



99th Percentile Precipitation
(1958–2016)

The map displays the 99th Percentile Precipitation for each state in the United States from 1958 to 2016. The states are color-coded based on their precipitation levels, with darker shades of blue indicating higher precipitation and lighter shades of yellow indicating lower precipitation. The values for each state are as follows:

State	99th Percentile Precipitation (1958–2016)
Alaska	16
Washington	9
Montana	29
North Dakota	29
South Dakota	29
Nebraska	29
Minnesota	42
Wisconsin	42
Illinois	42
Indiana	42
Michigan	42
Ohio	42
Pennsylvania	55
New York	55
Connecticut	55
Massachusetts	55
Vermont	55
New Hampshire	55
Maine	55
California	10
Nevada	10
Arizona	10
New Mexico	10
Texas	12
Oklahoma	12
Kansas	12
Missouri	12
Arkansas	12
Louisiana	12
Mississippi	12
Alabama	12
Georgia	12
Florida	12
South Carolina	12
North Carolina	12
Virginia	12
West Virginia	12
Maryland	12
Delaware	12
New Jersey	12
Pennsylvania	55
New York	55
Connecticut	55
Massachusetts	55
Vermont	55
New Hampshire	55
Maine	55
Hawaii	-11
Alaska	16
Montana	29
North Dakota	29
South Dakota	29
Nebraska	29
Minnesota	42
Wisconsin	42
Illinois	42
Indiana	42
Michigan	42
Ohio	42
Pennsylvania	55
New York	55
Connecticut	55
Massachusetts	55
Vermont	55
New Hampshire	55
Maine	55
California	10
Nevada	10
Arizona	10
New Mexico	10
Texas	12
Oklahoma	12
Kansas	12
Missouri	12
Arkansas	12
Louisiana	12
Mississippi	12
Alabama	12
Georgia	12
Florida	12
South Carolina	12
North Carolina	12
Virginia	12
West Virginia	12
Maryland	12
Delaware	12
New Jersey	12
Pennsylvania	55
New York	55
Connecticut	55
Massachusetts	55
Vermont	55
New Hampshire	55
Maine	55
Hawaii	-11





What precipitation-related health effects can we expect for Michigan?

Mold:

Mold is likely to grow in houses that have been flooded. Exposure to mold can lead to asthma or cardiovascular diseases.⁴

Asthma:

Household flooding may lead to increased mold. Mold exposure is likely to trigger asthma symptoms and make them worse.

Respiratory Diseases:

Exposure to water-borne illnesses, such as Legionella, may increase.⁴

Toxins from Harmful Algal Blooms (HAB):

Increased extreme rain events cause nutrients to run off into the Detroit River and Lake Erie. These increased nutrients lead to Harmful Algal Blooms (HABs), which can contaminate drinking water supplies. HABs produce toxins, which when ingested can result in sickness, even death.⁴

Diseases from raw sewage:

In extreme rain events, storm water drains can become blocked. This causes an overflow of raw sewage. This can cause people to be exposed to multiple bacteria in the raw sewage.⁶

Example from Midland:

On May 19, 2020, the Edenville and Sanford Dams, which are part of a four-dam system near Midland, failed. The failures forced the evacuation of thousands of residents and created catastrophic flooding and property losses. The two other dams on the same river system, the Smallwood and Secord dams, were damaged. The dams were unable to manage water flows that resulted when storms dropped as much as eight inches of rain over 48 hours in parts of Northeast Michigan. ¹⁶



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What Does this Mean for Me and My Community

Community members and leaders can support many possible solutions in Detroit & nearby ¹²:

- Invest in grey (e.g., pumps, pipes, treatment facilities) and green infrastructure (vegetation, bioretention gardens) and prioritize neighborhoods that have experienced historic disinvestment and flooding
- Improve process for flood-related claims to ensure they are accessible, equitable, and transparent
- Develop grants and technical assistance to support residents in implementing neighborhood or household flood prevention

There are a range of flood prevention strategies for households to consider from relatively affordable to incredibly costly. For renters, some may not be possible without a landlord's support or resources. Some require technical or physical abilities when attempting do-it-yourself approaches.

- Install a flood sensor that can detect excess humidity or moisture in the air (\$10-\$200+)
- Clear clogged lateral sewer pipe (\$150+)
- Repair gutters (\$200+)
- Build a rain garden &/or grade your lawn away from your home (\$200+)
- Repair foundation drainage plumbing (\$700+)
- Seal up foundation cracks & apply coating & sealants (\$600-\$10,000+)
- Install a battery-powered sump pump (\$1,000-\$5,000)



Please see http://mleead.umich.edu/Coec_Fact_Sheets.php for the citations included in this factsheet.

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