Interdepartmental Committee for Meteorological Services and Supporting Research (ICMSSR)

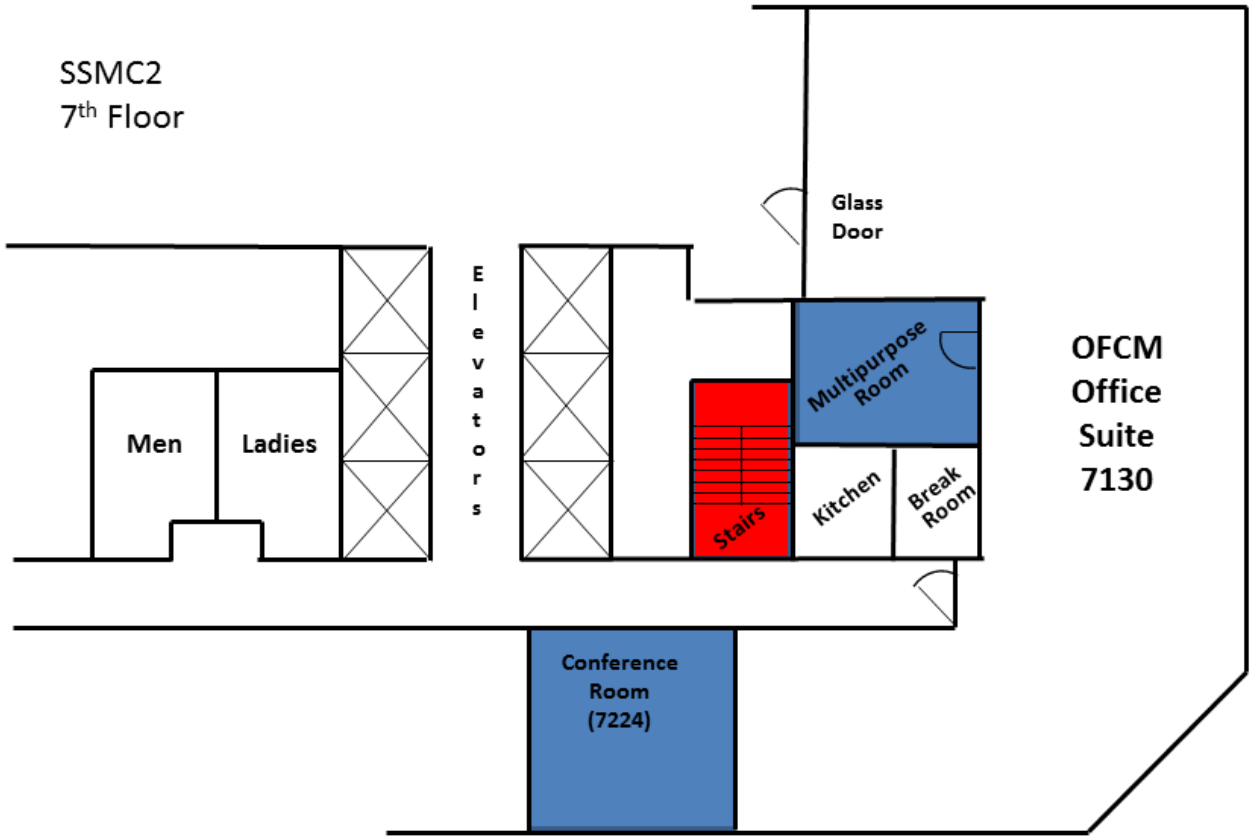
Meeting 2017-1

March 24, 2017

Administrative Info

- **Meeting will be recorded**
- **Facilities**
- **Telecon / GoToMeeting**
  - Dial-in 1-888-680-9581, passcode 535430#
- **GoToMeeting:** https://global.gotomeeting.com/join/293418653
- **Slides posted at:** http://www.ofcm.gov/icmssr/meetings.htm
  - **Please advise us of any sensitivities**

OFCM Floor Plan



Opening Remarks

Interdepartmental Committee for Meteorological Services and Supporting Research (ICMSSR)

Mr. Craig McLean (NOAA)
Chair, ICMSSR

- **Welcome**
- **Roll Call**
- **Approve Agenda & Record of Action.**
- **Vote to approve ICMSSR Charter**

ICMSSR Charter Approval Vote

CHARTER

of the

INTERDEPARTMENTAL COMMITTEE FOR METEOROLOGICAL SERVICES AND SUPPORTING RESEARCH (ICMSSR)

1. OFFICIAL DESIGNATION:

The Interdepartmental Committee for Meteorological Services and Supporting Research (ICMSSR) is established in support of Public Law 87-843 (1962) and the Department of Commerce (DOC) issued Implementation Plan (1964) by the Federal Committee for Meteorological Services and Supporting Research (FCMSSR).

2. PURPOSE AND SCOPE

The ICMSSR supports the FCMSSR and provides a formal mechanism for interagency coordination on implementing national policy relating to, and developing plans and procedures for, cooperative federal agency efforts in the development, acquisition, continuous operability, and increased effectiveness of meteorological services for the Nation.

The ICMSSR will maintain cognizance of the activities of the National Science and Technology Council's Committee on Environment, Natural Resources and Sustainability (CENRS) and its subcommittees, and will cooperatively engage with CENRS as appropriate.

This charter and other ICMSSR proceedings are not budget documents and do not imply any resource commitments by the member agencies. However, ICMSSR deliberations, decisions, and/or products may be used to inform agency and federal government budget processes.

3. FUNCTIONS

a. Promote cooperative efforts on federal meteorological services and supporting research.

b. Review and formally approve the release of federal documents generated by the OFCM designated with "By direction of" authority as delegated to the ICMSSR or the Federal Coordinator by the FCMSSR.

c. Oversee various subordinate committees and working groups approved by the FCMSSR to address specific elements of federal meteorological coordination. The OFCM provides administrative, executive, and logistical support for this framework of subcommittees and working groups.

d. Establish, continue, or terminate subordinate groups as proposed and managed by the OFCM.

Concur	Organization
X	USDA
X	DOC-NOAA-NWS
X	DOC-NOAA-NESDIS
X	DOC-NOAA-OAR
X	DOD-USAF
X	DOD-USN
X	DOE
X	DHS-S&T
X	DHS-FEMA
X	DHS-USCG
X	DOS-OES
X	DOT-FAA
X	DOT-FHWA
X	EPA
X	NASA-ESD
X	NASA-HPD
X	NSF
X	NTSB
X	NRC
X	OMB
X	OSTP

