



Climate Prediction Center (CPC) Overview National Climate Services Meeting May 9, 2016

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With contributions from CPC Staff**



Outline

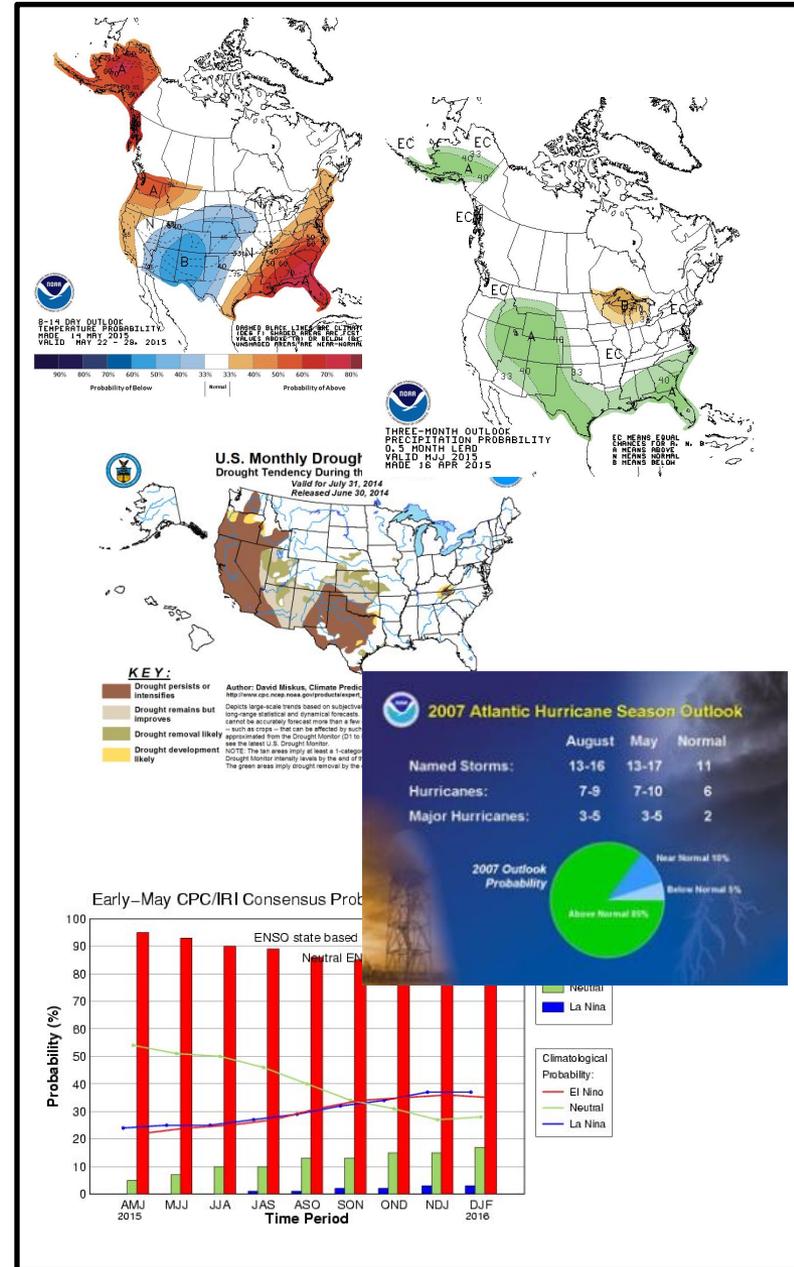


- Major activities:
 - Short-term climate prediction
 - Climate monitoring
 - Climate diagnostics
 - USDA (JAWF) and International Desks (Discuss on Thursday)
- Thoughts on CPC Product Suite in 5-Years
- Keeping Pace with Evolving Climate Science
- Communicating with Rest of Field About CPC Products and Services

