

Modeling, Analysis, Predictions and Projections (MAPP) Program



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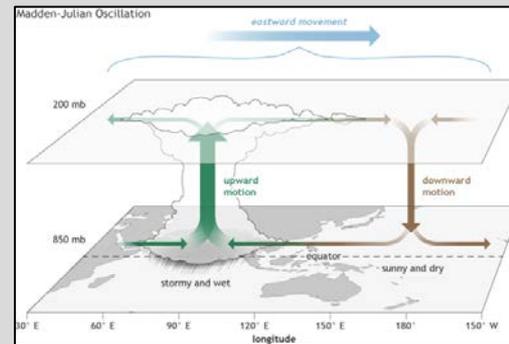


How NOAA uses models

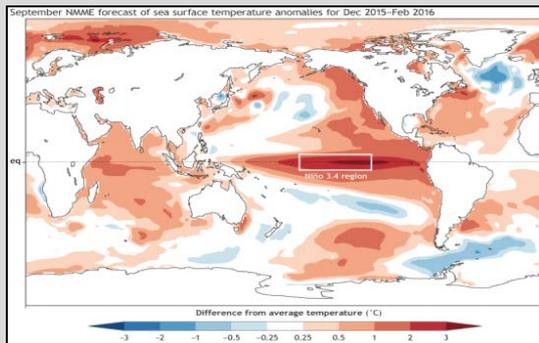
Integrate Earth system observations



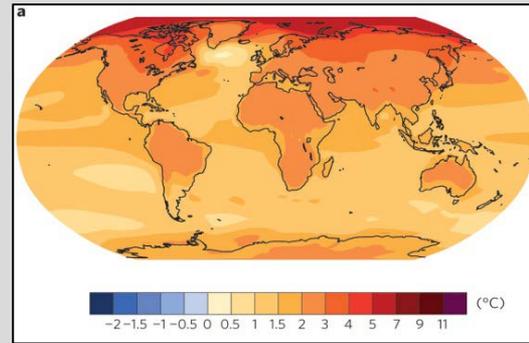
Understand environmental processes and predictability



Predict conditions on timescales of hours, days, weeks, and seasons



Project conditions on timescales from decades to a century



These needs cut across Line Office interests

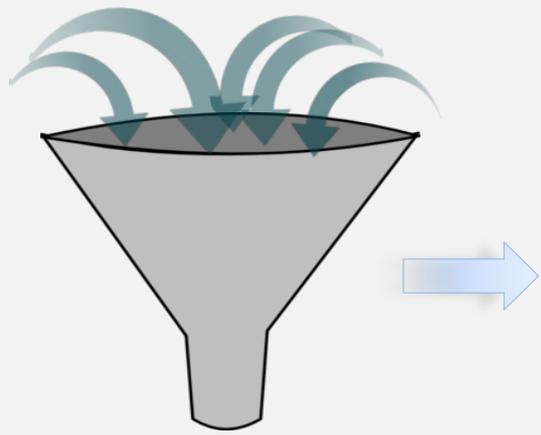


MAPP's program role

Strategically expand NOAA's internal capabilities for modeling and prediction in support of Mission needs

Expand NOAA's R&D

Tap into research expertise of external community



Transition Research into Applications

Improve NOAA services to enhance societal resilience



Coordinate and Engage

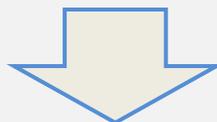
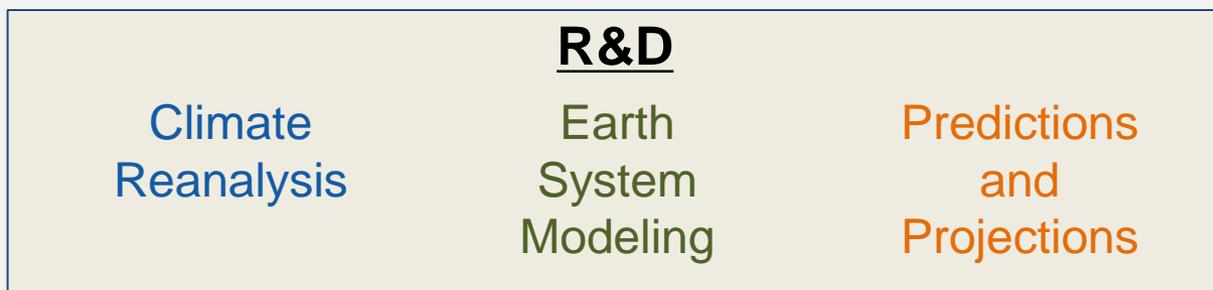
Connect NOAA with the external community to advance science and services





MAPP's program areas

Predictions from weeks to seasons, reanalysis for long-term monitoring, model and prediction system development, and outlooks from decades to centuries.