Today's Agenda

• **OPENING REMARKS**	Mr. Craig McLean (NOAA)
• **FEDERAL COORDINATOR'S UPDATE**	Dr. William Schulz (OFCM)
• **FEDERAL MSSR STRATEGIC PLAN.**	Dr. William Schulz (OFCM)
• **1340 METEOROLOGIST QUALIFICATION STANDARDS**	Mr. John Ten Hoeve (NWS) CDR Christi Montgomery (USN) CAPT Chris Gabriel (USN)
• **FEDERAL METEOROLOGICAL HANDBOOK-1: SURFACE OBSERVATIONS**	Mr. Jud Stailey (OFCM) with USAF and FAA
• **EXASCALE COMPUTING CHALLENGES:**	Dr. Pat Harr (NSF)
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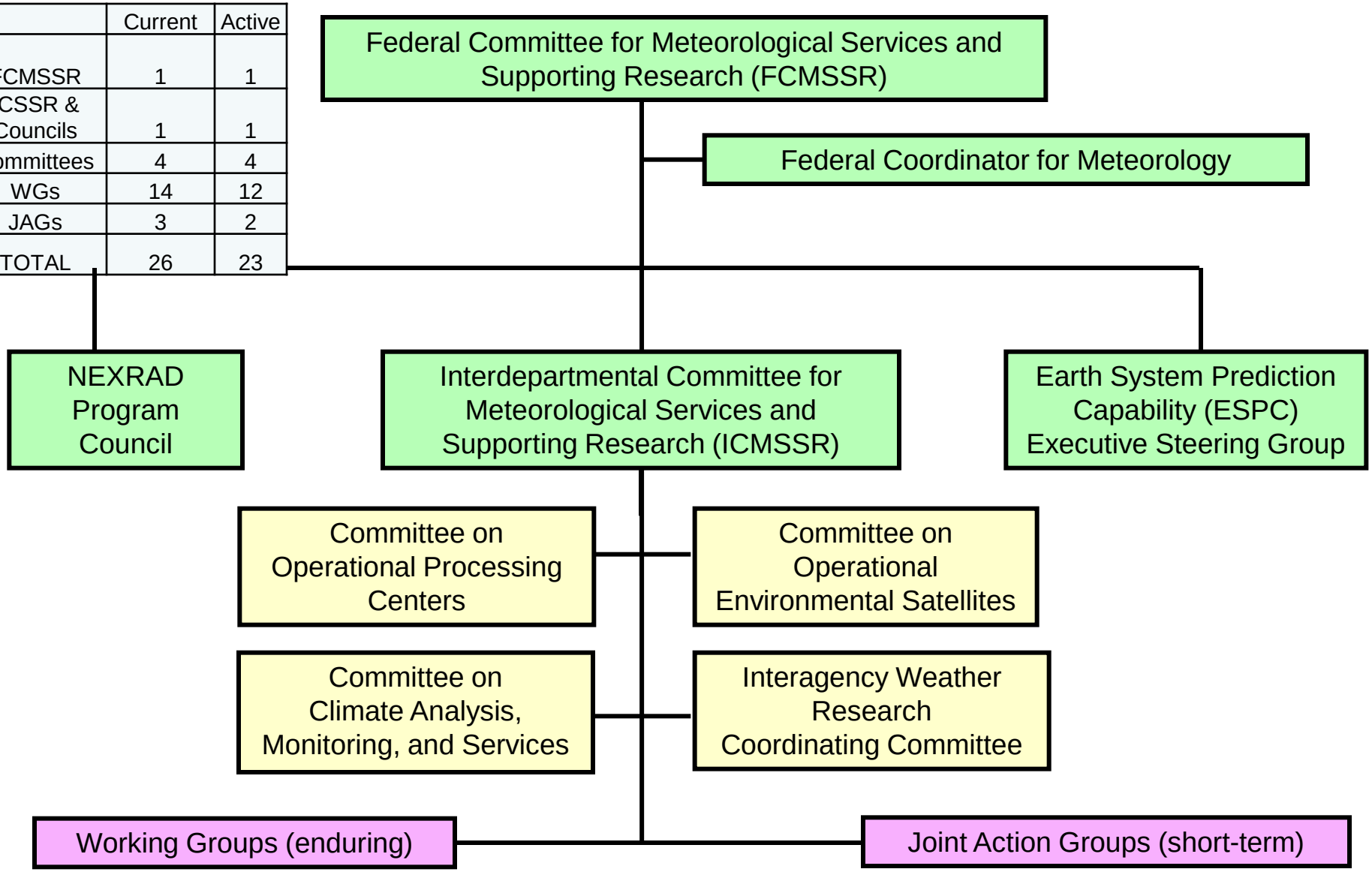
• **ACTION ITEM REVIEW**	Mr. Michael Bonadonna (OFCM)
• **CLOSING COMMENTS / ADJOURN**	

FEDERAL COORDINATOR'S UPDATE

Bill Schulz
Federal Coordinator

Federal Weather Enterprise Infrastructure

	Current	Active
FCMSSR	1	1
ICSSR & Councils	1	1
Committees	4	4
WGs	14	12
JAGs	3	2
TOTAL	26	23



Federal Coordinator's Update

- Nearing Terms of Reference finalization with Interagency Weather Research Coordination Committee and Climate Services Coordination Committee. Signed ToR for Committee for Operational Environmental Satellites.

- MPAR (Multifunction Phased Array Radar) working group stood down.

- Tropical Cyclone Operations and Research Forum '17 completed, NHOP to follow by 1 May.

- OFCM supporting "SWORM.GOV."

Monitoring progress on H.R. 353/S.570, specifically section 402:

402. Interagency weather research and forecast innovation coordination

(a)Establishment

The **Director of the Office of Science and Technology Policy** shall establish an **Interagency Committee for Advancing Weather Services** to improve **coordination** of relevant weather research and forecast innovation activities across the Federal Government. The Interagency Committee shall—

(1)include participation by the *National Aeronautics and Space Administration*, the *Federal Aviation Administration*, *National Oceanic and Atmospheric Administration* and its constituent elements, the *National Science Foundation*, and *such other agencies* involved in weather forecasting research as the President determines are appropriate;

(2)identify and prioritize top forecast needs and coordinate those needs against budget requests and program initiatives across participating offices and agencies; and

(3)share information regarding operational needs and forecasting improvements across relevant agencies.

(b)Co-Chair

The Federal Coordinator for Meteorology shall serve as a co-chair of this panel.

(c)Further coordination

The Director of the Office of Science and Technology Policy shall take such other steps as are necessary to coordinate the activities of the Federal Government with those of the United States weather industry, State governments, emergency managers, and academic researchers.

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Strategic Plan for Federal Weather Coordination

Revising the annual Federal Plan for Meteorological Services

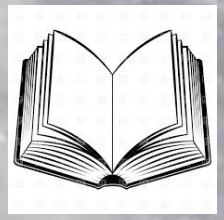
1. ICMSSR Approve Strategic Plan (today?)
2. FCMSSR Approve Strategic Plan (April)
3. OFCM collect budget data from agencies (ongoing)
4. OFCM collect strategic plan support write-ups from agencies, committees and working groups (May-July)
5. Publish (inaugural) FY18 version (Summer ‘17)
6. Publish (robust) FY19 version (March ‘18)

New Federal “Plan”

Old:

- Single publication
- Produced annually
- 200+ pages
- Multiple detailed spreadsheets
- Released in October
- No formal review

New (proposed):



First publication:

- Strategic Plan
- Published every four years
- Composed by interagency group
- Approved by FCMSSR

Second publication:

- Annual Report
- Smaller (~50 pages)
- Few spreadsheets (satisfies PL 87-843)
- Progress towards Strategic Goals and Objectives (Agencies, Committees)
- Released in March (normally, but not FY18 version)
- OMB Review

Strategic Plan: Goals and Objectives

1. **Improve the resolution, frequency, information content and sustainability of global observing capabilities.**
   a) **Enable interagency discussions of observation system acquisition at the capability planning stage.**
      ALTERNATE: Enable coordinated interagency assessments of observation system needs at the capability planning stage.
   b) **Conduct development, deployment and sustainment of common-use systems through formalized interagency processes.**
   c) **Coordinate data formatting, processing, communication, management and stewardship standards to optimize the exchange, timeliness, usability and value of earth observations.**
   d) **Coordinate the development of technology to extract information from observations.**

Strategic Plan: Goals and Objectives

2. Make Federal forecasting processes more resilient for all relevant time and spatial scales.
   a) Strengthen interoperability among interagency forecasting centers in producing accurate, timely, and precise weather products, information and services.
   b) Ensure interagency utility (data types, precision, etc.) of intraseasonal-to-interannual and longer-term forecasts.
   c) Support agency efforts to plan and develop the cooperative use of processing resources to increase the Nation's computing power for enhancing data assimilation and modeling systems.

3. Ensure availability of effective and consistent decision support products, information and services.
   a) Coordinate interagency outreach efforts to identify weather and water related information needs for decision making and risk management.
   b) Improve the consistency of decision support and risk management products, information and services.
   c) Crossfeed processes and lessons learned between agencues to improve decision support tools.

Strategic Plan: Goals and Objectives

4. Conduct productive, synergistic interagency research efforts.
   a) Exercise leadership in coordinating U.S. efforts in international weather research priorities including the current WMO Grand Challenges.
   b) Foster interagency collaboration of research initiatives starting at the planning stage.
   c) Support efforts among FWE participants to coordinate task definition and sponsorship of National Academies research initiatives.
   d) Expand interagency use of data and information for research.

5. Develop, recruit, and sustain a professional diverse federal workforce.
   a) Coordinate OPM definitions and requirements for meteorology-related positions to ensure appropriate education and experience of the FWE workforce.
   b) Coordinate opportunities to leverage outreach, including education efforts, recruiting, and diversity inclusion initiatives.
   c) Crossfeed information on career path planning, training opportunities, diversity and inclusion, professional development, and retention programs.

Strategic Plan: Goals and Objectives

6. Coordinate messaging about FWE priorities and needs.
   a) Coordinate input about FWE priorities to the Executive and Legislative branches, including communicating these priorities to federal agencies that are not FWE participants.
   b) Coordinate input about FWE priorities to academia, professional associations, non-federal government entities, and the general public.

