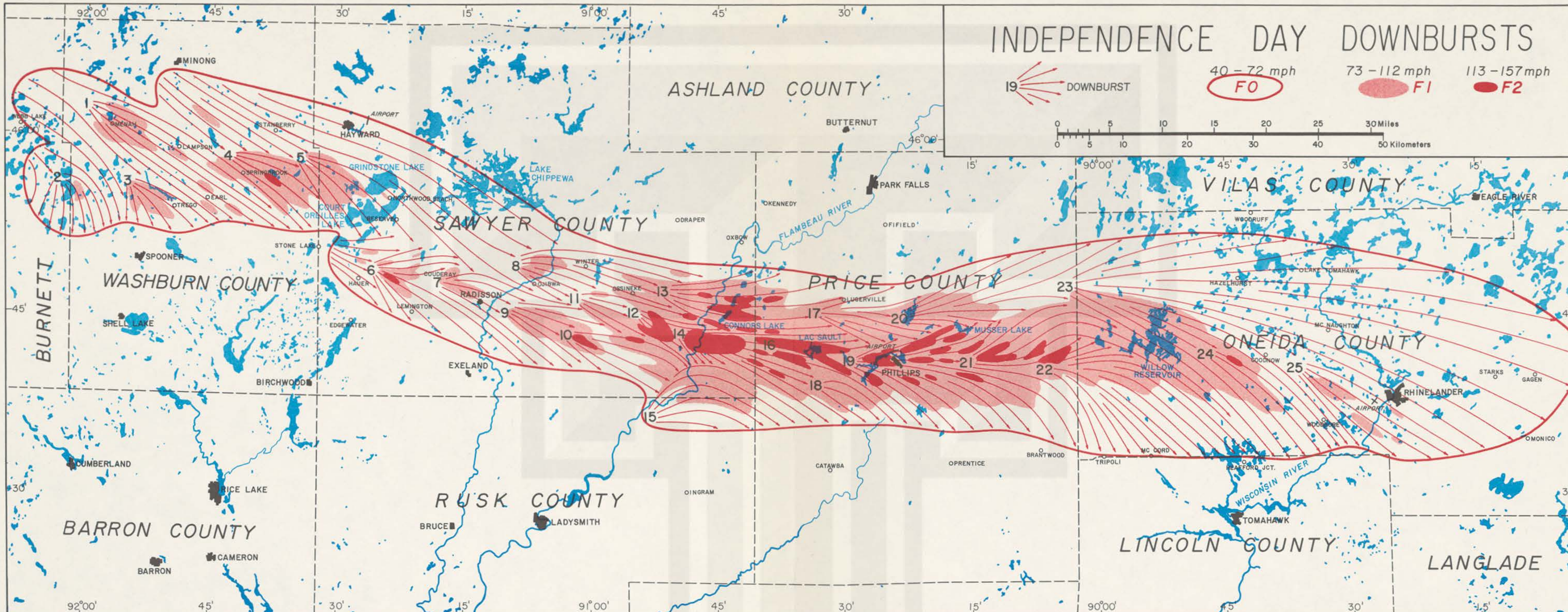
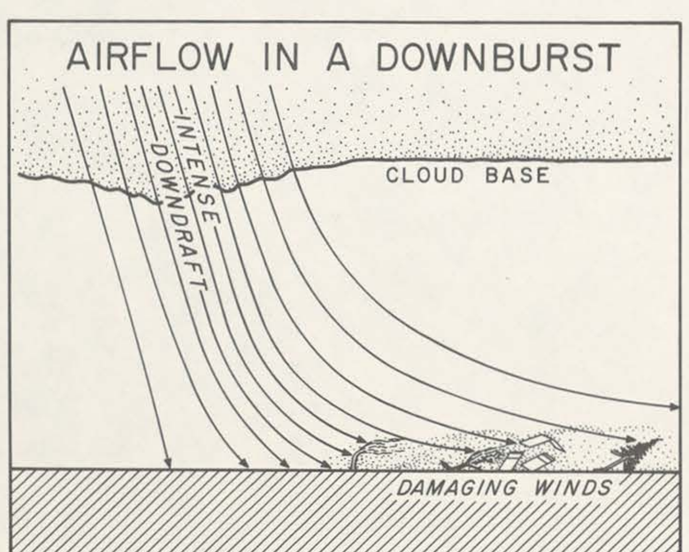
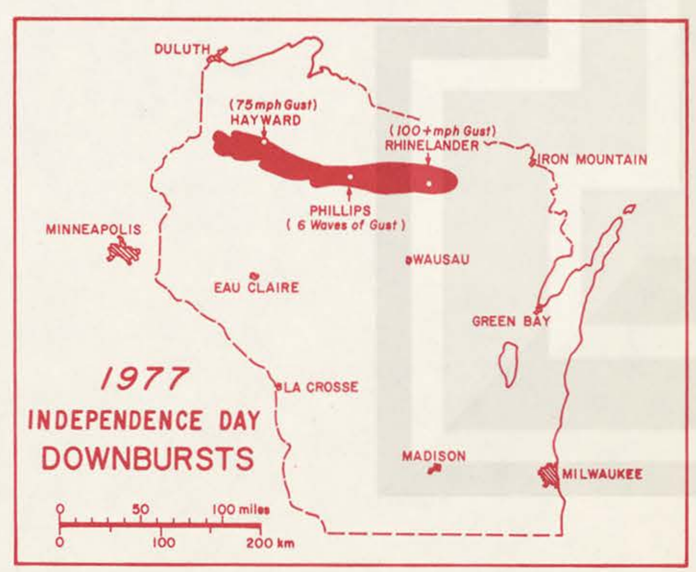


