

# forecast\_20100516130000Z\_run001

## Metadata:

- [Identification Information](#)
  - [Entity and Attribute Information](#)
  - [Metadata Reference Information](#)
- 

### *Identification Information:*

#### *Citation:*

#### *Citation Information:*

*Originator:* Beth Plale, Keith Brewster, Craig Mattocks, Ashish Bhangale, Eran C Withana, Chathura Herath, Felix Terkhorn, Kavitha Chandrasekar

*Publication Date:* 20100728

*Title:*

forecast\_20100516130000Z\_run001

*Geospatial Data Presentation Form:* raster digital data, NetCDF digital data, textual digital data

*Online Linkage:* <http://dx.doi.org/10.5967/M07D2S2G>

*Online Linkage:* <doi:10.5967/M07D2S2G>

#### *Description:*

#### *Abstract:*

The Vortex2 project (<http://www.vortex2.org/home/>) supported 100 scientists using over 40 science support vehicles participated in a nomadic effort to understand tornados. For the six weeks from May 1st to June 15th, 2010, scientists went roaming from state-to-state following severe weather conditions. With the help of meteorologists in the field who initiated boundary conditions, LEAD II (<https://portal.leadproject.org/gridsphere/gridsphere>) delivered six forecasts per day, starting at 7am CDT, creating up to 600 weather images per day. This information was used by the VORTEX2 field team and the command and control center at the University of Oklahoma to determine when and where tornadoes are most likely to occur and to help the storm chasers get to the right place at the right time. VORTEX2 used an unprecedented fleet of cutting edge instruments to literally surround tornadoes and the supercell thunderstorms that form them. An armada of mobile radars, including the Doppler On Wheels (DOW) from the Center for Severe Weather Research (CSWR), SMART-Radars from the University of Oklahoma, the NOXP radar from the National Severe Storms Laboratory (NSSL), radars from the University of Massachusetts, the Office of Naval Research and Texas Tech University (TTU), 12 mobile mesonet instrumented vehicles from NSSL and CSWR, 38 deployable instruments including Sticknets (TTU), Tornado-Pods (CSWR), 4 disdrometers (University of Colorado (CU)), weather balloon launching vans (NSSL, NCAR and SUNY-Oswego), unmanned aircraft (CU), damage survey teams (CSWR, Lyndon State College, NCAR), and photogrammetry teams (Lyndon State University, CSWR and NCAR), and other instruments. This particular

collection contains namelist.input, cape.zip, radar.zip, precip.zip, surface.zip, updraft\_helicity.zip, vorticity.zip, pressureLevels.zip, xsec.zip, and wrfout\_d01\_2010-05-16\_12\_00\_00.nc. namelist is configuration file of WRF. cape is short for Convective Available Potential Energy, a measure of the instability in an air mass. cape.zip is the visualization of cape and contains 24 png files. radar is Mix of radar minimum and radar maximum visualizations. radar.zip represents the mixed results of putting those two radar types together. radar.zip is the visualization of vorticity and contains 13 png files. precip is short for Precipitation, the sum of the rain, snow and hail in given in liquid equivalent depth. precip.zip is the visualization of precip and contains 14 png files. surface is meteorological parameters on the earth's surface, or in a model on the first level above the ground. surface.zip is the visualization of surface and contains 15 png files. updraft\_helicity is the dot product of the vertical velocity and the vertical vorticity. It is presented as a summation over a 3-km depth. updraft\_helicity.zip is the visualization of updraft\_helicity and contains 15 png files. vorticity is the localized rotation of the air. In model plots it is often the vertical component of vorticity, the rotation of the horizontal winds. vorticity.zip is the visualization of vorticity and contains 30 png files. pressureLevels is Atmospheric Pressure on different layers of the Atmospher. pressureLevels.zip is the visualization of pressureLevels and contains 60 png files. xsec is the cross section. xsec.zip is the visualization of xsec and contains 48 png files. wrfout\_d01\_2010-05-16\_12\_00\_00 is computational result of WRF.

