

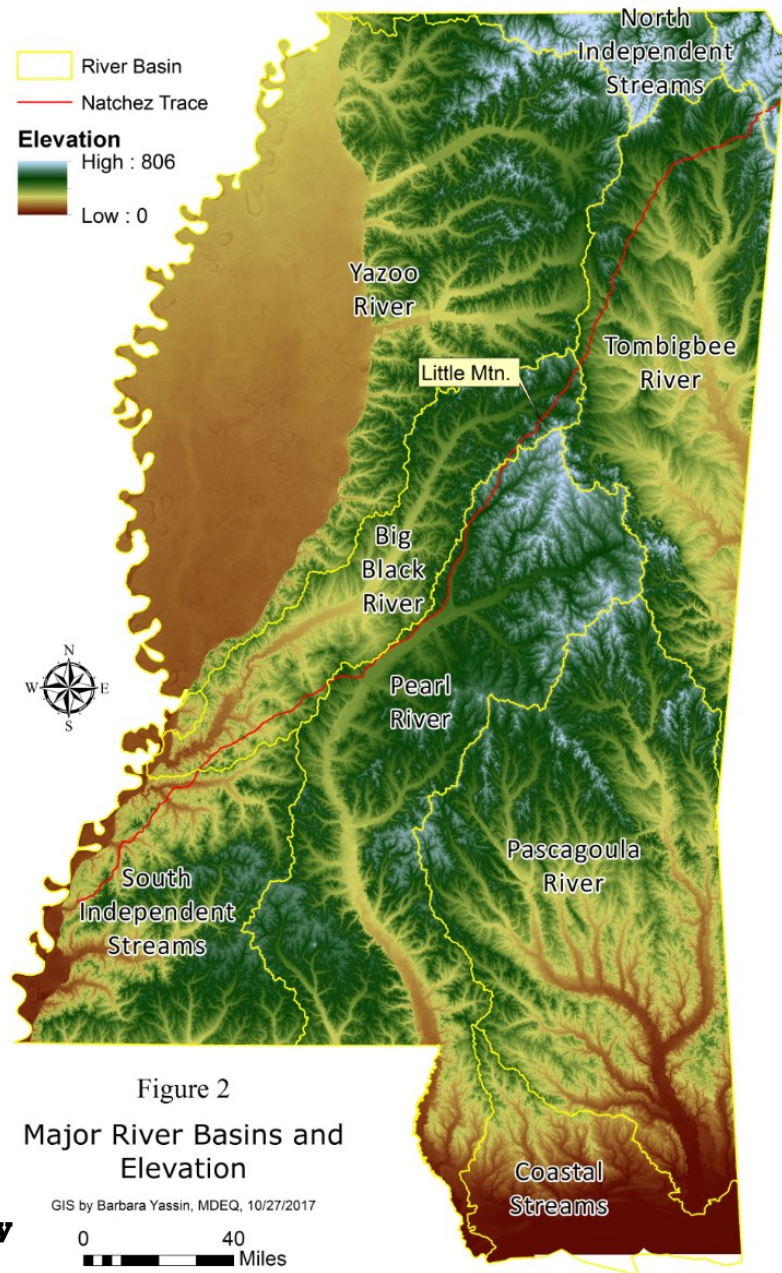
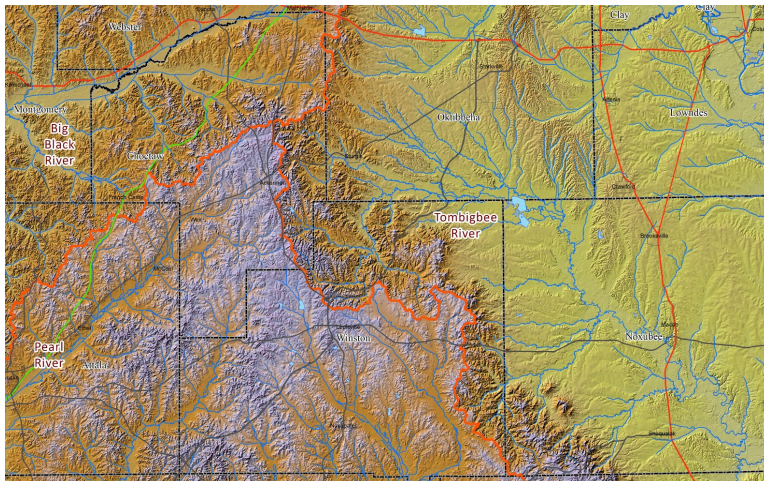
MISSISSIPPI GEOLOGICAL SOCIETY

