

VORTEX2 Radar Data



- DORADE chosen as exchange format
 - Selected for SOLO compatibility
 - Otherwise, not a widely used format
 - A specification exists (1994, w/ rev 2003)
- There is large variability in DORADE compliance within VORTEX2 sample DORADE data
- Lack of compliance may:
 - Impact long term utility of the archive
 - Impact data translation and use of other tools

Where does V2 Want to Go?



- DORADE
 - Strict adherence to specification?
 - Minimal adherence? (“it works in SOLO!”)
 - Compromise:
 - required attributes
 - desired attributes
 - ~~optional attributes~~
- Or, a different format? (netCDF3 or 4?)
- Different for VORTEX2-A and B?
(get it “right” the next time?)



Suggested Required Attributes

(and required to be correct, w/o r.t. format)

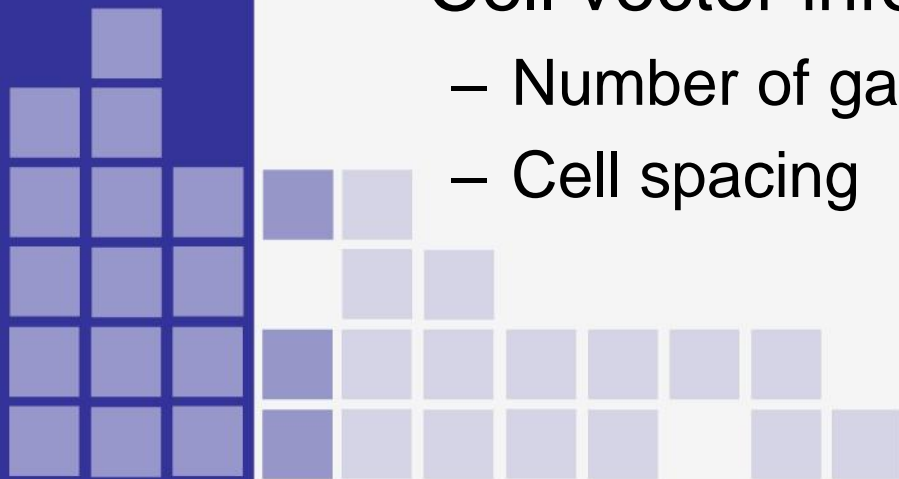
- Date/time of data
- Platform name
- Project name (how about “VORTEX2”?)
- Lat/lon/altitude
- Generating facility (e.g., UMass, CSWR)
- Generation date
- Nyquist velocity (effective unambiguous v)
- Declaration of bad_data flag
- Require no misleading values

e.g.: -340282346638528859811704183484516925440.000000



Also Require?

- Parameter/variable attributes, including:
 - Parameter name (DZ vs DBZ? Do we “standardize”?)
 - Parameter units
 - Parameter long description (e.g.: “Horizontal Co-polar Reflectivity, HH”)
- Cell vector info:
 - Number of gates
 - Cell spacing





Desired Attributes

- Examples:
 - Radar constant
 - Noise power
 - Frequency
 - Inter-pulse period
- (and everything else)

EOL Perspective



- EOL's available programming assistance is very limited
- The FORAY initiative (API to produce DORADE and netCDF)
- EOL/UniData/RAL formulation of a modified netCDF-for-radar format
- Currently, no plans to re-write SOLO (but are considering possibility of new FORAY ingest)
- Considering MATLAB tool for radar netCDF QC and prototyping

Resources



- EOL VORTEX2 HomePage
<http://www.eol.ucar.edu/projects/vortex2>
- EOL/DMG data set documentation guidelines
http://www.eol.ucar.edu/projects/vortex2/dm/data_doc_content_guidelines.html
- A DOW “deplinfo” file example
<http://www.eol.ucar.edu/homes/rilling/vortex2/deplinfo.txt>
- The DORADE specification
<http://www.eol.ucar.edu/homes/rilling/vortex2/DORADE-27Jan2003.pdf>
- FORAY information (Dennis Flanigan)
<http://www.eol.ucar.edu/Members/dennisf>

