

PERiLS Field Data Archive

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NCAR/EOL

PERiLS Science Meeting
Memphis, TN
16 November 2023

NCAR/EOL PERiLS Web Site - https://www.eol.ucar.edu/field_projects/perils

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PERiLS

Propagation, Evolution and Rotation in Linear Storms

PROJECT DATES: 03/01/2022 - 05/08/2023
PROJECT LOCATION: Southeast US

PROJECT DESCRIPTION
PERiLS (Propagation, Evolution and Rotation in Linear Storms) is a collaborative effort that leverages NOAA's contributions to PERiLS, adding critical instruments from the NSF LAOF to provide the sampling necessary to address environmental factors and storm processes that lead to quasi-linear convective systems (QLCS) tornadogenesis.

The long-range goal is to improve the understanding and prediction of tornadoes associated with QLCSs, which have received comparatively little study, are poorly understood, and present substantial operational challenges. The rationale for this program is that there has never been a field campaign targeting QLCS tornadoes, despite the gaps in our knowledge about them, and the particular societal vulnerability in the SE and elsewhere. The present moment is the ideal time to pursue this campaign, due to the beneficial synergy between the instrumentation and scientists supported by NSF and NOAA.

PERiLS consists of two campaigns, with PERiLS 2022 taking place from 1 March to 30 April 2022 and PERiLS 2023 taking place from 8 February to 8 May 2023. An extensive collection of mobile and fixed instrumentation will be deployed to collect the observational data needed to get at the science goals. It includes a set of mobile radars including the Doppler on Wheels (DOW), C-band on Wheels (COW), MAX, NOXP, SMART-R and SMART-R. A number of profiling platforms will be deployed including multiple mobile radiosonde systems, CLAMPS, MIPS, RaDAPS, and MoDLS as well as mobile lidar systems. Additionally there will be surface systems including surface weather stations, mobile mesonets, and a deployable LMA.

PERiLS Publications
PERiLS Publications

PERiLS Data Access
PERiLS_2023 Data Archive
PERiLS_2022 Data Archive
PERiLS_2023 Field Catalog
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PERiLS Data Documentation
How to Submit Datasets to the PERiLS
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PERiLS Related Links
NSSL CLAMPS
UAH MIPS
UAH MODLS
UAH RaDAPS
UIUC FARM
VORTEX-SE EOL

EOL recently updated to the latest version of Drupal


- Project Description
- Data Archive Access
- Field Catalog Access
- Dataset Submission Instructions
- Dataset Documentation Requirements
- Publications
- Related Web Pages

NCAR/EOL PERiLS Field Data Archive

PERiLS_2022 Data Sets

Data Set Name (Responsible Group/PIs shown in parentheses)	Date Posted	Info
Aircraft		
Aircraft Meteorological Data Reports (AMDAR) and Aircraft Communications Addressing and Reporting System (ACARS) Data [NOAA/FSRL]	2021-10-21	
Aircraft: UAV		
UAS Damage Survey Data [Wagner]		
Hydrology		
Hydrology: Precipitation		
NCEP/EMC U.S. Gage Only Daily Precipitation Data [NOAA/NCEP]	2021-10-21	
NCEP/EMC U.S. Gage Only Hourly Precipitation Data [NOAA/NCEP]	2021-10-21	

PERiLS_2023 Data Sets

Data Set Name (Responsible Group/PIs shown in parentheses)	Date Posted	Info
Aircraft		
Aircraft Meteorological Data Reports (AMDAR) and Aircraft Communications Addressing and Reporting System (ACARS) Data [NOAA/FSRL]	2023-01-26	
Aircraft: UAV		
Copter/Sonde UAS Data [Smith, E. (NOAA/NSSL)]		
UAS Damage Survey Data [Wagner, M. (NOAA/NSSL)]		
Hydrology		
Hydrology: Precipitation		
NCEP/EMC U.S. Gage Only Daily Precipitation Data [Du, J. (NOAA/NCEP)]	2023-01-26	
NCEP/EMC U.S. Gage Only Hourly Precipitation Data [Du, J. (NOAA/NCEP)]	2023-01-26	
NCEP/EMC U.S. Stage IV Imagery [Du, J. (NOAA/NCEP)]	2023-01-26	
Portable In Situ Precipitation Stations (PIPS) Data [Dawson, D. (Purdue University)]		
PSL Parsivel Disdrometer Data [Wilczak, J. (NOAA/PSL)]		
UAH MAPNet Parsivel Disdrometer Data [Pangle, P. (UAH)]		
UI FARM Disdrometer Data [Wurman, J. (University of Illinois)]	New 2023-10-20	
Land Based		
Land Based: Mesonet		
ASOS 1 Minute Data [NOAA/NCEP]	2023-01-26	