CPC Prediction Activities

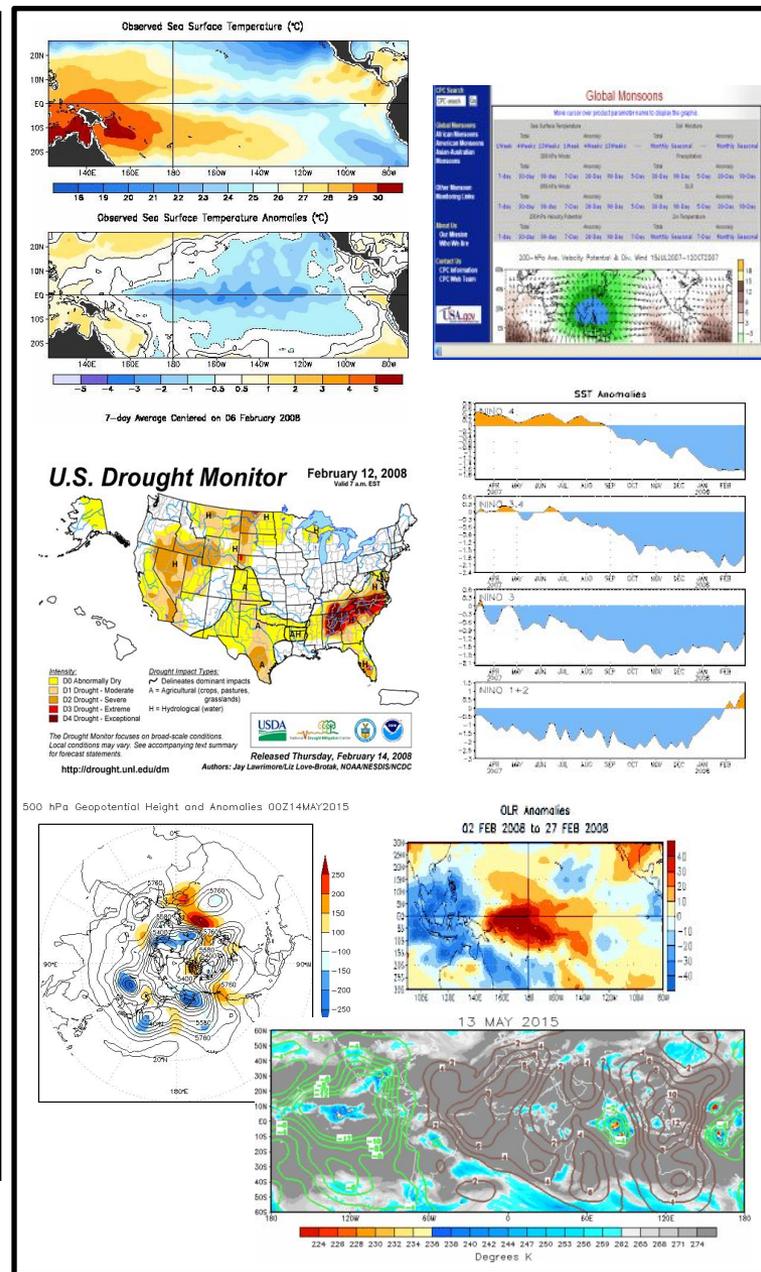
- Extended range (Week-2) temperature and precipitation outlooks
- U.S. and Global Tropics hazards outlooks
- Monthly and seasonal temperature and precipitation outlooks
- Monthly and seasonal drought outlooks
- Monthly and seasonal hurricane outlooks
- Seasonal hurricane outlooks
- Monthly ENSO prediction

Focus on week-2 to seasonal-to-annual



CPC Monitoring Activities

- Daily and monthly data
 - Time series and spatial maps for various climate parameters
 - Compilation of data on historical and current atmospheric / oceanic conditions
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- Primary modes of climate variability (ENSO, MJO, NAO, PNA, AO,...)
 - Atmospheric Circulation (global troposphere and stratosphere)
 - Blocking
 - Monsoons
 - Oceanic Conditions (global and coastal)
 - Precipitation and Surface Temperature (global and U.S.)
 - Drought (U.S., North America)
 - Climate Reanalysis

