Community Review NCEP Assessment and Recommendations – (Last modified 20JAN12/BKC)			
Office of the Director (OD)			
Assessment Recommendation	**Planned Action**	**Status**	**Due Date**
(1) Leadership - *Serious lack of cooperation between the Directors of EMC and NCO.* Recommendation - NCEP Director must solve this problem in the near future.	1.1 - Clearly define roles and responsibilities for each Director. Create collaboration matrix and identify final authority for items of overlapping concern.	1) EMC/NCO leadership meets at least weekly to ensure cooperative approach to all issues and jointly charter specific projects (i.e. implementation plan) 2) Reinvigorated the High Performance Computing Resource allocation Council 3) A signed Data Assimilation plan in place involving NASA/GSFC, NOAA/ESRL, OU and EMC. Setting the agenda for ongoing development of real-time testing of "hybrid" (ENKF, 3-D and 4-D). 4) Implemented quarterly newsletter (Q2FY11) to ensure information on activities occurring at NCEP are widely distributed 5) EMC Director serving as chair of NOAA high performance computing allocation board	Action initiated, on track with ongoing efforts
	1.2 - Develop corporate board which meets periodically, either in person or virtually, to allow directors to vet their differences where input may be gained from other members and final authority rests with the director when parties are not able to reach consensus.	EMC/NCO Directors meet periodically on issue specific topics with individual center directors; Corporate board consisting of all center directors is in place and meets in person or virtually at least monthly; Will evaluate progress and effectiveness EOY.	Action initiated, on track with ongoing efforts
(2) External Advice - *NCEP needs external advice on both scientific aspects of its mission and the further development of its products.* Recommendation - NCEP should request from NOAA Headquarters that a science and services advisory board, linked to the testbeds, be established under the auspices of the NOAA Science Advisory Board.	2.1 - Discuss with NOAA HQ prior to developing subsequent actions	We've worked with HQ and the UCAR review committee to develop a path forward and will be executing on this concept of having UCAR to continue the NCEP review process through an advisory committee which will meet with the centers during the annual offsite strategic planning meeting. NCEP will expect the advisory committee to provide guidance following that meeting on an annual basis (timing to be worked out) and also review progress being made in report to recommendation being made. UCACN developed and resourced. This group of rotating membership will be our mechanism to consult periodically at the Oct strategic planning meeting. Received first UCACN report and their recommendation are being incorporated in to current tracking process.	Completed
(3) Administrative Workload - *There is a very large workload associated with the Office of the Director which overstretch the capabilities of one person to fulfill them.*	3.1 - Seek approval through the NWS and NOAA to acquire a new Deputy Director at the SES level.	The Deputy position is unlikely to be established in the short term due to fiscal constraints and developing movement to reduce the number of federal employees. We continue to explore opportunities to reprogram or acquire additional FTEs for this and the Operations Officer positions.	Periodic dialog with leadership, at risk 1-5 yr

Recommendation – NCEP requires a Deputy Director who can handle the day to day operations of NCEP as well as many other internally-directed duties, freeing up the Director to think more strategically and forge new collaborations and partnerships within NOAA, the federal government, the US academic community, the private sector and abroad.	3.2 – Create position description and performance plan for Deputy Director position OD. Submit along with SF-52 to WFM. Develop selection criteria matrix, review the certification, and develop hiring committee to conduct interviews of qualified candidates.	Will develop the position requirements upon approval from NWS and NOAA to create a position.	1-5 yr
(4) Computing Capability - *NCEP computing resources are not commensurate with the scope of the mission. The CPU, disk storage, and long-term archival systems are each at least an order of magnitude under-powered relative to the requirement.* Recommendation - NCEP requires a significant increase in its computing capability, with at least an order of magnitude increase in capability over the next five years.	4.1 – NCEP to engage with NOAA OCIO on the planning and procurement of next generation High Performance Computing systems.	