Aerial Survey and Mapping by T. T. FUJITA on July 13 and 14, 1977





On INDEPENDENCE DAY, the 4th of July 1977, a severe thunderstorm moved across Northern Wisconsin. It was reported that there were extensive areas of tree and property damage, somewhat like that of an oversized tornado.

In cooperation with the National Weather Service Milwaukee Office and the National Severe Storms Forecast Center, Fujita made an aerial survey, mapping both direction and F-scale intensity of damaging winds. No evidence of a tornado was found anywhere inside the damage swath which was 166-mile long and 17-mile wide. Instead, there were scattered local centers from which straight-line winds diverged out violently. These local wind systems were identified as downbursts and numbered 1 through 25.

A downburst, designating downward rush of air current with horizontal outflow, is a downdraft of an extreme intensity accompanied by damaging winds on the ground. Although most downdrafts are not damaging at the surface, a downburst could cause severe damage which was evidenced in Northern Wisconsin on Independence Day.

DISTRIBUTION OF TORNADOES 1916 - 1981

· 1 * 2 * 3 or 4 ■ 5 or more

Based on the University of Chicago Tornado Tape

This map includes 26,486 tornadoes between 1916 and 1981 archived in the University of Chicago Tornado Tape. In producing this map, the area of the contiguous United States was divided into 12,734 small subboxes of 15'x15' latitudes and longitudes. Then the number of tornado touchdowns in each subbox was counted by computer and printed on map coordinates.

Produced by T. Theodore Fujita, The University of Chicago

Distributed with 1982 Storm Data, National Climatic Center, Asheville, N.C. 28801

