Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of Home Affairs FDHA
Federal Office of Meteorology and Climatology MeteoSwiss

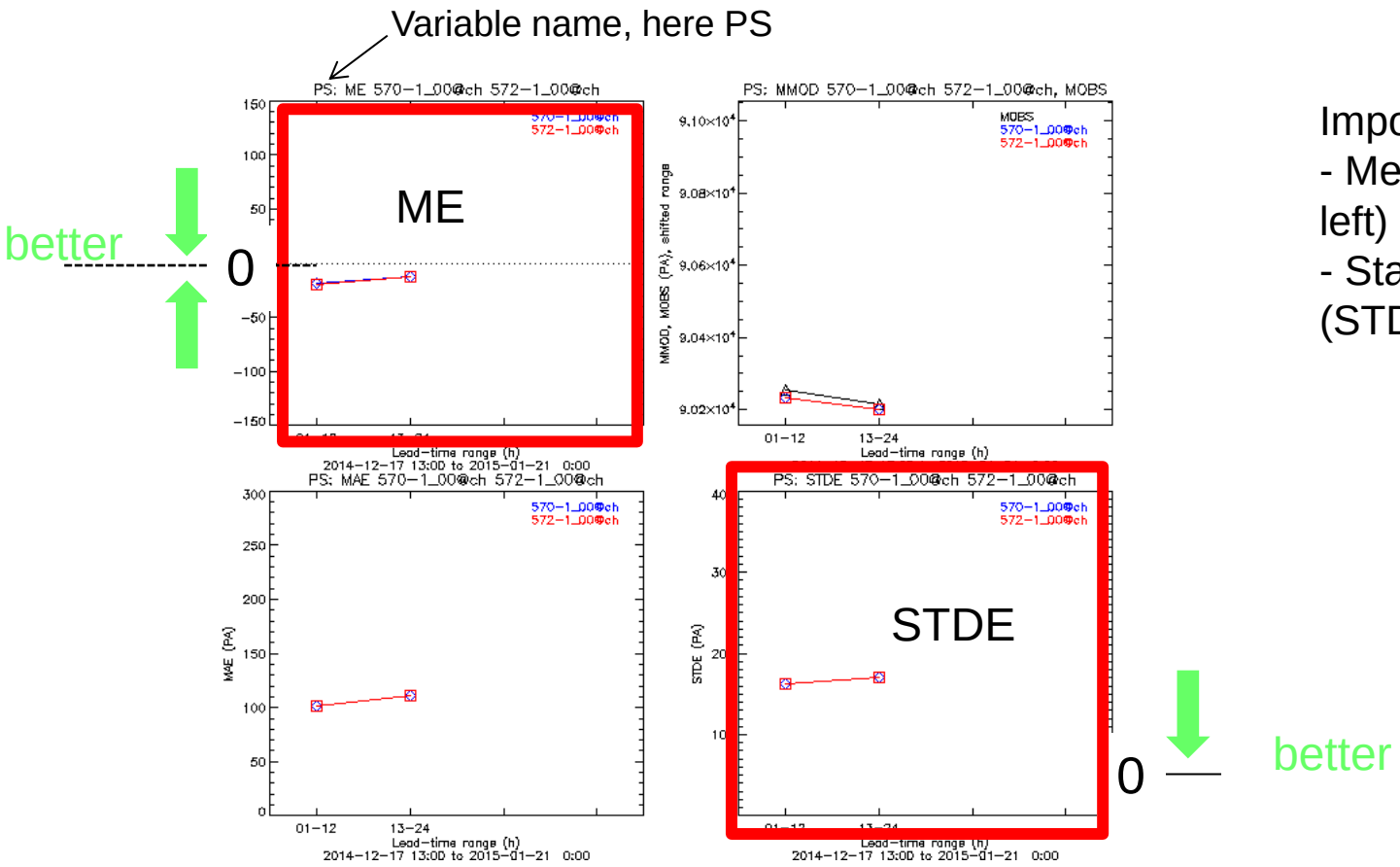
Verification results POMPA branch

Experiment setup

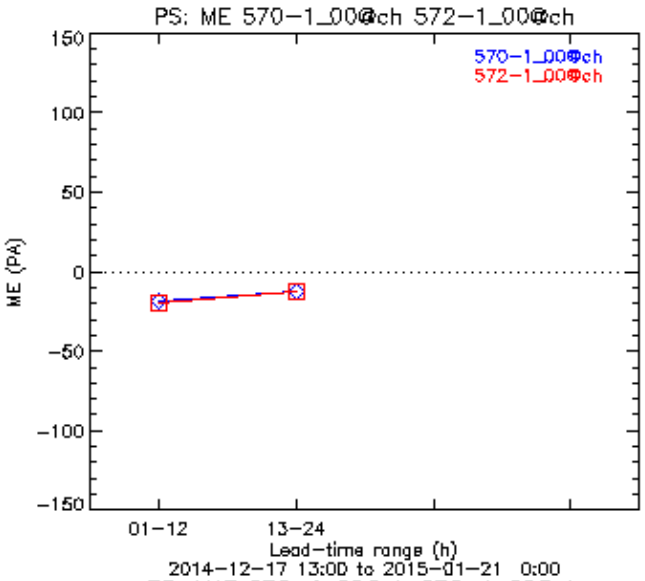
- Comparison period : 19.12.14 – 21.01.15
- COSMO-1 configuration (1 KM Grid over the alps)
- Verification results for Swiss stations

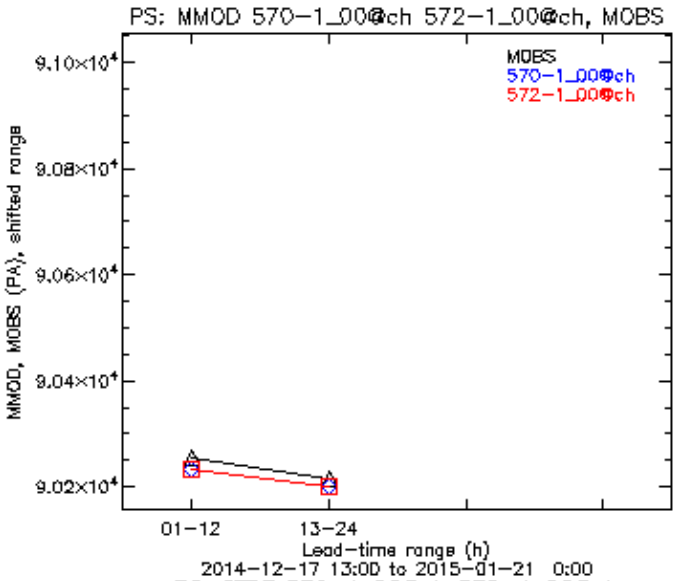
570	Reference : Cosmo 5.0 with a few MCH local changes
572	Experiment : POMPA branch (December 2014) Main differences: - switch assimilation and relaxation - using cpp dycore - src_lbc - gscp first (microphysics called before all other physics)

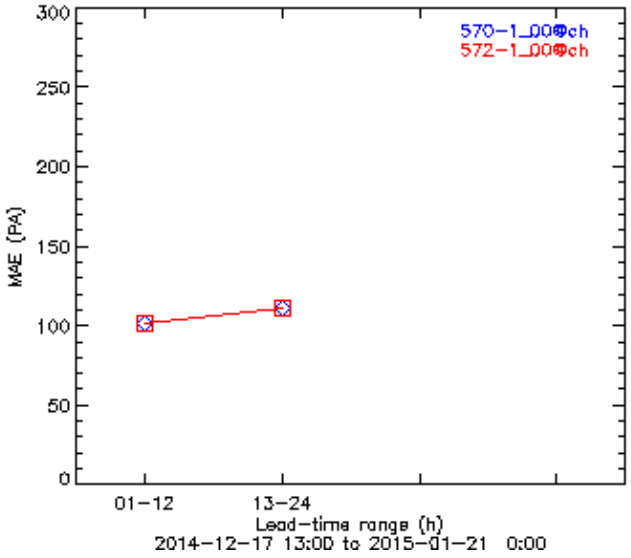
Quick tour through the total scores

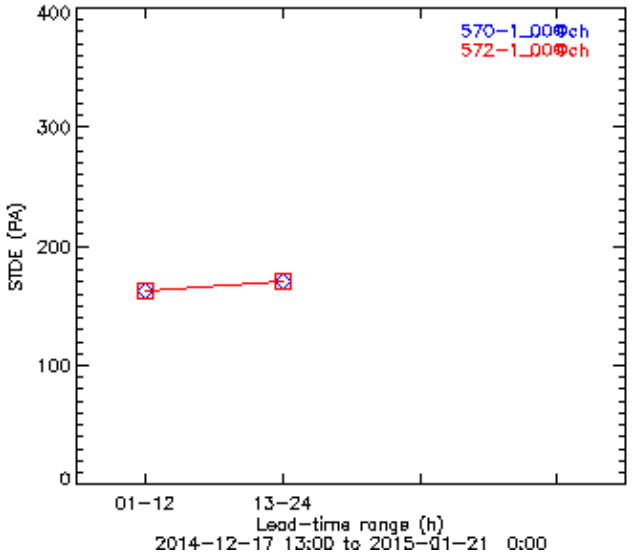


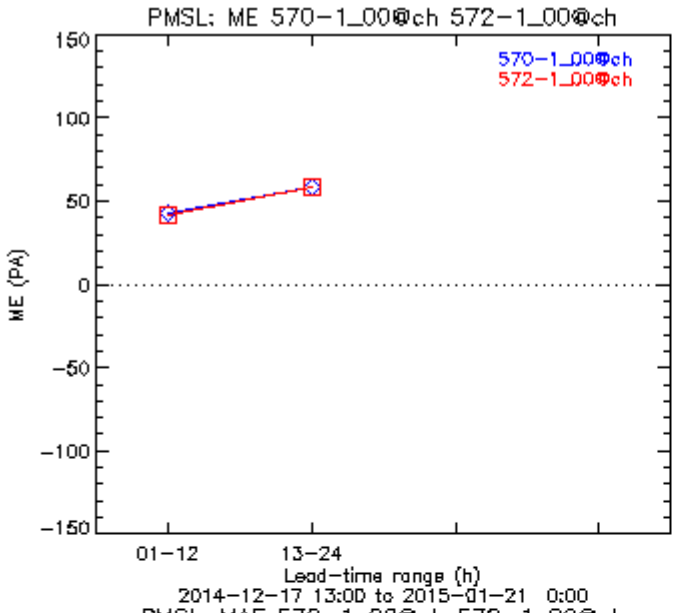
Important scores:
- Mean error (ME - top left)
- Standard deviation (STDE - bottom right)

