

Community Review NCEP Assessment and Recommendations – (Last modified 7 January 2014/RSS)

Storm Prediction Center (SPC)

Mission and Vision

Finding MV1: *Both mission and vision statements should be better aligned and worded.*

Assessment Recommendation (Snipped)	Planned Action	Status	Due Date (Short, Medium, Long)
<p>Recommendation MV1: The wording of SPC’s mission statement could be made less ambiguous by referring to residents of the United States rather than “American people.” The mission statement, unlike the vision statement, contains no reference to severe thunderstorms but does include the word tornadoes. The vision statement is not as compelling as it might be. The present wording “works to protect” could be made by any organization. We therefore suggest a more compelling statement that truly reflects the vitality of the SPC mission and the dedication of its staff.</p>	<p>MV1.1: Work with local NWSEO Vision Team to consider revisions of SPC Mission and Vision Statements as suggested by the external review team in coordination with new SPC Director.</p>	<p>MV1.1: Complete – ongoing (with NWSEO). Updated mission and vision statements have been discussed and introduced. Further refinements to vision statement are still being considered with NWSEO.</p>	<p>MV1.1: 3Q FY13 (complete)</p>

Customers and Partners

Finding CP1: *Significant progress has been made in addressing recommendations from the 1999 review. SPC also has leveraged the Internet to develop linkages with customers, partners and the public as requested in the 1999 review. The review panel found SPC’s use of the Internet to be a valuable part of its outreach and education strategy, and its outstanding web site and effective graphical capabilities are to be commended. The move of SPC to the NWC building in 2006 was completed as planned and has proven to be an important asset for engaging partners and customers in a more collaborative and productive research environment and training forum. Locating HWT in the center of the facility between WFO and SPC forecasters, and in close proximity to OU organizations, has facilitated and fostered ideas and techniques to improve the quality and communication of SPC forecasts. Additionally, SPC was found to have a healthy, productive relationship with the emergency management community, with whom they engage regularly in outreach activities.*

Finding CP2: *SPC is fortunate to be co-located with NSSL, the Oklahoma City Area WFO, the OU School of Meteorology, and other organizations (Oklahoma Climatological Survey (OCS), the Cooperative Institute for Mesoscale Meteorological Studies (CIMMS), the Center for Analysis and Prediction of Storms (CAPS) and the Warning Decision Training Branch (WDTB)), providing an intellectually stimulating work environment that fosters collaboration. The importance and impact on the success of SPC outreach activities of co-location with other organizations cannot be overstated. The review panel found SPC staff invigorated by opportunities to interact with critical members of the weather community in an environment that enables and encourages open discussion, educational opportunities and partner and customer feedback. SPC also is to be commended for making good use of the NWC facility in light of budgetary limitations.*

Finding CP3: *SPC leadership reports good working relationships with EMC, TPC and HPC among the other NCEP centers, as well as effective coordination with WFOs. SPC’s engagement with other centers critical to its mission is appropriate and effective. The coordination of activities related to EMC’s model plans and releases on a frequent basis, the sharing of test bed best practices with TPC and warning situational awareness with HPC are to be commended. SPC also works effectively with WFOs in managing watches within the capabilities of the current “watch by county” schema.*

Finding CP4: *SPC is heavily involved in meaningful outreach activities at all levels, e.g., tours to the general public, high school job shadowing, Research Experiences for Undergraduates (REU) mentoring, career experience programs, etc. With support from on-site NOAA Public Affairs staff and OU’s NWC staff, SPC sponsors and supports a multitude of outreach programs and activities. The review panel found SPC staff to be actively engaged in opportunities to expand the visibility to stakeholders at all levels of NOAA and NWS activities. Reaching high school and college students through job shadowing and mentoring programs, the science community through workshops, and the general public through tours and media events requires a commitment in time and energy that SPC staff willingly make despite their demanding schedules. This model, entailing a mixture of people/facility/location, works extremely well and should be studied carefully and considered for other centers within NOAA for the benefit of all stakeholders.*

Finding CP5: *The severe thunderstorm report database, event summaries, and forecast tools are valuable and heavily used by the community, representing an important outreach function. A valuable outcome of close collaboration with stakeholders is a better understanding of their needs. SPC staff members have applied their understanding of stakeholder needs in a unique way that can be leveraged and exploited by the weather community for years to come. The severe thunderstorm report database is such an effort. SPC has captured information that will help not only them but also others improve warning forecasts and techniques that yield benefits for all stakeholders. SPC is to be commended for their creativity and strategic planning in using information acquired from close collaboration with stakeholders and partners.*

Finding CP6: *A formal process exists for determining user needs and priorities at the agency level, and another, much more informal process occurs at the SPC level of engagement with users. The balance and connection between these two processes is unclear. Capturing user needs and priorities from the bottom up is very effective in providing useful products and services. However, it may not be the most cost effective or efficient approach from an agency perspective. The review panel recognizes SPC staff accomplishments in informally engaging stakeholders; however, linkages to NOAA’s formal requirements gathering process are unclear. Perhaps a more formal coordination process is needed between NOAA and SPC to ensure effective planning of user input provided both formally and informally. We do not make such a formal recommendation here but*

rather suggest NOAA and NWS leadership discuss the issue.

