

P3-v5.3.14

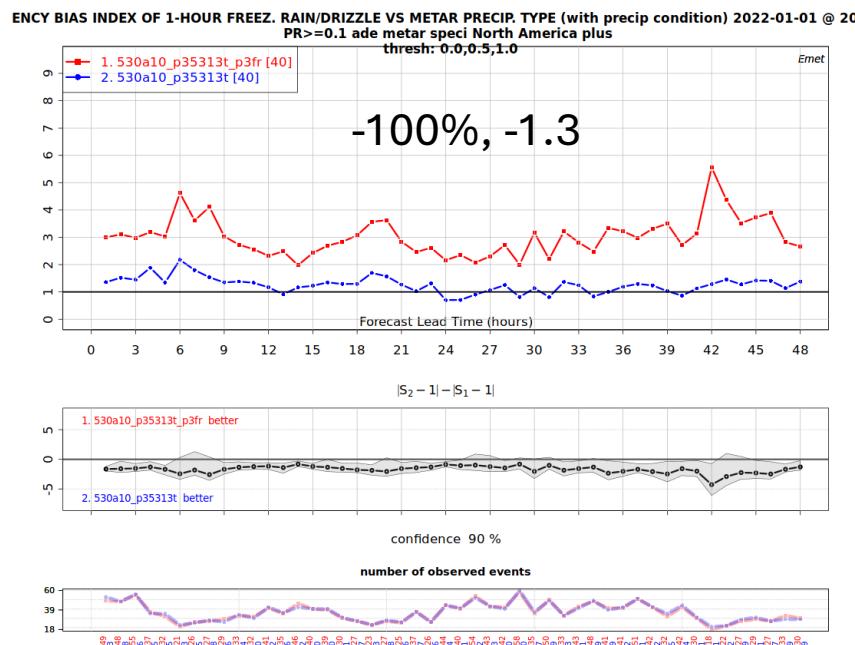
HRDPS validation in GEM5.3.10-a10 and PA3a configuration
HM changes for freezing rain problem in P3

Winter 2022 (40 cases)

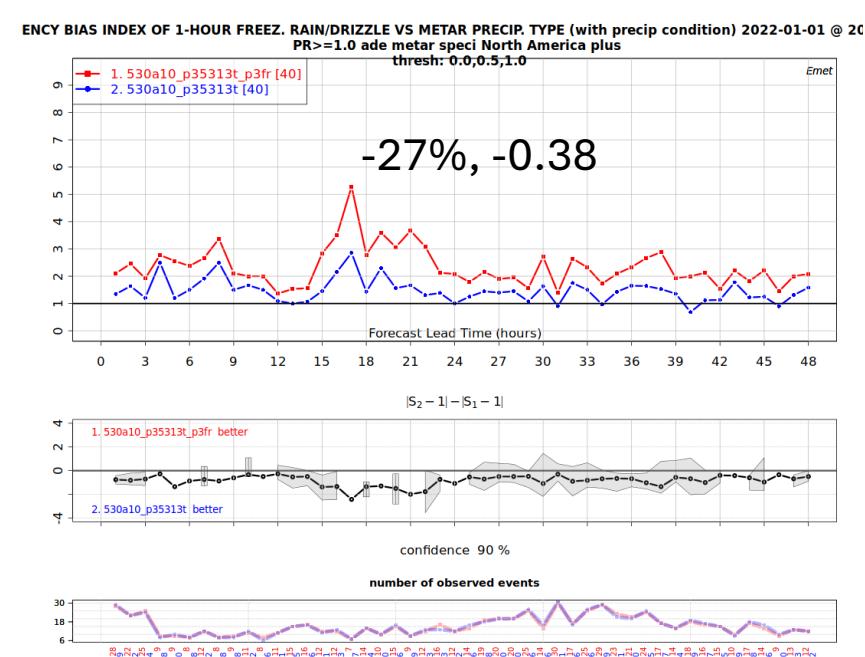
Freezing rain status

P3 FR (FR1+FR2) field is overestimated compared to FR (from Bourgouin), especially for small PR. It is doubled for PR > 0.1 mm and 30% more for PR > 1mm.

PR>0.1 mm



PR>1 mm

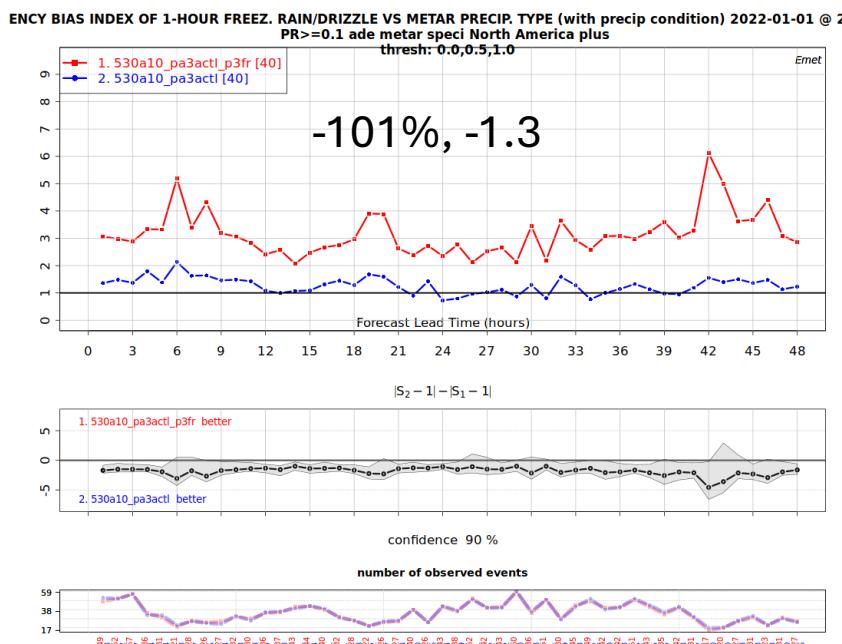


FR (P3) = FR1+FR2
FR (Bourgouin)

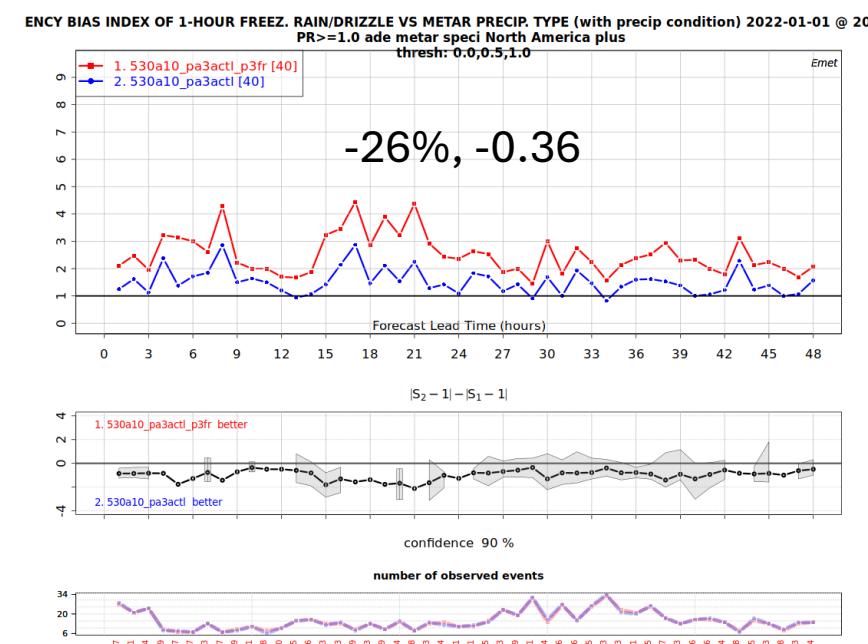
Freezing rain status (P3-v5.3.6)

P3 FR (FR1+FR2) field is overestimated compared to FR (from Bourgouin), especially for small PR. It is doubled for PR > 0.1 mm and 30% more for PR > 1mm.

PR>0.1 mm



PR>1 mm

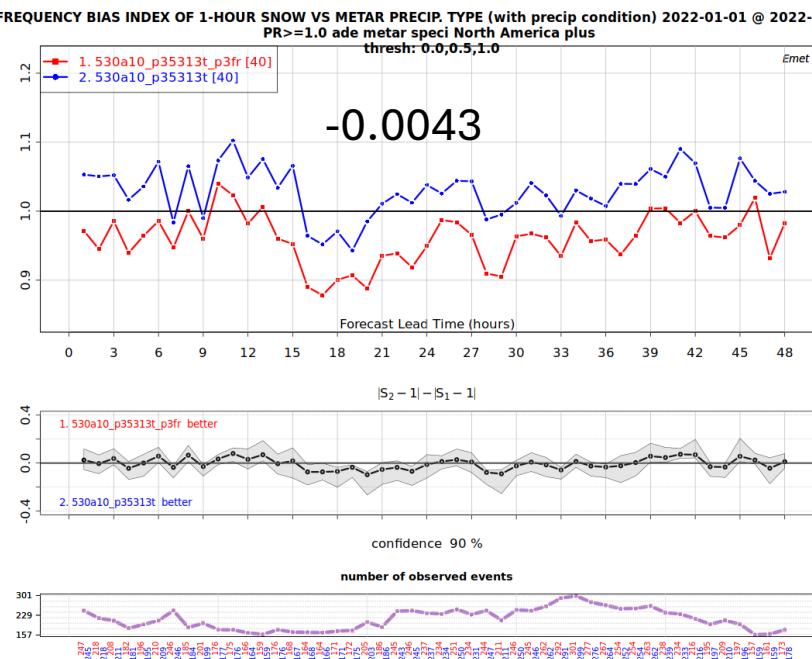


FR (P3) = FR1+FR2
FR (Bourgouin)

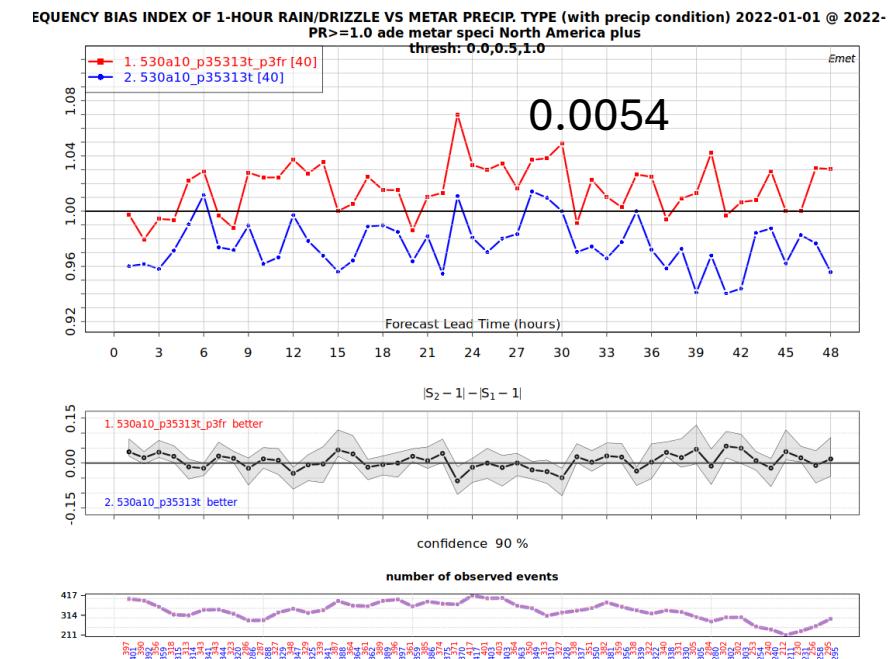
Other precipitation types

Statistics between P3 and bourgouin for the other precipitation types are similar with small differences.

**SN (P3) SN1+SN2+SN3+WS
SN (Bourgouin)**



RN (P3) RN1+RN2 RN (Bourgouin)



v5.3.13 -- Bourgouin vs. P3 (FR, SN, RN)