Lists all PERiLS 2022 and 2023 datasets whether housed in the NCAR/EOL FDA or elsewhere

Includes research as well as supporting operational datasets

Datasets organized by Categories

If a new version of a dataset is released, users are notified via email.

Access credentials for PERiLS datasets within the FDA:

User: perils

Password: qcls-t0rn

A new FDA interface is coming soon™

https://data.eol.ucar.edu/master_lists/generated/perils_2022

https://data.eol.ucar.edu/master_lists/generated/perils_2023



DATA BY CATEGORY

- Aircraft
- Hydrology
- Land Based
- Lightning
- Model
- Photography
- Radar
- Satellite

DATA BY PLATFORM

- Upper Air

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Email comments & questions to eol-datahelp@ucar.edu

NCAR/EOL Field Data Archive Interface Updates

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Datasets • Dataset Details

Multi-Network Composite 5mb Vertical Resolution Sounding Composite [NCAR/EOL]

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Summary

This data set is a composite of radiosondes collected from 7 sounding platforms during the Deep Convective Clouds and Chemistry Experiment (DC3) with data collected from 1 May 2002 through 18 July 2002. This project was conducted in the central United States. This dataset includes a total of 9687 soundings from the following networks: ARM Radiosonde Data (238 2-second soundings), NCAR/EOL MARS Colorado Sounding Data (311 1-second soundings), NCAR/EOL MARS Colorado Radiosonde Data (273 1-second soundings), NWS MARS Oklahoma-Texas Sounding Data (258 1-second soundings), National Weather Service (NWS) High Resolution Radiosonde Data (5020 1-second soundings), Reston Area and Radiosonde Data (16 3-second soundings), and University of Alabama Huntsville (UAH) Mobile Alabama Sounding Data (22 1-second soundings). This data set contains upper-air sounding data interpolated to a constant vertical resolution of 5 hPa in the National Center for Atmospheric Research (NCAR) Earth Observing Laboratory (EOL) Sounding Composite Format.

Spatial Coverage

Maximum [North] Latitude: 48.56483, Minimum [South] Latitude: 24.95331
Maximum [East] Longitude: -78.72474, Minimum [West] Longitude: -106.20292

Temporal Coverage

Begin date: 2002-05-01
End date: 2002-07-18

API

DC3: Deep Convective Clouds & Chemistry Project
<https://ui.adsabs.harvard.edu/abs/2003JGIA...11...1011P>

Additional Information

Data Quality: Good

Documentation: N/A

Citation: UCAR/NCAR-Earth Observing Laboratory (2002) Multi-Network Composite 5mb Vertical Resolution Sounding Composite, Version 1.0 (Version 1.0) [Data set] UCAR/NCAR - Earth Observing Laboratory <https://doi.org/10.5440/13054/202381P> W Accessed 05 Aug 2023.