Our evolving role as an enabler for our NOAA and other partners further complicates the planning part of the equation as does a growing appetite for storage (disk). To mitigate this ever increasing demand NCEP leases HPCC resources and establishes strict upgrade requirements on a timely basis. Unfortunately, there are competing interests for the resource which it takes to upgrade and maintain these very costly systems and this recent upgrade has been faced with delays which will challenge NCEP in the shorter term. We're currently addressing these challenges: 1) Internal procurements to advance storage and the system currently under hat as much as possible 2) Seeking cycles on other HPCC systems including (T-Jet in CO, CRACKEN and JAGUAR/DOE/Oak Ridge, Universities, and GFDL/GAEA/Oak Ridge, NASA) NCEP has been successful at forecasting computing challenges and timing and presenting these to leadership. The current situation whereby there was conscious decision to delay beyond original plan the implementation of an upgraded CCS for NCEP presents challenges and NCEP has responded with mitigating measures. - Bridge contract implemented ; preserving current computing capacity for the gap period until WCOSS is installed - WCOSS contract developed and near award - Development work currently being ported to external systems where resources are available (best prospects at GAEA/GFDL/Site A, JIBB/NASA/GSFC, TJET. - Progress in porting code for continued development has been good and this strategy will be used to mitigate the capacity constraints of the operational CCS in the procurement process.	1-3 yrs for next upgrade and ongoing process thereafter

(5) World-class Model Development - *There is sentiment in the community that EMC is not equipped to fulfill its mission or realize its vision.* Recommendation - The EMC mission should be carefully evaluated and either reduced in scope to align with the resources or the resources should be increased to align with the broad mission. NCEP and NWS leadership are urged to follow a path in which the EMC scientists are involved in the development with a team of partners from the beginning.	5.1 - Work through OS&T to address modeling and observation branch - Establish resource base - Address mission and execution - Work with the joint operational community (NOAA/DOD plan working through NWS HQ, MOBI) Address entire modeling effort and work into EMP - NOAA issue	We cannot arbitrarily "reduce the scope" since we have to support the NWS mission and related priorities. Thus, we have to find an effective way to enable effective partnerships and leverage other resources within the NMA to address these issues. For example, while we focus on the CFS (with GFDL), GSI, GFS, NAM/WRF connection, we rely on the Navy for the ocean model, ESRL for the upgrade to the high resolution rapid refresh, to ARL for the upgrade to air quality and NOS for the development and maintenance of regional coastal models implemented on the NCEP computer. We do agree about the importance of this issue and are currently working with NWSH to better establish NCEP roles for today and the future (2020 planning process). - We've developed an interim solution for the HRRR and will be working with OAR to ensure there is access for the community with near operational reliability.	Action taken 1-5 yrs and ongoing
(6) Ongoing Periodic Review - *The NCEP has been valuable in providing an opportunity for introspection on the parts of the NCEP centers and NCEP as a whole and in making a number of recommendations that are likely to lead to changes and improvements in NCEP's products and services, interactions with stakeholders, and organizational culture.* Recommendation - In order to preclude large periods of time transpiring before the next set of reviews, NCEP should formalize a periodic review process, to occur every 5-6 years.	6.1 - Conduct NCEP review every 5 yrs	Met with Ed Johnson Oct 10 to work through the potential FACA considerations and then held follow-on meeting to develop a committee membership (still planning on a contracted committee option) Currently working through the logistical aspects and will likely have continued UCAR reviews every 5 yrs similar to this review. Review every five years will be instituted unless the ongoing review team sees the continuous engagement being provided is sufficient.	Completed decision to conduct a review of NCEP every 5 yrs
Mission and Vision			
Finding MV1: *The site review panel finds that the organization of the nine centers that comprise NCEP are, on the whole, well-managed and interoperating at a level that provides significant benefit over and above what could be achieved by the individual centers if they were not coordinated. In other words, the whole of NCEP is greater than the sum of its parts.* **Finding MV2**: *The current NCEP Director's efforts, to make collaboration among the NCEP service centers a strategic basis for improvement, are good.* **Finding MV3**: *Considerable work remains to be done, specifically in breaking down barriers between service centers, between EMC and NCO, and between EMC and several of the service centers.*			
Recommendation MV1 : To facilitate the improvement, the NCEP Director needs to engage continuously the service center directors in strategic planning (in addition to planning associated with the Annual Operating Plan – AOP – and NCEP Technical Operating Plan – NTOP).	Increase meeting frequency with center directors and visits to external centers Developing HPC strategic plan CPC mission evolution through NCS planning process AWC strategic planning for NEXTGEN	- HPC Strategic plan near completion - The development of a Climate Service is currently stalled, but CPC remains engaged in climate activities along with partners to ensure valuable product and services are being provided to the public - Continued engagement with NWS HQ, NCEP centers on WRN, Roadmap, NGSP….in addition to internal AOP/NTOP process. We've also ensured that NWS	FY10 ongoing

