

enter any of the names on the figure will be displayed containing the name, number and any other pertinent source. There will also be space to s of the contact, if made. The contacts o files, one where contact was made and wasn't established. During the hectic spill, the OSC may then review the files who should have been contacted were

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O/COTP/District waterways management ng more detailed and complex, requiring ing of large amounts of information. mplied through the use of computer ide rapid access to this information, contained in manuals, technical reports ary benefit of SRIS is to assist the ively exercising its authority in spill signed by law. The potential benefits e:

n of the technology and the spill tion, making the Coast Guard more ying and monitoring cleanup techniques;

t responding to spills;

hazardous materials remaining in the to affect the environment;

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for those responding to hazardous

COMPUTER-WORDED MARINE FORECASTS*

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ABSTRACT

A computer program, to aid forecasters in preparing marine forecasts, is presented. This program extracts information about significant marine weather systems and associated marine meteorological and oceanographic forecasts from the National Weather Service's forecast models. This information is used to produce a narrative forecast by assembling words and phrases that describe marine weather systems. A forecast produced by the program is presented and compared with the official forecast.

INTRODUCTION

The National Oceanic and Atmospheric Administration (NOAA) has the responsibility of providing oceanographic services necessary for safe and efficient marine activities on the high seas, in offshore waters, and along the seacoasts. Analyses and forecasts of oceanographic phenomena are provided to support shipping, fishing, offshore drilling and mining, and marine activities in these coastal areas.

Typically marine weather forecasts are distributed to marine users via radio in a narrative format. A computer program has been developed to assist forecasters in preparing such marine forecasts. The program, which extracts information about significant over-water weather systems from forecasts of the National Meteorological Center's (NMC) forecast models, selects and assembles computer-stored words and phrases to describe weather and wave conditions over the High Seas. The High Seas is defined as that portion of the open ocean seaward from the edge of the continental shelf for which the National Weather Service has forecast responsibility.

The purpose of this paper is to present a brief explanation of the existing program that produces computer-worded forecasts for the U.S. high seas. Also included is a discussion of the modified version of the program that will provide computer-worded guidance for offshore and coastal areas of the U.S.

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HIGH SEAS FORECASTS

Forecasts for the seven U.S. high seas areas contain three segments - heading, warnings, and synopsis and forecasts. These areas for the East Coast of the U.S. are shown in Figure 1a.

Warnings

The warnings portion of the message contains forecasts of storms and other significant weather systems with associated winds of 35 kts or greater. When several systems exist, the system with the highest wind speed is listed first with other systems following in order.

Central pressure and location of the system at the initial time of the forecast and at the 24- and 36-h projections are given. The direction of movement and speed of the system is also forecast. Maximum wind and wave conditions are forecast and referenced from the center of the weather system. In addition, averaged forecast wind and wave conditions are described. If there is no system, the word "none" is transmitted.

Synopsis and Forecast

This portion of the message contains a synopsis and forecast of weather systems with wind speeds less than gale force (less than 35 kt) but greater than 25 kts. Most of the wording for these systems are the same as for systems in the warnings portion of the message. However, the location of maximum wind and wave conditions and the average wind speed and wave height are not worded.

Computer-generated Matrix

A two-dimensional matrix of forecast times and meteorological/oceanographic related elements is formed. At each forecast hour (00, 24, and 36), the latitude and longitude of each low and high are entered. Also entered are the central pressure, the maximum and average wind speeds, and the relationship of the maximum wind speed from the center of each low and high. Wave heights are calculated from the maximum and average wind conditions.

Digital forecasts for the Atlantic Ocean are shown in a matrix format in Figure 2a. These forecasts were extracted from an NMC atmospheric forecast model. Keep in mind that these forecasts, which are valid beginning 1800 universal time coordinate (UTC) February 23, 1989, were available approximately 1 hour before the 2200 UTC issuance time. For each weather system, the five columns, from left to right, define the element, the unit of measurement of the element, and the forecast of the element at the first forecast hour and forecast hours 30 and 42 hours. Here the first forecast hour corresponds to hour 06 of the NMC model forecast from the 1200 UTC run.

How It Works

Let's go through the matrix for the two systems for each of the forecast projections beginning with the 6-h projection. At 1800 UTC on February 23 an area of high winds is forecast near 47 N and 38 W. Note 47/ 35 is displayed, in Figure 2a, next to "location of max wind" for storm or gale winds that are associated with a high pressure system.

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