Related Links: N/A

Identifier: 353307

Related Project: DC3: Deep Convective Clouds & Chemistry Project

Version: 2008-07-28T22:25:54-0500Z

Keywords: EARTH SCIENCE > ATMOSPHERE > ATMOSPHERIC TEMPERATURE > UPPER AIR TEMPERATURE > VERTICAL PROFILES
EARTH SCIENCE > ATMOSPHERE > ATMOSPHERIC WINDS > UPPER LEVEL WINDS > WIND DIRECTION
EARTH SCIENCE > ATMOSPHERE > ALTITUDE > GEOPOTENTIAL HEIGHT
EARTH SCIENCE > ATMOSPHERE > ATMOSPHERIC TEMPERATURE > UPPER AIR TEMPERATURE > DEW POINT TEMPERATURE
EARTH SCIENCE > ATMOSPHERE > ATMOSPHERIC WINDS > UPPER LEVEL WINDS > WIND SPEED
EARTH SCIENCE > ATMOSPHERE > ATMOSPHERIC TEMPERATURE > UPPER AIR TEMPERATURE
EARTH SCIENCE > ATMOSPHERE > ATMOSPHERIC PRESSURE > ATMOSPHERIC PRESSURE MEASUREMENTS
EARTH SCIENCE > ATMOSPHERE > ATMOSPHERIC WATER VAPOR > WATER VAPOR INDICATORS > HUMIDITY > RELATIVE HUMIDITY

Platforms: Radiosonde, Vaisala 552-SQP
Rawinsonde, Other

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Projects Datasets

Search project, Keyword...

Date:

Location:

Showing 1-10 of 51 projects

Sort by: newest

- TC4: Tropical Composition, Cloud and Climate Coupling**
Started in Jun 2007 | Ended in Aug 2007
- RICO: Rain in Cumulus Over the Ocean**
Started in Nov 2004 | Ended in Jan 2005
- GOTEX: Gulf Of Tehuantepec Experiment, Coupled Development of Ocean Waves and Boundary Layers (aka OceanWaves)**
Started in Jan 2004 | Ended in Feb 2004
- LUCIE: Land Use and Cloud Interaction Experiment**
Started in Mar 2003 | Ended in Mar 2003
- TRMM-LBA: Tropical Rainfall Measuring Mission, Large-scale Biosphere-Atmosphere**
Started in Nov 1998 | Ended in Feb 1999

Map Satellite

Keyboard shortcuts | Map data ©2023 | Terms of Use

- Updated look and feel
- Substantially improved search capabilities (platforms, instruments, science keywords, map search, etc)
- Dataset pages will include listing of publications that referenced the dataset DOI

NCAR/EOL PERiLS Data Archive Research Datasets

2022 Archive nearly complete, just a few of outstanding datasets. Final SMART-R data was just submitted and will be available soon.

2023 Archive already contains:

- CLAMPS2 Doppler Lidar Vertical Stare and VAD
- CLAMPS2 MWR TROPoe Retrievals
- FARM COW and DOWs
- FARM Disdrometers
- FARM Mobile Mesonet
- FARM PODs
- NOAA PSL ASSIST Radiances
- NOAA PSL Ceilometers
- NOAA PSL MWR Brightness Temperatures and Surface Met
- NOAA PSL RWP, RASS and Surface Met
- NOXP Radar
- NSSL Deployable LMA
- NSSL Mobile Mesonet
- SMART-R Preliminary Data (just submitted will be available soon)
- TTU StickNet

https://data.eol.ucar.edu/master_lists/generated/perils_2022

https://data.eol.ucar.edu/master_lists/generated/perils_2023

NCAR/EOL PERiLS Data Archive Supporting Operational Datasets

MADIS Mesonet Data

ASOS Data (1 and 5 minute resolution)

Global METAR observations (in NetCDF, ASCII, and GEMPAK formats)

Full resolution (1 second) NWS radiosonde data (BUFR format)

Mandatory/significant level NWS radiosonde data (GEMPAK format)

NLDN and NAPLN Lightning Data (password protected separately from PERiLS datasets, PI access only)

MRMS and GOES Data (via links to AWS)

NCEP Gage and Gridded Precipitation Data

ACARS/AMDAR

https://data.eol.ucar.edu/master_lists/generated/perils_2022

https://data.eol.ucar.edu/master_lists/generated/perils_2023

Submitting Datasets to the PERiLS Field Data Archive

Datasets can be submitted to our PERiLS ftp site via linux command line or your favorite FTP client (e.g. FileZilla). The credentials are:

Server: ftp.eol.ucar.edu

User: anonymous

Directory: /pub/data/incoming/perils

A documentation file **MUST** be included with your submission. This is to help ensure the long-term useability of the data.

