically at the small operator. Come sit down and see what these products can do for you!

Trader's Corner

A feature of the Trade Fair aimed at extending the life of low-volume wells by allowing fair-goers to buy, sell, or trade wells at the fair.

Sponsored by
The Marginal Oil and Gas Well Commission of OK