

### **3. Weather Patterns of March 5 – 12 1982**

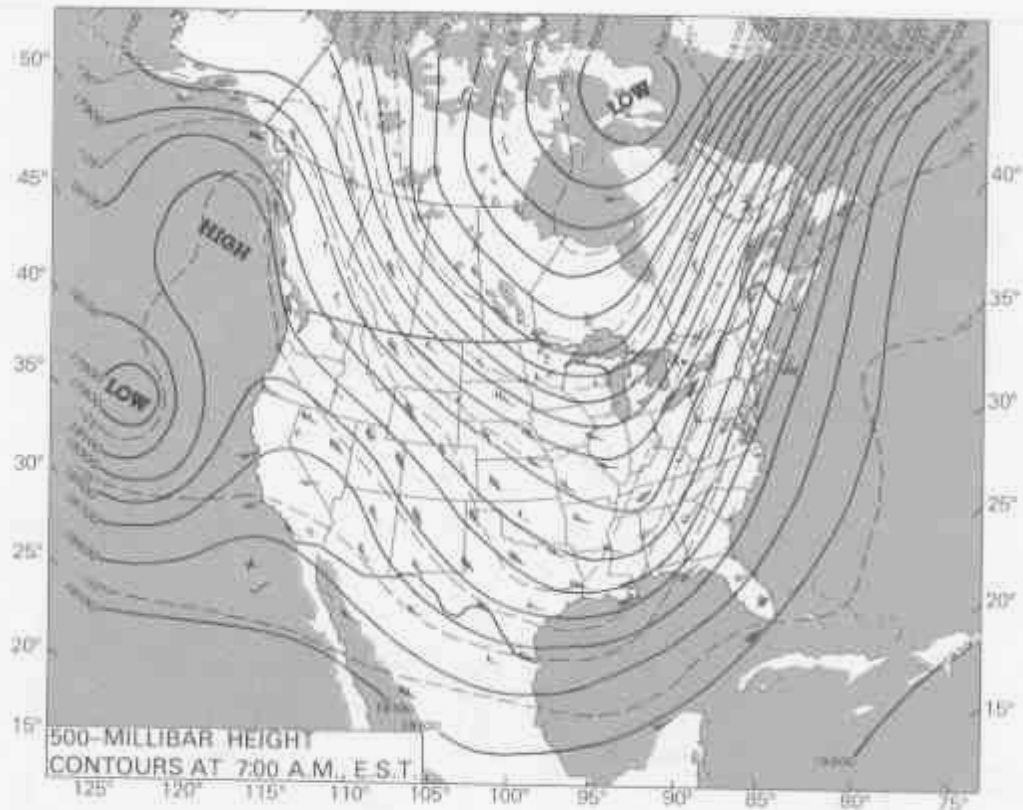
This report is an excerpt from the United States Geological Survey (USGS) and National Oceanic and Atmospheric Administration (NOAA) report titled “Floods of March 1982 in Indiana, Ohio, Michigan, and Illinois”. The maps are directly from the report.

During the period of March 5-8 1982, the upper air flow over North America was characterized by high amplitude waves and a deep trough progressing from just east of the Rocky Mountains to the Central Plains and the to the Appalachian Mountains. This caused large amounts of arctic air to flow over the Midwest resulting in much below normal temperatures. For example, during the period of March 5-9, the average daily temperature was 10 °F below normal at Fort Wayne Indiana. Thawing of the snow cover was retarded by this cold spell.

The weather pattern began to change on March 9 as the amplitude of the upper air pattern began to decrease. The circulation became much more zonal by the morning of March 10 as the cold air flow abated.

At the surface, an area of high pressure over New England strengthened on the morning of March 10 causing southeasterly winds to blow across the area. This flow began a warming trend with the daily temperatures over most of the region increased by 10 °F from March 9 to March 10, 1982. On March 10, a weak warm front moved through the area bringing a more southerly flow. This brought modified maritime air that had originated over the Gulf of Mexico. Surface temperature differences across the front were on the order of 5 to 10 degrees °F. By the morning of March 11, a weak cold front has moved out of the area and the surface high pressure that was behind the cold front had also moved east. A warm front over Arkansas extending east across southern Kentucky on the morning of March 12 began advancing northward in response to storm systems over South Dakota and Southwest Canada. By the afternoon of the 12<sup>th</sup> the warm front moved to Central Illinois, Central Indiana and Central Ohio. The boundary marked a large contrast in temperature. Behind the front temperatures were in the upper 60s while ahead of the front temperatures were in the mid 30s. The temperatures at Fort Wayne rose from 27 °F in the morning of the 12<sup>th</sup> to 55 °F following the passage of the front.