Damage Map of Hurricane DIANA

SEPTEMBER 11-13, 1984

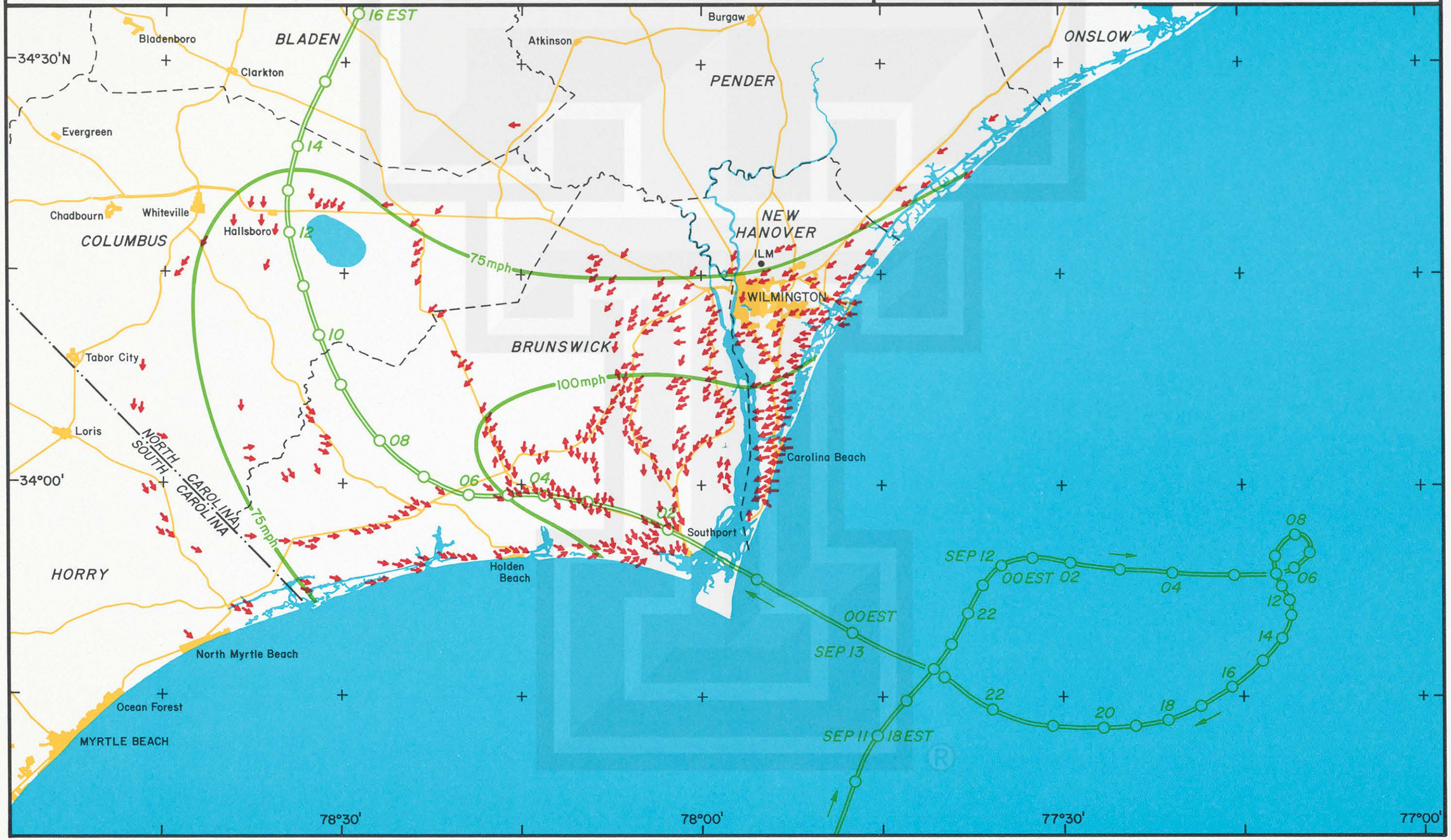
0 20 40 60 80 100 km.
0 20 40 60 miles

← F0 (40-72mph) LIGHT DAMAGE

← F1 (73-112mph) MODERATE DAMAGE

MAPPED BY D. J. STIEGLER, THE UNIVERSITY OF CHICAGO
FROM AERIAL & GROUND SURVEYS CONDUCTED SEPTEMBER 18-19, 1984

UNDER THE SUPPORT OF AOML'S HURRICANE RESEARCH DIVISION