<p>Recommendation CP1: SPC is to be commended for engaging social scientists in HWT and we encourage broader and deeper interactions with the Social Science Woven into Meteorology (SSWIM) effort at OU, related activities at NCAR (National Center for Atmospheric Research) and the National Severe Weather Workshop, and with others. Advancing SPC outreach activities to the next level will require considerably more interaction with social scientists, especially within HWT.</p>	<p>CP1.1: Increase involvement in Social Science Woven into Meteorology (SSWIN) and other social science communities.</p> <p>CP1.2: Involve social science community in SPC product development and refinement to increase public response to SPC services and call to action statements. The SPC will begin the process of deeper engagement within the current Convective Watch Reorganization activity initiated in FY10.</p> <p>CP1.3: Increase the social science dimensions within SPC Hazardous Weather Testbed activities. The new Warn on Forecast funded contract HWT Liaison will have a service delivery element focused on communication of uncertainty and risk</p> <p>CP1.4: Continue strong involvement of social scientist community in National Severe Weather Workshop</p>	<p>CP1.1: Complete - ongoing. SSB Branch Chief added to SSWIM Advisory board in 1Q FY10. SSWIM program decommissioned in FY11. Working with new OU-NOAA Partnership for Social Science research.</p> <p>CP1.2: Complete - ongoing. Proposal to NWSHQ to fund collaborative effort with SSWIM was rated in top 15 proposals nationwide, but ultimately was unfunded. Unfunded effort with SSWIM completed in Summer 2011.</p> <p>CP1.3: Complete. New WoF HWT Liaison (Dr. James Correia) arrived in September 2010, with a portion of his focus on interface with social science research.</p> <p>CP1.4: Complete - ongoing. A significant social scientist presence participated in the 2010, 2011 and 2012 NSWW. SPC organized Dec 2011 Weather Ready Nation Workshop focused on tornado warnings with 20-30 prominent social scientists. Proposal with academic collaborators to explore communication paths and efficiencies to and through major SPC & NWS partners.</p>	<p>CP1.1: <u>1Q FY10 (complete)</u></p> <p>CP1.2: <u>4Q FY11 (complete) SSWIM</u></p> <p>CP1.3: <u>4Q FY10 (complete)</u></p> <p>CP1.4: <u>2Q FY12 (complete)</u></p>
<p>Recommendation CP2: A plan should be developed for more effective interactions at the interface between AWC and SPC, e.g., utilizing HWT and the nascent Aviation Weather Test Bed for NextGen-related activities.¹ To capitalize upon the success of HWT, the review panel strongly urges that SPC and AWC work more closely to address NWS NextGen requirements. Sharing best practices with respect to AWT design and execution, ensuring effective use of AWT for workshops and outreach, and engaging commercial customers in AWC activities should be given high priority. The intent is to spread the infectious enthusiasm and collaborative attitude of SPC staff throughout other NCEP Centers, with AWC first and potentially the rest to follow.</p>	<p>CP2.1: Conduct a joint SPC-AWC FY10 HWT-AWT Spring Experiment.</p> <p>CP2.2: SPC will share HWT design and best practices.</p> <p>CP2.3: An AWC-SPC synergy plan should be developed.</p>	<p>CP2.1: Complete - ongoing. Planning began in August 2009 for an experiment that occurred from 17 May through 18 June. AWC and HPC staff worked side-by-side with SPC staff to prepare for and execute the Experiment to facilitate sharing of best practices</p> <p>CP2.2: Complete - ongoing. SPC attended AWC Testbed Workshop and shared HWT design and best practices. Sharing continued during FY10 Spring Experiment design and execution.</p> <p>CP2.3: Complete - ongoing. A plan was developed during FY11 to assure complementary use of collaborative research efforts to avoid unnecessary duplication in efforts. This effort included SPC, AWC and HPC.</p>	<p>CP2.1: <u>3QFY10 (complete) AWC & HPC</u></p> <p>CP2.2: <u>4QFY10 (complete) AWC & HPC</u></p> <p>CP2.3: <u>4QFY11 (complete) AWC & HPC</u></p>

<p>Recommendation CP3: SPC outreach activities are excellent and play a positive role in research. We encourage SPC to ensure an appropriate balance between the staff time required for such activities and the benefits wrought by them. Identifying the benefits from outreach efforts will be a critical task going forward in order to best utilize the resources available.</p>	<p>CP3.1: Develop an outreach and communication plan that collects and meshes current activities, establishes annual and multi year priorities and guides activities and communication goals each years.</p>	<p>CP3.1: Complete - ongoing. Discussions began in April 2011 with both NOAA Public Affairs and NWS OCWWS participation. Preliminary plans supported widely praised NOAA response during historic 2011 tornado season. Succinct plan for FY11-13 now complete.</p>	<p>CP3.1: 4QFY11 (complete) NOAA PA</p>
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Products and Services

Finding PS1: SPC has responded well to recommendations regarding products and services made during the 1999 review. Outlooks have been extended to eight days, outlooks and watches have been amended to include probabilities, new products have been generated, and a very effective web page has been created.

Finding PS2: SPC forecasts and products are of high quality and verification scores show steady improvement over time. SPC staff members understand and rely upon rigorous verification techniques to ensure product quality and consistency. More than 70% of significant or extreme events (Enhanced Fujita index 2, EF2, or stronger tornadoes; 2" or larger diameter hail; 65 mph or greater gusts) now occur within watches, while more than 90% of significant tornadoes do so. For Day 1 outlooks, despite areal coverage showing a slight decrease over the years, the percentage of severe weather reports occurring outside of outlook areas has decreased while the percentage of areas having no reports also decreased. Day 2 and Day 3 outlooks have shown an overall decrease in areas containing no reports of severe weather, while the percentage of severe weather reports occurring outside outlook areas generally has been steady though of course variable from year to year.

Finding PS3: SPC products and services are widely used and generally much appreciated by users. The SPC web site received 140 million to 450 million hits per month during the period 2008-2009, and results from the survey, described above, clearly demonstrate the value placed by the community on SPC products.

Finding PS4: Many SPC products have been converted to a probabilistic framework, including watches and outlooks. Experimentation with new capabilities continues, fulfilling a major recommendation of the 1999 review. Verification statistics indicate that SPC probabilistic forecasts are highly reliable, and the significance of this achievement cannot be overstated.

Finding PS5: SPC now indicates low, medium, and high threats of tornadoes, large hail, and damaging winds in association with its watches and outlooks and is testing of the use of new wording to convey these relative risks. Criteria have been set regarding phenomena associated with this wording.

Finding PS6: Watch decentralization, or the reversion from SPC control to WFO control once a watch is issued, continues to be a source of frustration for SPC forecast staff. Whereas watch issuance is a collaborative process between SPC and WFO staff, subsequent watch modification appears to occur in many cases without SPC input.

Finding PS7: SPC has developed many forecast tools including those used for sounding analyses, Rapid Update Cycle (RUC) model analysis, and probabilistic guidance using the SREF numerical model. SPC is to be commended for its leadership role in the development and application of mesoscale ensemble and advanced diagnostic products in weather forecasting, and for making them publicly available on their web site.

Finding PS8: SPC has developed an effective formal procedure for transitioning new products from experimental to operational status. This includes requesting and considering feedback from users.

Finding PS9: As noted in the survey discussion, users expressed some desire for greater interaction with SPC regarding existing products and services and/or information, for suggesting changes or new products, and for strategies in effectuating SPC-user interactions.

Finding PS10: SPC tools are very creative, especially in the area of forecast verification, and include a database useful for comparing current weather situations to historical cases. The relational database now under development shows great promise as a tool for improving situational awareness and context-based forecasting.

Finding PS11: SPC provides an excellent web site with an outstanding suite of products. The site is useful to SPC and NWS forecasters, other meteorologists, and the public, and because of quality graphics and layout, the site is especially appropriate for educational purposes. As indicated previously, respondents found SPC products to be highly useful and did not identify significant problems.

Finding PS12: The mesoscale heavy precipitation discussion product is largely an unfunded mandate. Issued for both warm and cool-season precipitation, the mesoscale heavy precipitation discussion is not issued as consistently as desired because of staffing limitations and because the product topic is treated as secondary to SPC's primary mission of severe thunderstorm and tornado forecasting. SPC forecasters and NWS and other users express a desire for more mesoscale discussions, and SPC forecasters are somewhat frustrated by a lack of time to devote to them, particularly during the warm season. In addition, the nature of some cool season heavy precipitation is rather different from convective precipitation and thus requires a different set of skills and diagnostic products.