eBULLETIN

Volume 66

No. 4

December 2017



MGS QUIZ

MISSISSIPPI RIVER BASIN GEOLOGY

Dr. David T. Dockery III, RPG, Office of Geology



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PRESIDENT'S LETTER

David Hancock



As I write, winter has finally arrived as temperatures fall into the 20's and 30's over the next few days. Christmas is around the corner and I know everyone is super busy. I hope all enjoyed Ike Keifers presentation to the Society last month. I know many would have liked to have had a lengthier question and answer period but time constraints got in the way. Sorry for that.

Our next meeting is January 11th (no December meeting). At this meeting we will be honoring Howard Patton for his 38 years of exemplary service to the Mississippi oil and gas community. Howard is retiring at the end of January and we may not see him on as regular basis as we have in the past. Please make a special effort to attend so we can give Howard a great send off into retirement.

On a much sadder note, if you see David Dockery please offer him your condolences. David, next year's MGS president, recently and unexpectedly lost his wife Mary. Mary was a very special lady and will be missed not only by David but many friends and family. I got to know the Dockery's many years ago in a young couples Sunday School class at First Baptist Jackson. I can truly say she was a rare and exceptional individual.

As we reflect on this time of year, I encourage each of you to look around and appreciate the people that are important to you. We sometimes get so busy we fail to reflect on the real meaning of the season. I wish each of you a very merry Christmas and a more prosperous new year.

Thanks,

David

2017-2018 MGS MEETING SCHEDULE

When	What/Who	Where
September 14, 2017	Fall BBQ	Jackson Yacht Club-5:30pm
October 12, 2017	EZAT HEYDARI The Last Delta on Mars	River Hills – 11:30am
November 7, 2017	Todd Kiefer Update: Energy & Power: Global Influences	River Hills – 11:30am
December 25, 2017	Merry Christmas	
January 11, 2018	TBD	River Hills – 11:30am
February 8, 2018	TBD	River Hills – 11:30am
March 8, 2018	TBD	River Hills – 11:30am
April 12, 2018	Boland Scholarship Awards	River Hills – 11:30am
May 10, 2017	Spring Fling	Jackson Yacht Club– 5:30pm

