

Peak Performance



NWS Office of Climate, Water, and Weather Services
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Do You Know About the NOEES?

By Brent MacAloney, NWS Headquarters

Over the last few years, an ongoing effort has been underway at NWS Headquarters to develop a system to track outreach and education events conducted across the agency. This effort has been led by Mike Gerber and Chris Maier of the Office of Climate, Water, and Weather Service's (OCWWS) Awareness Branch. With the help of programmer Mike Smith, a prototype system was developed and deployed on the OCWWS Intranet. The name of this system is the NWS Outreach and Education Event System (NOEES).

After testing the NOEES prototype system for approximately a year and a half and gathering feedback from those using the program, Chris and Mike approached Doug Young and Brent MacAloney of the Performance Branch about having an operational NOEES system developed in their shop. Since the Performance Branch was already running similar data collection interfaces, such as storm data, it made sense for this new NOEES program to piggyback on the already existing performance management infrastructure.

[Continued on next page...](#)

Page 1

Do You Know About NOEES? – Continued from Page 1

After several months of collaboration between Brent, Chris, Mike G., and Mike S., a specifications document was drafted and passed along to Lhou Mechtat, the programmer in the Performance Branch who would go on to develop the new NOEES. The goal of this new program was to continue to log outreach and education events, while making the process more streamlined, cutting back on the amount of time the users have to spend logging events, and incorporating a majority of the feedback given about the original system.

Some of the enhancements incorporated into the new system are:

- Event integration with Google Calendar and Microsoft Outlook
- Customizable list of events, venue locations, and time zones
- Enhanced reporting and administrative capabilities
- Entry forms that only show “mandatory” fields instead of all fields
- Condensed list of events, audience types, and program areas

Using this new program, all NWS offices will be able to track any outreach and education activities that take place. This could be something like a SKYWARN spotter training session, a radio interview, or the judging of a science fair at a school, just to name a few. Then at the end of the year, if someone asks how many education and outreach events have been conducted by people in a given office or region, a report can be easily generated to show the details on what occurred during the year. **Figure 1**, located on

the next page shows an example of logging a SKYWARN spotter talk event in the NOEES system.

Along with the new program, there will be an updated policy document providing some guidelines on what should and should not be entered into the NOEES. This policy document, NWSI 10-1804, Service Outreach Reporting Requirements, is currently under review and should be signed into policy in late Winter / early Spring 2011 and should coincide with the new NOEES system becoming official.

The Performance and Awareness Division also plans on making training available via the NWS Learning Management System (LMS) and also via various GoToMeetings. Please check the Performance Management website for more information as to when these training sessions will be made available.

As with all of the programs developed within the Performance Branch, we are always curious in the feedback that you may have about our systems. Please feel free to use the “Contact Administrators” link on the NOEES page to submit any feedback that you may have about the system. We welcome any comments or suggestions that you may have on what has been developed.

You can find the new NOEES program on the Performance Management website at the following location: <http://bit.ly/h9FX4W>

Do You Know About NOEES? – Continued from Page 2

The screenshot shows the 'PERFORMANCE MANAGEMENT' header with the NWS logo and 'NWS Outreach & Education Event System (NOEES)'. Below the header is a navigation menu with links for Verification, Evaluation, Storm Data, Training, Data Archives, Resources, About, Report a Bug, and Request a Feature. A user is logged in as 'brentm!' with links for Logout and Account. The breadcrumb trail is 'Home >> Verification >> NOEES'. The main content area is titled 'Add New Event (Short Form)' and includes instructions to log an event. There are two tabs: 'Mandatory Info >>' (active) and 'Optional Info >>'. The form fields include: 'Event Type' (SKYWARN Spotter Training), 'Start Date/Time' (12/21/2010 11:00) and 'Time Zone' (EST), 'Total Events' (empty), 'SKYWARN Counties' (IL-C007 BOONE, IL-C031 COOK, IL-C037 DE KALB, IL-C043 DU PAGE), 'Location Information' with 'My Saved Venues' (Add New) and an 'Edit/Enter new venue' checkbox, 'Total Attendees' (empty), and 'Person Hours' (empty). Navigation buttons '<< Back' and 'Next >>' are at the bottom of the form, along with 'Save' and 'Cancel' buttons. A footer contains copyright information for the National Weather Service and a page update timestamp.

Figure 1: Screen capture of the new NOEES interface showing what it would be like to log a SKYWARN spotter talk event.

Performance Branch Enhances Functionality of *GPR*A Metric Report Interface

By Doug Young, NWS Headquarters

We've listened to your feedback and made some improvements to the NWS Government Performance and Results Act (GPR)A metric reports that we think you'll like.

The page has been modified to include larger

graphs and long term annual performance trends including past and future goals (Figure 1). An additional feature is the ability to overlay any two years of performance trends for comparison (Figure 2). GPR)A metrics can be viewed at the national, regional, or local forecast office level (where applicable).