ETS

POD

FAR

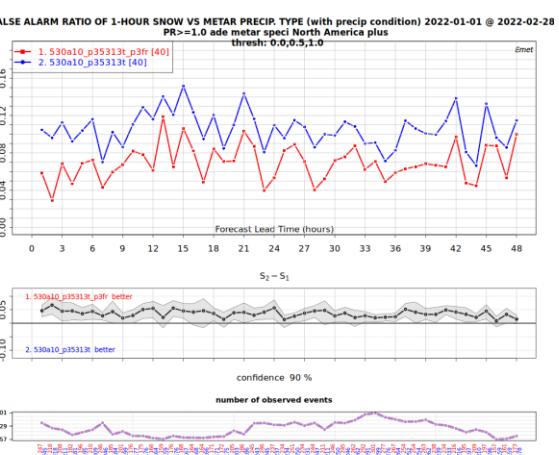
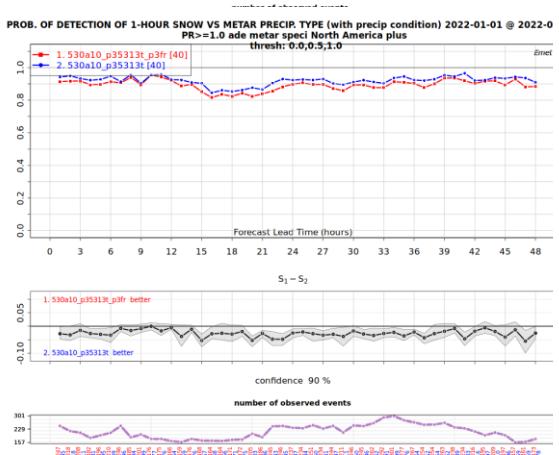
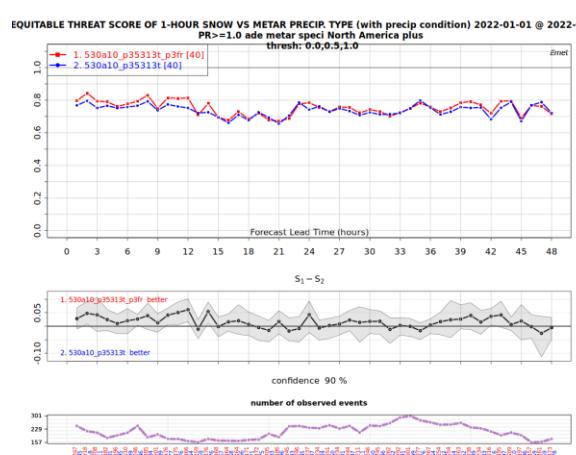
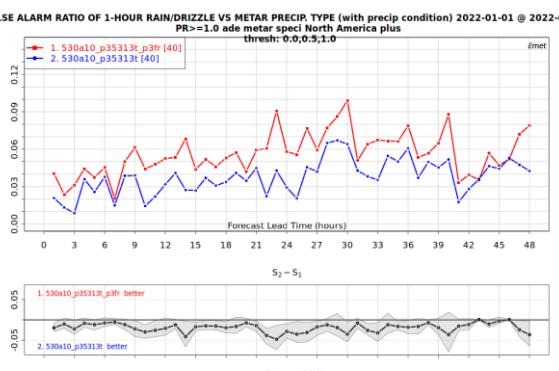
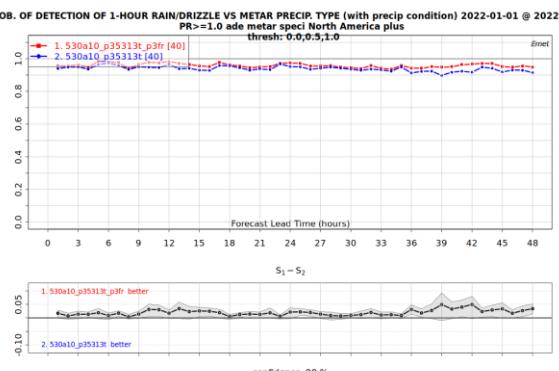
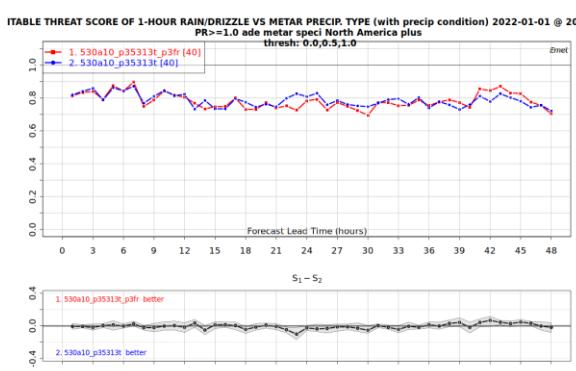
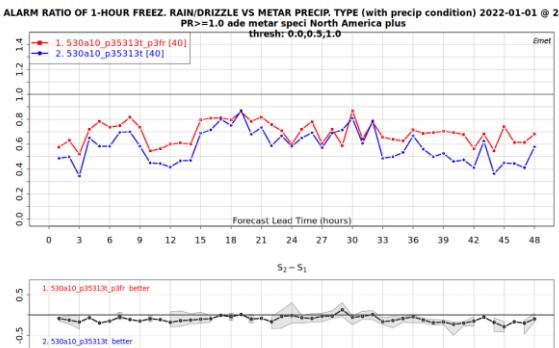
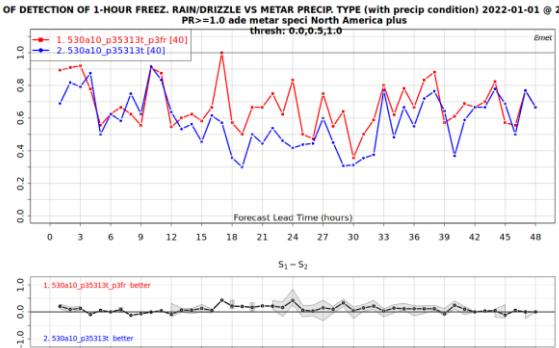
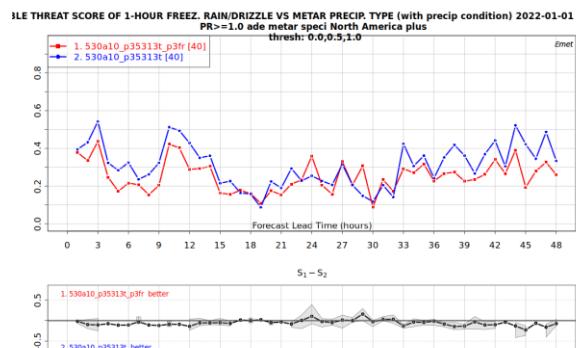
PR> 1 mm

FR

RN

Similar for
v5.3.6

SN



v5.3.13 -- Bourgouin vs. P3 (PE)

Similar for v5.3.6 and v5.3.12

ETS

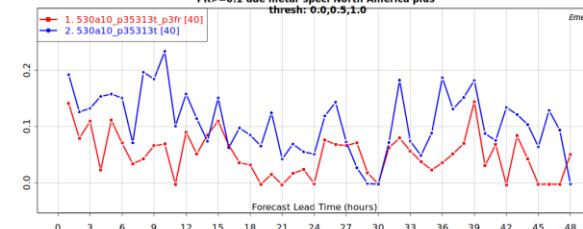
FBI

POD

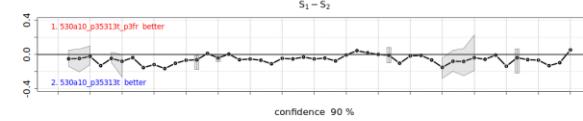
FAR

TABLE THREAT SCORE OF 1-HOUR ICE PELLET VS METAR PRECIP. TYPE (with precip condition) 2022-01-01 @ 20

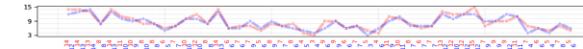
PR>=0.1 ade metar speci North America plus
thresh: 0.0,0.5,1.0



$S_1 - S_2$



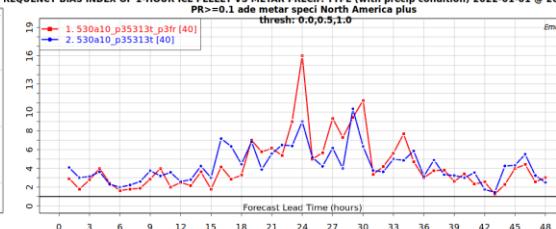
confidence 90 %



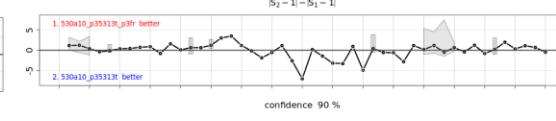
number of observed events

REQUENCY BIAS INDEX OF 1-HOUR ICE PELLET VS METAR PRECIP. TYPE (with precip condition) 2022-01-01 @ 2022-0

PR>=0.1 ade metar speci North America plus
thresh: 0.0,0.5,1.0



$S_2 - 1 - S_1 - 1$



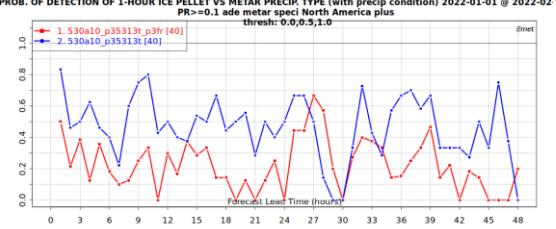
confidence 90 %



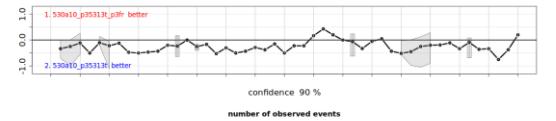
number of observed events

PROB. OF DETECTION OF 1-HOUR ICE PELLET VS METAR PRECIP. TYPE (with precip condition) 2022-01-01 @ 2022-02

PR>=0.1 ade metar speci North America plus
thresh: 0.0,0.5,1.0



$S_1 - S_2$



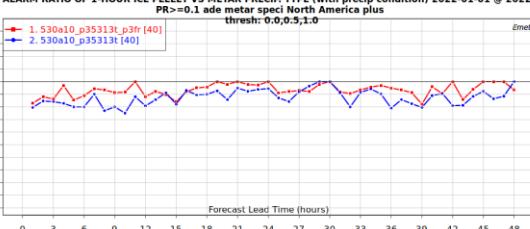
confidence 90 %



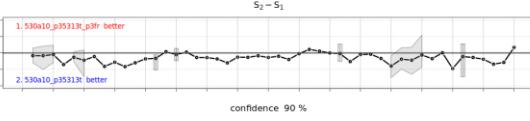
number of observed events

FALSE ALARM RATIO OF 1-HOUR ICE PELLET VS METAR PRECIP. TYPE (with precip condition) 2022-01-01 @ 2022-02

PR>=0.1 ade metar speci North America plus
thresh: 0.0,0.5,1.0



$S_2 - S_1$



confidence 90 %

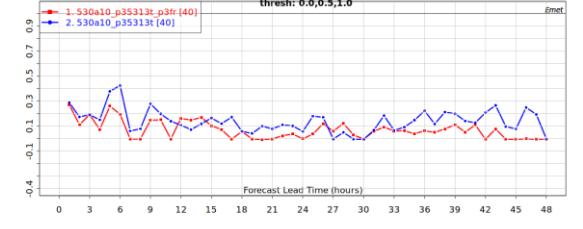


number of observed events

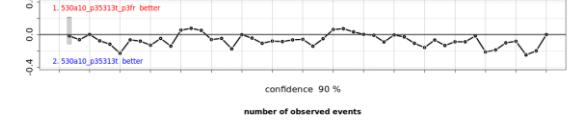
PR >
0.1
mm

TABLE THREAT SCORE OF 1-HOUR ICE PELLET VS METAR PRECIP. TYPE (with precip condition) 2022-01-01 @ 2022-0

PR>=1.0 ade metar speci North America plus
thresh: 0.0,0.5,1.0



$S_1 - S_2$



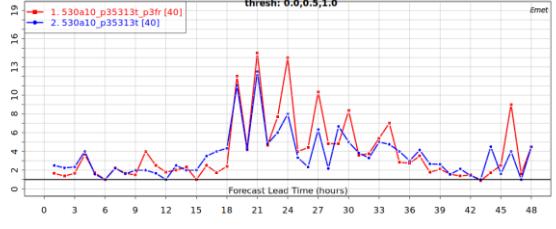
confidence 90 %



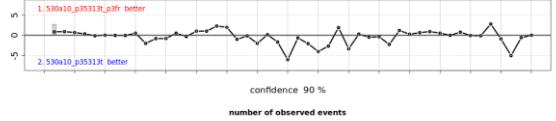
number of observed events

REQUENCY BIAS INDEX OF 1-HOUR ICE PELLET VS METAR PRECIP. TYPE (with precip condition) 2022-01-01 @ 2022-0

PR>=1.0 ade metar speci North America plus
thresh: 0.0,0.5,1.0



$S_2 - 1 - S_1 - 1$



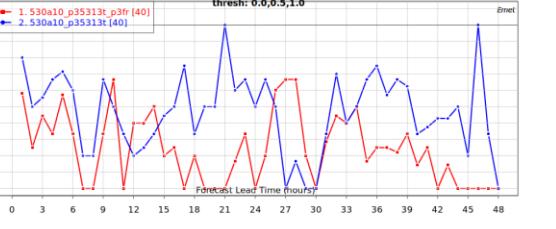
confidence 90 %



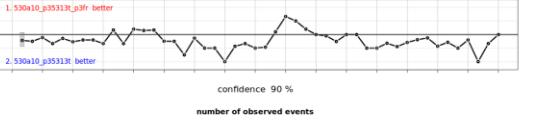
number of observed events

PROB. OF DETECTION OF 1-HOUR ICE PELLET VS METAR PRECIP. TYPE (with precip condition) 2022-01-01 @ 2022-02

PR>=1.0 ade metar speci North America plus
thresh: 0.0,0.5,1.0



$S_1 - S_2$



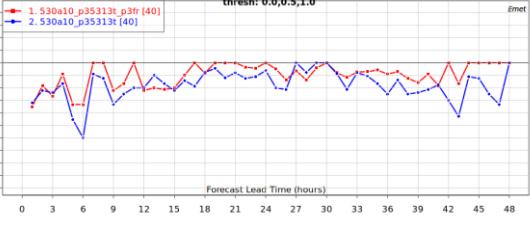
confidence 90 %



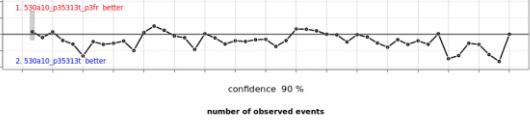
number of observed events

FALSE ALARM RATIO OF 1-HOUR ICE PELLET VS METAR PRECIP. TYPE (with precip condition) 2022-01-01 @ 2022-02

PR>=1.0 ade metar speci North America plus
thresh: 0.0,0.5,1.0



$S_2 - S_1$



confidence 90 %



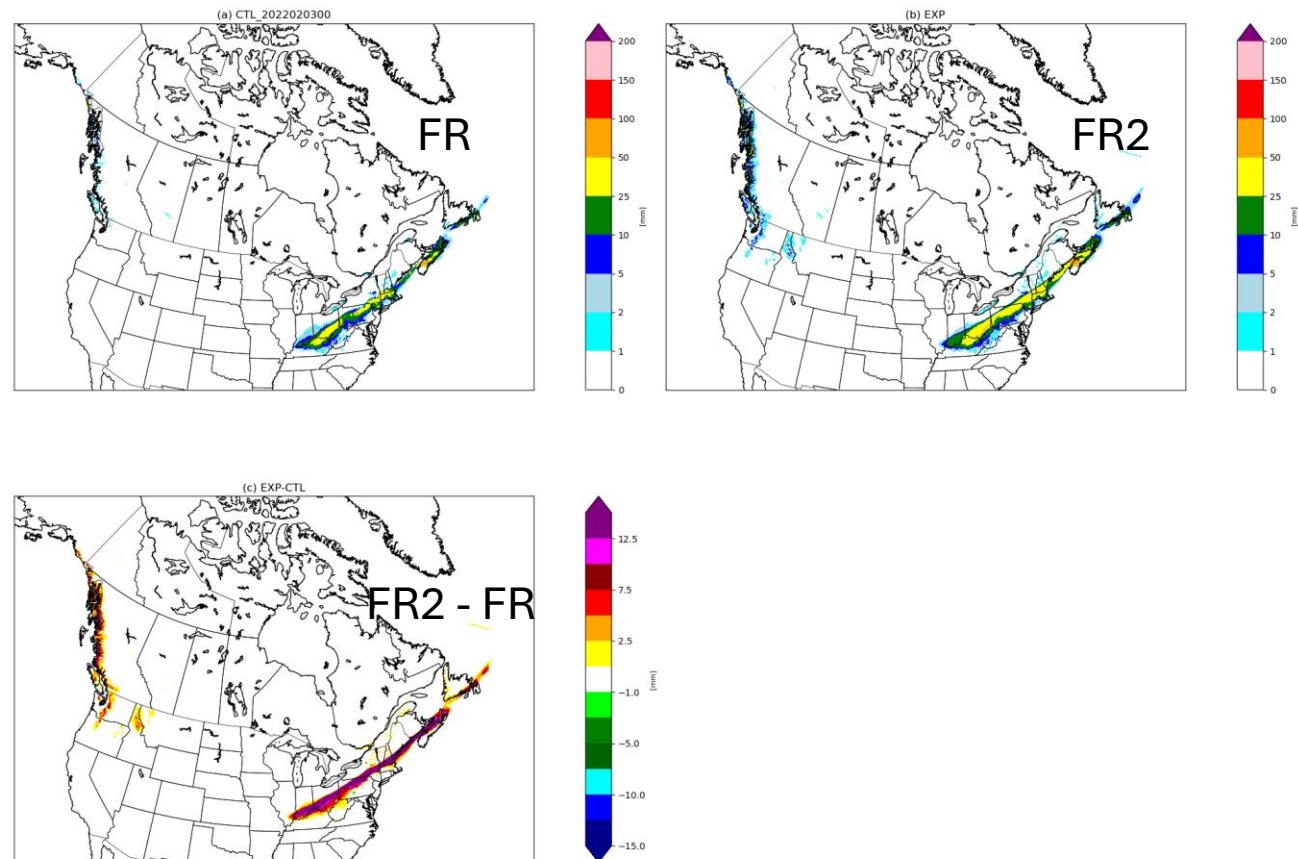
number of observed events

PR >
1
mm

Freezing rain problem

- From a case-by-case analysis, the main problem seems to be that there is a larger spatial distribution of FR2 compared to FR, especially over the mountains in the west.
- A second problem is a higher FR2 amounts than FR where both are simulated.