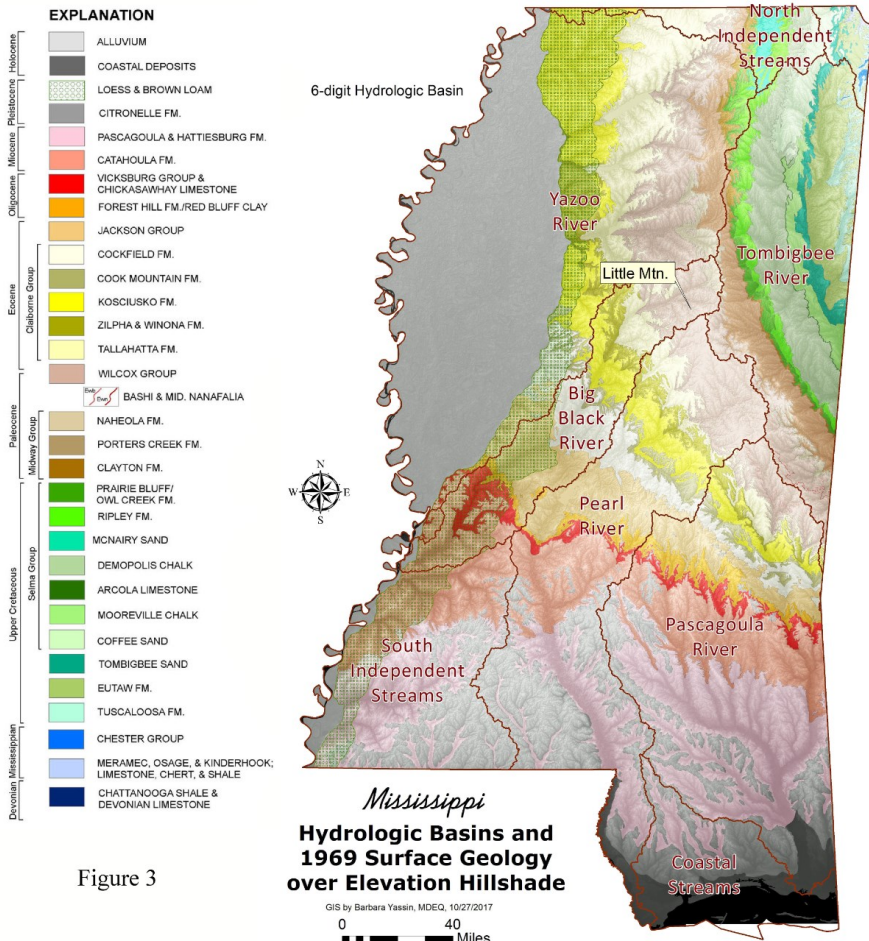


Figure 3

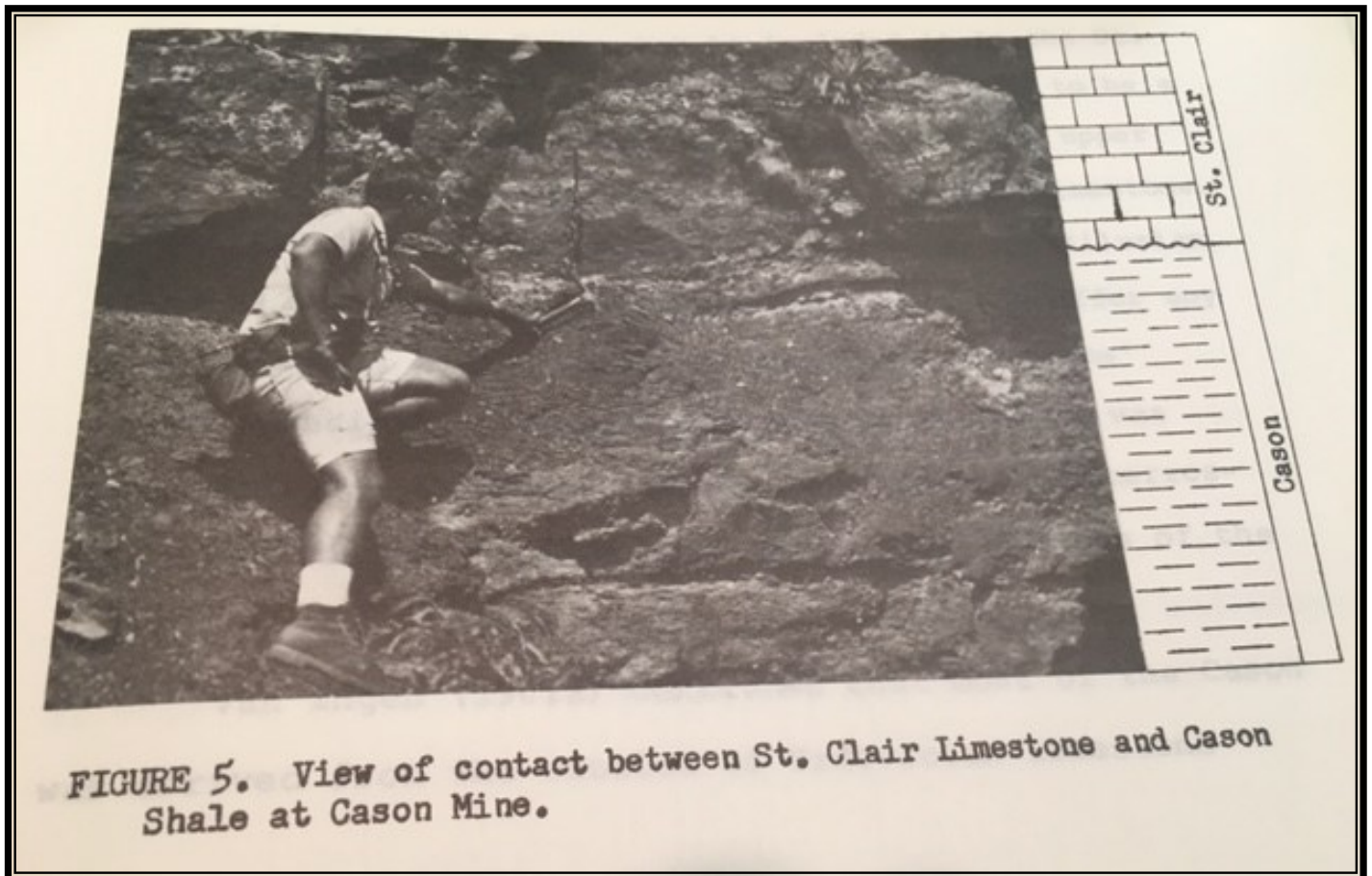
OFFICERS MEETINGS
September 12, 2017
October 10, 2017
November 6, 2017
January 9, 2018
February 6, 2018
March 6, 2018
April 10, 2018
May 8, 2018



MGS QUIZ

Who is this prominent MGS member?

