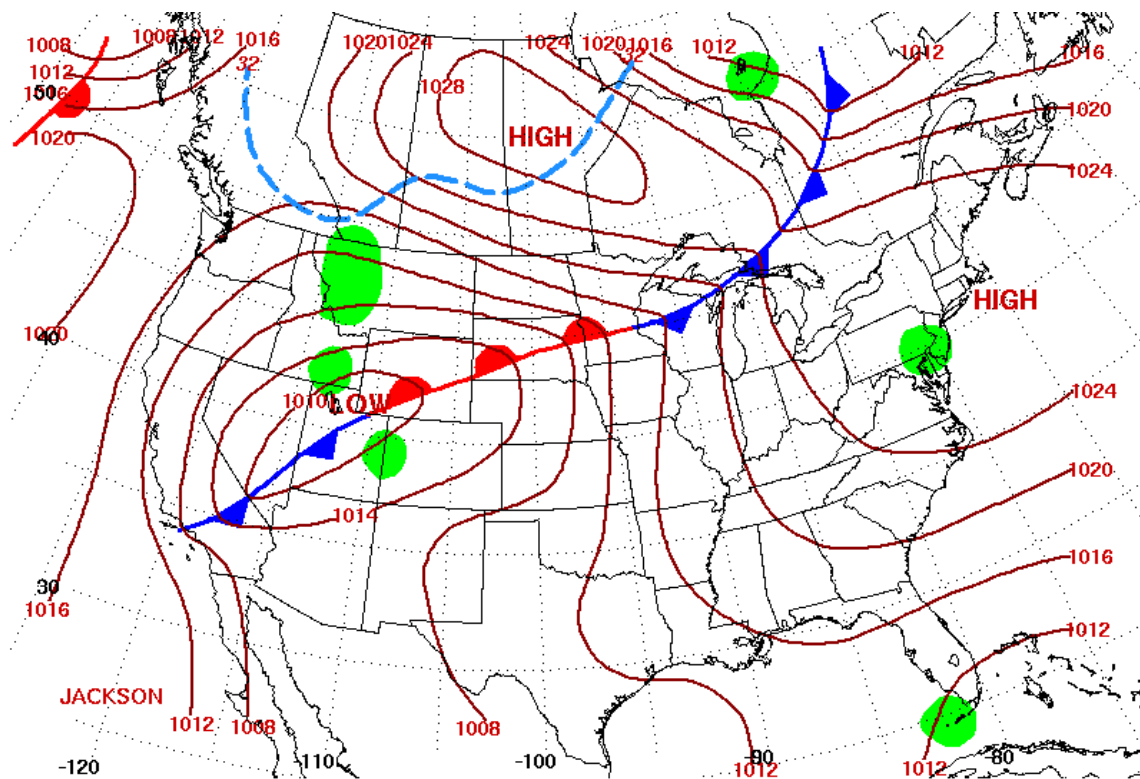


A significant autumn storm system brought copious amounts of rain to northeastern Montana from 4 to 7 October 2007, with the greatest amount of rain occurring on 5 and 6 October. The precipitation primarily fell as rain, although snow was observed in southwestern Phillips, and western Petroleum Counties, at the end of the event. The system evolved as a deep upper level trough of low pressure developed over the west coast and moved into the intermountain west. A surface low pressure system developed and tracked from the Central Rockies to the Upper Midwest. For much of the region, this was the first widespread rainfall since the end of May 2007, excluding several significant thunderstorm events in June, which caused localized heavy rain.

