



Geo Words

flash flood: a sudden rise in the water level of a stream, a river, or a man-made drainage channel in response to extremely heavy rains.

drainage basin (also watershed): the land area from which rainfall collects to reach a given point along some particular river.

Figure 1 Rapidly rising waters during a flash flood submerged this car.



Digging Deeper

FLASH FLOODS

Thunderstorms can produce torrential rains. Usually the rain does not last very long and causes no serious problems. Sometimes heavy rains can last for hours. This can lead to flash flooding. A **flash flood** is a sudden rise in the water level of a stream, a river, or a man-made drainage channel in response to extremely heavy rains. Flash floods can also occur when a brief but heavy rain falls over the entire area of a very small watershed. In some places, water might overflow stream banks and collect in low-lying areas.

The life cycle of a thunderstorm cell is typically less than an hour. How could torrential thunderstorm rains last for many hours? Flooding usually results from more than one thunderstorm cell. Flooding thunderstorms are most likely in mountainous terrain where a persistent flow of humid air up a mountain slope can cause thunderstorm cells to develop and redevelop over and over. Outside of the mountains, another possible cause of flooding rains is a succession (or “train”) of slow-moving thunderstorm cells that mature over essentially the same geographical area. Thunderstorms move slowly when the steering winds in the middle and upper part of the troposphere are relatively weak.

The dotted line you drew on your map outlined the boundaries of the area where water from raindrops would drain downhill into the Sac River. A river plus all of its tributaries drain a fixed geographical area, and that area is the **drainage basin**, also called a **watershed**. Heavy rain falling on the upstream part of a drainage basin might cause flooding downstream in areas that received no rain. In other words, just because it is not raining where you are does not necessarily mean there is no flood danger.

Flash floods may be more likely in an urban area than in the surrounding countryside. The reason for this is that rain in the country can seep into the soil. In the city, rain cannot seep into asphalt or concrete parking lots, roads, and driveways. Frozen soil is also impervious to water. Instead, the water runs off these surfaces into nearby streams or other drainage ways. Storm sewers also channel water from roads into streams. Streams receiving so much water at one time can overflow their banks quickly. Also, storm sewers sometimes clog or cannot handle excessive volumes of water and back up into the streets.