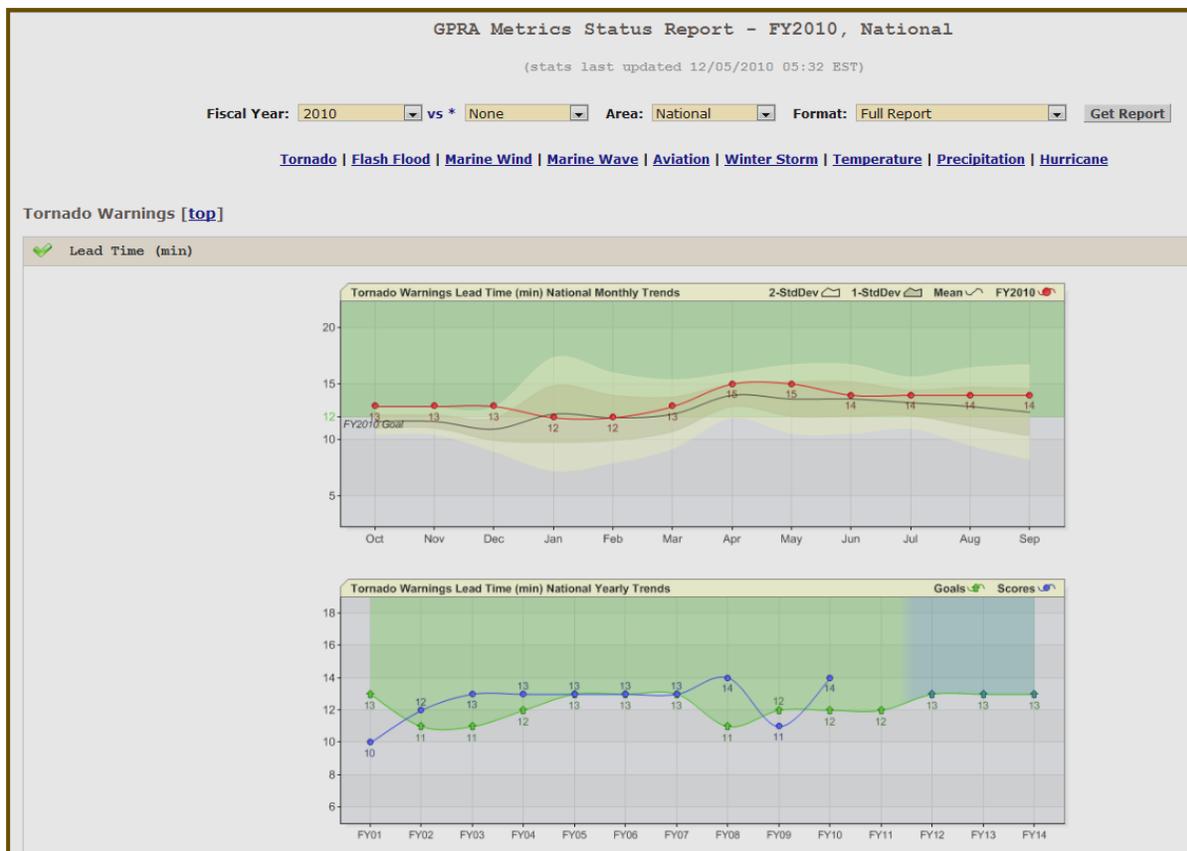


Figure 1: GPR)A Metrics report page showing monthly trend (top) and yearly actuals with goals (bottom).

Performance Branch Enhances Functionality of GPRA Metric Report Interface – Continued from Page 4

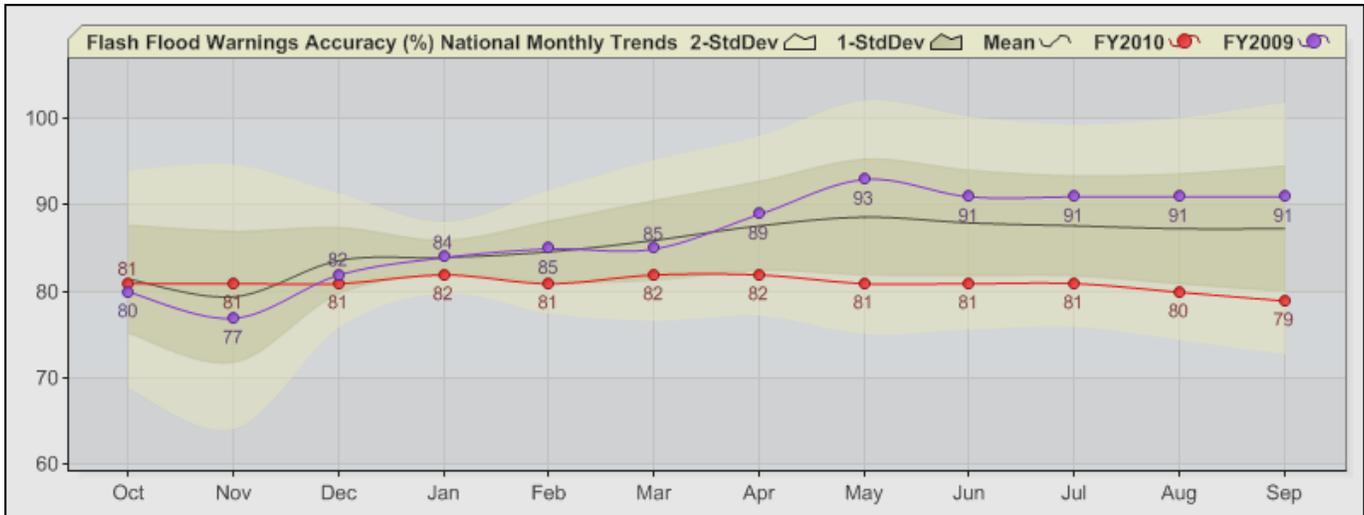


Figure 2: Flash Flood Warning Accuracy (%)– FY09 (purple) vs. FY10 (red).