*Purpose:*

This data was created to provide fine-grained, hourly forecasts for the Vortex2 scientists (see abstract for more details)

*Supplemental\_Information:*

The input data for this forecast includes the following: Rapid Update Cycle (RUC) data downloaded from NOAA with a 13km resolution, for forecast date 20100516 at 06Z, with data for hourly offsets from 07 to 20. The file format for this input data is grib. The forecast is initialized based on ARPS Data Analysis System (ADAS) Real-time meteorological data assimilation netgrdbas files with CONUS coverage at 10km resolution produced hourly by CAPS at Oklahoma University that uses the netCDFfile format. The data is for 20100516 at 12Z.

*Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Single\_Date/Time:*

*Calendar\_Date:* 20100516

*Time of Day:* 130000

*Currentness\_Reference:*

ground condition

*Status:*

*Progress:* Complete

*Maintenance\_and\_Update\_Frequency:* None planned

*Spatial\_Domain:*

*Description\_of\_Geographic\_Extent:*

*Bounding\_Coordinates:*

*West\_Bounding\_Coordinate: -107.7492*  
*East\_Bounding\_Coordinate: -96.25079*  
*North\_Bounding\_Coordinate: 36.58868*  
*South\_Bounding\_Coordinate: 27.41132*

*Keywords:*

*Theme:*

*Theme\_Keyword\_Thesaurus: none*  
*Theme\_Keyword: cape*

*Theme:*

*Theme\_Keyword\_Thesaurus: none*  
*Theme\_Keyword: radar*

*Theme:*

*Theme\_Keyword\_Thesaurus: none*  
*Theme\_Keyword: precip*

*Theme:*

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*Theme\_Keyword: surface*

*Theme:*

*Theme\_Keyword\_Thesaurus: none*  
*Theme\_Keyword: updraft\_helicity*

*Theme:*

*Theme\_Keyword\_Thesaurus: none*  
*Theme\_Keyword: vorticity*

*Theme:*

*Theme\_Keyword\_Thesaurus: none*  
*Theme\_Keyword: pressureLevels*

*Theme:*

*Theme\_Keyword\_Thesaurus: none*  
*Theme\_Keyword: xsec*

*Theme:*

*Theme\_Keyword\_Thesaurus: none*  
*Theme\_Keyword: wrfout*

*Place:*

*Place\_Keyword\_Thesaurus:* none  
*Place\_Keyword:* Midland, Texas, USA

*Access\_Constraints:* None  
*Use\_Constraints:*  
None

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*Entity\_and\_Attribute\_Information:*

*Detailed\_Description:*

*Entity\_Type:*

*Entity\_Type\_Label:* grid

*Entity\_Type\_Definition:*

forecast configuration. FORTRAN namelist parameters for configuring the grid size, grid spacing, and duration of the WRF forecast used to generate these files. These parameters are a small set that are used in multiple workflow stages of the forecast. Additional configuration is done through FORTRAN namelist files for each workflow stage.

*Entity\_Type\_Definition\_Source:*

<http://www.caps.ou.edu/ARPS/ARPS5DOC/arps2wrf.pdf>

*Attribute:*

*Attribute\_Label:* run\_start\_date

*Attribute\_Definition:*

Wall clock start date

*Attribute\_Definition\_Source:*

LEAD project -- <http://pti.iu.edu/d2i/leadII-home>

*Attribute\_Domain\_Values:*

*Range\_Domain:*

*Range\_Domain\_Minimum:* 05/16/2010

*Range\_Domain\_Maximum:* 05/16/2010

*Attribute:*

*Attribute\_Label:* ForecastHour

*Attribute\_Definition:*

the "duration" of the forecast

*Attribute\_Definition\_Source:*

LEAD project -- <http://pti.iu.edu/d2i/leadII-home>

*Attribute\_Domain\_Values:*

*Range\_Domain:*

*Range\_Domain\_Minimum:* 14

*Range\_Domain\_Maximum:* 14

*Attribute\_Units\_of\_Measure:* hours

*Attribute:*

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*Attribute\_Definition:*

Center latitude coordinates of the target grid for the experiment. CTRLAT is expressed in degrees north