FLOODS OF MARCH 1982 IN INDIANA, OHIO, MICHIGAN, AND ILLINOIS



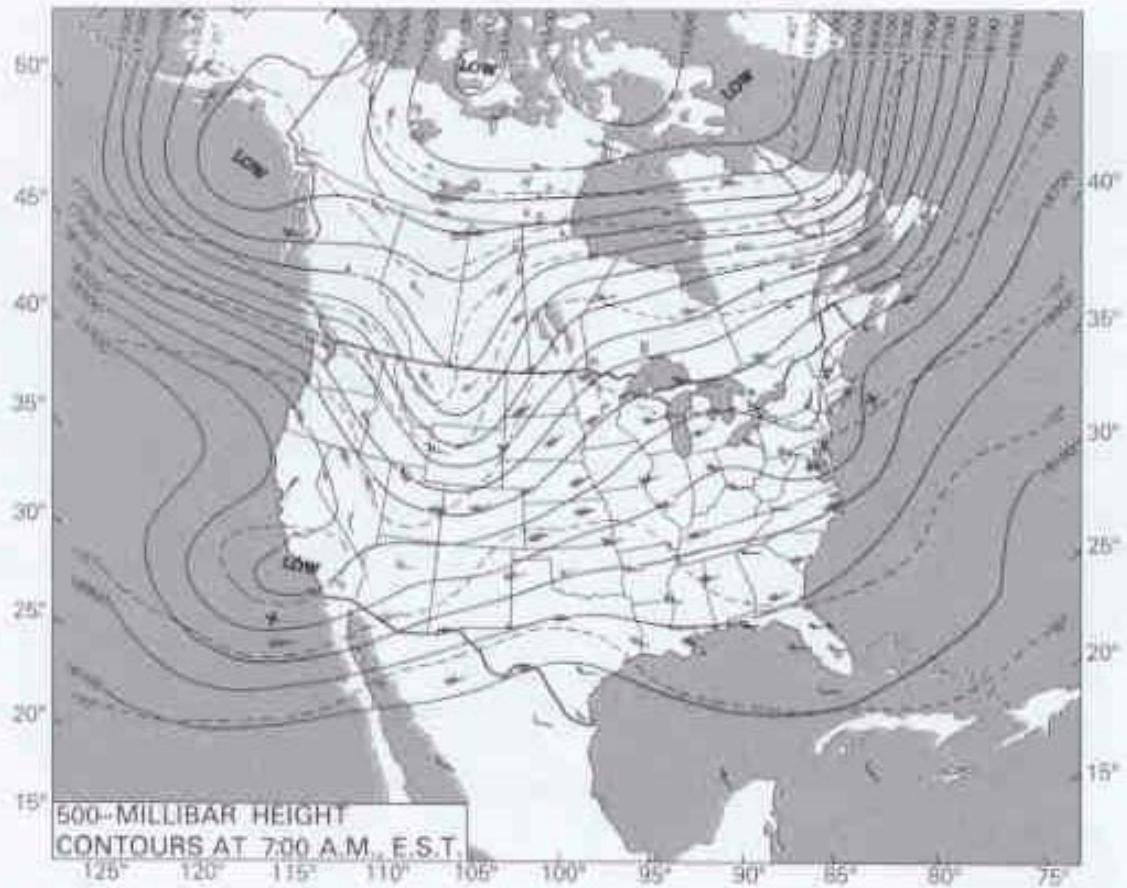
EXPLANATION

- Line of equal height of 500-millibar atmospheric pressure. Interval 200 feet. Datum is sea level.
- - - Line of equal temperature at 500-millibar atmospheric pressure. Interval 5 °C.
- Wind arrow showing speed and direction. Arrows "fly" with the wind to indicate true wind direction. Speed is indicated by feathers and flags. A half-feather indicates 5 knots, a full feather 10 knots, and a flag 50 knots.

FIGURE 7.—Height contours at the 500-mb level, 0700, March 7, 1982.

Mid level weather pattern showing cold air invasion into the Midwest Mar. 7, 1982

METEOROLOGICAL CONDITIONS



EXPLANATION

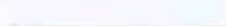


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FIGURE 8C—Height contours at the 500-mb level, 0700, March 12, 1982.

**Mid level weather pattern showing warm air invasion of the Midwest Mar. 12, 1982**