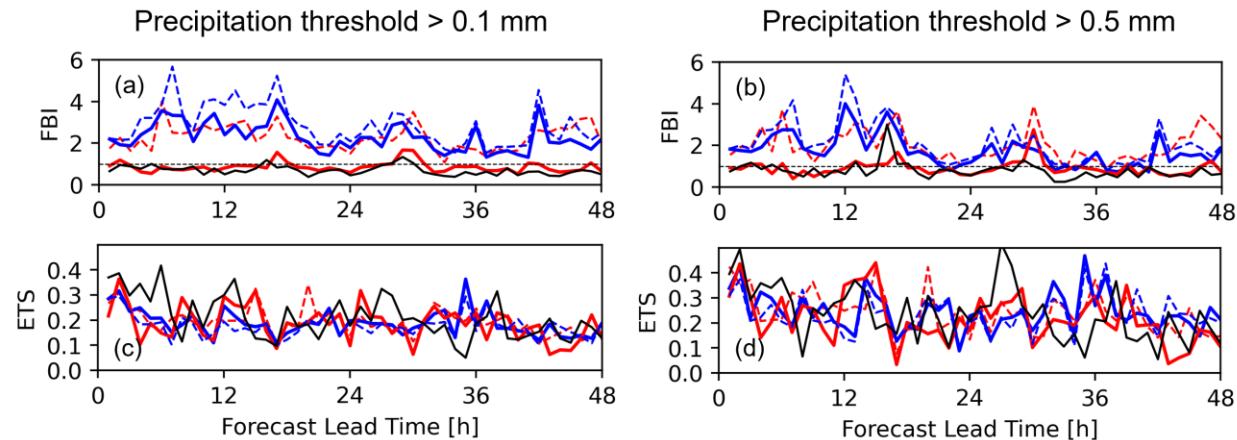
1 case example (2022020300), P3-v5.3.13



Cholette et al. (2024), GRL

- Cholette et al. (2024) showed that the overestimation of freezing rain can be eliminated using secondary ice production processes.
- In P3, the rime splintering (Hallett-Mossop 1974) is parameterized, but it was turned off with nCat=1 because it kills summer convection.

Freezing rain statistics for H2O (40 cases)



Simulation	Mean (threshold > 0.1 mm)		Mean (threshold > 0.5 mm)	
	FBI	ETS	FBI	ETS
nCat1_noHM_Bourgouin	0.691	0.210	0.786	0.238
nCat1_noHM	2.873	0.177	2.095	0.235
nCat1_HM	2.295	0.188	1.721	0.244
nCat2_noHM	2.272	0.196	1.981	0.243
nCat2_HM	0.859	0.188	0.887	0.217

Note that nCat1_HM improved nCat1_noHM, but not as much as for nCat2. This indicates that HM, as parameterized in P3, is not optimized for nCat1.

Litterature

- In P3 in GEM5.3.0-a10 (P3-v5.3.6), HM is included for ice nCat=1 when $T_{kbot} < 5^{\circ}\text{C}$, but it includes only the collected rain. Only that reduced by 30% the explicit freezing rain FBI of the previous version.
- From Cholette et al. (2024): “While the model results presented in this study with the HM process included are encouraging and show a systematic improvement in hindcast simulations of freezing rain, one must keep in mind that laboratory studies of rime splintering and other SIP processes have several limitations (Korolev et al., 2020) and the reproducibility of the original experiments reported in Hallett and Mossop (1974) have been recently questioned (Seidel et al., 2023). Thus, model parameterizations of SIP based on past studies are uncertain. Nonetheless, our results demonstrate that accounting for SIP in the simulation can have a large beneficial impact on the explicit simulation of winter precipitation.”
- Cholette et al. (2019; 2020) shows that the predicted liquid fraction of mixed-phase particles decreases the amount of freezing rain, because of smaller particles produced.
- Cholette et al. (2025, in review) shows that the predicted liquid fraction of mixed-phase particles improves the simulation of wet snow by changing the phase of precipitation from rain to wet snow during 10 winter orographic cases (ICE-POP 2018).

Objective and set-up

To improve the forecast of explicit freezing rain in the HRDPS:

- Improving the representation of rime splintering
- Including the explicit prediction of mixed-phase particles

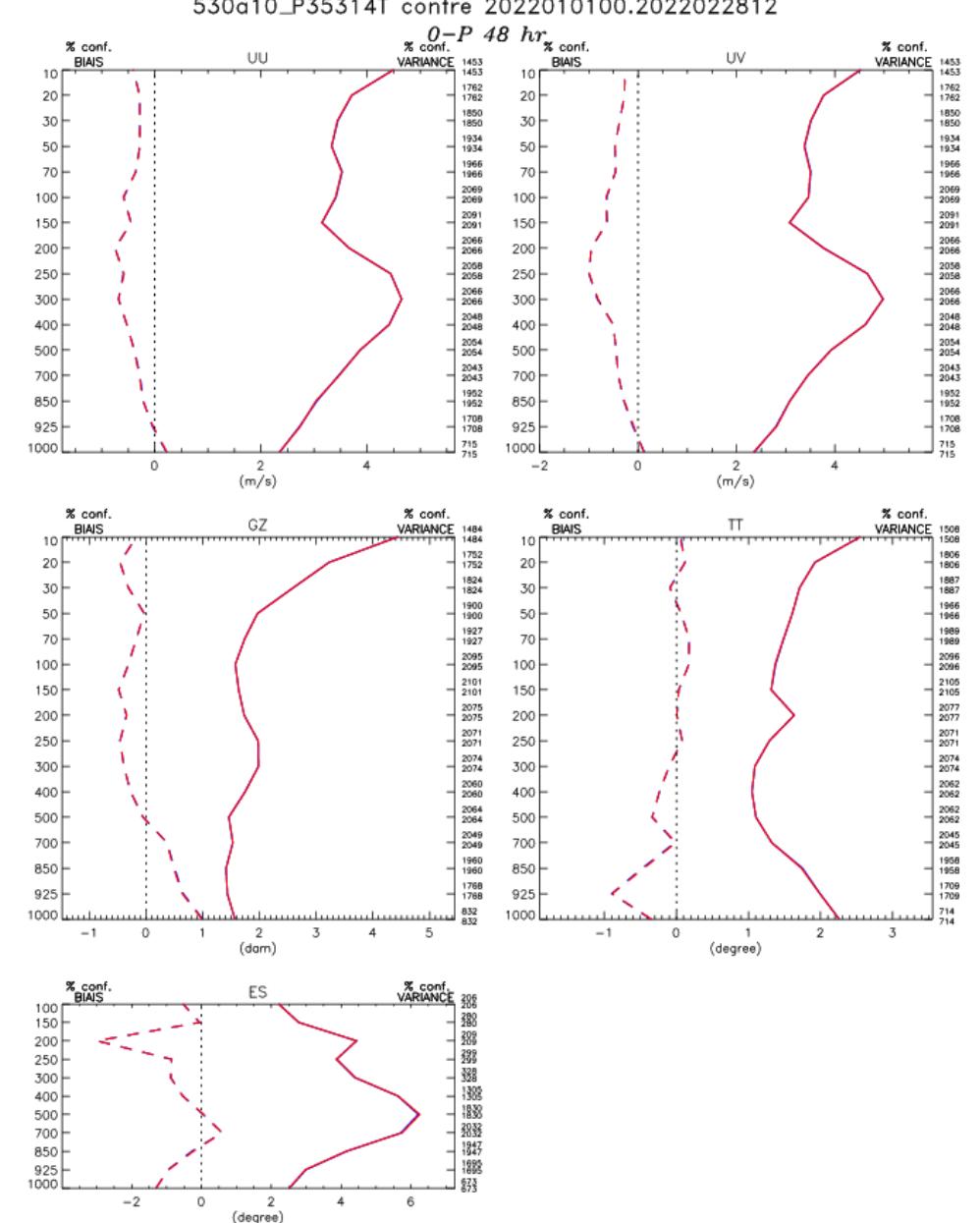
Experimental set-up

- GEM 5.3.0-a10, HRDPS PA3a configuration for 40 cases winter 2022

Experiment	Description	Rime splintering
p3v5313	Control (similar to v5.3.6 in GEM, see github) 2MOM_noLF_n1	HM (rain only) for $F_{i,liq} < 0.1$ Ice splinters with $D_{init_HM} = 0.01$ mm
p3v5314	2MOM_noLF_n1 + HM changes	HM (rain and cloud) Relaxed D_{min_HM} to initiate HM from 1 mm to 0.25 mm Compute HM for $q_{i,rim} > q_{small}$ and not only for $F_{irim} > 0.5$ (this has no impacts) $T_{kbot} < 9^\circ\text{C}$ instead of $T_{kbot} < 5^\circ\text{C}$ Increase $\rho_{i,rim}$ from 750 kg/m^3 to 850 kg/m^3 to differentiate between SN3 and PE1 and increase F_{irim} from 0.5 to 0.6 to differentiate between SN2 and SN3 (only diagnostic)
p3v5314LF	2MOM_LF_n1 + HM changes	+ predicted liquid fraction

Scores v5.3.13 vs. 5.3.14

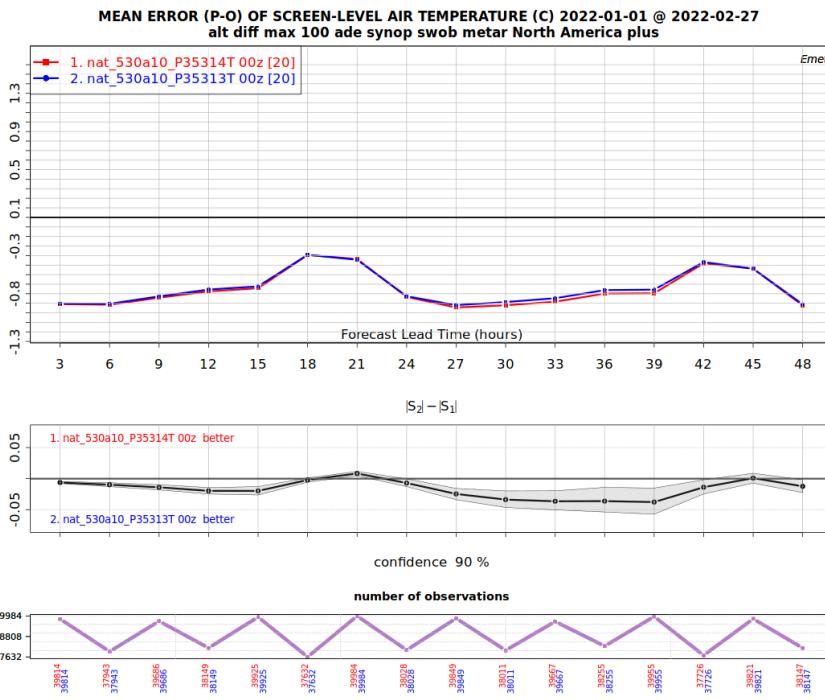
- Arcad → completely neutral



E-T m_uo_530a10_P35313T_2022010100.2022022812 (40)	Type : O-P 48 hr
BIAS m_uo_530a10_P35313T_2022010100.2022022812	Region : Amerique du Nord plus
E-T m_uo_530a10_P35314T_2022010100.2022022812 (40)	Lat-lon: (25N, 170W) (85N, 40W)
BIAS m_uo_530a10_P35314T_2022010100.2022022812	Stat. inversees

Scores v5.3.13 vs. 5.3.14

- Emet TT, TD, UV, P0
- Very small differences



bias

nat_530a10_P35314T 00z / nat_530a10_P35313T 00z

20220101 / 20220228

All	
Appalachia CLIM	TD 0.0
	TT 0.0052
Arctic All CLIM	TD 0.0025
	TT 0.0041
Arctic Land CLIM	TD 0.0032
	TT 0.0046
Boreal CLIM	TD 0.022
	TT 0.0041
Canada	TD 0.023
	TT -0.011
Central CLIM	TD -0.006
	TT -0.019
Central Plains CLIM	TD -0.0027
	TT 8.2e-05
Great Lakes CLIM	TD -0.00094
	TT -0.0078
MidAtlantic CLIM	TD -0.0027
	TT 0.0021
Mt West CLIM	TD -0.083
	TT -0.073
North America plus	TD -0.0071
	TT -0.016
North Atlantic CLIM	TD -0.00049
	TT -0.0038
North Plains CLIM	TD 0.037
	TT -0.027
Pacific North West CLIM	TD 0.0
	TT -0.02
Prairie CLIM	TD -0.0074
	TT -0.0028

rmse

nat_530a10_P35314T 00z / nat_530a10_P35313T 00z

20220101 / 20220228

All	
Appalachia CLIM	TD 0.0
	TT -0.0012
Arctic All CLIM	TD -0.0052
	TT -0.0066
Arctic Land CLIM	TD -0.0045
	TT -0.0071
Boreal CLIM	TD 0.0
	TT -0.0017
Canada	TD -0.0013
	TT -0.0025
Central CLIM	TD -0.0001
	TT -0.00065
Central Plains CLIM	TD 0.0
	TT 0.0032
Great Lakes CLIM	TD -0.0019
	TT -0.003
MidAtlantic CLIM	TD 0.0
	TT 0.0
Mt West CLIM	TD -0.056
	TT -0.053
North America plus	TD -0.0076
	TT -0.01
North Atlantic CLIM	TD -0.0042
	TT -0.0054
North Plains CLIM	TD 0.00044
	TT 0.00045
Pacific North West CLIM	TD -0.0033
	TT -0.0033
Prairie CLIM	TD -0.0012
	TT 0.0

stdev

nat_530a10_P35314T 00z / nat_530a10_P35313T 00z

20220101 / 20220228

All	
Appalachia CLIM	TD 0.0
	TT -0.0054
Arctic All CLIM	TD -0.0072
	TT -0.0072
Arctic Land CLIM	TD -0.0073
	TT -0.008
Boreal CLIM	TD -0.0028
	TT -0.0038
Canada	TD -0.0064
	TT -0.0026
Central CLIM	TD -0.00095
	TT 0.0
Central Plains CLIM	TD 0.0
	TT 0.0036
Great Lakes CLIM	TD 0.0
	TT -0.00093
MidAtlantic CLIM	TD 0.0
	TT -0.001
Mt West CLIM	TD -0.025
	TT -0.0055
North America plus	TD -0.0075
	TT -0.0044
North Atlantic CLIM	TD -0.0037
	TT -0.0019
North Plains CLIM	TD 0.0
	TT 0.00086
Pacific North West CLIM	TD -0.0032
	TT -0.001
Prairie CLIM	TD 0.0
	TT 0.0

