

## **2. The WRF Partnership, Vision, Goals and Desired Outcomes:**

### **A Three-Phase Program**

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WRF Executive Oversight Board

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# Purpose

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- Develop a **Vision** to guide future evolution of WRF project
- Identify and resolve **key issues**
- Develop executive level **direction** for WRF Program Coordinator (PC)
- Develop a collaborative **resource plan**

# Vision

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**WRF is...**

**an inter-organizational partnership to create and sustain...**

- **The next-generation mesoscale NWP modeling system** for research and operations
- **A common modeling infrastructure** that facilitates operational NWP collaboration, scientific “interoperability” and accelerates the transfer of new science from research into operations
- **A repeatable process** that continuously infuses innovations and capabilities into the community mesoscale NWP modeling system

# A Three-phase Strategy

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- **Phase 1**: Develop and implement WRF as the next-generation mesoscale NWP modeling system, infrastructure and process...
  - Activate inter-organizational collaborations between research and operations
  - Streamline the transfer new science into both research and operations
- **Phase 2**: Use the WRF process and infrastructure to sustain the flow of new science and technology into the WRF modeling system to improve operations and to open new research opportunities
- **Phase 3**: Extend the WRF collaboration into other modeling areas of mutual interest—e.g., Ocean modeling, Global modeling, Diagnostic and Statistical post-processing

# Issues

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## Need to...

- Establish **goals** for each phase of the WRF project
- Define coordinated **thresholds and objectives** for each desired outcome
- Create management **organization**
  - Interagency executive-level oversight and direction
  - Explicitly stated agency contributions—direct and indirect resources
  - Role and authority of WRF PC—direct vs. indirect control of resources
- Define sustainable management **process**
  - End-to-end five-year plan: requirements and priorities, planning, resourcing, programming and execution
  - Decision-making—at executive level, PC level, and below
  - Status reviews

# Phase 1 Goals

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- **Establish a common modeling infrastructure** that facilitates inter-organizational collaboration to develop and transfer new science into the WRF operational and research mesoscale modeling system
- **Implement** WRF infrastructure as the next-generation mesoscale NWP modeling system used **in operations**
- **Create a sustainable repeatable process** that facilitates inter-organizational collaboration to develop and transfer new science into the common mesoscale NWP modeling infrastructure
- **Develop a plan for Phases 2 and 3**

# Phase 1 Desired Outcomes – Goal 1

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- **Common WRF modeling infrastructure** established that provides interoperability to the **WRF system** at levels of...
- **Software Engineering Infrastructure**
  - Model input/output-field exchange (*threshold*)
  - Model physics exchange (*objective*)
  - Model dynamic-core exchange (*objective*)
- **Organizational Infrastructure**
  - Defined institutional roles for DTC and OTCs (*threshold*)
  - One common DTC (*objective*)
  - Three OTCs (*objective*)

# Phase 1 Desired Outcomes – Goal 2

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- **WRF infrastructure implemented** as the next-generation mesoscale NWP modeling system used in operations ...
  - Two operational NWP centers (*threshold*)
  - Reference Code defined for one core and supported to the atmospheric science community (*threshold*)
  - All three operational NWP centers (*objective*)
  - Reference Code defined for two cores and supported to the atmospheric science community (*objective*)

# Phase 1 Desired Outcomes – Goal 3

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- **Sustainable repeatable process created** that facilitates inter-organizational collaboration to develop and transition new science into the common mesoscale NWP modeling infrastructure; includes...
  - Defined organization and roles (*threshold*)
  - Defined 5-year plan development and implementation steps (*threshold*)
  - Defined resource plan (*threshold*)
  
  - Management organization established (*objective*)
  - First 5-year plan developed and implemented (*objective*)
  - First resource plan developed & implemented with 5-yr plan (*objective*)

# Phase 1 Desired Outcomes – Goal 4

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- **Plan developed for Phases 2 and 3; includes...**
  - Statement of vision, goals and desired outcomes (*threshold*)
  - Executive-level roadmap (*threshold*)
  - Collaborative resource plan (*threshold*)

# Phase 2 Goals

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Use the WRF **process** and **infrastructure** to infuse and sustain the flow of new science and technology into the WRF mesoscale NWP **modeling system** to improve operations and to open new research opportunities:

- Identify significant **deficiencies** in Phase 1 WRF **modeling system**, common modeling **infrastructure** and **process**
- Develop strategy, roadmap and resource plan for each
- Execute at least one cycle of improvement in **all three areas** to demonstrate repeatability

# Phase 2 Desired Outcomes

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- **Significant deficiencies identified** in Phase 1 WRF modeling system, common modeling infrastructure and process
  - Coordinated statement and prioritization of deficiencies exists in all three areas (*threshold*)
- Strategy, roadmap and resource **plans developed** for each
  - Coordinated strategy, roadmap and resource plan exist for highest priority deficiencies (*threshold*)
  - Funding strategy for AOs developed to entrain university community (*objective*)
- At least one cycle of **improvement executed** to demonstrate repeatability
  - In at least one of the three areas (*threshold*)
  - In all three areas (*objective*)

# Phase 3 Goals

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**Extend WRF collaboration** into other modeling areas of mutual interest—e.g., Ocean modeling, Global modeling, Climate modeling, Diagnostic and Statistical post-processing

- Identify additional **areas of desired collaboration**
- Develop **strategy, roadmap and resource plan** for each

# Phase 3 Desired Outcomes

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- Additional **areas** of desired collaboration **identified**
  - Coordinated statement and **prioritization** of desired areas of collaboration (*threshold*)
- Strategy, roadmap and resource **plan developed** for each
  - Coordinated strategy, roadmap and resource plan for **highest priority area** of collaboration (*threshold*)