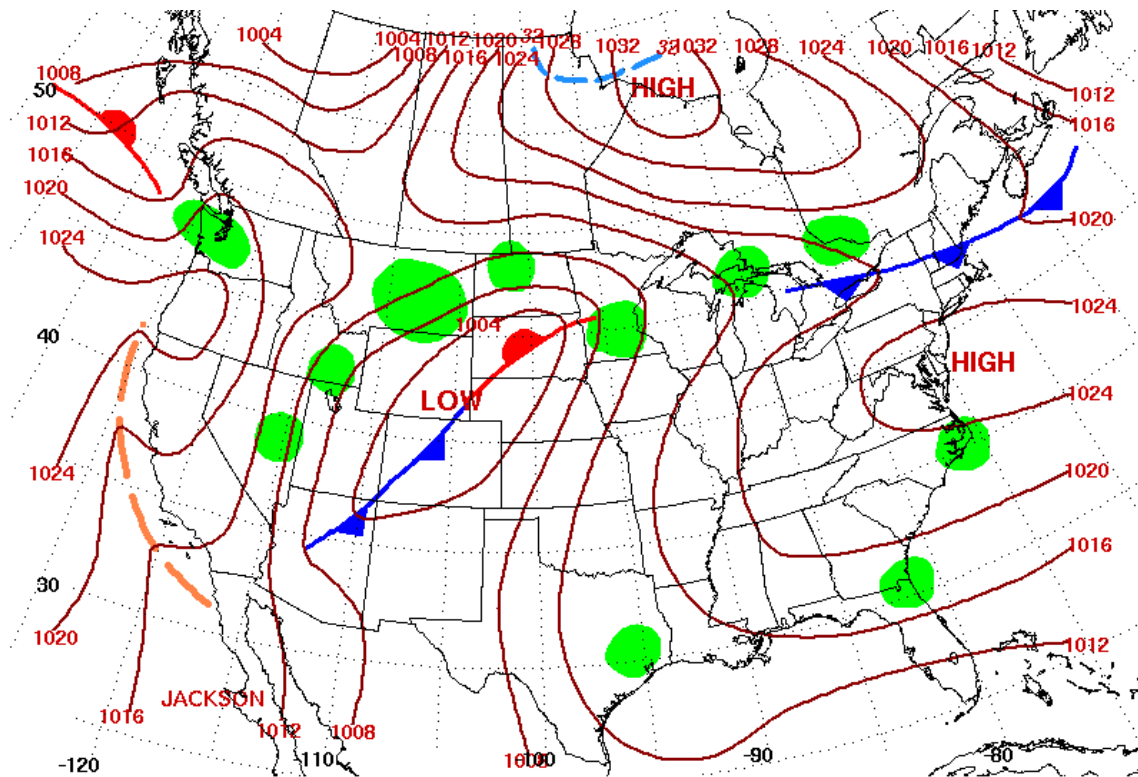
A cold front crossed the region on 3 October, which brought an end to seasonally mild temperatures that began the month. This front stalled and became stationary over the Wyoming-Colorado border by 4 October. This stationary front became the focusing mechanism for surface low pressure development as an upper level trough of low pressure developed over the Pacific Northwest. By the morning of 5 October a surface low pressure system was situated over northeastern Utah and southwestern Wyoming, with a warm front extending from Wyoming to Minnesota. High pressure extended from the prairie provinces of Canada through the northeastern United States. This set-up brought southerly flow from the Gulf of Mexico to the central plains, which crossed the warm front and turned westerly and crossed the northern high plains. Therefore, there was plenty of moisture available for a widespread rain event. The aforementioned scenario can be seen in the image below.



Surface Weather Map at 7:00 A.M. E.S.T.

(Image courtesy of www.hpc.ncep.noaa.gov/dailywxmap)

On 6 October deep moisture continued over northeast Montana as the surface low was now centered over southeastern Wyoming, which can be seen in the following image.



Surface Weather Map at 7:00 A.M. E.S.T.

(Image courtesy of www.hpc.ncep.noaa.gov/dailywxmap)

By 7 October the surface low moved into northern Minnesota and high pressure began to build in from the west. Therefore, the deep moisture flow ceased and the only lingering rainfall was the result of showery precipitation associated with the upper level low.

At the Glasgow forecast office the total rain accumulation was 1.50 in. This ranked as the 4th highest two day rainfall total in October since climate records began in 1893. Flatwillow received 1.39 in of rain. This ranked as the 5th highest two day rainfall total in October in 95 years of climate data. Culbertson received 1.01 in of rain. This was not near a two day record, but it did rank 22nd in 108 years of data, and accounted for nearly all of the rainfall of October 2007 (1.02 in). Sidney received 1.18 in of rain, which ranked 20th for a two day rainfall total in October in 98 years of data. However, it nearly doubled the average October rainfall of 0.63 in. Glendive only received 0.93 in, but that amount accounted for the majority of the 1.03 in of rain that fell in October 2007.

The highest rainfall totals extended from Petroleum County, northeastward to Sheridan County, while the lowest totals were in northern Phillips County; and Prairie, Dawson, and Wibaux Counties. In Valley County, amounts in addition to Glasgow were as follows: 1.50 in at Tampico, 1.44 in at Nashua, 1.47 in at Saint Marie, 1.27 in at Baylor, and 1.13 in 12 miles southeast of Opheim. Additional amounts in Roosevelt County were 1.03 in at the Wolf Point airport, 1.40 in at Bredette, and 1.50 in 17 miles north of Brockton. Rainfall amounts in Daniels and Sheridan Counties included 1.37 in

at Scobey; and 1.35 in at Plentywood and Westby. In Garfield County, the Jordan Airport received 1.39 in. Elsewhere; Wibaux received 0.83 in, Terry 0.68 in, Circle 0.77 in, Malta 0.88 in, and Port of Morgan received 0.38 in.

Throughout the Glasgow forecast area this storm system accounted for most of the rainfall that fell in October. This system brought the first significant widespread rain since spring, and in many cases brought above normal rainfall to Northeast Montana for October. However, the dry pattern from mid and late summer has continued with very little rainfall falling before, or after, this event.