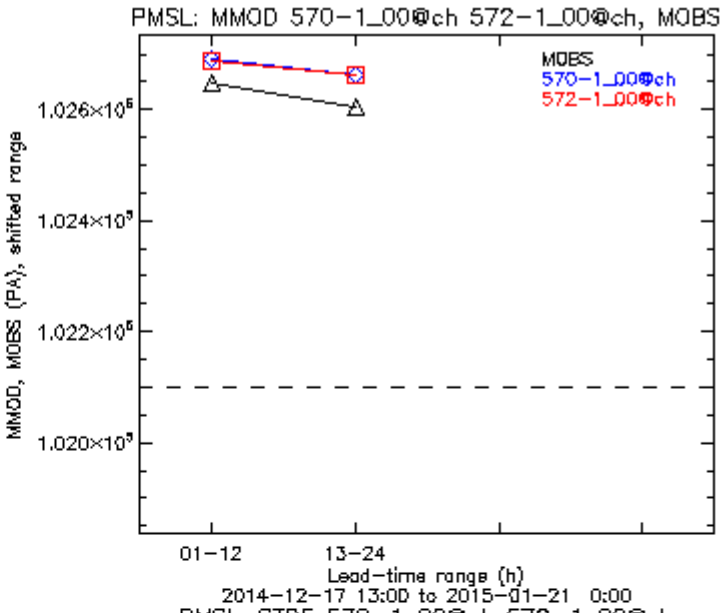

PS: ME 570-1_00@ch 572-1_00@ch
570-1_00@ch
572-1_00@ch
ME (PA)
150
100
50
0
-50
-100
-150
01-12
13-24
Lead-time range (h)
2014-12-17 13:00 to 2015-01-21 0:00

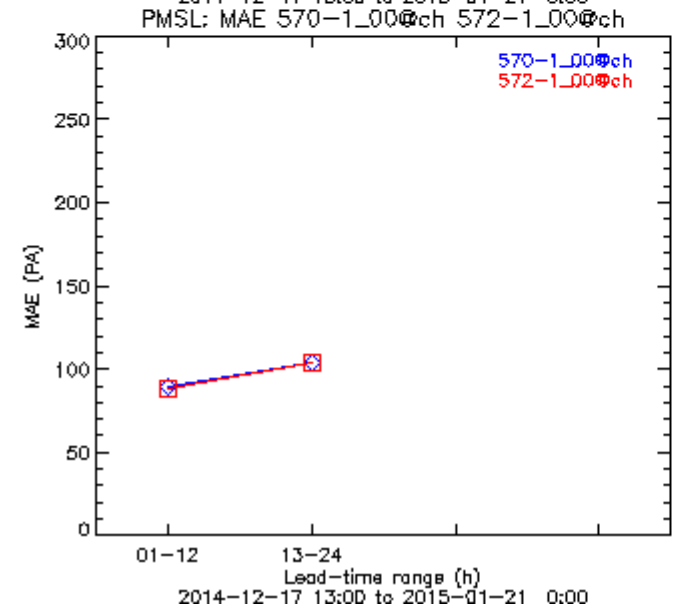

PS: MMOD 570-1_00@ch 572-1_00@ch, MOBS
MOBS
570-1_00@ch
572-1_00@ch
MMOD, MOBS (PA), shifted range
9.10×10⁴
9.08×10⁴
9.06×10⁴
9.04×10⁴
9.02×10⁴
01-12
13-24
Lead-time range (h)
2014-12-17 13:00 to 2015-01-21 0:00

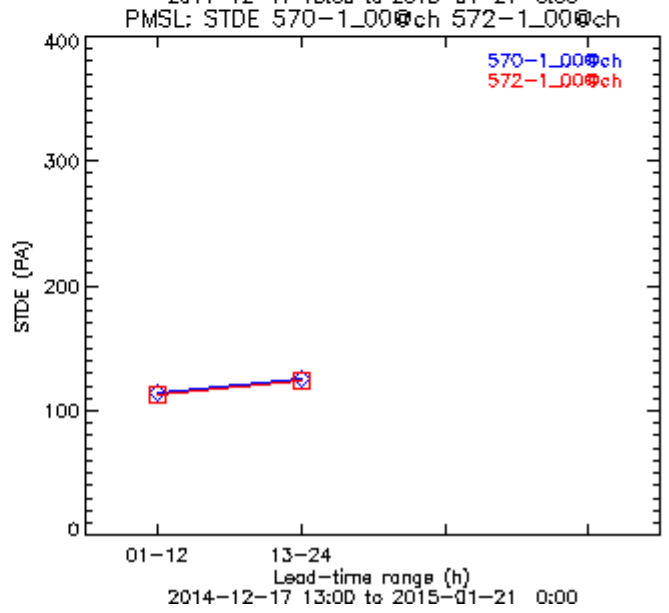

PS: MAE 570-1_00@ch 572-1_00@ch
570-1_00@ch
572-1_00@ch
MAE (PA)
300
250
200
150
100
50
0
01-12
13-24
Lead-time range (h)
2014-12-17 13:00 to 2015-01-21 0:00

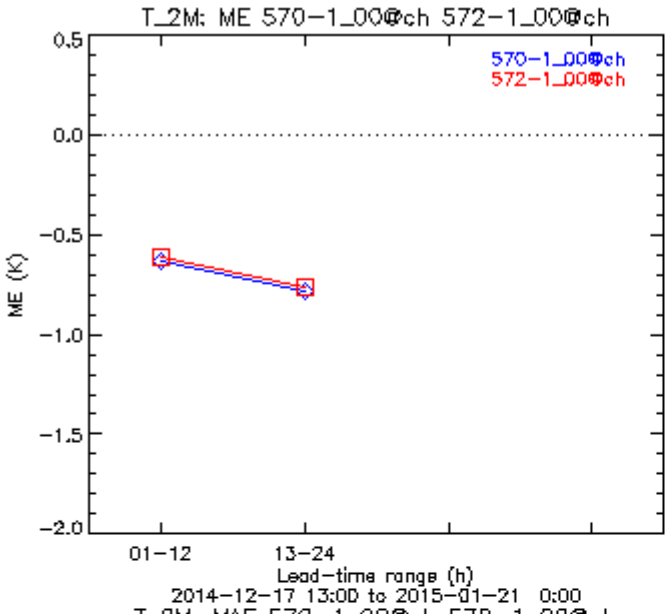

PS: STDE 570-1_00@ch 572-1_00@ch
570-1_00@ch
572-1_00@ch
STDE (PA)
400
300
200
100
0
01-12
13-24
Lead-time range (h)
2014-12-17 13:00 to 2015-01-21 0:00

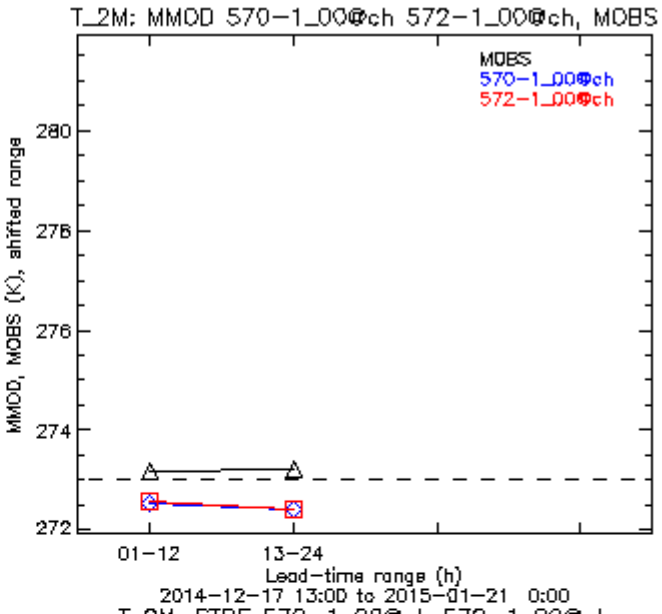

PMSL: ME 570-1_00@ch 572-1_00@ch
570-1_00@ch
572-1_00@ch
ME (PA)
150
100
50
0
-50
-100
-150
01-12
13-24
Lead-time range (h)
2014-12-17 13:00 to 2015-01-21 0:00

