



DIP-NAWDEX

- December 2017 to November 2020
- Funds: total (496 k€)
 - LMD (208 k€, recruitment postdoc David Flack)
 - CNRM (221 k€, recruitment postdoc Marie Mazoyer)
 - LATMOS (17 k€)
 - LA (18 k€)
 - LaMP (15 k€)
 - Lab-STICC (17 k€)
- Other students / postdocs not recruited by ANR but working on NAWDEX: Nicolas Blanchard (LA, PhD), Hanin Binder (LMD, SNF funded, postdoc), Quitterie Cazenave (LATMOS, DLR)



Requests from ANR

- Web site
- Mid-term report (spring-summer 2019)
- Final report (end of 2020)
- Acknowledgements in publications: n° of the project ANR-17-CE01-0010-01
- Présentations: logo





International context / collaborations

- NAWDEX mailing list managed by Andreas Schaeffler (Gwendal, Philippe, Julien, Jean-Pierre, Marie, Nicolas). Who else ? David ?
- NAWDEX workshop once a year (maybe Toulouse next year ?)
- Details on NAWDEX data access:
<https://internal.wavestoweather.de/nawdex/projects/nawdex-internal/wiki/Wiki>

A login / passwd is required. All the data are not necessarily freely available (except for the French component)

Other web links

- <http://www.umr-cnrm.fr/recyf/produits/VisuArpege/>

Vizualisation of Arpege outputs during NAWDEX period

- <https://owncloud.latmos.ipsl.fr/index.php/s/hTl94qmlh6VEEKN> --> RALI data access (see Julien's presentation)

- <http://basta.projet.latmos.ipsl.fr/>

→ ground-based radar (Keflavik, Lannion, SIRTa)

Tasks

First year Second year Third year

Task 1: Observational data analysis and preparation of model-observation comparisons

- *Verification stage of the quality of the observational dataset (Julien Delanoë)*
- *Development of model-observation comparison tools (Olivier Caumont)*
- *Data assimilation of wind observations (Alexis Doerenbecher)*

Task 2: Mesoscale process studies and local effects of warm conveyor belts

- *Warm conveyor belts and cloud microphysics (Jean-Pierre Chaboureaud)*
- *Warm conveyor belt outflow regions and impact of WCB on jet intensity and ridge building (Philippe Arbogast)*
- *Warm conveyor belts and turbulence (Didier Ricard)*

Task 3: Large-scale process studies and remote effects

- *Short-term climate model biases and dependance on model physics (Gwendal Rivière)*
- *Predictability of the Scandinavian blocking (Gwendal Rivière)*
- *Predictability of the HIW event in southern France on 13-14 Oct (Philippe Arbogast)*

Tasks

First year Second year Third year

Task 1: Observational data analysis and preparation of model-observation comparisons

- *Verification stage of the quality of the observational dataset (Julien)*

To be discussed:

- *DARDAR datasets (IWC retrieval from CloudSat-Calypso)*
- *Dropsondes post-processing (humidity biases)*
- *Passive microwave products (MHS/ATMS)*
- *Radiosondes datasets (Canada, Iceland, UK, France) to be compared with*

GNSS retrievals

- *Development of model-observation comparison tools (Olivier)*

To be discussed:

- *Flight track in Arpege ? Comparison with LMDZ outputs ?*
- *COSP (offline and online versions at CNRM exists for CloudSat-Calypso comparison). Comparison with the RADAR simulator developed by Borderies et al.*

- *Data assimilation of wind observations (Alexis)*

To be discussed:

- *How to assimilate radar /lidar wind observations. Collaborations with DLR colleagues to get the wind retrieval from lidar.*

Tasks

First year Second year Third year

Task 2: Mesoscale process studies and local effects of warm conveyor belts

- *Warm conveyor belts and cloud microphysics (Jean-Pierre)*

To be discussed:

- How to compare WRF-DESCAM, Meso-NH and RALI observations. Choice of the regional domain for WRF-DESCAM, which cases.