Hint* Photo is from a Master's Thesis, taken in Independence Co., Arkansas in 1968.





MONTHLY POST

Dr. David T. Dockery III RPG

MISSISSIPPI'S RIVER BASIN GEOLOGY

David T. Dockery III, RPG, and Barbara Yassin, Office of Geology

The following is a “shingled” article from the November 2017 issue of MDEQ’s external newsletter *Environmental News*. We deemed it interesting enough to share with our MGS audience, but also wanted everyone to see that geology is well represented in the newsletter.

The bedrock geology of Mississippi is a controlling factor in the distribution of soil types, physiographic provinces, ecoregions, and river basins in the state. This in turn had a significant impact on the development of agriculture, population settlement, the location of industry, and many other factors in the state’s history.

Figure 1 is a graphic depiction of cuestas in the Gulf Coastal Plain from Nevin Fenneman’s (1938) *Physiography of Eastern United States*. Cuesta is a Spanish word for “flank or slope of a hill;” in geology it specifically refers to outcrop belts that form a gentle slope down structural dip (in Mississippi to the west and south) and a steep opposing slope where strata are eroded in their up-dip limits. In Mississippi, the steep slopes of the Wilcox Cuesta face the Tombigbee River Basin. The cross section of Figure 1 is representative of the geology along the Mississippi-Alabama state line from Tennessee to the Gulf Coast. The two highest hills in Mississippi are Woodall Mountain (806 feet above mean sea level) on the Fall Line Hills Cuesta in the Tennessee River Basin and Mt. Lebanon (790 feet) on the Ripley Cuesta (Pontotoc Ridge) in the North Independent Streams Basin. Prairie low lands such as the Black Belt, Flatwoods, and Jackson Prairie develop on chalk and/or clay strata with low permeability and soils that do not support steep slopes and are more prone to erosion due to increased runoff.