bias

nat_530a10_P35314T 00z / nat_530a10_P35313T 00z

20220101 / 20220228

All	
Appalachia CLIM	PO 0.0086
Arctic All CLIM	PO 0.00068
Arctic Land CLIM	PO 0.0
Boreal CLIM	PO 0.0097
Canada	PO 0.012
Central CLIM	PO 0.014
Central Plains CLIM	PO -0.0023
Great Lakes CLIM	PO 0.0061
MidAtlantic CLIM	PO 0.0076
Mt West CLIM	PO 0.0068
North America plus	PO 0.012
North Atlantic CLIM	PO 0.016
North Plains CLIM	PO 0.015
Pacific North West CLIM	PO -0.0028

bias

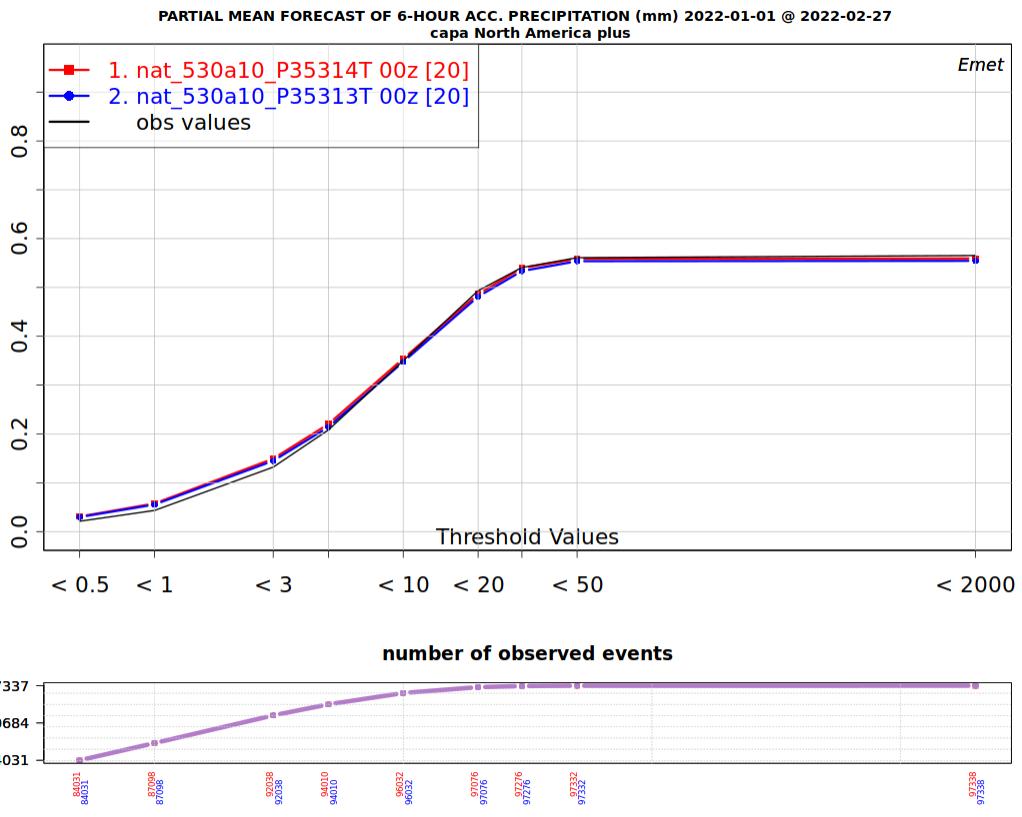
nat_530a10_P35314T 00z / nat_530a10_P35313T 00z

20220101 / 20220228

All	
Appalachia CLIM	UV 0.00026
Arctic All CLIM	UV 0.0
Arctic Land CLIM	UV 0.0
Boreal CLIM	UV -0.0024
Canada	UV -0.0045
Central CLIM	UV -0.0074
Central Plains CLIM	UV 0.0
Great Lakes CLIM	UV 0.0
MidAtlantic CLIM	UV 0.0
Mt West CLIM	UV -0.0096
North America plus	UV -0.0031
North Atlantic CLIM	UV 0.0
North Plains CLIM	UV -0.01
Pacific North West CLIM	UV -0.0012
Prairie CLIM	UV -0.0025

Scores v5.3.13 vs. v5.3.14

- Emet (PR6 and PR24)



fbi		▼		<	>
nat_530a10_P35314T 00z /		PR24		-0.00092	
nat_530a10_P35313T 00z		PR6		-0.0021	
		All		/ 20220101 / 20220228	
Appalachia CLIM		PR24		0.0	
		PR6		0.0	
Arctic All CLIM		PR24		0.0	
		PR6		0.0	
Arctic Land CLIM		PR24		0.0	
		PR6		0.0	
Boreal CLIM		PR24		0.0	
		PR6		-0.011	
Canada		PR24		-0.0058	
		PR6		-0.0055	
Central CLIM		PR24		0.0063	
		PR6		-0.027	
Central Plains CLIM		PR24		0.0	
		PR6		0.0	
Great Lakes CLIM		PR24		0.0	
		PR6		-0.022	
MidAtlantic CLIM		PR24		0.014	
		PR6		-0.005	
Mt West CLIM		PR24		0.0	
		PR6		-0.032	
North America plus		PR24		0.0068	
		PR6		0.0056	
North Atlantic CLIM		PR24		0.0085	
		PR6		0.0048	
North Plains CLIM		PR24		0.0	
		PR6		0.0	
Pacific North West CLIM		PR24		0.0022	
		PR6		-0.028	
Prairie CLIM		PR24		0.012	
		PR6		-0.017	

ets	ets	
nat_530a10_P35314T 00z / nat_530a10_P35313T 00z	PR24	20220101 / 20220228
	PR6	All
Appalachia CLIM	PR24	0.0013
	PR6	-0.0027
Arctic All CLIM	PR24	0.0
	PR6	0.0
Arctic Land CLIM	PR24	0.0
	PR6	0.0047
Boreal CLIM	PR24	0.0059
	PR6	-0.0076
Canada	PR24	0.0018
	PR6	-0.0019
Central CLIM	PR24	-0.00051
	PR6	0.0
Central Plains CLIM	PR24	0.0
	PR6	0.0
Great Lakes CLIM	PR24	0.0
	PR6	0.0067
MidAtlantic CLIM	PR24	-0.0023
	PR6	0.0041
Mt West CLIM	PR24	0.027
	PR6	0.0019
North America plus	PR24	0.0
	PR6	0.0038
North Atlantic CLIM	PR24	-0.0024
	PR6	0.0
North Plains CLIM	PR24	0.0
	PR6	0.0
Pacific North West CLIM	PR24	0.0031
	PR6	-0.0045
Prairie CLIM	PR24	0.0016
	PR6	0.0033

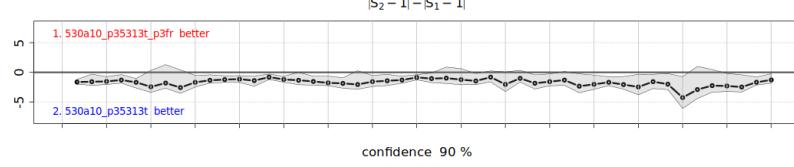
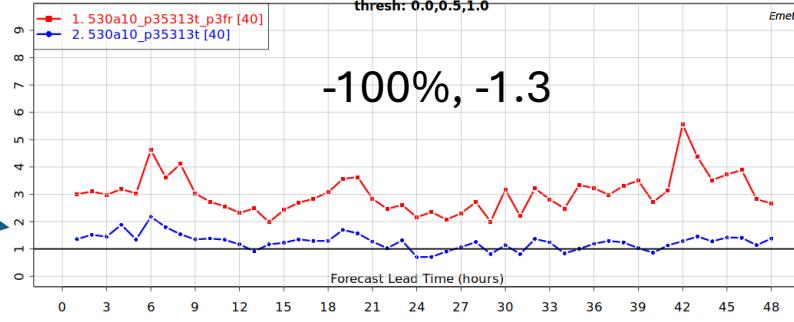
far	<	>
far		
nat_530a10_P35314T		20220101 /
00z /		20220228
nat_530a10_P35313T		
00z		All
Appalachia CLIM	PR24	0.00076
	PR6	0.0024
Arctic All CLIM	PR24	0.0
	PR6	0.0
Arctic Land CLIM	PR24	0.0
	PR6	0.0044
Boreal CLIM	PR24	0.0042
	PR6	0.0
Canada	PR24	0.0011
	PR6	-0.0055
Central CLIM	PR24	-0.067
	PR6	0.0
Central Plains CLIM	PR24	0.0
	PR6	0.0
Great Lakes CLIM	PR24	0.0
	PR6	0.0079
MidAtlantic CLIM	PR24	-0.012
	PR6	0.0
Mt West CLIM	PR24	0.023
	PR6	0.01
North America plus	PR24	-0.004
	PR6	0.0045
North Atlantic CLIM	PR24	-0.0023
	PR6	-0.0011
North Plains CLIM	PR24	0.0
	PR6	0.0
Pacific North West CLIM	PR24	-0.0085
	PR6	-0.011
Prairie CLIM	PR24	-0.064
	PR6	0.0

pod		<	>
nat_530a10_P35314T 00z /			/ 822020101
nat_530a10_P35313T 00z			2020202020
		All	
Appalachia CLIM	PR24	0.002	
	PR6	0.0	
Arctic All CLIM	PR24	0.0	
	PR6	0.0	
Arctic Land CLIM	PR24	0.0	
	PR6	0.0	
Boreal CLIM	PR24	0.0064	
	PR6	-0.019	
Canada	PR24	0.0052	
	PR6	0.0	
Central CLIM	PR24	0.0014	
	PR6	-0.0054	
Central Plains CLIM	PR24	0.0	
	PR6	0.0	
Great Lakes CLIM	PR24	0.044	
	PR6	0.016	
MidAtlantic CLIM	PR24	0.0	
	PR6	0.0072	
Mt West CLIM	PR24	0.012	
	PR6	-0.013	
North America plus	PR24	0.006	
	PR6	0.0056	
North Atlantic CLIM	PR24	0.0018	
	PR6	-0.00067	
North Plains CLIM	PR24	0.0	
	PR6	0.0	
Pacific North West CLIM	PR24	0.019	
	PR6	0.0043	
Prairie CLIM	PR24	0.0034	
	PR6	-0.00093	

PR>0.1 mm

V5.3.13

ENCY BIAS INDEX OF 1-HOUR FREEZ. RAIN/DRIZZLE VS METAR PRECIP. TYPE (with precip condition) 2022-01-01 @ 20
PR>=0.1 ade metar speci North America plus
thresh: 0.0,0.5,1.0



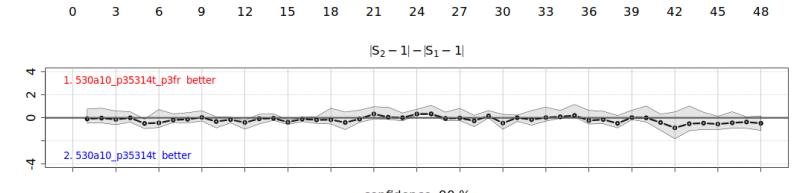
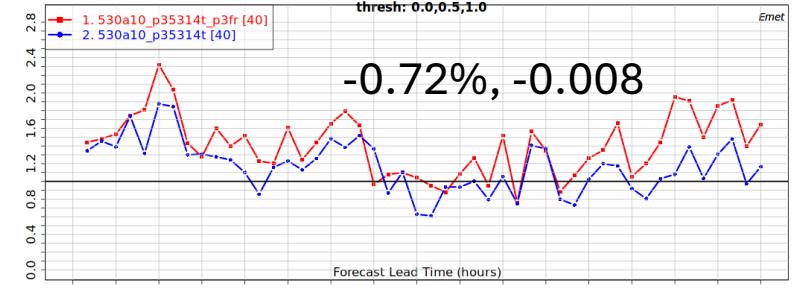
|number of observed events



ENCY BIAS INDEX OF 1-HOUR FREEZ. RAIN/DRIZZLE VS METAR PRECIP. TYPE (with precip condition) 2022-01-01 @ 20
PR>=0.1 ade metar speci North America plus
thresh: 0.0,0.5,1.0

V5.3.14

-0.72%, -0.008



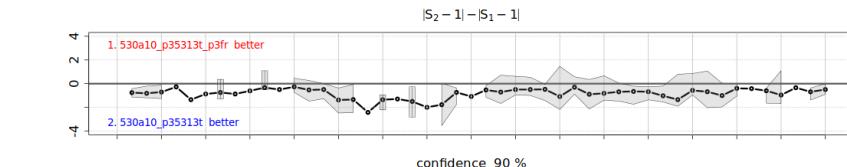
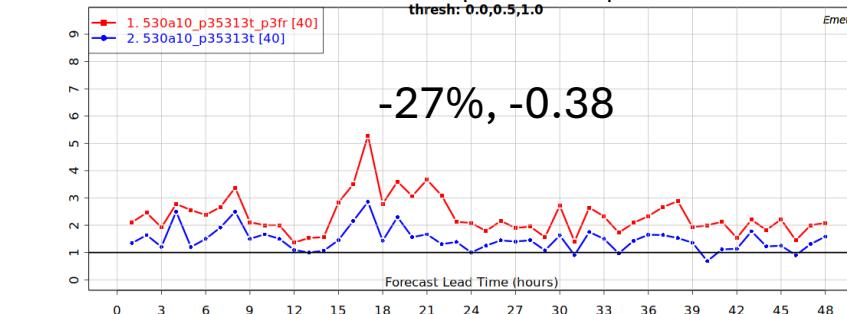
|number of observed events



PR>1 mm

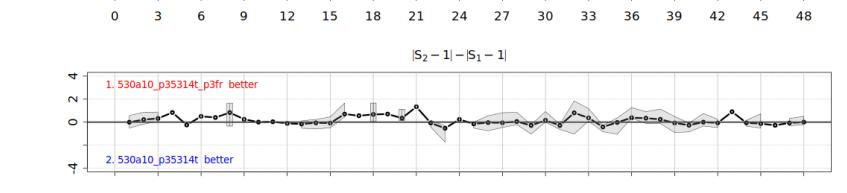
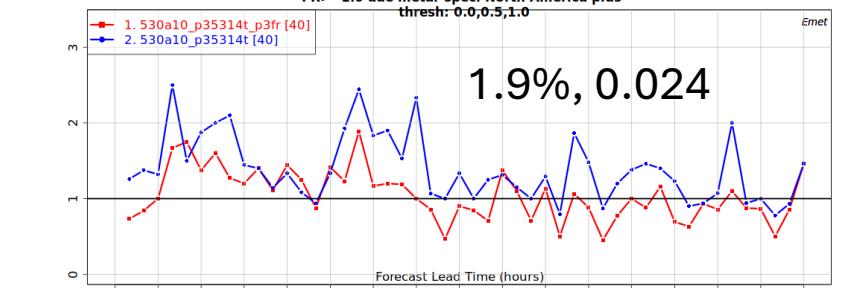
ENCY BIAS INDEX OF 1-HOUR FREEZ. RAIN/DRIZZLE VS METAR PRECIP. TYPE (with precip condition) 2022-01-01 @ 20
PR>=1.0 ade metar speci North America plus
thresh: 0.0,0.5,1.0