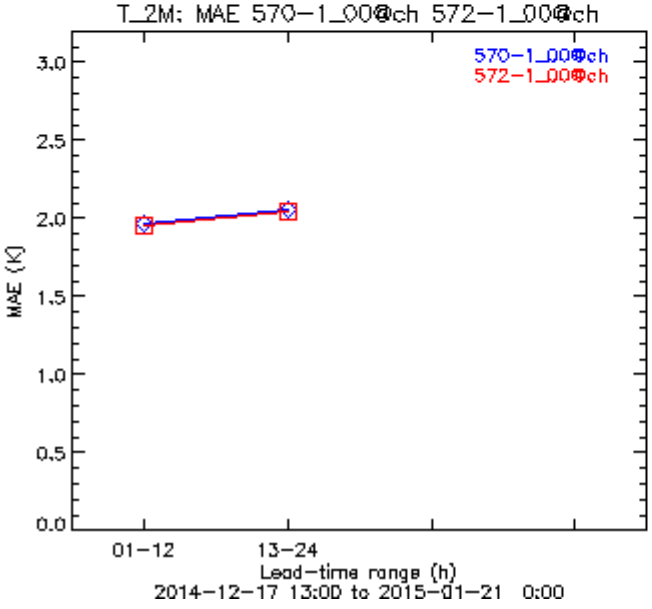

PMSL: MMOD 570-1_00@ch 572-1_00@ch, MOBS
MOBS
570-1_00@ch
572-1_00@ch
MMOD, MOBS (PA), shifted range
1.026×10⁵
1.024×10⁵
1.022×10⁵
1.020×10⁵
01-12
13-24
Lead-time range (h)
2014-12-17 13:00 to 2015-01-21 0:00

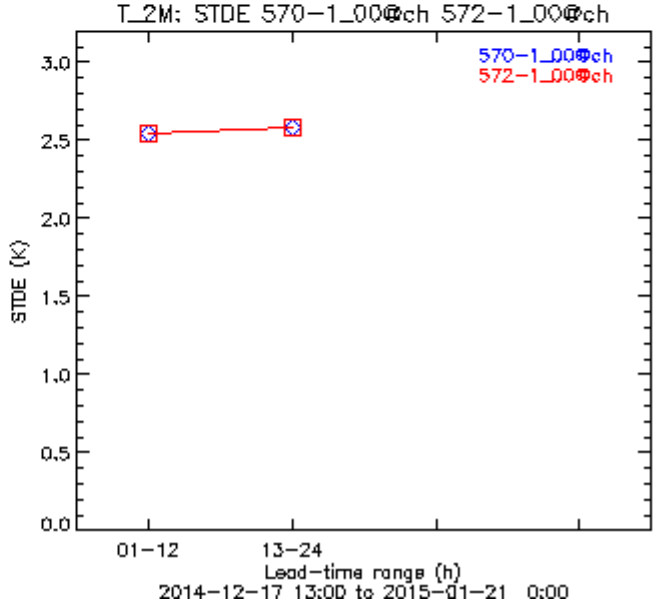

PMSL: MAE 570-1_00@ch 572-1_00@ch
570-1_00@ch
572-1_00@ch
MAE (PA)
300
250
200
150
100
50
0
01-12
13-24
Lead-time range (h)
2014-12-17 13:00 to 2015-01-21 0:00

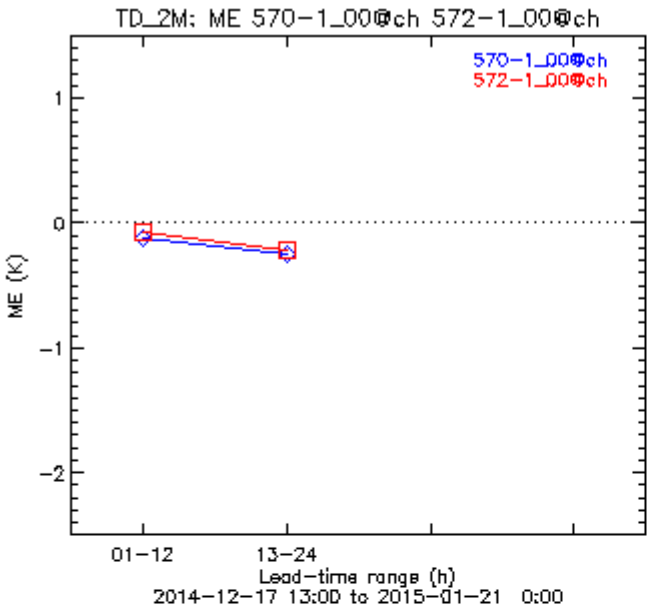

PMSL: STDE 570-1_00@ch 572-1_00@ch
570-1_00@ch
572-1_00@ch
STDE (PA)
400
300
200
100
0
01-12
13-24
Lead-time range (h)
2014-12-17 13:00 to 2015-01-21 0:00

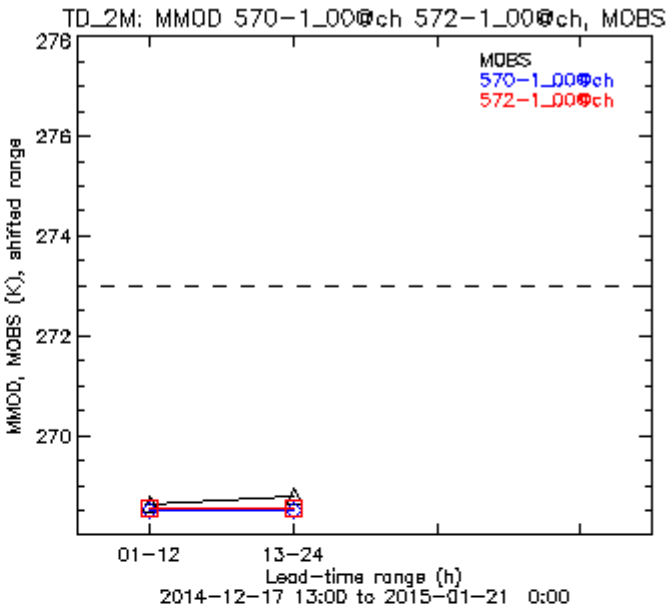

T_2M: ME 570-1_00@ch 572-1_00@ch
570-1_00@ch
572-1_00@ch
ME (K)
0.5
0.0
-0.5
-1.0
-1.5
-2.0
01-12
13-24
Lead-time range (h)
2014-12-17 13:00 to 2015-01-21 0:00

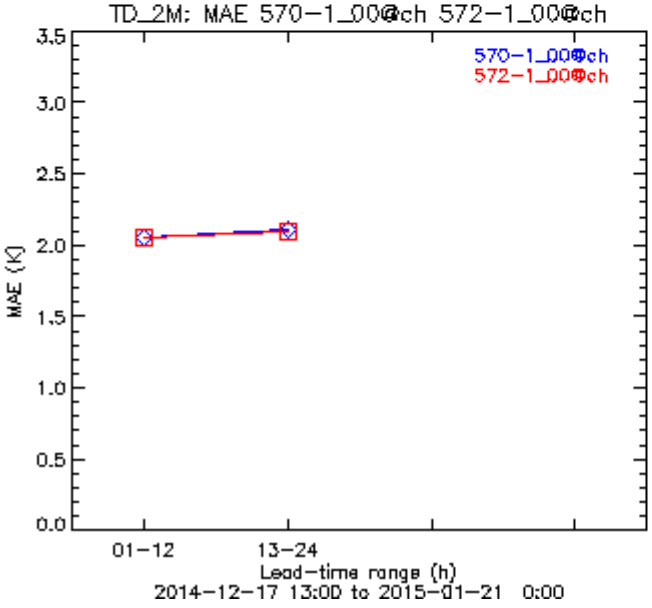

T_2M: MMOD 570-1_00@ch 572-1_00@ch, MOBS
MOBS
570-1_00@ch
572-1_00@ch
MMOD, MOBS (K), shifted range
280
278
276
274
272
01-12
13-24
Lead-time range (h)
2014-12-17 13:00 to 2015-01-21 0:00

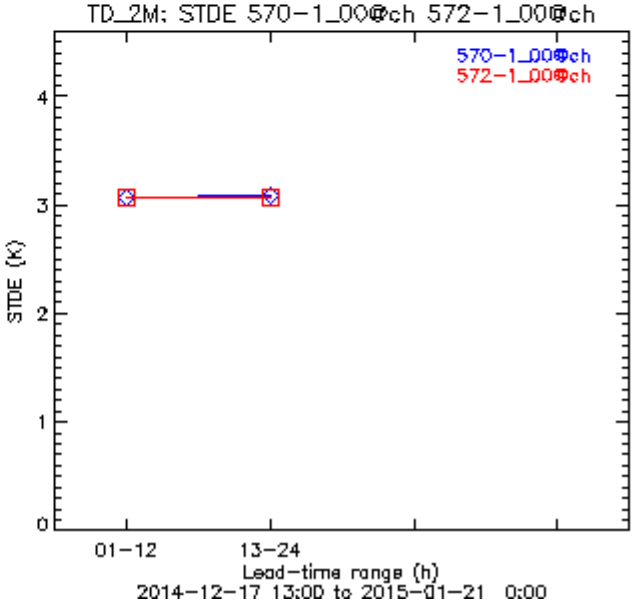

T_2M: MAE 570-1_00@ch 572-1_00@ch
570-1_00@ch
572-1_00@ch
MAE (K)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
01-12
13-24
Lead-time range (h)
2014-12-17 13:00 to 2015-01-21 0:00