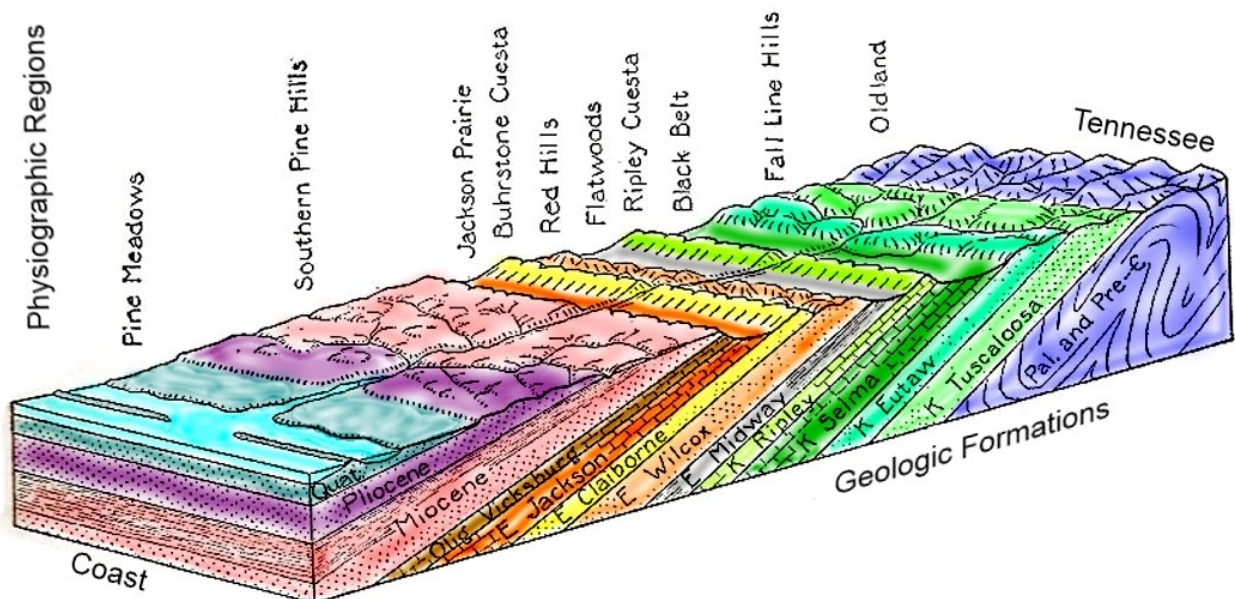


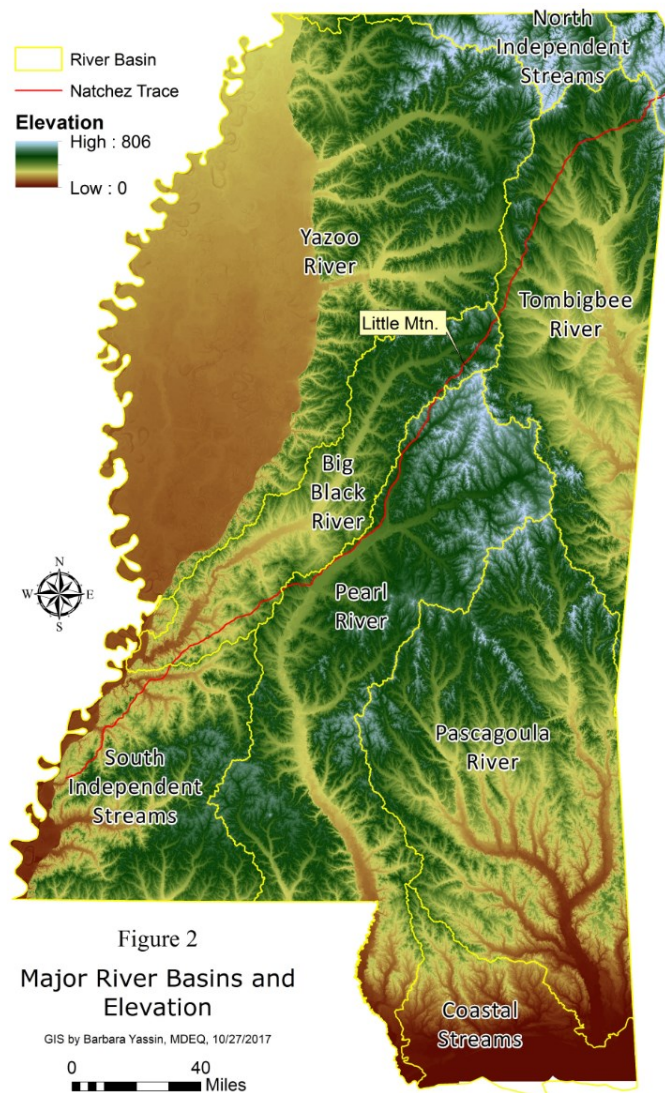
Figure 1. Cuestas in the Gulf Coastal Plain from Fenneman (1938).



MONTHLY POST

Dr. David T. Dockery III RPG

Figure 2 is a relief map of Mississippi with the divides of major river basins. The five largest river basins in order of rank include the Yazoo River Basin, draining 13,355 square miles within the state, the Pascagoula River Basin at 9,600 square miles, the Pearl River Basin at 8,700 square miles, the Tombigbee River Basin at 6,100 square miles, and the Big Black River Basin at 3,400 square miles. The divide between the Tombigbee River Basin and the basins of the Pascagoula, Pearl, and Big Black rivers is a ridge of high ground in elevation-coded colors of dark green and white with white creating a snowcapped appearance to the highest elevations. This high ground drops to mid-level light-green-coded elevations along the divide of the Tombigbee and Yazoo river basins before rising northward to white elevations along a ridge known as the Pontotoc Ridge extending southward from the North Independent Streams Basin. Across the low saddle, the divide jumps from the Paleocene Wilcox Cuesta across strata to the Cretaceous Ripley/McNairy Sand Cuesta. The low divide is associated with the curious fact that flood plains of the Yazoo and Tombigbee river basins in northern Mississippi are lower in elevation than the Big Black, Pearl, and Pascagoula in central Mississippi.





MONTHLY POST

Dr. David T. Dockery III RPG

Figure 3 is a composite Mississippi map depicting surface geology, hillshade relief, and major river basins. Labeled on the map is the location of Little Mountain in Jeff Busby Park on the Natchez Trace Parkway, a road that follows the divide of the Big Black and Pearl River divide northward to that point.