These modifications will allow for more convenient tracking capability in the short and long term and it is intended that they are of high enough quality to be imported directly into reports and briefings.

The final FY10 GPRA scores are now available. To view the national results, or perhaps capture your regional or local graphics for a

report or briefing, check out the new interface on the Performance Management website at the following URL:

<http://bit.ly/gchoeR>

If you have any comments or suggestions for further enhancements, please contact Doug Young or Sal Romano in the Performance Branch. ■

New Methods in Forecast Objectivity

By Jonathan Rutz, Western Region Headquarters

Over the past few years, Western Region Headquarters (WRH) Scientific Services Division (SSD) has focused on verification as a means of improving public forecasts. This approach has been well-received by the field and has led to more accurate PoP and QPF fields, although there is still work to be done.

methods aimed at increasing the level of objectivity involved in the forecast process. Spearheading this effort is the discussion and integration of some very informative tools into regional conference calls with the WR SOOs. In particular, two tools summarizing the strength and confidence associated with weather systems affecting the western United States are receiving special consideration.

New Methods in Forecast Objectivity – Continued from Page 5

High-impact weather has become an operational focus in recent years, and the anomalies associated with specific events provide one useful means of assessment. The model anomalies page¹ (Figure 1), based on the work by Graham, Grumm, and Smallcomb, allows forecasters a quick glance at the GEFS (Global Ensemble Forecast System) forecast anomalies for certain variables over the western United

States. Then, forecasters can readily identify the likelihood of high-impact weather across frequency of a given event.

Another tool² (Figure 2), developed at SSD, provides valuable information regarding the expected skill of model forecasts. It compares daily model spread to that from a historical archive and relates this uncertainty to the

1. <http://www.slc.noaa.gov/slc/projects/anomalies/index.htm>
2. <http://165.92.200.49:8080/modelconf2.php> (AWIPS access only)



Western U.S. Anomaly Page



The rankings shown on this page are based on the original methodology set forth by Hart and Grumm in their 2001 Monthly Weather Review article "Using normalized climatological anomalies to objectively rank extreme synoptic-scale events". The events listed and documented in this page represent anomalies across the western U.S. and the adjacent coastal waters. *Special thanks go to Rich Grumm for all of his efforts regarding the operational use of tropospheric anomalies! Page maintained by Randy Graham.*

Reference Material	Forecast Information	M Value Info	Case Studies and Presentations
Study Domain	Forecast Anomalies - Western U.S. Domain	Top 20 MTotal	Investigating Specific Event Types in the Western U.S Utilizing Standardized Anomalies - AMS WAF Poster 2007 - Graham and Grumm
Utilizing Normalized Anomalies to Assess Synoptic Scale Weather Events in the Western United States - Graham and Grumm early online-release	Anomaly Situational Awareness Table - Western U.S. NW Domain SW Domain SC Domain SE Domain NC Domain NE Domain Alaska Domain	Top 10 MHeight	Utilizing Standardized Anomalies to Assess Synoptic Scale Weather Events in the Western U.S - AMS WAF Presentation 2007 - Graham and Grumm

Figure 1: Western U.S. Anomaly Page

On the Road Again...



"There are always a few tools that no one knew about, which stresses the importance of continued outreach from my branch".

By Brent MacAloney, NWS Headquarters

After a grueling spring and summer 2010 travel season that had me in 21 different states (several of them multiple times), I decided I was going to spend the fall season relaxing here in Maryland. Apparently I don't do the whole "relaxing" thing very well. I got bored, so I headed out to Nashville and Kansas City to do some training. I guess the great Southern rock band Lynyrd Skynyrd described it best when they said, "Guess I was born with a travellin' bone."

Nashville, Tennessee

You are probably well aware that Nashville had an amazing amount of rain and flooding earlier this year. In fact, the event had such a widespread impact the NWS conducted a service assessment on the products and services provided during this event. So it seemed like a logical office to visit and help them understand the verification scores to further improve their forecast and warning products.

For this trip I was accompanied by a fellow meteorologist in the Performance Branch, Chuck Kluepfel. We headed out to Nashville bright and early on November 15th so that we could make the most of our three days in town. As we arrived on the first day, we headed right over to the Nashville forecast office to meet the forecasters. Chuck spent the afternoon giving a great presentation

on understanding contingency tables and skills scores, as well as local performance trends with regards to max/min temperature, probability of precipitation, ceiling, visibility, and sky cover to those in attendance.

On November 16th, we got to the forecast office early to brief those forecasters who were working the midnight shift, but wanted to know more about how they could improve their performance. So Chuck went over his presentation again for those who weren't around on the first day. By the time Chuck had finished, some forecasters from WFO Louisville and WFO Memphis had arrived and it was time for me to go over my usual storm data, verification, and performance management program overview.