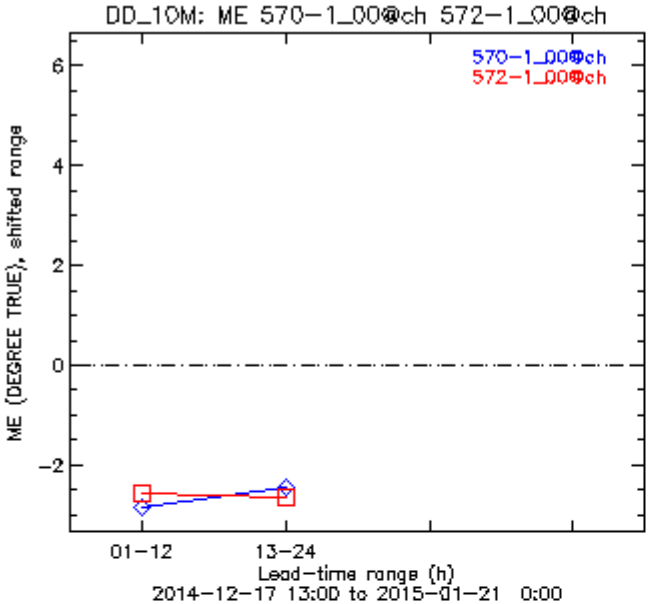

T_2M: STDE 570-1_00@ch 572-1_00@ch
570-1_00@ch
572-1_00@ch
STDE (K)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
01-12
13-24
Lead-time range (h)
2014-12-17 13:00 to 2015-01-21 0:00

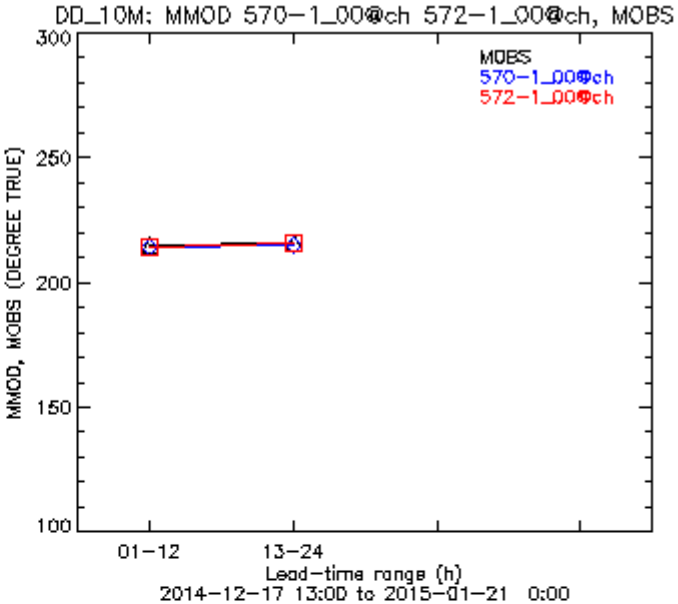

TD_2M: ME 570-1_00@ch 572-1_00@ch
570-1_00@ch
572-1_00@ch
ME (K)
1
0
-1
-2
01-12
13-24
Lead-time range (h)
2014-12-17 13:00 to 2015-01-21 0:00

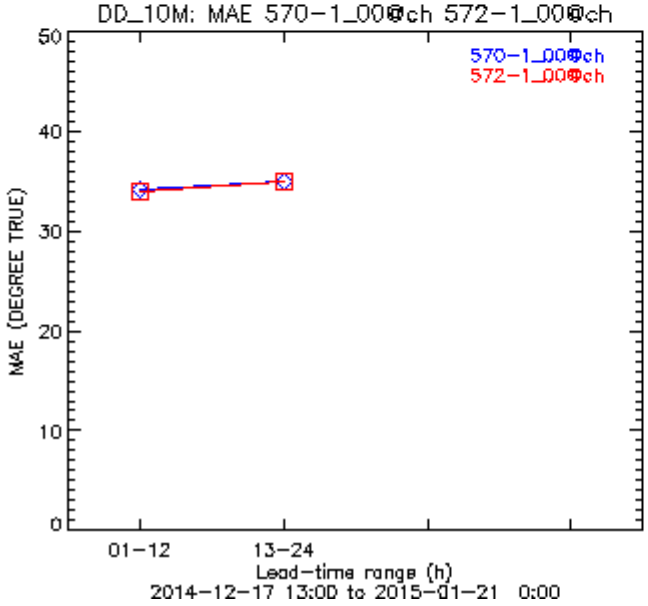

TD_2M: MMOD 570-1_00@ch 572-1_00@ch, MOBS
MOBS
570-1_00@ch
572-1_00@ch
MMOD, MOBS (K), shifted range
278
276
274
272
270
01-12
13-24
Lead-time range (h)
2014-12-17 13:00 to 2015-01-21 0:00

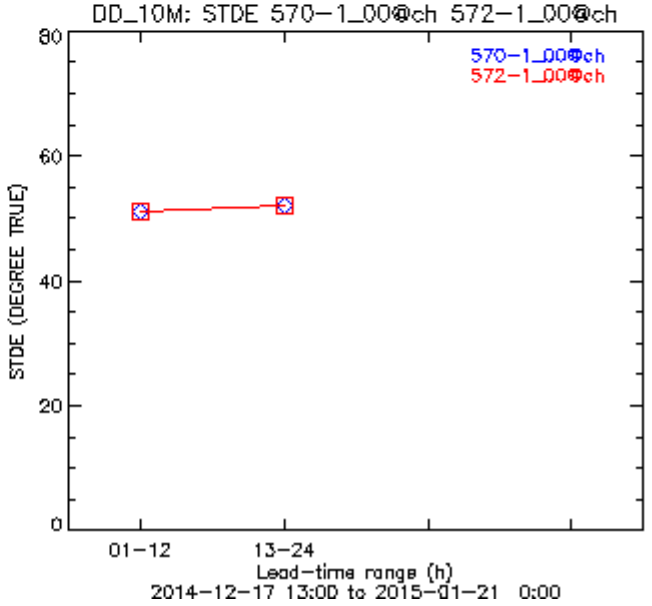

TD_2M: MAE 570-1_00@ch 572-1_00@ch
570-1_00@ch
572-1_00@ch
MAE (K)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
01-12
13-24
Lead-time range (h)
2014-12-17 13:00 to 2015-01-21 0:00

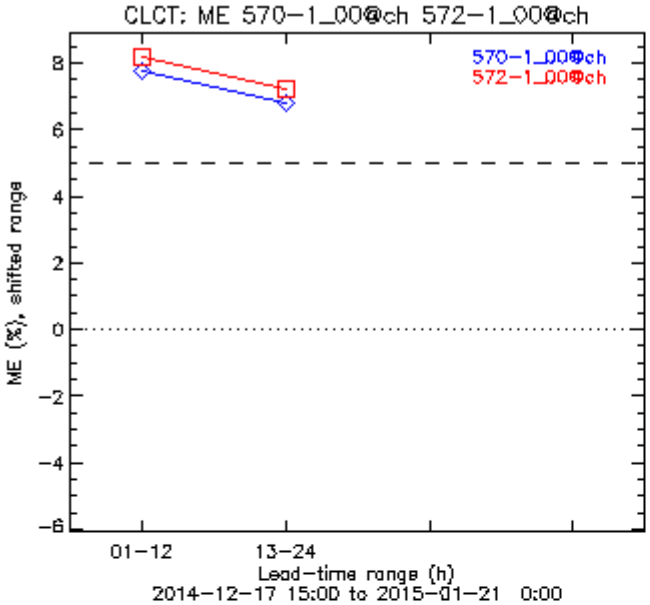

TD_2M: STDE 570-1_00@ch 572-1_00@ch
570-1_00@ch
572-1_00@ch
STDE (K)
4
3
2
1
0
01-12
13-24
Lead-time range (h)
2014-12-17 13:00 to 2015-01-21 0:00

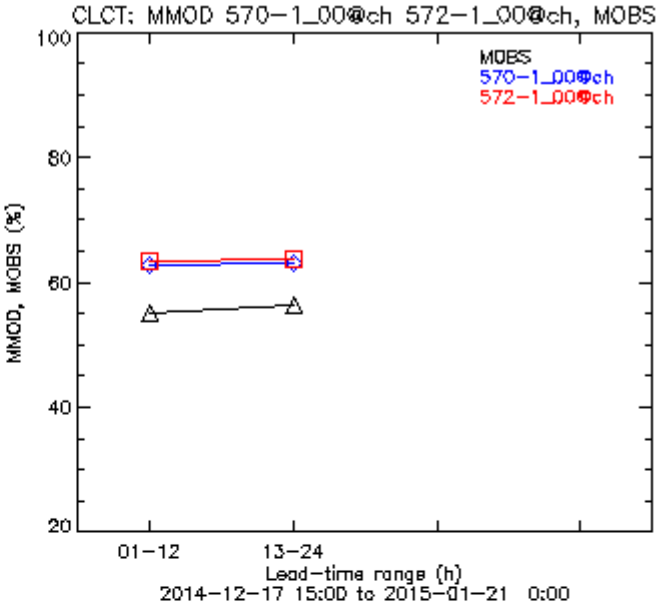

DD_10M: ME 570-1_00@ch 572-1_00@ch
570-1_00@ch
572-1_00@ch
ME (DEGREE TRUE), shifted range
6
4
2
0
-2
01-12
13-24
Lead-time range (h)
2014-12-17 13:00 to 2015-01-21 0:00

