

The WRF Developmental Testbed Center: A Status Report



What is the WRF DTC?

A facility where NWP research and operational communities interact to accelerate the testing and evaluation of models and other numerical techniques for research applications and operational implementation.

Key Objective:

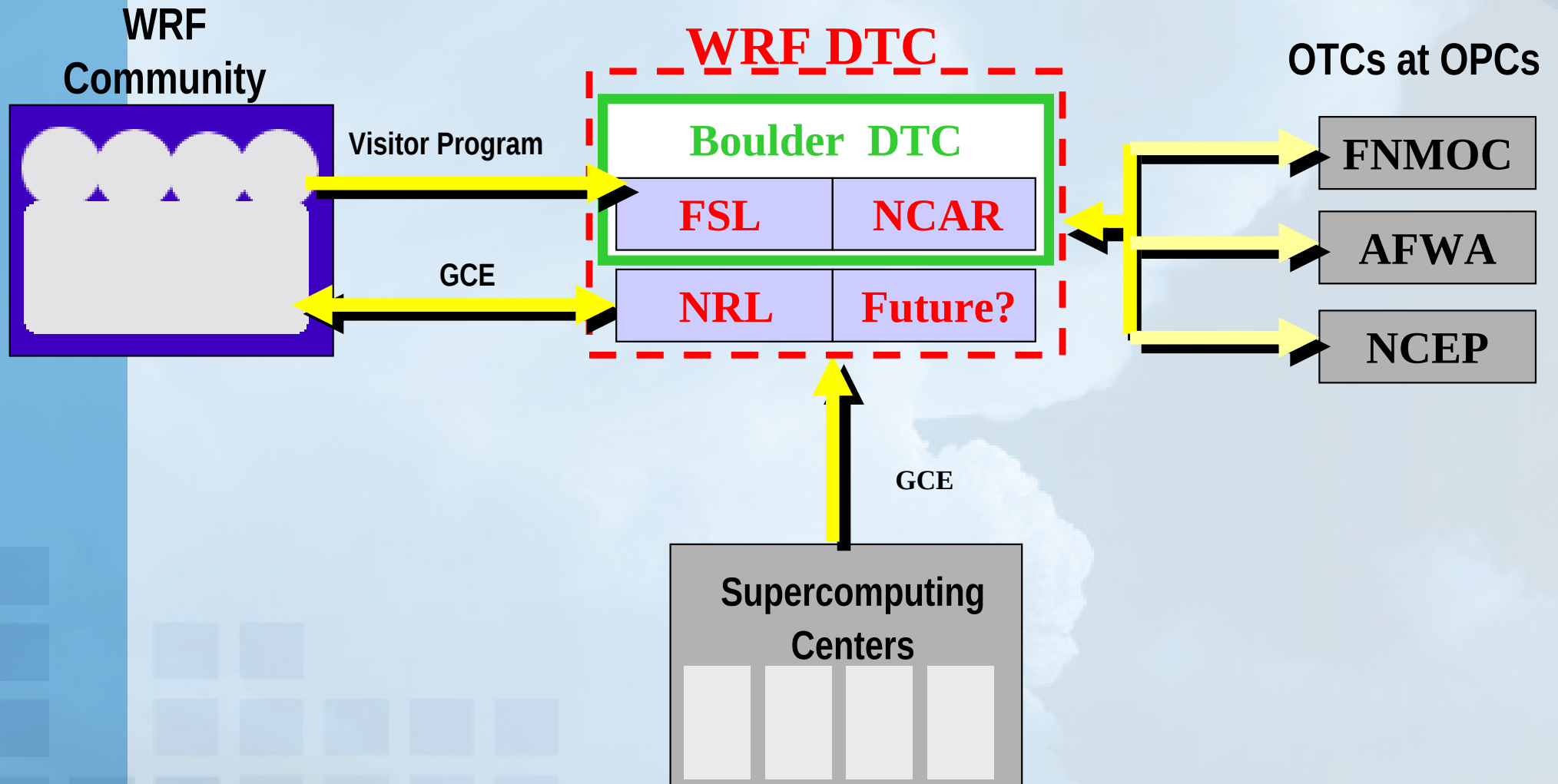
Provide the research community with an environment that is functionally similar to that used in operations to test and evaluate the WRF modeling system, without interfering with actual day-to-day operations at the operational centers

Website - <http://www.DTCenter.org>



NCAR

The DTC Architecture



GCE—Grid Computing Environment

WRF DTC Team



NCAR

NCAR

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Meral Demirtas

FSL

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NCEP Collaborators

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Other Collaborators



NCAR

Universities

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Mukul Tewari
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COMET

