Peak Performance Newsletter

Performance & Evaluation Branch
Operations Division
NWS Office of Chief Operating Officer
Silver Spring, Maryland

This Issue

NWS FY2016 Q2 Customer Satisfaction Survey Update

Sal Romano, NWS Headquarters

The Performance and Evaluation Branch in the Operations Division of the Office of Chief Operating Officer continues to contract with the Claes Fornell International (CFI) Group to assist in the development and implementation of the NWS customer satisfaction surveys. The CFI Group staff are experts in the science of customer satisfaction and use the American Customer Satisfaction Index (ACSI) methodology. The ACSI was created by CFI Group's founder, Claes Fornell, under the auspices of the University of Michigan. It is the only uniform measure of customer satisfaction in the U.S. economy and is used by more than 200 companies and government agencies.

This article is about the Fiscal Year 2016 second quarter, continuous, pop-up survey on NWS websites (e.g., weather.gov, forecast.gov, WFOs' web pages) that was "live" from early January 2016 to early April 2016 and the Internet Panel survey that was taken in January 2016. This winter survey provided continuous data collection via the pop-up survey as respondents were exiting the websites, resulting in a total of 6,204 respondents over the 3-month period. In addition, there were 487 respondents to the Internet Panel.

The pop-up survey respondents had an Overall Satisfaction score of 82, as is shown on page 2 **(Figure 1)** from a screen

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NWS FY2016 Q2 Customer Satisfaction Survey Update – Continued from Page 1

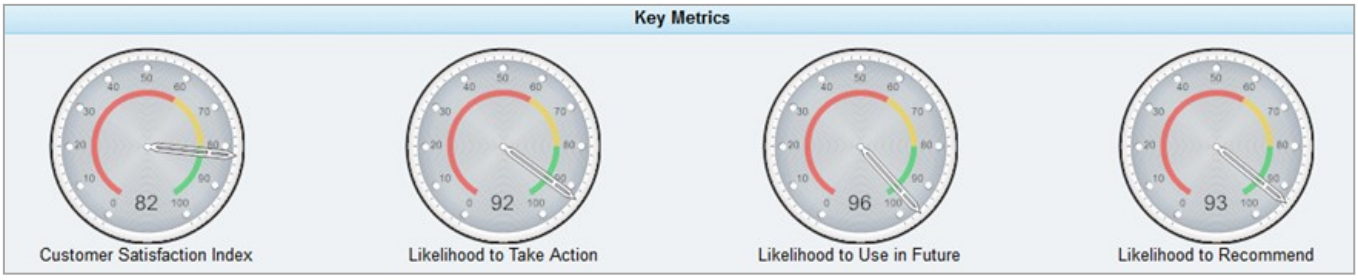

Figure 1. Screen capture from a graphic in the results portal showing an overall Satisfaction score of 82.

capture of a graphic in the survey results portal. This is an increase of two points from previous three consecutive quarters when the Overall Satisfaction score was 80. The survey results Web portal is discussed toward the end of this article.

The other three measures shown in the above graphics are scores resulting from these questions:

1. Using a 10-point scale on which 1 means "Not at all Likely" and 10 means "Very Likely," how likely would you be to **take action based on the information you receive from the NWS**?
2. Using a 10-point scale, on which 1 means "Not at all Likely" and 10 means "Very Likely," how likely are you to **use the NWS as a source of weather information in the future**?
3. Using a 10-point scale on which 1 means "Not at all Likely" and 10 means "Very Likely," how likely are you to **recommend the NWS to a colleague or friend**?

The Take Action and Recommend scores each increased by one point from the previous quarter while the Future Use score did not change.

Each of these quarterly surveys contains approximately 25 questions. The customer satisfaction index questions to determine the satisfaction score, desired outcomes questions, and demographics questions make up about 15 questions. These questions are never changed. In addition, there are about 10 seasonal/topical questions. These questions are changed from quarter-to-quarter. For example, these surveys began in spring 2015 and included winter weather and Weather Ready Nation questions. The summer survey included severe thunderstorms and flash flooding questions. Those seasonal questions were swapped out, for the fall survey in October, and replaced with extreme heat-related questions and weather threat to rangeland fire-related questions. The winter version of this survey contained questions on winter weather and flash flooding. The spring 2016 survey went "live" in early April and contains questions on severe thunderstorms and tornadoes.

For your information, there is another continuous pop-up survey being administered for the NWS by the Office of the CFO. That survey is mainly concerned with the NWS's weather.gov site and the pop-ups only occur on that website and not on the WFOs' web pages. A different survey company, ForeSee, is administering the survey.