		HQ has representation at NCEP strategic planning meetings. - Next Gen is moving forward with a higher confidence pace	
Finding MV4: *The site review panel recognizes and commends the NCEP Director for strong leadership. Due in part to his leadership, there has been considerable progress made in NCEP as a whole since last set of reviews.* **Finding MV5**: *NCEP service centers have met or exceeded their GPRA performance measures.* **Finding MV6**: *Partly as a result of the large loss of civil service human resources in the 1990s without a commensurate reduction in mission, and also as a result of its expanding mission, NCEP, particularly EMC, has become overly reliant over time on soft money support. This is a risk to the NCEP mission.* **Finding MV7**: *NCEP is under-resourced with respect to its scope and the vision of its future.*			
Recommendation MV2: The ratio of funds from the NOAA base to funds from soft NOAA and non-NOAA sources needs to be increased, in order to mitigate risk to the execution of current and future core mission components. One way to effect this change is by increasing collaboration with partners to offload the non-mission-critical activities, for which partnership agreements to jointly manage resources and jointly develop and monitor annual operating plans are critical.	EMC and CPC, mainly, have a large portion of their activities financed through soft sources. This is a reality of the business and while not ideal is the only way the volume of work required is to be accomplished in a strict fiscal environment. Review soft sources and seek hard funding to ensure all critical operational functions are inherently hard funded	We cannot arbitrarily "reduce the scope" since we have to support the NWS mission and related priorities. Thus, we have to find an effective way to leverage other resources within the NMA to address these issues. We are shooting for a 75%-25% base-soft funding ratio and are working with the NOAA Climate Program Office to develop the associated funding strategy. While EMC currently has a 50%-50% ratio, many of the soft funds come from other components within NOAA, so we are hopeful in being able to address this issue. Continues to be a challenge and will be exacerbated by potential impending reduced base resources. Already seeing extreme pressure on reduction of soft funding. We'll continue to look for efficiencies to provide the maximum service within available resources, but managing gaps between expected services and resources available will continue to be a challenge area for NCEP.	1-3 yrs
Finding MV8*: NCEP's mission portfolio is very large, and there are pressures to increase the portfolio due to the advent of NextGen, potential requirements for decadal prediction of climate and climate change, and expanding forecast challenges in space weather, ecosystems, air quality, and other areas that are beyond the traditional meteorological domain.* **Finding MV9**: *The evaluation and implementation of changes to the NCEP modeling suite is an important process that involves all NCEP centers. However, the process appears to be contentious and often ineffective.*			
Recommendation MV3: The Director of NCEP needs to work with all center directors, particularly EMC and NCO, to design a thorough, standardized and competent evaluation and implementation process. The design of this process should take into consideration the possibility of involving an independent evaluation entity. At the same time, it cannot be so burdensome as to preclude steady implementation of necessary improvements.	NCEP Director actively working with NCO/EMC in developing and testing a new model implementation process. It will improve throughput and standardization	The implementation process has been fully developed and documented. It is currently being tested and EMC/NCO will make this plan available to the review committee. The new process will improve the throughput by weeks. Implementations are currently being run through the new process and there are substantive efficiencies realized. This process will need continued monitoring and adjustment, but the results are promising so fae.	Complete ongoing
Recommendation MV4: To address the issues of the provision of weather services and interaction with the research community more holistically, NCEP, or more properly NOAA, should consider requesting the National Academy of Sciences (NAS) to conduct a study	Will be discussed with Ed Johnson and Jack Hayes to determine best path forward	As noted previously we'll seek advisory services from a UCAR develop committee. The idea is to have the keyed up executive committee involved with our annual planning meeting(s). This could include the short term planning at the AOP meeting and/or offsite strategic planning meeting to provide insight to the committee on the path NCEP is planning to follow before the	On track 1-3 yrs

on how NCEP, NWS (field offices), NOAA, the academic community and interested stakeholders could engage more effectively.		plans are finalized, allowing for the committee to provide input which will help ensure our strategic plans are in-line with community needs. The UCACN has been setup in lieu of an academy committee and will work with NCEP to help advise NCEP in this area. We'll continue to use the UCACN as a group to engage with on this topic.	