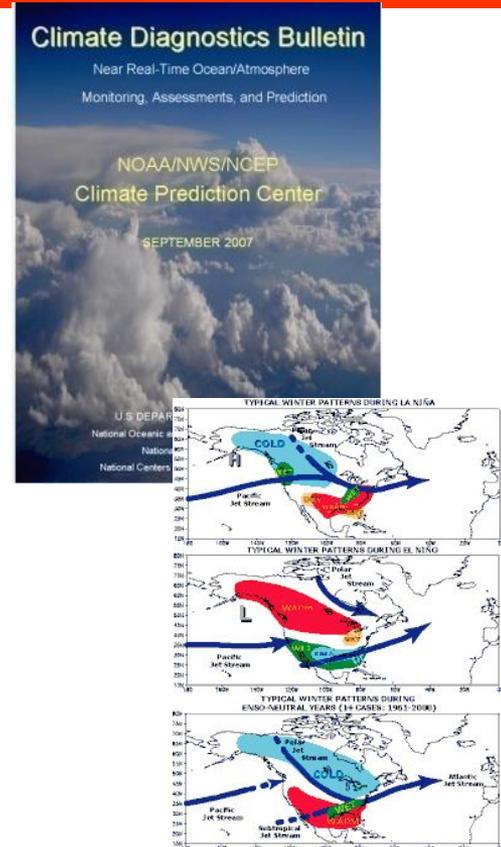




Climate Diagnostic Activities



- **Synthesis of current weather and climate information and forecasts; issued on a routine basis**
 - Climate Diagnostics Bulletin
 - ENSO Diagnostics Discussion
 - Weekly ENSO / MJO / Monsoon / Ocean updates
 - Seasonal Climate Summaries
 - Special Climate Diagnoses
 - BAMS Annual Climate Assessment Report (contributor)