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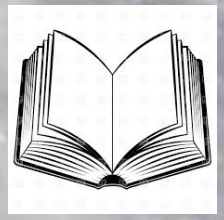

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Annual Report (FY18 FedPlan)

1. Amplifying information on agency budgets

a) Includes FY18 President's Budget Request amounts

b) Excludes FTE numbers

c) Envisioned as an intro statement (overall amount, changes) followed by 2-5 bulleted highlights; we propose as guidance using a (i) $10M threshold or (ii) 10% of top line or (iii) items that reflect a significant change in approach or policy, in choosing your highlights.

Example:

The National Environmental Satellite, Data, and Information Services (NESDIS) funding request in the FY 2017 President's Budget totals $2.3 billion. This is a 2.0% decrease from the FY 2016 Enacted. Significant items in the FY17 request include:

- *NESDIS IT Security.* NOAA requests an increase of $4.9 million for a total of $10.6 million to improve data flow resiliency across NOAA's critical Information Technology (IT) systems and infrastructure. This request is part of a cross line office initiative with NOAA's Office of Chief Information Officer (OCIO).

Annual Report (FY18 FedPlan)

TABLE 1 Meteorological Services and Supporting Research*

AGENCY	Total FY16	Total FY17	Total FY18
Agriculture			
Commerce/NOAA(Subtot)			
NWS			
NESDIS			
OAR			
NOS			
OMAO			
Defense(Subtot)			
Air Force			
Navy			
Army			
Homeland Security (Subtot)			
USCG			
Interior/BLM (Subtot)			
BLM			
NPS			
USGS			
Transportation(Subtot)			
FAA			
FHWA			
EPA			
NASA			
NRC			
DOE			
DOS			
Smithsonian			
NSF			

*The FY 2016 and 2017 funding reflect Congressionally appropriated funds; the FY 2018 funding reflects the amount requested in the President's FY 2018 submission to Congress.

Annual Report (FY18 FedPlan)

TABLE 2 Interagency Fund Transfers for Meteorological Operations and Supporting Research			
	FY2017 Funds ($M) Estimated or Planned		
Transferred from:	**To:**		**Purpose:**
DOC/NOAA			
NESDIS	NIST	0	
NESDIS	NSF	0.20	
NESDIS	NASA	611.50	
NESDIS	DOD	7.30	
NESDIS	DOI	0.05	
NESDIS	NTIA	5.71	
NWS	USDA	0	NRCS deleted
OAR	DOE	4.08	
OAR	USDA	0.23	
DHS			
USFA	DOI/BLM-FA	42	Lightning
USFA	DOI/BLM-FA	83	RAWS program support
FEMA	DOC/NOAA/NESDIS/NCEI	100	
USDA			
USDA/USFS	DOI/BLM-FA	660	RAWS maintenance contracts
USDA/USFS	DOI/BLM	34	Lightning
USDA/NRCS	USDA/USFS	53	Snow Survey support
USDA/NRCS	DOI	147	Snow Survey support
USDA/NRCS	DOI/NPS	5	Snow Survey support
DOD			
Air Force	DOC/NOAA/NWS	7913	
Air Force	DOC/OFCM	145	
Air Force	DOI/USGS	432	

Annual Report (FY18 FedPlan)

2. Plans and Progress in Support of the Strategic Goals

- **Provide brief descriptions of any effort your agency is currently engaged in that support or relate to the goals and objectives of the Strategic Plan.**
- **Not required to 'check every block'**
- **OFCM will assist with editing. FY18 version (first version) will be understandably very lightly populated. FY19 edition should be first robust version of this section.**

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Vision for Evolving the NWS: Five Objectives

NWS Mission

To provide weather, water, and climate data, forecasts and warnings, for the protection of life and property and the enhancement of the national economy

The NWS is evolving to meet it's life-saving mission through five objectives:

- Better serving partners by **enhancing quality and consistency of IDSS** at all levels of the organization
- Building a flexible and nimble **workforce the NWS needs to deliver science-based services**: both through enhancing skills today and hiring for tomorrow
- Improving **effectiveness of forecasting in support of IDSS through a collaborative process** that makes the best use of technology, reduces duplication, and ensures consistency of the forecast
- **Matching workforce to workload** across the organization and building a stronger organizational structure to connect forecasts and warnings to NWS partners
- Supporting the **innovation, science, technology**, and culture required for NWS to continue improving over time

Role of Degreed Meteorologists Vs Technicians in the NWS

Meteorologists

- Must meet OPM's GS 1340 standards
- Most recent hires have MS degree
- If working in WFO, RFC, CWSU, NCEP operations – often referred to as "forecasters"

Meteorologist Technicians

- Must meet OPM's GS 1341 standards
- Limited hiring in recent years

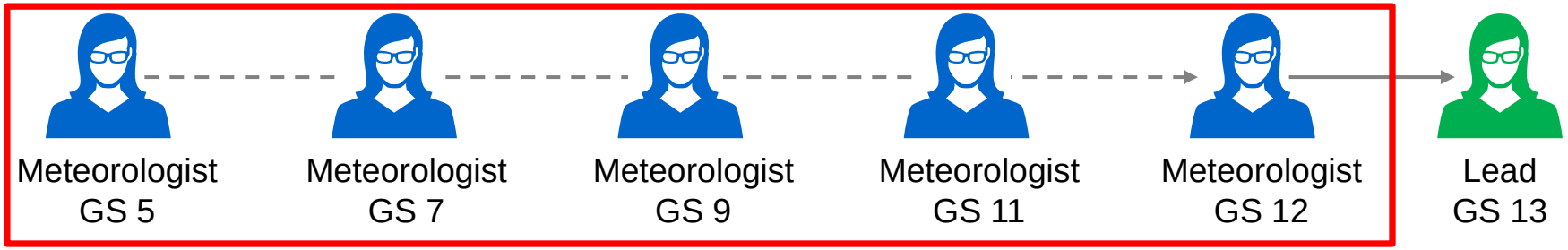
Positions available with no college Degree

HYDROMETEOROLOGICAL TECHNICIAN

Fiscal Year	Onboard Positions
2015	104
2016	86
2017	73
2017 current (PP 2017-02)	70

Position Title	Series	Onboard Positions
ELECTRONICS SYSTEMS ANALYST	2210	118
ELECTRONICS TECHNICIAN	0856	190
HYDROMETEOROLOGICAL TECHNICIAN	1341	70
INFORMATION TECHNOLOGY OFFICER	2210	111

A competency-based GS 5-12 Meteorologist career development model would support the whole office concept



- **Creates a single career progression from GS 5-12.** Combines Intern and Journeyman positions in WFOs into one "Meteorologist" position that follows a career progression from GS 5-12
- **Empowers GS 5-12 employees to participate and gain experience in all skill areas** important to the evolving nature of the NWS mission throughout the career progression (e.g., forecast and warnings, IDSS, science and technology, data collection and analysis)
- **Provides flexibility within an office** to utilize talent in different skill areas when considered proficient, in a consistent manner across the NWS
- **Advances those who demonstrate proficiency.** Advancement between grades would be based on time in grade and successful demonstration of core competencies linked to a promotion assessment, ensuring each employee is able to contribute at the level expected
- **Aligns with other government agencies.** WFMO reports that GS 5-12 progressions are common elsewhere in federal government and RFC hydrologists currently follow a similar progression. NOAA General Council uses a competency-based GS 13-15 promotion model