(note: all web links to be managed on
EOL VORTEX2 home page)

Final Questions



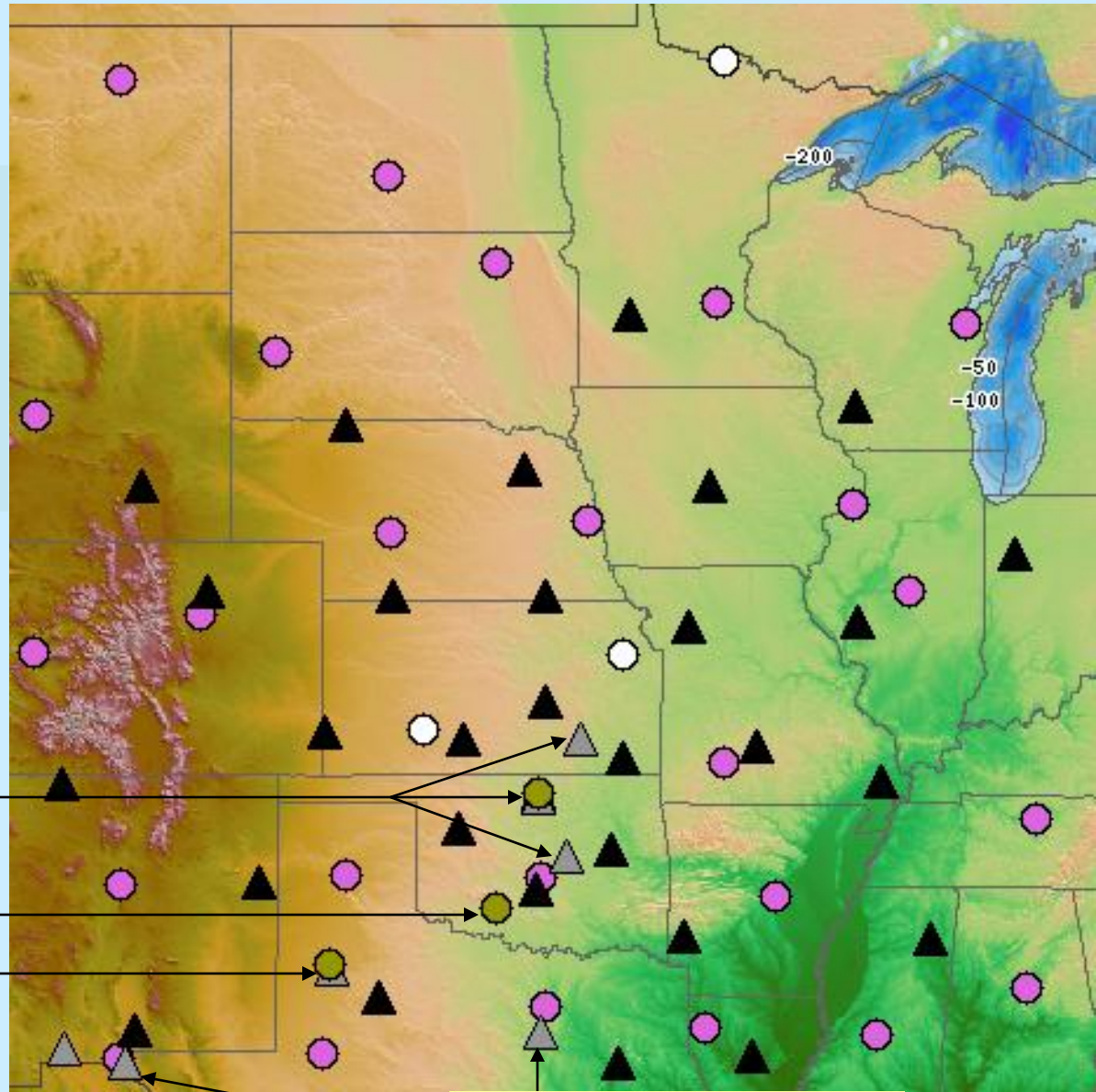
- What data format do we exchange? (may impact longevity of the archive!)
- Does this change between V2 A and B?
- How strict an adherence to format spec is required? (again, V2 A vs B? DORADE, or other?)
- What kind of support do the PIs (ideally) require for format-related work?
- Other?

