FLOOD HISTORY OF MISSISSIPPI

Mississippi River Floods of 1927

Dates: April and May 1927
Deaths: 246 flood-related deaths in several states
Impacts: Over 700,000 homeless in several states
Flood inundations: 27,000 square miles in several states
Costs: Property damage was estimated at over $400 million dollars (1927 dollars), equivalent to over $5 billion dollars today across all of the states.

The Great Mississippi Flood of 1927 was the most destructive flood in United States history. This flood extended across Illinois, Indiana, Missouri, Kentucky, Texas, Oklahoma, Kansas, Tennessee, Arkansas, Mississippi, and Louisiana. At one point the river was approximately 80 miles wide near Vicksburg, MS.

The flooding was a result of persistent heavy rainfall across the Central U.S. starting in August 1926 and continuing through the spring of 1927. As unprecedented amounts of run-off from the different tributaries combined, extreme water levels churned by wind overwhelmed the levees protecting the Mississippi Valley floodplains, breaching the flood defenses as the water traveled southward. It was not until August 1927 that the last of the floodwaters had flowed into the Gulf of Mexico.

For Mississippi, the most significant flooding occurred on April 21st when the Mounds Landing levee broke. This levee lay below the junction with the Arkansas River and approximately 12 miles north of Greenville, Mississippi. Greenville was flooded the next day. In only ten days, one million acres of land across the Mississippi Delta Region were immersed under water at least 10 feet deep.

In April 1927, Herbert Hoover, Commerce Secretary, was appointed as the official to lead the rescue and relief efforts. He coordinated efforts to rescue 330,000 people from rooftops and other high places. In the Greenville, MS area, large numbers of African Americans were left stranded on the intact sections of the levees. White planters were concerned that if they were relocated from the levee they would leave the area and never return to work the fields. Many did take the opportunity to escape to cities like Chicago, bringing their stories of the misery of the flood and breaking levees to enrich the traditions of blues music. Those left in the camps were mistreated. A commission was appointed by Herbert Hoover. The findings were suppressed which helped to change the political affiliation of African Americans.

Out of this catastrophic flood grew the Flood Control of 1928, which gave the federal government authority over the containment of the Mississippi River. This led to the eventual creation of the Mississippi River and Tributaries Project (MR&T).

Property damage was estimated at $350 million dollars, equivalent to approximately $5 billion dollars today. Economic losses were estimated at $1 billion (1927 dollars), which was equivalent to almost one-third of the federal budget at that time.

Pictures:

Flood Photo Archive (Mississippi Department of Archives and History):
http://mdah.state.ms.us/arrec/digital_archives/series/1927flood/detail/15910
National Geographic:
http://news.nationalgeographic.com/news/2011/05/pictures/110510-mississippi-river-memphis-tennessee-flood-record-crests-nation/?rptregcta=reg_free_np&rptregcampaign=20131016_rw_membership_n1p_us_se_w#/mississippi-river-historic-floods-1927_35436_600x450.jpg

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The 1927 Great Mississippi Flood: 80-Year Retrospective:
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Flooding from Hurricane Katrina (Mississippi)

Location: Mississippi and Louisiana, along with damages in Alabama, Florida, and inland states
Dates: August and September 2005
Deaths: 238 deaths in Mississippi (mostly due to storm surge flooding)
Injuries: Over 6,000; 700 still missing
Costs: In excess of 160 billion throughout the Gulf Region (private and government) (2005 dollars)
Impacts: Over 15 million people were impacted economically or otherwise. More than one million people in the Gulf region were displaced by the storm. At their peak hurricane relief shelters housed 273,000 people. Later, approximately 114,000 households were housed in FEMA trailers.

Hurricane Katrina made landfall as a Category 3 storm with winds of approximately 127 mph near Grand Isle, Louisiana on August 29th; hurricane force winds and its associated storm surge lasted 17 hours. This began a two-day path of destruction through Central and East Mississippi. The storm exited Northeast Mississippi on the 30th. According to Weather Underground, "The highest documented storm surge in the U.S. occurred in 2005 during Hurricane Katrina, when Pass Christian, MS, recorded a 27.8 foot storm surge above mean sea level. The highest High Water Mark on record for a U.S. hurricane occurred in Biloxi, MS during Katrina, where a High Water Mark of 34.1 feet above mean sea level was recorded on the outside of the Beau Rivage Casino Lighthouse. The surge was 22 feet high in Biloxi, so the combination of the tide (about 1 foot) and 11-foot waves on top of the storm surge created the 34.1-foot high water mark."