Both presentations went over very well with those in attendance very engaged in discussion. We received really good feedback on the point-based flood warning verification, GPRA trend plotter, and the new NWS Outreach and Education Event System (NOEES). Note: All of these systems will be available on the Performance Management website by the time this issue of the Peak Performance newsletter is released.

Finally on November 17th, prior to leaving, Tom Johnstone (WCM at the Nashville office) took me, Joe Sullivan (WCM at the Louisville office), and Chuck to a disaster drill at the Tennessee

On the Road Again – Continued from Page 8

Tennessee Emergency Management Association (TEMA) facilities in Nashville. They were running a nuclear reactor leak drill (**Figure 1**). It was great seeing how all of the various entities within Tennessee work together to handle disasters of various types.

After the brief visit to TEMA, the four of us headed over to the Grand Ole Opry and Gaylord Opryland Hotel. This was the scene of some of the most devastating flooding that affected the Nashville area back in May 2010 (**Figure 2**). It was amazing to walk around and know that flood waters had engulfed these beautiful local landmarks. It really gave me a renewed appreciation for the power of Mother Nature.

Overall, it was a great trip and I want to thank Jason Wright, Tom Johnstone, and Larry Vanzo of the Nashville office for being gracious hosts, helping us get a better understanding of

management needs, and showing us around the Nashville area. I can speak for Chuck when I say we had a great experience and learned a considerable amount.

Kansas City, Missouri

In December, every other year, I make a trip out to the NWS Training Center (NWSTC) in Kansas City, MO to teach part of the WCM/SCH Training Course. This is an excellent opportunity to not only train some of the best and brightest employees in the NWS, but also to catch up with what is going on at Central Region Headquarters, which is co-located with the NWSTC.

I arrived at Central Region Headquarters (CRH) on December 8th. Once settled in, I immediately began discussing a project I am leading to generate a list of Office of Management and Budget (OMB) approved questions, which forecast offices can use to gather feedback from users of their products and services. Since this



Figure 1: A view of the Emergency Management Association (TEMA) operations floor during a disaster drill. Photo by Brent MacAloney

On the Road Again – Continued from Page 9



Figure 2: Brent standing outside the Grand Ole Opry in Nashville. Had he been standing there in May 2011, flood waters would have been well over his head. Photo by: Brent MacAloney

is a new project that is being worked on by representatives from all regions across the NWS, I wanted to sit down with some of the employees of CRH to brainstorm how the process can be made easier for the regional representatives. I will have more to say on this topic in the Spring 2011 Peak Performance Newsletter.

After the NWS Survey Team meeting, I sat down with about 10 CRH employees and gave them a 2-hour long overview of the Performance Branch. This is my typical “dog and pony” show that I like giving to regional headquarters staff every two or three years. This presentation provides an overview of the Performance Branch, the tools we have available on our website for monitoring performance, and what is being programmed in the near future. We finished up by discussing regional and forecast office needs not currently being met in the Performance Management program. As with almost every regional discussion, I love showing all the new tools that we have on our website.

There are always a few tools that no one knew about, which stresses the importance of continued outreach from my branch.

On the morning of December 9th, I had the opportunity to sit in on the WCM/SCH Training Course, prior to teaching the course in the afternoon. Some of the topics I covered that afternoon were on the Performance Branch areas of responsibilities, available performance tracking tools, storm data, how we import warnings, the NOEES, and the rules behind short and long-duration warning verification.

Overall, I thought my section of the course went over well. There were a lot of great questions asked by the WCMs and SCHs in attendance and everyone was really engaged for the whole afternoon. The group really seemed to like the new NOEES program (see the NOEES article on page 1 of this issue). In particular, those in attendance indicated they liked the flow and ease of use that was

On the Road Again – Continued from Page 10

in the new program. It was apparent this will be a powerful tool for trying to define the amount of time spent across the agency with regard to outreach and education activities.

There was also a lot of interest and discussion on the collection of damage information in storm data. This is something I gave a poster presentation on at the Annual AMS Conference in Seattle, WA in late January 2011. Damage estimates are very tough to formulate, so the WCMs stressed the importance of getting them as much information as possible so that they do not have to guess or spend the majority of their time tracking down damage values.

I will speak more on this topic in the Spring 2011 newsletter as well.

Speaking of the Spring 2011 newsletter, I hope to be telling you about all the great adventures I had in Seattle at the AMS Conference, as well as a few other trips that I have in the plans. Until then, I hope all your travels are safe and that you have a great beginning to 2011. ■

Cheers!
Brent

*Just can't
wait to get
back
on the
road again!*



Are You Meeting the Needs of Your Fire Weather Customers?

By Mark Struthwolf, WFO Salt Lake City, UT

As Fire Weather Program Manager at Weather Forecast Office Salt Lake City (WFO SLC) since the 2007 fire season, I decided it was time to see whether the verification statistics that we track so closely for our Red Flag Warning (RFW) program were actually serving the needs of the fire weather community, those entrusted with protecting our nation's lands and its inhabitants. Specifically, I was interested in the Probability of Detection (POD), False Alarm Ratio (FAR) and Critical Success Index (CSI) score trends for RFWs concerning low relative humidity and gusty winds. The score trends for each of these verification stats from 2007 to 2009 were

favorable and superior to the goals set by Western Region Headquarters (WRH). Another important measure of success, however, is lead time. Its trend, unfortunately, was downward during the course of the past three years, although still above the goals set by WRH.