SOURCE: OWA Workforce workstream 5-12 career progression workshop, May 2016

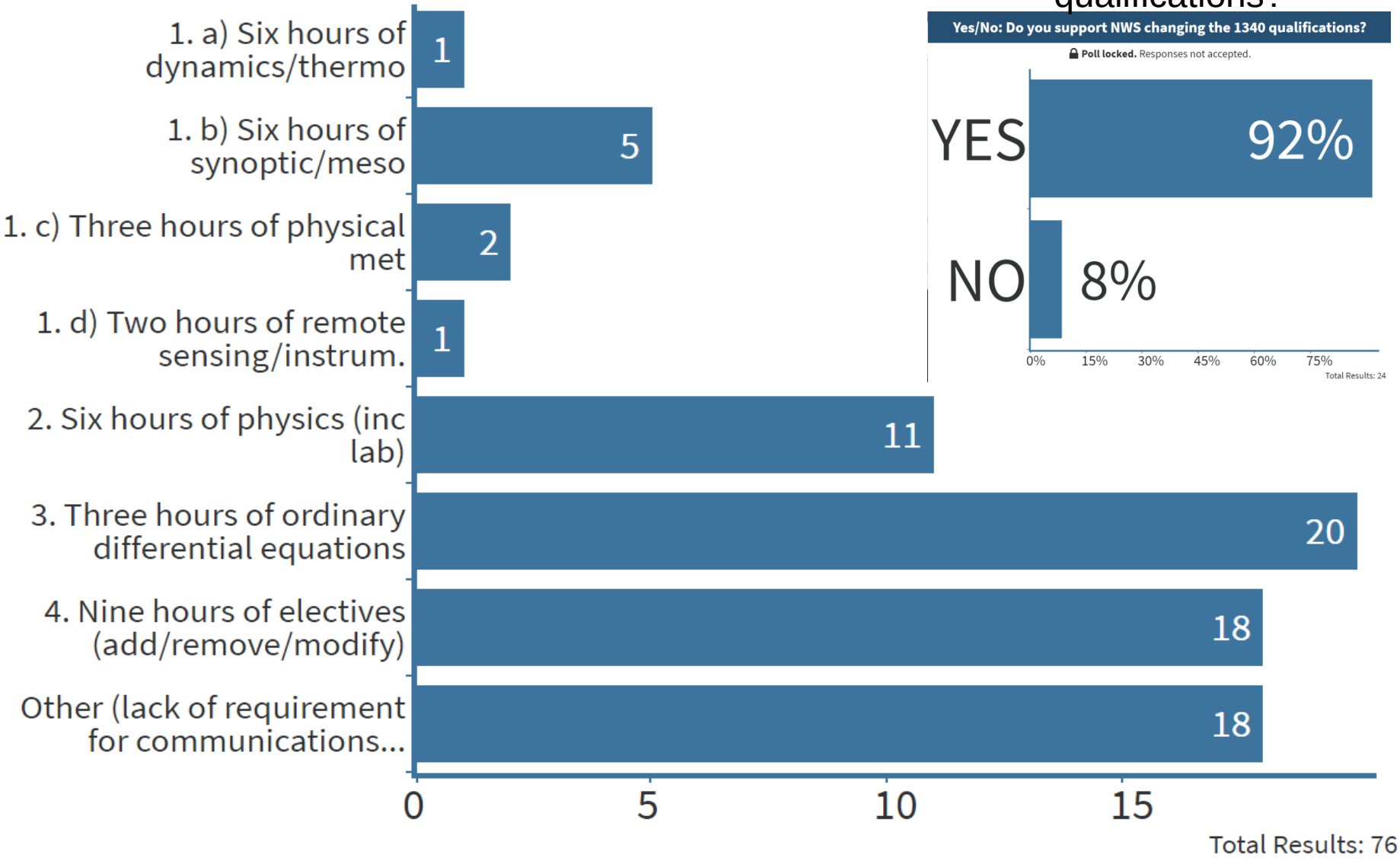
The workforce team has developed competencies associated with each of the 5 dimensions. These are the short titles.

Competencies

Info. management, data collection and quality control	Generation of forecasts, outlooks, watches / warnings	IDSS	Management, teamwork and leadership	Integration of science and technology
Collecting data, observations, and information	Diagnosing the environment	Developing and maintaining trusted relationships	Exhibiting teamwork	Developing and maintaining scientific skillsets
Managing information and ensuring quality control	Assessing and issuing scientifically-sound environmental forecasts	Understanding partner impacts and needs	Leading others	Developing and maintaining technical skillsets
	Developing and issuing hazardous environmental information and alerts	Demonstrating situational awareness	Leveraging diversity and respecting others	
		Developing and delivering effective written and oral communication to link forecast information with decision making	Managing programs	

Which section(s) of the 1340 Qualifications do you think should be changed? (you can select up to 3 sections)

~50 Professors at AMS Heads and Chairs Meeting



Should NWS change the 1340 qualifications?

Naval Oceanography Community Forecaster Training

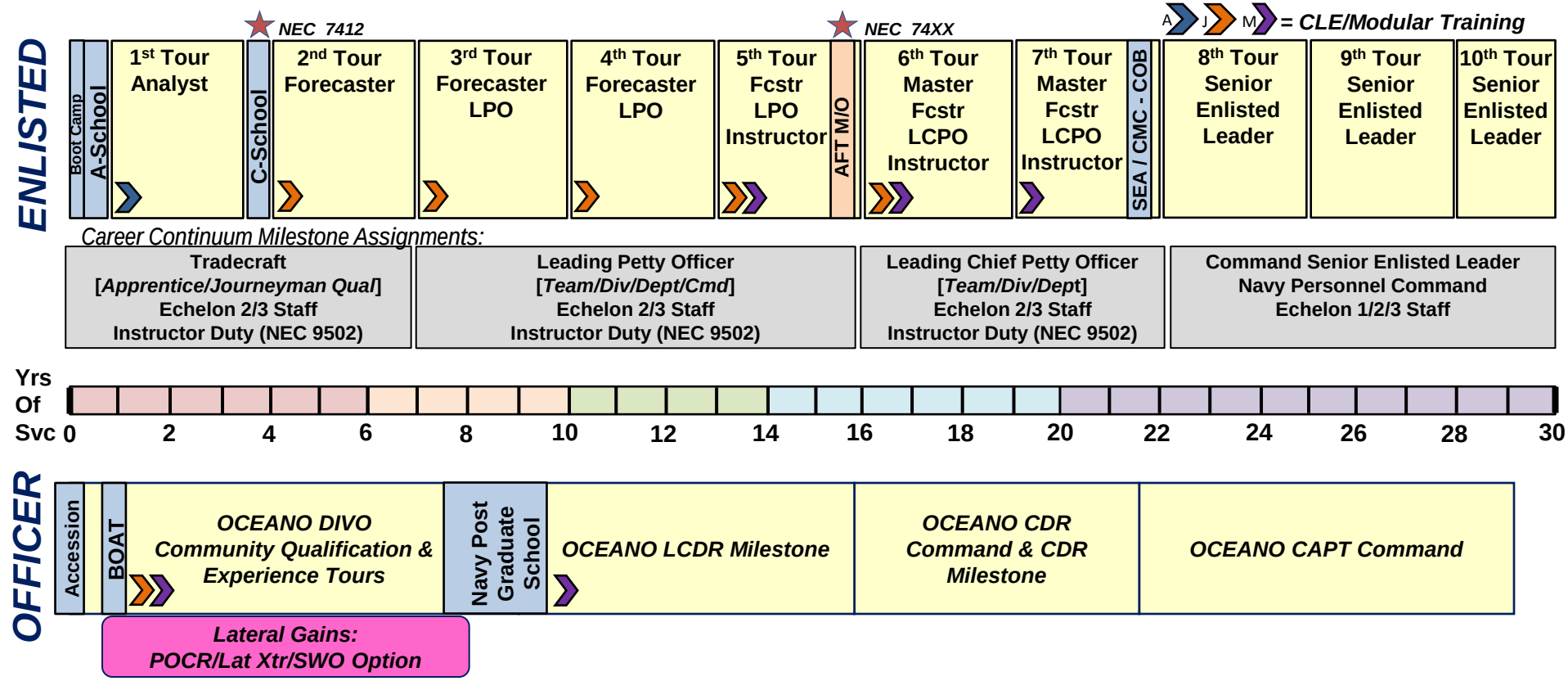
CDR Christi Montgomery

Commanding Officer,

Naval Meteorology and Oceanography Professional Development Center – Gulfport, MS

24 MAR 2017

Aerographer's Mate & Oceanography Officer Career Progression



Sea: *DIVO (CRUDES, L-class)*
Deployable/Embedded Teams:
Hydrographic Team (FST)
UUV Platoon (MIW)
NOAT (ASW), NSW
NAVO Survey Team
Shore: *Fleet Weather Centers (FWC)*
OCEANO Production Centers
Post-Graduate Education

Sea: *O4 Milestone:*
CSG, CVN, LHA/D, NSW
Non-Milestone Duty:
FST, MIW, ASW
Shore: *XOs*
FWC DH
Detachment OIC
Education/PhD

