

forecast_20100516170000Z_run001

Metadata:

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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_20100516170000Z_run001

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

Online Linkage: <http://dx.doi.org/10.5967/M0NP22C9>

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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_15_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 9 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 10 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 11 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 11 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 22 png files. pressureLevels is Atmospheric Pressure on different layers of the Atmospher. pressureLevels.zip is the visualization of pressureLevels and contains 44 png files. xsec is the cross section. xsec.zip is the visualization of xsec and contains 36 png files. wrfout_d01_2010-05-16_15_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 13Z, with data for hourly offsets from 03 to 12. 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 15Z.

Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 20100516

Time of Day: 170000

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:

Theme_Keyword_Thesaurus: none
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: 10

Range_Domain_Maximum: 10

Attribute_Units_of_Measure: hours

Attribute:

Attribute_Label: ctrlat

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:

Range_Domain:

Range_Domain_Minimum: 32

Range_Domain_Maximum: 32

Attribute_Units_of_Measure: degrees north

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>

Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 4000

Range_Domain_Maximum: 4000

Attribute_Units_of_Measure: meter

Attribute:

Attribute_Label: forecast_start_date

Attribute_Definition:

forecast starting 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: ctrlon

Attribute_Definition:

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

Attribute_Definition_Source:

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

Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: -102

Range_Domain_Maximum: -102

Attribute_Units_of_Measure: degrees east

Attribute:

Attribute_Label: run_start_time

Attribute_Definition:

Wall clock start time

Attribute_Definition_Source:

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

Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 17:00:17

Range_Domain_Maximum: 17:00:17

Attribute_Units_of_Measure: wall clock time

Attribute:

Attribute_Label: ny

Attribute_Definition:

Dimension size of WRF grid in Y direction

Attribute_Definition_Source:

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

Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 203

Range_Domain_Maximum: 203

Attribute_Units_of_Measure: number of grid points

Attribute:

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: 17

Range_Domain_Maximum: 17

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

Range_Domain_Maximum: 203

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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