Radiosonde/Profiler Sites

- Other Radiosonde Sites
- ▲ Other Profiler Sites
- ▲ NOAA Profiler Network Sites
- NMS MicroART Radiosonde Sites
- NMS RRS Radiosonde Sites

RRS Sippican MarkIIA GPS sondes
1-sec vertical resolution
TOP changeover in early Apr

MicroART VIZ B2 sonde with
Radiotheodolite winds
6-sec vertical resolution
DDC only by field phase



ARM (915MHz)

Fort Sill

West TX Mesonet
(915 MHz)

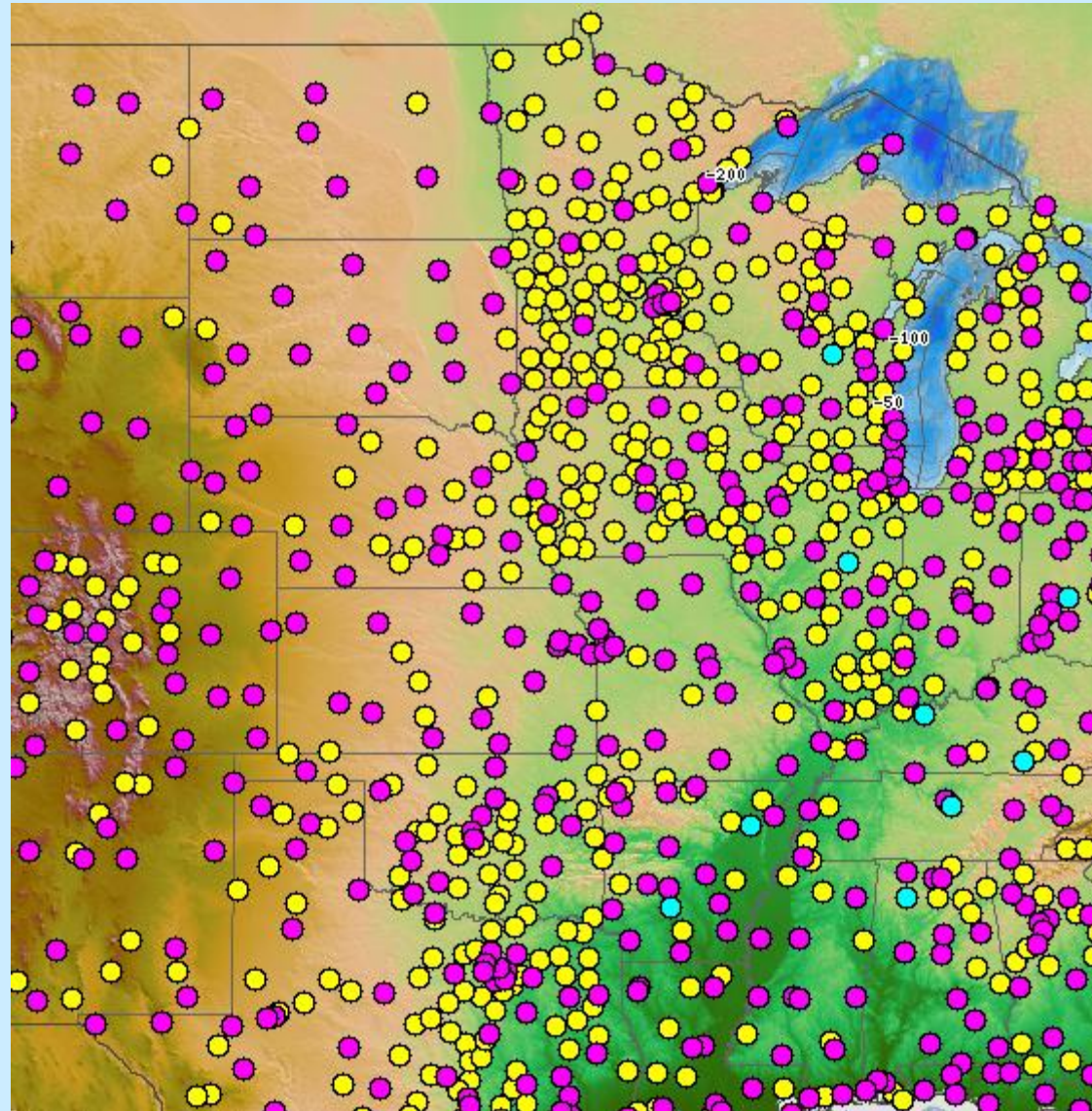
TNRCC (915MHz)