Sea: *# FLT*
Shore: *Command*
Major Staff
Headquarters
XO

Shore: *Command*
Major Staff
Headquarters

Aerographer's Mate Education & Training Career Path

METOC Training Pipeline

- AG-A1 School (14 wks)
- AG RTM / PO3 MTM / PO2 MTM
- AG-C1 School (31 wks) / NEC 7412
- AG RTM / PO1&CPO MTM
- AG-Advanced Forecaster Techniques (8 wks) / Block I-Met / Block II-Ocean / Block III-Lab / Exam & Oral Board (26 wks) / NEC 7420

METOC PQS & Certs

- METOC Analyst (NAVEDTRA 43203-G Apprentice Forecaster Sections 301, 304, 307, 310, 313)
- Local JQRs
- METOC Forecaster (NAVEDTRA 43203-G Journeyman Forecaster Sections 302, 305, 308, 311, 314)
- Local JQRs
- Master METOC Forecaster (NAVEDTRA 43203-G Master Forecaster Sections 303, 306, 309, 312, 315)

ACE Accreditation

- A-School ACE Credits 3(L) semester hours
- PO3 RTM ACE Credits 11(L) semester hours
- PO2 RTM ACE Credits 6(L) semester hours
- C-School ACE Credits 4(L)/17(U) semester hours
- **ACE Accreditation Totals: 3 + 11 + 6 + 4 + 17 = 41* hrs**
- PO1 RTM ACE Credits 4(L) semester hours
- CPO ACE Credits 3(U) semester hours
- AFT-METOC ACE Credits (~6+) semester hours
- SCPO/MCPO ACE Credits 6(U) semester hours
- **ACE Accreditation Totals: 41* + 4 + 3 + (6+) + 6 = 60+ hrs**

College Partnerships

- Thomas Edison State College
- Coastline Community College
- Embry Riddle University
- Tidewater Community College
- University of Southern Mississippi
- Mississippi State University
- Delta State University

Associates Degree Semester Hrs = ~60

Bachelors Degree Semester Hrs = ~120

Civilian Occupations

United Services Military Apprenticeship Program: Computer Operator; Meteorologist; Weather Observer

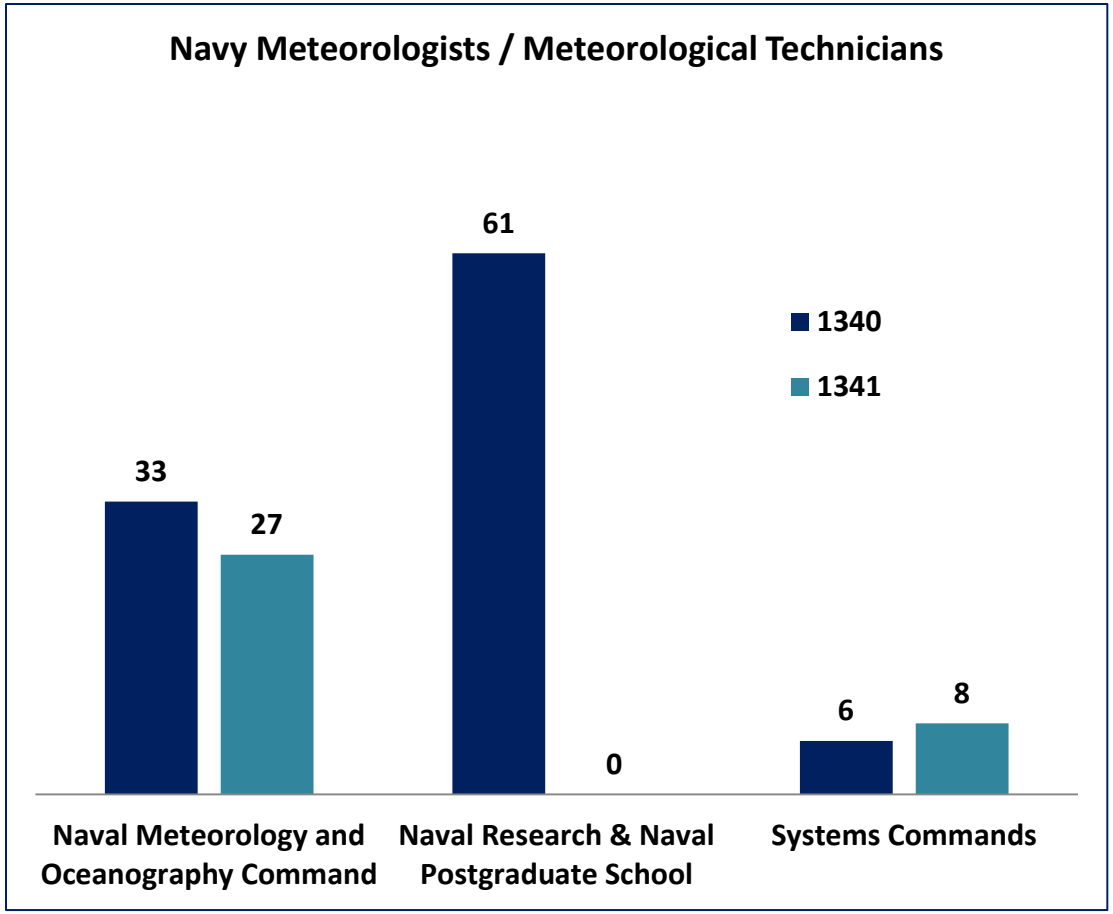
Instructor (NEC 9502): Training & Development Specialist

AS Degree/Certificate: GIS Specialist/ Technician/Analyst; Oceanographic Technician; Physical Science Technician; Remote Sensing Analyst/Technician; Airfield OPS Specialist; AUV Operator; ROV Technician; UAV Pilot

Bachelors Degree: Atmospheric & Space Scientist; Climatologist; Meteorologist; Oceanographer; Atmospheric, Earth, Marine & Space Science Teacher; Broadcast Meteorologist, Hydrologist

Navy 1340 & 1341 Billets

- *135 total 1340/1341 billets in USN*
  - *60 in operational commands*
  - *61 in S&T/R&D*
  - *14 in System Commands*
- *Majority of 1340 billets are involved in atmospheric modeling and/or basic and applied research*
  - *Only ~12 billets are forecasters*
- *Majority of 1341 billets support operational commands*



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Federal Meteorological Handbooks

- March 2017 revision to FMH-1 (Surface Weather Observations and Reports, last updated in 2005) is ready to publish.
  - Includes change to reporting procedures for small hail and snow pellets, supporting FAA requirements for aircraft de-icing and hold over times.
  - Will proceed with release barring ICMSSR objections.

- Future FMHs - Prescriptive or Descriptive?
  - “Handbooks” or “Standards”?
  - Source of authority?
  - Justification for agencies to expend resources for compliance?
  - Scope of applicability?
  - JAG to research and propose a path forward?

http://www.ofcm.gov/publications/fmh/allfmh2.htm

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Perspectives on the High-Performance Computing for Earth-System Modeling

