

# Data of the Perdigão campaign

Data produced in Perdigão is being collected in the DTU, UPORTO and UCAR.

## 1. Introduction

The summary of the current status was assembled from the information available at [Perdigão Data Management Web pages at EOL](#)

Products, reports, mission, etc. not included yet in this document.

The UPORTO Data Archive (UDA) may be [accessed using the THREDDS Data Server \(TDS\)](#) by providing the same credentials as in the UCAR ftp site (perdigao / Bxxxxx!).

WindsP App users may [explore the UPORTO Data Archive \(UDA\)](#) but, when they request access to data or meta-data that is in the Data Archive, they have to provide the TDS credentials (during the embargoed period of 12 months).

## 2. Data Categories

For each **Data category** (level 1) a table with a line for each **Dataset name** (level 2) displays the status of the 3 archives for Perdigão (DTU, UP, UCAR).

Table explanation:

- ✓ — available at the (MASTER) archive (uploaded/maintained by producer)
- ✔ — available at the (SLAVE) archive (mirrored from MASTER)
- ✗ — NOT available at the archive yet

## Ancillary

Dataset name	Institution	Responsible	DTU	UP	UCAR
Cornell High Frequency Seismometer Data	Cornell		✗	✗	✗
DLR Acoustic Measurement Data	DLR	A. Schady	✗	✗	✗
ENERCON Wind Turbine SCADA Data	ENERCON		✗	✗	✗

## Flux

Dataset name	Institution	Responsible	DTU	UP	UCAR
ARL Scintillometer Data	ALR	R. Krishnamurthy	✔	✔	✓
ARL CO2/H2O Gas Analyzer Data	ALR	C. Hocut	✗	✗	✗
ARL Tower Data	ALR	C. Hocut	✗	✗	✗
Cornell Tower Data	Cornell	R. Barthelmie	✗	✗	✗

DTU Tower Data	DTU	J. Mann	✓	✓	✗
ENERCON Tower Data	ENERCON		✗	✗	✗
NCAR/EOL Preliminary 5 minute ISFS data, geographic coordinate	NCAR/EOL		✓	✓	✓
NCAR/EOL Preliminary 5 minute ISFS data, instrument coordinates	UCAR/EOL		✓	✓	✓
NCAR/EOL Preliminary High Rate ISFS data, geographic coordinate	UCAR/EOL		✓	✓	✓
OU Tower Data	OU	P. Klein	✗	✗	✗
Tower Radiometer Data	?		✗	✗	✗

## Land Based

Dataset name	Institution	Responsible	DTU	UP	UCAR
ARL Scintillometer Data	ALR	R. Krishnamurthy	✓	✓	✓
Cornell Microbarometer Data	Cornell	R. Barthelmie	✗	✗	✗
DLR HATPRO Surface Meteorological Data	DLR	M. Hagen	✓	✓	✗
GTS LDM Surface Hourly Observations (Global, GEMPAK)	UCAR/EOL		✗	✗	✓
GTS LDM Surface Synoptic Observations (Global, GEMPAK)	UCAR/EOL		✗	✗	✓
LDM Surface METAR Data (METAR format)	UCAR/EOL		✗	✗	✓
NCAR/EOL ISS Preliminary Surface Meteorology Data (Sodar-RASS Site)	UCAR/EOL		✗	✗	✓
NCAR/EOL ISS Preliminary Surface Meteorology Data (Sounding Site at the upper orange grove)	UCAR/EOL		✗	✗	✓
NCAR/EOL ISS Preliminary Surface Meteorology Data (West Profiler Site)	UCAR/EOL		✗	✗	✓
IPMA Portugal Surface Meteorological Data	IPMA		✗	✗	✗
NOAA/ESRL/GSD MADIS GTS METAR Data (netCDF format)	NOAA/ESRL		✗	✗	✓
NSSL/OU CLAMPS Surface Meteorological Data	OU	P. Klein	✗	✗	✗

## Land Characterization

Dataset name	Institution	Responsible	DTU	UP	UCAR
Lidar Aerial Survey Data	UPORTO	J. Carlos Matos	✓	✓	✗

## Lightning

Dataset name	Institution	Responsible	DTU	UP	UCAR
Portugal Lightning Detection Network (LDN) Data	IPMA	S. Correia & V. Prior	x	x	✓

## Photography

Dataset name	Institution	Responsible	DTU	UP	UCAR
NCAR/EOL ISS Webcam Imagery (Sounding Site at the upper orange grove)	UCAR/EOL		x	x	✓
NCAR/EOL NCAR/EOL ISS Webcam Imagery (West Profiler Site)	UCAR/EO		x	x	✓