ADDITIONAL SUPPORT BY NOAA, NASA, & NESDIS



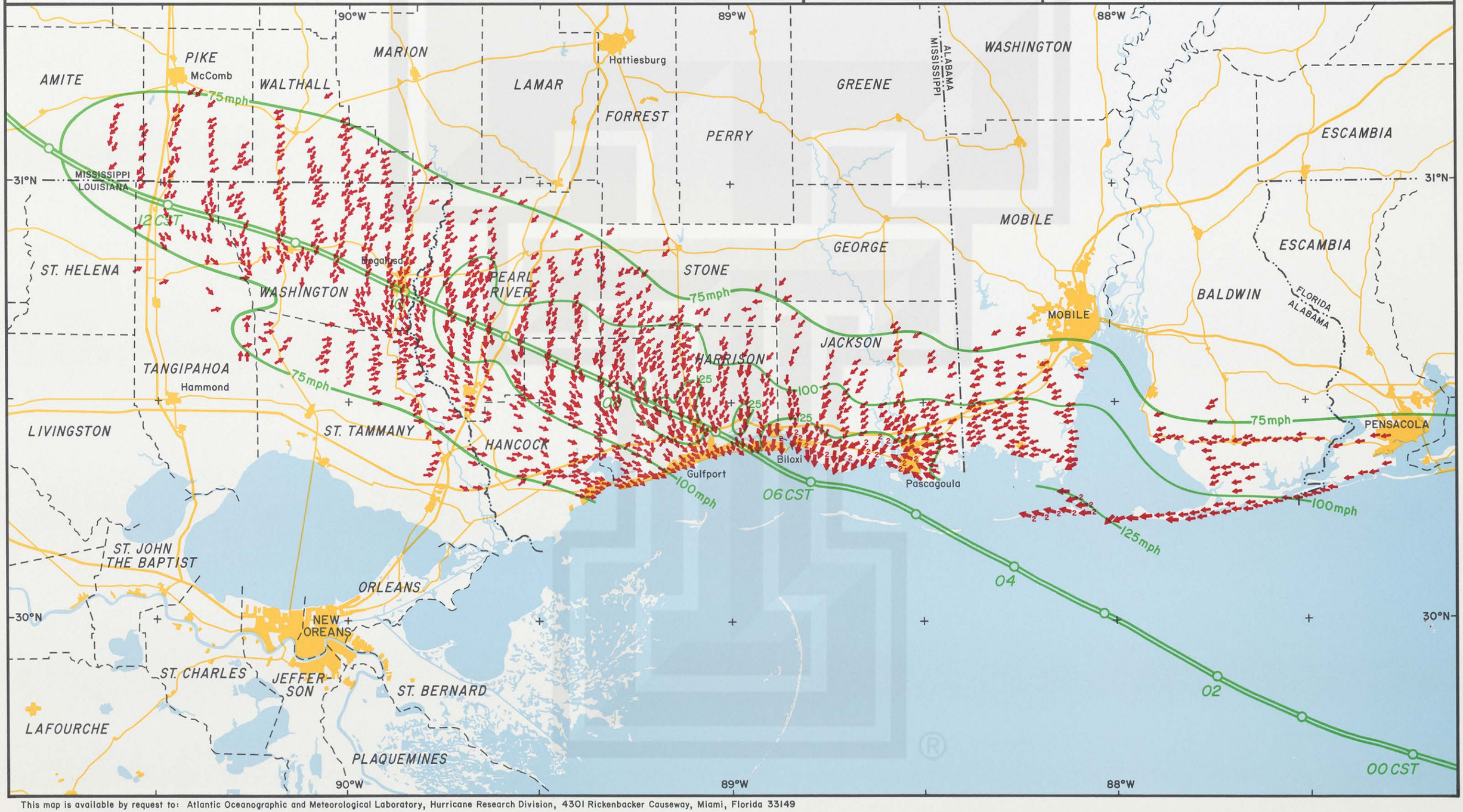
This map can be obtained by sending postage to: Atlantic Oceanographic and Meteorological Laboratory, Hurricane Research Division, 4301 Rickenbacker Causeway, Miami, Florida 33149

Damage Map of Hurricane ELENA, September 2, 1985

0 50 100 150 km.
0 20 40 60 80 100 mi.