Finding PS13: Despite limited resources and in light of other challenges, SPC has developed a credible fire weather product. Staffing limitations only allow the fire weather product to be created overnight, and it can become outdated by the following afternoon. Staffing limitations¹ also preclude SPC forecasters from interacting with fire managers during the daytime and evening hours when such interactions are most valuable. Limited interest and background knowledge of fire weather by already heavily tasked SPC personnel hamper developmental efforts that have been so outstanding with regard to severe thunderstorm and tornado forecasting products. Most importantly, the fire weather burden can harm morale and the culture of excellence SPC has so effectively created. Fire weather outlooks show improvement as probability of detection values have increased while false alarm ratios have decreased. However, SPC forecasters recognize that time does not permit an appropriate level of commitment to this activity, leading to frustration because of the SPC culture of product excellence. Some forecasters may be more qualified or interested in fire weather than others, and some question whether it belongs within SPC.

Finding PS14: Dry thunderstorm research vis-à-vis lightning is an example of how SPC has leveraged its expertise in thunderstorm forecasting to help meet other (fire weather) requirements, and is another example of SPC's creative development of useful products. Fire modeling is being performed within other organizations, focusing heavily on fuels and fire-scale processes, whereas SPC focuses mainly on large-scale and convective forcing factors. This suggests that collaborative efforts between SPC and other groups could be fruitful if NWS and other interests wish to see fire weather products have commensurate quality and value to others in the SPC suite.

Finding PS15: SPC generates enhanced thunderstorm probability forecasts for use by AWC and is working on a 4-h version of this product. As is the case for the fire weather product, the enhanced thunderstorm probability product appears to be largely another unfunded mandate which - in light of the importance of accurate weather information to aviation - is one for which SPC could be a valuable resource. Both the opportunity and desire appear to exist for greater collaboration between SPC and AWC on the enhanced thunderstorm probability and other products, and especially on issues pertaining to NextGen.

<p>Recommendation PS1: SPC should continue working toward higher time and space resolution forecasts, outlooks, and watches, and implement daily outlooks to replace the current day 4-8 day map and discussion.</p>	<p>PS1.1: A multi year plan to accomplish these goals is established in the SPC NCEP Strategic Plan Implementation Schedule. This plan will be reviewed and refined by the new SPC Director.</p>	<p>PS1.1: In progress. In FY13 the SPC made operational higher time resolution thunderstorm outlooks available in NDFD, and in FY14 will refine Day 1-8 severe weather outlooks .</p>	<p>PS2.1: Continuing (Long) NWSEO</p>
<p>Recommendation PS2: The SPC is encouraged to continue its outstanding efforts to improve forecast skill through the use of relational databases, context-based forecast and verification approaches, and other means.</p>	<p>PS2.1: Continue Improvements.</p>	<p>PS2.1: In progress. Current focus is the addition of convective mode information in Db. Move to 20 km re-analysis for environments is in progress. Initial real time forecaster verification feedback is complete. New collaborative research activities exploit database including expansion to storm characteristics.</p>	<p>PS2.1: Continuing (Long)</p>
<p>Recommendation PS3: Additional expertise, and a change in the timing of operational processes, is needed to fully implement quality fire weather forecasts. As this occurs and as resources allow, fire weather products should be converted to a probabilistic framework.</p>	<p>PS3.1: Implement Daytime Fire Weather Outlook Updates</p> <p>PS3.2: Move Day 3-8 moved to fire weather day shift.</p> <p>PS3.3: Enhance community collaboration</p> <p>PS3.4: Transition to probabilistic fire weather forecasts</p>	<p>PS3.1: Complete. Daytime Day 1 & 2 Fire Weather Outlook updates, facilitated by 2 new FTE, were implemented on 23 March 2010.</p> <p>PS3.2: Complete. Daytime issuance of the Day 3-8 Fire Weather Outlook, facilitated by 2 new FTE, was implemented on 23 March 2010.</p> <p>PS3.3: Complete. New daytime Day 1 & 2 Fire Weather Outlook updates include robust routine collaboration with NWS and external Fire Weather communities.</p> <p>PS3.4: In progress. Experimental probabilistic Day 3-8 Fire Weather Outlooks were refined in FY13 to include individual daily graphics beyond Day 2.</p>	<p>PS3.1: 2QFY10 (complete) NCEP OD, OCWWS, NWSEO</p> <p>PS3.2: 2QFY10 (complete) NCEP OD, OCWWS, NWSEO</p> <p>PS3.3: 2QFY10 (complete) NCEP OD, OCWWS, NWSEO</p> <p>PS3.4: FY14 or FY15 (Medium) NWSEO, AWIP52</p>
<p>Recommendation PS4: SPC should continue to add Geographic Information Systems (GIS) and interactive analysis capabilities for application to forecast and data base products in its web environment.</p>	<p>PS4.1: Add GIS formatted report summaries</p> <p>PS4.2: Redesign MesoAnalysis web content to facilitate further integration of GIS tools.</p>	<p>PS4.1: Complete</p> <p>PS4.2: Complete. Implemented 13 April 2010</p>	<p>PS4.1: 1Q FY10 (complete)</p> <p>PS4.2: 3Q FY10 (complete)</p>
<p>Recommendation PS5: Continued efforts should be directed toward improving probabilistic guidance. Care should continue to be taken to ensure that users understand the proper use of probabilities and the extent to which they are statistically reliable. This becomes increasingly important in the context of appropriately calibrated ensemble model output and risk-based decision support systems of the type to be used in NextGen.</p>	<p>PS5.1: Transition of SPC Fire Weather guidance to probabilistic form.</p> <p>PS5.2: Continue HWT Experiment focus on storm-scale ensemble guidance focus.</p> <p>PS5.3: Continued collaboration with AWC, Mitre (& FAA) on SREF based probabilistic thunderstorm aviation impact guidance.</p>	<p>PS5.1: In progress. Experimental probabilistic Day 3-8 Fire Weather Outlooks were refined to include additional dry thunderstorm forecasts during FY13.</p> <p>PS5.2: Complete - ongoing. Key element of 2010, 2011 and 2012 Spring Experiment. Experimental storm-scale ensemble now routinely available in SPC Operations.</p> <p>PS5.3: Complete. Component of FAA Command Center Day 2 Planning Experiment this Spring.</p>	<p>PS5.1: FY14 or FY15 (Medium) NWSEO, AWIP52</p> <p>PS5.2: Complete - Continuing (Long)</p> <p>PS5.3: FY11 (complete) AWC leads NWS interactions with FAA exploiting SPC developed SREF thunderstorm guidance.</p>
<p>Recommendation PS6: SPC should collaborate with social scientists regarding appropriate thresholds for low, medium, and high threat wordings; public perception and response, and “cry-wolf” issues possibly associated with low-probability watches; and optimal values of probability of detection, false alarm rate/ratio, and lead time/duration for severe</p>	<p>PS6.1 (CP1.1): Increase involvement in Social Science Woven into Meteorology (SSWIN) and other social science communities.</p> <p>PS6.2 (CP1.2): Involve social science community in SPC product development and refinement to increase public response to SPC services and call to action statements. The SPC will begin the process of deeper engagement within the current</p>	<p>PS6.1 (CP1.1): Complete. SSB Branch Chief added to SSWIM Advisory board in 1Q FY10. SSWIM program decommissioned in FY11. Working with new OU-NOAA Partnership for Social Science research. SPC organized December 2011 Weather Ready Nation Workshop focused on this topic.</p>	<p>PS6.1(CP1.1): 1Q FY10 (complete) SSWIM</p>