The downward trend in RFW lead time was disconcerting to me, so I investigated potential causes for this downward turn. I looked back over the past three years and found four program changes at WFO SLC that potentially had an impact. Changes included (1) an increase in the number of multiday RFWs issued, (2) wind criteria for two fire weather

Are You Meeting the Needs of Your Fire Weather Customers? – Continued from Page 11

zones was increased, (3) emphasis on more collaboration with the Eastern Great Basin Geographic Area Coordination Center (EGB GACC), and (4) an increased use of GoToMeetings. Results of my investigation indicated that multiday RFWs and collaboration with the EGB GACC had no apparent impact. Increased use of GoToMeetings had a possible impact, while the increase in wind criteria for two fire weather zones showed some impact.

Consequently, I determined that the forecaster mindset on the RFW lead time needed to be addressed, even though the WFO was surpassing the WRH goals. Before embarking on this endeavor, I needed to obtain data from our fire customers on their needs, so I prepared the following questionnaire (**Figure 1**).

Results indicate that the goals set by the WRH for POD and FAR are very realistic and meet

the more important workable and optimal lead time responses, however, indicate that we are falling way short of the times needed by the decision makers. This information is invaluable because it dictates how far in advance the SLC WFO staff needs to issue RFWs in order for them to be utilized effectively by our fire weather community. These results were presented at numerous meetings, including those with our interagency fire centers and the WFO SLC staff during the 2010 in-house Spring Seminar, stressing the urgency to be proactive when issuing RFWs. Forecasters were kept abreast of the monthly verification statistics throughout the fire weather season, which showed their efforts were making huge improvements in lead time without jeopardizing the FAR. The final compilation for the 2010 fire season showed that WFO SLC improved RFW lead times for low relative humidity and gusty winds by nearly eight hours.

Your Opinion Counts!

- | | |
|---|---|
| 1) What is the minimum workable lead time for Red Flag Warnings (RFWs)?
2, 4, 6, 8, 12, 18 or 24 hrs | Avg = 16 Range = 8-24 |
| 2) What is the optimal lead time for RFWs
24, 36 or 48 hrs | Avg = 30 Range = 24-36 |
| 3) False Alarm Ratio for RFWs...Out of ten, how many "non-events" are acceptable?
1, 2, 3, 4 or 5 | Avg = 2.3 (FAR = 23%) Range = 1-3 (10-30%) |
| 4) Probability of Detection for Red Flag Warnings should be?
>80, >85, >90 or 95% | Avg = 88% Range = 80-95% |

Figure 1: Questionnaire presented to fire customers. Results from 14 Fire Management and Assistant Fire Management Officers were compiled and are highlighted in yellow.

Are You Meeting the Needs of Your Fire Weather Customers? – Continued from Page 12

As seen in Figure 2a, this effort reversed the observed downward lead time trend. Figure 2b shows that FAR was not jeopardized in

2010, and that only a slight decrease in POD and CSI occurred. Our proactive approach made a positive impact on the fire weather community.

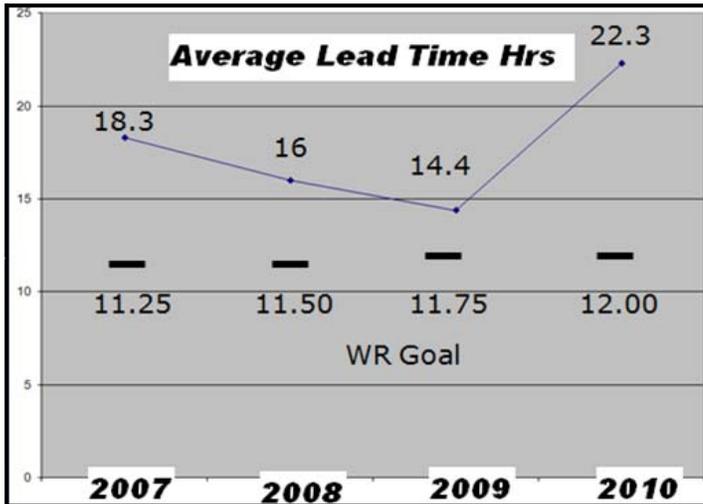


Figure 2a.: Downward lead time trend from 2007 to 2009, then a vast improvement in 2010.

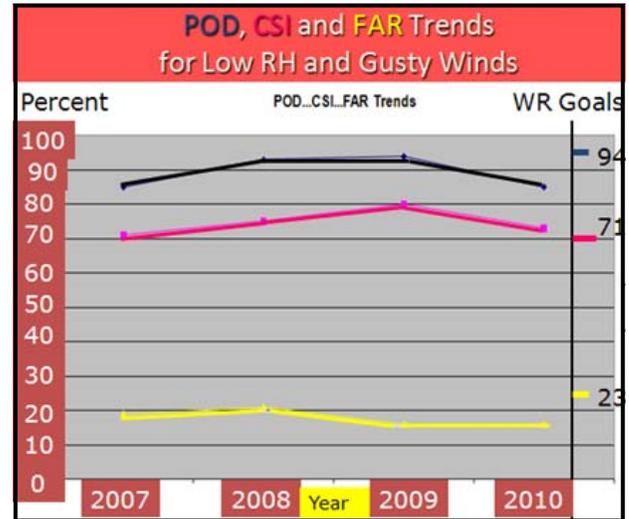


Figure 2b: Although there was a slight POD and CSI downward trend in 2010, the FAR remained at 16%, and well below the WR Goal of 23%.