In addition to the pop-up surveys, CFI selects a panel of individuals each quarter and compensates them to take a very similar survey on the Internet. These Internet panelists/respondents more closely represent the demographics of the United States according to the 2010 U.S. Census. The Internet panelists, consisting of 487 respondents, took the winter survey, containing winter weather and flash flooding-related questions, in January 2016. The January 2016 Internet Panel scores are shown on the next page **(Figure 2)** from a screen capture of a graphic in the

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NWS FY2016 Q2 Customer Satisfaction Survey Update – Continued from Page 2

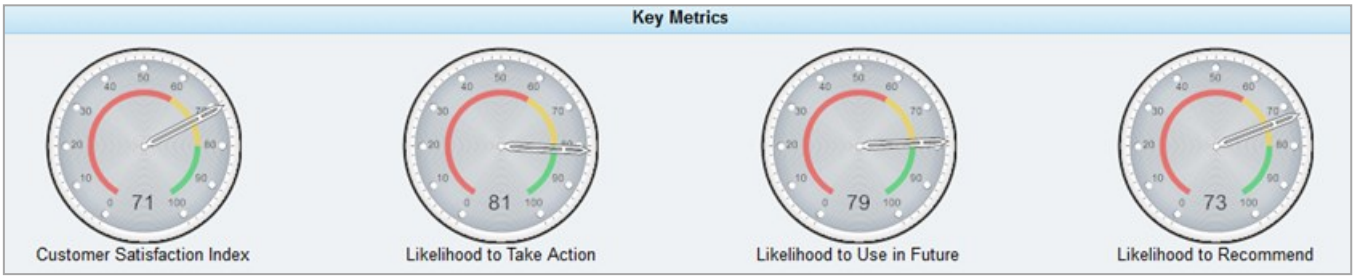

Figure 2. Screen capture from a graphic in the results portal showing an Overall Satisfaction score of 71from Internet Panel respondents.

survey results Web portal. Respondents had an Overall Satisfaction score of 71 and this is a decrease of one point from the last quarter. This Internet Panel had a Take Action score of 81, Future Use score of 79, and the Recommend score was 73. The Take Action score increased by one point while the Future Use and Recommend scores decreased by one point and two points, respectively, from the previous quarter.

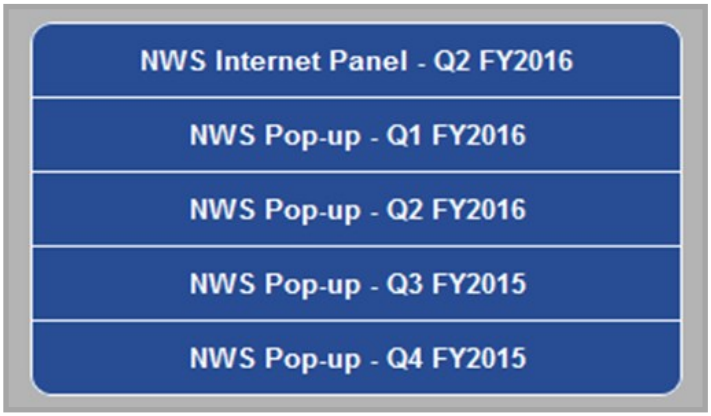

Figure 3. Graphic showing the "NWS Pop-up" options.

The NWS Pop-Up and Internet Panel survey results are available through a Web portal provided by CFI. You may access the survey results Web portal at: https://portal.cfigroup.com/Portal

The generic username and password are:
Username: NWSwm@noaa.gov
Password: NWSportal1

Once you are have gained access access to the portal you will see the survey menu selections **(Figure 3)** or in some cases you will need to first go to the upper right side of the screen and click "Exit to Portal List."

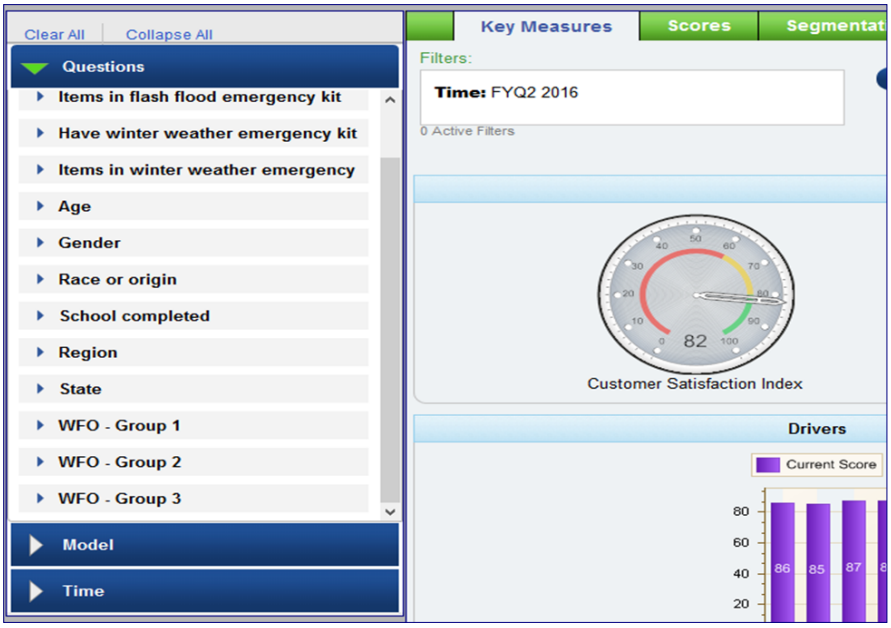

Figure 4. Example of options listed under "Questions."