<p>thunderstorm and tornado watches.</p>	<p>Convective Watch Reorganization activity initiated in FY10.</p> <p>PS6.3 (CP1.3): Increase the social science dimensions within SPC Hazardous Weather Testbed activities. The new Warn on Forecast funded contract HWT Liaison will have a service delivery element focused on communication of uncertainty and risk</p> <p>PS6.4 (CP1.4): Continue strong involvement of social scientist community in National Severe Weather Workshop</p>	<p>PS6.2 (CP1.2): Complete - ongoing. Proposal to NWSHQ to fund collaborative effort with SSWIM was rated in top 15 proposals nationwide, but ultimately was unfunded. Unfunded effort with SSWIM completed in Summer 2011.</p> <p>PS6.3 (CP1.3): Complete. New WoF HWT Liaison (Dr. James Correia) arrived in September 2010, with a portion of his focus on interface with social science research.</p> <p>PS6.4 (CP1.4): Complete - ongoing. A significant social scientist presence participated in the 2010, 2011 and 2012 NSWW. SPC organized Dec 2011 Weather Ready Nation Workshop focused on tornado warnings with 20-30 prominent social scientists. Proposal with academic collaborators to explore communication paths and efficiencies to and through major SPC & NWS partners.</p>	<p>CP1.2: 4Q FY11 (complete) SWIMM</p> <p>PS6.3 (CP1.3): 4Q FY10 (complete) NSSL, SSWIM</p> <p>PS6.4 (CP1.4): 2Q FY12 (complete)</p>
<p>Recommendation PS7: SPC, NCEP and NWS leadership should work together to ensure adequate understanding of, and develop more effective mechanisms of communication among, all operational personnel regarding watch decentralization philosophy and procedures.</p>	<p>PS7.1: Refresher training for SPC staff</p> <p>PS7.2: Work with OCWWS on WFO training for NWSI and WBC best practices.</p>	<p>PS7.1: Complete. Process has been described in Station Duty Manual, reviewed and initialed by all SPC staff, and discussed in quarterly staff meetings</p> <p>PS7.2: Complete - ongoing. OCWWS tasked with training effort in recent Service Assessments. NWS need resurfaced in 27 April 2011 Service Assessment. NWS voted to fill through annual reminders through Regions to WFO Forecasters</p>	<p>PS7.1: FY11 (complete)</p> <p>PS7.2: FY12 (Complete) NWS OCWWS</p>
<p>Recommendation PS8: SPC should continue to update its excellent web site with additional forecast tools and products as they become available, including short “primers” regarding the nature of such products and how they might best be applied. SPC should consider including on its web site a more prominent link through which users can make inquiries and offer suggestions regarding the web environment and SPC products.</p>	<p>PS8.1: Redesign MesoAnalysis web content to provide these popular forecast tools nationwide, and with new overlay capability.</p> <p>PS8.2: Develop web based primers for SPC products, services, and forecast process.</p>	<p>PS8.1: Complete. Implemented 13 April 2010</p> <p>PS8.2: Complete - ongoing. Software purchased and initial offering of web based primers are on SPC website. Additional web based materials are in development.</p>	<p>PS8.1: 3Q FY10 (complete)</p> <p>PS8.2: 3Q FY11 (complete)</p>
<p>Recommendation PS9: NWS and SPC should re-examine the desirability of SPC issuing cool season heavy precipitation mesoscale discussions and evaluate ramifications for staffing, guidance products and training. Manpower limitations should be considered in deciding whether SPC should continue to be tasked with issuing warm season heavy precipitation mesoscale discussions.</p>	<p>PS9.1: New SPC Director will need to establish strategic vision and approach to these issues in collaboration with staff, Regions, OCWWS, partners and customers.</p>	<p>PS9.1: Complete. In FY13, WPC will take over operational issuance of heavy precipitation discussions.</p>	<p>PS9.1: 3Q FY13 (complete) <i>NCEP OD, HPC, OCWWS, NWSEO</i></p>
<p>Recommendation PS10: A multi-agency effort</p>	<p>PS10.1: NOAA SAB just completed comprehensive Fire</p>	<p>PS10.1: Not yet started</p>	<p>PS10.1: FY11+ (Long –extremely unlikely)</p>

(at a minimum, NOAA and the Department of the Interior) should be initiated to re-visit the fire weather forecast challenge to determine the most appropriate way forward. Failure to do so could have important long-term negative consequences on the SPC mission and the perception of its effectiveness.	Weather Study which should serve as a starting point for future discussions. PS10.2: SPC staff augmented 2 FTE allows day time forecast updates and dramatically increased collaboration.	PS10.2: Complete. Part of 23 March implementation	<i>OCWWS, Regions</i> PS10.2: 2QFY10 (complete) <i>NCEP OD, OCWWS, NWSEO</i>
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Information Systems

Finding IS1: SPC has produced an outstanding web site with effective graphical capabilities including information for education. A web design philosophy that embodies breadth, followed by depth, makes the site easy to navigate. The site well reflects SPC forecast services and scientific expertise and allows for in-depth exploration of product details, data archives, and forecast tools.

Finding IS2: SPC's severe thunderstorm report database, event summaries, and forecast tools are valuable and heavily used by the community, representing an important outreach capability. The stakeholder survey included several positive comments regarding these resources, and the value of the database for teaching was especially prominent.

Finding IS3: The upgrade of AWIPS/N-AWIPS to the Second Generation Advanced Weather Interactive Processing System (AWIPS-II) could have a major impact on IS and other operations, especially given that many of the tools used by SPC and others in NCEP, including those in N-AWIPS, were developed and implemented by SPC. The AWIPS-II migration plan is a good start on minimizing impacts to SPC and other service Centers.

Finding IS4: IS security implementation of the Federal Information Security Management Act (FISMA) and certain administrative functions (e.g., NOAA's Planning, Programming, Budgeting and Execution System - PPBES) are consuming a substantial and increasing portion of staff time and encroaching on other important duties.

