forecast_20100524140000Z_run001

Metadata:

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_20100524140000Z_run001
Geospatial_Data_Presentation_Form: raster digital data, NetCDF digital data, textual digital data
Online_Linkage: http://dx.doi.org/10.5967/M0TM782H
Online_Linkage: doi:10.5967/M0TM782H

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 Univesity, CSWR and NCAR), and other instruments. This paricular

collection contains namelist.input, cape.zip, radar_max.zip, radar_min.zip, precip.zip, surface.zip, updraft_helicity.zip, vorticity.zip, pressureLevels.zip, skewT.zip, xsec.zip, and wrfout_d01_2010-05-24_13_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_max is Maximum Range and in some contexts this is the maximum value of radar reflectivity in a grid column. radar_max.zip is the visualization of radar_max and contains 12 png files. radar_min is Minimum Range and in some contexts this is the minimum value of radar reflectivity in a grid column. radar_min.zip is the visualization of radar_min and contains 12 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 13 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 14 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 14 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 28 png files. pressureLevels is Atmospheric Pressure on different layers of the Atmospher. pressureLevels.zip is the visualization of pressureLevels and contains 56 png files. skewT offers an almost instantaneous snapshot of the atmosphere from the surface to about the 100 millibar level. In the skew-T the pressure lines are horizontal and the temperature lines are skewed from the vertical coordinate. xsec is is the cross section. xsec.zip is the visualization of xsec and contains 45 png files. wrfout_d01_2010-05-24_13_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 20100524 at 11Z, with data for hourly offsets from 03 to 15. 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 20100524 at 13Z.

Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 20100524
Time of Day: 140000

Currentness_Reference:

ground condition

Status:

Progress: Complete
Maintenance_and_Update_Frequency: None planned

Spatial_Domain:

Description_of_Geographic_Extent:
Bounding_Coordinates:

West_Bounding_Coordinate: -105.7492
East_Bounding_Coordinate: -94.25079
North_Bounding_Coordinate: 45.78868
South_Bounding_Coordinate: 36.61132

Keywords:

Theme:

Theme_Keyword_Thesaurus: none
Theme_Keyword: cape

Theme:

Theme_Keyword_Thesaurus: none
Theme_Keyword: radar_max

Theme:

Theme_Keyword_Thesaurus: none
Theme_Keyword: radar_min

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: skewT

Theme:

Theme_Keyword_Thesaurus: none
Theme_Keyword: xsec

Theme:

Theme_Keyword_Thesaurus: none
Theme_Keyword: wrfout

Place:

Place_Keyword_Thesaurus: none
Place_Keyword: Delight, NE, 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: 05/24/2010

Range_Domain_Maximum: 05/24/2010

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: 13
Range_Domain_Maximum: 13
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: 41.2
Range_Domain_Maximum: 41.2
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: 05/24/2010
Range_Domain_Maximum: 05/24/2010

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: -100
Range_Domain_Maximum: -100
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: 14:00:19
Range_Domain_Maximum: 14:00:19

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: 14
Range_Domain_Maximum: 14
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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