- *Warm conveyor belt outflow regions and impact of WCB on jet intensity and ridge building (Philippe)*

To be discussed:

- diabatic tendencies (DDH) from Arpege

- Do we compare Arpege with Meso-NH over a large domain covering the whole blocking event ?

- *Warm conveyor belts and turbulence (Didier)*

To be discussed:

- Questions from Didier to Julien ? Or Next meeting.

Tasks

First year Second year Third year

Task 3: Large-scale process studies and remote effects

- *Short-term climate model biases and dependence on model physics (Gwendal)*

To be discussed:

- *Start with the stalactite cyclone (initial conditions, resolution, zoom)*
- *Coordination T-AMIP experiments with Arpege-climat / LMDZ*

- *Predictability of the Scandinavian blocking (Gwendal)*

To be discussed:

- *the lack of blocking persistence will see new set up of EPS with SURFEX*
- *Initial conditions in humidity (near the east coast of the US)*

- *Predictability of the HIW event in southern France on 13-14 Oct (Philippe)*

To be discussed:

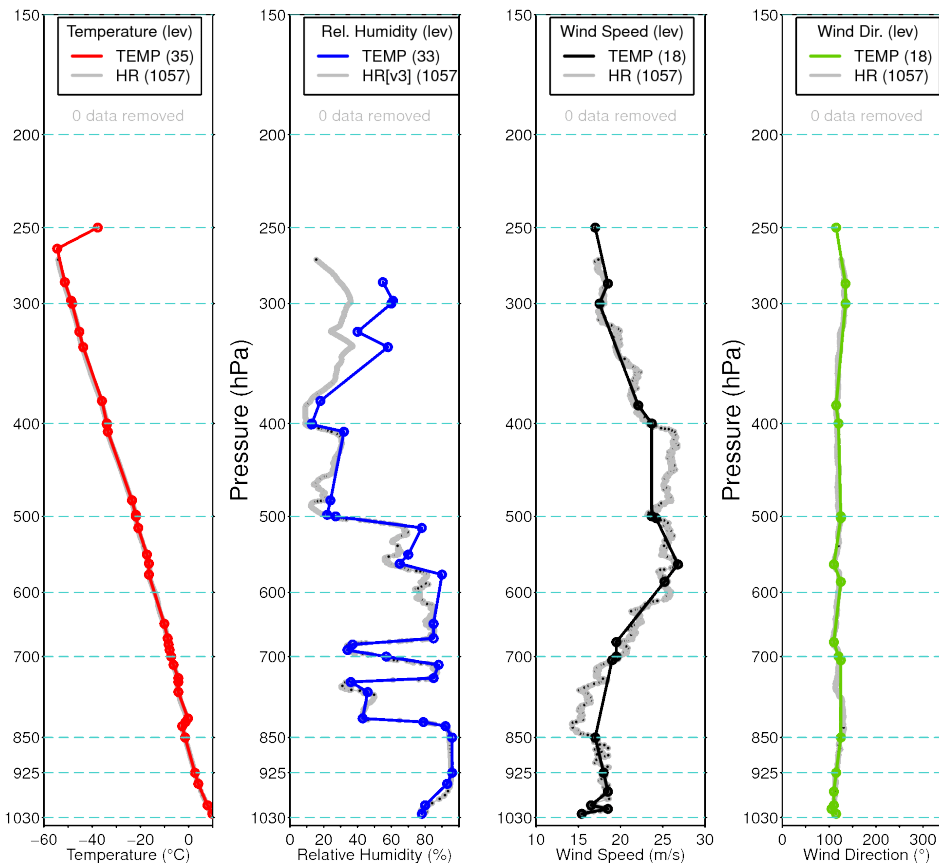
- *PV modification in the cut-off Sanchez (Hanin)*
- *Complementary mesoscale ensemble prediction vs Arpege ensemble prediction*
- *Use of HALO observations on Oct 9th and 10th (Hanin). Maybe Satellite overpass.*

Dropsondes

NAWDEx flight FL18

Dropsonde Z5960014 (High-Res. and TEMP report).

