PRELIMINARY REPORT

TROPICAL STORM DEBRA

August 26-29, 1978

The weather system from which Debra eventually developed appears to have been an upper tropospheric cold low which formed over southwest Florida about 0000 GMT, August 25. During the following thirty-six hours the low drifted southwestward to a position north of the Yucatan Peninsula, as it penetrated down through lower atmospheric levels.

Meanwhile, a tropical wave moved westward through the western Caribbean and into Yucatan. At 1200 GMT, August 25 the wave and the low level vorticity center generated by the cold low came into alignment. The wave enhanced the low level inflow and a tropical depression formed about 1200 GMT, August 26.

The depression intially tracked westward under the influence of the surface ridge to the north, but as the western extension of the ridge eroded, the depression gradually turned toward the north. In the meantime, the depression slowly strengthened and was upgraded to a tropical storm upon receipt of reconnaissance data showing 40 kt surface winds and 1002 mb minimum pressure. Thus Debra became the third storm of 1978 to develop in the Gulf of Mexico west of longitude 93W.

Debra was an immediate coastal threat and Gale Warnings were posted from Galveston, Texas to Grand Isle, Louisiana in the first tropical storm advisory, which was issued at 1800 GMT, August 28. In a short time, three thousand persons were evacuated from lower Cameron Parish, Louisiana and an undetermined number from neighboring Vermilion Parish.

As Debra approached the coast, a NOAA research aircraft measured a minimum pressure of 1000 mb and estimated surface winds of 50 kts at

0000 GMT, August 29. Most of the high winds associated with the storm were found well to the east of the center. Automatic observation stations mounted on offshore platforms measured sustained winds of 40 to 45 kts for several hours on August 28, as Debra passed 100 to 150 miles to the west.

The center crossed the coast midway between Beaumont, Texas and Lake Charles, Louisiana during the evening of August 28. These two stations recorded identical minimum pressures of 1002 mbs. The central pressure filled very slowly as Debra accelerated north northeastward through west central Louisiana and into south central Arkansas, where the residual low pressure system combined with a frontal trough on August 29. The resulting frontal wave could be tracked into extreme southern Illinois and eastward along the Ohio Valley for the next three days.

Several unconfirmed tornado reports were received from the upper Texas coastal area eastward across southern Louisiana and southwest Mississippi as Debra made landfall. Later information verified one tornado each in Texas, Louisiana and Mississippi. The tornado in Mississippi, near Turkey Creek, destroyed one house and three mobile homes, killing one person and seriously injuring another.

The greatest total rainfall reported was 10.81 inches at Freshwater Bayou Lock, Louisiana. Local rainfall amounts of 6 inches or more occurred in southwest Louisiana, southwest Mississippi, Arkansas, and later in southern Missouri and Illinois as the remnants of Debra turned northeastward as a frontal wave.

Tides ranged from 1 foot above normal at Corpus Christi to 2.2 feet above normal at Galveston and 5.7 feet above normal on the Louisiana coast west of Atchafalaya Bay through Vermilion Bay.

The highest surface wind from reconnaissance data was 50 kts at 0000 GMT, August 29. A few offshore oil platforms experienced 45 kt winds. The highest reported wind gust from a land station was 57 kts at Grand Chenier, Louisiana. The lowest pressure measured by reconnaissance was 1000 mbs at 0000 GMT, August 29. The lowest land station pressure was 1002 mbs at both Beaumont, Texas and Lake Charles, Louisiana.

Two deaths were reported - one on an offshore oil rig, and the other in a mississippi tornado. Tornadoes also caused several injuries. Except for isolated cases of structural damage caused by tornadoes, the total storm damage caused by Debra was minor.