Finding IS5: A notable diminution of staff professional training has occurred during the past 3-4 years, especially in critical IS areas. Classes in Java, scripting languages, etc. are desired by IS staff, and management should realize that providing the staff with time to attend professional training courses (as opposed to taking online courses at their desks, subject to interruption and distraction) will pay off several-fold in more efficient use of staff time to perform critical programming and system management duties

Recommendation IS1: IS staff should place a high priority on maintaining the schedule for AWIPS-II transition. Failure to do so could lead to increases in the already large amount of time and effort required for a smooth transition.	IS1.1: Already high priority. Staff re-alignment to meet approaching challenge in progress. A successful transition of local applications is a key SPC and NCEP challenge. Mitigation strategies under development by NCO.	IS1.1: In progress. AWIPS-II Transition meetings with SPC and NCO have been held since FY11. Local and National Transition activities continue to be a very high priority during FY14.	IS1.1: FY14 & FY15 (Medium) NCO, NWSEO, AWIPS Program
Recommendation IS2: IS staff and SPC management should seek common security and AWIPS-II solutions with other NCEP centers, including NCO. IS staff members are concerned that security issues are taking up a considerable amount of time, currently estimated at more than one FTE. This is not likely to decrease in the future, and other NCEP centers have similar issues. NWS and NCEP leadership must ensure that adequate IS staff time is directed toward the AWIPS-II transition, particularly because many of the tools presently used within N-AWIPS were developed by SPC and need to be transitioned to AWIPS-II.	IS2.1: NCEP wide effort to study issues and provide a framework to address issues.	IS2.1: Complete. SPC shares ISSO resource between SWPC, AWC and SPC. Addition of NHC to arrangement is likely.	IS2.1: 2QFY12 (complete) NCO, NCEP OD, SWPC, NWSEO
Recommendation IS3: SPC management should insure that IS staff members receive sufficient opportunity for training and professional development.	IS3.1: IT specific training plans will be developed. In addition to individual IDP already in place IS3.2: Additional money (10K) allocated for FY10 AWIPS-2 related training. Further training in progress FY12 & FY13.	IS3.1: Complete. The new SSB Chief is developing multi-year IT specific IDP's as complements to existing annual IDP's. Budget situation makes it difficult to establish an effective program for training needs. IS3.2: Complete	IS3.1: 1QFY14 (complete) IS3.2: 1QFY14 (complete)

Science and Technology

Finding ST1: SPC is leading the application of meso- and storm-scale ensemble numerical prediction in operational forecasting. Ensemble guidance has played a critical role in SPC forecast advances, including SREF output in the production of the Calibrated Thunderstorm Forecast, which is shared with AWC to aid preparation of the Collaborative Convective Forecast Product (CCFP). Additionally, SPC post-processing of SREF output yields environmental guidance to forecasters in the production of severe, fire, and winter weather products. Evaluation of experimental storm-scale ensemble forecasts (SSEF) has since 2004 been an integral part of the HWT Spring Experiment. Thus, SPC has sought to push the envelope with regard to operational use of ensemble forecasts and has done so with great success through extensive collaborations made possible largely by HWT.

Finding ST2: SPC is using innovative verification techniques to investigate at a deeper level the skill of its forecasts in the context of the overall environmental conditions. SPC uses traditional forecast verification metrics (e.g., probability of detection) but also is exploring context-based verification using a unique severe storm environment relational database developed in house. The latter allows forecasters to parse previous forecasts according to environmental conditions to produce verification statistics valid for particular environments. By doing so, they and other researchers are able to identify and focus on atmospheric conditions that represent the greatest forecast challenges and subsequently focus research efforts more sharply. This extra effort at verification is a testament to the pride taken by SPC staff in producing the best possible analyses and forecasts.

Finding ST3: SPC is the undisputed “go-to” place among remote NCEP service centers for the creation of forecaster tools. Examples include the N-SHARP model sounding program and hourly mesoscale analysis fields produced by supplementing observational data with model data. Other centers have benefitted from these SPC developments.

Finding ST4: HWT is very successful in multiple ways. This is particularly true for R2O, O2R, education and community engagement programs, multiple-agency interaction, and HWT serving as an “honest broker” to bring disparate communities together for mutual benefit. HWT has become a role model for other test beds and has tremendous potential for fostering work at interfaces with other NCEP Centers. The HWT Spring Experiment provides fertile ground for the sharing of ideas among researchers, academics, private industry and forecasters. Through honest and open discussion of results from competing model formulations, model development is able to proceed in the most effective directions possible. HWT has been instrumental in pushing forward short-range ensemble forecasting and providing SPC with a mechanism to forge strong outside collaborations. HWT also is serving as a proving ground for the Geostationary Operational Environmental Satellite (GOES-R) products. Finally, HWT has been funded “out of hide” from resources made available by NSSL and SPC, indicating not only a fruitful partnership between an Office of Atmospheric Research (OAR) lab and a NWS operational center but also a compelling need for stable, base funding commensurate with test beds at other NCEP service Centers. In HWT, NCEP has a tremendous resource having substantially greater potential than now is being realized (see Finding ST5).

Finding ST5: Despite its notable success, the HWT facility and related infrastructure could be used more effectively if additional resources were made available (e.g., via leveraging, linking with other programs like NextGen). Given the impressive facilities at HWT and their effective use during the SPC Spring Experiment, it is somewhat disappointing that the facilities sit relatively idle during the remainder of the year. This is through no fault of the SPC, which has very little funding for HWT, but represents an overlooked opportunity for NCEP as a whole.

<p>Recommendation ST1: SPC is to be commended for engaging social scientists in HWT activities and we encourage broader and deeper interactions with the SSWIM effort at OU, related activities at NCAR and the National Severe Weather Workshop, and with others. As the border between watches and warnings becomes increasingly blurred and the public is supplied with forecast probability information in ways different from those in the past, social scientists must be engaged in research that helps determine optimal ways for presenting forecast information. Social scientists also could be very useful in new risk forecasts being explored by SPC, which combine population density data with forecast information. Complementary to the SSWIM approach, which brings social science into meteorology, we recommend SPC also take meteorology into the social sciences.</p>	<p>ST1.1 (PS6.1, CP1.1): Increase involvement in Social Science Woven into Meteorology (SSWIN) and other social science communities.</p> <p>ST1.2 (PS6.2, CP1.2): Involve social science community in SPC product development and refinement to increase public response to SPC services and call to action statements. The SPC will begin the process of deeper engagement within the current Convective Watch Reorganization activity initiated in FY10.</p> <p>ST1.3 (PS6.3, CP1.3): Increase the social science dimensions within SPC Hazardous Weather Testbed activities. The new Warn on Forecast funded contract HWT Liaison will have a service delivery element focused on communication of uncertainty and risk</p> <p>ST1.4 (PS6.4, CP1.4): Continue strong involvement of social scientist community in National Severe Weather Workshop</p>	<p>ST1.1 (PS6.1, CP1.1): <u>Complete - ongoing.</u> SSB Branch Chief added to SSWIM Advisory board in 1Q FY10. SSWIM program decommissioned in FY11. Working with new OU-NOAA Partnership for Social Science research.</p> <p>ST1.2 (PS6.2, CP1.2): <u>Complete - ongoing.</u> Proposal to NWSHQ to fund collaborative effort with SSWIM was rated in top 15 proposals nationwide, but ultimately was unfunded. Unfunded effort with SSWIM completed in Summer 2011.</p> <p>ST1.3 (PS6.3, CP1.3): CP1.3: <u>Complete.</u> New Wof HWT Liaison (Dr. James Correia) arrived in September 2010, with a portion of his focus on interface with social science research.</p> <p>ST1.4: <u>Complete - ongoing.</u> A significant social scientist presence participated in the 2010, 2011 and 2012 NSWW. SPC organized Dec 2011 Weather Ready Nation Workshop focused on tornado warnings with 20-30 prominent social scientists. Proposal with academic collaborators to explore communication paths and efficiencies to and through major SPC & NWS partners.</p>	<p><u>ST1.1 (PS6.1, CP1.1): 1Q FY10 (complete)</u></p> <p><u>ST1.2 (PS6.2, CP1.2): 4Q FY11 (complete) SSWIM</u></p> <p><u>ST1.3 (PS6.3, CP1.3): 4Q FY10 (complete) SSWIM</u></p> <p><u>ST1.4 (PS6.4, CP1.4): 2Q FY12 (complete)</u></p>
<p>Recommendation ST2: With support of NCEP headquarters, a plan should be developed mutually by SPC and AWC to ensure more effective interactions at the interface between severe weather and aviation operations, e.g., utilizing HWT and the nascent AWT for NextGen-related activities. Convection is the clear binding tie that lies at the interface between the AWC and SPC missions, and greater collaboration between the two centers would prove beneficial, particularly with regard to preparing for NextGen. However, this must be done with sensitivity to IS and other staff at both AWC and SPC so they are not unduly burdened by supporting these</p>	<p>ST2.1 (CP2.3): An AWC-SPC synergy plan should be developed.</p>	<p>ST2.1 (CP2.3): <u>Complete - ongoing.</u> A plan was developed during FY11 to assure complementary use of collaborative research efforts to avoid unnecessary duplication in efforts. This effort included SPC, AWC and HPC.</p>	<p><u>ST2.1 (CP2.3): 4QFY11 (complete) AWC & HPC</u></p>