Datasets can be submitted via other methods (e.g. Globus, Dropbox, Google Drive, email (if small), etc). If you need to use another method please send me an email (loehrer@ucar.edu) when ready to submit.

Whatever method, once your submission is completed, send me an email (loehrer@ucar.edu) so that it can be moved into the FDA.

If you develop an updated version of a dataset you've already submitted to the archive, you should send the revised dataset along with an updated documentation file that includes information on what has changed in the new version. We send an email to users who ordered the previous version to let them know that a new version is available.

Unless otherwise requested DOIs are issued for datasets in their final (publication-ready) form.

These instructions are also available here: <https://www.eol.ucar.edu/node/31199>

Dataset Documentation Requirement

NCAR/EOL requires the inclusion of a documentation file with all datasets submitted to the archive.

This is to help ensure the long-term usability of datasets included in the Archive.

You should try to include as much information in the documentation file itself (or include them as separate PDF file(s) rather than pointing to websites. Websites tend to move or disappear over time and unless they were specific to a campaign their contents tend to change to reflect current instrumentation rather than the instrumentation at the time of the campaign.

Some of the information that should be included:

- Authors and contact information (if you have an ORCID ID please include it)
- Instrumentation descriptions including specifications
- Data collection and processing procedures including QA/QC
- Data file description including file naming conventions, format description, parameters and units, description and definition of any codes or flags
- An assessment of the data including any disclaimers, instrument problems, quality issues
- Software compatibility
- References

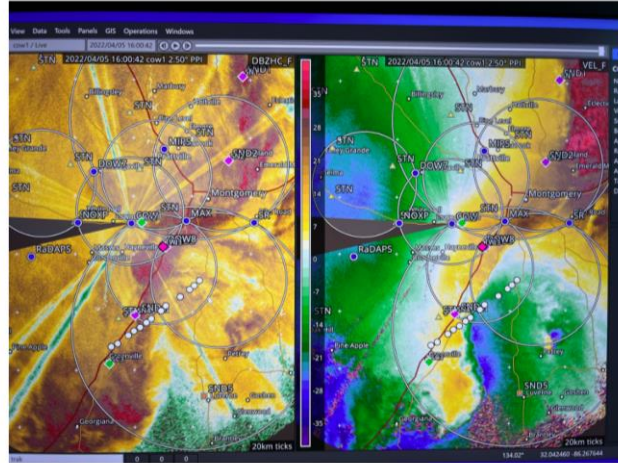
A sample layout with the expected contents: <https://www.eol.ucar.edu/node/4871>

PERiLS Field Catalogs

PERiLS_2022 Field Catalog

Propagation, Evolution and Rotation in Linear Storms 2022

Home Reports Status Products - Missions Tools & Links Data Access Help

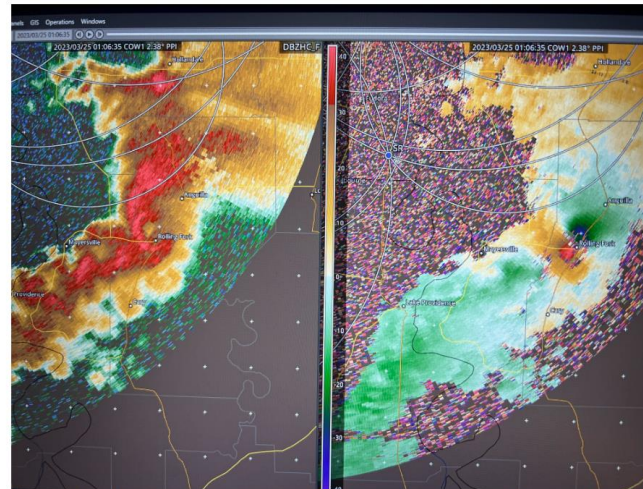


University of Illinois FARM COW radar imagery of the Quasi-Linear Convective System (QLCS) passing through the PERiLS_2022

PERiLS_2023 Field Catalog

Propagation, Evolution and Rotation in Linear Storms 2023

Home Reports Status Products - Missions Tools & Links Help



University of Illinois FARM COW radar imagery of the Quasi-Linear Convective System (QLCS) passing through the PERiLS_2023

Status

The PERiLS_2022 field campaign took place 1 May through 11 May 2022 over the southeastern United States. The network of mobile and fixed instrumentation including radars, profiling systems, surface met stations, and lightning mapping array stations provided observations examining quasi-linear convective systems.