-27%, -0.38



ENCY BIAS INDEX OF 1-HOUR FREEZ. RAIN/DRIZZLE VS METAR PRECIP. TYPE (with precip condition) 2022-01-01 @ 20
PR>=1.0 ade metar speci North America plus
thresh: 0.0,0.5,1.0

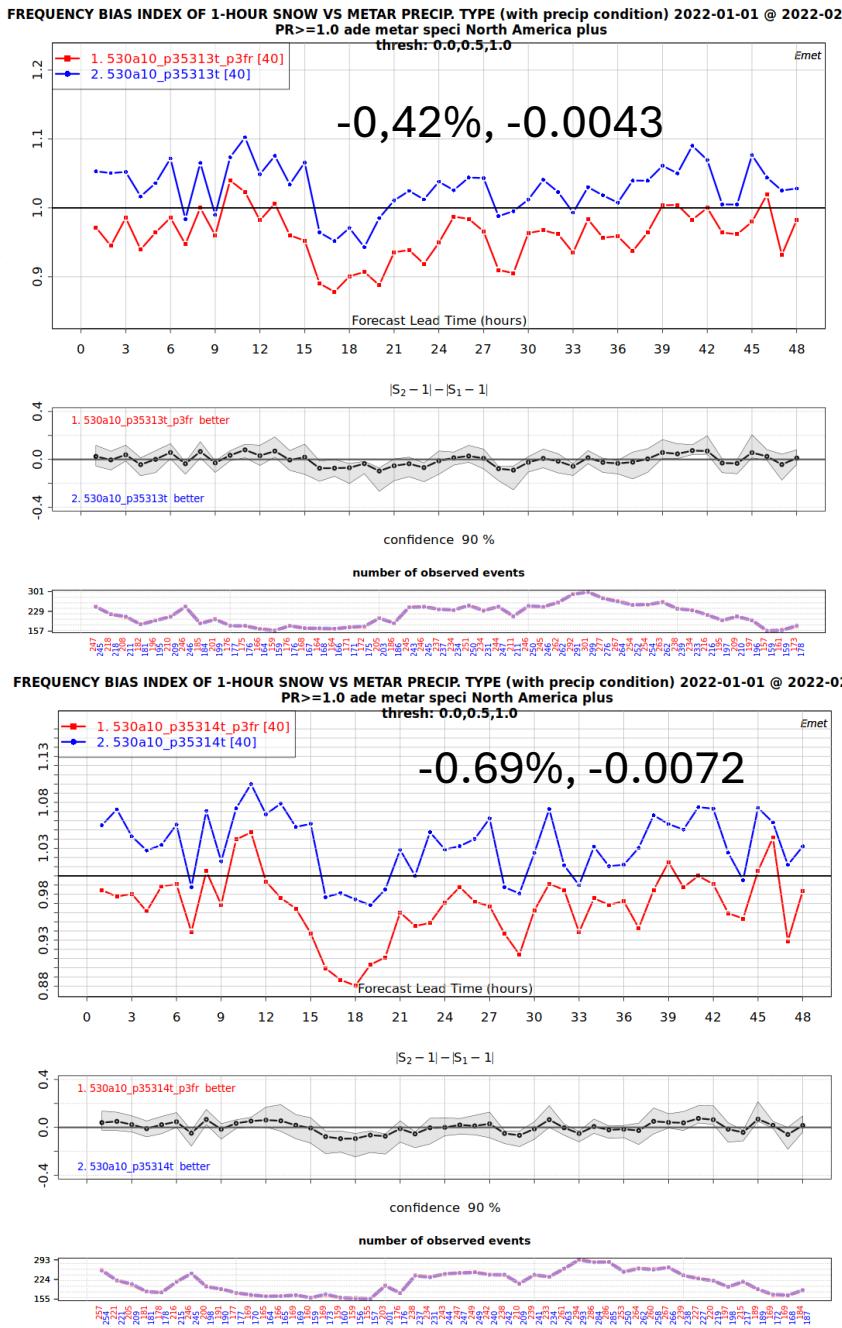
1.9%, 0.024



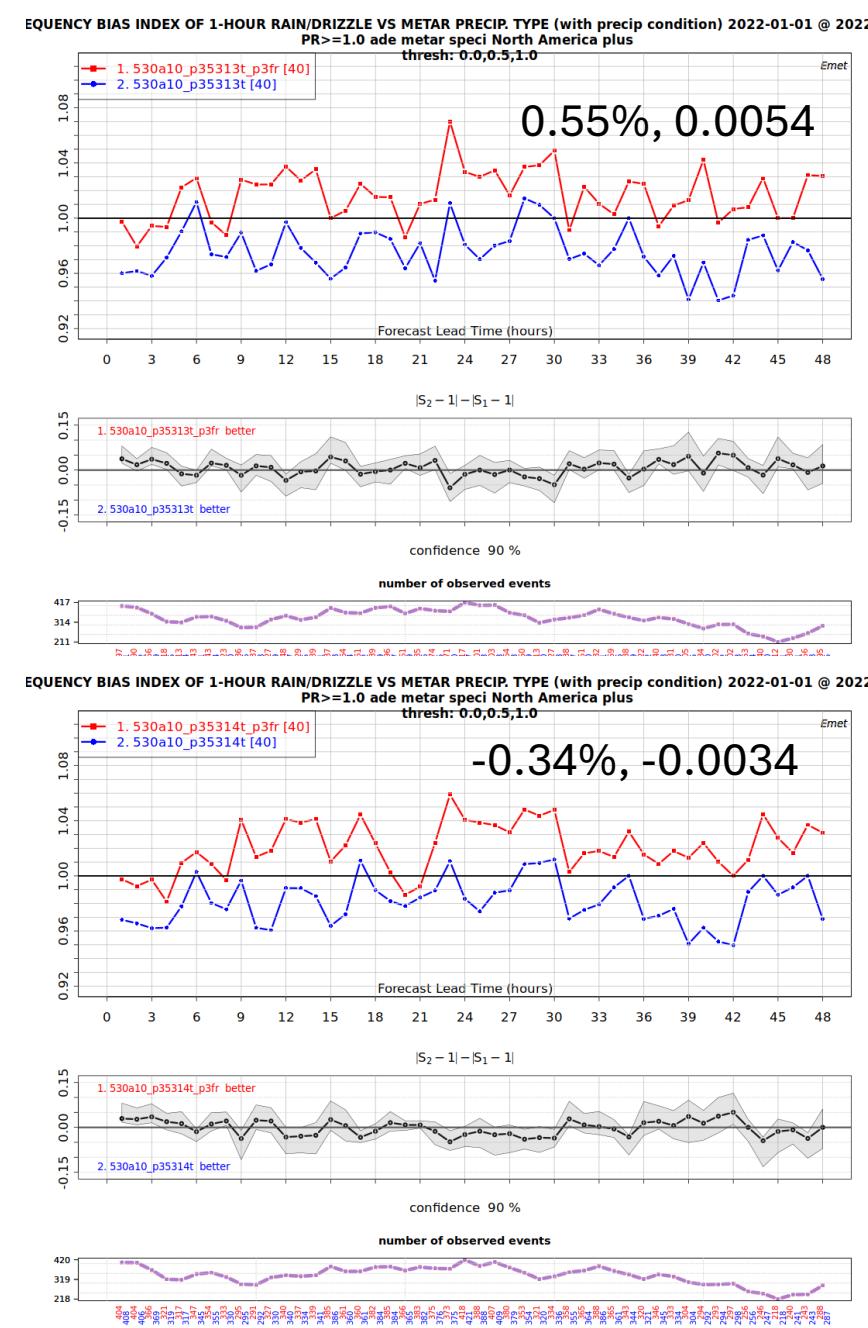
FR (P3) = FR1+FR2

FR (Bourguin)

Snow



Rain



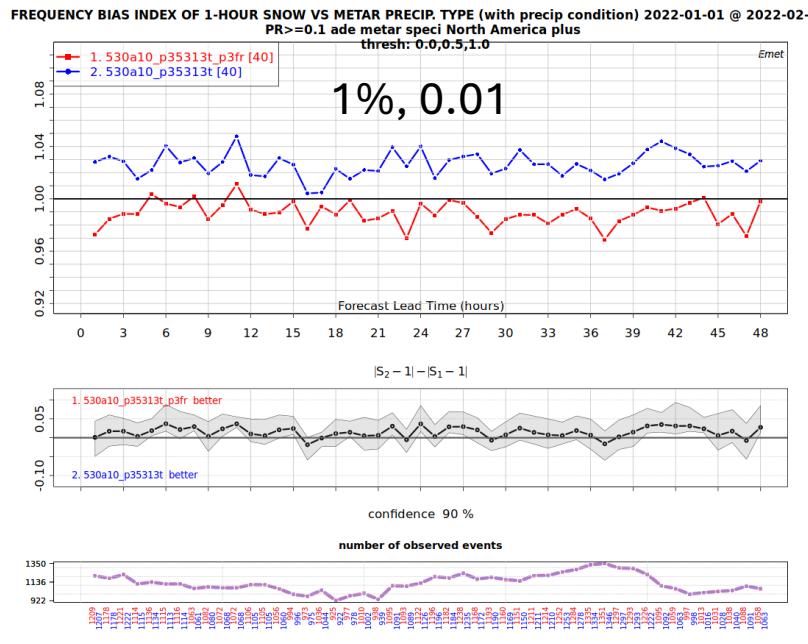
PR > 1 mm

SN (P3)
SN1+SN2+SN3
SN (Bourgouin)

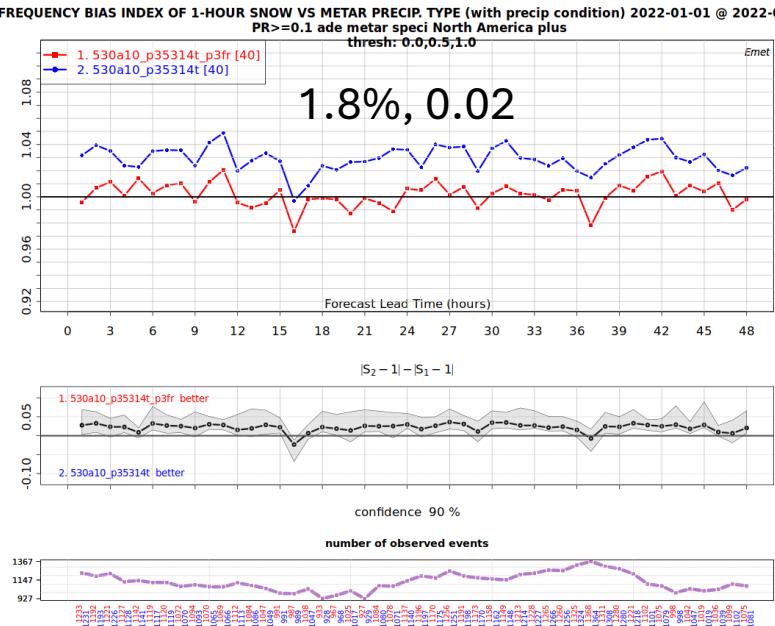
RN (P3) RN1+RN2
RN (Bourgouin)

Snow

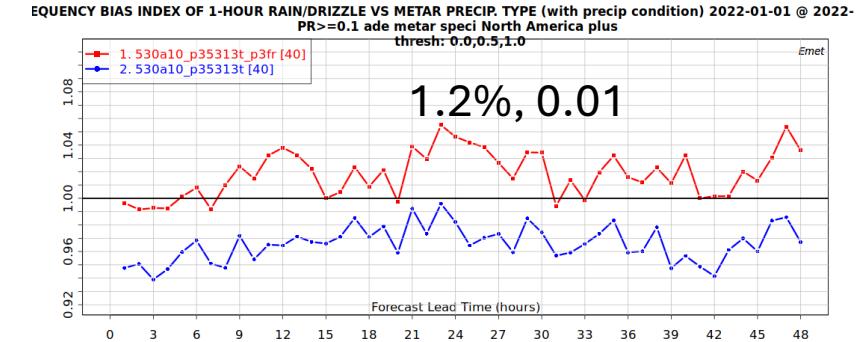
V5.3.13



V5.3.14



Rain



PR > 0.1 mm

SN (P3)
SN1+SN2+SN3
SN (Bourgouin)

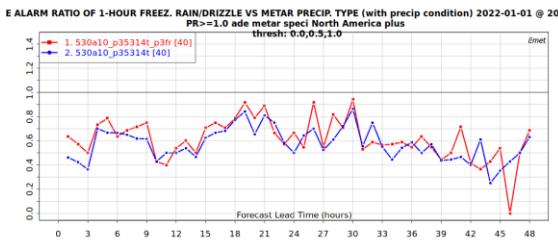
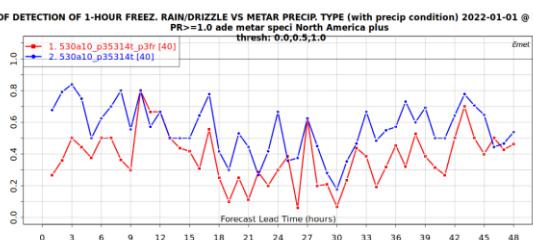
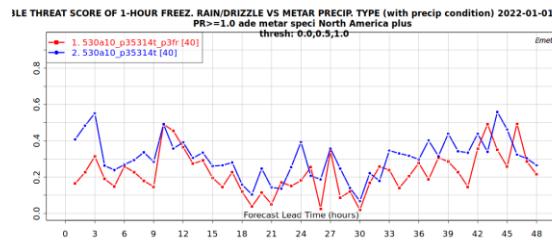
RN (P3) RN1+RN2
RN (Bourgouin)

v5.3.14 -- Bourgouin vs. P3 (FR, SN, RN)