efforts. NCEP leadership should consider appropriate similar interfaces with other service Centers.			
<p>Recommendation ST3: A strategic plan for HWT should be developed that builds upon its unique strengths and potential and takes advantage of emerging capabilities in high performance computing. The latter includes the availability in 2011 of sustained petascale computing capability within the National Science Foundation (NSF) suite of supercomputing facilities, opportunities in education and outreach, and engagement of other interests in business. Given the proper resources, the already successful HWT could be used to address a plethora of pressing problems within NCEP, and we encourage NCEP and SPC leadership to consider extending HWT's vibrant intellectual capability into new research areas.</p>	<p>ST3.1: Develop new HWT Strategic Plan</p> <p>ST3.2: Integrate HWT and GOES-R Proving Ground activities.</p> <p>ST3.3: Develop strategic partnership with DTC where appropriate. Fall FY09 Workshop; Fall FY10 Technical Workshop.</p> <p>ST3.4: New WoF HWT Liaison should include focus on service delivery and communication of uncertainty and risk.</p>	<p>ST3.1: In progress. Revised HWT White Paper in place. Discussions on a new HWT strategic plan have been held with stakeholders. Discussions with OAR on improved support framework.</p> <p>ST3.2: Complete. Integrated planning and execution was accomplished for Spring FY10 Experiment.</p> <p>ST3.3: Complete - ongoing. Ensemble Workshop and HWT-DTC collaboration meeting held in 4QFY09. Fall FY10 Technical Workshop was held. HWT Planning Meeting with DTC held 13-14 September 2010.</p> <p>ST3.4: Complete. New WoF HWT Liaison (Dr. James Correia) arrived in September 2010.</p>	<p>ST3.1: FY14 (Medium) <i>NSSL, DTC, EMC, GSD, OU CAPS</i></p> <p>ST3.2: 3Q FY10 (complete) <i>GOES-R, NSSL</i></p> <p>ST3.3 1Q FY11 (complete) <i>DTC, NSSL</i></p> <p>ST3.4: 4Q FY10 (complete)</p>

People and Organizational Culture

Finding POC1: SPC staff productivity is high, both in terms of operational product generation and associated O2R activities. In addition to a heavy shift workload (which has increased as SPC assumed additional tasks pertaining to fire weather, heavy precipitation, and enhanced thunderstorm probabilities), SPC personnel continue to perform research and write a substantial number of papers for conferences and even archive journals. As noted previously, some of this work is performed during staff spare time, which is a testament to staff passion for and devotion to the SPC mission of protecting life and property. Since 1993, the annual average number of refereed and non-refereed conference publications having SPC staff as authors or co-authors has been four and 30, respectively.

Finding POC2: Significant attention has been given toward improving workforce diversity. Thirteen percent of permanent SPC Federal staff members are women or underrepresented minorities while 38% of SPC contractors have the same designation. The two most recent SPC Student Career Employment Program (SCEP) students have been female or underrepresented minorities. This brings the most recent total SPC staff to 20% female/minority.

Finding POC3: Although NCEP's seven service centers are not in competition with one another but in fact work collaboratively, comparisons between centers among staff are unavoidable, particularly given the varying missions of the centers. It is in this context, and considering its mission, we note that SPC has fewer FTEs than several of the other NCEP centers. Specifically, despite increased tasking (e.g., fire weather, mesoscale discussions on heavy precipitation), the only net staff increase in the number of Operations Branch personnel during the past several years has been the addition of the WCM. As a result, SPC forecasters are concerned that increasing workloads will ultimately endanger their standards for excellence in product quality and timeliness. The workforce is aware that SPC leadership has requested additional FTE's but has not been informed as to why these requests were denied. This may lead to non-productive speculation regarding motives. Frustration was expressed during the site visit over the fact that the notably successful HWT was being funded "out of hide" while other startup test beds apparently received substantial new funds. A lack of NOAA support in this regard also threatens morale and limits a greater exploitation of this excellent testbed.

Finding POC4: Significant cross-functionality is built into the SPC organization. Examples include shadowing among lead forecasters, mesoscale and outlook forecasters and assistant mesoscale forecasters. The chiefs of the Operations Branch and Scientific Support Branch, the SOO, and the WCM frequently fill operational forecast shifts, working a combined 175 and 179 operational shifts in 2007 and 2008, respectively. Although this is important for keeping management in touch with operational shift reality and builds a comfort level between staff and supervisors, the frequency with which management performs floor forecast functions suggests that FTE levels may be too low in relation to the SPC's operational responsibilities. Additionally, limitations in how various General Scale (GS) grade positions are used to accommodate substitutions due to forecaster illness or other circumstances may be limiting short-term accommodation of staffing shortages.

Finding POC5: SPC staff members appear to trust management and consider themselves to be empowered to determine the success of their organization. Management relationships with the NWS Employee Organization (NWSEO) appear very sound, and it was clear during on-site interviews that workforce personnel ideas and concerns are respected.

Finding POC6: The effectiveness of interactions between SPC and other NCEP centers, outside research organizations and other Federal agencies is variable. Although SPC makes available to AWC the enhanced thunderstorm probability forecast, little daily interaction appears to occur between forecasters from the two centers. Some collaboration occurs between SPC and HPC and between SPC and TPC when tropical cyclones near the US coastline. Discussions with SPC leadership during the site visit revealed inconsistencies regarding the importance of such collaborations. Additionally, a degree of rivalry and/or mistrust was evident in some cases.