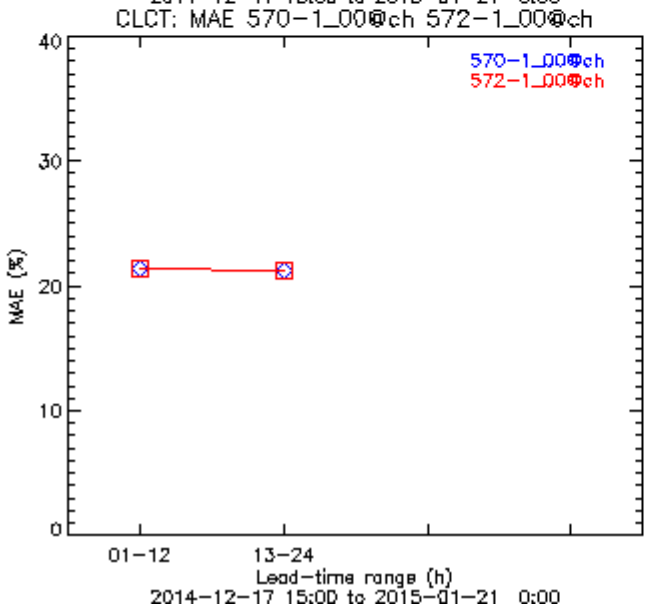

DD_10M: MMOD 570-1_00@ch 572-1_00@ch, MOBS
MOBS
570-1_00@ch
572-1_00@ch
MMOD, MOBS (DEGREE TRUE)
300
250
200
150
100
01-12
13-24
Lead-time range (h)
2014-12-17 13:00 to 2015-01-21 0:00

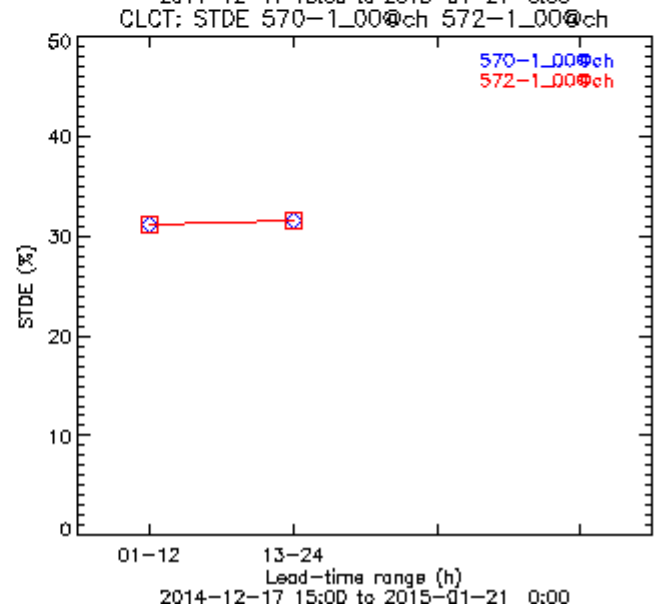

DD_10M: MAE 570-1_00@ch 572-1_00@ch
570-1_00@ch
572-1_00@ch
MAE (DEGREE TRUE)
50
40
30
20
10
0
01-12
13-24
Lead-time range (h)
2014-12-17 13:00 to 2015-01-21 0:00

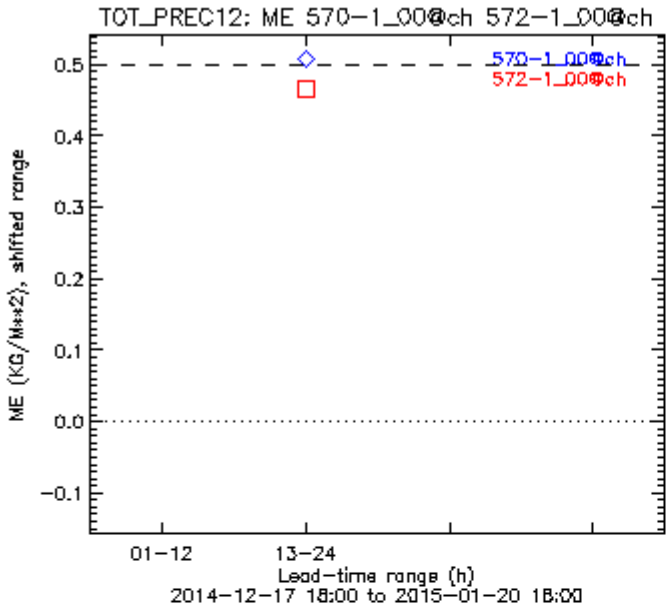

DD_10M: STDE 570-1_00@ch 572-1_00@ch
570-1_00@ch
572-1_00@ch
STDE (DEGREE TRUE)
80
60
40
20
0
01-12
13-24
Lead-time range (h)
2014-12-17 13:00 to 2015-01-21 0:00

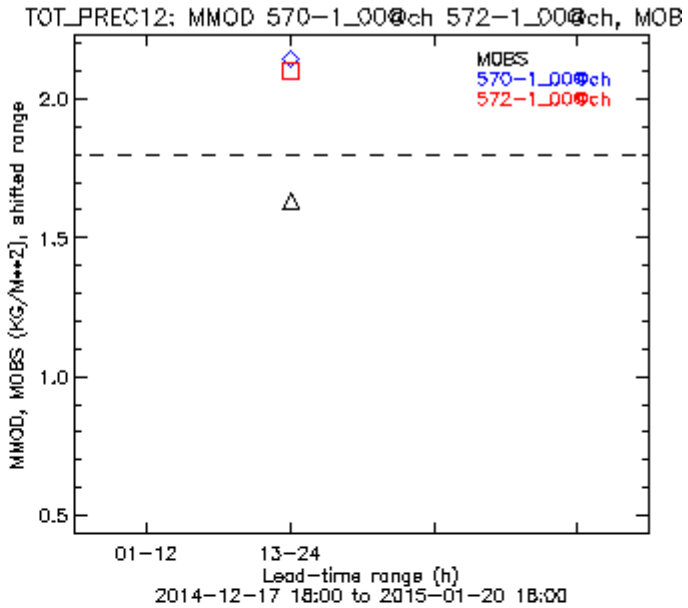

CLCT: ME 570-1_00@ch 572-1_00@ch
570-1_00@ch
572-1_00@ch
ME (%), shifted range
8
6
4
2
0
-2
-4
-6
01-12
13-24
Lead-time range (h)
2014-12-17 15:00 to 2015-01-21 0:00

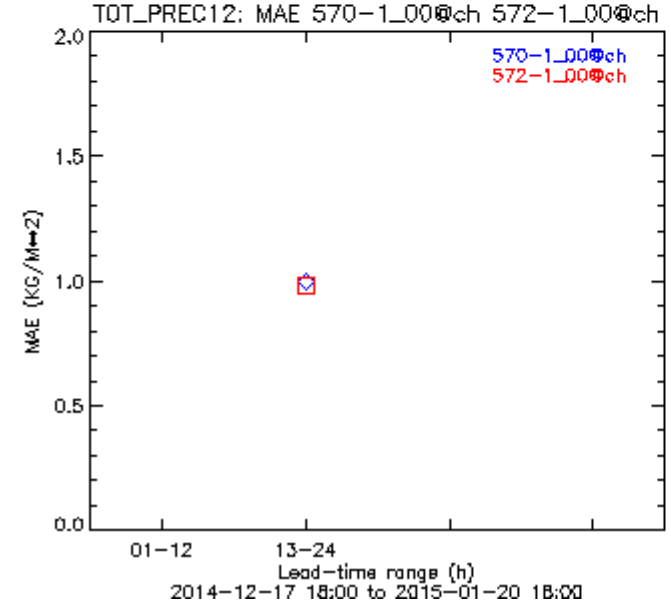

CLCT: MMOD 570-1_00@ch 572-1_00@ch, MOBS
MOBS
570-1_00@ch
572-1_00@ch
MMOD, MOBS (%)
100
80
60
40
20
01-12
13-24
Lead-time range (h)
2014-12-17 15:00 to 2015-01-21 0:00

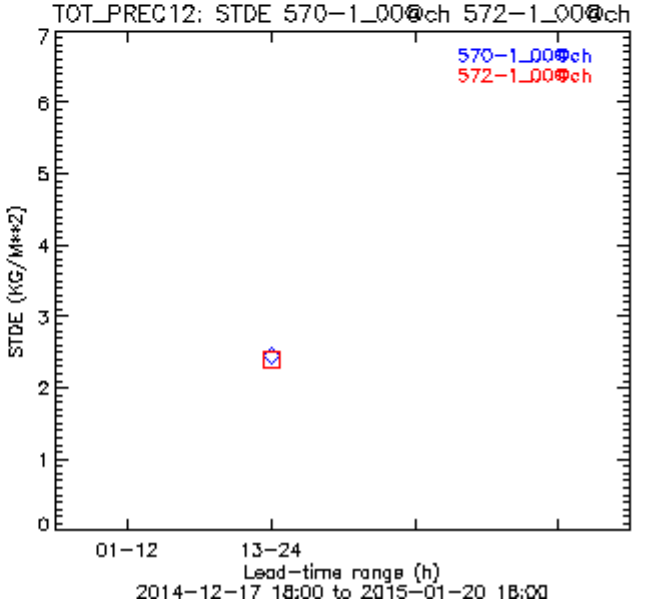

CLCT: MAE 570-1_00@ch 572-1_00@ch
570-1_00@ch
572-1_00@ch
MAE (%)
40
30
20
10
0
01-12
13-24
Lead-time range (h)
2014-12-17 15:00 to 2015-01-21 0:00