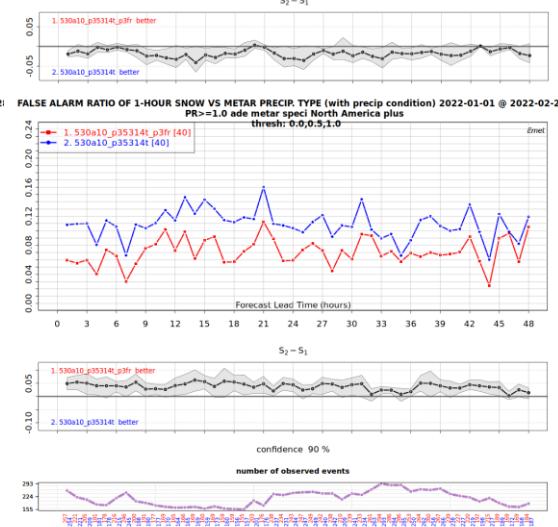
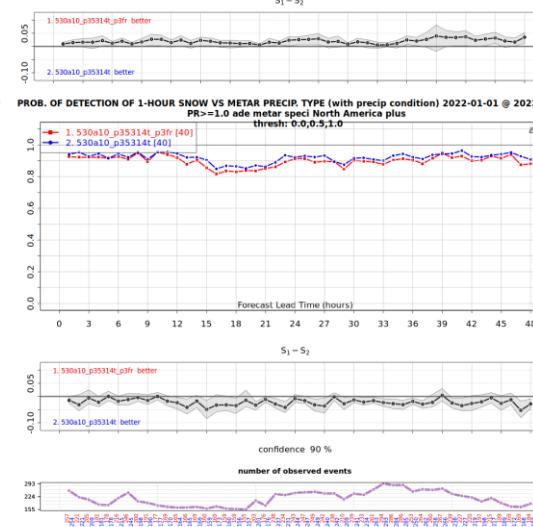
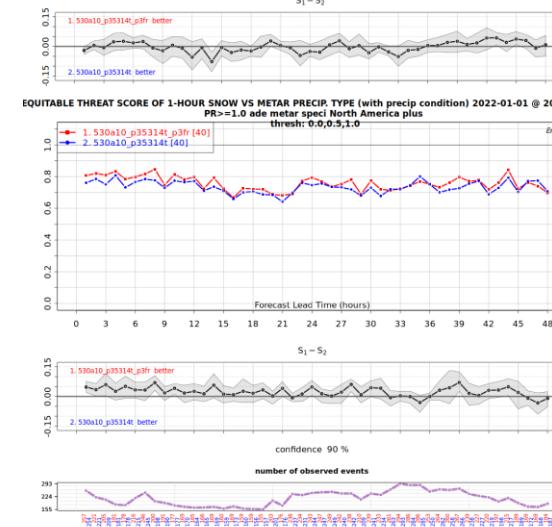
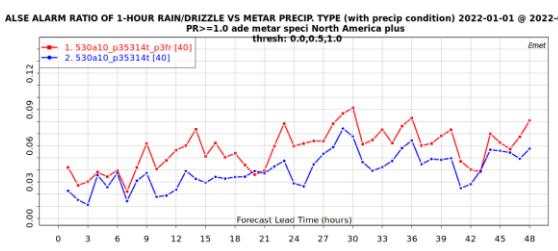
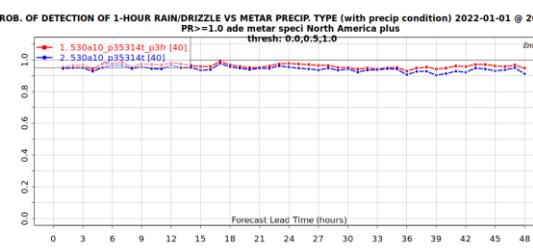
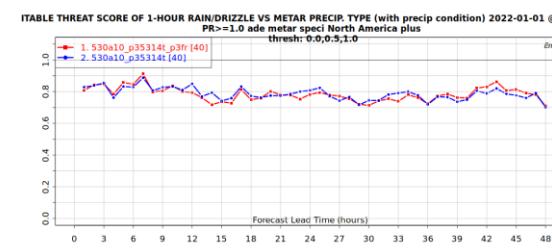
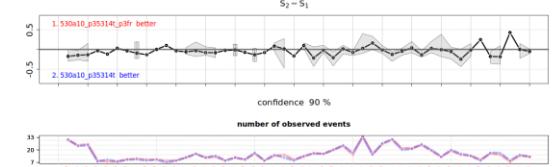
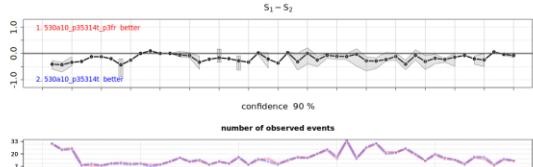
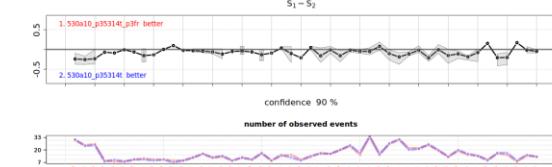
ETS

POD

FAR



PR> 1 mm



FR

RN

SN

Similar to
v5.3.13

v5.3.14 -- Bourgouin vs. P3 (PE)

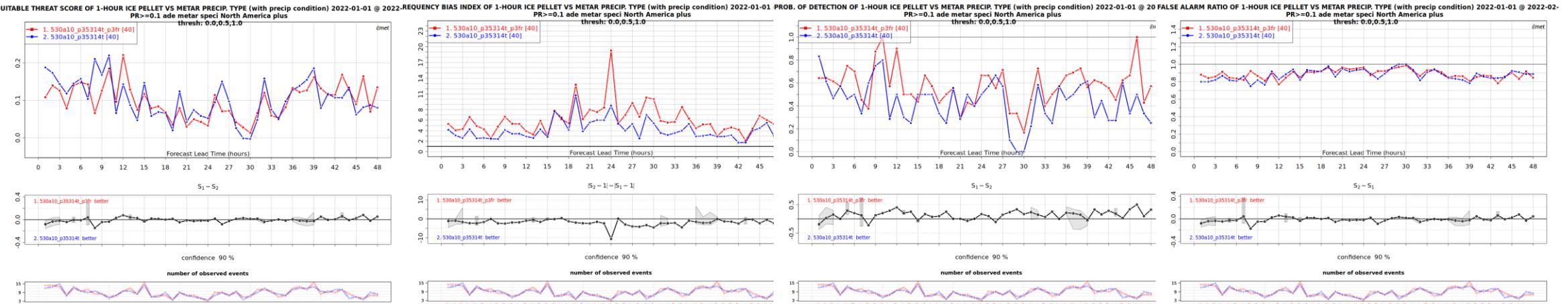
Similar to v5.3.13

ETS

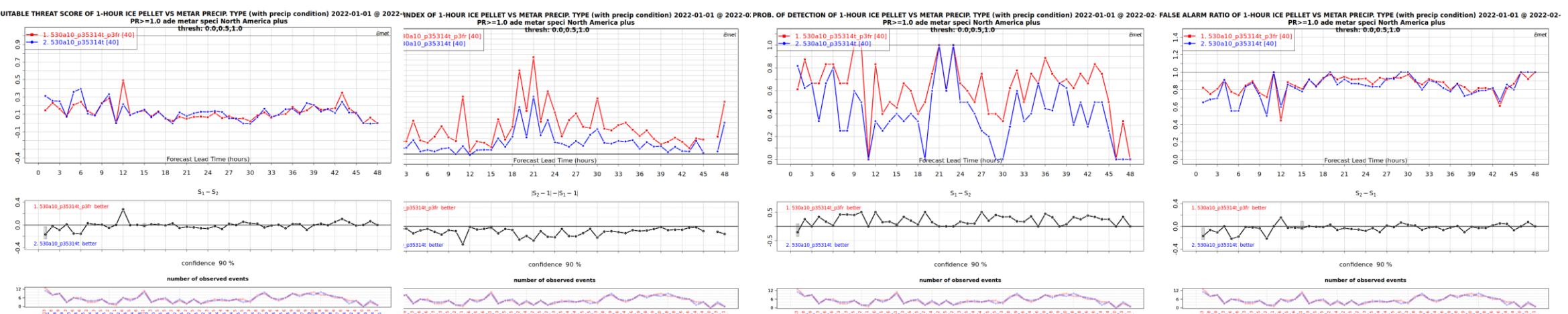
FBI

POD

FAR



$PR > 0.1 \text{ mm}$

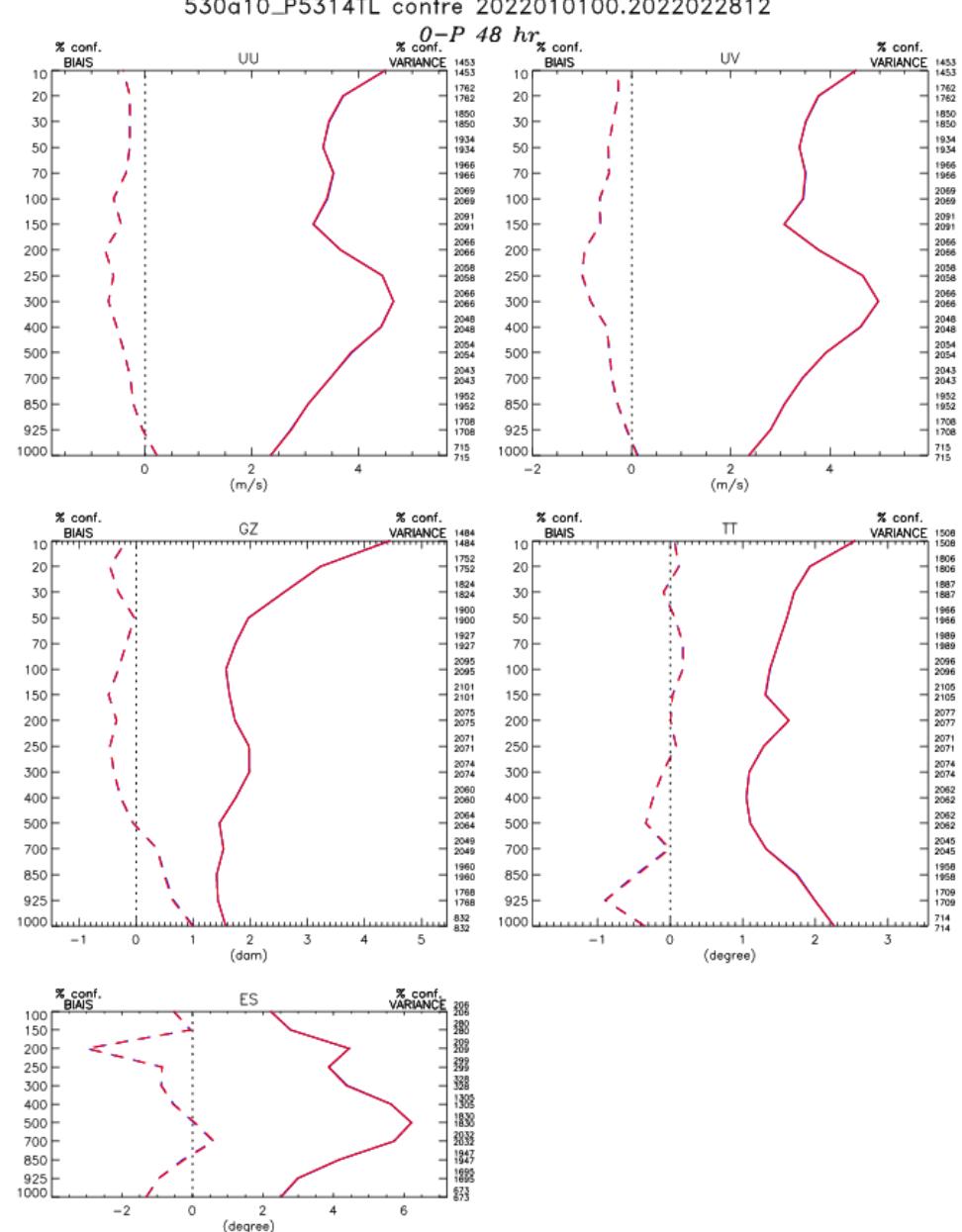


$PR > 1 \text{ mm}$

P3-v5.3.14 with predicted liquid fraction

Scores v5.3.13 vs. 5.3.14FL

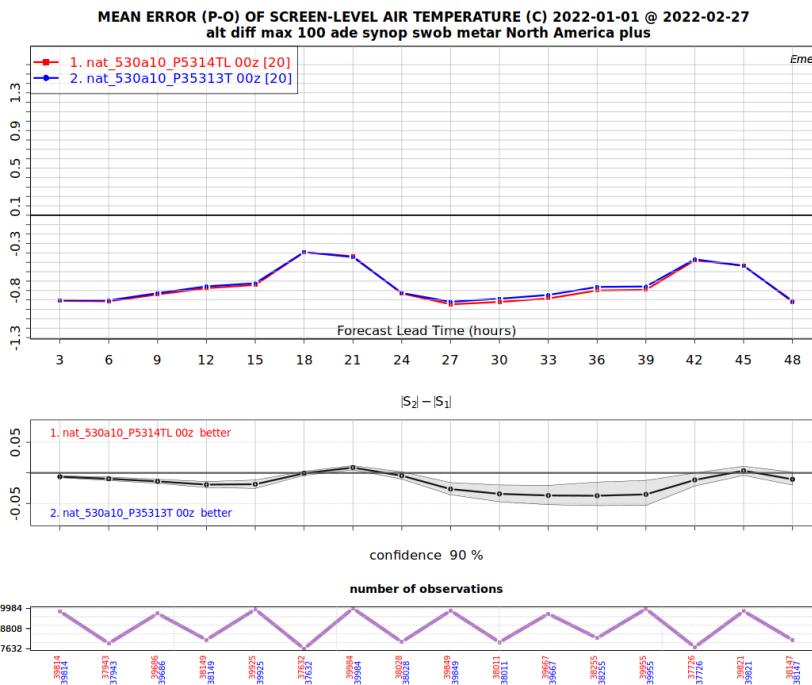
- Arcad → completely neutral



E-T m_ua_530a10_P5313T_2022010100.2022022812 (40)	Type : 0-P 48 hr
BIAS m_ua_530a10_P5313T_2022010100.2022022812	Region : Amerique du Nord plus
E-T m_ua_530a10_P5314TL_2022010100.2022022812 (40)	Lat-lon: (25N, 170W) (85N, 40W)
BIAS m_ua_530a10_P5314TL_2022010100.2022022812	Stat. inversees