Finding MV10: *The NCEP service centers are beginning to work and/or communicate well together on some activities. For example, the sharing of testbed resources between SPC and AWC, and the ongoing effort to collaborate on the development of week-2 forecast products between CPC and HPC, are encouraging. Given the many areas of common interest among the service centers, many potentially beneficial collaborations could be enhanced or initiated.*			
Recommendation MV5: The NCEP Director should look across the organization for potential new or enhanced collaborative opportunities, among the service centers and with outside entities.	Recent collaboration efforts underway include: - Data assimilation plan - NOS MOA and CONOPS for modeling - HYCOM Ocean/Land modeling w/DOD worked through HQ/OS&T and EMP - NEXTGEN and FAA - HMT, HWT and AWT work in coordinated fashion on spring experiment w/ common focus on convection - GOES-R evaluation and demonstrations	- Data assimilation plan signed and being executed (NCEP, ESRL, NASA, OU); - Working with NOS on model implementation (also have one FTE funded by NOS) - Engaging with other centers (CMC through NAEFS, FNMOC, UKMO – Space wx, volcanic ash, India – GFS and CFS….) - NCWCP co-located with UMD will have 40 spaces for VSP - NCEP will continue to aggressively seek additional collaborative opportunities	On track
Finding MV11: *Connecting annual evaluations to the quality of collaborative efforts is an excellent practice that is already proving to be effective.*			
Customers and Partners			
Finding CP1: *NCEP has taken strides toward openness and collaboration within NOAA, with other US institutions, and with international partners. The establishment of testbeds in several of the service centers has been useful and valuable and has the potential to entrain research results from other NOAA laboratories and the academic community and to enable the transition from research to operations in an effective way.* **Finding CP2**: *Despite the progress in this area, the effectiveness and impact of the testbeds has varied considerably from center to center, and NCEP remains insufficiently engaged with the community. The visiting scientist program at NCEP has waxed and waned over the years and is currently in a relatively low state of activity and integration across NCEP.* **Finding CP3**: *Despite active participation in international programs, NCEP does not have as strong an international leadership role as it should.*			
Recommendation CP1: A multi-faceted plan is needed that builds on the organizational strengths of NCEP and the early successes and lessons learned from the Testbeds to enhance engagement with the rest of the community.	Develop a multi faceted, clear, and comprehensive plan to increase transparency and enhance the community involvement. The testbeds will continue to have unique management and resourcing. They will be managed and structured uniquely as well, with similar reporting and accountability processes.	Each test bed is program supported, resourced, and managed individually. It is unlikely a common management architecture/framework will allow for the flexibility in the differences required by each test bed. We currently have testbeds in various stages of evolution and levels of resourcing, but view all as being effective at meeting the intent "accelerating research into operations". This may be an area we need to discuss further with an advisory type committee to ensure we continually fine-tune the testbed structure/process and maximize potential.	1-3 yrs
Recommendation CP2: A more vigorous visiting scientist program is needed that is tightly linked to programs in the academic community and driven both by scientific issues and mission demands.	Enhance the visiting scientist program Work into program plans based on the move to the new building where there will be the facilities to support approximately 40 visiting positions	While there is no formal program, NCEP and its associated testbeds are involved in numerous projects which seek and receive external scientist interest support. NCEP is also involved in research type ventures which directly relate to improving the products we supply. - Winter	Ongoing

		- Spring experiment - DYNAMO - Global Hawk - UCAR Post Docs (SWPC, CPC, EMC…) It should also be noted that there has been recent discussion that NWS plans to establish its own Visiting Scientist grant which may pose an opportunity for NCEP to grow its current program and number of visiting scientists. The new building has 40 spaces set aside for visiting scientists which will be supporting various NOAA programs. Tasked be Assistant Secretary to make the VSP a flagship for the what is new at NOAA when the NCWCP is opened.	