If you select any of the "NWS Pop-up" options, for example "NWS Pop-up Q2 FY2016," you can then go to the far left side of the page and click on "Questions." A scroll-down menu will appear containing three WFO options at the bottom: WFO – Group 1, WFO – Group 2, WFO – Group 3 **(Figure 4)**. Each of these options contain about 40 WFO identifiers in alphabetical order. You can obtain the results for one or

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NWS FY2016 Q2 Customer Satisfaction Survey Update – Continued from Page 3

more particular WFO(s) by selecting the desired identifier(s).

In the center, top of the page, the "Comments" selection tab **(Figure 5)** will provide all of the open-ended comments provided by the respondents for the selected WFOs. Once the "Comments" selection tab is clicked, a page will be displayed and on the left side of the page there will be a "Comment Selection" option. Here is more information about the meaning of two of the selection options.

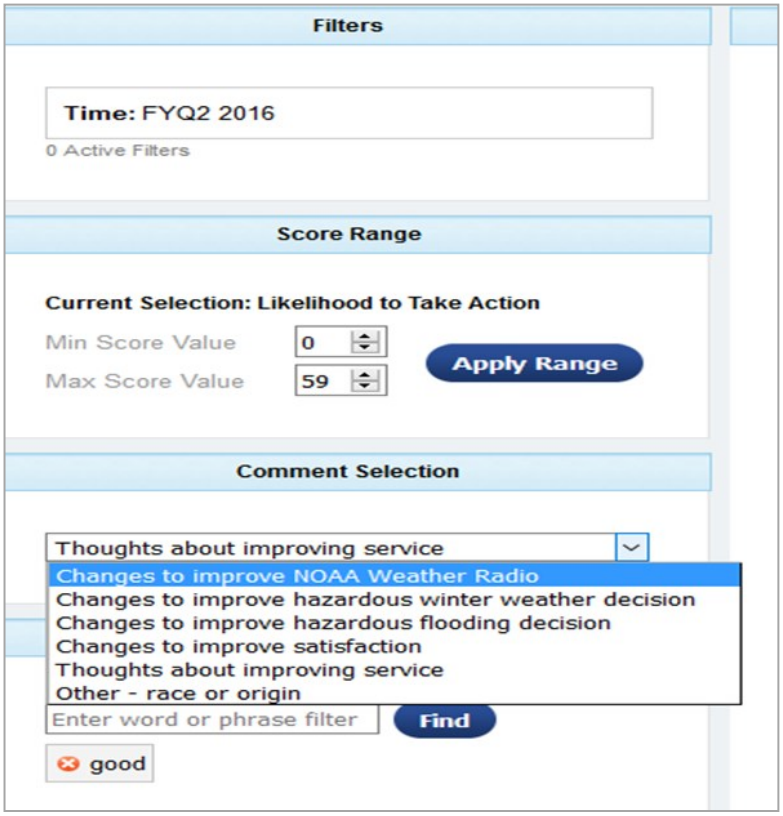

Figure 5. Graphic shows example of "Comments" selection tab.

First, the "Changes to improve your satisfaction" selection is based on the initial question asked of respondents: "First, please consider all of your experiences with the NWS. Using a 10-point scale on which 1 means "Very Dissatisfied" and 10 means "Very Satisfied," how satisfied are you with the NWS?" If the respondent gives a low score (i.e., 6 or lower), then this follow-up question is asked: "Please indicate what the NWS should change to improve your satisfaction."

Second, "Ways NWS could improve its services to you" is based on this survey questions: "Please share with us any final thoughts you have about the ways the NWS could improve our services to you." This question is asked of all respondents and not just those who gave a low score.

In regard to the Internet Panel, the results are provided for Q2 FY2016 (January 2016) by clicking on "NWS Internet Panel – Q2 FY 2016" from the main portal menu selection screen.

If you receive our CFI NWS Customer Satisfaction Survey pop-up, please take a few moments to complete the survey.

I'll leave you with a few interesting comments from the Q2FY2016 survey, listed below.