Rainfall totals of 8 to 15 inches occurred with the storm, in addition to the massive storm surge produced by the hurricane. Storm surge flooding damaged the entire Mississippi Gulf Coast, pushing debris as far north as Interstate 10. Homes, buildings, and businesses that survived Hurricane Camille were lost in Hurricane Katrina, with damages extending from Mobile, Alabama westward. As Hurricane Katrina moved inland, a swath of 5 to 8 inches of rain fell along its path. This heavy rain mainly fell across Southeast, Central and Northeast Mississippi over a 6 to 10 hour period. This rainfall caused many county roads to flood for a period of time with many having to be closed. Additionally, several roads had a small section washed out or nearly washed out. These sections of road were located in low lying areas near creeks and bottoms.

Flood Photo Archive (Mississippi Department of Archives and History):

http://mdah.state.ms.us/arrec/digital_archives/series/katrina

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http://www.cnn.com/2013/08/23/us/hurricane-katrina-statistics-fast-facts/
WFO Jackson:

http://www.srh.noaa.gov/jan/?n=2005_08_29_hurricane_katrina_outbreak/

Mississippi Storm Surge Records from Weather Underground

Bay St. Louis:
25.0', Hurricane Katrina, 2005
21.7', Hurricane Camille, 1969
15.2', September 1947 Hurricane
Pass Christian:
27.8', Hurricane Katrina, 2005
22.6', Hurricane Camille, 1969
13.4', September 1947 Hurricane
Long Beach:
25.7', Hurricane Katrina, 2005
21.6', Hurricane Camille, 1969
14.0', September 1947 Hurricane
Gulfport:
24.5', Hurricane Katrina, 2005
21.0', Hurricane Camille, 1969
14.0', September 1947 Hurricane
Biloxi:
22.0', Hurricane Katrina, 2005
19.5', Hurricane Camille, 1969
11.1', September 1947 Hurricane
Pascagoula:
18.0', Hurricane Katrina, 2005
11.8', Hurricane Camille, 1969
9.0', September 1947 Hurricane

April Flood of 1979 also known as the "Easter Flood of 1979"

Dates: April 11-13
Deaths: 9 deaths in Mississippi and Alabama.
Injuries: numerous rescues
Impacts: Total damage estimates provided by Mississippi and Alabama State Officials placed total damages to crops, roads, bridges, and both public and private buildings in excess of $700 million. In Jackson, Mississippi, 15,000 people were evacuated from their homes and an estimate of damages was tagged at $500 million. (1979 dollars)

A wet winter and early spring season set the stage for major flooding in April of 1979. Heavy rains brought flash flooding to portions of Northeast and much of Central Mississippi from the 11 to the 13th of April, but this was only a prelude to the widespread and record or near record flooding for the remainder of the month.

The large tornado-breeding storm system that severely damaged Wichita Falls, TX and spread into Oklahoma on the 10th set off heavy rainfall across Mississippi from the 11th to 13th. From 10 to 20 inches of rainfall fell across portions of the Upper Pearl, Tombigbee, Big Black, and Upper Chickasawhay River Basins.

Moderate to major flooding occurred along the Tombigbee River and tributaries above Columbus, MS. Record flooding occurred along the Tombigbee tributaries of the Luxapallila Creek and Noxubee River. The record to near record flooding continued on the Tombigbee into Alabama. Eastern Columbus, Mississippi and the city of Macon were totally inundated by flood waters. Record to near record flooding occurred along the Big Black River and portions of the Upper Chickasawhay.

The most significant damage occurred along the Pearl River System where near record to record flooding occurred all the way to the mouth of the river in Louisiana. Peak discharges approached or exceeded those of the great flood of 1874. Flood waters covered residences in Northeast Jackson and overtopped a levee near downtown Jackson area allowing water to flood low lying areas in the Central Business District. As the water proceeded to the mouth, evacuations were issued along the river including eastern portions of Slidell, LA.