Years of experience and community engagement in these areas.

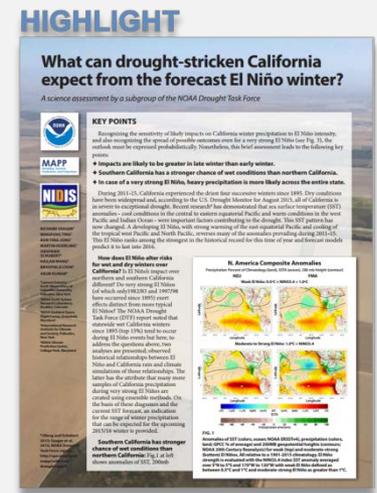


MAPP's implementation strategy

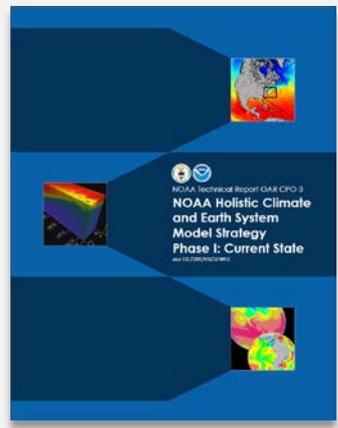
Annual Competitions
Select the highest quality research projects through a rigorous peer-review process



Task Forces
Coordinate projects; foster engagement between OAR labs, NCEP, and external community



Coordination
E.g., with NGGPS, NCEP centers, NOAA line offices, other USGCRP agencies and programs; topical reports



Webinars, Workshops, and Newsletter
Communicate achievements and get input; foster collaboration





MAPP works with the Climate Test Bed for R20

- **The MAPP program has regular solicitations for CTB projects**
 - Coordinated with CTB Management Team and NCEP centers
 - MAPP-CTB projects constitute majority of CTB transition work
 - Coordinated with NGGPS program
- **MAPP managers are part of the CTB Management Team**
 - Meet quarterly with CTB Director and NCEP managers to discuss progress and issues with ongoing projects and future plans
 - Co-developed the current CTB process over past few years
 - Contributing to CTB Science and Implementation plan
 - Co-organize CTB workshops
- **MAPP fosters coordination with CTB activities**
 - Co-organizing PI groups (Climate Model Development Task Force), webinars and topical workshops



Clouds



Aerosols



Lakes



Drought



Extremes



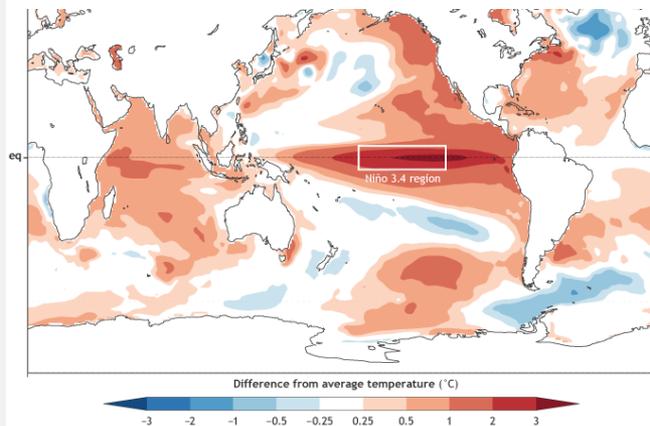
A prime example of OAR-NWS coordination

All projects are at “Readiness Level” 5-8 on the R&D Funnel

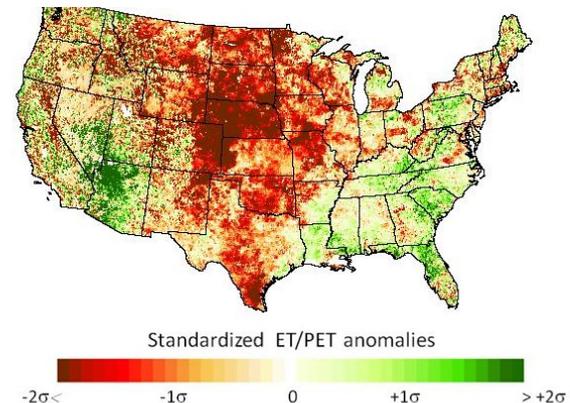
- **Highlight:** The NMME seasonal prediction system, a platform for operational prediction and R2O
- Nine ongoing projects, with potential transition into NWS operations over next 2 years
- Several new projects to be selected in FY16 in areas of modeling, data assimilation, and subseasonal prediction