Comments From the Q2FY2016 Customer Satisfaction Survey

⇒ *"I really appreciate what The NWS does for my area and their offices all around the Country in predicting Severe Weather. Thank you."*

⇒ *"Information relevant to visitors who don't know all the local names, waypoints, etc. would be helpful."*

⇒ *"Identify both geog features eg rivers AND related landmarks of flood area. This allows user to orient risk within area. Eg, I don't know some river floodplain areas but do know prominent land marks eg Scotland Ferry terminal ..."*

Did You KNOW ?

By Doug Young, Performance and Evaluation Branch, NWS Headquarters

Did You Know that the Performance and Evaluation Branch is now fully staffed with new contractors?

After some lean years and a considerable amount of effort, the Performance and Evaluation Branch is pleased to announce that Earth Resources Technology (ERT, Inc.) has been selected to supply us with our new contract support team. During the last several weeks we have been onboarding, training, spinning-up, and operationally relying on our talented contract team. The team is composed of three Software Engineers, a Web Developer, an Information System Security Officer (ISSO), and a System Administrator.

We are excited to work with all of our new contractors in supporting our increased performance and evaluation needs for a Weather Ready Nation. In this brief article, I'd like to introduce three of our new contractors who have already been busy providing essential support. We'll present additional team members in the Fall 2016 edition of Peak Performance. In the meantime, please welcome aboard Sravanthi Manamala, Adam Yates, and Erik Whitesides!

SRAVANTHI MANAMALA (SOFTWARE ENGINEER)

Sravanthi was born and grew up in India and currently resides in Herndon, Virginia. Sravanthi graduated in 2005 with a Bachelor's Degree in Computer Science from Jawaharlal Nehru Technological University, Hyderabad, India. She sought to have a career in Information Technology and started computer software programming in 2008. Prior to programming, Sravanthi worked as an assistant professor in an engineering college. Sravanthi's hobbies include cooking, gardening, playing with the children, and surfing on the web.

Sravanthi is currently finalizing the modernization of the Performance and Evaluation Branch's Service Assessment Tracking System (SATS). More specifically, she is designing and developing the SATS Reporting Generation Interface.

ADAM YATES (INFORMATION SYSTEM SECURITY OFICER)

Adam, a native of West Virginia now living in Asheville, North Carolina, graduated from Marshall University with two degrees; a Master of Arts and an Associate of Science. He also earned a Bachelor of Arts from Shepherd University.

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Did You Know? - Continued from Page 5

From 2008 to 2012, Adam was a Technical Analyst and an Information Management Officer for NCI, Inc. of Reston, VA supporting the United States Army. In these roles, Adam was responsible for Microsoft SQL Server database availability as well as personally identifiable information (PII) data confidentiality and integrity for the Project Manager (PM) Soldier Protection and Individual Equipment (SPIE) Project Manager Soldier Sensors and Lasers (PM SSL). The purpose of PM SPIE and PM SSL is to provide soldiers with superior and sustainable equipment using state-of-the-art protection to defeat and reduce threats associated with ballistics, blast over-pressure, fragmentation, and heat in addition to providing soldiers with improved lethality, mobility, and survivability in all weather and visibility conditions. These duties required Adam to travel within Iraq, Afghanistan, and Kuwait for 18 months between October 2010 and April 2012. Prior to going overseas, Adam traveled to United States Army bases across the country, including Alaska and Hawaii.

Since May 2012, Adam has served as a Sr. IT Security Analyst for ERT, Inc. supporting multiple line offices within NOAA, including NESDIS, NOS, and now NWS. In this role, Adam was responsible for auditing Continuous Monitoring efforts for all NESDIS and NOS FISMA systems and ensuring Assessment and Authorization (A&A) processes went smoothly so that each system received its respective Authorization to Operate. Within NWS, Adam is the Information System Security Officer for NOAA8203. He is responsible for maintaining current and implementing new IT security tools to ensure safeguards are in place to protect the Performance Branch data. Adam has widespread knowledge on how to leverage enterprise-level security tools to maintain an effective security posture.

ERIK WHITESIDES (SYSTEM ADMINISTRATOR)

Erik grew up in Massachusetts and graduated from Catholic University in Washington, D.C. in 2005. He was previously employed by Terpsys as a System Administrator, and before that, the University of Maryland Baltimore as an Information Systems Engineer.

Within the NWS, Erik will monitor and maintain NOAA8203, *Performance Management System*. This includes maintaining the hardware and software infrastructure and supporting all performance and evaluation-related processes, products, services, and tools. In addition, Erik is essential in designing the most effective ways to organize our current system infrastructure for maximum efficiency and plan for future growth.

Outside of the office, Erik is a violist who has been playing an instrument since he was 9 years old. He has played with orchestras such as the Baltimore Symphony and now mainly performs in a string quartet with his wife.