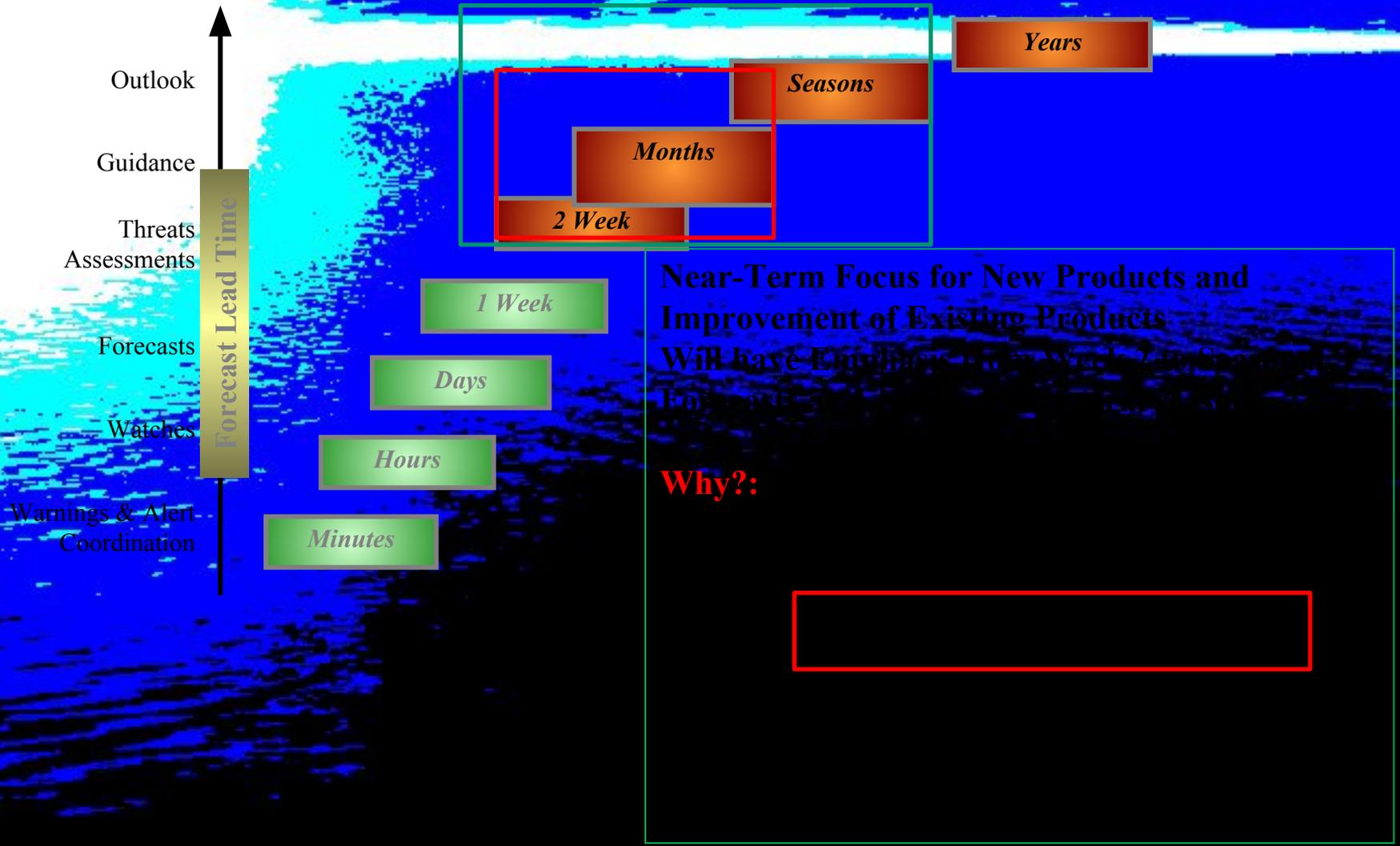
Thoughts on Evolving CPC Product Suite Over Next 5 Years:



- CPC needs to maintain our status as authoritative source of credible short-term climate information.
- Evolve the product suite in 3 ways:
 - Collaborate with social scientists to evolve static maps in order to better meet stakeholder needs*
 - Provide user-friendly tools that allow stakeholders to tailor official outlook and monitoring information to their own needs/risk profile*
 - For core partners, provide access to more of the tools used by forecasters.
- Need to maintain critical mass of effort on ensuring current products and services remain state of the art.
- Main areas for future product development:
 - Week 2-4: Temperature and precipitation outlooks, severe weather, global tropical hazards, excessive heat, Arctic Sea Ice
 - Upgrades to guidance for seasonal outlooks including drought
 - Explore potential for climate products in support of health applications in Africa