Finding CP4: *Outreach to partners and stakeholders deserves praise. For example, all Centers are working hard to improve data/product dissemination (e.g. web services).* **Finding CP5**: *While the surveys and the review panel found that NCEP responded well to Forecast Office problems with model guidance, increased dialog with other organizations within the National Weather Service is desirable; e.g., with the Office of Hydrology, forecast/climate services in OCWWS, Regional Offices, and the Office of Science and Technology.*			
Recommendation CP3: NCEP should solicit feedback, and suggestions for improved products and services from partners and stakeholders within the NWS.	Develop program whereby centers interact with the user community on a regular and consorted basis	- NCEP continues to expand and strengthen relationships with other NOAA and NWS components. Recently collaboration with these internal partners have lead to improved products for Alaska, Hawaii and Puerto Rico. - NCEP will also expand on the current NCO program to call customers and include NWS customers (probably our biggest) - Annual model review meeting with external attendance hosted by EMC - Organizing Severe Weather Workshop and other related events to engage more closely with other agencies, social scientists and the public - Individual centers have list of external engagements for this purpose	1-3 yrs/ongoing
Products and Services			
Finding PS1: *NCEP is among the world leaders in making real-time weather and climate data, codes, and other products freely available.* **Finding PS2**: *The staff of the OD provides a highly professional and timely suite of administrative services to the rest of the NCEP organization.* **Finding PS3**: *The suite of products and services is expected to evolve over the next few years in response to increasing demands in areas that have traditionally been served by NCEP (aviation, seasonal climate, severe weather, oceanic and coastal areas, fire weather, and space weather), areas that are expected to emerge in the future (ecosystem prediction, NextGen, National Climate Service, air and water quality, homeland security and others), and possible new directions that will be defined as part of the new NWS strategic plan that will be released in April 2010.* *Finding PS4: While the NTOP process helps identify redundancies across Centers, there is no provision for discontinuing products or services.*			
Recommendation PS1: The Office of the Director will need to manage a growing portfolio of activities spread across the Centers to meet the growing and emerging demands for products and services. Such management should include a rational process for periodic identification and discontinuation of products that are obsolete or low in demand.	Develop as an agenda item at the AOP meeting for discussion (develop systematic process for what and how to terminate - and what can be automated)	What we are finding is rather than discontinuing products we are finding ways of automating products to free up resources. Case in point is the daily weather map which is old but is still downloaded several times per month by a diverse user community.	1-3 yrs and ongoing

Information Systems			
Finding IS1: *The entire NCEP enterprise depends critically on information systems and information technology (IT). NCEP has a requirement to stay abreast of the latest developments in high-end computing (HEC), data transmission, storage and management, data analysis and visualization, and web services. More transformative improvements in product generation and delivery capabilities will require a more expansive paradigm in the design of products, the interface by which users access products, and the underlying technological systems for delivering products.*			
Recommendation IS1: NCEP should establish policies, processes, and practices that will allow users to create customized interactions with CPC information systems, including dynamic process initiation, so that users can perform customized analysis and generate customized products on demand, user accounts and registration that allow maintenance of choices and portfolios across sessions, and implementation of new methods for providing information and engaging with users (e.g., podcasts, webinars). These policies, processes, and practices should foster interoperability among products and tools within NCEP, NWS, NOAA, and beyond. This includes a process of active engagement with external groups that are developing new tools for users (public, academic, and private sector), and easy access to explicit technical information, e.g., meta-data.	There will need to be a better consorted effort with the way we address web access and information in general. Will engage NWS on this to ensure consorted NWS-wide coordinated effort.	Centers and NWS offices handle their own web content following more standardized approach, which is probably the best model as they would be the best to gauge the customer base. There is a commonly accepted framework, but content continues to be handled by the individual centers in concert with NOAA CIO office. There is always room for development in this area and improvement in simplifying access to content and CPC has been in the lead at developing their web content through outside contract services. This effort was actually modeled at the NWS level and was instrumental in the development of the NOAA Climate Portal.	1-3 yrs
Finding IS2: *Centers are not using NCO effectively. Each center has a different balance between in-house and NCO-managed systems.* **Finding IS3**: *NCEP is striving toward a unified system of cyberinfrastructure and information technology (IT) activities, including cyber-security, in line with overall NOAA direction.*			
Recommendation IS2: The site review panel affirms its support for a more unified system of cyber infrastructure and IT activities, taking advantage of efficiencies of centralization and economies of scale. Nevertheless, NCO should establish policies, processes, and practices that will foster interoperability among products and tools within NCEP, NWS, NOAA, and beyond.	Develop IT standards charter (ESMF)	ESMF provides a software architecture which will be implemented primarily by EMC (with NCO support). While this does present a significant potential for increased efficiency, ESMF is not in itself a "unified system of cyberinfrastructure and IT activities". The IT Standards Project establishes a process whereby NCEP can identify, evaluate and select IT standards. All charters are reviewed by the NCEP Centers that will sign the charter. The charter for the IT Standard Project was reviewed by all Centers. The process for establishing a new IT standard requires all Centers to review the standard.	1-3 yrs
Recommendation IS3: NCEP should clearly delineate NCO's responsibilities and those of the NCEP service centers to clarify roles and responsibilities and to identify the IT services that will and will not be provided centrally to the different service centers. For example, NCO could provide centralized support for IT security, hardware and software procurement and system and system-software maintenance,	Identify what IT functions can be centralized and which are better suited to be localized	Developed roving ITSO position to help support the external centers in the ever demanding problems associated with meeting IT security standards and certification requirements. Also centralizing IT support to the maximum extent possible. These two implemented measures need time before gauging effectiveness (6 months) and determining if additional measures are required to improve our ability to keep up with ever increasing demand.	1-3 yrs

certification and accreditation audits, and other services to be agreed upon, with an eye toward mitigating unnecessary duplication between NCO and the NCEP organizations that it supports. Code for products and services developed locally could be maintained by the service centers. This would require that they be permitted to hire expertise in such software.			