ASOS/AWOS Networks

AMSS

ASOS

AWOS



MADIS Networks

◆ MADIS - Various Mesonets

● MADIS - Personal Weather Station Networks

▲ MADIS - Non-Federal AWOS Network

□ MADIS - RAMS Network

● MADIS - DOT Networks

Air Force Academy

CAIC

GLDNWS

IEM

LAIS (5 min)

LANL

MAWN

MOCOMAgNet

MQT-Meso

OKMeso (15 min)

UDFCD

West TX Mesonet

APRSWXNET

AnythingWX.com

WXforyou.com

CODOT

CO E470

IADOT

INDOT

KSDOT

KYDOT

MNDOT

NDDOT

NEDOR

WIDOT

WYDOT

UPR

GLOBE

GPSMET

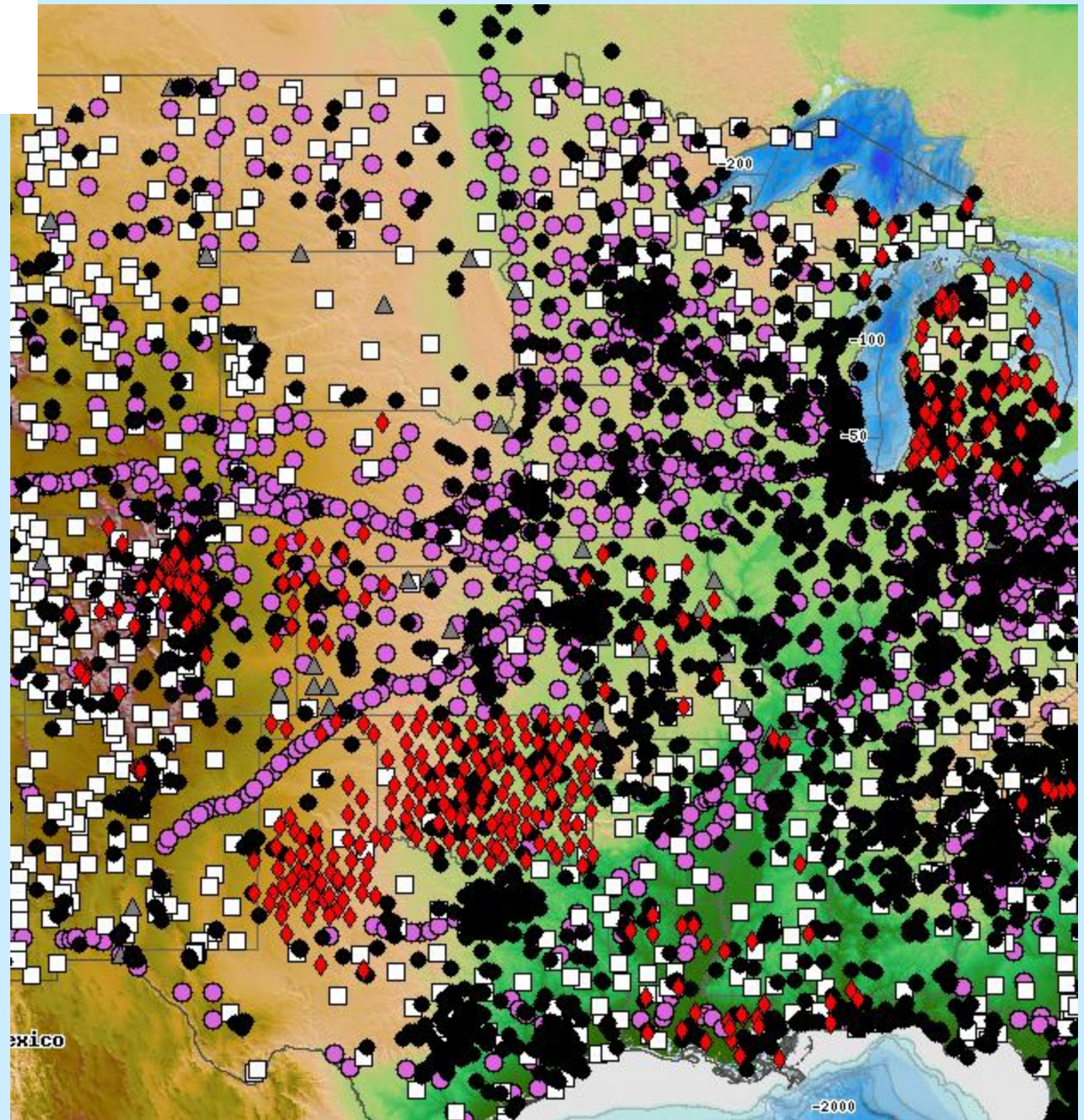
HADS

SCAN

CRN

Non-Fed AWOS