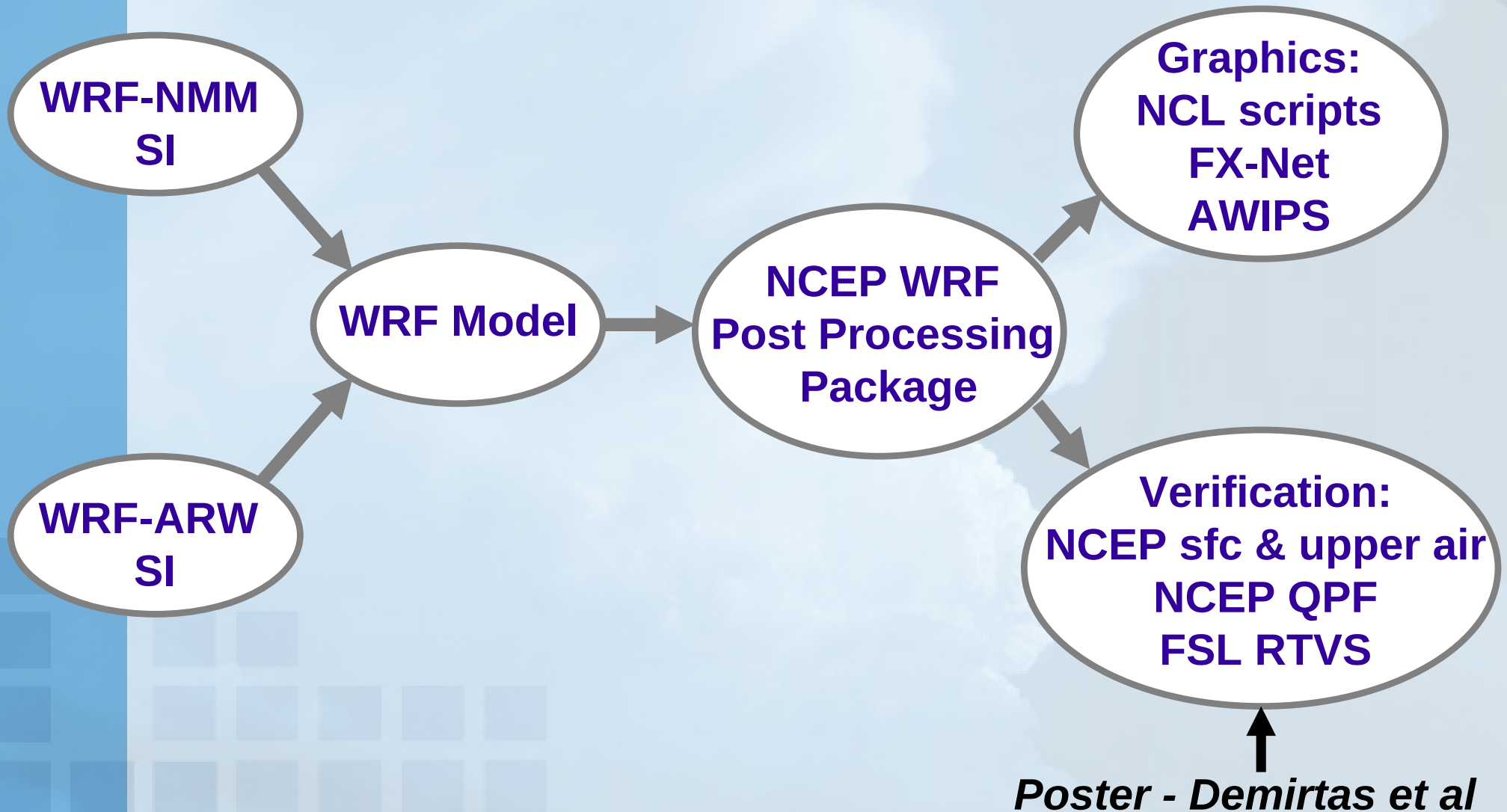
Bob Rozumalski
Wendy Abshire
Greg Byrd

+ many others!