Scores v5.3.13 vs. 5.3.14FL

- Emet TT, TD, UV, P0
- Very small differences



bias < >

bias		nat_530a10_P5314TL 00z / nat_530a10_P35313T 00z		20220101 / 20220228	
		All			
Appalachia CLIM	TD	-0.0032			
	TT	0.0042			
Arctic All CLIM	TD	0.0034			
	TT	0.0055			
Arctic Land CLIM	TD	0.0032			
	TT	0.0053			
Boreal CLIM	TD	0.023			
	TT	0.0044			
Canada	TD	0.022			
	TT	-0.01			
Central CLIM	TD	-0.0068			
	TT	-0.019			
Central Plains CLIM	TD	0.0			
	TT	-0.00058			
Great Lakes CLIM	TD	0.0			
	TT	-0.007			
MidAtlantic CLIM	TD	0.0019			
	TT	0.0038			
Mt West CLIM	TD	-0.084			
	TT	-0.071			
North America plus	TD	-0.0079			
	TT	-0.015			
North Atlantic CLIM	TD	-0.00096			
	TT	-0.0035			
North Plains CLIM	TD	0.035			
	TT	-0.022			
Pacific North West CLIM	TD	0.0			
	TT	-0.018			
Prairie CLIM	TD	-0.0063			
	TT	-0.0059			

rmse < >

rmse		nat_530a10_P5314TL 00z / nat_530a10_P35313T 00z		20220101 / 20220228	
		All			
Appalachia CLIM	TD	0.0			
	TT	-0.0017			
Arctic All CLIM	TD	-0.0035			
	TT	-0.0057			
Arctic Land CLIM	TD	-0.0038			
	TT	-0.0055			
Boreal CLIM	TD	0.0			
	TT	0.0			
Canada	TD	-0.00089			
	TT	-0.0017			
Central CLIM	TD	-0.00021			
	TT	-0.00066			
Central Plains CLIM	TD	0.0			
	TT	0.0			
Great Lakes CLIM	TD	-0.0022			
	TT	-0.0023			
MidAtlantic CLIM	TD	0.0			
	TT	0.0			
Mt West CLIM	TD	-0.056			
	TT	-0.052			
North America plus	TD	-0.0072			
	TT	-0.0096			
North Atlantic CLIM	TD	-0.0037			
	TT	-0.0021			
North Plains CLIM	TD	0.00037			
	TT	0.00058			
Pacific North West CLIM	TD	-0.0012			
	TT	-0.0029			
Prairie CLIM	TD	-0.0013			
	TT	-0.0026			

stdev < >

stdev		nat_530a10_P5314TL 00z / nat_530a10_P35313T 00z		20220101 / 20220228	
		All			
Appalachia CLIM	TD	0.0			
	TT	-0.0053			
Arctic All CLIM	TD	-0.0046			
	TT	-0.0064			
Arctic Land CLIM	TD	-0.0043			
	TT	-0.0064			
Boreal CLIM	TD	0.0			
	TT	-0.0024			
Canada	TD	-0.0026			
	TT	-0.0013			
Central CLIM	TD	-0.00094			
	TT	0.0			
Central Plains CLIM	TD	0.0			
	TT	0.0023			
Great Lakes CLIM	TD	-0.002			
	TT	0.0084			
MidAtlantic CLIM	TD	0.0			
	TT	0.0			
Mt West CLIM	TD	-0.024			
	TT	-0.011			
North America plus	TD	-0.0072			
	TT	-0.0049			
North Atlantic CLIM	TD	-0.0038			
	TT	-0.001			
North Plains CLIM	TD	0.0			
	TT	0.00097			
Pacific North West CLIM	TD	-0.0013			
	TT	-3.9e-05			
Prairie CLIM	TD	-0.0011			
	TT	0.0			

bias < >

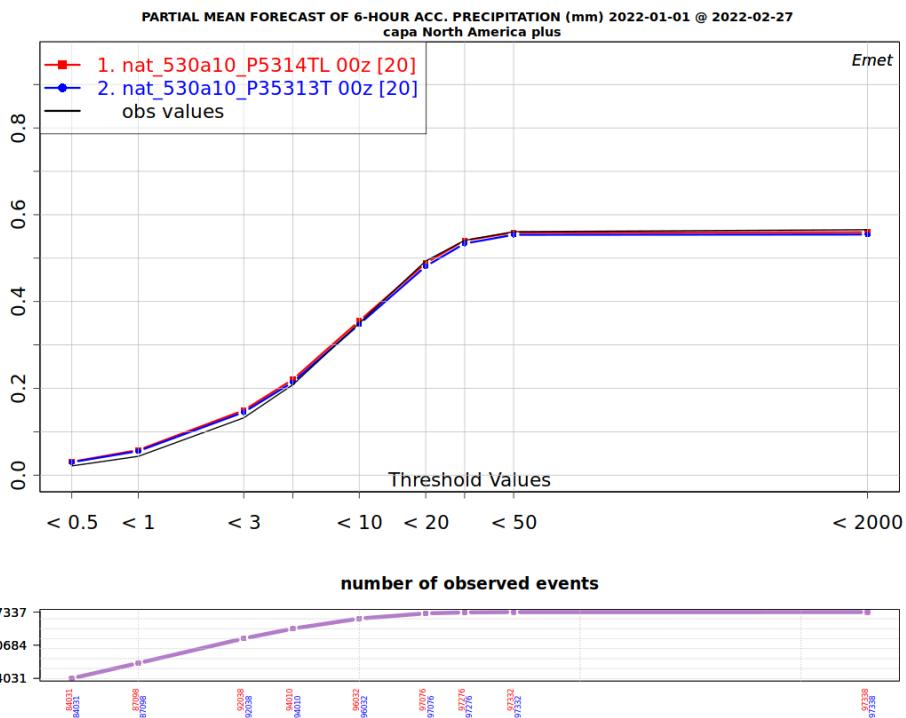
bias		nat_530a10_P5314TL 00z / nat_530a10_P35313T 00z		20220101 / 20220228	
		All			
Appalachia CLIM	PO	0.0071			
Arctic All CLIM	PO	0.00053			
Arctic Land CLIM	PO	0.0			
Boreal CLIM	PO	0.01			
Canada	PO	0.013			
Central CLIM	PO	0.015			
Central Plains CLIM	PO	0.0016			
Great Lakes CLIM	PO	0.0052			
MidAtlantic CLIM	PO	0.0065			
Mt West CLIM	PO	0.0086			
North America plus	PO	0.013			
North Atlantic CLIM	PO	0.017			
North Plains CLIM	PO	0.016			
Pacific North West CLIM	PO	-0.0044			
Prairie CLIM	PO	0.0066			

bias < >

bias		nat_530a10_P5314TL 00z / nat_530a10_P35313T 00z		20220101 / 20220228	
		All			
Appalachia CLIM	UV	0.0001			
Arctic All CLIM	UV	0.0004			
Arctic Land CLIM	UV	0.00039			
Boreal CLIM	UV	-0.003			
Canada	UV	-0.0035			
Central CLIM	UV	-0.0066			
Central Plains CLIM	UV	0.0			
Great Lakes CLIM	UV	0.0			
MidAtlantic CLIM	UV	0.0			
Mt West CLIM	UV	-0.012			
North America plus	UV	-0.002			
North Atlantic CLIM	UV	-0.00063			
North Plains CLIM	UV	-0.0075			
Pacific North West CLIM	UV	0.0			
Prairie CLIM	UV	-0.0025			

Scores v5.3.13 vs. v5.3.14FL

- Emet (PR6 and PR24)



fbi		< >	
nat_530a10_P5314TL 00z / nat_530a10_P35313T 00z	All	2020101 / 202020228	
Appalachia CLIM	PR24 0.0012	PR6 0.0	
Arctic All CLIM	PR24 0.063	PR6 0.012	
Arctic Land CLIM	PR24 0.062	PR6 0.0	
Boreal CLIM	PR24 0.0	PR6 -0.014	
Canada	PR24 0.0051	PR6 -0.0056	
Central CLIM	PR24 0.0063	PR6 -0.015	
Central Plains CLIM	PR24 0.0	PR6 0.0	
Great Lakes CLIM	PR24 0.0	PR6 0.0077	
MidAtlantic CLIM	PR24 0.0	PR6 -0.0075	
Mt West CLIM	PR24 0.0	PR6 -0.0046	
North America plus	PR24 0.0048	PR6 0.0083	
North Atlantic CLIM	PR24 0.034	PR6 0.0056	
North Plains CLIM	PR24 0.0	PR6 0.0	
Pacific North West CLIM	PR24 0.01	PR6 -0.021	
Prairie CLIM	PR24 0.0063	PR6 0.0075	

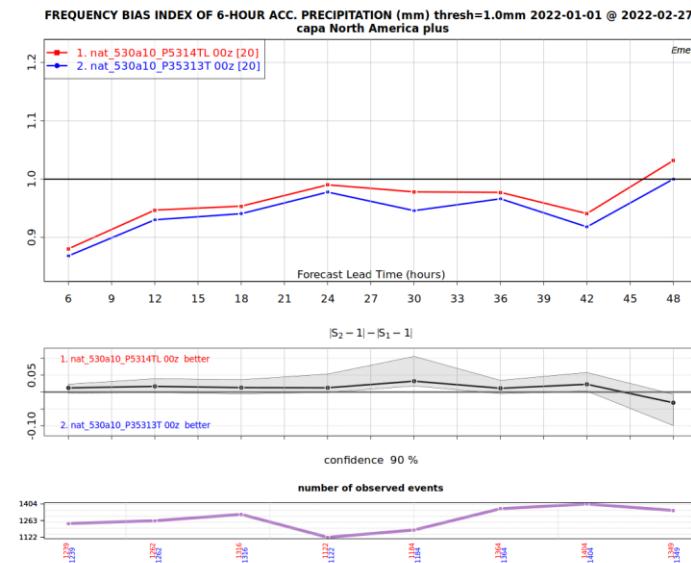
ets		< >	
nat_530a10_P5314TL 00z / nat_530a10_P35313T 00z	All	2020101 / 202020228	
Appalachia CLIM	PR24 -0.0012	PR6 0.0	
Arctic All CLIM	PR24 0.0	PR6 -0.0023	
Arctic Land CLIM	PR24 0.0	PR6 0.0	
Boreal CLIM	PR24 0.0	PR6 0.028	
Canada	PR24 0.0019	PR6 -0.0014	
Central CLIM	PR24 -0.00051	PR6 0.0054	
Central Plains CLIM	PR24 0.0	PR6 0.0	
Great Lakes CLIM	PR24 0.013	PR6 -9.8e-06	
MidAtlantic CLIM	PR24 0.0	PR6 -0.0057	
Mt West CLIM	PR24 0.0053	PR6 -0.0029	
North America plus	PR24 0.0	PR6 0.0	
North Atlantic CLIM	PR24 0.019	PR6 0.0	
North Plains CLIM	PR24 0.0	PR6 0.0	
Pacific North West CLIM	PR24 0.005	PR6 -0.0023	
Prairie CLIM	PR24 -0.00084	PR6 0.0	

far		< >	
nat_530a10_P5314TL 00z / nat_530a10_P35313T 00z	All	20220101 / 20220228	
Appalachia CLIM	PR24 -0.0023	PR6 0.0	
Arctic All CLIM	PR24 0.0	PR6 -0.0023	
Arctic Land CLIM	PR24 0.0	PR6 0.0	
Boreal CLIM	PR24 0.0	PR6 0.019	
Canada	PR24 0.0027	PR6 -0.0031	
Central CLIM	PR24 -0.067	PR6 0.0045	
Central Plains CLIM	PR24 0.0	PR6 0.0	
Great Lakes CLIM	PR24 0.01	PR6 -0.00049	
MidAtlantic CLIM	PR24 -0.03	PR6 -0.015	
Mt West CLIM	PR24 0.0	PR6 0.0	
North America plus	PR24 -0.0016	PR6 -0.0029	
North Atlantic CLIM	PR24 0.0011	PR6 -0.0013	
North Plains CLIM	PR24 0.0	PR6 0.0	
Pacific North West CLIM	PR24 -0.0034	PR6 -0.01	
Prairie CLIM	PR24 -0.054	PR6 0.0	

pod		< >	
nat_530a10_P5314TL 00z / nat_530a10_P35313T 00z	All	20220101 / 20220228	
Appalachia CLIM	PR24 -0.0012	PR6 -0.0019	
Arctic All CLIM	PR24 0.0	PR6 0.0	
Arctic Land CLIM	PR24 0.0	PR6 0.0	
Boreal CLIM	PR24 -0.019	PR6 0.006	
Canada	PR24 0.0066	PR6 0.0022	
Central CLIM	PR24 0.0014	PR6 -0.0023	
Central Plains CLIM	PR24 0.0	PR6 0.0	
Great Lakes CLIM	PR24 0.009	PR6 0.009	
MidAtlantic CLIM	PR24 0.0	PR6 0.0	
Mt West CLIM	PR24 0.012	PR6 -0.003	
North America plus	PR24 0.0011	PR6 0.0023	
North Atlantic CLIM	PR24 0.005	PR6 0.0032	
North Plains CLIM	PR24 0.0	PR6 0.0	
Pacific North West CLIM	PR24 0.023	PR6 0.0065	
Prairie CLIM	PR24 0.0018	PR6 0.0013	

Scores v5.3.13 vs. v5.3.14FL

- FBI



fbi1

Model	Series	Value
fbi1	nat_530a10_P5314TL 00z / nat_530a10_P35313T 00z	20220101 / 20220228
fbi1	All	0.0
Appalachia CLIM	PR6	0.0
Arctic All CLIM	PR6	0.0083
Arctic Land CLIM	PR6	0.036
Boreal CLIM	PR6	0.0
Canada	PR6	0.0038
Central CLIM	PR6	0.015
Central Plains CLIM	PR6	0.0
Great Lakes CLIM	PR6	0.0
MidAtlantic CLIM	PR6	0.0
Mt West CLIM	PR6	-0.0042
North America plus	PR6	0.0029
North Atlantic CLIM	PR6	0.016
North Plains CLIM	PR6	0.0
Pacific North West CLIM	PR6	-0.019
Prairie CLIM	PR6	0.0

fbi2

Model	Series	Value
fbi2	nat_530a10_P5314TL 00z / nat_530a10_P35313T 00z	20220101 / 20220228
fbi2	All	0.0
Appalachia CLIM	PR6	0.0032
Arctic All CLIM	PR6	0.0
Arctic Land CLIM	PR6	-0.0095
Boreal CLIM	PR6	-0.016
Canada	PR6	0.0045
Central CLIM	PR6	0.0
Central Plains CLIM	PR6	0.0
Great Lakes CLIM	PR6	0.0
MidAtlantic CLIM	PR6	-0.006
Mt West CLIM	PR6	0.0065
North America plus	PR6	0.0048
North Atlantic CLIM	PR6	0.0
North Plains CLIM	PR6	0.0
Pacific North West CLIM	PR6	-0.0064
Prairie CLIM	PR6	0.0048

fbi5

Model	Series	Value
fbi5	nat_530a10_P5314TL 00z / nat_530a10_P35313T 00z	20220101 / 20220228
fbi5	All	0.0
Appalachia CLIM	PR6	-0.014
Arctic All CLIM	PR6	0.0
Arctic Land CLIM	PR6	0.0
Boreal CLIM	PR6	-0.0042
Canada	PR6	0.0054
Central CLIM	PR6	-0.019
Central Plains CLIM	PR6	0.0
Great Lakes CLIM	PR6	-0.014
MidAtlantic CLIM	PR6	-0.0014
Mt West CLIM	PR6	-0.047
North America plus	PR6	0.0062
North Atlantic CLIM	PR6	-0.015
North Plains CLIM	PR6	0.0
Pacific North West CLIM	PR6	0.0068
Prairie CLIM	PR6	-0.019

