

CLOUD DRIFT WINDS MADE FROM RAPID SCAN IMAGERY DATA

OBTAINED DURING THE EXPERIMENT ON

RAPIDLY INTENSIFYING STORMS OVER THE ATLANTIC (ERICA)

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1. BACKGROUND

ERICA was a three month, Office of Naval Research sponsored field experiment conducted off the east coast of the United States during the winter of 1988-89 (Hadlock and Kreitzberg, 1988). The goal of ERICA was to gain a better understanding of the physical processes and scale interactions occurring in the atmosphere during the rapid intensification of cyclones at sea. Data were collected during eight Intensive Observing Periods (IOP's) from both operational and special research observational sites. These included a special ERICA drifting buoy network, NOAA, USAF and NCAR research aircraft flights, supplemental NWS, AES, military and CLASS radiosonde observations, special GOES observations and other measurements provided by project participants. Data gathered during the experiment is available in special data sets which are now available for general research (Hartnett and Kreitzberg, 1990). This data is being used to establish relationships between satellite cloud motions, cloud pattern evolution and weather at the ocean surface.

2. GOES SATELLITE SUPPORT FOR ERICA

A special GOES East schedule was developed for ERICA which provided 30 minutes of rapid scan imagery beginning at 0130, 0430, 0730, 1330, 1630 and 1930 UTC (Figure 1). This allowed satellite winds computations to be made six times a day using 15 minute interval imagery. These satellite winds were made in real time using the NESDIS automated winds program, but not edited. They are part of the ERICA research data set.

The schedule also provided 6 half hour periods of five minute interval images for storm diagnostic purposes. The research objectives for the use of this data were: (1) to evaluate the real time use of rapid scan imagery at the ERICA Forecast Center; (2) to produce a satellite winds data set at three hourly intervals for numerical model experiments using the ERICA data set; and (3) to assess the potential of the additional cloud drift wind information that is available when five minute intervals are used to track clouds.