→ F0 (40-72mph) Light Damage
→ F1 (73-112mph) Moderate Damage
2→ F2 (113-157mph) Considerable Damage

MAPPED BY D. J. STIEGLER AND B. E. SMITH
THE UNIVERSITY OF CHICAGO
FROM AERIAL & GROUND SURVEYS CONDUCTED SEPTEMBER 5-7, 1985
UNDER THE SUPPORT OF AOML'S HURRICANE RESEARCH DIVISION
ADDITIONAL SUPPORT BY NOAA, NASA, & NESDIS



This map is available by request to: Atlantic Oceanographic and Meteorological Laboratory, Hurricane Research Division, 4301 Rickenbacker Causeway, Miami, Florida 33149

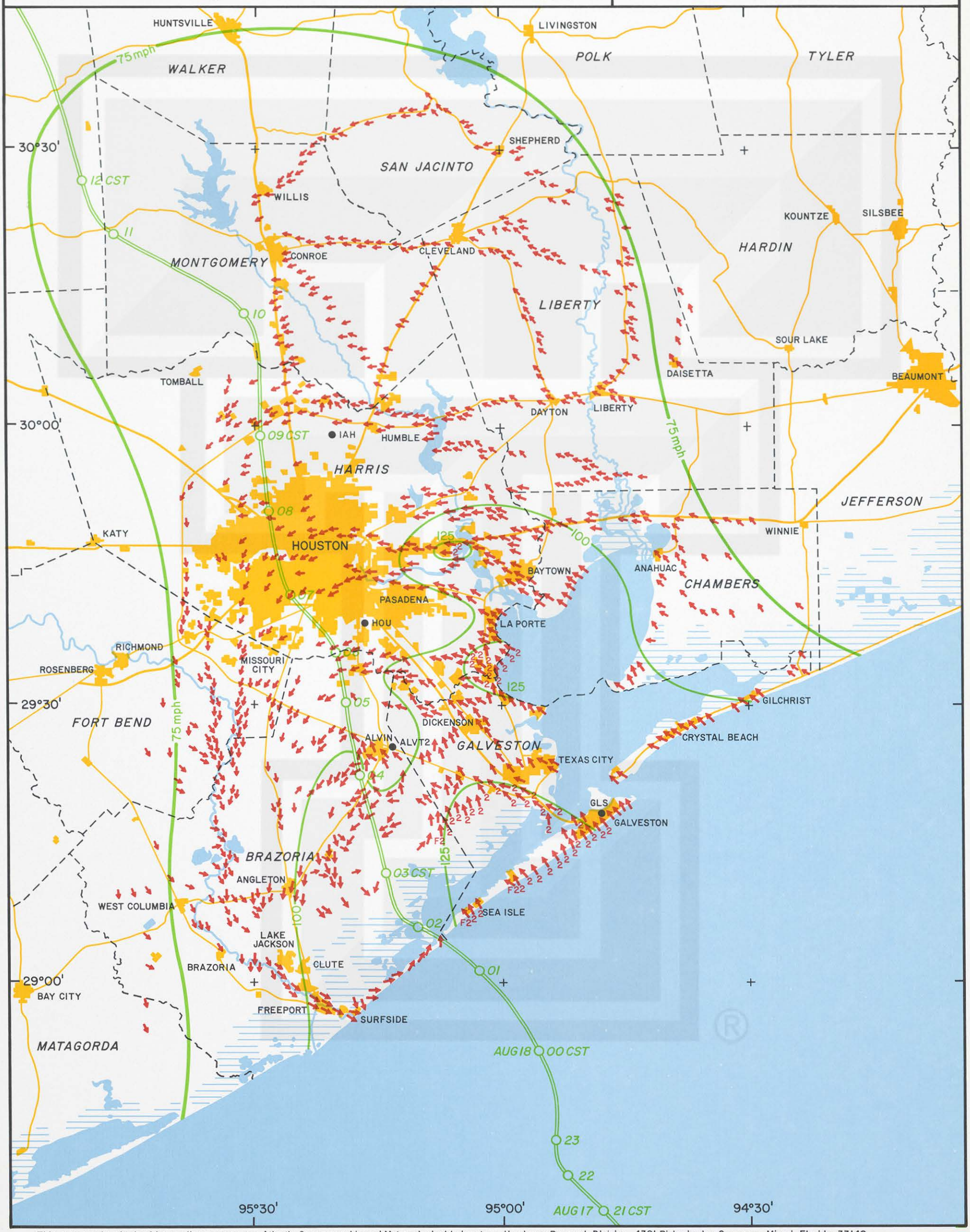
Damage Map of Hurricane ALICIA
AUGUST 17-18, 1983