JMP

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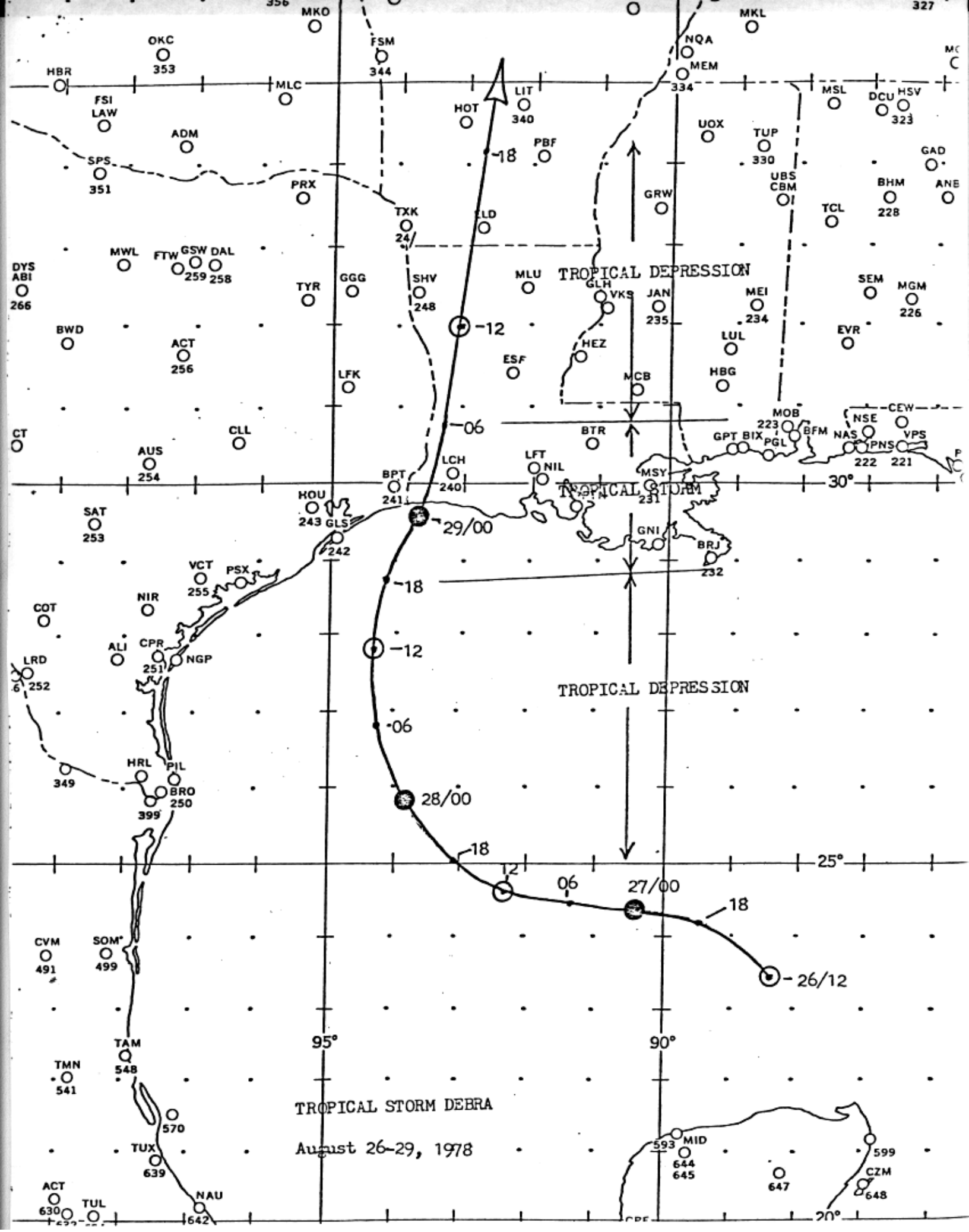
DAY	TIME (GMT)	LATITUDE	LONGITUDE	MINIMUM PRESSURE (mbs)	MAXIMUM WIND (kts)	CATEGORY
26	12	23.4	88.4	1010	25	T. Dep.
	18	24.2	89.5			
27	00	24.4	90.4			
	06	24.5	91.4	1008		
	12	24.6	92.3			
	18	25.1	93.1			
28	00	25.8	93.8	1006		
	06	26.8	94.3		25	
	12	27.8	94.3		30	
	18	28.7	94.1	1002	40	Trop. Stm.
29	00	29.6	93.6	1000	50	
	06	30.7	93.3		30	Trop. Dep.
	12	32.0	93.0	1002		
	18	34.2	92.7	1005	15	


TROPICAL DEPRESSION
TROPICAL STORM
TROPICAL DEPRESSION
TROPICAL STORM DEBRA
August 26-29, 1978
29/00
28/00
27/00
26/12
-18
-12
-06
18
12
06
30°
25°
20°
95°
90°
MKO
OKC
353
FSM
344
MKL
NQA
MEM
334
HBR
MLC
FSI
LAW
ADM
SPS
351
PRX
HOT
LIT
340
PBF
MSL
DCU
HSV
323
UOX
TUP
330
GAD
UBS
CBM
GRW
BHM
228
ANB
TCL
TXK
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LLD
MWL
FTW
GSW
259
DAL
258
DYS
ABI
266
TYR
GGG
SHV
248
MLU
GLH
VKS
JAN
235
MEI
234
SEM
MGM
226
BWD
ACT
256
LFK
ESF
HEZ
LUL
EVR
MCB
HBG
MOB
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CEW
CT
CLL
BTR
GPT
BIX
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SAT
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GNI
BRJ
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VCT
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PSX
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CVM
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SOM
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TAM
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