Finding IS4: *NCEP computing resources are not commensurate with the scope of the mission. The HEC, disk storage, and long-term archival systems are each at least an order of magnitude under-configured relative to the requirement.*			
Recommendation IS4: NCEP requires a significant increase in its computing capability, with at least an order of magnitude increase in capability over the next five years.	Resources and flux in resources limit acquisition updates and scale. Continuous involvement between EMC, NCO, CFO and external community are underway to manage upgrades.	Agree and addressed previously in overarching Finding 4, Computing Capability. We continue to advocate for sufficient CCS resources, however the current budget environment may limit our ability to obtain operational CCS which would allow us to reach our full potential and fulfill the requirements demanded by our customers. We've expanded our use of R&D systems to continue to progress in development and even taken first ever steps to provide near operational capability outside the NCEP CCS structure. This will continue to be a challenging area for NCEP.	1-5 yrs
MOVED FROM HPC ***Recommendation IS1:*** **NCEP should establish policies, processes, and practices that will allow users to create customized interactions with NCEP information systems, including dynamic process initiation so that users can perform customized analysis and generate customized products on demand, user accounts and registration that allow maintenance of choices and portfolios across sessions, and implementation of new methods for providing information and engaging with users (e.g., podcasts, webinars). (*No HPC-led component*.)**	Under development		
Recommendation IS2a (NCEP-led component): **NCEP should establish policies, processes, and practices that will foster interoperability among products and tools for non-NOAA stakeholders. This includes a process of active engagement with external groups that are developing new tools for users (public, academic, and private sector), and easy access to explicit technical information, e.g., meta-data. Engagement with the Earth Science Information Partners (ESIP) Federation, Earth Observing System Clearinghouse (ECHO), and similar groups is**	Under development		

encouraged, with participation by NCEP IT staff. (*There is also an HPC-led component of the original recommendation IS2*.)			
Recommendation IS4: **NCEP OD should establish policies, processes, and practices that more effectively leverage external partner capabilities in designing and implementing new products and decision support tools. This includes policies and processes for prioritizing research-to-operations transitions, assessing whether a transition is best accomplished through adoption of externally developed code or internal redesign and implementation, moving software code to NCEP centers and training staff on both system operations and code extensions, and for ensuring continued access of research groups to the operational code base which facilitates continued development of additional capabilities. The latter includes formal mechanisms for collaborative software development. (*No HPC-led component.*)**	Under development		
Recommendation IS5**: NCEP should provide external research groups with explicit guidance on NCEP requirements that new products or tools must meet to be compatible with their operations (e.g., automation requirements) or information systems (e.g., coding standards, interoperability with operating systems or databases). (No HPC-led component.)**	Under development		
Recommendation IS6a **:(NCEP-led component): NCEP should provide HPC with software engineering capabilities by assignment of NCEP NCO staff to HPC. (There is also an HPC-led component of the original recommendation IS6.)**	Under development		
Science and Technology			
Finding ST1*: The establishment of testbeds in the service centers is a critical element of the process to support the transition from research to operations. Establishing testbeds in each of the service centers is an excellent idea.* **Finding ST2***: The maturity, effectiveness and impact of the testbeds, and their funding models, vary widely across the service centers.* **Finding ST3***: The service centers don't all have a clear vision of how to utilize the testbeds to move their missions forward.*			

Finding ST4*: Entraining the best understanding, techniques and practices from the research community remains slow and largely ineffective.* **Recommendation ST2***:* The NCEP Director needs to be more proactive in a. overseeing the centers' development of the testbed strategic and implementation plans; b. helping the center directors to identify funding for their testbed activities.			