Network: 2016/10/14 at 12Z / Release on 2016/10/14 at 13:12:03

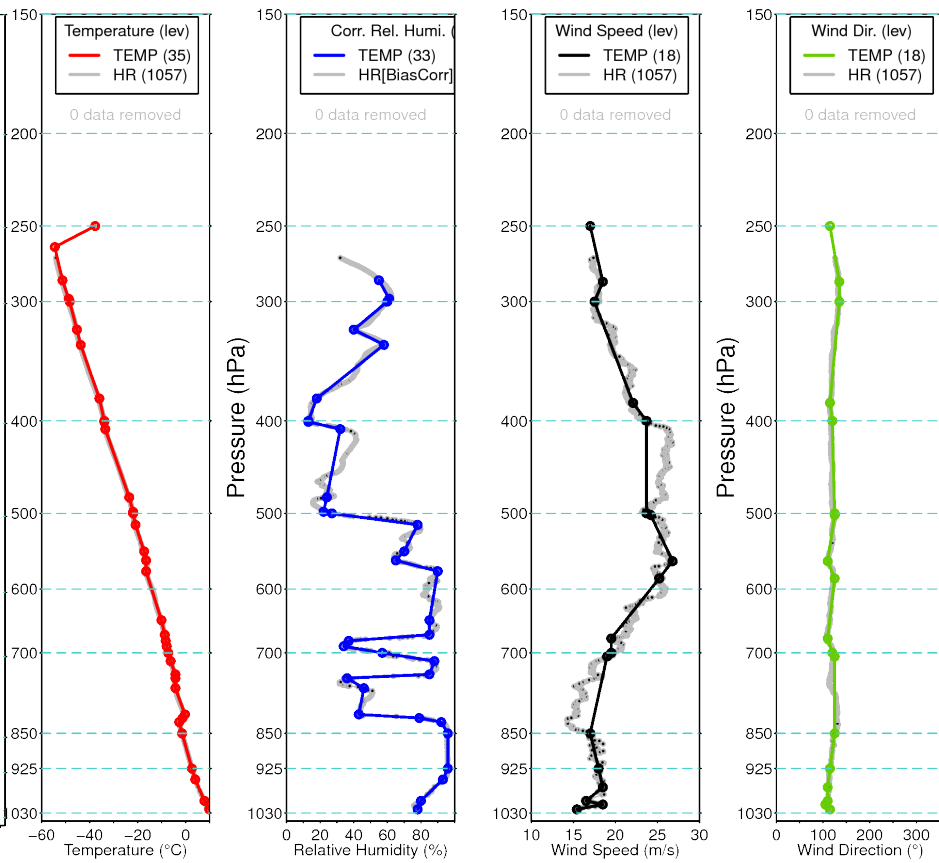


Ref location: TEMP: [59.6 ; -1.4] / HR: [59.62 ; -1.382]

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TEMPDROP from GTS

Radiosondes

Radiosonde data

There are numerous sources and files formats of radiosonde data for NAWDEX. Ben Harvey (b.j.harvey@reading.ac.uk) has rewritten the data in a common netcdf format (one file per sonde). The following document ([NAWDEX_radiosonde_notes.pdf](#)) gives an overview on the data sources, file types, etc.

Here we only provide the rewritten data in netcdf format. If you are interested in the original data, please contact Ben Harvey (b.j.harvey@reading.ac.uk) or Andreas Schäfler (andreas.schaefer@dlr.de)

Source	Data
<i>EUMETNET</i>	<i>eumetnet_nc_files.zip</i>
<i>ECCC</i>	<i>canadian_nc_files.zip</i>
<i>IMO</i>	<i>attachment:</i>
<i>DLR</i>	<i>keflavik_dlr_nc_files.zip</i>
<i>NCAS</i>	<i>capel_dewi_nc_files.zip</i>