September NMME forecast of sea surface temperature anomalies for Dec 2015-Feb 2016

ENSO Prediction - NMME



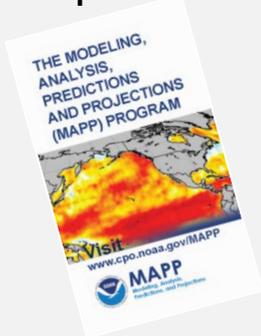
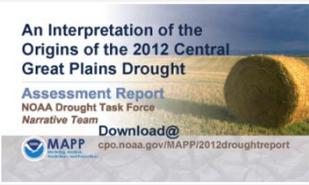
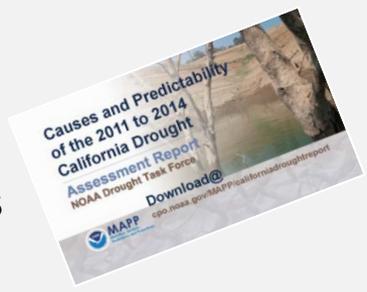
Drought Monitoring -ESI



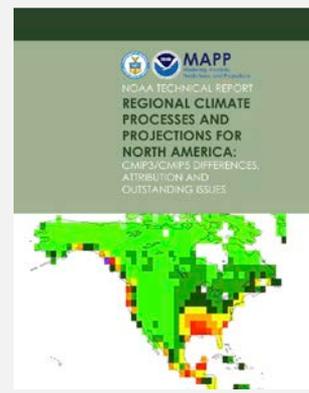
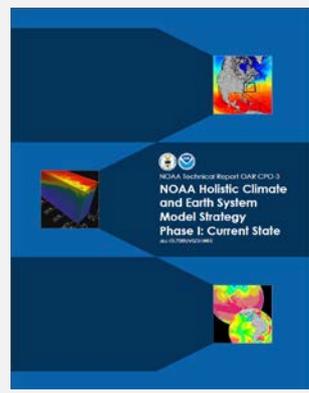
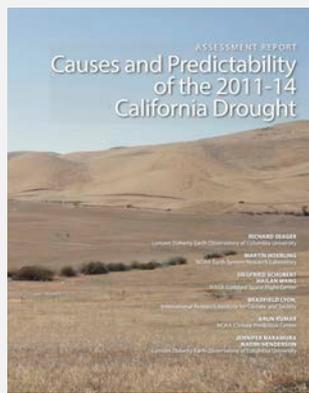


Highlights of MAPP activities

- California drought report and ENSO assessment
- CMIP5 report
- North American Multi-Model Ensemble
- MAPP webinar series – 5th year, 2500+ participants
- Climate and Earth System modeling report
- 8 MAPP-organized workshops since 2012



North American Multi-Model Ensemble IMPROVING NOAA'S SEASONAL PREDICTION CAPABILITY



NCEP unified modeling

Coordination with NGGPS
(e.g. physics, infrastructure,
focusing on CFS aspects)

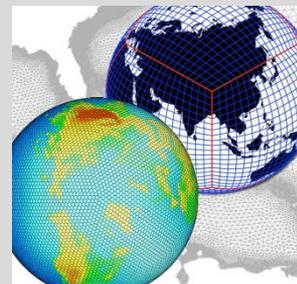
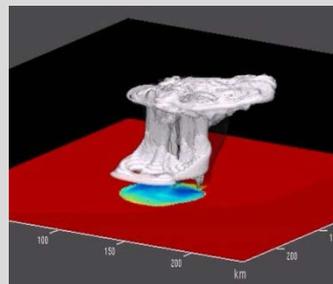


Seamless weeks-to-seasonal prediction

Predictability and prediction systems for weeks 3-4, leveraging external community's seasonal prediction experience

Global high-resolution modeling

Interagency coordination,
intra-NOAA coordination



Next-generation reanalyses

Climate-quality monitoring and predictions

CMIP modeling

diagnostics and science



Drought and potential new applications

NIDIS, heat health, ecosystem and water-level modeling and prediction



- MAPP strategically supports NOAA's modeling and prediction needs, extending NOAA's capabilities – and can expand to address cross-LO interests conditional on new resources
- MAPP has and can continue to contribute to CTB activities in support of NWS by connecting the external community to NOAA's R2O.
- MAPP–CTB activities are a primary example of NWS–OAR collaboration

Questions for this workshop:

- Which CTB relevant areas/methodologies will be scientifically mature for transition into operations or service applications over the next 3–5 and 5–10 years?
- Which operational improvements can we foresee on these timescales?