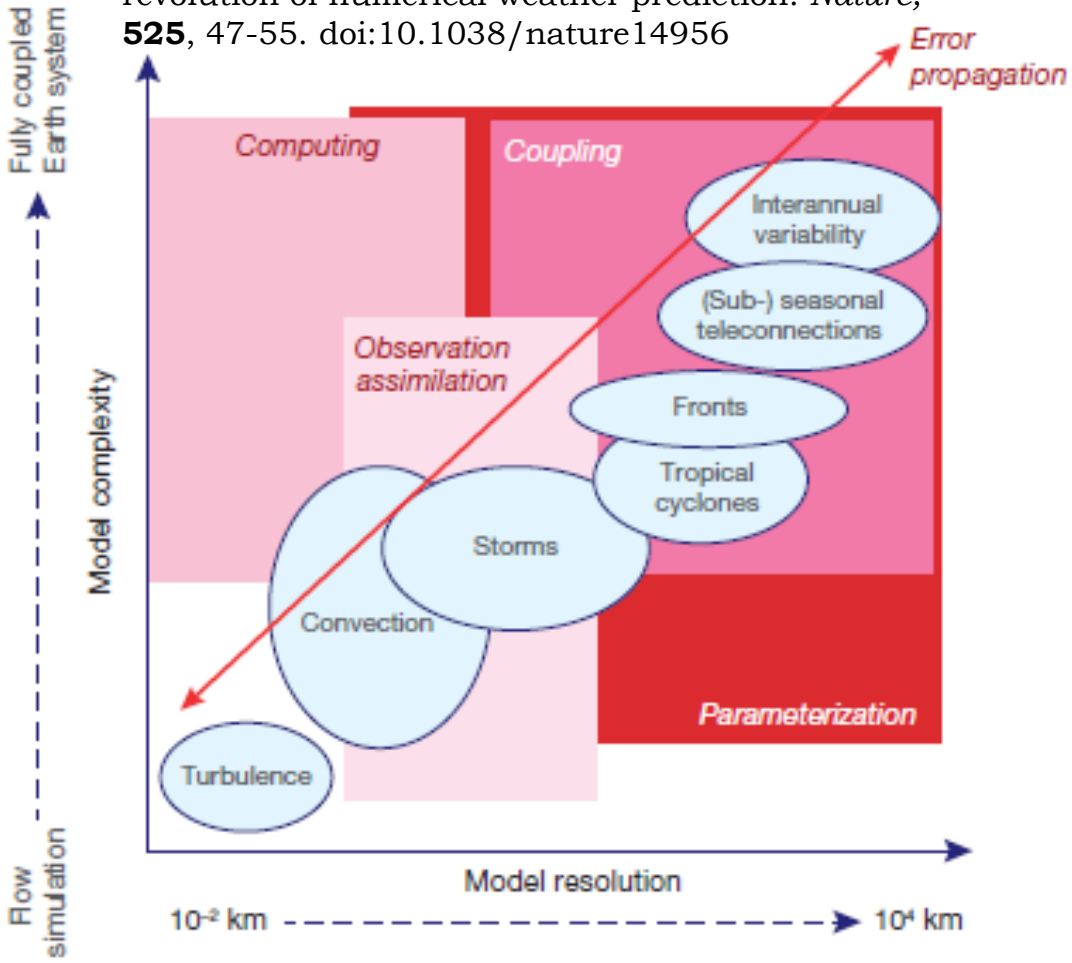
- To support national needs and resilience, agencies need a voice in the development of exascale computing.
  - DoE is investing in exascale hardware and software
  - Other agencies (NOAA, DoD, NASA, NSF) need to invest in architectures that support overall Earth-system modeling and other agency-specific needs
  - Inform agency decision-making processes via agency and national initiatives

ECP
EXASCALE COMPUTING PROJECT

National Strategic Computing Initiative (NSCI)

Perspectives from an Earth-system modeling viewpoint

Bauer, Thorpe, and Brunet: 2015: The quiet revolution of numerical weather prediction. *Nature,* **525**, 47-55. doi:10.1038/nature14956



Increases in understanding and prediction skill require:

- **Advances in computing**
- **Advances in representation of physical processes**
- **Advances in coupling of Earth-system components**
- **Advanced data assimilation**
- **Representation of uncertainties through ensembles**

National Strategic Computing Initiative (NSCI)

Perspectives from an Earth-system modeling viewpoint

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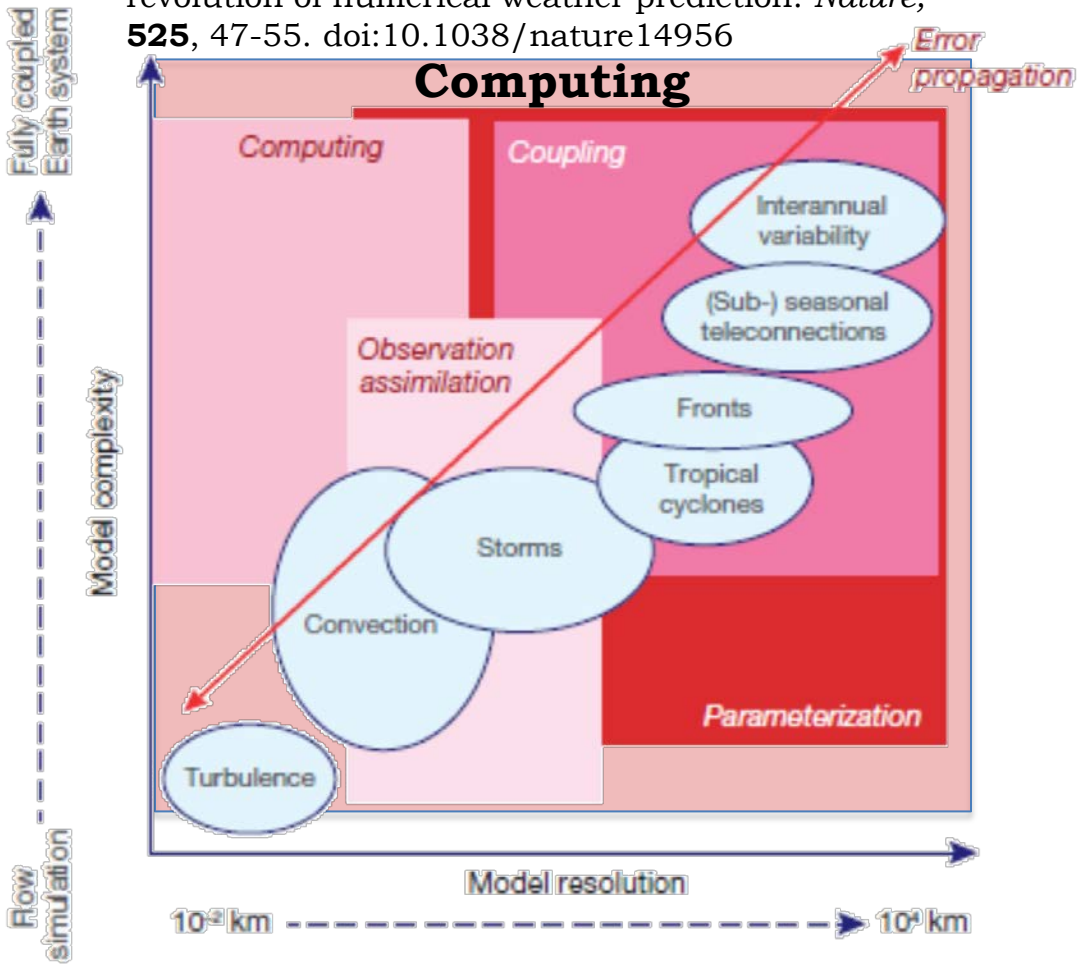

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Perspectives from a computing viewpoint

Real-time analysis of simulation results

Desire for Convergence

Mixing simulation with real-world data

Modeling and Simulation-Driven Science &Engineering

Data Intensity

Computational Intensity

Modified from I. Qualters, NSF

Real-time analysis of simulation results

Desire for Convergence

Mixing simulation with real-world data

Cloud Services

Personal Computing

Cloud Services

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State of the Science

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Modified from I. Qualters, NSF

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Large-scale, data-driven modeling and simulation