USING FEEDBACK THAT WORKS!

“When performance is measured, performance improves. When performance is measured and reported back, the rate of improvement accelerates.”

Thomas S. Monson

Service Assessments Help the NWS Improve Public Service

By Susan Buchanan and Doug Young,
NWS Headquarters

Each year, the National Weather Service (NWS) issues approximately 734,000 weather forecasts, 850,000 flood forecasts, and 50,000 potentially life-saving, hazardous weather-related warnings in communities throughout the country from 122 local forecast offices and additional national and regional centers. As an agency of the United States Government, our mission is to provide forecasts and warnings for the protection of life and property and the enhancement of the national economy.

While people can't control dangerous weather, they can control how they prepare for it and the personal decisions they make before, during and after it strikes. The NWS engages in community outreach and education to train people on how to receive weather forecasts and warnings, how to prepare for severe weather, and what actions to take to protect themselves before and during severe weather.

Yet each week we hear about weather-related tragedies on the news—a woman struck and killed by lightning while on a mountain hike;

dozens of campers drowned in a flash flood

or a mobile home community demolished by a tornado. Given all the time, effort and funding spent on the country's state-of-the-art forecast and warning systems, these sad events leave us all questioning, is there anything more we could have done?

Learning, Growing, Improving

When major weather events cause multiple fatalities, numerous injuries, significant impact to the economy or extensive public and media interest, the NWS helps turn tragedy into a learning opportunity. Within days of such an event, the Performance Branch in conjunction with the NWS regions mobilizes a team of NWS and external experts to study what happened. The study is called a "service assessment," an independent evaluation of the agency's performance (Figure 1). This evaluation helps identify and share best practices in operations and procedures, and identify and address any service deficiencies.

Service Assessments

NWS conducts Service Assessments to evaluate its performance after significant hydrometeorological, oceanographic, or geological events resulting in warning or other operational activities. Assessments may be initiated when one or more of the following criteria are met:

- Major economic impact on a large area or population
- Multiple fatalities or numerous serious injuries
- Extensive national public interest or media coverage
- Unusual level of attention to NWS performance

Assessment teams, composed of experts from within and outside the NWS, evaluate activities before, during, and after events to determine the usefulness of NWS products and services. Finally, the team generates a report, which serves as an evaluative tool to identify and share best practices in operations and procedures, and identify and address service deficiencies. The goal of the activity is for the NWS to continuously improve its services to the nation.



South Pacific Basin Tsunami, September 29-30, 2009. Photographs of the damage incurred on the island of American Samoa as a result of the September 29 tsunami. Photos courtesy of the Associated Press (top left) and Gordon Yamasaki, NOAA National Marine Fisheries Service, Pago Pago.

Figure 1. A sample service assessment page from the NWS Office of Climate, Water, and Weather Service's Website containing assessment reports since 1987.

Service Assessments Help NWS Improve Public Service – Continued from Page 14**The Service Assessment Team**

A service assessment team consists of approximately 6–12 people, including a team leader who has demonstrated leadership and project management skills. The team leader sets the schedule for team activities, assigns tasks, keeps the team focused, adheres to the team charter, and briefs the NWS Corporate Board on the team's progress and its findings. The team leader's role is to remain objective and maintain the independence of the team.

Other team members include at least one subject matter expert for the type of event in question; at least one person with experience in field operations; and a public affairs officer. The Performance Branch also recruits experts from outside the NWS with experience related to the event, a behavioral science expert, and others as needed.

The Service Assessment Process

The service assessment process begins when local recovery efforts are sufficiently advanced to allow team members access to the affected area, and when emergency management, local officials, NWS personnel, and the media have time to interact with team members. The team generally remains in the field for five to seven days.

While in the field, the team interviews a number of people involved with the weather event, including emergency managers, citizens, friends and neighbors of victims, local officials, police and fire rescue workers and the news media. The team reviews a number of things while in the field, including: did the local weather forecast office issue warnings for the event? What was the lead time? Did the community receive the

warning and, if so, how was it received? Was forecast and warning preparation and dissemination equipment working properly during the event? If not, why not? Did people respond to the warning by taking action to protect life and property? If not, why not? Other things the team reviews are the use of NOAA Weather Radio in the community, the media's coverage of the event, and emergency management/local rescue's response in the aftermath.

The team spends a significant amount of time with the local forecast office (or river forecast center), looking at things like staffing levels, operational procedures, and equipment maintenance. As soon as the team completes field interviews, they return to their offices and begin to draft and compile a report. The final report is completed within 180 days.

