



# Strategic Implementation Plan (SIP) for a Community-based Unified Modeling System

**Prediction**



## ***Data Assimilation Working Group***

*Presented by*

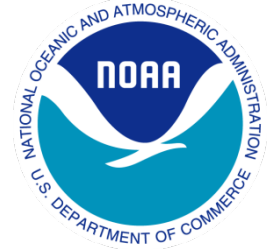
**Thomas Auligné, JCSDA Director**

*Presented at NOAA Community Modeling Workshop*

*April 18-19, 2017; College Park, MD*



# Data Assimilation WG *Membership*



## *Co-Chairs*

- Thomas Auligné (JCSDA)
- Ron Gelaro (NASA/GMAO)
- Jeffrey Whitaker (NOAA/OAR)
- Daryl Kleist (NCEP/EMC)

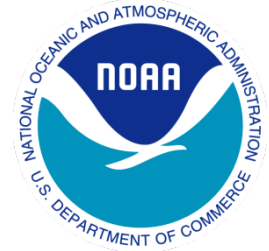
## Rest of membership (not yet finalized...)

Abhishek Chatterjee, Amal El Akkraoui, Andrew Collard, Arlindo DaSilva, Arun Chawla, Avichal Mehra, Ben Johnson, Brian Etherton, Cecilia Bitz, Chris Snyder, Christa Peters-Lidard, Clara Draper, Craig Bishop, Dale Barker, Dan Holdaway, Daryl Kleist, David Behringer, Eric Hacker, Eugenia Kalnay, Frank Ruggiero, Fred Toepfer, Fuqin Zhang, Fuzhong Weng, Greg Hakim, Guillaume Vernieres, Hans Ngodock, Heather Archambault, Hui Shao, Innocent Souopgui, Ivanka Stajner, Jacob Carley, Jason Martinelli, Jason Sippel Jean-Noel Thepaut, Jeff Anderson, Jeff Whitaker, Jessie Carman, Jidong Gao, Jim Cummings, Jim Jung, Jim Yoe, John Derber, John Halley Gotway, Josh Hacker, Kayo Ide, Liang Xu, Karina Apodaca, Mark Buehner, Mark Govett, Mike Farrar, Ming Hu, Ming Ji, Nancy Baker, Rahul Mahajan, Ricardo Todling, Rolf Reichle, Ron Gelaro, Santha Akella, Sean Casey, Stan Benjamin, Steve Penny, Sujay Kumar, Tara Jensen, Tom Auligné, Tomoko Matsuo, Travis Sluka, Valery Yudin, Vijay Tallapragada, Xuguang Wang, Yannick Trémolet, Yuanfu Xie, Yunheng Wang, Zhaoxa Pu, Zoltan Toth, Jessie Carman, Dave Turner, Curtis Alexander, Xi Chen, Edward Myers, Andy Moore.



# Data Assimilation WG

## *Initial Findings*

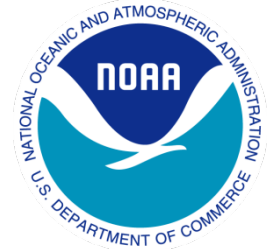


- Grand Science Challenges  
(from NCAR/JCSDA 'Blueprints' Workshop 2016):
  - Coupled DA across the earth-system
  - Multi-scale DA (temporal and spatial, global to convective)
  - Dealing with massive increases in observations (all-sky radiances, radar)
  - Representation of model uncertainty
  - Dealing with non-linearity/non-Gaussianity
- New software architecture needed (JEDI)
  - Needed to efficiently address scientific grand challenges above.
  - Need a new object-oriented design needed to facilitate 'separation of concerns', enable efficient collaboration between research and operations.
    - Unified DA planning workshop two weeks ago (80+ attendees) discussed scope, priorities and requirements for JEDI.
  - Initial milestones should focus on implementation of Unified Forward Operator (UFO) library and Interface for Observation Data Access (IODA), targeting GSI/FV3 atmospheric DA first.



# Data Assimilation WG

## *Key issues to resolve*



- Key questions remain concerning governance, code hosting, computer resources, and collaborative development environment (e.g. reviews, issue tracking, testing, documentation, support)
  - Open access/transparency is crucial.
  - Current NOAA HPC resources are inadequate and access too restrictive.
  - How to ‘incentivize’ community to contribute code back to the main repository.