State of the Science

Cloud Services

Personal Computing

Cloud Services

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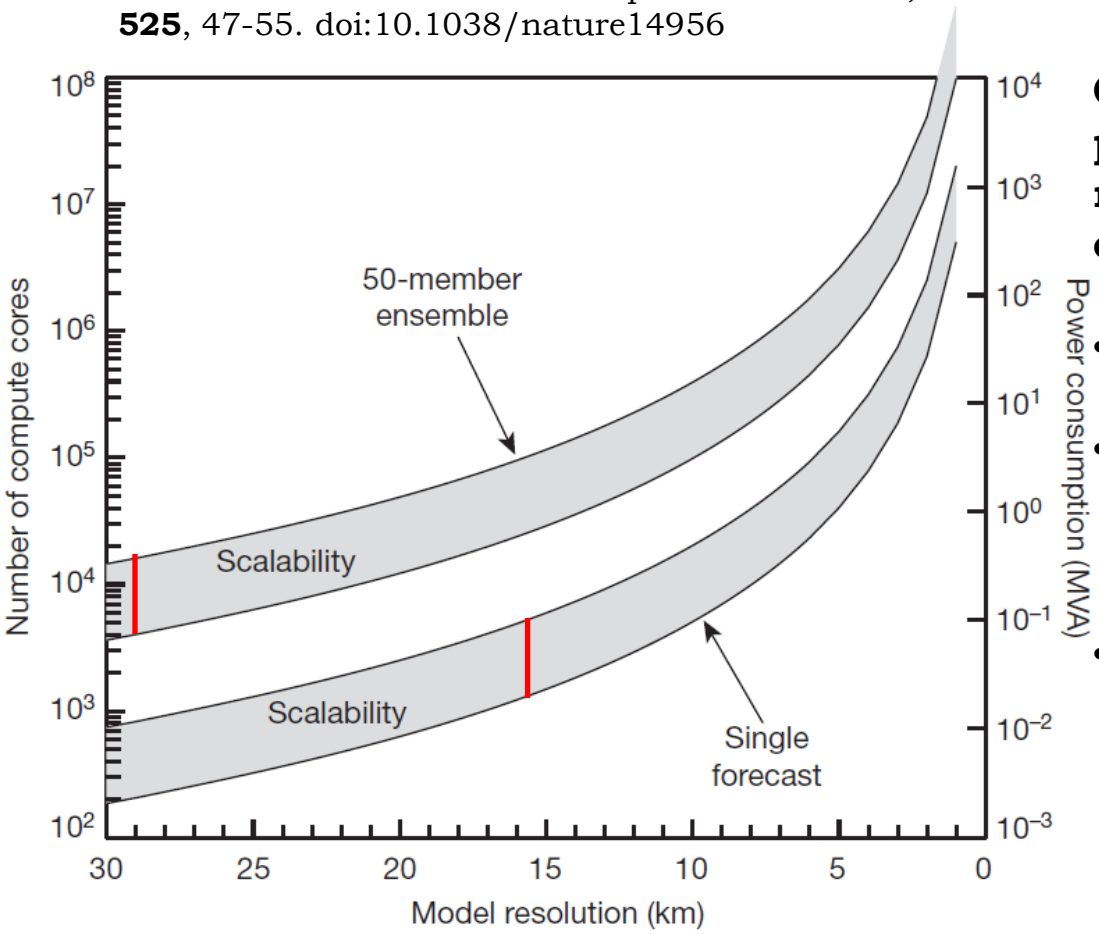
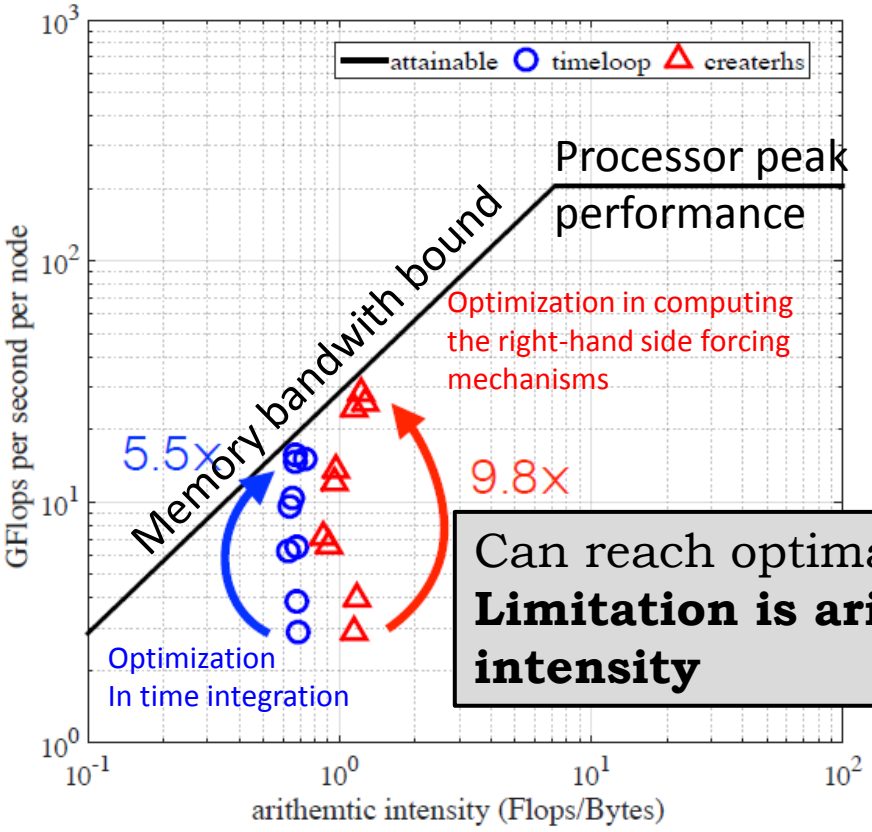


Computing cores and electric power requirements for a single model and a 50-member ensemble.

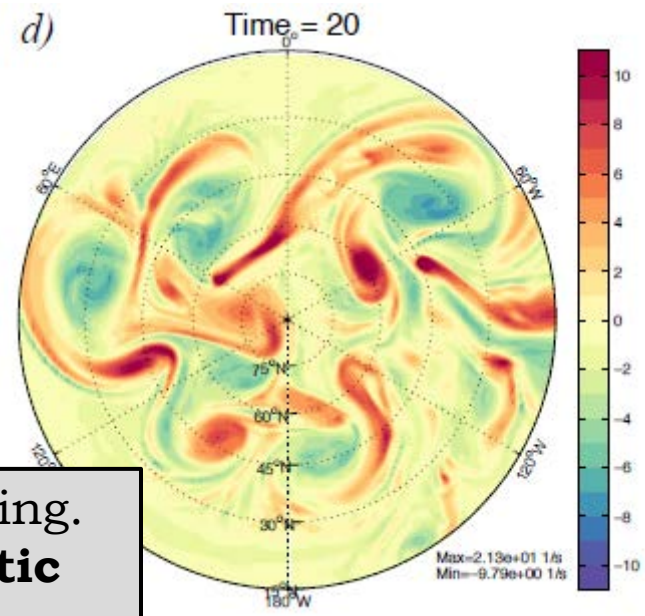
- **Impact of scalability;**
- **Dynamics: scales well but requires frequent access to data;**
- **Parameterizations: do not scale well**

Perspectives from modeling and computation viewpoints

Muller, Kopera, Marras, Wilcox, Isaac, and Giraldo, 2016: Strong scaling for Numerical weather prediction at petascale with the atmospheric model NUMA, *Int'l Journal of High-Performance Computing.*



Idealized 3-d baroclinic wave



Can reach optimal scaling.
Limitation is arithmetic intensity

Summary of Perspectives from modeling and computation viewpoints

- **Future HPC design should more closely fit software across the computation, storage, and networking system**
  - Partnerships among computing, storage, and networking communities
  - Document modeling, data, and computation requirements

- **Two Approaches:**
  - **Hardware-optimized:** different compute kernels for each chip design
  - **Hardware agnostic:** common language for compute kernels then apply translators for each design

- **Exascale requires a new computing ecosystem with advances in**
  - workforce development
  - software design
  - model efficiency

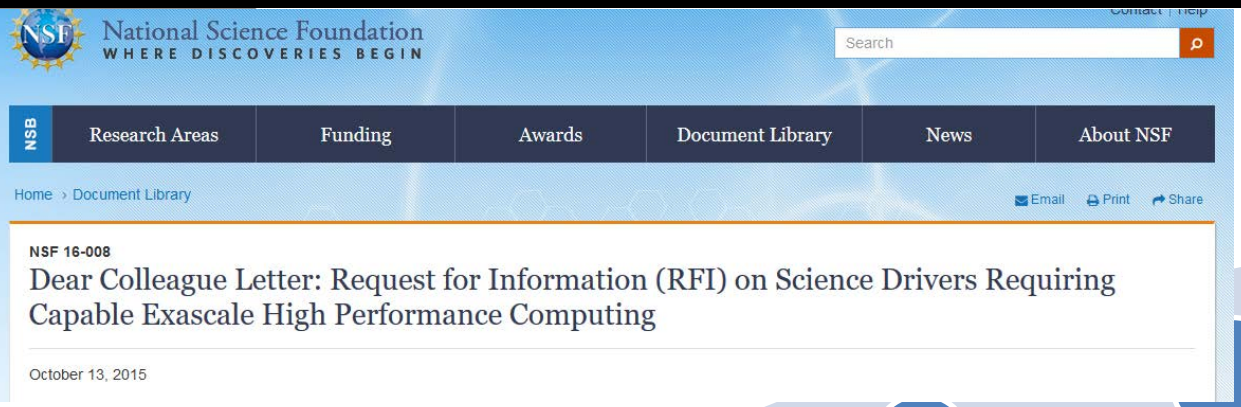
- **Coordination of strategies and at least a partial computing technology would simplify the migration to exascale.**