Erik has two children and currently lives in Logan Circle in downtown DC, but will be moving to the Fort Totten area shortly.

Page 6

ASK CHUCK!

By Chuck Kluepfel, NWS Headquarters

This question comes from a local WFO: Our office is striving to meet or exceed the NWS-wide aviation Government Performance and Results Act (GPRA) numbers. Hence, we are trying to figure out what might be causing us issues. One of our staff suggested that the cause may be that we are using TEMPOS more often than we should. In an attempt to examine this, I went onto the NWS Performance Management website and selected either *ceiling* or *visibility* as the Element and *TEMPO* as the Forecast Type. Now I am trying to figure out how to read the resultant information. A few of these items are self-explanatory, but I have several questions. **Table 1** contains a recent *Stats on Demand* data report.

Question 1: Does Justified TEMPO mean 'forecasts that verified' and does *Unjustified TEMPO* mean 'forecasts that did not verify?'

Response: The TEMPO statistics listed in TEMPO verification reports are a little nonconventional. They were devised about 20 years ago by a NWS forecaster who is also a pilot. His intent has always been to help the local forecaster issue better TAFs. These stats could help your office make better TEMPO decisions.

A 2-step process is used to evaluate TEMPO usage: (a) the justification phase and (b) the accuracy phase. The justification phase is a variability test that is applied to every 5-minute interval of each TEMPO forecast to see if the observed weather conditions varied, as advertised by the TEMPO. The only reason this test is performed so often is that inclement weather tends to change frequently, and frequent changes trigger a lot of special observations (SPECIs). Every 5-minute interval that passes the variability test is labeled as a justified TEMPO; every 5-minute interval that fails the test is labeled as unjustified. The accuracy phase looks at justified TEMPOs and unjustified TEMPOs every five minutes and separately assesses the accuracy of each by comparing the TEMPO forecast to the latest observation (METAR or SPECI).

That is a brief description of the 2-step process, the details of which are fully explained in section 6.1.7.3 of the *Verification Procedures Reference Guide,* which is posted on our website, under Resources and Directives, or use the following URL:
https://verification.nws.noaa.gov/content/pm/pubs/directives/Verification_Procedure.pdf

Table 1 - Ceiling TEMPO Report (Scheduled TAFs)

(a) TEMPO Forecast (Hours)	121
(b) Justified TEMPO (Hours)	53.0
(c) Justified TEMPO (% of line a)	44%
(d) Justified TEMPO – Hit (% of line a, or b/a) * 100	27%
(e) Justified TEMPO – Improved the TAF (% of line b)	11%
(f) Unjustified TEMPO (Hours)	68.0
(g) Unjustified TEMPO – Should be FM (% of line f)	29%
(h) Unjustified TEMPO – Benign (% of line f)	0%
(i) Unjustified TEMPO – Hurt (% of f)	45%

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Ask Chuck! - Continued from Page 7

Question 2: What is the difference between the three Justified TEMPO scenarios (c, d, and e)?

Response: Under all three of these scenarios, the TEMPO forecast passed the variability test. The variability test is only conducted if the TEMPO forecast predicted a different category than the prevailing forecast. Ceiling categories are defined: < 200, 200 to 400, 500 to 900, 1000 to 1900, 2000 to 3000, and ≥ 3000 feet. Visibility categories are defined similarly: < ½, ½ to < 1, 1 to < 2, 2 to < 3, 3 to 5, and > 5 statute miles. For each significant weather type (SWT), e.g., thunderstorms, fog, liquid precipitation, frozen precipitation, and nine others (see any SWT data report for the full list), the term 'category change' means the event started or stopped; precipitation intensities are ignored. Thunderstorm and cumulonimbus remarks, including 'vicinity thunderstorm' remarks, are not counted as an observed thunderstorm event. '*Passed the variability test*' means two or more observed category changes occurred within ± 90 minutes of the time of the test, and recall the test is conducted every five minutes. Line (c) provides the percentage of all TEMPO time that passed the variability test. Using the latest observation, line (d) provides the percentage of justified TEMPO time when the TEMPO forecast was a categorical hit. Line (e) provides the percentage of justified TEMPO time when the TEMPO forecast was not a hit, but it improved upon the prevailing forecast by having a smaller categorical error. Line (e) has no meaning for SWT elements and is not included in SWT data reports. *The most important of these lines is (c)-every TEMPO group issued should experience variability in the observations.* This means that line (c) should ideally be 100%. History has demonstrated that justified TEMPO percentages tend to run quite a bit lower, especially for thunderstorms.

Question 3: What is the difference between the three Unjustified TEMPO scenarios (g, h, and i)?