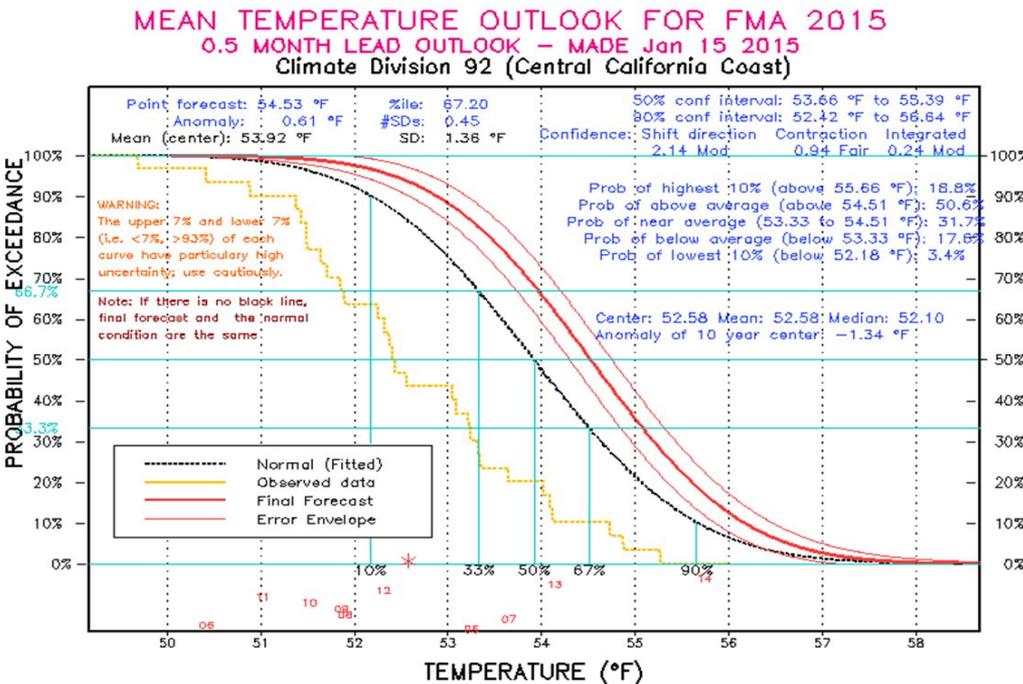
CPC Near-Term Focus within NOAA Seamless Suite of Forecast Products



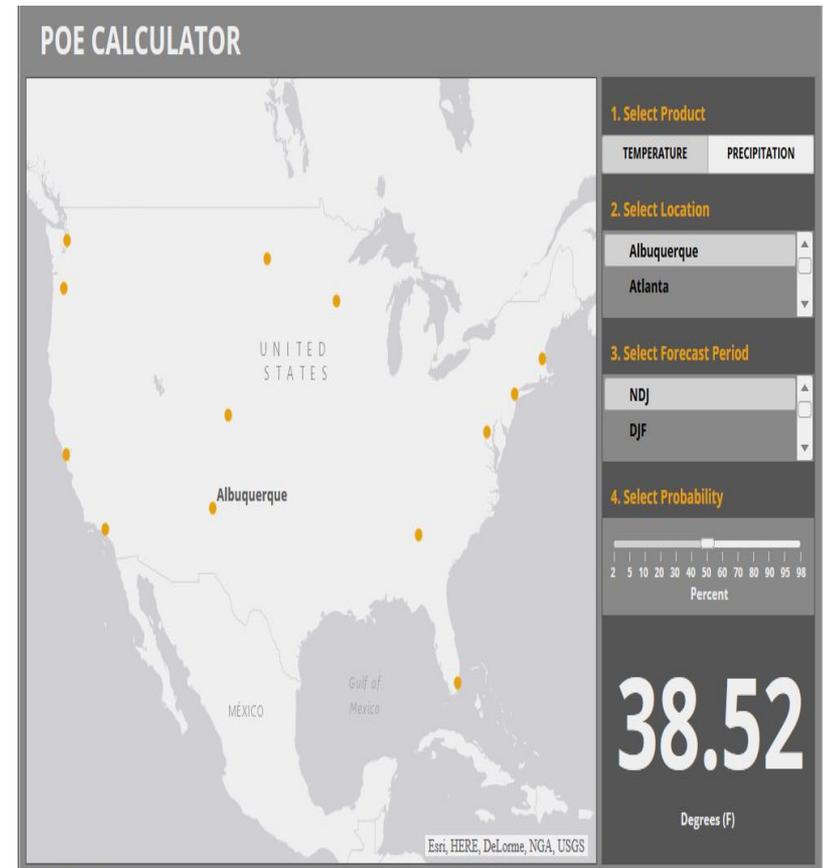
Need to Transition To More User-Friendly Interfaces

Example: Probability of Exceedance (POE) Tool for Seasonal Outlook

User-Friendly POE Tool will allow users to tailor forecast to their own needs/risk profile.