PERiLS_2022 Mission Table: Summary of PERiLS_2022 operations and related products

PERiLS_2022 Reports: List of reports related to project operations

Data Access: Datasets for this project can be found in the Long Term Data Archive at NCAR/EOL for PERiLS_2022

PERiLS_2022 Web Page at NCAR/EOL: All other Data Management related questions

Status

The PERiLS_2023 field campaign took place 8 February to 3 May 2023 over the southeastern United States. PERiLS had an extensive network of mobile and fixed instrumentation including radars, profiling systems, surface met stations, and lightning mapping array stations that provided observations examining quasi-linear convective system (QLCS) tornadogenesis over the southeastern United States region.

PERiLS_2023 Mission Table: Summary of PERiLS_2023 operations and related products

PERiLS_2023 Reports: List of reports related to project operations

Data Access: Datasets for this project can be found in the Long Term Data Archive at NCAR/EOL for PERiLS_2023

PERiLS_2023 Web Page at NCAR/EOL: All other Data Management related questions

The PERiLS Field Catalogs are part of the EOL FDA and remain available. They contain the full complement of reports and imagery gathered during the campaigns. Note that all imagery is based on preliminary real time data. The Missions tabs contain summaries of the IOPs with links to the relevant reports and imagery.

The PERiLS_2022 and PERiLS_2023 Field Catalogs contain a total of ~4 million products and 1.13TB of disk space.

PERiLS_2022 Field Catalog - http://catalog.eol.ucar.edu/perils_2022

PERiLS_2023 Field Catalog - http://catalog.eol.ucar.edu/perils_2023

PERiLS Publications



PERiLS Publications

[Submit Publication References to this List](#)

[Conference Proceedings](#)

Conference Proceedings

- Bell, T., J. G. Gebauer, E. N. Smith, and A. R. R. Segales, 2023: Putting a Network in a Network: Exploring Derived Fields from Multiple Simultaneous WxUAS and Remote Profilers During PERiLS 2022. AMS 23rd Symposium on Meteorological Observation and Instrumentation [Edit]
- Blind-Doskocil, L. and coauthors, 2023: Radar-Based Characteristics of Tornadoic and Nontornadoic QLCS Mesovortices during PERiLS. AMS 40th Conference on Radar Meteorology [Edit]
- Blind-Doskocil, L., S. W. Nesbitt and R. J. Trapp, 2023: The Differentiating Characteristics of Tornadoic, Wind-Damaging, and Non-Damaging QLCS Mesovortices during PERiLS 2022. AMS Third Symposium on Mesoscale Processes [Edit]
- Bodine, D. J. and coauthors, 2023: The Research and Educational Activities with the Mobile Rapid Scan X-Band Polarimetric (RaXPoL) Radar As an NSF Community Instrument Facility. AMS 40th Conference on Radar Meteorology [Edit]
- Bruce, C. M. and coauthors, 2023: Considerations for CopterSonde Use in National Weather Service Operational Forecasting. AMS 13th Conference on Transition of Research to Operations [Edit]
- Brunner, K. and coauthors, 2023: Microphysical and kinematic signals in lightning

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PERiLS Data Documentation

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[NOAA Data Sharing Policy](#)

Will contain links to PERiLS publications including journal articles, theses, conference proceedings, and reports.

Updated via occasional publication searches and if you would like to make sure your publications are included there is a submission form linked at the top of the page.

<https://www.eol.ucar.edu/node/17229/publications>

Thank you!

Please submit your datasets when they are ready for archival.

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