0 20 40 60 80 100 km
0 20 40 60 miles

→F0 (40-72 mph) →F1 (73-112 mph) 2→F2 (113-157 mph)

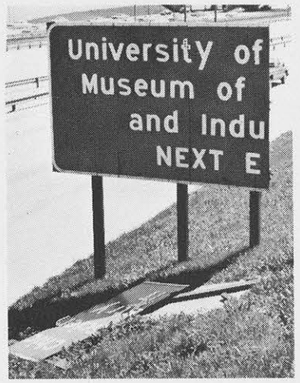
MAPPED BY D. J. STIEGLER
THE UNIVERSITY OF CHICAGO

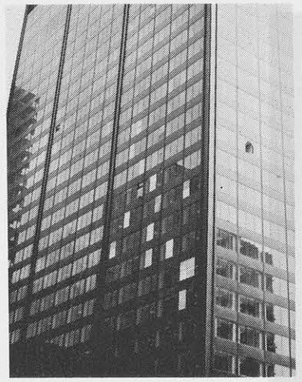
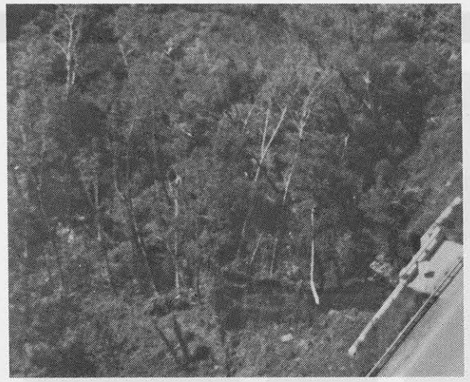
FROM AERIAL & GROUND SURVEYS CONDUCTED AUGUST 21-25, 1983
UNDER THE SUPPORT OF AOML'S HURRICANE RESEARCH DIVISION
ADDITIONAL SUPPORT BY NOAA, NASA, & NESDIS



This map can be obtained by sending postage to: Atlantic Oceanographic and Meteorological Laboratory, Hurricane Research Division, 4301 Rickenbacker Causeway, Miami, Florida 33149

Photographs and Description of the Fujita Tornado Scale [F0 - F5]

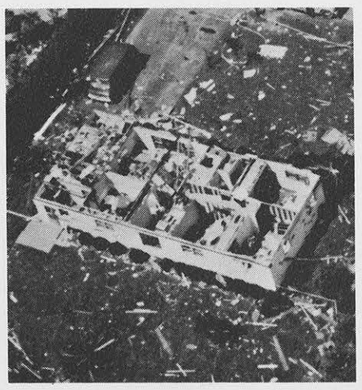
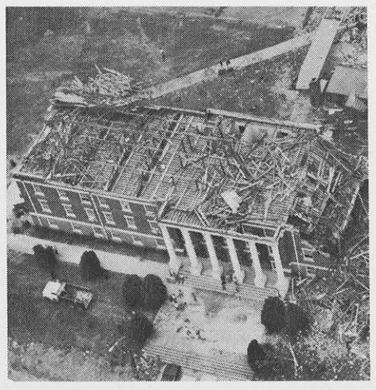