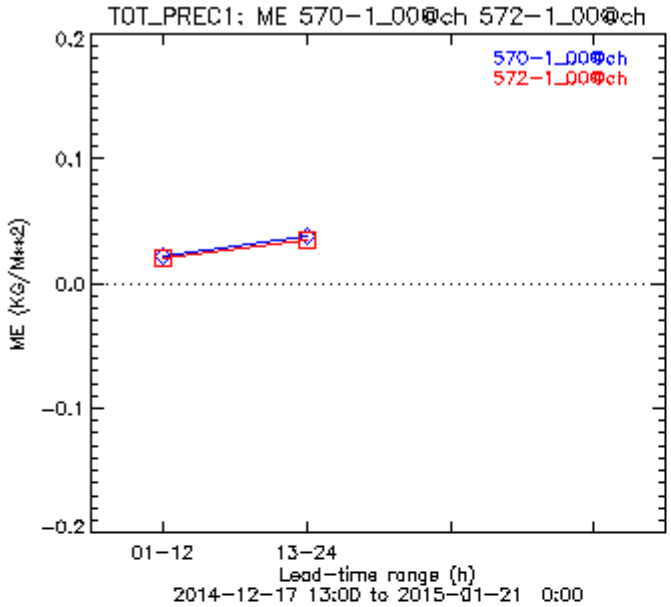

CLCT: STDE 570-1_00@ch 572-1_00@ch
570-1_00@ch
572-1_00@ch
STDE (%)
50
40
30
20
10
0
01-12
13-24
Lead-time range (h)
2014-12-17 15:00 to 2015-01-21 0:00

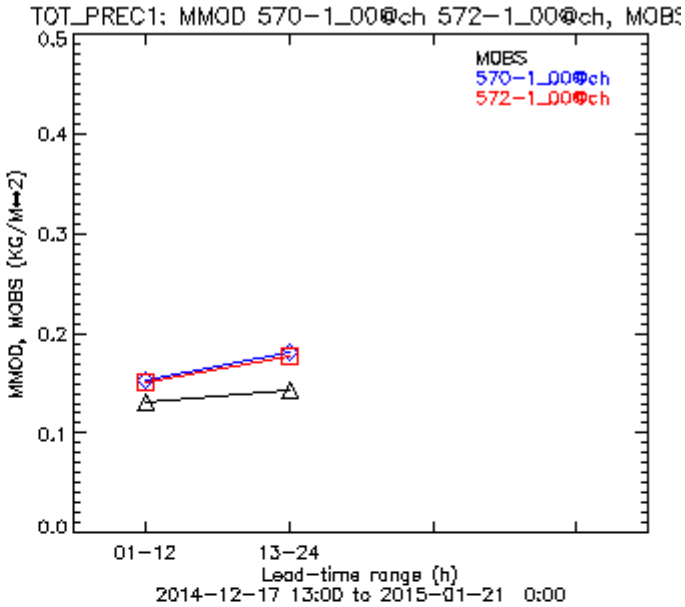

TOT_PREC12: ME 570-1_00@ch 572-1_00@ch
570-1_00@ch
572-1_00@ch
ME (KG/M**2), shifted range
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
01-12
13-24
Lead-time range (h)
2014-12-17 18:00 to 2015-01-20 18:00

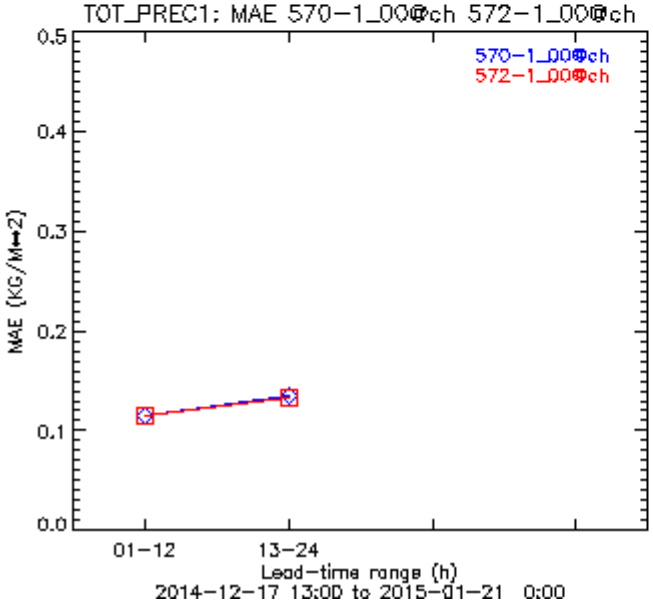

TOT_PREC12: MMOD 570-1_00@ch 572-1_00@ch, MOB
MOBS
570-1_00@ch
572-1_00@ch
MMOD, MOBS (KG/M**2), shifted range
2.0
1.5
1.0
0.5
01-12
13-24
Lead-time range (h)
2014-12-17 18:00 to 2015-01-20 18:00

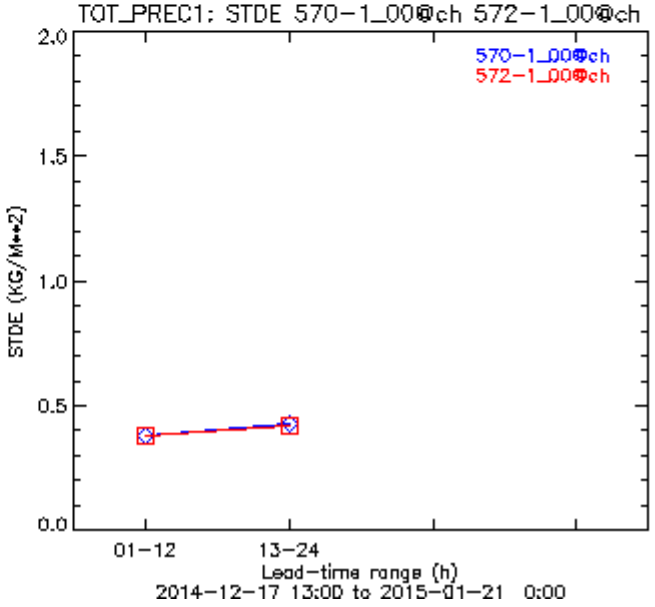

TOT_PREC12: MAE 570-1_00@ch 572-1_00@ch
570-1_00@ch
572-1_00@ch
MAE (KG/M**2)
2.0
1.5
1.0
0.5
0.0
01-12
13-24
Lead-time range (h)
2014-12-17 18:00 to 2015-01-20 18:00

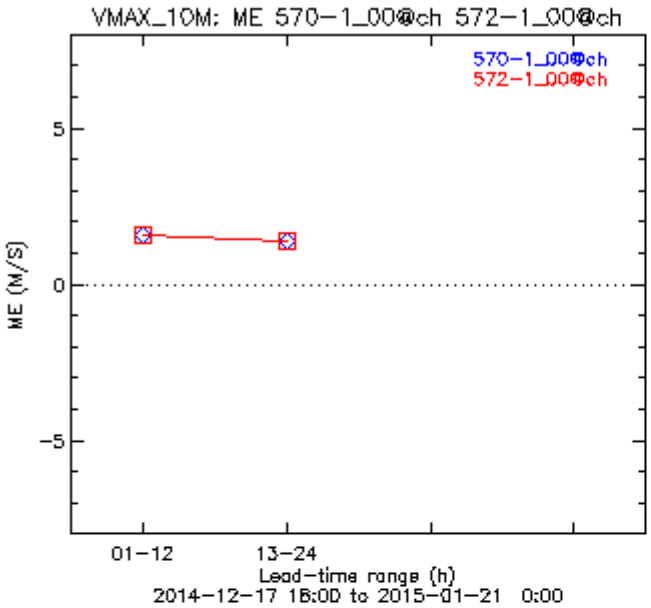

TOT_PREC12: STDE 570-1_00@ch 572-1_00@ch
570-1_00@ch
572-1_00@ch
STDE (KG/M**2)
7
6
5
4
3
2
1
0
01-12
13-24
Lead-time range (h)
2014-12-17 18:00 to 2015-01-20 18:00

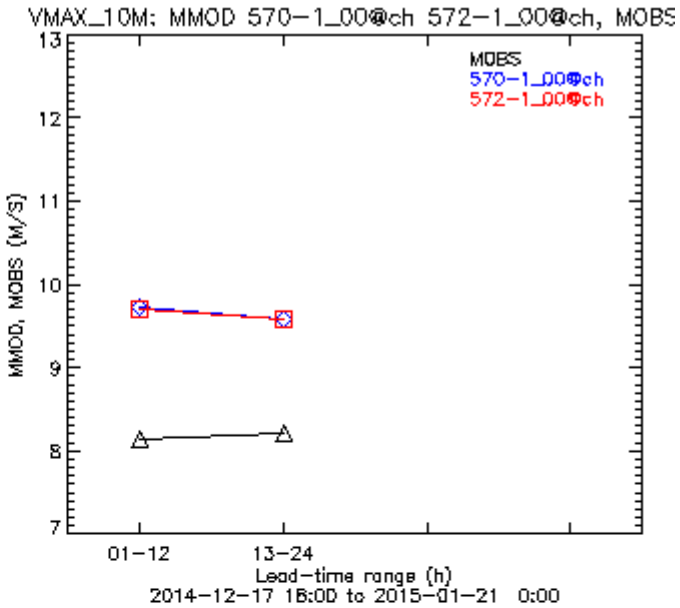

TOT_PREC1: ME 570-1_00@ch 572-1_00@ch
570-1_00@ch
572-1_00@ch
ME (KG/M**2)
0.2
0.1
0.0
-0.1
-0.2
01-12
13-24
Lead-time range (h)
2014-12-17 13:00 to 2015-01-21 0:00