## Radar

Dataset name	Institution	Responsible	DTU	UP	UCAR
IPMA Radar Data	IPMA		x	x	x

## Satellite

Dataset name	Institution	Responsible	DTU	UP	UCAR
Meteosat Satellite Data	IPMA		x	x	x

## Soils

Dataset name	Institution	Responsible	DTU	UP	UCAR
Soil Heat Flux and Moisture Data			x	x	x

## Upper Air: Lidar

Dataset name	Institution	Responsible	DTU	UP	UCAR
ARL Scanning Doppler Lidar at the George Site	ALR	R. Krishnamurthy	✓	✓	✓
ARL Scanning Doppler Lidar at the Lionstail Site	ALR	R. Krishnamurthy	✓	✓	✓
CLAMPS Scanning Doppler Lidar Data	OU	P. Klein	x	x	✓
Cornell Profiling Lidar Data	Cornell	R. Barthelmie	x	x	x
Cornell Scanning Lidar Data	Cornell	R. Barthelmie	x	x	x
CU Profiling Lidar Data	CU	J. Lundquist	x	x	x

DLR Scanning Lidar Data	DLR	N. Wildmann	✓	✓	✗
DTU Scanning Lidar Data	DTU	J. Mann	✓	✓	✗
ENERCON Profiling Lidar Data	ENERCON	J. Carlos Matos	✓	✓	✗
Leosphere Windcube Profiling Lidar Data	ZWS	J. Carlos Matos	✓	✓	✗
Lidar Aerial Survey Data	UPORTO	J. Carlos Matos	✓	✓	✗
NCAR/EOL Water Vapor DIAL Data	NCAR/EOL		✗	✗	✓
UND Ceilometer Data	UND	L. Leo	✗	✗	✗
UND Scanning Doppler Lidar at the Lionshead Site	UND	R. Krishnamurthy	✗	✗	✓
UND Scanning Doppler Lidar at the MI6 Site	UND	R. Krishnamurthy	✗	✗	✗
WindForS Scanning Lidar Data	ZWS		✓	✓	✗

## Upper Air: Profiler

Dataset name	Institution	Responsible	DTU	UP	UCAR
NCAR/EOL ISS Preliminary 1290MHz Wind Profiler Winds and RASS Data (West Profiler Site)	NCAR/EOL		✗	✗	✓
NCAS/AMF Preliminary 1290MHz Wind Profiler Data (Alvaiade)	NCAS	E. Norton	✗	✗	✓

## Upper Air: Radiometer

Dataset name	Institution	Responsible	DTU	UP	UCAR
DLR HATPRO Microwave Radiometer Level 1 Brightness Temperature Data	DLR	M. Hagen	✓	✓	✗
DLR HATPRO Microwave Radiometer Level 2 Temperature and Humidity Profile Data	DLR	M. Hagen	✓	✓	✗
NSSL/OU CLAMPS AERI Data	UO	P. Klein	✗	✗	✗
NSSL/OU CLAMPS Microwave Radiometer Data	UO	P. Klein	✗	✗	✗
UND Microwave Radiometer Data	UND	L. Leo	✗	✗	✗

## Upper Air: Radiosonde

Dataset name	Institution	Responsible	DTU	UP	UCAR
GTS LDM Sounding Observations (Global, GEMPAK)	NCAR/EOL		✗	✗	✓
NCAR/EOL ISS Preliminary Radiosonde Data	NCAR/EOL		✗	✗	✓

Portugal Mandatory/Significant Level Radiosonde Data	NCAR/EOL		x	x	✓
Spain High Resolution Radiosonde Data	NCAR/EOL		x	x	✓
UND Radiosonde Data	UND		x	x	x

## Upper Air: SODAR

Dataset name	Institution	Responsible	DTU	UP	UCAR
NCAR/EOL ISS Preliminary Sodar-RASS Data (Sodar-RASS Site)	NCAR/EOL		x	x	✓
UND Sodar RASS Data	UND	L. Leo	x	x	x

## Upper Air: Tethersonde

Dataset name	Institution	Responsible	DTU	UP	UCAR
ARL Tethered Lifting System (TLS) Data	ARL	E. Creegen	x	x	x
CU Tethered Lifting System (TLS) Data	CU	J. Lundquist	x	x	x

### 3. UDA contents

UPORTO data archive for Perdigão available exports:

```
nejoco@VIND-pNEWA04:~> rsync -rdt rsync://windsptds.fe.up.pt
test          RSYNC test
archive       RSYNC UDA FILES (read only)
ucar          RSYNC UCAR FILES
dtu           RSYNC DTU FILES
inegi         RSYNC INEGI FILES
dlr           RSYNC DLR FILES
windfors      RSYNC WindForS FILES
```

#### 3.1 Summary

Export	Size	Last 24 hours
DLR	1200 GiB	0 GiB
DTU	1900 GiB	3.77465 GiB
INEGI	0.3 GiB	0 GiB
UCAR	1200 GiB	0 GiB
WINDFORS	3.2 GiB	0 GiB

Summary on 30-11-2017 08:00. For more info see the [datalogs details](#).