Finding POC7: The SPC Director has announced his intention to retire effective 2 January 2010 and no SPC Deputy Director presently exists.

<p>Recommendation POC1: SPC leadership should evaluate its operational responsibilities and current staffing levels and formally communicate to NCEP leadership recommendations for increased staffing and/or reduced operational responsibilities.</p>	<p>POC1.1: Work through NOAA processes to increase human resources as deemed appropriate.</p> <p>POC1.2: Review remaining issues, recommend potential paths</p>	<p>POC1.1: In progress. SPC efforts through PPBES and consultation with senior NWS management bore fruit in 4Q FY09 and 1QFY10 with 2 FTE for daytime Fire Weather and 1 CTE for HWT Liaison.</p> <p>POC1.2: In progress. New SPC Director continues</p>	<p>POC1.1: Ongoing (Long)</p> <p>POC1.2: Ongoing (Long)</p>
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<p>Although this recommendation may seem odd in light of the structured NCEP strategic planning process, the review panel wishes to highlight the importance of staffing issues and suggest that SPC leadership and staff evaluate current work practices to determine whether opportunities exist to increase efficiency, for example, via increased automation of product generation. The review panel inquired as to this possibility and was told that all options for increasing efficiency had been exhausted. No substantiation for this statement was provided, however.</p>	<p>forward, and collaborate with NWS senior management on actions.</p>	<p>review remaining issues, formulation of recommended paths forward, and collaboration with NWS senior management on actions. Heavy rainfall MDs were transferred to WPC in FY13.</p>	
<p>Recommendation POC2: SPC leadership should keep staff fully informed of staffing plans, the status of requests for increased staffing and reasons that such requests are not granted. In addition, leadership should incentivize staff to improve efficiency where possible, either through improved work-practices or additional automation.</p>	<p>POC2.1: SPC Management will seek input from local NWSEO on approaches to improve communication with staff.</p> <p>POC2.2: SPC Management will seek insights of staff for improved product generation efficiencies through existing local NWSEO Vision Team or other NWSEO collaborative staff team.</p>	<p>POC2.1: Complete - ongoing. Request for collaboration on communication issues made to local NWSEO. Communication question was added to Annual 360 feedback to generate additional ideas. Collaboration will continue indefinitely.</p> <p>POC2.2: Complete - ongoing. Formed new product generation efficiency NWSEO team. Three resulting product changes were integrated into FY12 AOP.</p>	<p>POC2.1: 2QFY12 (complete) NWSEO</p> <p>POC2.2: 2QFY12 (complete) NWSEO</p>
<p>Recommendation POC3: SPC leadership should re-evaluate its policy on GS-level substitution to ensure maximum flexibility in dealing with personnel substitutions. Current SPC policy does not allow a GS-13 forecaster to substitute for a Lead Forecaster, though GS-13 forecasters can assist Leads, including with the issuance of watches, though never issue watches on their own if a Lead Forecaster is not present. Likewise, GS-12 forecasters cannot substitute for GS-13 forecasters. A number of reasons exist for this policy, e.g., to avoid perceived pre-selection of individuals for promotion, to ensure proficiency, to avoid the challenge of an individual supervising someone in his or her own grade. The SPC Union does not agree with this policy and believes that GS-13 forecasters should be utilized when Lead Forecasters are not available. We therefore recommend that SPC leadership continue discussing these issues with staff, and the NWS Union Steward, to ensure that fill-in policies are as effective as possible.</p>	<p>POC3.1: Engage local NWSEO in discussions concerning forecast substitution policies.</p>	<p>POC3.1: Complete - ongoing. Formal discussions with NWSEO resulted in agreement on process and rules for experienced GS-13 fill in shifts at the Lead desk.</p>	<p>POC3.1: 4Q FY11 (complete) NWSEO, NCEP</p>

Business Processes

Finding BP1: *The 360 performance evaluation, developed by SPC, has been useful for identifying and addressing issues. This annual process was put in place several years ago and both management and the NWSEO believe it has resulted in effective working relationships among all SPC employees.*

Finding BP2: *The relationship between SPC management and local labor (NWSEO) is quite good. Both groups noted that most issues are resolved quickly and equitably and to everyone's satisfaction.*

Finding BP3: *Although SPC leadership appears to have meaningful working relationships with their counterparts at a few of the other service Centers, the same does not appear to be true for staff. Indeed, some staff members do not appear to have the expected level of familiarity with the mission and operational frameworks of other NCEP service Centers. This has led to feelings of resentment by some staff toward their sister*

Centers, along with a perception of favoritism by NCEP headquarters owing of differential staffing levels among Centers.

Finding BP4: Insufficient communication appears to be occurring between management and staff in some areas, even when factoring in the challenges of a 24/7 operational environment and especially concerning resource allocation and other decisions made at the NWS, NOAA and Department of Commerce levels. SPC staff members conveyed to the review team that they often do not receive information from leadership in a timely manner, and sometimes not at all, regarding key SPC strategies and issues. For example, although staff members are aware of ongoing discussions between SPC and NCEP leadership regarding additional personnel to support fire weather forecasts, they are not apprised of reasons why such requests go unfulfilled.

Finding BP5: Information Technology (IT) security (FISMA) implementation and certain administrative functions (e.g., PPBES) are consuming a substantial and increasing portion of staff time, encroaching on other important duties. Cybersecurity has become an essential part of doing business and this is especially true in the US government. Similarly, standardizing procedures is critical to any organization. However, both have become burdensome and have resulted in an ineffective use of precious time and resources such that they seem counterproductive to Center staff and management.

Finding BP6: A notable diminution of staff professional training has occurred during the past 3-4 years, especially in critical IT areas. This has occurred as a result of increased time spent by management in operational forecasting. Although management understands and appreciates the need to stay proficient on operational procedures, and that situations exist in which they will be required to work more operational shifts than normal, it seems to them that the elevated level of shift work has become the norm rather than the exception. The result has been less time for staff training.

Finding BP7: Despite its notable success, HWT and related infrastructure could be used far more than now is the case if resources were made available (e.g., via leveraging, linking with other programs such as NextGen). As noted elsewhere in this report, the budget for HWT is taken entirely "out-of-hide" at SPC and NSSL. That is commendable but not sustainable. Other options should be considered to ensure that HWT remains an outstanding program that delivers value to NCEP and the broader community.

Finding BP8: A formal process exists for determining user needs and priorities at the agency level, and another, much more informal process occurs at the SPC level of engagement with users. The balance and connection between these two processes is unclear. NCEP and NOAA receive requests for new services and after due consideration pass them to SPC leadership. Operational staff members also are approached by users with requests for new services but frequently, these requests are not coincident. The official process of soliciting user input generally works well because resource issues are addressed up front and the political implications also are considered. Conversely, operations staff understandably desire to provide services requested directly by customers. The lack of coordination with the two approaches causes confusion and wasted effort, especially because of the difficulty associated with discontinuing existing services to make room for new ones.