RAWS



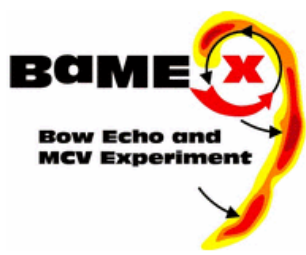
“Composite” Data Sets at NCAR/EOL

A **composite dataset** is a collection (over some time period and region) of similar data (e.g. surface meteorological) from a variety of sources, put into a common format, and passed through a uniform quality control.

Why does NCAR/EOL develop composites?

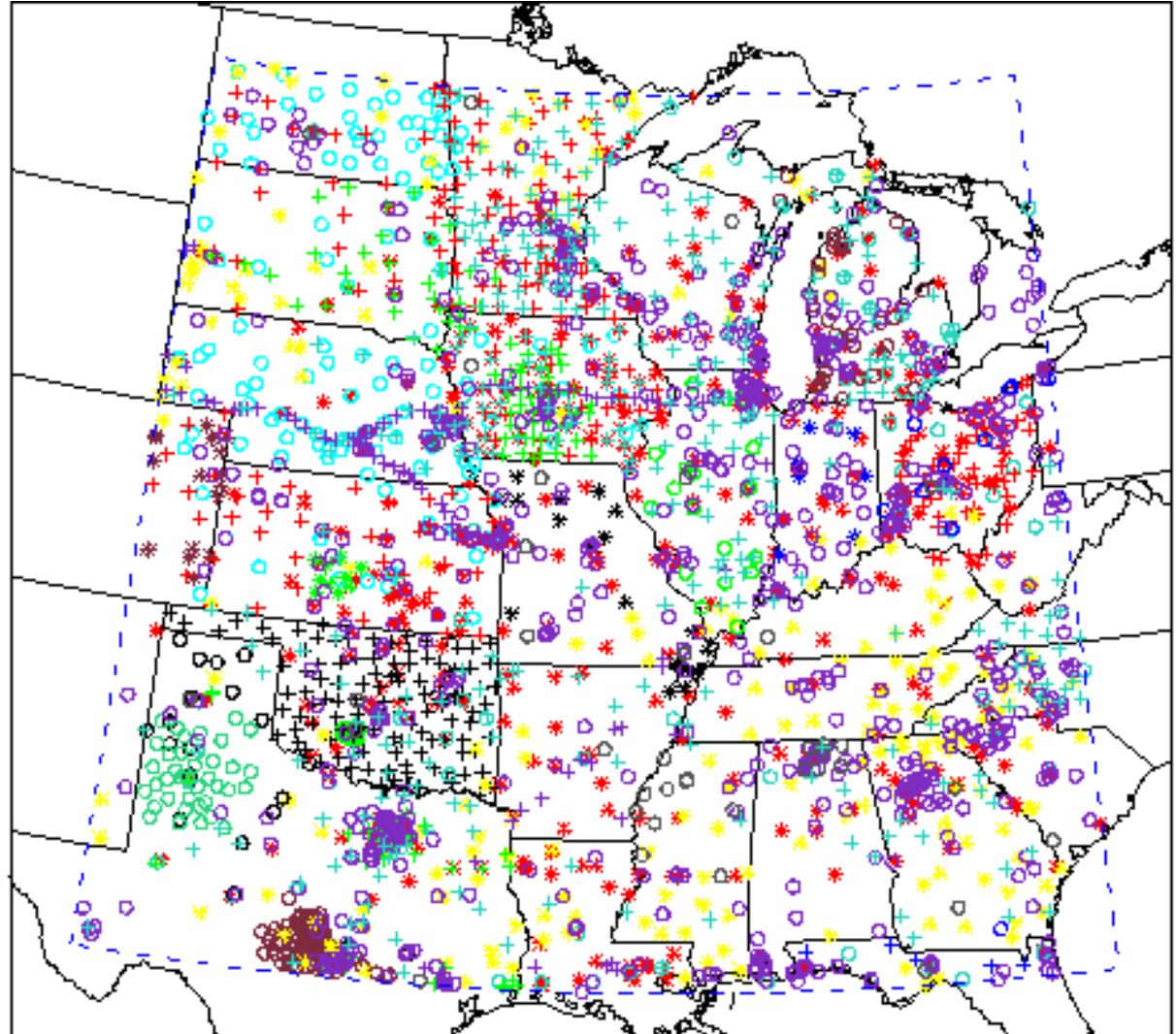
- Provides data in a uniform format with QC.
- Allows determination of network/site problems.
- Useful for model applications.
- Prevents duplication of effort.





