

FLOOD REPORT
AUGUST 21, 1988 STORM

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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PRELIMINARY FLOOD REPORT FROM THE STORM OF AUGUST 21, 1988

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Introduction

On the morning of August 21, 1988 an unusual monsoon rainstorm occurred throughout Maricopa County. The northwest part of the county received the heaviest rainfall from this storm and as a result a number of areas were flooded. This report provides preliminary information gathered by the Flood Control District of Maricopa County from its' telemetered gauge network, the National Weather Service, and various other sources as noted.

Rainfall

The monsoon season is typified by localized, short duration, heavy rain which usually occurs in the afternoon and evening hours. The storm of August 21st was unusual in that it was relatively wide spread, of long duration, and occurred in the mid-morning. At 9:10 A.M. an alarm was triggered at a gauge on top of the White Tank Mountains when the rainfall rate exceeded a specified value. Approximately one hour later, at 10:31 A.M., another alarm sounded on Smith Peak. Both of these sites are northwest of Phoenix (Figure 1). The greatest total amount of rain was 3.11 inches and also occurred on White Tank Mts..

Radar images from the National Weather Service indicate that the antecedent conditions were moist from precipitation that occurred on Saturday the 20th of August. Figure 2 is a radar image of convective precipitation taken at 1040 GMT (3:40 a.m. local time) on August 20th. Figure 3 is another radar image of the same type taken approximately 24 hours later. Intensities shown range from less than 0.2 inches to 2.20 inches per hour.

Figures 4 through 10 are the hyetographs from select Flood Control District gauges which indicate rainfall intensity and duration. Figure 11 is the mass curves for rainfall at three gauges. The storm averaged 10 hours in duration, from approximately 2:00 A.M. until 12:00 noon, with intensities ranging from 1.2 to 1.6 inches per hour. Hourly precipitation rates and total amounts from this storm for all gauges can be seen in Appendix A. Appendix B contains information for all the gauges such as name and location.

Runoff

The information concerning runoff is mainly based on observed information for two reasons. First, the rainfall was not intense enough to prolong runoff which would have registered on the stream gauges. Second, the data that was available from the telemetered stream gauges was sparse and of poor quality. The majority of stream gauges operated by the Flood Control District are located on our structures. Of these gauges only Cave Buttes Dam, Dreamy Draw Dam, New River Dam, McMicken Dam, and Indian Bend Wash registered a change. The other structures that had ponding behind them were Buckeye Structures and White Tanks 4.

Reported flood damages included residential flooding which occurred immediately south of the Paradise Valley Park in north Phoenix. One person drowned in Indian Bend Wash when he attempted to cross it on his bicycle as it was flowing. Flood Waters inundated residential properties in the Litchfield Park area as channel capacities were exceeded along Camelback Road. The Sheriff's Department had to close a number of roads south of Buckeye Road, from 115th to 99th Avenues and a residential area north of Southern Avenue between 107th Avenue and El Mirage Road had flood damages as a result of local drainage breaching irrigation canals.

Watershed Impacts

TABLE 1: Road Closure Locations

<u>Location</u>	<u>Time</u>
Dysart Rd. north of Southern Ave.	1640
115th Ave. between Broadway Rd. and Southern Ave	1044
115th Ave. north of Baseline Rd.	1048
Lower Buckeye Rd. at the Agua Fria River	1146
99th Ave between Lower Buckeye Rd. and Broadway Rd.	1650
Union Hills Dr. between Cave Creek Rd. and 32nd St.	1320
Cave Creek Rd. at John Cabot Rd.	1330
Cotton Ln. between Beardsley Rd. and Grand Ave.	2140
Salome Highway west of 351st Ave.	1613

Table 1 is a list of road closures by the County Sheriff on August 21, 1988 as a result of flooding. In addition to the road closures, the heavy rainfall in the White Tank Mountains and Trilby Wash area contributed to ponding behind McMicken Dam as seen in Figures 12 and 13. A detention basin at the Paradise Valley Park in north Phoenix overtopped and caused flooding to homes in the vicinity. Flows in the Indian Bend Wash through Scottsdale resulted in the death of one person when he attempted to cross it.