WRF DTC End-to-End System



NCAR



DTC Winter Forecast Experiment



NCAR

- 15 January – 31 March 2005
- Both WRF cores (ARW & NMM)
- Real-time display
 - DTC website
 - FX-Net
 - AWIPS (2D fields-NMM only)
- Objective & subjective evaluation
- Horizontal resolution - 5 km
- 38 vertical levels
- Domain Size - CONUS
- 48-h forecast - 00 UTC
- Initial and lateral BCs – Eta212
 - ARW land surface fields initialized w/ HRLDAS

<u>Physics</u>	<u>ARW</u>	<u>NMM</u>
Microphysics	WSM5	Ferrier
Radiation	RRTM/Dudhia	MYJ
PBL	YSU	Eta
LSM	Noah	Noah
Cumulus	none	none

Archives:

NCAR MSS – model output, post-processed fields, verification

JOSS catalogue – web products & subjective evaluations

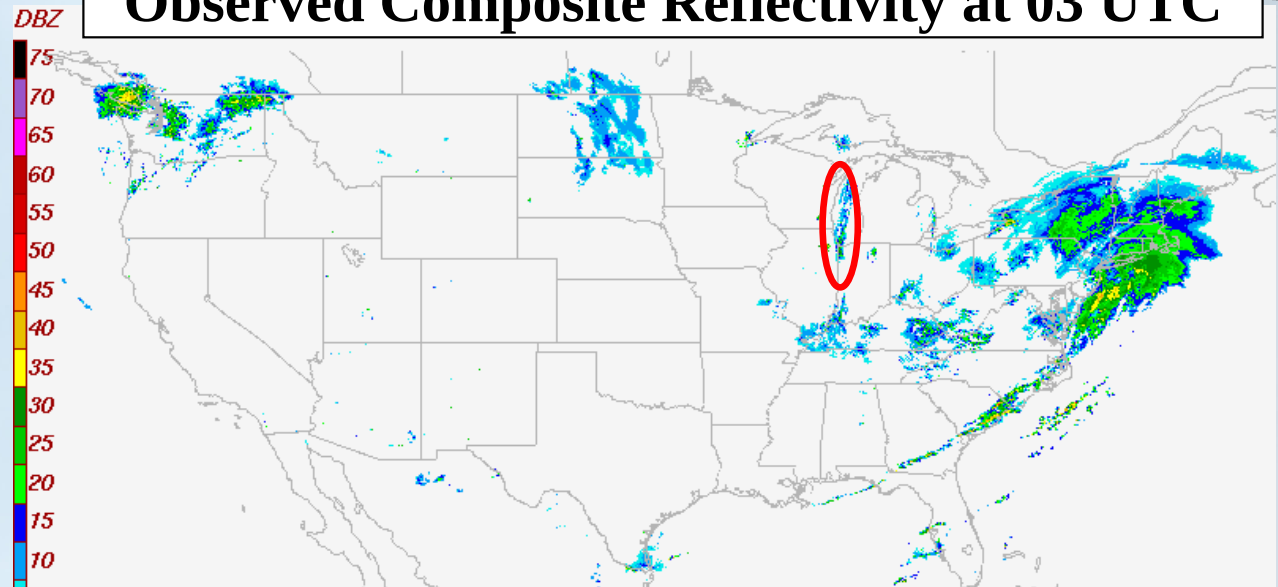
<http://www.joss.ucar.edu/dwfe/catalog/>