Current POE Tool



Mock-Up of Interactive POE Tool

Advancing Climate Prediction: The Climate Test Bed

- Jointly established in 2004 by NCEP and NOAA Climate Program Office
- Serves as conduit between the operational, academic and research communities

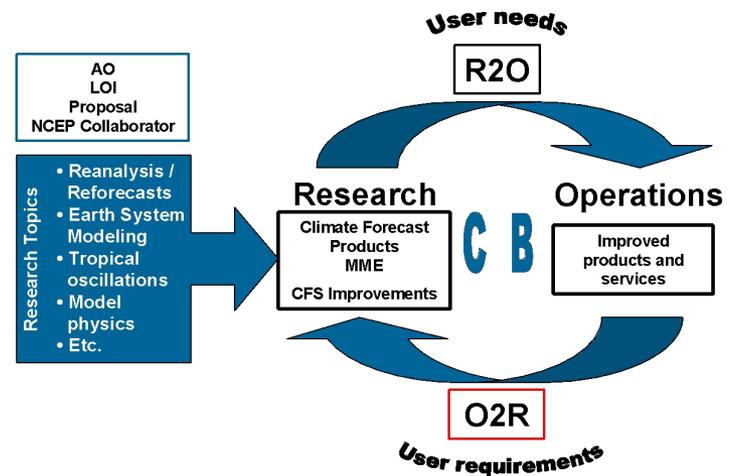
Mission

- *To accelerate the transition of scientific advances from the climate research community to improved NOAA climate forecast products and services*

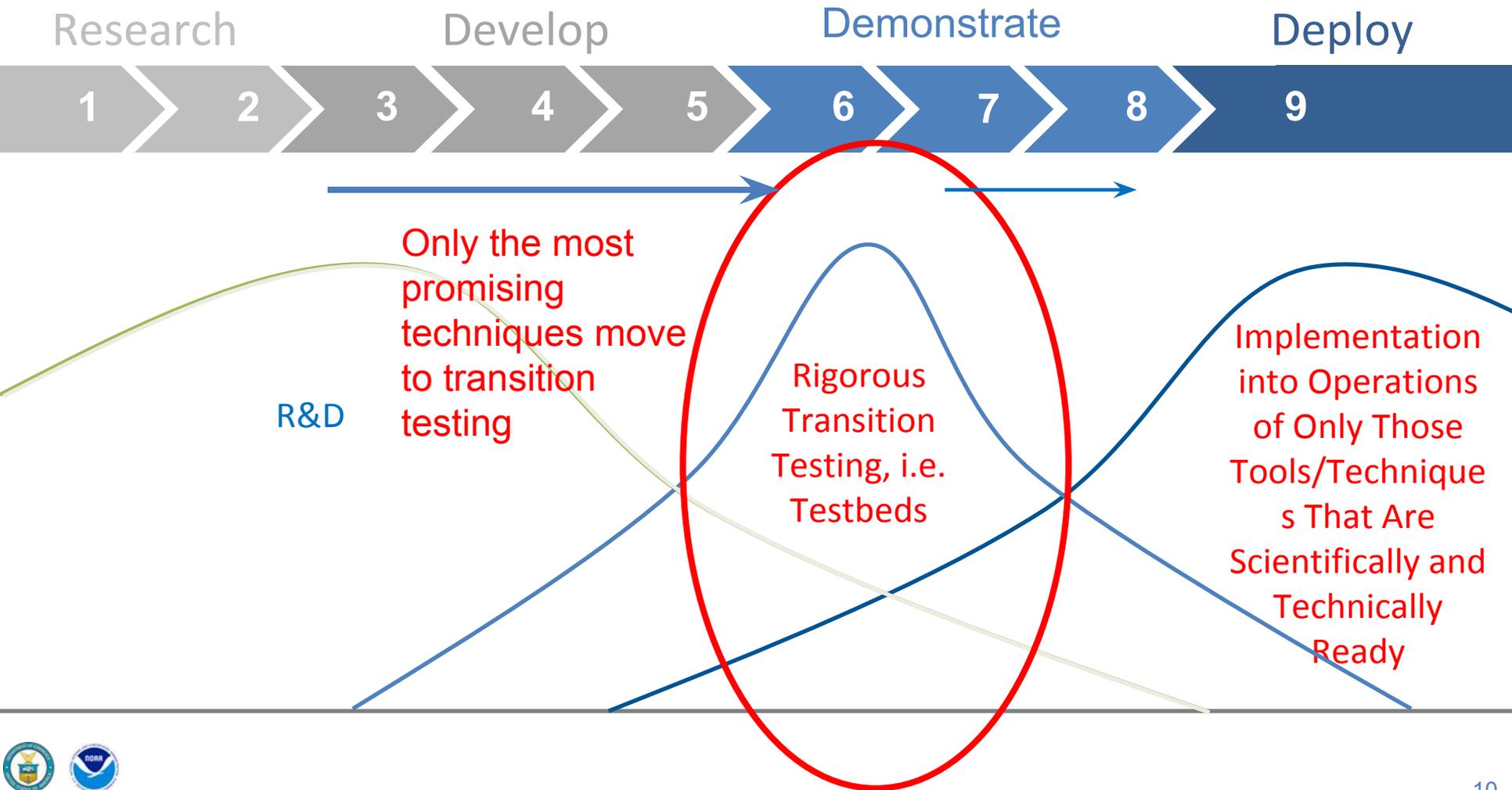
Research to Operations (R2O)