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http://www.srh.noaa.gov/jan/?n=1979_04_17_easter_flood
Floods of April 1979, Mississippi, Alabama, and Georgia:
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Natural Disaster Survey Report 80-2 -The April '79 Floods of the Pearl and Tombigbee Rivers April 1979:
http://www.gpo.gov/fdsys/pkg/CZIC-gb1399-4-m7-u54-1980/html/CZIC-gb1399-4-m7-u54-1980.htm

The Pearl and Leaf River Flood of 1974: "Hattiesburg Flood of 1974"

Dates: April 12-16, 1974
Deaths: 8 deaths between the Pearl and Pascagoula Basins
Impacts: 6,000 people evacuated from their homes in Forrest County, a total of 9,000 evacuated along the Pascagoula Basin
Flood Inundation: 6 square miles in the city of Hattiesburg, 60,800 acres along Leaf River. 2000 people evacuated in Jones County in Laurel and surrounding areas; 1000 evacuated in Marion County along the Pearl River.
Cost: $9,374,600 in damage along Leaf River

The beginning of April 1974 started off wet for Southeast Mississippi with an average of an inch of rainfall in the first couple days. From April 12th to the 16th, a major storm system dropped heavy rains, from 4 inches up to 20 inches, over the region. Severe flooding occurred as a result. Record and near record stages were set at several sites along the Lower Pearl and Pascagoula Rivers. The flooding produced at forecast points on the Lower Pearl ranks between the top 2 to 5 all time crests as of February 2014. The Leaf River, a tributary of the Pascagoula River, bore the brunt of the flooding though. Also in the Pascagoula Basin, the Chickasawhay at Shubuta, MS had its highest crest since the floods of 1919.

Magee, located near the headwaters of the Leaf River, received just over 20 inches of rainfall in a 36 hour period, while sites at the mouth of the river received over 6 inches. The Leaf River at Hattiesburg broke its all-time record stage height with 34.03 feet. This record still stands as of January 2014. Tallahala Creek at Laurel had its highest crest since 1919.

Over 6,000 people were evacuated from their homes in Hattiesburg and Forrest County. More than six square miles of Hattiesburg were inundated with flooding, with water 15 feet deep in places.

Photos:

http://hattiesburgmemory.org/wiki/index.php?title=1974_Leaf_River_flood

References:

The Leaf River Flood of 1974:
http://books.google.com/books?id=LhKgif_dBVYC&pg=RA4-PA18&lpg=RA4-PA18&dq=the+leaf+river+flood+of+1974&source=bl&ots=V47BqqNq5M&sig=BB6lvLacpiOg3YEf6c5ZmjwrfH4&hl=en&sa=X&ei=W9zrUsOaDY6vsQTs9IDABQ&ved=0CFcQ6AEwBw#v=onepage&q=the%20leaf%20river%20flood%20of%201974&f=false

The Floods of February 1961

Dates: February 16-25, 1961
Deaths: 3 deaths in Hattiesburg
Impact: residential, commercial, and agricultural losses throughout Central and Southeast Mississippi
Cost: $6,343,100 (1961 dollars)

A series of three storm systems tracked through the South during the period of February 16-25, dumping extreme amounts of rainfall. Accumulated rainfall totals of up to 18 inches occurred in Southeast Louisiana and Mississippi and in Central and South Alabama. As a result, extensive flooding occurred throughout Central and Southeast Mississippi.

Many locations in the Pearl and Pascagoula River Basins approached and broke their all-time record crests. The Leaf River at Hattiesburg crested at 31.53 feet breaking the record. (This record was broken in 1974 at 34.03 feet.) Hattiesburg received the most flood damage, in part due to its size. Nearly 5,000 people were evacuated from their homes in the city. Black Creek at Brooklyn and the Chickasawhay River at Enterprise both set their highest crests up to that time as well.

Many locations in the Pascagoula Basin reached or exceeded their 50-year floods. In the Upper and Middle Pearl River Basin, flooding was not as extreme. The Pearl River at Edinburg reached a peak discharge which qualified for a 14-year flood. Even the Sunflower River at Sunflower in the Delta had a recurrence interval of about 10 years.

Damage was extensive throughout the state. The cities of Jackson, Hattiesburg, and Petal received the greatest damage. Roadways and railways, residential and commercial property, as well as agricultural lands and livestock were all destroyed. County roads had more damage than State Highways. Numerous winter crops were destroyed. Livestock drowned. Houses, buildings, fences, and other farm property were damaged as well. Other losses included the scouring of the land and leaching of fertilizer from the soil.