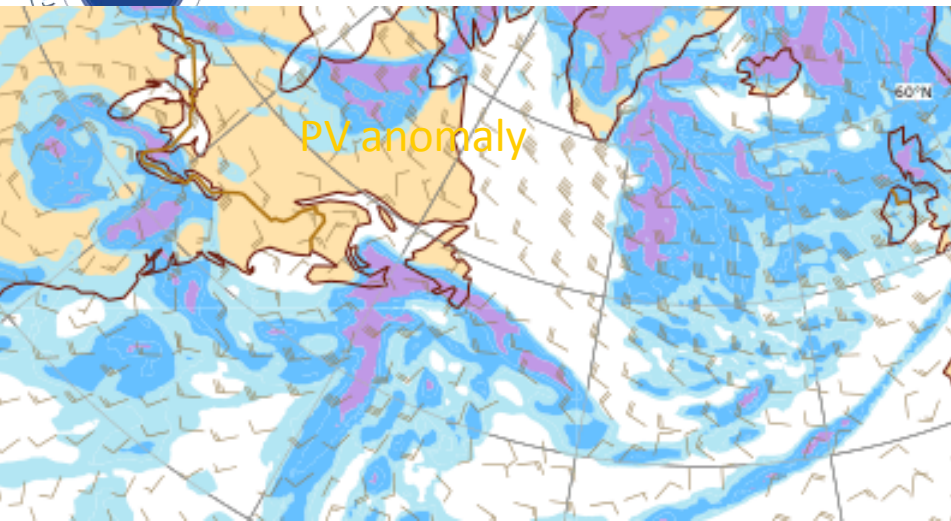
The Radiosonde data set (original and reprocessed files) is available in the NAWDEX-HALO entry of the Halo-DB



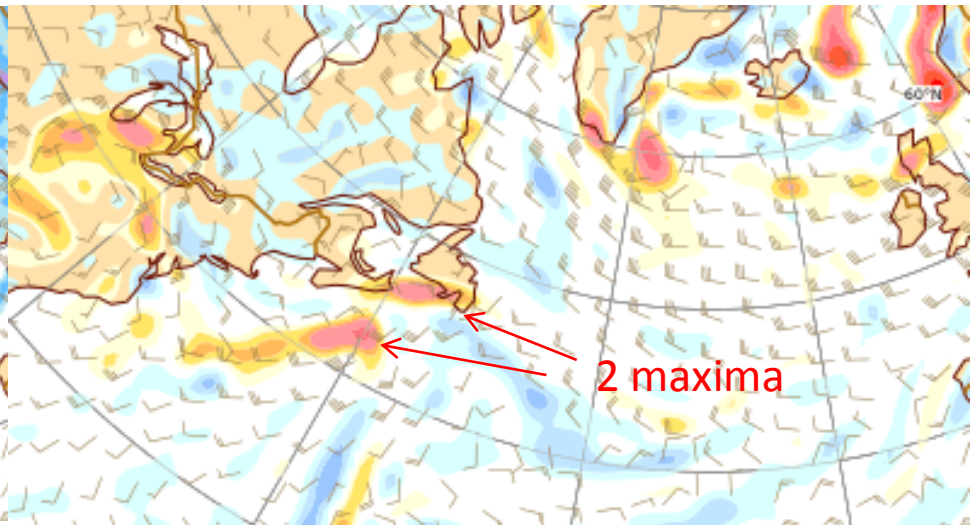
Assimilation of radar/lidar wind observations

Despite 4D-Var is well suited to assimilated raw data as soon as the proper observation operator is coded in the system, the Doppler data will not be processed directly. It is planned to take advantage of a dataset of reconstructed horizontal wind data and metadata and to assimilate these using a non-specific observation operator used for remote sensed vertical wind profiles. For the moment, it is not known to which extent any third party data could enter the reconstruction of those horizontal wind data (e.g. NWP data from another model). In case these data are not fully independent, this had to be accounted for in the estimate of the forecast skill improvement they will presumably generate (Weissmann and Cardinali, 2007).

Stalactite cyclone initiation 29 Sep 12 UTC



RH 850 mb (Arpege)



Relative vorticity @850 hPa (Arpege)

« frontal wave » cyclone initiation 03 Oct 00 UTC

