

Next Generation Global Prediction System (NGGPS) Program

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NGGPS Over-arching Objective

Design, develop, and implement the Next Generation
Global Prediction System (NGGPS)

Extend Weather Forecast to 30 days

Atmosphere, Ocean, Ice, Land, Waves, Aerosol

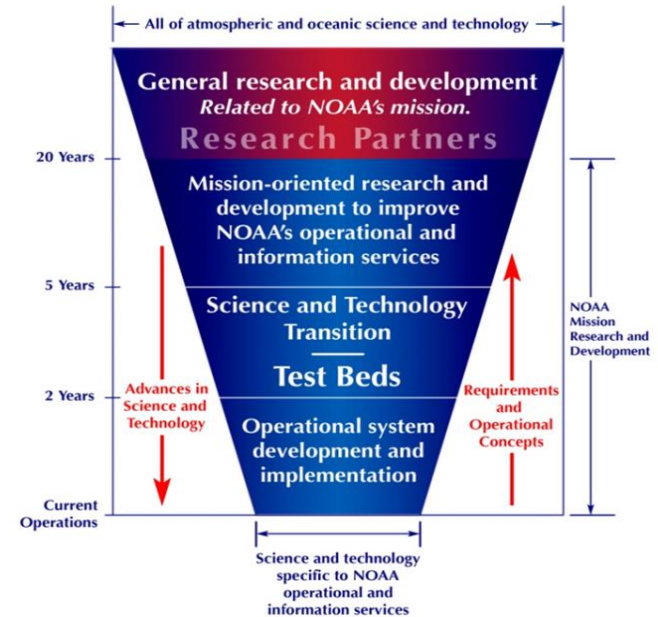
Fully coupled using NEMS/ESMF

Fully utilize evolving HPC capabilities

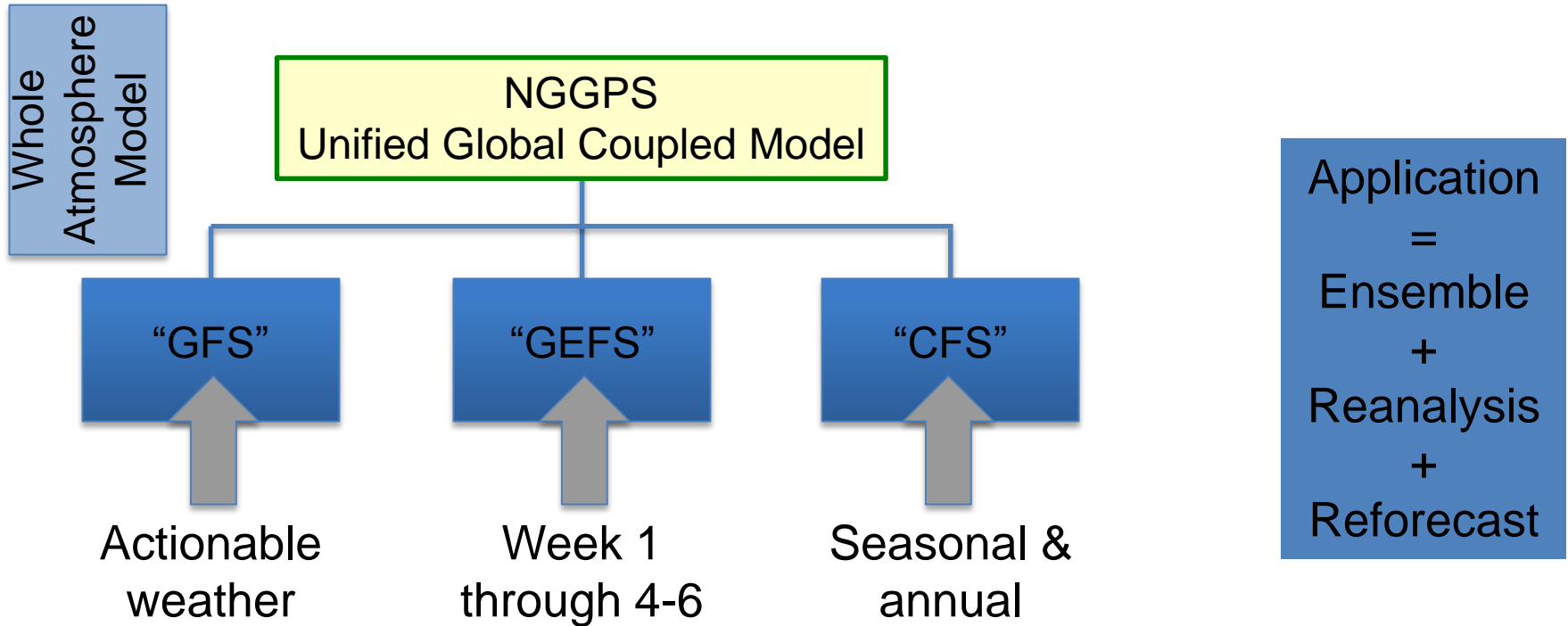
5-year Community Effort

NGGPS Strategy

- Implement coupled system
 - ESMF/NEMS Based
 - Prototype by Sep 30, 2015
- Develop components as community code
 - Atmosphere (Core and Physics)
 - Aerosols & Chemistry
 - Ocean
 - Ice
 - Waves
 - Land
 - Ionosphere
 - Data Assimilation for Atmosphere (evolve to Coupled?)
- System includes
 - Ensemble-based forecast
 - Calibration
 - ReAnalysis
 - ReForecast
 - Global domain with convective scale nesting to support severe weather
- Review/upgrade software architecture as appropriate for next generation HPC
- Migrate and evolve from current operational modeling suite to an overarching integrated coupled system



Unified Global Model



1 y	2 y	4 y	Update cycle
3 y	20-25 y	1979 - present	Reanalysis
6h	6-24h	???	cycling
WCOSS	WCOSS	WCOSS ?	where

Questions?

NGGPS Website:

<http://www.nws.noaa.gov/ost/nggps>

NGGPS Implementation Plan

Development Teams

- Atmospheric Prediction - Dynamics
- Atmospheric Prediction – Physics
- Aerosols
- Atmospheric Data Assimilation
- Ocean Prediction (includes waves, sea ice, and data assimilation)
- Land Prediction
- Nesting (includes hurricanes and convective systems)
- Post-Processing
- Ensemble Design
- Overarching System (architecture and integration including NEMS/ESMF)
- Software Architecture and Engineering
- Infrastructure
- Verification and Validation

Includes participation across NOAA line offices/laboratories, Navy, NASA, UCAR and coordination with the High Impact Weather Prediction Project and the National Earth System Prediction Capability program