The Service Assessment Final Report

The final report contains a summary and timeline of the event, a recap of the team's efforts in the field, the forecast process during the event, including forecast tools and data, and a series of best practices, facts, findings, and recommendations offered by the team. Reports often include copies of forecast and warning products, maps, radar imagery, and damage photos (**Figure 2**). Agency leaders place high value on the work of service assessment teams. Once the final report is completed, implementing necessary improvements becomes one of the agency's highest priorities.

Tracking Improvement

Once finalized, recommendations in a service assessment report are tracked until they are fully implemented, or otherwise closed for

Service Assessments Help NWS Improve Public Service – Continued from Page 15

valid reasons. In some cases, improvements get underway before the final report is completed. In other cases, recommended changes take time to work through the budget and software development processes.

Interesting Findings

Social science is a growing area of interest among meteorologists, and an area of study that is now folded into all major service assessments. The NWS has found that severe weather forecasts and warnings are usually widely communicated in communities through a variety of ways – television and radio, word of mouth, sirens and NOAA Weather Radio All Hazards. Weather alerts over the Internet, through mobile devices and social media are a growing trend. However, receiving the alert doesn't always result in people taking appropriate action to stay safe during severe weather, which is why we study the human side of the equation in addition to the mechanics of its own performance.

Human behavior is driven by multiple factors, including perceptions of personal risk. People don't often believe they are at risk until they can see it for themselves and by that time it's usually too late to act. Social science research has led the NWS to incorporate a number of changes in products and services, including moving risk and recommended action to the top of warning products.

Since the NWS began evaluating performance in 1957, nearly 140 service assessments have been conducted. Through the years, these studies have helped us vastly improve forecasting and public warning capabilities, strengthen public-private partnerships, and better meet the weather information needs of local communities, businesses and private citizens.

To view and download service assessment reports, please visit the Historical Library of Service Assessment Reports on the Performance Management Web page at the following URL: <https://verification.nws.noaa.gov/sats/sa/>. You may also view reports from the Office of Climate, Water, and Weather Service's public Web page at: <http://bit.ly/3nbU6u>. ■

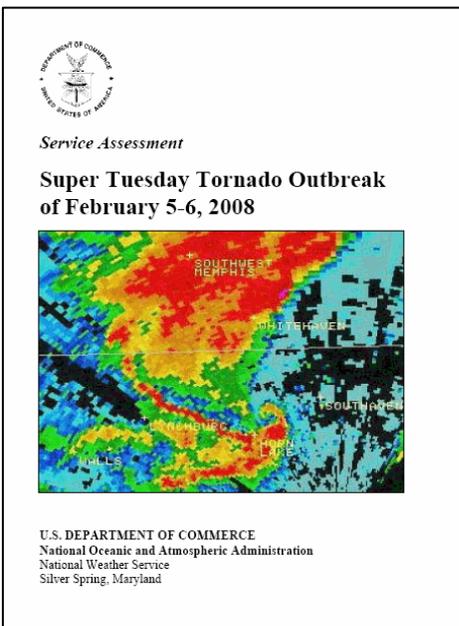


Figure 2. The cover of a sample service assessment report on the NWS Office of Climate, Water, and Weather Service's Website.

Douglas C. Young

Chief, Performance Branch, Office of Climate, Water, and Weather Services

National Weather Service

Susan Buchanan

Public Affairs Specialist

National Weather Service

Point-based Flood Warning Verification Goes Live!

By Brent MacAloney, NWS Headquarters

It's been a long time coming, but the NWS now has an official point-based flood warning (FLW) verification system. This new system is an upgrade to the prototyped point-based flood warning system that has been on the Performance Management website for the last year.

This new FLW verification system is similar to the rest of the "Stats on Demand" systems featured on the Performance Management website in that it allows users to "parse" the data however they wish to see it. Users can run custom verification reports by date, area, and river response. The data in these reports can then be grouped nationally, regionally, or by WFO, RFC, state or forecast point. The output can then be displayed in a tabular summary or detailed report showing all warnings and events.

Although most of the "Stats on Demand" programs created by the Performance Branch are designed to track performance over time, this new FLW verification system will give forecasters a better understanding of how they performed during individual flooding events through the use of a new graphics program. Using a software package named ".net Charting," Performance Branch programmer Robert Jones was able to create amazingly detailed timelines outlining the "beginning-to-end" warning service provided at each river flood warning point on the detailed reports.

Warnings for this FLW verification system are collected the same way we collect all other

products, via the NOAA Satellite Broadcast Network (SBN). The products are stored on our servers in Kansas City, imported, and verification is run every 15 minutes.

Events used in the FLW verification system come from the Hydrologic Valid Time Event Code (H-VTEC) line of the final Flood Statement (FLS) product issued during an event. Since the H-VTEC line logs the Flood Rise Above, Flood Crest, and Flood Fall Below, we can use this to define an event. Although it is true that this set of events does not include completely unwarned events for which no FLW product was issued, it serves as the best event data set that we can use at the current time. Users of these data should feel comfortable that the data set is mostly representative of what service is being provided.

Warnings and events information can then be verified and plotted in the FLW verification Stats on Demand program using the "Include Warnings" report type on the selection interface. A detailed list of all warnings and events will be generated and the user can click the "Plot" button to get a detailed timeline of all warnings associated with the event.