References:

Floods of December 1961 in Mississippi and Adjoining States:
http://pubs.usgs.gov/circ/1962/0465/report.pdf

1973 Mississippi River Flood and Floods of North Mississippi

Dates: March to May 2013
Deaths:
Injuries: No reports on injured found.
Costs: (2011 dollars)
Impacts: More than 12 million acres of land and more than 30,000 homes were damaged during the Mississippi River flood and over 50,000 people evacuated. 25 percent of the total agricultural damages occurred in Mississippi. In the Yazoo Basin alone, more than 3,590 square miles were inundated, including an area of over 900 square miles north of Vicksburg were inundated.

Heavier than normal precipitation in late fall of 1972 left the Missouri and the Middle Mississippi River Basin above their normal low levels during the winter months. It was determined that the limited snow on the ground and higher streams in Missouri and the Middle Mississippi Basin were not necessarily a factor in the initiation of a major Mississippi River flood. Without the antecedent conditions, a major flood would have still occurred due to the extraordinary precipitation over the basin during March and April of 1973.

The flood episode can be considered to have begun in early March when flooding was first reported along the Mississippi Main Stem in Grafton-Alton area in Illinois on March and to have ended in late May, when, on May 25, after establishing a new record at that time of 77 days above flood stage at St. Louis, MO, the Mississippi River fell below flood stage.
March 1973 was a very wet month across the Mississippi River Basin (8 to 12 inches Lower Mississippi River Basin and 4 to 8 inches across the Ohio and the Upper and Middle Mississippi River Basin). April was very wet across over parts of the basin The Middle Mississippi above Canton, MO and the Lower Mississippi Valley below Memphis, TN had over twice the normal rainfall (8 to 12+ inches). Much of which fell in the stormy week of April 16-22, setting the stage for the recording breaking flood crest to appear on the Mississippi River Main Stem.

The Maximum 1973 flood stages were the highest ever observed in the reach of the Middle Mississippi River extending from 370 miles upstream of Cape Girardeau, Mo. Downstream of Cape Girardeau, the Lower Mississippi River reached its highest stages since 1937. Mississippi River crests were as follows for Mississippi: Greenville, MS 58.20 feet 5/12/1973; Vicksburg, MS 51.6 feet 5/13/1972; and Natchez, MS 56.7 feet 5/13/1973. The flood produced a record 89 days of floodflow at Vicksburg, MS. Many thousands of square miles of land along the Yazoo River were inundated by Mississippi River backwater that peaked in elevation around the 13th of May. The Yazoo River at Yazoo City did not fall below flood stage until June 26, 1973. The Mississippi River flood of 1973's tremendous volumes of runoff and duration of the event caused unusual emergency measures to be taken in Louisiana. The Bonnet Carrie Spillway upstream of New Orleans was opened for the first time since 1950 to lower the river stages at New Orleans. Later, the Morganza Floodway, upstream of Baton Rouge, was opened for the first time since its construction in the early 1950s. These open structures plus the Old River Structure helped to relieve stress on the levee systems.

The most significant river and flash flooding across the Yazoo River Basin and the Tombigbee River System was caused by the heavy rainfall event from March 14 to 16th. A quasi-stationary

front was draped across Louisiana through North Mississippi and into the Upper Ohio Valley with waves of varying intensities moving along the front. Some of the largest storm totals were in North Mississippi where from 4 to 12 inches of rainfall fell, most in a 24 hour period. Major flooding occurred in the Tombigbee System where more than 15 million dollars of damage occurred much of which occurred in Columbus and other urban areas. Major flooding occurred in the Big Black River System and moderate flooding occurred on the Yockanookany River in the Upper Pearl River System. Tributaries to the Yazoo River, such as the Yalobusha, Skuna, Yocona, and the Tallahatchie experienced moderate to flooding. Portions of the Upper Yazoo River Mainstem actually had minor to moderate flooding. The Upper Big Sunflower River also had major flooding. The Yazoo Flood Control Reservoirs were filled to their highest levels since storage began and discharges went over the uncontrolled spillways.