Hourly Surface Meteorological Data Composite (2991 stations)

- 1-min sites (* 385)
- AWOS (+ 335)
- RAWS (* 220)
- MesoWest (+ 94)
- HPCN (o 138)
- RWIS (+ 279)
- GPSMET (o 153)
- CO CoAgMet (* 17)
- FL FAWN (+ 5)
- IA IEM (+ 88)
- IL ICN (o 19)
- IN PAAWS (* 7)
- KS GWMD5 (* 10)
- MI MAWN (o 33)
- MO CAWS (* 21)
- OH OARDC (o 11)
- OK ARS Micro (o 42)
- OK Mesonet (+ 119)
- TX LCRA (o 102)
- TX TNRCC (+ 47)
- West TX Meso (o 39)
- Texas ET (o 23)
- 15 Other Networks (o 804)



Some Networks not in MADIS that may be of interest

High Plains Climate Network

State Air Quality Networks

South Dakota DOT RWIS

Water Management District Networks (KS/CO)

Additional ALERT networks (e.g. Overland Park, KS)

ARS Micronet (SW OK)

OKC Micronet

Texas ET Networks

COAgMet

IA AgClimate Network

- Catalog Home
- Daily Reports
- Operational Products
- Radar Products
- Model/Forecast Products
- Research Products
- Missions
- Tools & Links

Boulder, Colo: **Thur, Nov 12, 6:39 AM UTC:** **Thur, Nov 12, 12:39 Z** **Norman, OK: Thur, Nov 12, 7:39 AM**

Current Reports/Links:

- Operations Plan of the Day (restricted)
- Weather Discussion (restricted)

X-Chat instant access



Help Documentation
*need passwd? :
 gstoss at ucar.edu*

VORTEX-2 has concluded operations for 2009

Latest Radar

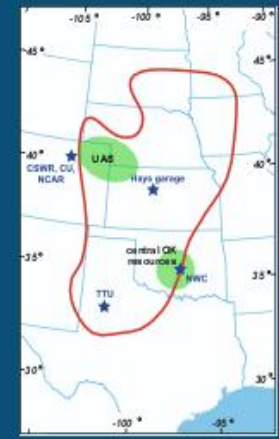
NSSL Q2 comp refl 20090615 0545 UTC



General Information:

- VORTEX2 Home Page
- VORTEX2 at NSSL
- VORTEX-2 Data Management

VORTEX-2 Domain



Comments

Additional Imagery:

- Latest 4 hours Visible
- Latest 2 hours Ch3 Water Vapor



What's New?

