

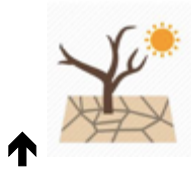



Climate Trends and Projections in Duck Hill, MS

Climate Variable	Observed Change	Future Projections	Confidence	Impacts
<p>Air temperature</p> 	<p>Mississippi</p> <ul style="list-style-type: none"> > Very little overall warming trends in near-surface air temperatures between 20th and beginning of the 21st > Average temperature in Jackson, MS decreased by 2.1°F the last century > Temperatures in Mississippi were warmest in the 1920s and 1930s and coolest in the 1960s through the 1980s 	<p>Mississippi</p> <ul style="list-style-type: none"> > By 2100, possible increase in Mississippi of 2°F in winter and summer (with a range of 1-4°F), 3°F in spring (with a range of 1-5°F), and 4°F in fall (with a range of 2-6°F) >By the end of the 21st century temperatures would average about as warm as hottest historical year under a lower emissions scenario and about 4°F warmer than the hottest historical year under a high emissions scenario 	<p>High confidence in trend direction</p> <ul style="list-style-type: none"> > However, magnitude of change varies by greenhouse gas emission scenario (lower for B1 and higher for A2) > No overall warming trends in MS (compared to +1.5°F in the rest of the U.S.), possibly due to increased air particles from coal burning, natural factors related to forest re-growth, decreased heat flux due to irrigation, and multi-decadal variability in North Atlantic and tropical Pacific sea surface temperatures 	<p>Agriculture</p> <ul style="list-style-type: none"> > Reduced dairy and livestock production due to heat stress > Decreased yield in dairy farming milk production due to optimal production range is between 40°F and 75°F > Possible 10% decline in livestock yield >Reduced crop productivity due to summer heat stress, especially when coupled with drought <p>Health</p> <ul style="list-style-type: none"> > Increased ground-level ozone is an air pollutant that is harmful to human health and which generally increases with rising temperatures > Possible increase in vector-borne (like disease carrying insects) and zoonotic (animal to human) diseases due to increased temperatures making favorable transmissions (example: malaria, dengue, zika, ticks etc.) > Increase in hospital admissions due to respiratory illnesses, emergency room visits for asthma, and lost school days is expected
<p>Precipitation</p> 	<p>Mississippi</p> <ul style="list-style-type: none"> > Statewide average annual precipitation is about 56 inches, ranging from 50 inches in the north to about 65 inches along the coast. > Heavy precipitation events in most parts of the United States have increased in both intensity and frequency since 1901 	<p>Mississippi</p> <ul style="list-style-type: none"> >Precipitation is estimated to change little in winter, increase by 10% in spring (with a range of 5-20%), and 15% in summer and fall (with a range of 5-25%). > The annual number of extreme precipitation events (days with more than 3 inches) has been near the long-term average (1.5 events per station per year) in the last decade. 	<p>Medium confidence in trend direction and magnitude</p> <ul style="list-style-type: none"> > Sensitivity of observed precipitation trends to the spatial distribution of rain fall observing stations and to historical changes in station location, rain gauges, the local landscape, and observing practices 	<p>Agriculture</p> <ul style="list-style-type: none"> > Increasing fall precipitation may result in difficulties in harvesting crops, more runoff when fields are not protected. <p>Health</p> <ul style="list-style-type: none"> >Possible increase in vector-borne (like disease carrying insects) and zoonotic (animal to human) diseases due to increased temperatures making favorable transmissions (example: malaria, dengue, zika, ticks etc..)

Climate Variable	Observed Change	Future Projections	Confidence	Impacts
<p data-bbox="163 215 279 248">Drought</p> 	<p data-bbox="384 183 506 212">Mississippi</p> <p data-bbox="384 215 726 440">> Only been completely drought-free for approximately 45% of the time from 2000 to 2014 and has had at least 50% drought coverage for approximately 12% of the time during the same period</p>	<p data-bbox="756 183 877 212">Mississippi</p> <p data-bbox="756 215 1121 472">> Projected to see an increase in severity of widespread summer drought of almost 140 percent by 2050</p> <p data-bbox="756 345 1100 472">> Increase the rate of loss of soil moisture during dry spells, increasing the intensity of naturally occurring droughts</p>	<p data-bbox="1163 183 1409 277">Medium confidence in trend magnitude and direction</p> <p data-bbox="1163 280 1451 566">> Sensitivity of observed precipitation trends to the spatial distribution of rain fall observing stations and to historical changes in station location, rain gauges, the local landscape, and observing practices</p>	<p data-bbox="1491 183 1619 212">Agriculture</p> <p data-bbox="1491 215 1976 310">> Decreased water availability will likely have important implications for the region and state's agricultural economy</p>
<p data-bbox="107 605 338 638">Extreme weather</p> <p data-bbox="163 673 279 790">↑ Intensity Activity</p> 	<p data-bbox="384 573 537 602">United States</p> <p data-bbox="384 605 726 732">> Heavy precipitation events in most parts of the United States have increased in both intensity and frequency since 1901.</p> <p data-bbox="384 735 688 764">Southeastern United States</p> <p data-bbox="384 768 716 956">> Several studies have projected increases of precipitation rates within hurricanes over ocean regions, particularly for the Atlantic basin</p> <p data-bbox="384 995 506 1024">Mississippi</p> <p data-bbox="384 1027 726 1281">> Between 2005 and 2014, a total of 13 FEMA disaster declarations were awarded to the state, 9 of which were for severe storms, tornadoes, and flooding events and the other 4 declarations were awarded in response to hurricanes</p>	<p data-bbox="756 573 1062 602">Southeastern United States</p> <p data-bbox="756 605 1121 1024">> Extreme rainfall events will be correlated with tropical storm activity (see below), but are likely to increase in frequency and intensity during the 21st century</p> <p data-bbox="756 768 1079 862">> Amount of precipitation increased 27% and trends are likely to continue</p> <p data-bbox="756 865 1121 959">> Increased storm intensity resulting in extreme precipitation events.</p> <p data-bbox="756 963 1121 1024">> Potential for increased hurricane winds and rainfall rates</p>	<p data-bbox="1163 573 1451 699">Moderate confidence in trend direction and low confidence in trend magnitude</p> <p data-bbox="1163 703 1451 862">> Tropical storm tracks and extreme rainfall projections are highly variable based on land form, ENSO/PDO patterns, and other factors.</p> <p data-bbox="1163 865 1451 959">> The region exhibits high inter-annual variability in storm activity</p>	<p data-bbox="1491 573 1587 602">Flooding</p> <p data-bbox="1491 605 2007 829">> Increase extreme precipitation events may result in larger quantities of surface runoff</p> <ul data-bbox="1491 670 2007 829" style="list-style-type: none"> • Larger sediment transport capacity and stream bank erosion, more local flooding, ditch and biological treatment systems are less able to process nutrients, increased rainfall erosivity and likely less soil moisture <p data-bbox="1491 865 1598 894">Wild Fires</p> <p data-bbox="1491 898 1976 992">> Increased fire frequency that could possibly decrease fire intensity, most likely caused by increased lightning strikes.</p>