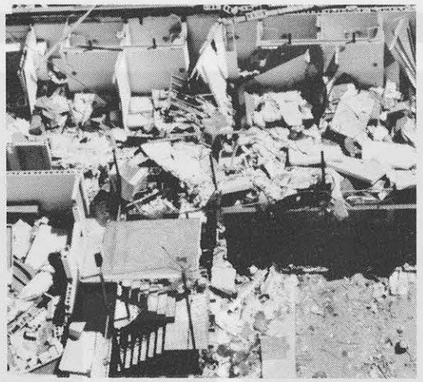
[F0] LIGHT DAMAGE (40 - 72 mph) Some damage to chimneys; break twigs and branches off trees; push over shallow-rooted trees; damage signboards; some windows broken; hurricane wind speed begins at 73 mph.



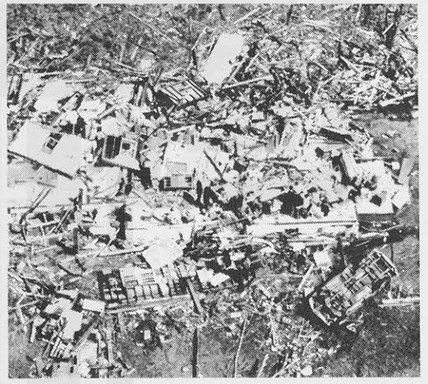
[F1] MODERATE DAMAGE (73 - 112 mph) Peel surface off roofs; mobile homes pushed off foundations or overturned; outbuildings demolished; moving autos pushed off the roads; trees snapped or broken.

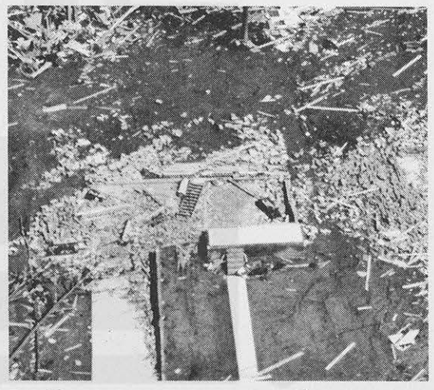
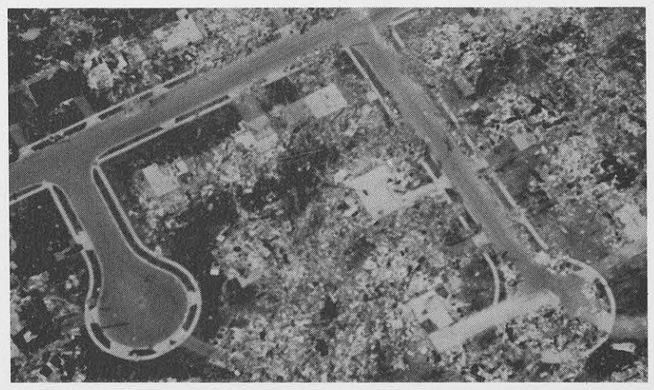

[F2] CONSIDERABLE DAMAGE (113 - 157 mph) Roofs torn off frame houses; mobile homes demolished; frame houses with weak foundations lifted and moved; large trees snapped or uprooted; light-object missiles generated.



[F3] SEVERE DAMAGE (158 - 206 mph) Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; heavy cars lifted off the ground and thrown; weak pavement blown off the roads.



[F4] DEVASTATING DAMAGE (207 - 260 mph) Well-constructed houses leveled; structures with weak foundations blown off some distance; cars thrown and disintegrated; trees in forest uprooted and carried some distance away.

[F5] INCREDIBLE DAMAGE (261 - 318 mph) Strong frame houses lifted off foundations and carried considerable distance to disintegrate; automobile-sized missiles fly through the air in excess of 300 ft; trees debarked; incredible phenomena will occur.