Operations to Research (O2R)

- **Focus Areas**
 - *CFS Improvements*
 - *Multi Model Ensemble (MME) Prediction Systems*
 - *Climate Forecast Products*
- **Competitive Grants Program**
- **CTB Seminar Series**
- **CPC/CTB - RISA Program**
- **Distinguished Visiting Scientist Program**



Comprehensive Vetting Across the Research to Operations Process to Ensure Scientifically Rigorous and Credible Operations





(Partial) List of Active Collaborators

U. of Maryland	U. Of Miami	SCRIPPS/ UCSD	Princeton University	Columbia University/ IRI
SUNY Stony Brook	U. Washington	SUNY Albany	U. Maine	NIDIS
GFDL	ESRL	NASA	Naval Postgraduate School	USAID
NCAR	DOE	ECMWF	Meteo France	UK MET
Environment Canada	Central Weather Bureau (Taiwan)	Bureau of Meteorology /Australia	Chinese Meteorological Agency	NESDIS

Short-term climate prediction/monitoring/diagnostics is a difficult problem so need to actively entrain expertise from across the climate enterprise to complement CPC internal expertise.



Thoughts on Communicating CPC Products and Services to Rest of Field



- **Currently CPC communicates with other parts of the field regarding our products and services in several ways:**
 - Climate Service Program Managers are invited to participate in discussions on Monthly and Seasonal Outlooks, Experimental Week3-4 Outlooks, U.S. and Global Tropics Hazards Outlooks, and Drought Outlooks.
 - Webinars with CSPMs, regions, and Weather Forecast Offices (WFOs) on high-impact climate events (ENSO, Winter and Spring Outlook, and Hurricane Outlook).
 - CPC provides subject matter instructors to training courses in Kansas City on climate science and prediction. 4 courses conducted this year.
 - ENSO Blog: Rich, scientifically-rigorous, yet easily understood information that complements CPC's suite of operational products.
- **Future Engagements with Field on CPC Products and Services:**
 - Social-scientist facilitated review by stakeholders of temperature and precipitation outlooks.
 - Deep dive to get stakeholder feedback on additional CPC forecast products and services.