



Météo-France progress and plans

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Joint ALADIN GA / HIRLAM Council
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Outline

- Operational changes and e-suites :
 - ARPEGE global system
 - AROME-France
- Outlook on plans for the NWP systems at MF
 - 2019 e-suite
 - Beyond 2019 ...

ARPEGE recent changes and e-suite

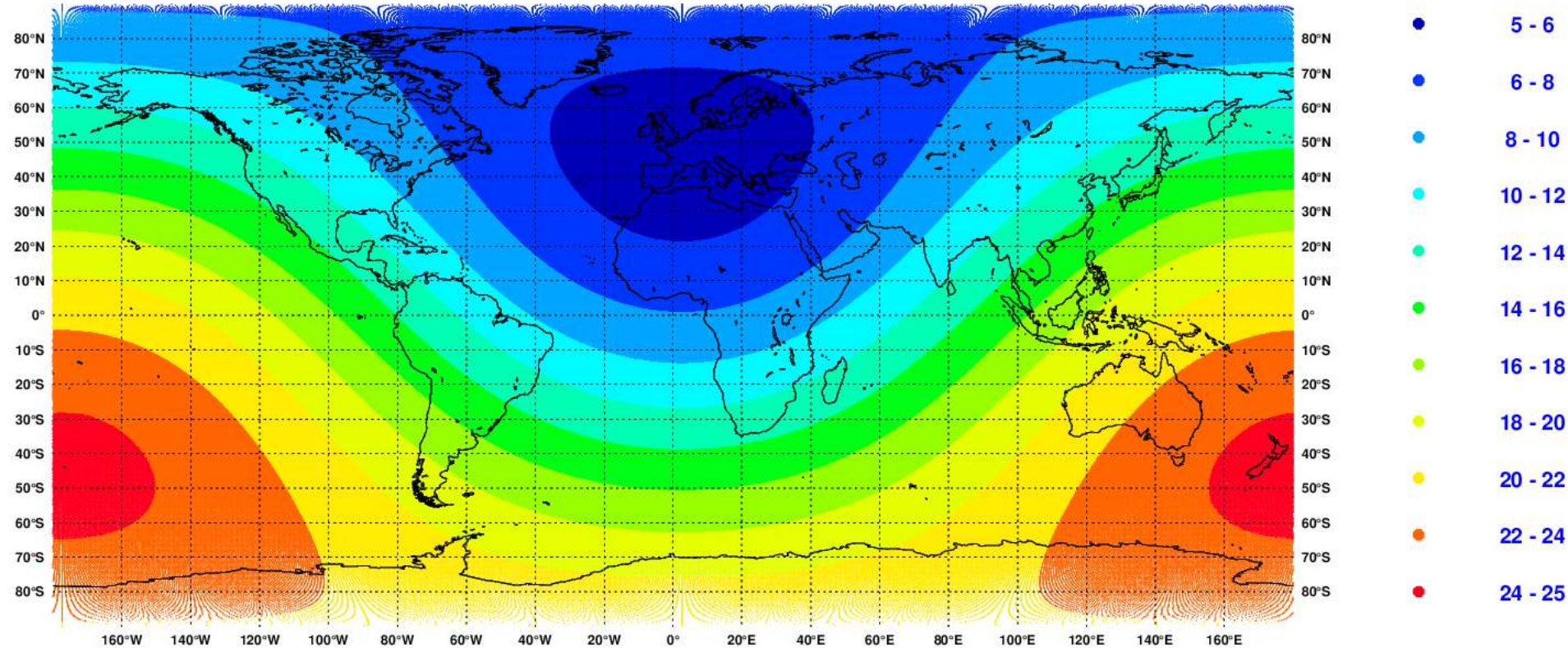
- CY42_op2 : switch to Operations on 5 December 2017
- CY43T2 : increased horizontal resolution of ARPEGE ; e-suite handed over to Operations in Sept. 2018
 - 5 km resolution over Western Europe for deterministic model
 - 7.5 km resolution for global EPS forecasts (PEARP)
 - Increased resolution also for the 4D-VAR analysis increments
 - Observations : error correlations for IR radiances (IASI, CRIS) ; VarBC for GNSS ; etc.
 - Ensemble Data Assimilation (AEARP) : increase number of members (from 25 to 50)
 - Expected to become operational in Q1/2019