Executive Order: Creating a National Strategic Computing Initiative (NSCI) 29 July 2015

- **National**
  - *"Whole of Government"*
  - *Public-private partnerships that include industry and academia*
- **Strategic**
  - *Leverage beyond individual agencies and programs*
  - *Long time frame*
- **Computing**
  - *HPC: most advanced, capable computing technology available*
  - *Multiple styles of computing and all necessary infrastructure*
  - *Scope includes everything necessary for a fully integrated capability*
    i.e., Theory, practice, software and hardware
- **Initiative**
  - *Above baseline levels of effort*

National Strategic Computing Initiative (NSCI)

Information



DOE National Laboratories Responses: 135
Academic Responses: 94
Industry Responses: 8
Foreign Responses: 2
Others: 5

Nuclear, Particle & Plasma Physics

Chemical and Material Sciences

Biological Sciences & Public Health

Geoscience & Atmospheric Sciences

Astrophysics & Cosmology

Highlighted Applications:

- Assuring National CyberSecurity
- Self Assembly based Nano-manufacturing
- Galaxy formation and extreme gravitational fields
- Optimizing the Power Grid
- Realistic Hypersonic flow for Flight Vehicles
- Regional Scale Seismic predictions
- **High Resolution Atmospheric & Climate Models**
- Mapping the Human Brain with Synaptic Resolution

Provided by Saul Gonzales Martirena

WHERE DISCOVERIES BEGIN

NSF 17-031

Dear Colleague Letter: Request for Information on Future Needs for Advanced Cyberinfrastructure to Support Science and Engineering Research (NSF CI 2030)

- NSF has launched an effort to refresh the Foundation's cyberinfrastructure vision and strategy, as the current activity, *Cyberinfrastructure Framework for 21st Century Science and Engineering* (CIF21), completes its final year.
- NSF invites contributions from the *whole science, engineering, education, and CI research* community to inform this planning effort.

We seek input on scientific challenges, associated cyberinfrastructure needs, and bold ideas to advance research frontiers over the next decade and beyond.

- Dear Colleague Letter: www.nsf.gov/pubs/2017/nsf17031/nsf17031.jsp. The DCL points to the required submission website (direct link: http://www.nsfci2030.org).

Deadline for submissions: April 5, 2017, 5:00 PM ET.

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NSF 17-031

Dear Colleague Letter: Request for Information on Future Needs for Advanced Cyberinfrastructure to Support Science and Engineering Research (NSF CI 2030)

January 5, 2017

Workshop: Computational Challenges in State Space Estimation across the Sciences. 5-6 April 2017, NSF, Arlington, VA

Josh Hacker, Chris Snyder, Jeff Anderson, Michael Bell, Youssef Marzouk, Adrian Sandu

Workshop on Modeling Research in the Cloud

31 May – 2 June 2017, NCAR

Cliff Mass, Brian Ford Jewitt, David Bromwich, Eric Hoffman, Wei Wang, Josh Hacker

Today's Agenda

• OPENING REMARKS	Mr. Craig McLean (NOAA)
• FEDERAL COORDINATOR'S UPDATE	Dr. William Schulz (OFCM)
• FEDERAL MSSR STRATEGIC PLAN.	Dr. William Schulz (OFCM)
• 1340 METEOROLOGIST QUALIFICATION STANDARDS	Mr. John Ten Hoeve (NWS) CDR Christi Montgomery (USN) CAPT Chris Gabriel (USN)
• FEDERAL METEOROLOGICAL HANDBOOK-1: SURFACE OBSERVATIONS	Mr. Jud Stailey (OFCM) with USAF and FAA
• EXASCALE COMPUTING CHALLENGES:	Dr. Pat Harr (NSF)
• **OPEN DISCUSSION**	
• **ACTION ITEM REVIEW**	Mr. Michael Bonadonna (OFCM)
• **CLOSING COMMENTS / ADJOURN**	

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FCMSSR Action Items

AI #	OPR	Text	Comment	Status	Due Date
2016-2.4	OFCM	Forward preliminary SENSR weather requirements documents to the FCMSSR.	In Progress	Open	11/22/16
2016-2.5	ICMSSR	Proceed with the new process for quadrennial Federal Meteorological Coordination Strategic Plan and Annual reports and deliver the first Strategic Plan to the FCMSSR for approval in spring 2017.	Process on track	Open	04/25/17

ICMSSR Action Item Review

AI #	Responsible Office	Text	Comment	Status	Due Date

2015-1.6	OFCM	Update the Terms of Reference documents for all Committees, Working Groups and Joint Acton Groups subordinate to the ICMSSR to include formalized engagement with OSTP.	• Due six months after the FCMSSR Charter was signed.
			• New ToRs for:
			  • 4 Committees and
			  • 2 Working Groups
				Open	05/17/17

2016-2.2	OFCM, NWS, FAA, DHS	Continue interagency engagement on MPAR and the related radio-frequency spectrum auction. Regularly present updates to the ICMSSR and FCMSSR. (replaces ICMSSR AI 2015-1.2)	Will remain open until executed regularly	Open	Quarterly
2015-2.3	OFCM	Plan to conduct the next Space Weather Enterprise Forum in May 2017. Secure funding support from the ICMSSR agencies.	ICMSSR concurred with initial planning USAF A3W is providing funds. Planning in progress June 27 event	Open	06/27/17
2016-3.2	OFCM	Complete coordination of the draft GOES-R spectrum interference letter with OSTP and OMB then clear through NOAA HQ and send to NTIA.	Letter provided to NOAA HQ. On hold.	Open	3/24/17

ICMSSR Action Item Review

AI #	Responsible Office	Text	Comment	Status	Due Date
2016-4.5	OFCM, NWS/OOE	Develop a proposal for ICMSSR consideration on how OFCM and the FWE engage in Information Decision Support System (IDSS) interagency coordination.	Work in progress. Resuspense to June ICMMSR mtg	Open	06/15/17
2016-4.6	ICMSSR Members	ICMSSR members provide feedback to OFCM on NWS Evolve standards for Meteorologist workforce education/experience and career progression.	On the agenda for ICMSSR 2017-1 mtg	Open	03/24/17
2016-4.7	USAF, USN	Brief USAF and USN Meteorologist workforce requirements and development processes at the next ICMSSR.	On the agenda for ICMSSR 2017-1 mtg	Open	03/24/17

Action Item Review / Next Meeting

The Secretariat will document any action items taken during the meeting and schedule the June meeting in coordination with the cochairs.

Wrap Up

backup

Potential options for 1340 series requirements discussed during OWA project – still in information gathering phase!

***Potential* Action Steps**

Revisit requirement for 3 credit hours of multivariable calculus?[1]

Is multivariable calculus sufficient?

Edit elective courses to include social / communication sciences?

Include more interdisciplinary earth sciences?

Include requirement for written, oral, and multimedia science/technical communication?

…not a public speaking class.

Meteorology Series, 1340
Individual Occupational Requirements

Basic Requirements:

A.Degree: meteorology, atmospheric science, or other natural science major that included:

1. At least 24 semester (36 quarter) hours of credit in meteorology/atmospheric science including a minimum of:
   a) Six semester hours of atmospheric dynamics and thermodynamics;*
   b) Six semester hours of analysis and prediction of weather systems (synoptic/mesoscale);
   c) Three semester hours of physical meteorology; and
   d) Two semester hours of remote sensing of the atmosphere and/or instrumentation.
2. Six semester hours of physics, with at least one course that includes laboratory sessions.*
3. Three semester hours of ordinary differential equations.*
4. At least nine semester hours of course work appropriate for a physical science major in any combination of three or more of the following: physical hydrology, statistics, chemistry, physical oceanography, physical climatology, radiative transfer, aeronomy, advanced thermodynamics, advanced electricity and magnetism, light and optics, and computer science.

** There is a prerequisite or corequisite of calculus for course work in atmospheric dynamics and thermodynamics, physics, and differential equations. Calculus courses must be appropriate for a physical science major.*

or

B. Combination of education and experience -- course work as shown in A above, plus appropriate experience or additional education.

1. Hiring officials selecting for more research based met positions could be allowed to amend positions announcements to select for diff. eqs and/or other necessary mathematical or analytical skills

SOURCE: Phase 1 OWA findings, site interviews, American Meteorological Society. OPM occupational requirements