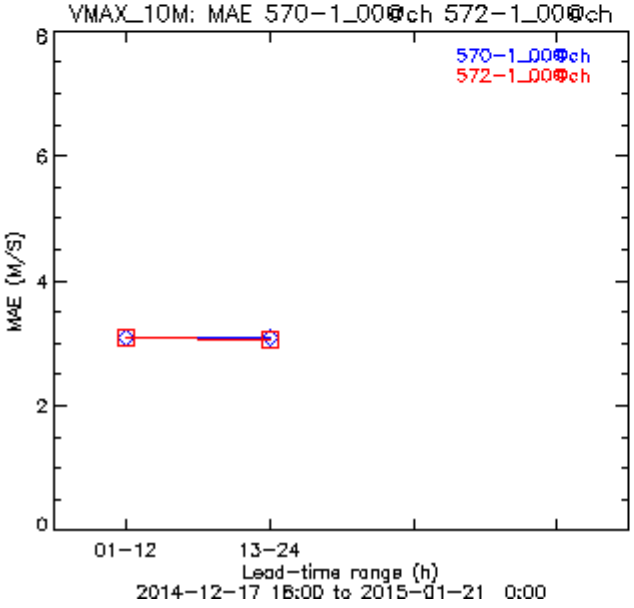

TOT_PREC1: MMOD 570-1_00@ch 572-1_00@ch, MOBS
MOBS
570-1_00@ch
572-1_00@ch
MMOD, MOBS (KG/M**2)
0.5
0.4
0.3
0.2
0.1
0.0
01-12
13-24
Lead-time range (h)
2014-12-17 13:00 to 2015-01-21 0:00

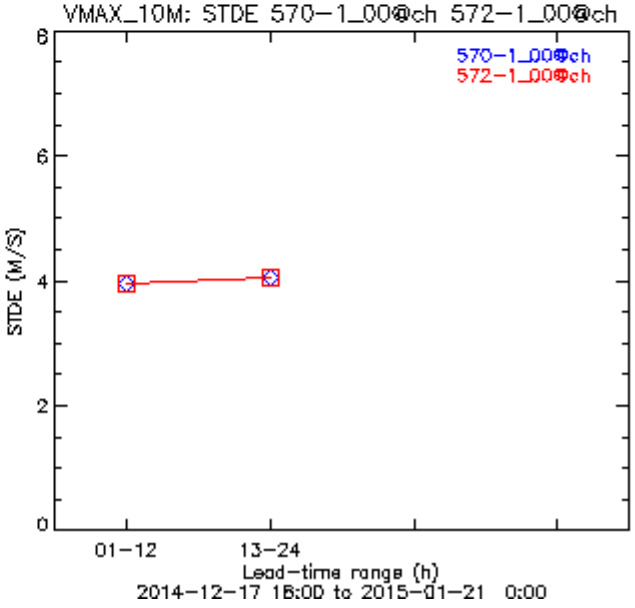

TOT_PREC1: MAE 570-1_00@ch 572-1_00@ch
570-1_00@ch
572-1_00@ch
MAE (KG/M**2)
0.5
0.4
0.3
0.2
0.1
0.0
01-12
13-24
Lead-time range (h)
2014-12-17 13:00 to 2015-01-21 0:00

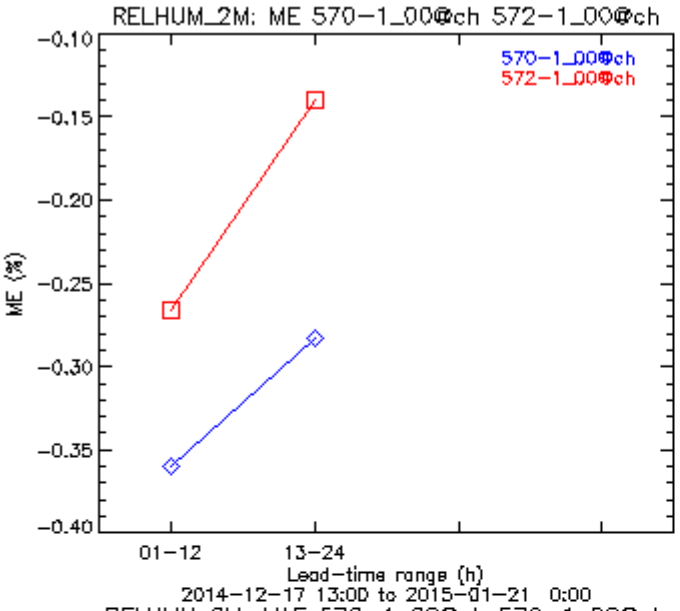

TOT_PREC1: STDE 570-1_00@ch 572-1_00@ch
570-1_00@ch
572-1_00@ch
STDE (KG/M**2)
2.0
1.5
1.0
0.5
0.0
01-12
13-24
Lead-time range (h)
2014-12-17 13:00 to 2015-01-21 0:00

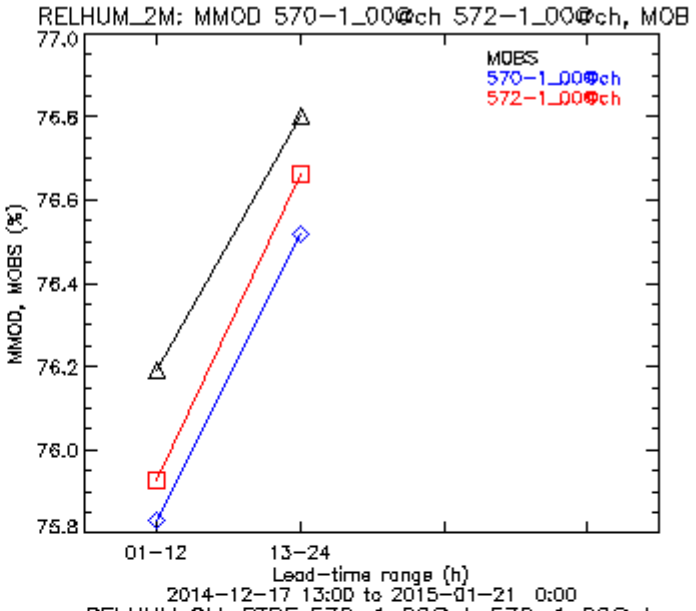

VMAX_10M: ME 570-1_00@ch 572-1_00@ch
570-1_00@ch
572-1_00@ch
ME (M/S)
5
0
-5
01-12
13-24
Lead-time range (h)
2014-12-17 18:00 to 2015-01-21 0:00

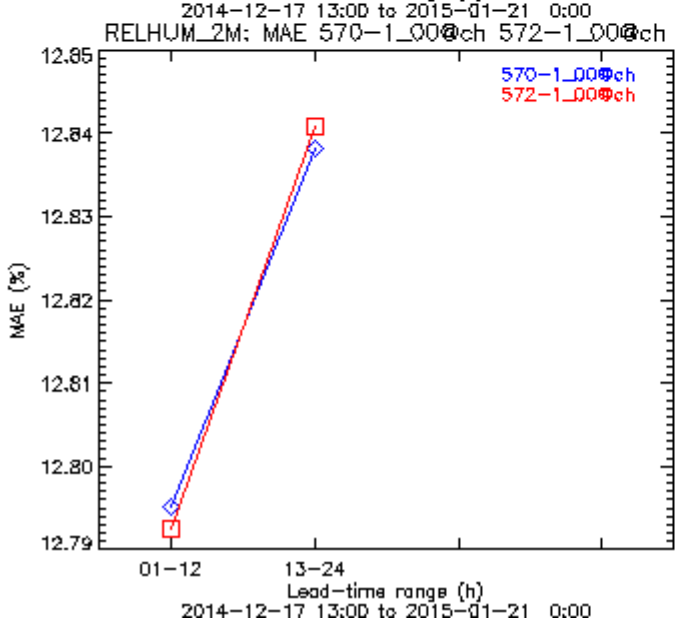

VMAX_10M: MMOD 570-1_00@ch 572-1_00@ch, MOBS
MOBS
570-1_00@ch
572-1_00@ch
MMOD, MOBS (M/S)
13
12
11
10
9
8
7
01-12
13-24
Lead-time range (h)
2014-12-17 18:00 to 2015-01-21 0:00

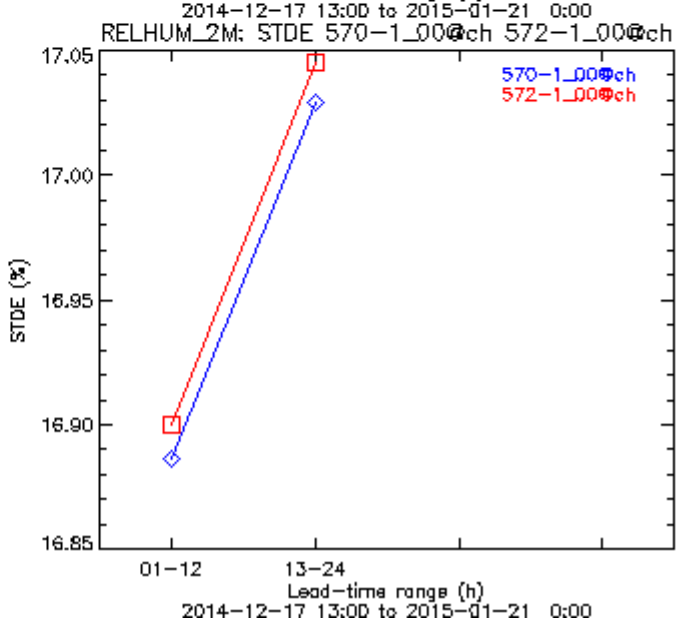

VMAX_10M: MAE 570-1_00@ch 572-1_00@ch
570-1_00@ch
572-1_00@ch
MAE (M/S)
8
6
4
2
0
01-12
13-24
Lead-time range (h)
2014-12-17 18:00 to 2015-01-21 0:00