Response: Under all these scenarios (g, h, and i), the TEMPO forecast failed the variability test. In line (f), the total number of TEMPO hours that failed the variability test is provided. The percentage of unjustified TEMPO time is not listed, but you can calculate it by subtracting line (c) from 100%. Line (g) provides the total percentage of unjustified TEMPO time whenever the TEMPO forecast was a categorical hit. In one sense, these TEMPO forecasts were good (they were hits), but these forecast conditions should have been placed in FM groups.

The sum of lines (h) and (i) provide the percentage of unjustified TEMPO time when the TEMPO forecast had a greater categorical error than the concurrent prevailing forecast. This value gets split into separate lines (h) and (i) because of the huge operational differences between the two scenarios. With (h), the TEMPO forecast was more optimistic (i.e., higher ceiling or visibility, no SWT) than the prevailing forecast, whereas with (i), the TEMPO forecast was more pessimistic than the prevailing forecast. With (h), the forecast was a bust, and it failed the variability test, but the impact of the busted TEMPO upon flight planning and operations was negligible because the most inclement weather was already predicted in the prevailing forecast. In other words, the TEMPO forecast was benign. With (i), the busted TEMPO forecast that failed the variability test and did not happen did hurt flight planning. The busted TEMPO forecast could have been and probably was the driver for any decision to cancel or delay operations. The pilot or air traffic controller was forced to plan for a false alarm.

An Aside: How TEMPO Group Usage Affects the GPRA Scores.

The TEMPO data reports do not contain any statistics that are reported through the GPRA system. Each TEMPO report only contains feedback percentages to the forecaster and anyone else who cares to look. Over the long term, this feedback will guide you towards issuing more

Continued on next page... Page 8

Ask Chuck! - Continued from Page 8

effective TEMPOs for the aviation community, and better TEMPOs will raise your operational impact forecast (OIF) scores, which are reported thru GPRA. OIF scoring rules are a lot more lenient when you pass the variability test, but they tend to penalize you for excessive false alarm counts when the variability test fails. Admittedly, they are more convoluted and confusing than they need to be, but we will simplify them when we redevelop the TAF verification code from scratch. We are currently in the requirements gathering process for a full TAF verification program rewrite so if you have suggestions, this is the time to make them to Beth McNulty or me. Beth is coordinating the requirements gathering process.

How do ceiling and visibility TEMPO use and overuse affect the instrument flight rules (IFR) and below hit rates (also called the probability of detection) and false alarm ratios (FAR) that are reported thru the GPRA? To answer this question, the reader is referred to the winter 2015-16 *Peak Performance* article, titled *How Did TEMPO Forecasts Influence Verification Scores in 2015?*

The following criticism is a follow-up to the previous exchange.

Your scoring of TEMPO groups is too harsh because you verify TEMPO groups every five minutes, while we are only allowed to define the start and stop of TEMPO by the hour. Five-minute TEMPO forecast resolution is not allowed in the TAF code. It is unfair to hold the forecaster to a stricter temporal standard than the TAF code permits.

Response: You have voiced a popular notion that the 5-minute intervals in the verification program tend to make TEMPO forecasts look bad. That is true when the variability predicted by a TEMPO group does not appear, and the variability test fails. However, when the variability test passes, the operational impact forecast (OIF) scoring rules are purposely lenient. I will illustrate with three examples. All three examples use the same TAF, but different observation scenarios are given for each.

Example 1: The observed TS started at 1340 UTC and ended at 1440 UTC. The variability test passed for the full hour of TEMPO (1400 to 1500 UTC) because the starting and stopping of the TS occurred within ± 90 minutes of each five-minute segment of the TEMPO forecast. From 1400 to 1500 UTC, two forecasts were in effect simultaneously, the prevailing forecast (no TS) and the TEMPO forecast (TS). Because the variability test passed, the OIF rules state that the observation is matched to the forecast in effect that was categorically closest to the observation. In the case of a binary element, such as TS, "closest" results in the observation being matched to the forecast that equaled the observation. Therefore, for every five minute interval that ended from 1405 to 1440 UTC, the observation (TS) is matched to the TEMPO forecast (TS). For every remaining five minute interval of the TEMPO, from 1445 thru 1500 UTC, the observation (no TS) is matched to the forecast that equaled the observation, which is the prevailing forecast (no TS). The result for the hour is that the forecaster is credited with eight counts of event (TS) forecast hits and four counts of null event (no TS) forecast hits. This illustrates the fact that with binary events such as thunder, fog, rain, etc., the forecaster can't lose with a TEMPO group if it passes the variability test. If the TEMPO group fails the test, that's another story. See Example 2 for that.