DTC Winter Forecast Experiment

23 January 2005

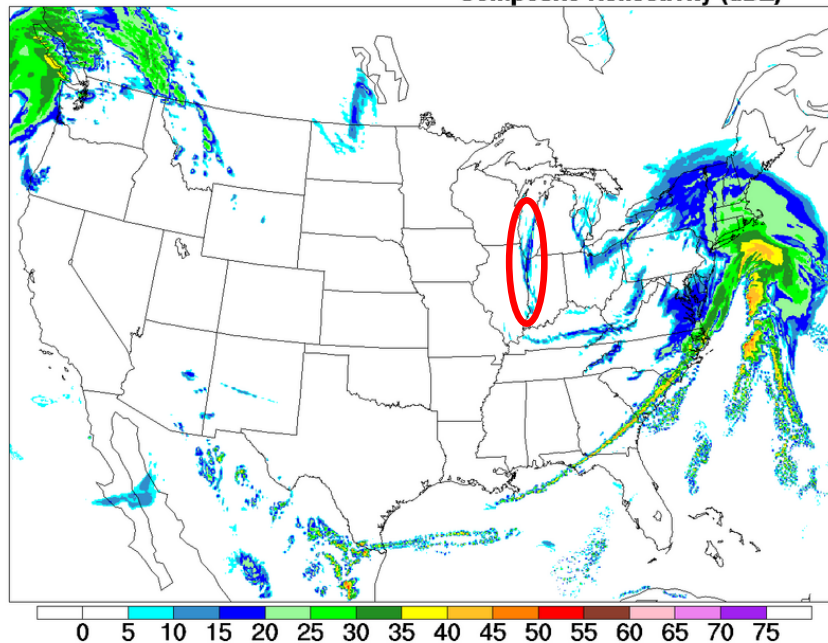
Lake-effect
snowbands

Observed Composite Reflectivity at 03 UTC



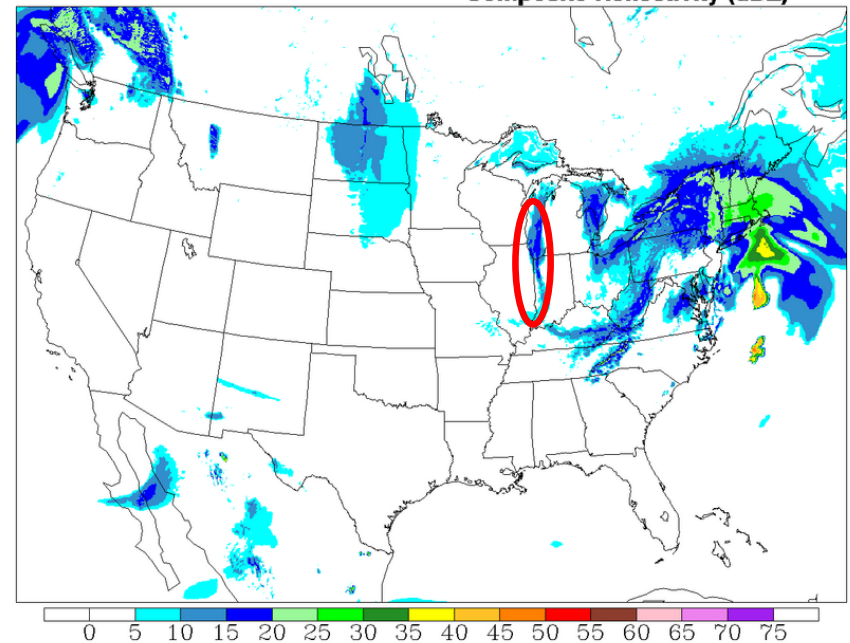
WRF-ARW

Composite Reflectivity (dBZ)



WRF-NMM

Composite Reflectivity (dBZ)





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WRF DTC Visitor Program

July 2004 to June 2005

- **By invitation**
- **Travel funds only**

Bill Gallus Isidora Jankov	Iowa State University	WRF model testing
Dave Dempsey	San Francisco State University	WRF model development & testing
Ying Lin	NCEP	Verification development



WRF DTC Visitor Program

July 2005 to June 2006

- **Released 2 Announcements of Opportunity (February and April 2005)**
- **Received 32 proposals – funding 8**
- **Proposals reviewed by panel with representatives from NCAR, FSL, NCEP, AFWA, and NRL**
- **Funding for up to 1 month salary, travel, and per diem**
- **Access to DTC computational resources**

2005-06 WRF DTC Visitor Program



Bill Gallus Isidora Jankov Eric Aligo	Iowa State University	Impacts of grid spacing and physical parameterizations for convective systems
Paul Roebber	University of Wisconsin – Milwaukee	Event-oriented verification
Hsiao-Ming Hsu	NCAR/RAL	Multiscale Verification Method
Dale Barker James Drake Jianjun Xue	NCAR/MMM AFWA JCSDA	Development of tools for WRF Data Assimilation
Joe Galewsky	University of New Mexico	Resolution dependence of convective parameterizations
Mark Stoelinga	University of Washington	Verification methods for simulated reflectivity
Caren Marzban	University of Washington / University of Oklahoma	Cluster analysis for verification of WRF precipitation fields
Ming Xue	University of Oklahoma	Implementation & evaluation of WSR-88D radial velocity & reflectivity data assimilation via 3DVAR

Support for WRF-NMM

- **Prepare User's Guide and documentation**
- **Preliminary testing WRF-NMM SI and model on various platforms**
- **Preparations and testing of post-processing package**
- **Release to research community scheduled for mid-to-late August 2005**
- **WRF-NMM Tutorial scheduled for 27-29 September 2005**



NCAR

DTC Advisory Board

- **Representatives drawn from WRF DTC's potential user community**
- **Representatives will include both operational and research communities**
- **Board will be tasked with helping DTC management shape the overall program of the WRF DTC**