

## 6. NOARL TROPICAL CYCLONE SUPPORT SUMMARY

### **Tropical Cyclone Forecaster's Reference Guide**

R. J. Miller and J-H. Chu

Development of a Tropical Cyclone Forecaster's Reference Guide has started at Naval Oceanographic and Atmospheric Research Laboratory (NOARL). The reference guide will be a computer-based information management system for JTWC forecasters. Using a mouse/menu interface, the user will have access to general tropical cyclone information, as well as current research results, thumb rules, definitions, case studies, etc. Since the guide will be computer-based, one can easily add new information to the system, or modify existing information.

### **Automated Tropical Cyclone Forecasting System (ATCF) Upgrade**

D. M. Roesser, C. R. Sampson, and R. J. Miller

The ATCF has been operational at JTWC since August, 1988. The system runs on an IBM-AT compatible machine using the MS-DOS operation system. This current configuration limits the capabilities of the ATCF. For this reason, work is underway to adapt the ATCF software to a UNIX environment. The UNIX operating system runs more powerful applications and is capable of multitasking (running more than one program at once). Additionally, software developed for UNIX is portable to a wide variety of computer systems (personal computers, workstations, or mainframes).

### **Tropical Cyclone Expert System**

C. R. Sampson and J-H. Chu

NOARL is developing an expert system for tropical cyclone forecasting. Using

forecasting thumb rules and research results such as objective technique error statistics, the expert system will objectively weigh the information based upon the current forecast situation and assist the forecaster in making decisions. More importantly, the expert system may alert the forecaster to possibilities not previously considered.

### **Personal Computer-Based Track Climatology**

C. R. Sampson and R. J. Miller

Currently the Fleet Numerical Oceanography Center (FNOG) in Monterey, CA runs all of JTWC's computer objective forecast techniques on the mainframe computers. With the increased power and use of personal computers, it is now feasible to run some of these forecast techniques locally at JTWC. NOARL is adapting the tropical cyclone track climatology forecast technique to run on a PC. The global data base contains best tracks since 1945 to present. At the end of each tropical cyclone season, new best tracks can easily be added to the data base.

### **NORAPS/ATCM Development**

C-S. Liou

Since the Advanced Tropical Cyclone Model (ATCM) is a special application of the Navy Operational Regional Atmospheric Prediction System (NORAPS), any changes made to NORAPS will also affect ATCM performance. In 1989-1990, NORAPS development efforts are focused on improving lateral boundary conditions, radiation calculation, and initialization procedures. The improvements are aimed at reducing forecast errors due to ill-posed lateral boundary conditions, to reduce large bias errors, and to reduce errors due to vertical interpolation between sigma and pressure levels.

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