Project Announcements and Updates at Primary VORTEX2 Web Site.

VORTEX2 Planning Meeting 23 & 24 Feb. 2009, Boulder, Colorado

VORTEX2 Project Description

The **Verification of the Origins of Rotation in Tornadoes Experiment (VORTEX)** is a multi-agency field program to investigate (i) tornadogenesis, maintenance, and demise, (ii) tornado near-ground wind field, (iii) relationships among tornadoes, their parent thunderstorms, and the larger-scale environment, and (iv) numerical weather prediction of supercells and tornadoes. The first VORTEX field phase (VORTEX1) was conducted in 1994-1995 and advanced the understanding of the kinematic similarities between tornadic and nontornadic supercell thunderstorms and the implied sensitivity of supercell evolution and tornadogenesis to fine-scale heterogeneity, both pre-storm and storm-induced.

The second field phase of VORTEX (VORTEX2) will take place over a broad region of the central United States Great Plains during the months of May-June, 2009-2010. VORTEX2 will take full advantage of cutting-edge remote and in situ mobile and fixed observing systems, as well as data



Data Access

- [Master List of VORTEX2 Data Sets](#)
- [VORTEX2 Field Catalog](#)
- [VORTEX2 Data Management Home Page](#)
- [Data Management Plan/Data Policy](#)
- [Dataset Documentation Guidelines](#)
- [Data Submission Instructions](#)
- [Radar Data Submission Instructions](#)
- [Radar Resources](#)

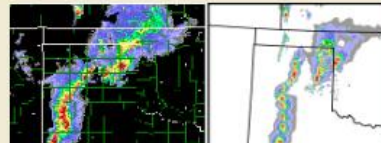


(Watkins, CO)

Publications

VORTEX2 Publications

Real-Time Numerical Weather Prediction



- Project Description
- Data Access
- Publications
- Documents
- Meetings
- Mailing Lists
- People
- Participant Web Pages
- Photography
- Related Links

<http://www.eol.ucar.edu/projects/vortex-2>





DATA BY CATEGORY

- Ancillary
- Hydrology
- Land Based
- Model
- Photography
- Radar
- Satellite
- Upper Air

[Back to VORTEX2](#)

Email comments & questions to codiac@ucar.edu

Radar

Doppler On Wheels (DOW) Animations [CSWR/Wurman]	New 2009-10-30	
Mobile CIRPAS MWR-05XP Data [French]		
Mobile CIRPAS MWR-05XP Reports [NCAR/EOL]		
Mobile DOW-5 Data [Kosiba]		
Mobile DOW-5 Reports [NCAR/EOL]		
MOBILE DOW-6 Data [Wurman/Kosiba]	Preliminary New 2009-11-05	
Mobile DOW-6 Reports [NCAR/EOL]		
MOBILE DOW-7 Data [Wurman/Kosiba]	Preliminary New 2009-11-05	
Mobile DOW-7 Reports [NCAR/EOL]		
Mobile NOXP Radar Data [Burgess]		
Mobile NOXP Radar Reports [NCAR/EOL]		
Mobile SMART Radar-1 Data [Ziegler]		
Mobile SMART Radar-1 Reports [NCAR/EOL]		
Mobile SMART Radar-2 Data [Wicker]		
Mobile SMART Radar-2 Reports [NCAR/EOL]	2009-07-28	

Some New Datasets to VORTEX-2 Archive



- Several EMC precipitation data sets
- GTS and METAR data sets
- NWS 6-sec Vertical Resolution Soundings
- WSR 88-D Level 2 and Level 3 Data
- MADIS and High Plains Climate Network Data
- ASOS 1-minute data and 6-min Profiler Data
- Mobile DOW Data and Animations



Thanks!

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11-Nov-2009