ARPEGE new horizontal resolution

- New horizontal resolutions for ARPEGE (about 5km over Western Europe), as well as for global EDA and EPS systems

ResolKm_T1798C22

min=5.06012 max=24.4911 moy=10.0925429478 ect=4.829



ARPEGE e-suite evaluation in progress
test period below 03/01 – 06/11 2018; domain Europe

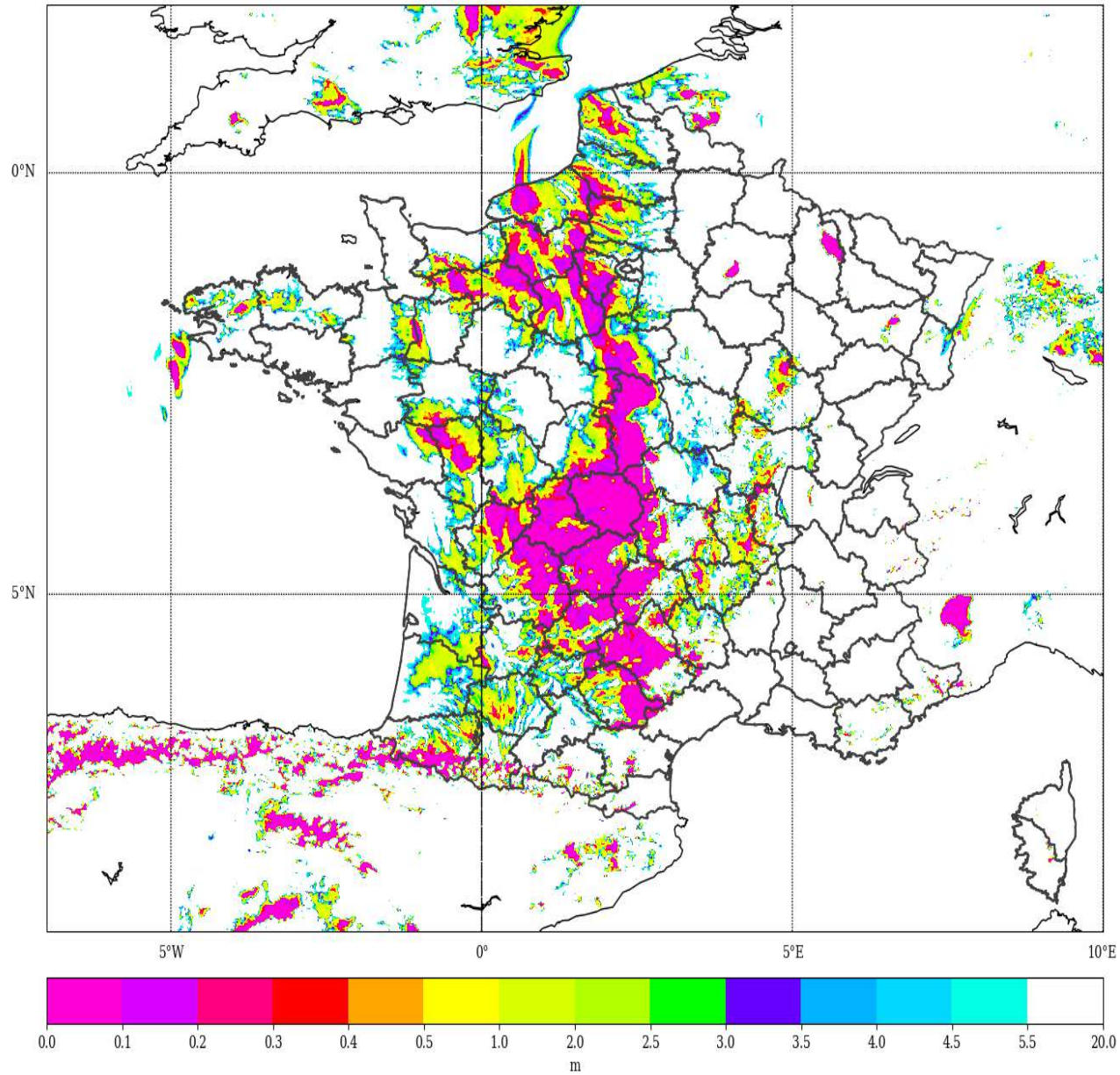
| | Réf. | Radiosondages | Analyses CEP | SYNOPS |
|----------------------|---------|------------------------|------------------------|------------------------|
| | Grille | GLOB025 | GLOB05 | EURAT01 |
| | Éch. | 0H à 96H pas de 12H | 0H à 102H pas de 6H | 0H à 102H pas de 6H |
| Géopotential | 100hPa | | | |
| | 500hPa | | | |
| | 850hPa | | | |
| | 1000hPa | | | |
| Pression | Mer | | | |
| Température | 100hPa | | | |
| | 500hPa | | | |
| | 850hPa | | | |
| | 1000hPa | | | |
| Température corrigée | 2m | | | |
| Vent | 250hPa | | | |
| | 500hPa | | | |
| | 850hPa | | | |
| FF | 10m | | | |
| Humidité | 400hPa | | | |
| | 700hPa | | | |
| | 850hPa | | | |
| | 2m | | | |

