



Progress of the project : Assessment of the operational potential of assimilating IASI L2 in a regional model



Data Available

		Month	Number of consecutive days	Real days
		April/2017	26	1 - 26
		May/2017	10	1 - 10
		June/2017	4	23 - 26
		July/2017	26	1 - 26
		August/2017	31	1 - 31
		September/2017	30	1 - 30
		October/2017	31	1 - 31
		November/2017	30	1 - 30
		December/2017	31	1 - 31
		January/2018	31	1 - 30
Pag	3	February/2018	28	1 - 28

MetOp-A - AM MetOp-B – AM and PM



Data Density





Data Density

Objective : Compare the L1 data (IASI) against the L2 product



Steps for data from Control Experiment

Period : 01-09/01/2018 Description: No IASI data from EUMETSAT, No AMSU-A, no MHS from METOP-A in the evening. (Lannion only)

- Count data 0.75 degree X 0.75 degree (~83,25 Km)

Steps for L2 product

- Same period of B8KH experiment (01-09/01/2018)
- Select data with QC:
- QC Temperature : $QCT0 \rightarrow <1$ and $QCT1 \rightarrow <2$ QC Humidity : $QCQ0 \rightarrow <1$, $QCQ1 \rightarrow <2$ and $QCQ1 \rightarrow <3$
- Difference between model orography and profile altitude <25
- Count data 0.75 degree X 0.75 degree

Control Exp (L1 data)







Number of Profiles

Period :01-09/01/2018



Control Exp L1 data

Without orography filter



L2 data

Number of Profiles

Period :01-09/01/2018





L2 thinned data :

Procedure

- One profile each 0.75 degree X 0.75 degree box (IASI (L1) thinning is 80Km)
- Preference : data from METOP-B first (METOP-A is considered)
- The profile with the best QC is selected (If METOP-A has the best QC, it is selected)
- Frequency: 1 hour
- Period: 01/2018

Steps for L2 product (Thinned)

- Same applied above





Control Exp (L1 data)

L2 data

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ΜΕΤΕΟ FRANCE



Thinned L2 data

Number of Profiles

Period :01-09/01/2018





Control Exp L1 data

Without orography filter

L2 data





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METEO FRANCE

Thinned L2 data

Number of Profiles

Period :01-09/01/2018





Statistics of L2 data





Statistics of L2 data

Difference between model orography and profile altitude < 25m Land < 2400 Elevated Terrain >2400



Bins limit values (in hPa):1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 120, 140, 160, 180, 200, 220, 240, 260, 280, 300, 325, 350, 375, 400, 425, 450, 475, 500, 525, 550, 575, 600, 625, 650, 675, 700, 725, 750, 775, 800, 825, 850, 875, 900, 925, 950, 975, 1000, 1025, 1050

Period L2 data : 08/2017 until 02/2018 (completed months) Period L2 Thinned : 01/2018

Radiosondes 01/2018 #Profiles: 5399 profiles

Statistics all terrains





Radiosondes observation error











Statistics over differents terrains











Experiments Setup





Observation Error :

- Relative humidity \rightarrow 15 %
- Temperature \rightarrow 1.2 * radiosondes sigma_o profiles

Data filter for assimilating

- sea : use data only above level 1000hPa
- land, orography below 1km: use data only above level 900hPa
- land, orography more than 1km: use data only above level 700hPa

To be applied to both temperature and humidity.





Period: January/2018

Name	Configuration	Status
BaseLine	Without IASI, AMSU-A and MHS data	Complete
Control	With IASI from Lannion (only) and AMSU-A and MHS data from EUMETSAT No MetOp-A in the evening	Complete
EXP	L2 product from Lannion	In progress





Thank you!