References:

1973 Mississippi River Basin Flood: Compilation and Analysis of Meteorologic, Streamflow, and sediment data:
http://pubs.usgs.gov/pp/0937/report.pdf
Flood of March-April 1973 in Southeastern United States:
http://pubs.usgs.gov/pp/0937/report.pdf

Floods December 1982 to May 1983 of Central and South Mississippi

Dates: December 3-6th, 1982; December 24-29th, 1982; April 4-8, 1983; May 16-22, 1983
Deaths: 1 death in the December 3-6th event. At least 5 deaths were due to flash floods in the April event.
Injuries: Unknown
Impacts:
December 1982: Yazoo basin $32.5 million; $1.5 million in the Big Black River Basin; and $1.1 million in the Pearl River Basin. (1982 dollars)
April 1983: Widespread flash flooding washed out bridges across South Mississippi. In Hattiesburg, bridges were washed out, roads were destroyed and over 300 structures damaged by flash floods. Damages were in excess of $50 million across South Mississippi
May 1983: 400 families evacuated in Columbus, MS. Approximately 5,000 people homeless in Jackson as flood damage was estimated at $23 million for Jackson and $80 million for structural damage across the state. Overflowing flood control dams in North Mississippi flooded 770,000 acres of crop land with losses over $312 million. (1983 Dollars)

Widespread flooding occurred in December 1982 and in the spring of 1983 in Central and Southern Mississippi. December of 1982 was a record month for almost every rain gauge in the state. Rainfall for the 6-month period from December 1982 to May of 1983 was in excess of 150 percent of normal across Mississippi. The Jackson Metropolitan area received in excess of 200 percent of normal rainfall. Heavy rainfall in December in the Upper and Lower Mississippi River Basin also produced a significant flood along the Mississippi River.

The December 3-6th event produced rainfall from 4 to 8 inches across the western half of Mississippi producing minor to moderate flooding in North Mississippi across the Yazoo River tributaries and in Central Mississippi along the Pearl River.

The December 24-29th system dumped 4 to 6 inches on already saturated soil causing moderate flooding in Mississippi across the western half of the state and severe flooding in Southeast Louisiana.

During the April 4-8th event, 8 to 17 inches of rainfall fell across Central and South Mississippi. The heaviest rainfall fell across South Mississippi across the Lower Pearl River Basin and across Southeast Louisiana. This produced major flooding just under the record set in 1979 across the Lower Pearl. The record was set at Pearl River, Louisiana. The Bogue Chitto River at Tylertown reached its highest crest since 1936.

A flash flood on April 13th in the City of Jackson caused by more than 5 and a half inches of rainfall in just a few hours produced flooding along local urban streams which caused damage in excess $1.8 million.

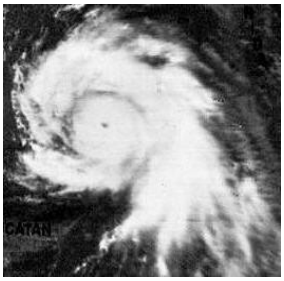
During the May 16-22nd storm, 8 to 16 inches of rainfall fell across the Tombigbee, Upper Yazoo, Upper Pearl, Big Black, and Upper Pascagoula River Systems. This produced major flooding along the Pearl River with the 2nd highest crest on record at Jackson. Significant flooding was reported along the Tombigbee River. All Yazoo flood control reservoirs flowed over their emergency spillways.

References:

Floods of December 1982 and January 1983 in Central and Southern Mississippi River Basin:
http://pubs.usgs.gov/of/1983/0213/report.pdf
Floods of December 1982 to May 1983 in the Central and Southern Mississippi River and the Gulf of Mexico Basins:
http://il.water.usgs.gov/pubs/wsp2362.pdf

Floods of Hurricane Camille 1969

Dates: August 14th-22nd (Mississippi 17th-19th)
Deaths: 153 deaths in Mississippi, Louisiana, and Alabama mostly related to drowning.
Injuries: Numerous injuries reported.
Costs: $950 million (1969 dollars)
Impacts: Catastrophic damage to autos, homes, ships, boats and other person property along the coast mostly due to storm surge. There was abundant agricultural damage across the state.



This powerful, deadly, and destructive hurricane formed just west of the Cayman Islands on August 14. It rapidly intensified and by the time it reached western Cuba the next day it was a Category 3 hurricane. Camille tracked north-northwestward across the Gulf of Mexico and became a Category 5 hurricane on August 16. The hurricane maintained this intensity until it made landfall along the Mississippi coast late on the 17th.