AROME recent changes and e-suite

- CY42_op2 : switch to Operations on 5 December 2017
- CY42_op3 : AROME ensemble data assimilation operational on 10 July 2018
- CY43T2 :
 - Several changes in observations (for ARPEGE) also apply to the AROME-France assimilation
 - Improved microphysics scheme (ICE3 new)
 - MESCOAN activated in CANARI surface analysis
 - New model output diagnostics :
 - Visibility
 - Precipitation types falling to the ground
 - Initialization of Overseas AROME by MERCATOR SST 4 times/day

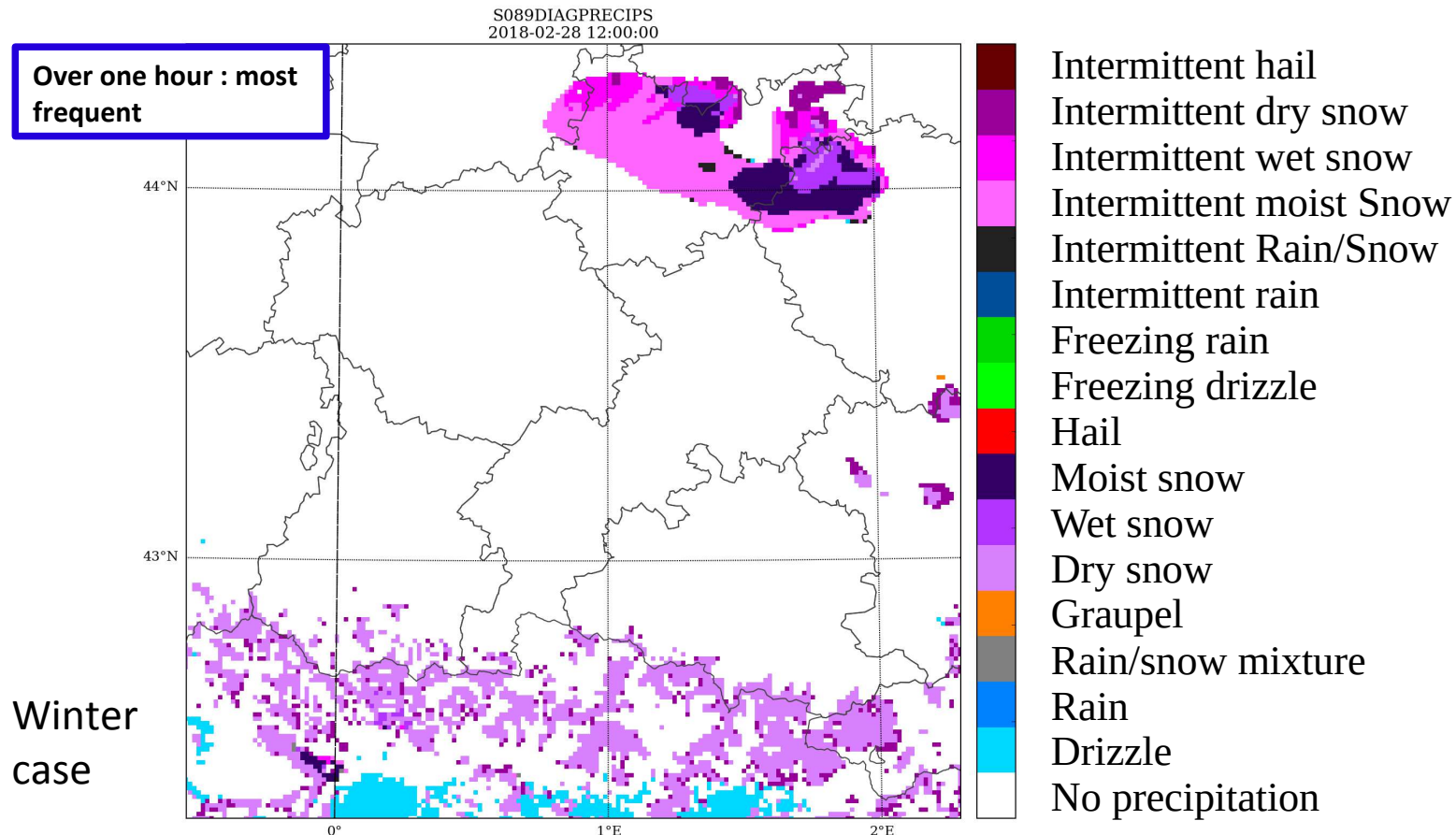
Visibility for 20 Feb 2018 at 05:30 UTC

VISICLD220180220R00 - ech 0330 min.
mardi 20. février 2018, at 05:30:00



Precipitation types falling to the ground in AROME :

- Computed from dew point temperature and amount of precipitating hydrometeors in the model
- Most frequent and most severe types are provided in model output



Outlook : 2019

- 2019 e-suite (spring-winter 2019, content to be confirmed) :
 - CY46T1 or CY43T2
 - Strong timing constraints for implementation
 - Likely features :
 - Snow analysis in both ARPEGE and AROME-France
 - Metop-C data assimilation
 - AROME-France assimilation : European radar (OPERA) ; Mode-S winds
 - Under evaluation : new surface schemes from Surfex
 - (...)

Outlook : 2019 and beyond (system)

- Next HPC solution to be chosen in 2019, for an implementation in 2020
- Work on single-precision runs, with a benefit first in the AROME ensemble prediction system
- Expect a long lasting effort of recoding the NWP system (OOPS, COPE, ESCAPE aspects) => likely to continue to experience fairly complex common code updates (phasing)

Outlook : 2019 and beyond (science)

- Observations : improved assimilation of aircraft data, satellite radiances (all-sky), add Lidar winds, ...
- Data assimilation :
 - Ensemble-variational algorithm for data assimilation (first in AROME), based on the OOPS version of the common codes
 - Renewed surface data assimilation
- Move to a fully probabilistic NWP system and production
- Arome-500m configurations
- Physics : new microphysics scheme, 3D turbulence (horizontal mixing in addition to vertical mixing),
- Dynamics : continue work on solutions for dynamical core preserving the ability to run long time steps



**METEO
FRANCE**

Hvala na pažnji !