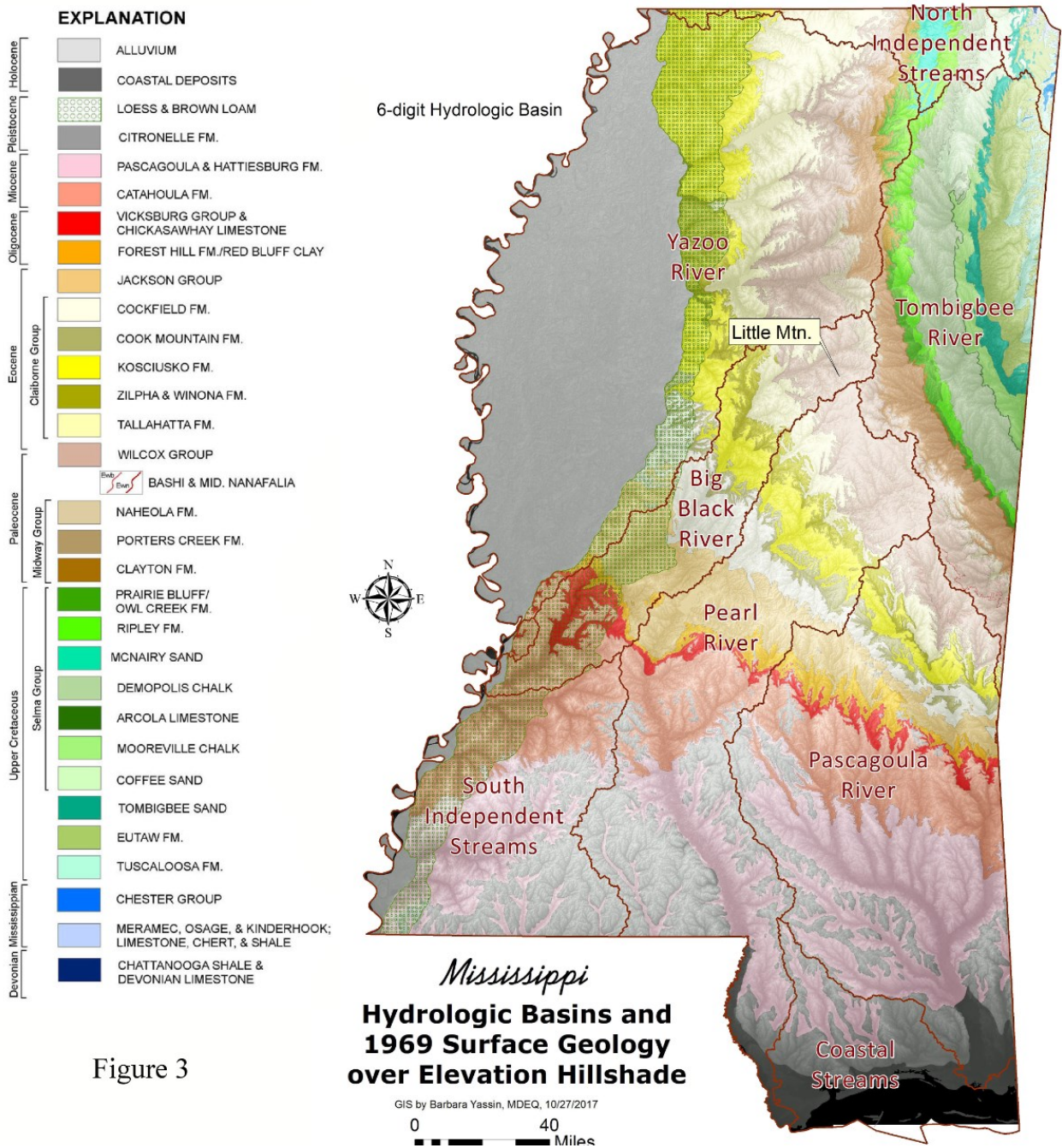


Figure 3



MONTHLY POST

Dr. David T. Dockery III RPG

Little Mountain (Figure 4) is an outlier of the high ground of the Wilcox Cuesta at the triple basin junction of the Big Black, Pearl, and Tombigbee river basins. The low elevations of the Tombigbee River Basin are on the soils of the Black Belt (Figure 1), soils that develop from easily weathered chinks and marls in the Selma Group.