#### 3.2 Uploading data

##### Upload DTU data

UPORTO (as nejoco@login.neweuropeanwindatlas.eu) uses the UDA export `dtu@windsptds.fe.up.pt::dtu` to sync data collected by DTU.

First a complete mirror was in place, by automatically syncing every 4 hours the DTU data directory using a cron job: `/usr/bin/rsync -az -delete /newa/WP2/PERDIGAO/dtu@windsptds.fe.up.pt::dtu`.

Later the `-delete` option was removed and some directories excluded to achieve the Perdigão Data Archive at UDA.

```
$ crontab -l
```

```
# DTU data sync to UDA, At minute 31 past every 4th hour
31 */4 * * * /usr/bin/rsync -az --exclude-from 'sync-exclude-list'
/newa/WP2/PERDIGAO/ dtu@windspts.fe.up.pt::dtu > /dev/null 2>&1

$ cat ~nejoco/sync-exclude-list
archive/
data/DLR_WindScanner/
```

## Upload UCAR data

UCAR uses the UDA export `ucar@windspts.fe.up.pt::ucar` to copy NCAR/EOL ISFS data.

## Upload DLR data

DLR uses the UDA export `dlr@windspts.fe.up.pt::dlr` to maintain the DLR data.

## Upload INEGI data

INEGI uses the UDA export `inegi@windspts.fe.up.pt::inegi` to maintain the ENERCON data and “Lidar Aerial Survey Data”.

## Upload WindsForS data

WindsForS uses the UDA export `windfors@windspts.fe.up.pt::windfors` to maintain the WindForS data.

## Upload ARL data (from UCAR)

ARL data is mirrored from the UCAR ftp site using wget.

```
$ cat mirror-ucar-dir.sh

#!/bin/sh
dir=arl
source=ftp://ftp.eol.ucar.edu/pub/data/incoming/perdigao/uda/ $dir
destination=/data/perdigao/ucar
nohup wget -m -nH --cut-dirs=5 -P $destination $source\
>| /dev/null 2>&1 &
```

## Mirror UDA to DTU

The UPORTO Data Archive (UDA) is automatically synced to the DTU, every 24 hours, using the UDA read only export: `uda@windspts.fe.up.pt::archive/`, using a cron job.

```
$ crontab -l

# UDA archive to DTU, At midnight every day
0 0 * * * /home/nejoco/sync-uda.sh >| sync-uda_last.log 2>&1

$ cat sync-uda.sh
```

```

#!/bin/sh
# the Perdigao root at NEWA storage
perdigao=/newa/WP2/PERDIGAO
# the archive root
archive=$perdigao/archive
# the actual size of the archive
echo "Total du of $archive:"
du -ks $archive
# the UDA readonly password
export RSYNC_PASSWORD=-password-
# catalogues to sync
CATALOGS="dlr inegi ucar windfors"
for c in $CATALOGS; do
    # mirror catalog from the version at UDA (UPORTO)
    echo; echo "$(tr [a-z] [A-Z] <<< "$c"):"
    #cmd="rsync -avz uda@windsptds.fe.up.pt::archive/$c/ $archive/$c/"
    cmd="rsync -avz --delete uda@windsptds.fe.up.pt::archive/$c/
$archive/$c/"
    echo "$cmd..."
    # do it
    $cmd
done
# catalog structure
echo
tree -L 2 $archive
# total space usage for each archive
echo
du -khs $archive/*
# the final size of the archive
echo
echo "Total du of $archive:"
du -ks $archive
# the end

```

The DTU NEWA directory `/newa/WP2/PERDIGAO/archive/` contains an exact copy of UDA, except for the DTU data that are links to existing NEWA directories (in order to avoid using a duplication 1.8 TiB of storage).

```

/newa/WP2/PERDIGAO/archive
├── dlr
│   ├── HATPRO_level-1
│   ├── HATPRO_level-2
│   ├── HATPRO_surface-met
│   ├── mcs_data
│   ├── netcdf_lidar
│   └── raw_data
├── dtu
│   ├── DTU_Leica_Scanning ->
│   └── DTU_Mast_Data ->

```



