Results of the Implementation of a Modernized Tropical Cyclone Operations Plan for a Coastal National Weather Service Forecast Office

John Purdy, Jeffrey Medlin, Randall McKee, Gary Beeler
National Weather Service Forecast Office, Mobile, Alabama

Beginning 2003, the National Weather Service (NWS) began preparing and disseminating forecast products in digital form. This paradigm shift, along with a significantly increased local briefing demand since the 2003 hurricane season, necessitated major changes in how the operations of a coastal forecast office during a landfalling tropical cyclone (TC). This paper summarizes major changes to the internal TC operations of the NWS Office in Mobile, Alabama. The NWS Mobile County Warning and Forecast Area (CWFA) was significantly impacted by Tropical Storm Arlene, Hurricane Cindy, Hurricane Dennis and Hurricane Katrina (including a 21 day full service backup of the NWS Office in New Orleans) during the 2005 hurricane season.

Prior to 2005, during a TC event, one station manager was assigned to direct activities during three eight-hour shifts each day. In this regime, forecast duties were aligned according to program (i.e., public, marine, aviation, warnings and statements). The onset of demands that came along with producing high impact digital forecasts (e.g., quantitative precipitation forecast grids, surface winds grids (including 6h Tropical Prediction Center updates), wave height grids and inner-site grid coordination for all weather element grids) for tropical events, along with a 'media-crush,' combined to make it nearly impossible to conduct business as usual.

Following methodical off-season planning prior to the onset of the 2005 hurricane season, the following changes were made: (1) designation of two managers per 12 h shift (an internal Operations Coordinator [OC] and an Emergency Management and Media Coordinator [EMMC]), (2) the designation of a high- and low-impact grid forecaster for each 12h shift and (3) the addition of a tropical cyclone warning meteorologist (TCWM). The Forecaster in Charge (FIC) of each shift is responsible for determining when and where resources are needed to ensure short-term forecast and warning excellence. A TCWM is designated when a TC can be observed on radar. When the TC is radar-observable, the TCWM uses radar products, along with other available critical meteorological information, to ensure that the most timely and accurate of information is transmitted via the most highly visible products such as the Hurricane Local Statement (HLS), NOWCAST (NOW), and Watch and Warning Products. Other highlights of this plan include: (1) unique and effective coordination between the OC and the EM on the latest winds and storm-surge forecasts so that internal operations and external briefings are consistent (2) more effective coordination between the OC and FIC so that all operational products are streamlined and consistent before they are issued (3) the OC has a time window each hour to quality control products and give feedback to the high- and low impact grid forecasters regarding anticipated needed changes (4) the high impact grid forecaster is responsible for short-term hazardous products relating to heavy rainfall, high inland winds and coastal flooding.

The following benefits were realized as a result of these changes: (1) much improved and more frequently issued HLSs with more emphasis on inland impacts (2) and ability for EMMC to handle more external questions (and provide more briefings) than ever before (3) better coordinated gridded forecasts that are more frequently updated (4) more meteorological detail given in short-term forecast and warning products as TC vortex traversed inland areas and (5) an ability to spend more time coordinating the details of the storm surge forecast.