Camille made landfall shortly before midnight in the Bay St. Louis area. At this time, the eye of the storm was about 12 miles in diameter and crossed almost directly over the town of Waveland at a forward speed of 15 mph. The great volume of water moving inland up the Jourdan River floodplain was typical of other estuary streams along the coast. The volume flowing inland at the tide crest was estimated to have been at least 90,000 cfs. This volume is more than three times the flood discharge expected on the Jourdan River on the average of once in 50 years.

Camille's intensity in Harrison County was compounded by the geography of the area in which sections of the county were inundated from both the north and south. Maps depicting the extent of flooding show that the community of Pass Christian and parts of Biloxi were completely inundated by flood waters. Storm waters rose to 22.6 feet at Pass Christian, 17 feet behind Pass Christian, 21.6 feet at Long Beach, 21 feet at Gulfport, 19.5 feet at Biloxi, and 15 feet on the Biloxi Bay.

Camille weakened to a tropical depression as it crossed Mississippi into western Tennessee and Kentucky, then it turned eastward across West Virginia and Virginia. The cyclone moved into the Atlantic on August 20 and regained tropical storm strength before becoming extra-tropical on the 22nd. A minimum pressure of 26.84 inches was reported in Bay St. Louis, Mississippi, which makes Camille the second most intense hurricane of record to hit the United States. The actual maximum sustained winds will never be known, as the hurricane destroyed all the wind-recording instruments in the landfall area. The estimates at the coast are near 200 mph. Columbia, Mississippi, located 75 miles inland, reported 120 mph sustained winds. A storm tide of 24.6 ft occurred at Pass Christian, Mississippi. The heaviest rains along the Gulf Coast were about 10 inches. However, as Camille passed over the Virginias, it produced a burst of 12 to 20 inch rains with local totals of up to 31 inches. Most of this rain occurred in 3 to 5 hours and caused catastrophic flash flooding. The combination of winds, surges, and rainfalls caused 256 deaths (143 on the Gulf Coast and 113 in the Virginia floods) and $1.421 billion in damage. Three deaths were reported in Cuba.

Flood and Damage photos:

NOAA Photo Library- Camille Damage Photos:
http://www.photolib.noaa.gov/nws/cam1.html
Harrison County Mississippi Library:
http://www.harrison.lib.ms.us/library_services/camille_pics.htm

References:

NOAA Historical Hurricane Tracks:
http://www.csc.noaa.gov/hurricanes/#app=3d30&3e3d-selectedIndex=1
NCEP Report – Camille 1969:
http://www.hpc.ncep.noaa.gov/tropical/rain/camille1969.html
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http://www.aoml.noaa.gov/hrd/Landsea/deadly/index.htmlNOAA
The Most Intense Hurricanes in the United States 1851-2004
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ESSA Report- Hurricane Camille:
http://www.nhc.noaa.gov/archive/storm_wallets/atlantic/atl1969-prelim/camille/TCR-1969Camille.pdf

Mississippi River Flood of 2011

Dates: April to May 2011
Deaths: Approximately 20 in several states; one death reported in Mississippi in Vicksburg.
Injuries: No reports on injured found.
Costs: About $2 to $4 Billion across entire river system (2011 dollars)
Impacts: In Tunica County, nine casinos located on stationary river barges were closed most of the month of May. The hotel portion of the casinoes is located on adjacent, low-lying land, and began to flood with the rising waters, some up to 6 feet. Near Vicksburg, Highway 465 in Warren and Issaquena counties was closed while north-south access to and from Vicksburg was cut due to the closure of U.S. Highway 61. Casinos were closed and some buildings were flooded; Structures within the levee systems were flood. Numerous structures on the north and south side of Vicksburg were flooded. Structures flooded in Wilkinson County along the river flooded (roughly one-third of county was flooded). Backwater from the Mississippi River flooded areas not protected by the levee system. This extended to areas well above Yazoo City.

The primary meteorological factors that led to the historic Mississippi River Flood of 2011 included above-normal snowfall over the Upper Mississippi Valley, elevated river levels from heavy rain events from February to April, and a very heavy rain event the end of April/beginning of May. Two week rainfall totals from April 19 to May14 of 8 to16 inches fell across the Mississippi watershed from Arkansas City to Caruthersville and amounts of 12 to 22 inches fell across the watershed from Caruthersville to Chester and over the Lower Ohio Valley.

