PICTURE OF THE MONTH

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Some of the heaviest precipitation in the southwestern United States occurs when a tropical storm is located off the west cosat of Mexico and a southwesterly upper-level flow prevails over the region. At the time of the satellite picture shown in figure 1 hurricane Helga (A) was centered at about 20° N., 116° W., and 500-mb. heights were rising in western Mexico. The development of this High caused an increase in southwesterly flow over northwestern Mexico and southern Arizona (fig. 3). The resulting advection of moisture from hurricane Helga is evidenced in the satellite picture by the mass of convective clouds north of 30° N. at 110° W. These clouds are due primarily to orographic effects along the mountains in northern Mexico and southeastern Arizona.

Showers and thunderstorms were occurring over parts of Arizona at 1500 GMT (fig. 2). As hurricane Helga moved northward and the high pressure center continued to build over Mexico, the amount of cloudiness and the intensity of the precipitation increased. The Phoenix River District reported local amounts of 2 to 5 in. of rain during the 24-hr. period subsequent to the time of figure 1. It is significant that the heaviest rain occurred when hurricane Helga was some 500 mi. off the coast of Mexico; by the time the storm had moved to central Baja California, the heaviest precipitation had ended over the southwestern United States.

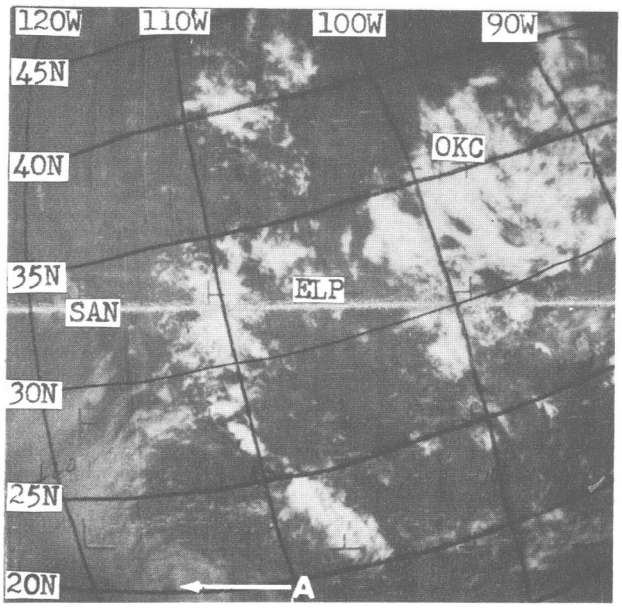

FIGURE 1.—ESSA 2 APT photograph, 1540 GMT September 12, 1966. SAN = San Diego, ELP = El Paso, OKC = Kansas City.

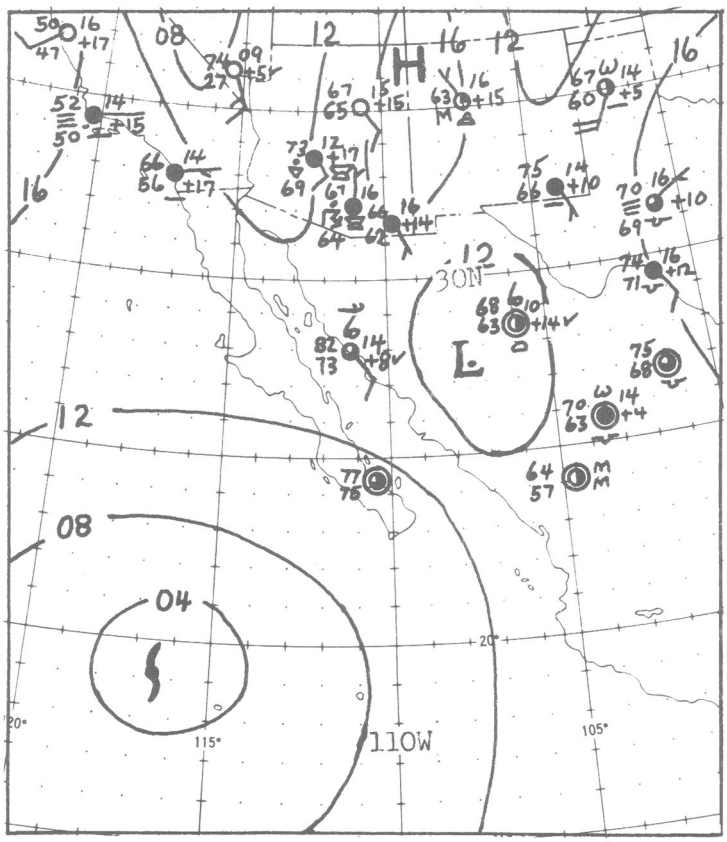

FIGURE 2.—Surface analysis, 1500 GMT September 12, 1966.

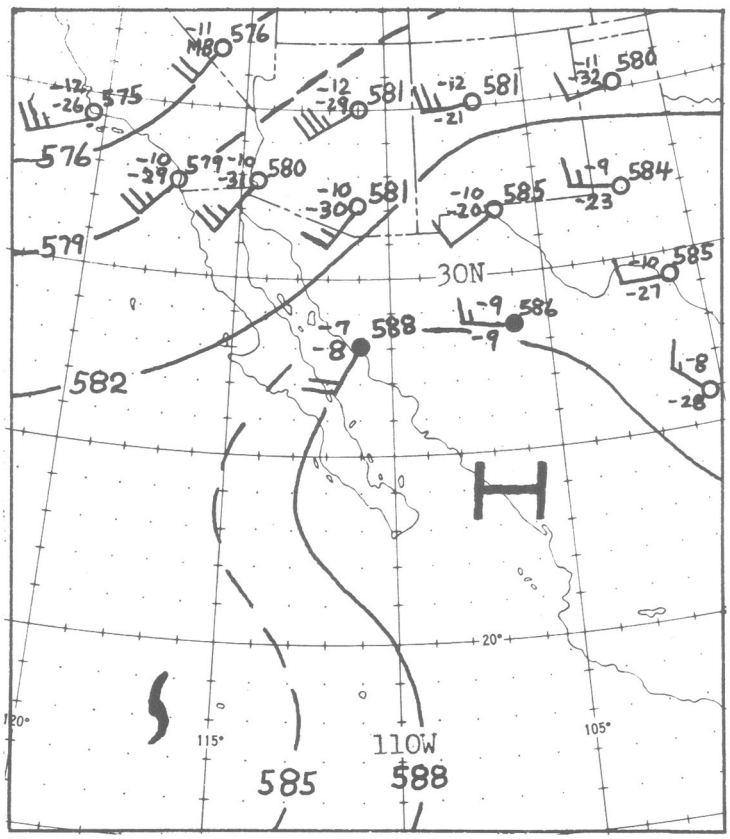

FIGURE 3.—500-mb. analysis, 1200 GMT September 12, 1966.