

A CASE IN EXPERIENTIAL LEARNING: THE 2011 AWOC SEVERE FORECAST CONTEST

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1. Introduction

The Advanced Warning Operations Course (AWOC) was first delivered to National Weather Service (NWS) meteorologists and hydrologists by the NWS Warning Decision Training Branch (WDTB) in 2004, consisting of both a severe and core track (Ferree et al. 2004; Grant, 2005). In 2006 a winter weather track was added to address warning decision making for winter weather situations. The course has traditionally consisted of a combination of online modules, instructor-led training and Weather Event Simulator (WES) simulations. In order to give students an opportunity to put into practice knowledge gained while taking the AWOC severe course, an optional forecast contest was added in 2011.

2. Contest Overview

a. Logistics

The 2011 AWOC severe forecast contest ran for 17 weeks from Sunday,

April 3rd to Saturday, July 30th and was open to any AWOC Severe student who wished to participate. In order to guarantee anonymity, participants submitted a unique username to WDTB which would be used to track their progress during the contest. A student was allowed to create a forecast for a particular type of severe weather, for a location of their choosing, anywhere in the Continental United States (CONUS) as well as to issue a "null" forecast in the event that they did not expect severe weather at any point in the CONUS on that particular day. The students were also required to write a discussion in a format similar to a Storm Prediction Center (SPC) mesoscale discussion or an NWS area forecast discussion to support their forecast. In addition to the contest, WDTB instructors led a weekly GoToMeeting session during which students could receive feedback about their forecasts and discuss recent severe weather events and other topics of interest.

b. Rules

The forecast contest required students to issue at least 2 forecasts per week for 15 of the 17 weeks (30 forecasts total) of the contest. If a student wished to issue more than 2 forecasts for each week, or issue forecasts for all 17 weeks of the contest, only their 2 highest scores for each week and 15 highest weekly scores would count towards their final score. The forecast for a particular day was required to be issued by 16Z for severe weather expected to occur within the CONUS between the hours of 19 and 6Z of the day of the forecast. Students were also allowed to issue forecasts a day or more ahead of time if they so desired. The final requirement was that students were required to include a discussion with their forecast discussing their reasoning for issuing their forecast.

WDTB created a Google Docs form, accessible from the WDTB website, at which students would submit their forecast. From this form, students would drop a pin on a Google map to indicate their forecast point, select their forecast type of severe weather (tornado, wind, hail or null) and then enter a discussion explaining the reasoning behind their forecast. Each day, after 16Z students would be able to view a Google map, displaying not only their forecast but all the other forecasts issued for that day.

c. Scoring

Forecasts were scored using a program developed by WDTB instructors and the results were posted both in a tabular format and on a Google map accessible to all participants

displayed by their unique username. Forecasts were scored against local storm reports collected by the SPC. Scores for a particular day were tabulated up to one week later, in order to account for late or missing reports. Forecast scores were based on several factors: distance between the forecast point and the closest SPC report, whether the forecast was correct or not (required a report of the type of severe weather forecast within 25 miles of the forecast point or to be the closest report to the forecast point between 26 and 100 miles from the point) and whether significant severe weather (tornado rated EF-2 or greater, hail 2" or larger in diameter or wind speed of 75 mph or greater) of the forecasted type occurred within 25 miles of the forecast point.

d. Instructor-Student Interaction

Each week a discussion was led by a WDTB instructor via teleconference and GoToWebinar, allowing participants the opportunity to discuss their forecasts, forecast challenges and review the events of the past week with a subject-matter expert. The instructor reviewed any significant events and forecast challenges over the past week, discussed a pre-determined topic and answered any questions from participants, about either the science or contest logistics. These calls allowed for semi-immediate feedback for participants allowing them to refine any errors in and improve their forecast methods throughout the contest.

3. Results

Roughly half of the students enrolled in the full AWOC severe course participated in the forecast contest, with

36 students fulfilling all the requirements of the contest and a total of 1513 forecasts issued. At the conclusion of the contest WDTB sent out separate surveys to both the participants as well as their local course facilitator (normally the office Science and Operations Officer (SOO)).

Feedback was very positive and many participants felt that by participating in the contest, their knowledge and skills were further developed than if they had only participated in the traditional part of the course. The majority stated that they would suggest that future course attendees take part in the contest. In particular, the following comment from one participant illustrates the value that can be extracted from such a contest: "In my case, we went much of the contest period without a drop of precipitation in my county warning area (CWA). I would have quickly become rusty in applying situational awareness if I had been focused only on my location. But by participating in the contest, I was able to put myself in the mindset of many offices daily and really gained a lot of knowledge just by giving it a daily try and then going back and seeing where I was lucky and where I needed to learn more. Definitely a 'fantastic' teaching tool, everyone should participate no matter where they are located, as things are different in every CWA." Another comment received from a student stated: "I think that the forecast contest is the 2nd most important part of AWOC/DLOC (Distance Learning Operations Course) next to the 1 week training down in Norman. This was an excellent way to apply the forecasting skills to a real world scenario."

SOOs who responded to the survey felt that the contest provided useful opportunities for their trainees to apply AWOC Severe principals in an operational setting and generally gave other positive feedback on the contest as well. One SOO provided the following feedback on the contest: "I think this was a positive experience for Ashley. She was totally into this and talked about it daily. Ashley is probably one of the LEAST Weather Weenie type MITs that I have worked with, but she really became one during the AWOC Severe contest, excellent program." The feedback obtained from both the students and their training facilitators has encouraged WDTB to continue and improve the forecast in the future.

4. Conclusion

One of the primary shortcomings of the contest is that there was not an impartial way to measure the improvement both in understanding and practical use of the AWOC severe principals by those that participated in the contest and those that did not. There are plans to construct and proctor a pre- and post-course case study to participants in the 2012 version of the contest in an attempt to better quantify improvement by those that take part in the contest. Other issues to be further studied include the disadvantages faced by participants in the Pacific time zones as well as those in Alaska and Hawaii due to the 16Z submission deadline and perhaps a better way to receive and review severe wind reports.

In summary, 2011 marked the first time WDTB ran a forecast contest as an additional component of the AWOC severe course. While it was

disappointing that not all students chose to participate, it was extremely encouraging that those that did participate found the experience enriching and valuable to their understanding of the course content. The amount of participation and the excitement of those that did participate, combined with the feedback received from everyone involved in the contest, leads WDTB to believe that this was a

very valuable experience and one to be expanded and continued in the future.

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