The 2011 Flood tested the Mississippi River & Tributaries System (MR&T) like no flood before; it was the largest recorded flood through much of the Lower Mississippi River. Stage and flow rates broke records at several locations, and for the first time, three floodways—Birds Point-New Madrid (BPNM) Floodway, the Morganza Floodway, and the Bonnet Carré Spillway—were all operated during a single flood event. River stages and flow rates were comparable to the major floods of 1927 and 1937. However, the 2011 Flood was contained within the MR&T System to a greater extent than the earlier comparable floods. The Flood of 2011 set new record stages at Vicksburg and Natchez. The peak streamflow at Vicksburg, 2,310,000 cubic feet per second (65,000 m3/s), exceeded the both the estimated peak streamflow of the Great Mississippi Flood of 1927, 2,278,000 cu ft/s (64,500 m3/s), and the measured peak streamflow of the 1937 flood, 2,080,000 cu ft/s (59,000 m3/s). The Project Design Flood predicts that a flow rate at Vicksburg of 2,710,000 cubic feet per second (77,000 m3/s) would still be within the limits of the downstream capacities, meaning that the May 17 - May 18 peak flow was about 85% of the acceptable flow rate for Vicksburg.

Flood damages prevented by the MR&T Project are based on the difference between the without-project conditions. Based on flood damage estimates, the MR&T System prevented approximately $234 billion in total flood damages during this single event. Without the MR&T Project, approximately 1.46 million residential and commercial structures would have been impacted. With the MR&T Project, this decreases to 21,203. Based on the significant influence of the Mississippi River on surrounding economies, it is not hard to grasp the importance of the main stem levee system to the region.

The MR&T levee system and floodways worked as designed. If a catastrophic failure of the MR&T levee system occurred in Mississippi, the 2011 Mississippi River Flood could have ranked near the top of the most costly floods in Mississippi history, in dollars and possibly lives.

References:

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Encyclopedia Britannica:
http://www.britannica.com/EBchecked/topic/1775137/Mississippi-River-flood-of-2011
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NWS New Orleans E5 Report May 2011:
http://www.srh.noaa.gov/images/lix/E5/2011/lixe5may11.pdf
NWS Jackson E5 Report May 2011:
http://www.srh.noaa.gov/media/jan/Hydro/monthly/pdf/jane5may11.pdf
Claims Journal:
http://www.claimsjournal.com/news/southeast/2013/02/27/223892.htm

North Mississippi Floods of April and May of 1991

Dates: April and May 1991
Deaths/Injuries: 1death, injuries unknown
Impacts: 1,700 homes damaged
Flood Inundation: More than 2 million acres inundated
Costs: estimated to be in the hundreds of millions of dollars (1991 dollars)

The foundation for the April and May Floods of 1991 was set in February of that year. Rainfall for the month of February was well above normal for Mississippi and produced severe flooding in the northern half of the state. The month of March brought near normal rainfall amounts, which allowed river basins to recover from the heavy February rains; However, April of 1991 turned into one of the wettest months of all time for Mississippi. Eighteen rainfall stations broke their all-time monthly records, while 56 stations broke their all-time April record. Rainfall for May was above normal as well, with four rainfall stations breaking all-time monthly records and 22 stations breaking April records.

Every major drainage basin in the state of Mississippi experienced flooding at one point in the two-month period. The Yazoo River Basin in the northwestern part of the state and the Tombigbee River Basin in the northeast endured the most severe flooding. The Yazoo River Basin rainfall amounts were 300 to 400 percent above normal. The emergency spillways for all four of the Yazoo Basin lakes were exceeded at the same time, due to the 27-30 April storm system. This was only the second time in history in which this has occurred (the other time being during the 1973 flood). The duration which these lakes continued to exceed their emergency spillways also set a new record, more than 70 days in a row.

The U.S. Army Corps of Engineers supplied more than 1 million sandbags and 30 pumps to aid in the flood control. The Mississippi National Guard and inmates from the State Penitentiary contributed in the sandbagging effort. Damage was estimated in the hundreds of millions of dollars. More than 2 million acres of land were inundated and 1,700 homes were damaged by the floodwaters. At least one death was attributed to the flooding when a 9-year old boy got caught in a swift current in the creek he was swimming in and drowned.

References:

Summary of Floods in the United States during 1990 and 1991**:**
http://pubs.usgs.gov/wsp/2474/report.pdf