Figure 4. View to the northeast from the Wilcox Cuesta at Little Mountain in Jeff Busby Park on the Natchez Trace Parkway in the upper reaches of the Big Black River Basin. Picture was taken in July of 1973.



MONTHLY POST

Dr. David T. Dockery III RPG

Figure 5 is a LiDAR bare earth hillshade relief image showing rugged terrain along the western margin of the Tombigbee River Basin and at the triple basin junction with the Pearl and Big Black River basins. In the east, the Tombigbee River Basin is characterized by low prairie land; in the west, the upper Pearl and Big Black River basins are characterized by higher elevations and greater relief. This varied terrain correlates with the varied bedrock geology beneath it.

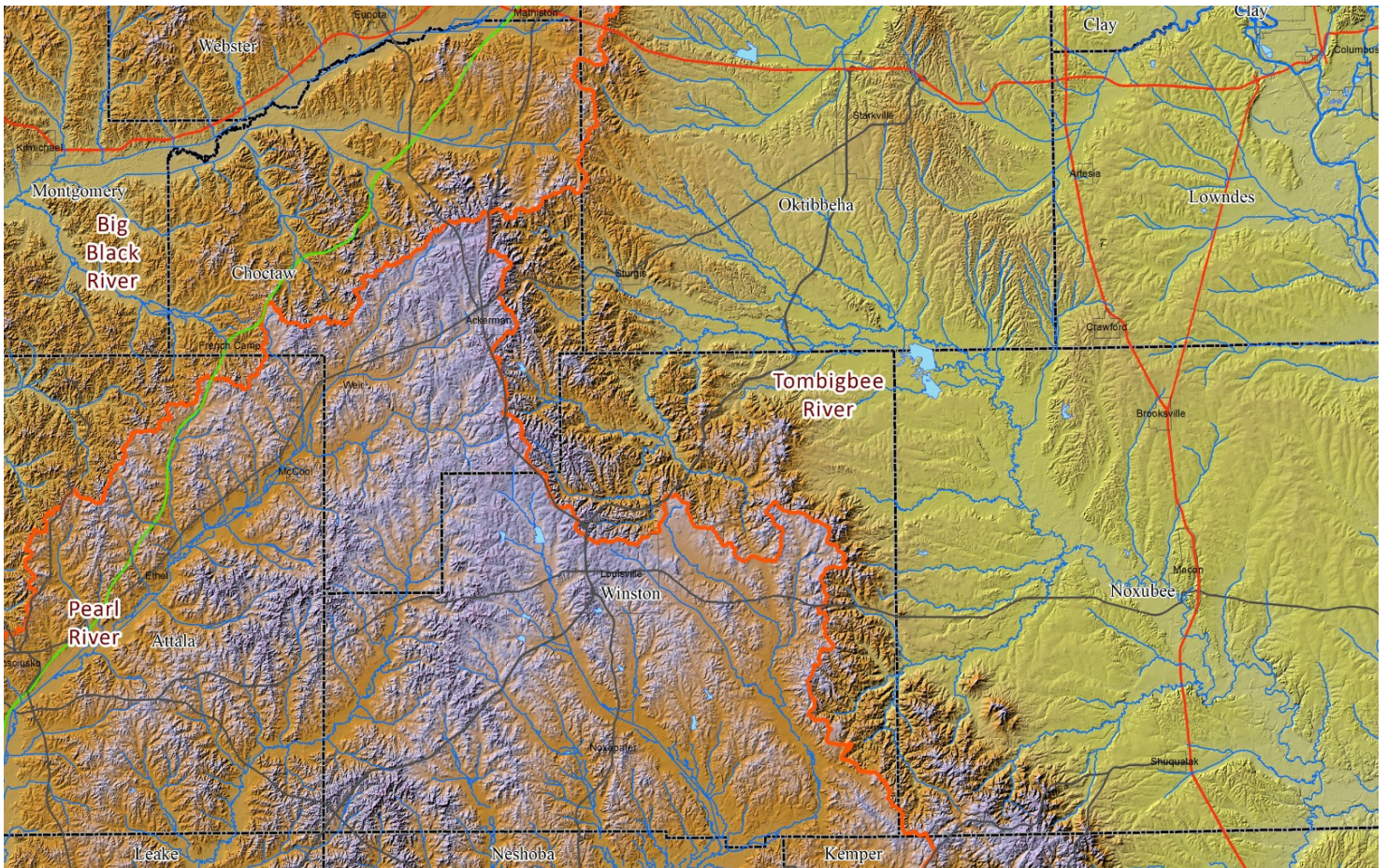


Figure 5. LiDAR bare earth hillshade relief map showing the triple basin junction of the Tombigbee River Basin (east) and the Pearl and Big Black river basins (west). The Natchez Trace Parkway is in green. Elevations are coded with golden yellow for low, brown for intermediate, and lavender for high.