*Attribute\_Definition\_Source:*

<http://www.caps.ou.edu/ARPS/ARPS5DOC/arps2wrf.pdf>

*Attribute\_Domain\_Values:*

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*Range\_Domain\_Minimum:* 32

*Range\_Domain\_Maximum:* 32

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*Attribute:*

*Attribute\_Label:* dx

*Attribute\_Definition:*

grid length in x direction, unit in meters

*Attribute\_Definition\_Source:*

<http://www.caps.ou.edu/ARPS/ARPS5DOC/arps2wrf.pdf>

*Attribute\_Domain\_Values:*

*Range\_Domain:*

*Range\_Domain\_Minimum:* 4000

*Range\_Domain\_Maximum:* 4000

*Attribute\_Units\_of\_Measure:* meter

*Attribute:*

*Attribute\_Label:* dy

*Attribute\_Definition:*

grid length in y direction, unit in meters

*Attribute\_Definition\_Source:*

<http://www.caps.ou.edu/ARPS/ARPS5DOC/arps2wrf.pdf>

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*Attribute\_Definition:*

forecast starting date

*Attribute\_Definition\_Source:*

LEAD project -- <http://pti.iu.edu/d2i/leadII-home>

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*Range\_Domain:*

*Range\_Domain\_Minimum:* 05/16/2010

*Range\_Domain\_Maximum:* 05/16/2010

*Attribute:*

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*Attribute\_Definition:*

Center longitude coordinates of the target grid for the experiment. CTRLON is expressed in degrees east

*Attribute\_Definition\_Source:*

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*Range\_Domain\_Maximum:* -102

*Attribute\_Units\_of\_Measure:* degrees east

*Attribute:*

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*Attribute\_Definition:*

Wall clock start time

*Attribute\_Definition\_Source:*

LEAD project -- <http://pti.iu.edu/d2i/leadII-home>

*Attribute\_Domain\_Values:*

*Range\_Domain:*

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*Range\_Domain\_Maximum:* 13:00:17

*Attribute\_Units\_of\_Measure:* wall clock time

*Attribute:*

*Attribute\_Label:* ny

*Attribute\_Definition:*

Dimension size of WRF grid in Y direction

*Attribute\_Definition\_Source:*

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*Attribute\_Units\_of\_Measure:* number of grid points

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*Attribute\_Label:* Forecast\_start\_hour

*Attribute\_Definition:*

the logical start hour of the forecast

*Attribute\_Definition\_Source:*

LEAD project -- <http://pti.iu.edu/d2i/leadII-home>

*Attribute\_Domain\_Values:*

*Range\_Domain:*

*Range\_Domain\_Minimum:* 13

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*Attribute\_Units\_of\_Measure:* Z time

*Attribute:*

*Attribute\_Label:* nx

*Attribute\_Definition:*

Dimension size of WRF grid in X direction

*Attribute\_Definition\_Source:*

<http://www.caps.ou.edu/ARPS/ARPS5DOC/arps2wrf.pdf>

*Attribute\_Domain\_Values:*

*Range\_Domain:*

*Range\_Domain\_Minimum:* 203

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*Attribute\_Units\_of\_Measure:* number of grid points

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*Metadata\_Reference\_Information:*

*Metadata\_Date:* 20110609

*Metadata\_Contact:*

*Contact\_Information:*

*Contact\_Organization\_Primary:*

*Contact\_Organization:* Data To Insight Center

*Contact\_Address:*

*Address\_Type:* mailing

*Address:* 2719 E 10th st.

*City:* Bloomington

*State\_or\_Province:* IN

*Postal\_Code:* 47408

*Contact\_Voice\_Telephone:* (812)345-1065

*Metadata\_Standard\_Name:* FGDC Content Standard for Digital Geospatial Metadata

*Metadata\_Standard\_Version:* FGDC-STD-001-1998

*Metadata\_Time\_Convention:* universal time

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