Summary

The storm of August 21st, 1988 was an unusual event which could have been much worse. In general, this storm can be characterized as producing only minor localized flooding. A comparison with estimated return periods for short-duration precipitation values indicates that this storm was probably less than a 25 year event.

FIGURE 2

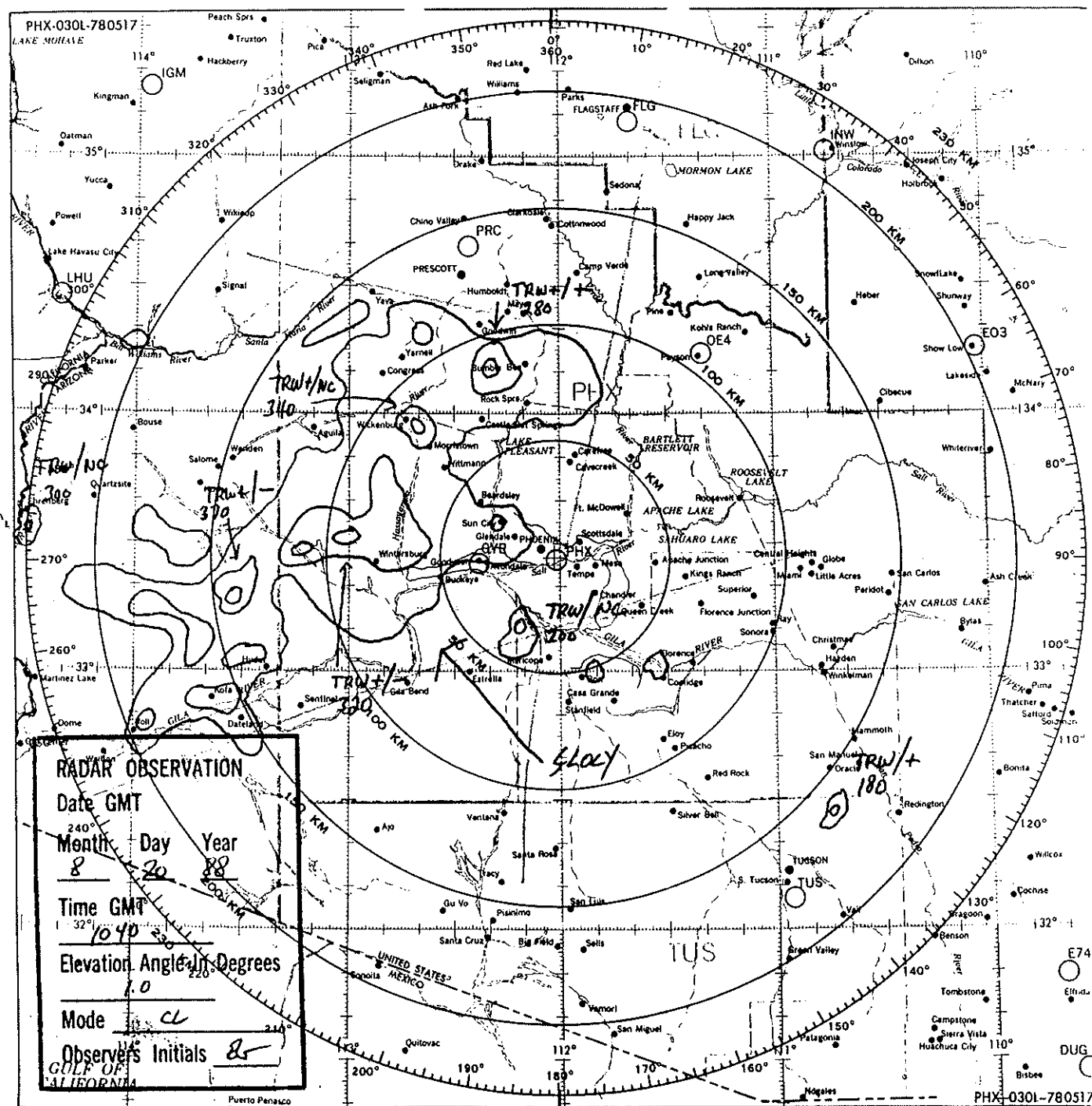


FIGURE 3

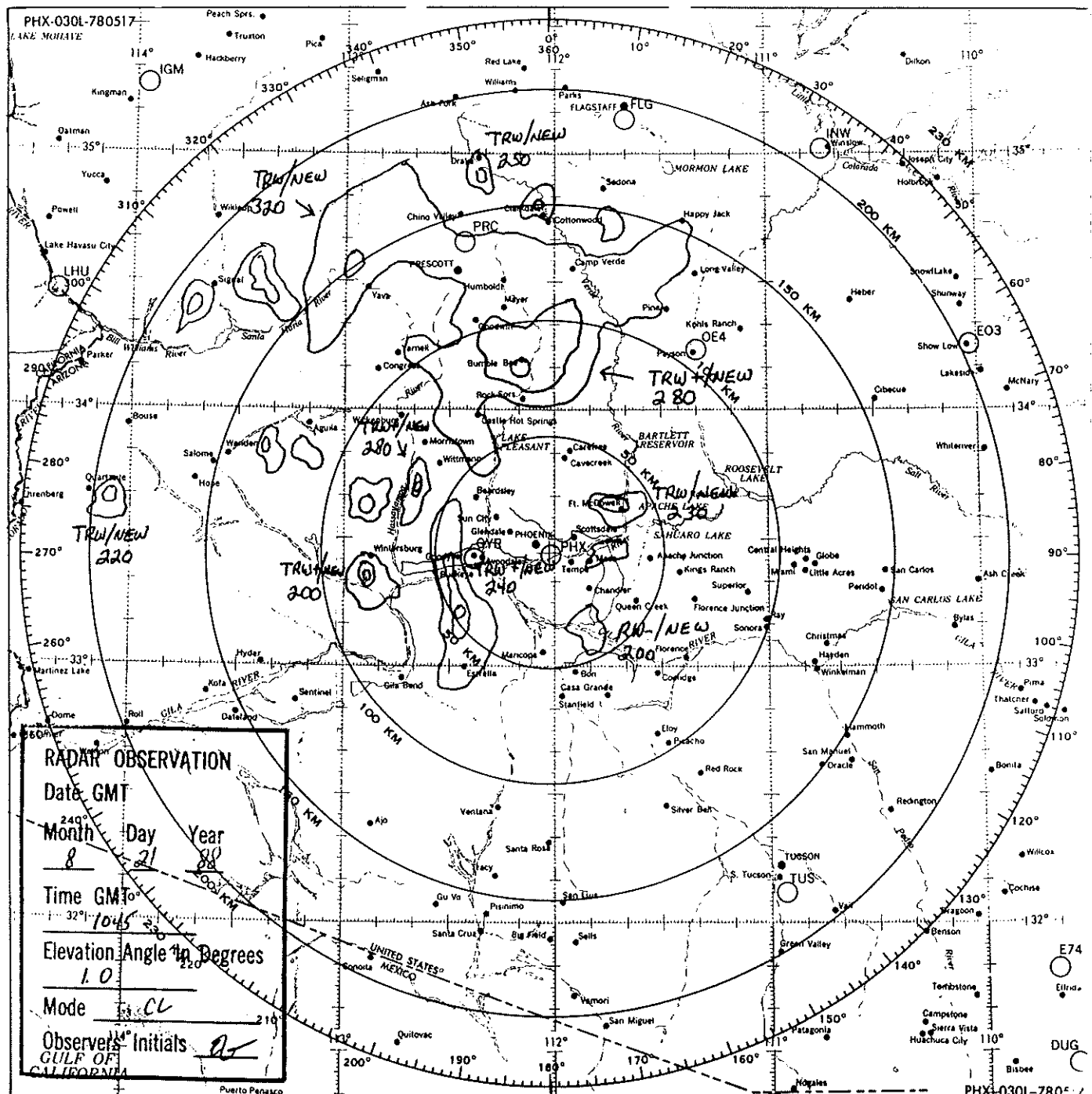


FIGURE 4

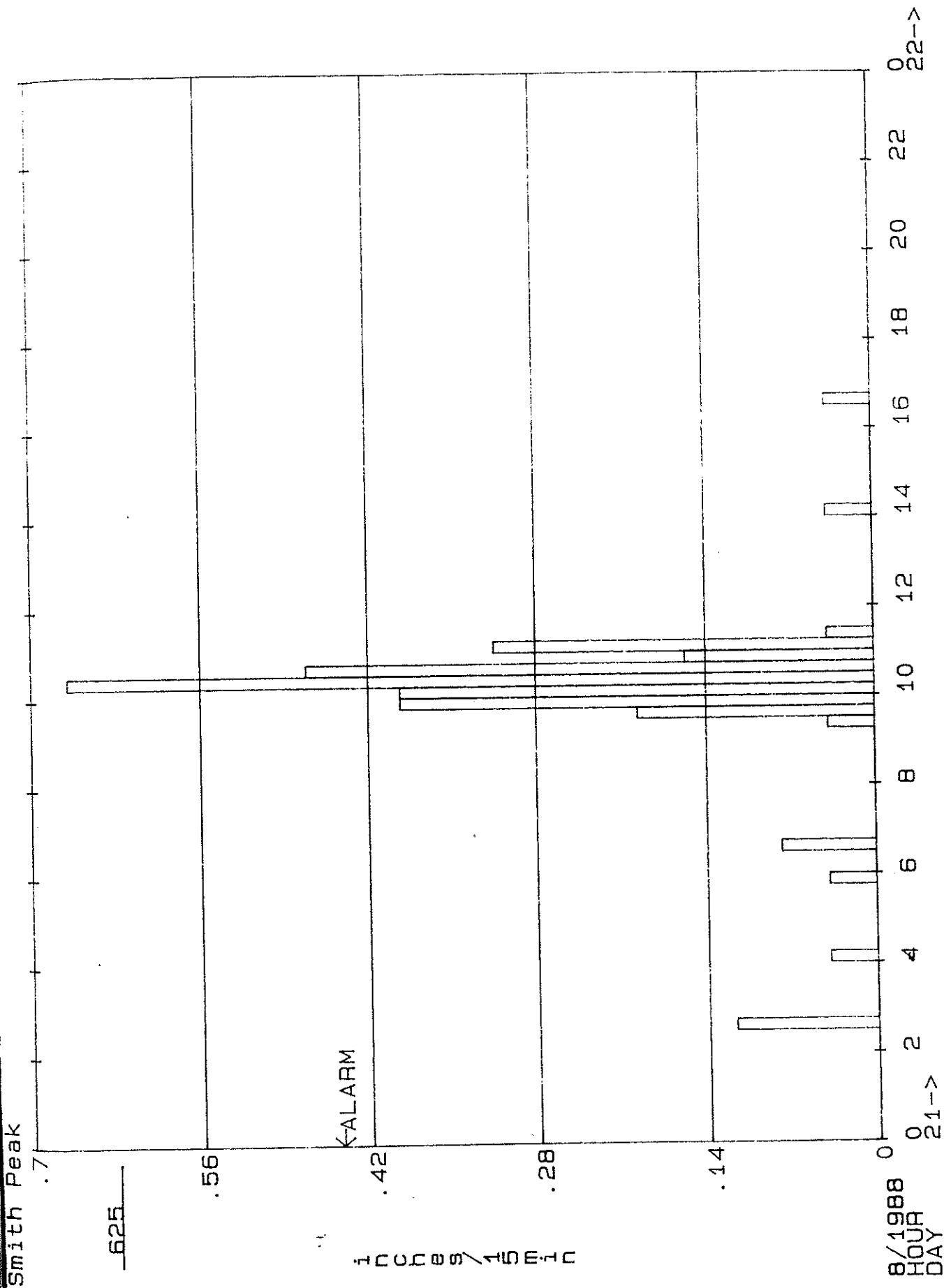


FIGURE 5