CURRENT PRICES





BOLAND SCHOLARSHIP WATCH

Faculty & Students,

This is a new year and the Mississippi Geological Society along with the Boland Scholarship Fund would like to remind you that we want to honor the most outstanding overall students for the 2017-2018 year.

Each year, the Boland Scholarship awards 1 student from each institution a check that rewards students for their hard work and dedication to the Geosciences and their community.

We look forward to a great year and hope to see you at our monthly meetings.

Best Regards,

Matt Caton
Editor



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GEOLOGY POST

ARTICLES, PAPERS or NEWS?

ATTENTION!!!!!! Industry, Professors and Students:

I am adding a dedicated section that includes more content from the industry and our schools.

Submissions can include anything from professional papers, thesis abstracts, job opportunities to pictures. Anything!!!!

If you have any information or news you would like to share with the Society **PLEASE** email them to the MGS Editor at:

mcaton@tellusoperating.com

Thanks & Regards,

Matt Caton
Editor



2017-2018 BOLAND FUND DONATIONS

**Maurice Birdwell
Joe White
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Tony Stuart
Dave Cate**

Thanks for your generous donations to the 2017-2018 Boland Fund

GEO LINK POST

USGS TAPESTRY OF TIME AND TERRAIN <http://tapestry.usgs.gov> The CCGS is donating to all of the 5th and 6th grade schools in the Coastal Bend. Check it out—it is a spectacular map. You might want a framed one for your own office. The one in my office has glass and a metal frame, and it cost \$400 and it does not look as good as the ones we are giving to the schools. Call Owen 510-6224 if you want one for your office for \$150. Duncan, Mike, Chris, Dave, Bob Randy, Seb., Kevin, Ken, Craig, Patrick, Robert.

FREE TEXAS TOPO'S <http://www.tnris.state.tx.us/digital.htm> these are TIFF files from your state government that can be downloaded and printed. You can add them to SMT by converting them first in Globalmapper. Other digital data as well.

FREE NATIONAL TOPO'S [http://store.usgs.gov/b2c_usgs/b2c/start/\(xcm=r3standardpitrex_prd\)/.do](http://store.usgs.gov/b2c_usgs/b2c/start/(xcm=r3standardpitrex_prd)/.do) go to this webpage and look on the extreme right side to the box titled TOPO MAPS DOWNLOAD TOPO MAPS FREE.

<http://www.geographynetwork.com/> Go here and try their top 5 map services. My favorite is 'USGS Elevation Date.' Zoom in on your favorite places and see great shaded relief images. One of my favorites is the Great Sand Dunes National Park in south central Colorado. Nice Dunes.

<http://antwrp.gsfc.nasa.gov/apod/astropix.html> Astronomy picture of the day — awesome. I click this page everyday.

<http://www.spacimaging.com/gallery/ioweek/iow.htm> Amazing satellite images. Check out the gallery.

<http://www.ngdc.noaa.gov/seg/topo/globegal.shtml> More great maps to share with kids and students.

www.geo.org Don't forget we have our own web page.

<http://micro.magneet.fsu.edu/primer/java/scienceoptiscu/owersof10/>

<http://asterweb.jpl.nasa.gov/galery/default.htm> Great satellite images of volcanoes

<http://terra.nasa.gov/gallery/> More here

www.ermapper.com They have a great free downloadable viewer for TIFF and other graphic files called ER Viewer.

www.drillinginfo.com This is an incredible (subscription) well and completion data service for independents. Can be demo'ed for free.

<http://terrasrver.com/> Go here to download free aerial photo images that can be plotted under your digital land and well data. Images down to 1 meter resolution, searchable by Lat Long coordinate. Useful for resolving well location questions.

<http://www.fs.fed.us/gpnf/volcanocams/msh/> This is a live cam of Mt. St. Helens refreshed every 5 minutes. At the bottom are old videos of past eruptions in this cycle. It is worth a watch especially now.



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(Note: Please contact Steve Walkinshaw at (601) 607-3227 or mail@visionexploration.com for details concerning placing your ad on the MGS web site.)

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