<p>Recommendation BP1: A plan should be developed for more effective interaction at the interface between AWC and SPC, e.g., utilizing HWT and the nascent AWT for NextGen-related activities. Although SPC leadership reports good working relationships with other relevant NCEP centers, the same does not appear true at the level of operations staff. Additionally, the absence of a programmatic budget for HWT limits the extent to which it can be used as a mechanism for interacting with other centers. These issues may be ameliorated to a great extent by focusing on HWT as a vehicle to move forward several important and timely initiatives, e.g., spin-up of the AWT.</p>	<p>BP1.1 (CP2.3): An AWC-SPC synergy plan should be developed.</p> <p>BP1.2: Explore support for HWT aviation liaison position to leverage HWT and Norman NOAA community to aid aviation weather advances.</p>	<p>BP1.1 (CP2.3): Complete - ongoing. A plan was developed during FY11 to assure complementary use of collaborative research efforts to avoid unnecessary duplication in efforts. This effort included SPC, AWC and HPC.</p> <p>BP1.2: Complete - closed. Further progress unlikely as all aviation related activities are focused on SPC, AWC, HPC research synergy plan which reduces the liaison need.</p>	<p>BP1.1 (CP2.3): 4QFY11 (complete) AWC & HPC</p> <p>BP1.2: FY12 (Complete - closed)</p>
<p>Recommendation BP2: Attention needs to be given to more effectively capturing and communicating user needs at multiple levels into SPC product road maps. A number of areas exist where SPC and NCEP need to coordinate communication between operations staff and management, operations staff and customers, management staff and NCEP management, and NCEP and other service Centers. This issue is especially critical due to current and likely future resource constraints, and as a mechanism to provide optimum customer service.</p>	<p>BP2.1: NCEP Customer Requirements team provides template for documenting and expanding existing processes.</p> <p>BP2.2 (CP3.10): Develop an outreach and communication plan that collects and meshes current activities, establishes annual and multi year priorities and guides activities and communication goals each years.</p> <p>BP2.3: Further engage Vision Team and NWSEO in strategic roadmap and customer need process.</p>	<p>BP2.1: Complete</p> <p>BP2.2 (CP3.1): Complete - ongoing. Discussions began in April 2011 with both NOAA Public Affairs and NWS OCWWS participation. Preliminary plans supported widely praised NOAA response during historic 2011 tornado season. Succinct plan for FY11-13 now complete.</p> <p>BP2.3: Ongoing. Numerous (remote) meetings with partner groups are planned in FY13. SPC participated in NWS CSI survey in FY12</p>	<p>BP2.1: Complete. NCO, NCEP OD</p> <p>BP2.2 (CP3.1): 4QFY11 (complete) NOAA PA</p> <p>BP2.3: FY14 (Medium and ongoing) NWSEO</p>
<p>Recommendation BP3: Consideration should be given to more frequent meetings between management and staff, not only to communicate information to staff but also to obtain their input on emerging activities, milestones and products. It is apparent that staff members believe updates from</p>	<p>BP3.1 (POC2.1): SPC Management will seek input from local NWSEO on approaches to improve communication with staff.</p>	<p>BP3.1 (POC2.1): Complete - ongoing. Request for collaboration on communication issues made to local NWSEO. Communication question was added to Annual 360 feedback to generate additional ideas. Collaboration will continue indefinitely.</p>	<p>BP3.1 (POC2.1): 2QFY12 (complete) NWSEO</p>

<p>management about issues that impact them are too infrequent. Similarly, the current meeting frequency fails to provide staff an adequate opportunity to share with management their ideas about products, services and research. Staff members do recognize the challenges of meeting this goal in the context of an event-driven 24x7 environment. However, a higher frequency of meetings should result in operations staff feeling more connected to the SPC team, and empowered to provide input that no doubt will be valuable to SPC leadership.</p>			
<p>Recommendation BP4: To be more effective in collaborating and especially working at organizational interfaces, mechanisms should be developed and implemented to provide SPC staff with opportunities to become familiar with, and have greater direct interaction with, appropriate sister NCEP service centers. It is in the interest of SPC, NCEP, NWS and NOAA to engender as much inter-organizational cohesiveness as possible. Budget concerns alone should be sufficient to force collaboration; however, it is apparent from discussions with SPC staff and management that a strong desire exists to make SPC an even more vital part of NCEP.</p>	<p>BP4.1: Collaborate to develop NCEP wide plan of action.</p> <p>BP4.2: Use NCEP plan as framework to develop SPC plan of action.</p>	<p>BP4.1: Not yet started. Must develop an approach effective in austere budgetary (& travel) environment.</p> <p>BP4.2: Not yet started. Linked to BP4.2</p>	<p>BP4.1: BP4.1: FY14 (Medium)</p> <p>BP4.2: BP4.2: FY14 (Medium)</p>
<p>Recommendation BP5: NCEP needs to review IT security mandates and administrative processes within SPC, especially those that seem to act as a roadblock to desired productivity improvements. A seemingly inordinate amount of time is spent at SPC addressing IT security and PPBES issues. Although necessary, these two systems have a noticeable negative impact on staff workload, especially in an already resource-constrained environment which. It would seem logical for NCEP and/or NOAA to streamline these processes/systems as much as possible and deploy them within all Centers in a manner that minimizes duplication of effort and cost.</p>	<p>BP5.1 (IS2.1): NCEP wide effort to study issues and provide a framework to address issues.</p>	<p>BP5.1 (IS2.1): Complete. SPC shares ISSO resource between SWPC, AWC and SPC. Addition of NHC to arrangement is likely.</p>	<p>BP5.1 (IS2.1): 2QFY12 (complete) NCO, NCEP OD, SWPC, NWSEO</p>
<p>Recommendation BP6: Serious consideration should be given to formalizing regularly scheduled training for all SPC personnel. While the type and audience for training will vary, the frequency and amount of training should be relatively consistent among NCEP service centers. Training, both initial and recurring is a critical component of any organization but often is given lower priority in times of constrained budgets and limited personnel.</p>	<p>BP6.1: Continue annual formal Fall and Spring Training for entire forecast staff.</p> <p>BP6.2: Continue practice of individual staff IDP and encourage staff to provide input.</p> <p>BP6.3 (IS3.1): IT specific training plans will be developed. In addition to individual IDP already in place</p> <p>BP6.4 (IS3.2): Additional money (10K) allocated for FY10 AWIPS-2 related training. Further training in progress FY12 & FY13.</p>	<p>BP6.1: Complete (ongoing).</p> <p>BP6.2: Complete (ongoing)</p> <p>BP6.3 (IS3.1): Complete. The new SSB Chief is developing multi-year IT specific IDP's as complements to existing annual IDP's. Budget situation makes it difficult to establish an effective program for training needs.</p> <p>BP6.4 (IS3.2): Complete.</p>	<p>BP6.1: Complete (ongoing).</p> <p>BP6.2: Complete (ongoing).</p> <p>IBP6.3 (IS3.1): 1QFY14 (complete)</p> <p>IBP6.4 (IS3.2): 1QFY14 (complete)</p>