Example 2: The forecast is the same as before, but the observations were different. No observed TS occurred that morning. This time, the TEMPO group for TS from 1400 to 1500 UTC failed the variability test for the full hour. The OIF rules state that the observation for that hour (no TS) is matched to the worst forecast conditions planned, which was the TEMPO forecast for TS. The result is that the forecaster received

Continued on page 12

Service Assessment Program

By Sal Romano, Performance Branch, NWS Headquarters

One Service Assessment Document Publicly Released While Another Is In First Draft

The Historic South Carolina Floods of October 1-5, 2015 Service Assessment document was publicly released in July 2016. The draft Historic Blizzard of January 22-24, 2016 Service Assessment document was provided for review to the subject-matter experts and the affected NWS Region.

Historic South Carolina Floods of October 1-5, 2015 Service Assessment

Widespread, heavy rainfall resulted in major flooding in areas from the central part of South Carolina to the coast. Some areas experienced more than 20 inches of rainfall over the period October 1-5, 2015. Flooding from this event resulted in 19 fatalities. South Carolina State Officials said damage losses were $1.492 billion.

The service assessment team presented their findings to the NWS upper management on Tuesday, June 14, 2016. The service assessment document underwent final modifications before being signed by the NWS Chief Operating Officer in early July. The service assessment document was then publicly released on July 28, 2016.

Historic Blizzard of January 22-24, 2016 Service Assessment

A major winter storm produced 18-36 inches of snow over a wide area of the eastern United States snowstorm total snowfall of 29.2 inches. Washington-Dulles International Airport (28.3 inches) and New York Central Park (26.8 inches) recorded their second highest storm total snowfall in recorded history. The storm produced wind gusts exceeding 60 mph at numerous locations along the Atlantic Coast in Massachusetts, New Jersey, Delaware, and Virginia. The peak gust reported was 85 mph in Assateague, Virginia. Major coastal flooding occurred in southern New Jersey and Delaware.

The service assessment team provided the NWS's Performance and Evaluation Branch the first draft of its report document that included preliminary findings, recommendations, and best practices. NWS's Performance and Evaluation Branch reviewed the document and discussed suggested modifications with the service assessment team leader. The agreed upon modifications were implemented into the document. The modified document was then sent to subject-matter experts and the affected NWS Region for their review.◆

TAF Verification Requirements

By Beth McNulty, NWS Headquarters

A new project is in the works in the Performance and Evaluation Branch. For a bit over a decade we have been using Stats-on-Demand (SOD) to calculate our TAF verification statistics for the NWS. These statistics have been used for the Government Performance and Results Act (GPRA) reports, and presumably to track performance at the local and regional levels as well. The software to compute the TAF verification is aging, as is the platform on which it resides. To maintain the system and perform a technology refresh, we are reviewing the requirements for the TAF verification. Glory be! The requirements have largely been carried around in someone's head all this time and not recorded in a coherent list. That someone, or group of someones, left the branch, taking their memory with them. (Who'da thunk that could happen??)

So, what is the new project? Recreate the requirements for verifying TAFs, and at the same time modernize the underlying software code.

Now, you may have heard that the Meteorological Development Laboratory is developing a verification tool to work with gridded aviation forecasts—called the Aviation Forecast Verification Tool (AFVT). This is true, but the AFVT is still in development and not expected to reach operational status for a few years yet.

What is the difference between the SOD TAF verification and verification using AFVT grid to point verification; beyond the obvious that SOD is operational and AFVT is not (yet)? The SOD TAF verification is a specific point forecast verified against specific point observations. The AFVT grid to point verification (also available is grid to grid verification) is similar but uses the nearest grid point to the forecast location, and verifies using observations gridded onto the Real-Time Mesoscale Analysis. This key detail means that the AFVT may not necessarily verify the precise location of a TAF. Instead, the AFVT may verify a location slightly away from the airport, if that is the location of the nearest grid point.

We are progressing to producing grids that use formatters to create the TAF. AFVT will be a wonderful tool for verifying the grids used to create the TAF. For the foreseeable future, however, managers beyond NWS (e.g., Congress and similar levels) will not understand the concept of grid forecasts or verification, and will prefer a point forecast (TAF) verified directly by a point observation (METAR) for the GPRA measures. SOD fills this role now, and will continue to do so. We anticipate that at some future point the TAF portion of SOD could become a module appended to AFVT for the purpose of creating GPRA statistics for TAFs.

Meanwhile, we still have to re-create the requirements that went into creating TAF verification on SOD. That is the project at hand. Requirements are the "what" needs done, specifications are the "how" to do it. By keeping this distinction in mind, it's possible to mine all the existing manuals about TAF verification on SOD for about 60 to 75% of the current verification requirements and specifications. There exist additional requirements discovered through the use of the program, and better ways to compute the statistics that have been found over time, but not documented, that make up the

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TAF Verification Requirements – Continued from Page 11

remainder of the requirements we are attempting to re-create. To assure that we have a full set of requirements, we asked for help from the NWS regions and aviation focal points at the WFOs. This is a project of the summer, and should reach completion of the first draft around September.