Recommendation ST1*:* NCEP should require that every service center has strategic and implementation plans that describes how its testbed advances the center's mission.	Centers will review current planning documents to ensure testbeds are visible	The priorities for NOAA are clearly articulated in the Annual Guidance Memo developed by the NOAA Administrator and Deputy Under Secretary. These are mapped into the NWS and center strategic plans and AOPs. The Science Advisory Board is tasked with ensuring that TBs are focused on strategic research to operations objectives. One recent outcome is an IOOS effort to spin-up an Ocean Testbed located at OPC. Oct meeting summary previously provided. Testbed established with IOOS funding and SURA support. Currently engaged with NOS and IOOS in developing TB with OPC involvement and facilities within the NCWCP	1 yr
Recommendation ST2*:* The NCEP Director needs to be more proactive in a. overseeing the centers' development of the testbed strategic and implementation plans; b. helping the center directors to identify funding for their testbed activities.	The testbeds are managed more independently by design to facilitate better R2O and better serve the individual TB needs. The Directors are charged with working funding through and external to OD.	Discuss - Need to develop clear guidance to ensure all entities are aligned properly. OCWWS looking at developing a follow-on operational testing and evaluation entity to help move R2O.	1-3 yrs
Recommendation ST3: NCEP, in cooperation with external experts, should develop a strategic plan for atmospheric and oceanic data assimilation to guide the way forward over the next five years.	A data assimilation plan has been developed and signed by all parties.	A signed Data Assimilation Plan involving NASA/GSFC, NOAA/ESRL, OU and EMC has been put in place and will set the planning over the next several years. Will provide DA plan update to committee.	Complete
People Organization Culture			
Finding POC1: *The OD staff work very hard and very well together, and staff morale is very high.* **Finding POC2:** *During 1958-1996, NCEP had a deputy director, but it has had no deputy director since 1996.* **Finding POC3**: *There is a very large workload associated with the Office of the Director that has grown significantly along with the NCEP mission and budget over the past decade. In particular, there are operational, strategic planning, transition from research-to-operations, international support, labor relations and public affairs duties that significantly overstretch the capability of one person to fulfill them.*			
Recommendation POC1: NCEP requires a Deputy Director who can handle the day to day operations of NCEP as well as many other internally-directed duties, freeing up the Director to think more strategically and forge new collaborations and partnerships within NOAA, the federal government, the US academic community, the private sector and abroad.	Engage NWS and NOAA to seek approval to develop this position	We recognize the need and will continue to pursue the deputy position first. If successful we will then pursue the COO position. Due to the current fiscal environment, we are not optimistic that either of these positions will be established in the short-term; however, we will continue to advocate for both positions.	1-3 yr
Recommendation POC2: The vacancy in the position of NCEP Chief Operations Officer should be filled.	Engage NWS HQ to seek approval to develop this position	See POC1. Fiscal environment unlikely to support such in the near future.	1-3 yr
Finding POC4*:* The move to the new building has been significantly delayed, yet again, most recently by economic factors associated with the national recession that are well beyond the control of NCEP,			

NWS, or NOAA. This additional delay has had a serious negative effect on staff morale, budgeting, and the ability to address long-standing issues such as building a more effective visitor program or enabling a richer set of collaborations.			
Recommendation POC3*:* The NCEP Director, working with NWS, NOAA and DOC, should continue and redouble efforts to ensure that the National Center for Weather and Climate Prediction (NCWCP) becomes a reality and the move to the new buildin2g is made as efficiently and expeditiously as possible.	OD is working to move the NCWCP to completion as rapidly as possible. Progress is currently outside of NCEP, NWS and DOC control.	Bankruptsy court decision yielded but there continues to legal matter to be resolved namely a potential appeal from the contractor. Expect 2012 as earliest move in. Contractual and legal implications resolved and building is on track for FY12 delivery. Move to be completed by EOY FY12.	Completed
Finding POC5: *The NCEP in-house culture has evolved over the past 20 years from a relatively informal research-oriented collegial atmosphere to a more process-oriented, mission-driven culture.* **Finding POC6**: *As an operational organization, with on-time delivery of products and services as a high priority, NCEP needs to emphasize mission and process (terms of reference, metrics of success, accountability, IT security, etc.).* **Finding POC7**: *As a science organization, NCEP needs to foster innovation and creativity.*			
Recommendation POC4: NCEP needs to strive for balance between operational strictures and fostering innovation, adopting a proper level of structure and process without suppressing a creative research environment.	The balance between research and operations is continuously evolving. NCEP is focusing resources to better support operations while fostering relationships at OAR, universities etc to provide more research input. Work with program offices to secure funding	Provided Oct meeting summary to committee. NCEP continues to make R2O and O2R a priority. Testbeds have been formalized at most centers and we have created and strengthened partnerships with the academia and research community.	1-5 yrs
Finding POC8: Forecaster involvement in research is non-uniform among centers (this situation is variously characterized as a “sweatshop mentality”, “intellectual stagnation”, a “two-class system”).			