As shown in the following graphic (**Figure 1**), users have the ability to clearly see how the lead time and timing error are formulated, as well as how the forecasted rise above, crest, and fall below compared to the actual event. This can be a very helpful tool in finding your office's warning biases with regard to flooding.

Point-based Flood Warning Verification Goes Live! – Continued from Page 17

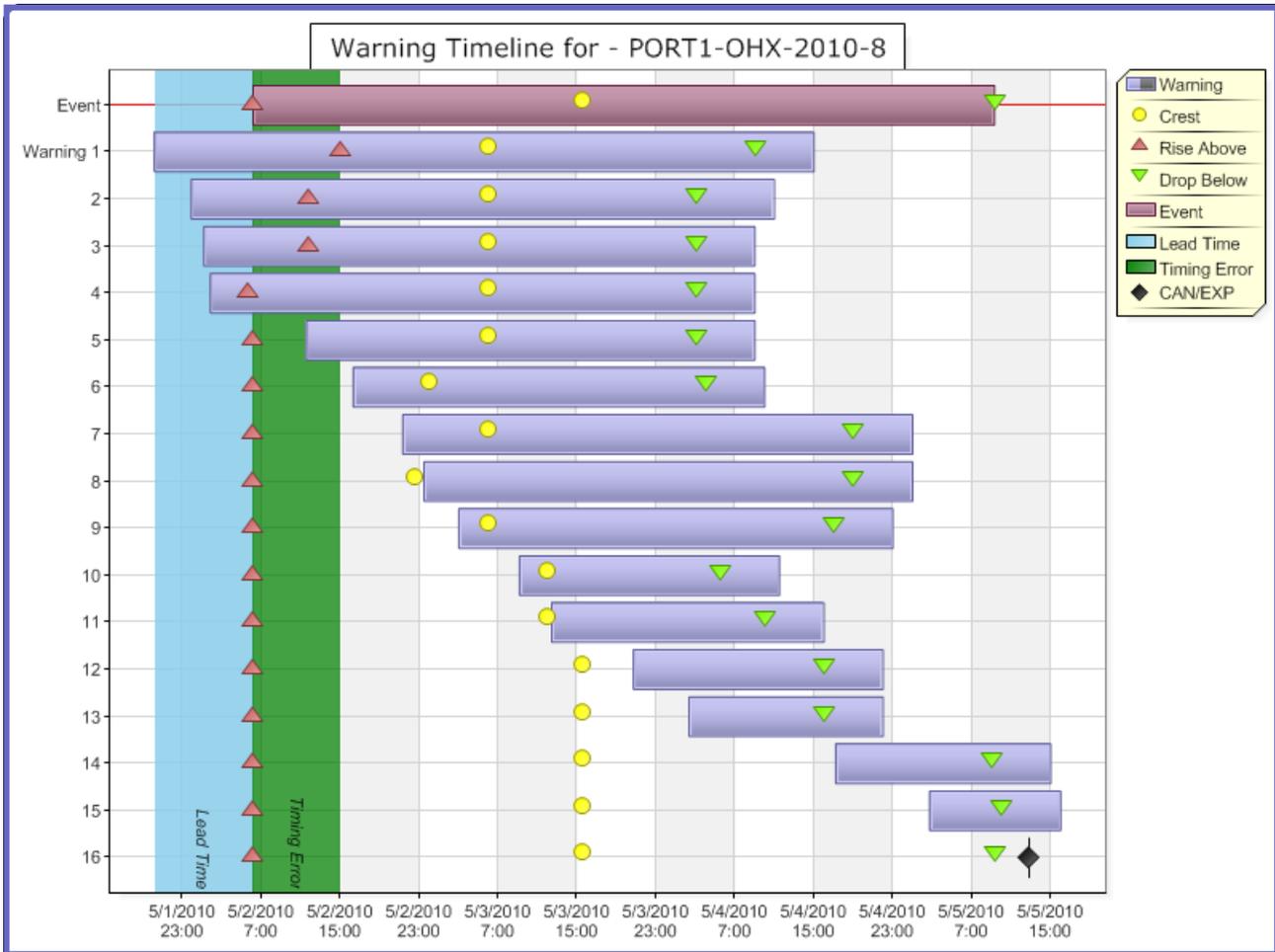


Figure 1: Graphical output from RFW Verification.

The Performance and Hydrologic Services Branches also plan on making training on the use of this system available via the NWS Learning Management System (LMS). Please check the Performance Management website for more information as to when this training module will be made available. As with all of the programs developed within the Performance Branch, we are always curious in the feedback that you may have about

our systems. Please feel free to use the “Contact Us” link at the bottom of the Performance Management website to submit any feedback that you may have on what has been developed.

You can find the new FLW verification program on the Performance Management website at the following location: <http://bit.ly/eBG5Ot>.



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Winter 2010/11
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Web Links

Stats on Demand
<https://verification.nws.noaa.gov>

NDFD Verification:
<https://bestpractices.nws.noaa.gov/contents/ndfd-stats/verification/>

(National Verification)

<https://bestpractices.nws.noaa.gov/contents/ndfd-stats/wfosummary/>

(WFO Verification)

Real-Time Forecast System:
<http://rtvs.noaa.gov/>

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Friday, March 25, 2011