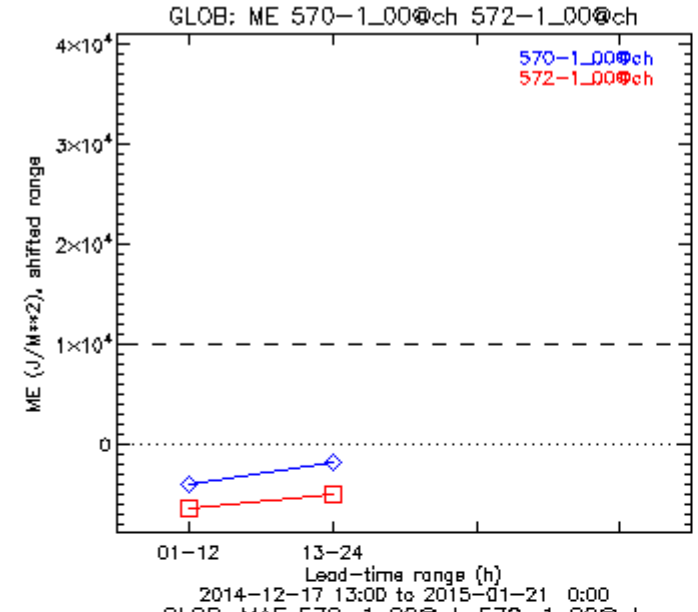

VMAX_10M: STDE 570-1_00@ch 572-1_00@ch
570-1_00@ch
572-1_00@ch
STDE (M/S)
8
6
4
2
0
01-12
13-24
Lead-time range (h)
2014-12-17 18:00 to 2015-01-21 0:00

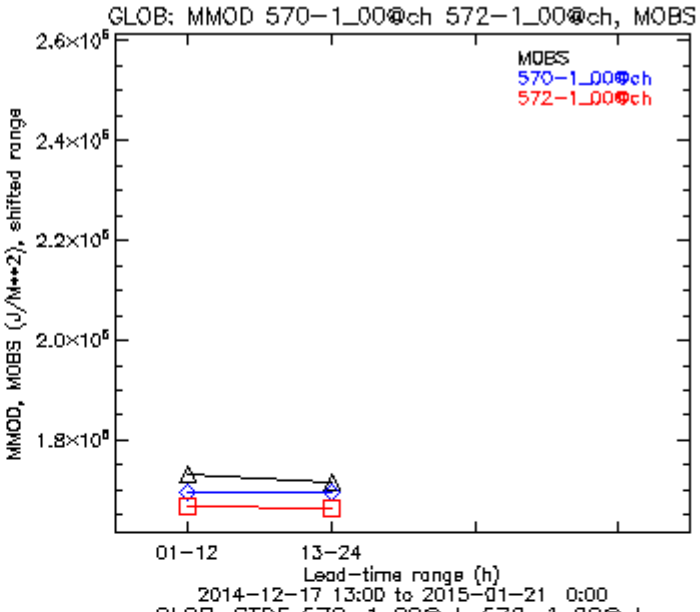

RELHUM_2M: ME 570-1_00@ch 572-1_00@ch
570-1_00@ch
572-1_00@ch
ME (%)
-0.10
-0.15
-0.20
-0.25
-0.30
-0.35
-0.40
01-12
13-24
Lead-time range (h)
2014-12-17 13:00 to 2015-01-21 0:00

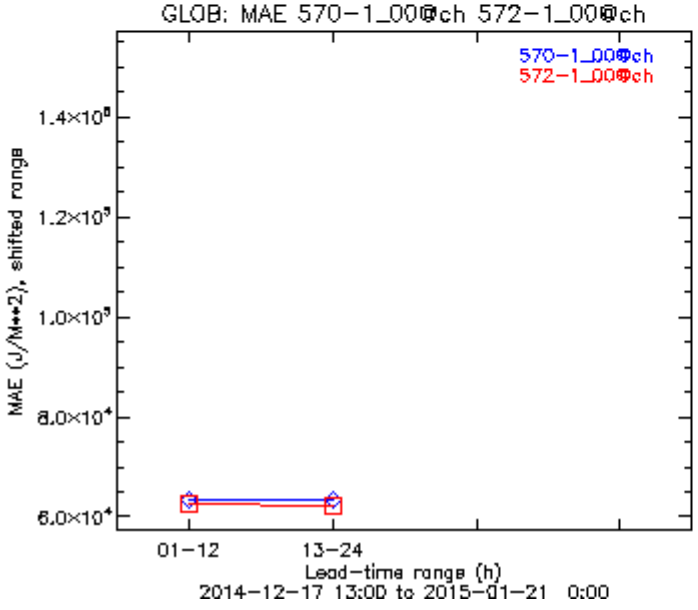

RELHUM_2M: MMOD 570-1_00@ch 572-1_00@ch, MOB
MOBS
570-1_00@ch
572-1_00@ch
MMOD, MOBS (%)
77.0
76.8
76.6
76.4
76.2
76.0
75.8
01-12
13-24
Lead-time range (h)
2014-12-17 13:00 to 2015-01-21 0:00

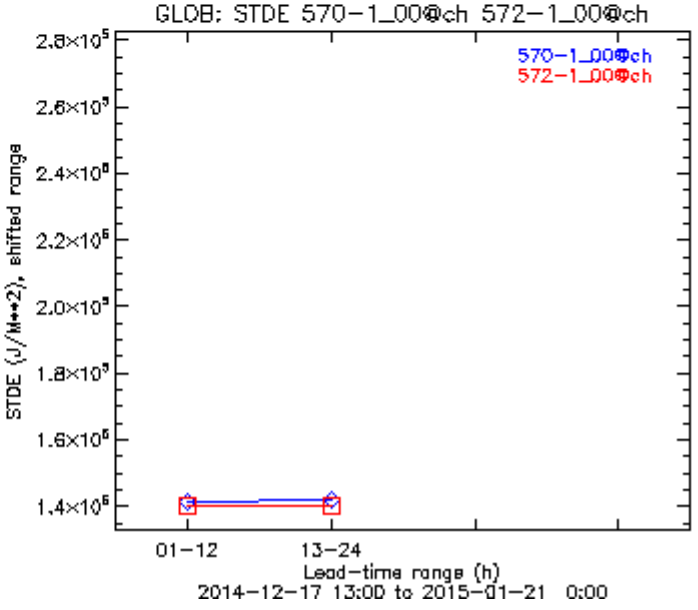

RELHUM_2M: MAE 570-1_00@ch 572-1_00@ch
570-1_00@ch
572-1_00@ch
MAE (%)
12.85
12.84
12.83
12.82
12.81
12.80
12.79
01-12
13-24
Lead-time range (h)
2014-12-17 13:00 to 2015-01-21 0:00


RELHUM_2M: STDE 570-1_00@ch 572-1_00@ch
570-1_00@ch
572-1_00@ch
STDE (%)
17.05
17.00
16.95
16.90
16.85
01-12
13-24
Lead-time range (h)
2014-12-17 13:00 to 2015-01-21 0:00


GLOB: ME 570-1_00@ch 572-1_00@ch
570-1_00@ch
572-1_00@ch
ME (J/M**2), shifted range
4×10⁴
3×10⁴
2×10⁴
1×10⁴
0
01-12
13-24
Lead-time range (h)
2014-12-17 13:00 to 2015-01-21 0:00


GLOB: MMOD 570-1_00@ch 572-1_00@ch, MOBS
MOBS
570-1_00@ch
572-1_00@ch
MMOD, MOBS (J/M**2), shifted range
2.6×10⁵
2.4×10⁵
2.2×10⁵
2.0×10⁵
1.8×10⁵
01-12
13-24
Lead-time range (h)
2014-12-17 13:00 to 2015-01-21 0:00


GLOB: MAE 570-1_00@ch 572-1_00@ch
570-1_00@ch
572-1_00@ch
MAE (J/M**2), shifted range
1.4×10⁵
1.2×10⁵
1.0×10⁵
8.0×10⁴
6.0×10⁴
01-12
13-24
Lead-time range (h)
2014-12-17 13:00 to 2015-01-21 0:00


GLOB: STDE 570-1_00@ch 572-1_00@ch
570-1_00@ch
572-1_00@ch
STDE (J/M**2), shifted range
2.8×10⁵
2.6×10⁵
2.4×10⁵
2.2×10⁵
2.0×10⁵
1.8×10⁵
1.6×10⁵
1.4×10⁵
01-12
13-24
Lead-time range (h)
2014-12-17 13:00 to 2015-01-21 0:00

Conclusions

- Changes are neutral for most parameters
- TOT_PREC : slight reduction of positive bias
- REL_HUM : slight reduction of negative bias
- GLOB : slight increase of negative bias