Recommendation POC5: The NCEP Director should work with service center directors to be more proactive about professional development for their staff members, including research components of their activities and linkages to testbeds.	There are several programs in place to facilitate PD. Additional resources need to be applied and time allowed for more robust and consorted improvement in this area. Develop comprehensive professional career development plan	An NCEP leadership program is in its infancy phase of development and expected to be completed during 2012. All employees are given the opportunity to develop Individual Development Plans and training plans are executed as resources permit. Note 1.5% of NCEP’s base budget is devoted to training and other professional development activities of its employees.	Ongoing
Finding BP1: *There is a good level of communication between the OD and the NCEP centers, especially on financial matters and planning processes (e.g. the NCEP Technical Operating Plan - NTOP – and Annual Operating Plan - AOP – processes).* **Finding BP2**: *The NCEP budget is determined by a somewhat byzantine combination of inputs from the NOAA Planning, Programming Budgeting and Execution System (PPBES) process, NWS/NOAA mandates, and the Director’s Office allocations. Although the Director supports the PPBES process, e.g. because it gets NCEP more engaged in NOAA beyond the NWS, new FTE positions are very difficult to obtain.* **Finding BP3**: *Reaching NCEP’s goal of becoming a world leader in environmental prediction is hindered by the lack of flexibility in the hiring process.* **Finding BP4**: *The need to streamline burdensome hiring, promotion, budgeting, etc. processes is recognized by NCEP management, and they are working with higher level people in NWS and NOAA.*			
Recommendation BP1: NOAA/NWS should conduct a review of the constraints on hiring highly-qualified talented scientists, which are often imposed by overly-burdensome bureaucratic rules from other organizations (CIO, DOC, OPM) that may not fully appreciate the negative impact.	Currently hiring for key position support through contracts. Otherwise limited by law.	NOAA Human Resources has recently revamped its hiring processes per Pres. Obama’s Hiring Reform Policy. The goal is to accelerate the recruitment process and make it more efficient to enter the civil workforce. NWS is also establishing its own Visiting Scientist Program in 2012 which provides an opportunity to grow and recruit scientists from around the world.	1-5 yrs
Finding BP5: *A more concerted application of communications technology and less restrictive travel budgets would allow more staff interactions among centers, and greater interaction with the research community.*			
Recommendation BP2: NCEP should consider more creative business processes to increase interactions that would enhance the integration and synergy that could be achieved.	Need to examine ne w and better ways to interact using VTC, telecom, periodic conferences etc.	NCEP continues to work with the NWS Office of Communications in developing an outreach strategy. One output from this discussion is the development of a newsletter with distribution on a quarterly basis and will examine mass distribution through electronic means on (NWS, NOAA, NCEP, UCAR websites etc.)	1-5 yrs

		NCEP quarterly newsletter enacted and ongoing.	
Finding BP6: *The NCEP Review charged in November 2008 and conducted in 2009 has been valuable in providing an opportunity for introspection on the parts of the NCEP centers and NCEP as a whole and in making a number of recommendations that are likely to lead to changes and improvements in NCEP's products and services, interactions with stakeholders, and organizational culture.*			
Recommendation BP3: In order to preclude large periods of time transpiring before the next set of reviews, NCEP should formalize a periodic review process, to occur every 5-6 years.	Conduct review every 5 yrs	Conduct UCAR review similar to is one every 5 yrs. The advisory type committee will meet atleast annually with NCEP during AOP and or Oct offsite strategic planning meetings to gauge NCEP direction and provide input. UCACN and/or 5 yr review will be accomplished per recommendation of the UCACN	1-5 yrs
Recommendation BP4: To incorporate new research and technology into its suite of products and services, without compromising forecast integrity, NCEP must further embrace public and private partnerships and consider creating a research and development new product cell to test, review and recommend ideas. NCEP could work with academia, other government labs and/or private industry to create a mechanism to introduce and test new products.	This is best addressed through the many cooperative institutes NOAA sponsors at research/educational facilities.	NOAA currently assists in the maintenance of several cooperative institutes and this is the venue used to work closely with the research community. NCEP also advocates the proposal process in its test beds to solicit, test and implement new science from its external partners into operations. Initial engagement underway with the private sector to potentially develop future products for renewable energy.	1-5 yrs