After that, programmers will begin to convert the requirements into updated software as part of a needed technical refresh that has been delayed for several years. Going forward we will ensure that verification requirements are recorded instead of "head carried." Obviously, some verification requirements (e.g., impact-based or outcome-based results), which will be developed in the future will be better served by AFVT, but we can still note them in this project. The **bottom line** is this: We are documenting the actual requirements for TAF verification, both current and future, and the validation process will reveal which program will serve that need best.◆

Ask Chuck! – Continued from Page 9

twelve counts of forecast TS false alarms.

Example 3: The forecast is the same as before. One TS occurred; it started at 1245 UTC and ended at 1315 UTC the same day. These times did not exactly coincide with the TEMPO TS forecast, which was 1400 to 1500 UTC. This time, the TEMPO forecast passed the variability test for most, but not all of the hour, from 1405 to 1445 UTC. It failed at 1450, 1455, and 1500 UTC. The OIF scoring rules state that for every five-minute interval that passed the test, the OIF is defined as the forecast in effect that was equal to the observation. No TS occurred from 1405 to 1445 so the OIF is set to the prevailing forecast (no TS). For the remaining time during that hour, the variability test failed, so the OIF is set to the worst conditions predicted in the TAF, which was the TEMPO forecast (TS). The final result for the hour was nine counts of null event (no TS) hits and three counts of forecast TS false alarms. The reward would have been greater in terms of forecast TS hits if the TEMPO forecast time window had coincided more with the event, but the false alarm counter didn't kick in until the TEMPO forecast started failing the variability test.◆

Status of Service Assessment Action Items

Summary

- There are **264** total actions from open events.
- **224** actions are closed.
- **40** actions remain open
- In addition, there are **42** new actions from the recent release of a service assessment, to be assigned.

Recent Service Assessments

1) **South Carolina Historic Flooding of October 2–5, 2015:** The Historic South Carolina Floods of October 1–5, 2015 Service Assessment document was publicly released in July 2016.

2) **Historic Blizzard of January 22–24, 2016:** The draft Historic Blizzard of January 22–24, 2016 Service Assessment document was provided for review to the subject-matter experts and the affected NWS Region.

Open Service Assessments

⇒ **Colorado Flooding of September 11–17, 2013**
Released June 24, 2014
26 Total Actions, 21 (81%) Closed Actions
5 (19%) Open Actions

⇒ **May 2013 Oklahoma Tornadoes and Flash Flooding**
Released March 21, 2014
29 Total Actions, 20 (69%) Closed Actions
9 (31%) Open Actions

⇒ **Hurricane and Post-Tropical Cyclone Sandy, October 22–29, 2012**
Released May 05, 2013
25 Total Actions, 22 (88%) Closed Actions
3 (12%) Open Actions

⇒ **Historic Derecho of June 29, 2012**
Released February 05, 2013
14 Total Actions, 8 (57%) Closed Actions
6 (43%) Open Actions

⇒ **Hurricane Irene in August 2011**
Released October 05, 2012
94 Total Actions, 85 (90%) Closed Actions
9 (10%) Open Actions

⇒ **The Missouri/Souris River Floods of May – August 2011 (Regional Service Assessment)**
Released June 05, 2012
29 Total Actions, 26 (90%) Closed Actions
3 (10%) Open Actions

⇒ **May 22, 2011 Joplin Tornado (Regional Service Assessment)**
Released September 20, 2011
16 Total Actions, 14 (88%) Closed Actions
2 (12%) Open Actions

⇒ **Spring 2011 Mississippi River Floods**
Released April 11, 2012
31 Total Actions, 28 (90%) Closed Actions
3 (10%) Open Actions

Last Closed Events (all actions completed)

- **Remnants of Tropical Storm Lee and the Susquehanna River Basin Flooding of September 6–10, 2011 (Regional Service Assessment)**
Released July 26, 2012
11 Total Actions - Closed

- **The Historic Tornado Outbreaks of April 2011**
Released December 19, 2011
32 Total Actions - Closed

- **Washington, D.C. High-Impact, Convective Winter Weather Event of January 26, 2011**
Released April 01, 2011
6 Total Actions - Closed

- **Record Floods of Greater Nashville: Including Flooding in Middle Tennessee and Western Kentucky, May 1–4, 2010**
Released January 12, 2011
17 Total Actions - Closed

- **South Pacific Basin Tsunami of September 29–30, 2009**
Released June 04, 2010
131 Total Actions - Closed

- **Central US Flooding of June 2008**
Released February 03, 2010
34 Total Actions - Closed

Updated August 2016 by Freda Walters ◆

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Please consider contributing to our Fall 2016 Edition of Peak Performance

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Questions and comments on this publication should be directed to Freda Walters.