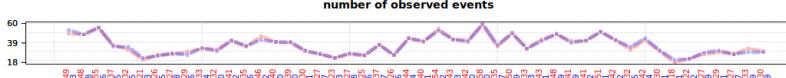
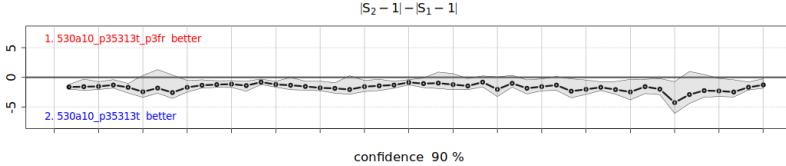
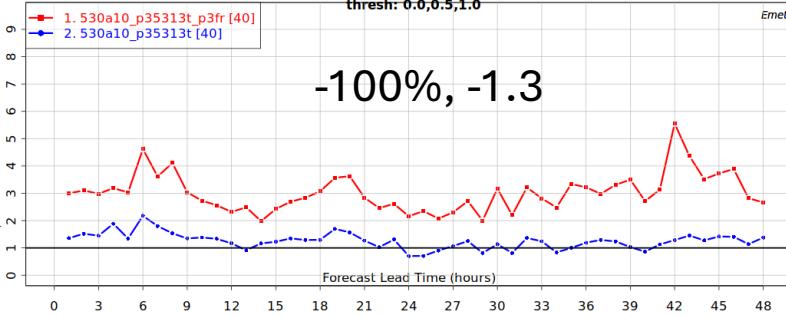
fbi10

Model	Series	Value
fbi10	nat_530a10_P5314TL 00z / nat_530a10_P35313T 00z	20220101 / 20220228
fbi10	All	0.0
Appalachia CLIM	PR6	0.015
Arctic All CLIM	PR6	0.0
Arctic Land CLIM	PR6	0.0
Boreal CLIM	PR6	-0.086
Canada	PR6	-0.023
Central CLIM	PR6	-0.067
Central Plains CLIM	PR6	0.0
Great Lakes CLIM	PR6	0.13
MidAtlantic CLIM	PR6	-0.014
Mt West CLIM	PR6	0.0
North America plus	PR6	-0.0082
North Atlantic CLIM	PR6	0.011
North Plains CLIM	PR6	0.0
Pacific North West CLIM	PR6	0.0078
Prairie CLIM	PR6	-0.067

PR>0.1 mm

V5.3.13

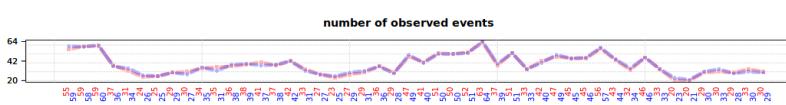
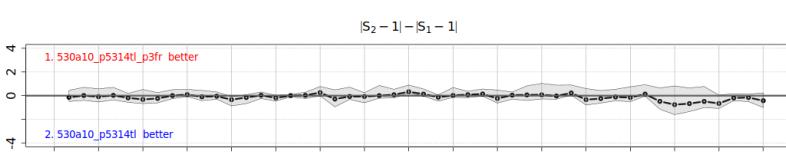
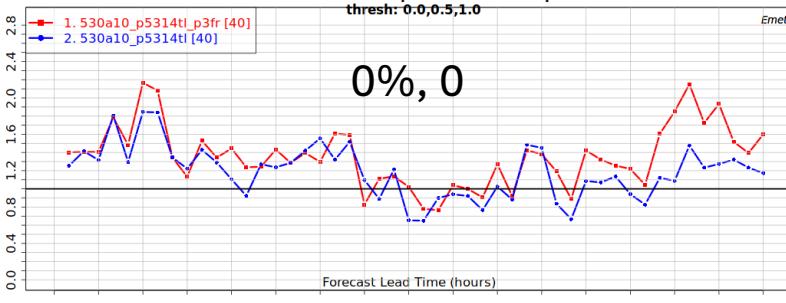
ENCY BIAS INDEX OF 1-HOUR FREEZ. RAIN/DRIZZLE VS METAR PRECIP. TYPE (with precip condition) 2022-01-01 @ 20
PR>=0.1 ade metar speci North America plus
thresh: 0.0,0.5,1.0



FR (P3) = FR1+FR2
FR (Bourguin)

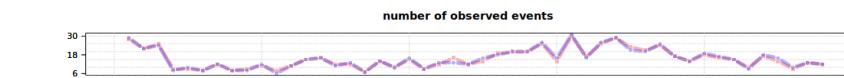
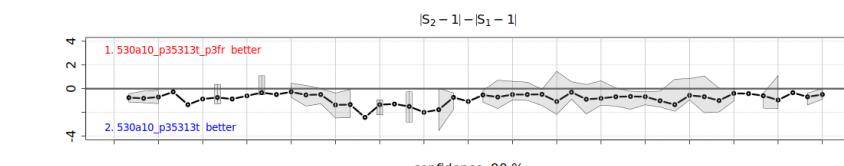
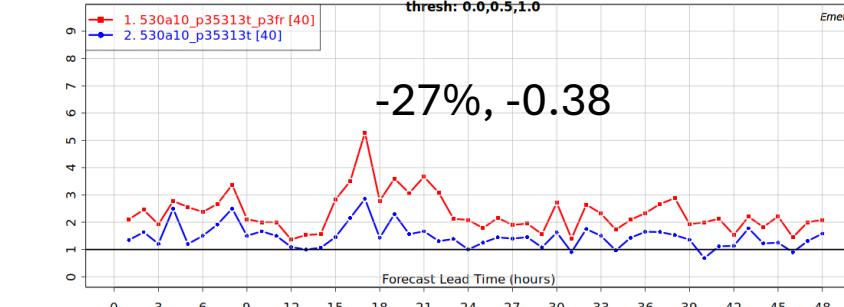
V5.3.14FL

ENCY BIAS INDEX OF 1-HOUR FREEZ. RAIN/DRIZZLE VS METAR PRECIP. TYPE (with precip condition) 2022-01-01 @ 20
PR>=0.1 ade metar speci North America plus
thresh: 0.0,0.5,1.0

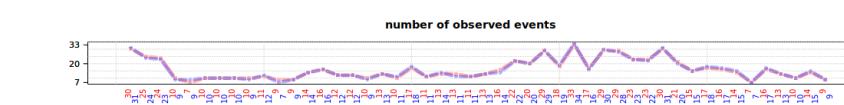
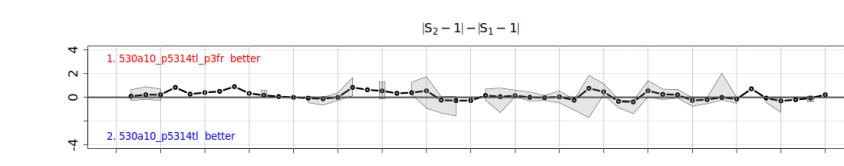
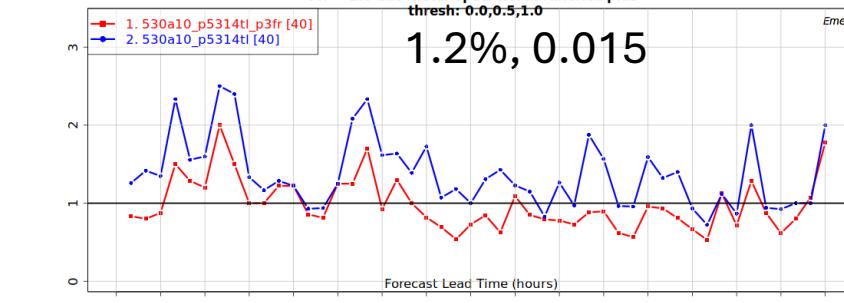


PR>1 mm

ENCY BIAS INDEX OF 1-HOUR FREEZ. RAIN/DRIZZLE VS METAR PRECIP. TYPE (with precip condition) 2022-01-01 @ 20
PR>=1.0 ade metar speci North America plus
thresh: 0.0,0.5,1.0

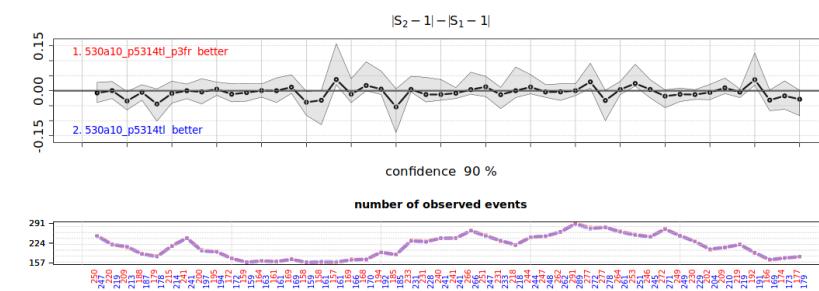
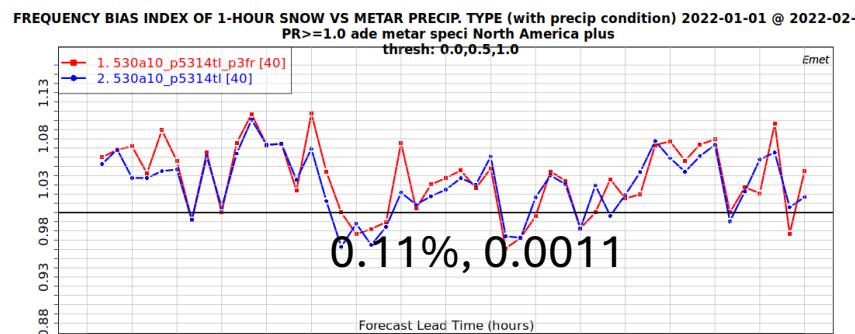
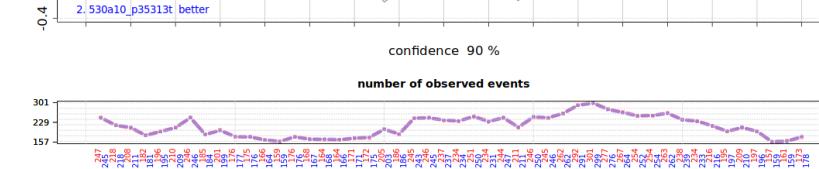
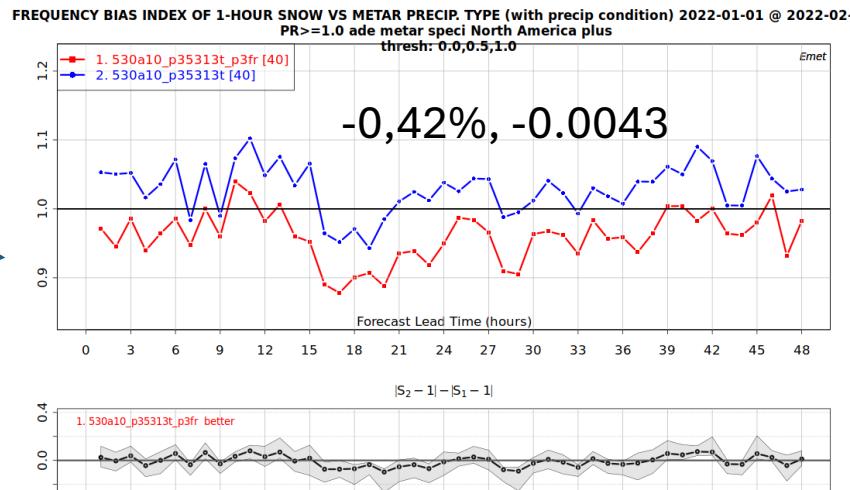


ENCY BIAS INDEX OF 1-HOUR FREEZ. RAIN/DRIZZLE VS METAR PRECIP. TYPE (with precip condition) 2022-01-01 @ 20
PR>=1.0 ade metar speci North America plus
thresh: 0.0,0.5,1.0



Snow

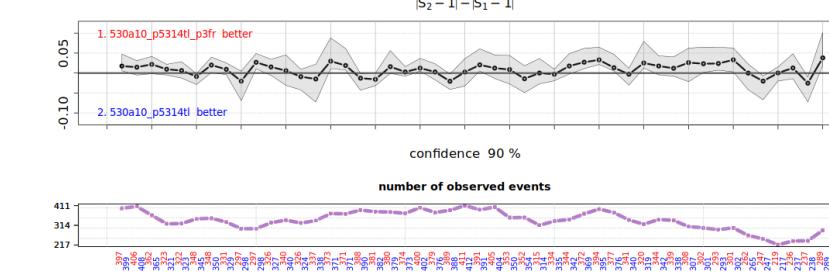
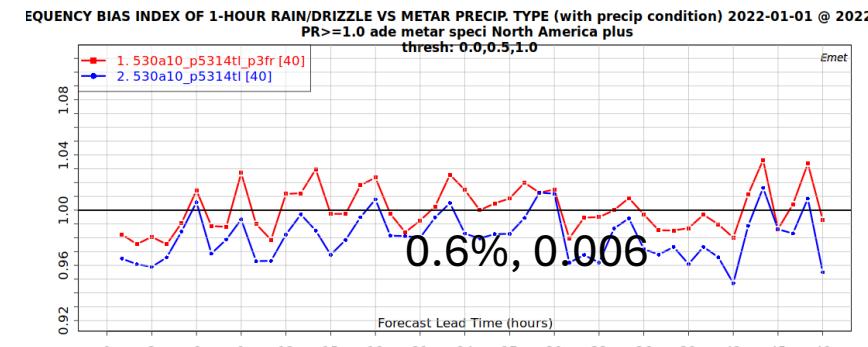
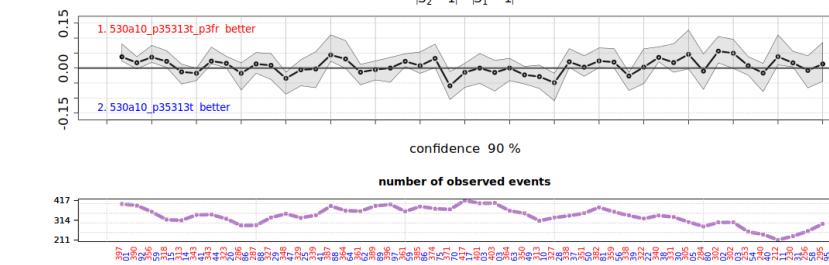
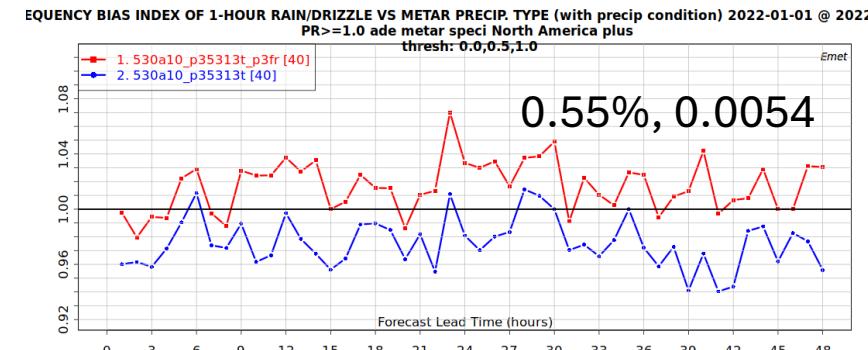
V5.3.13



Rain

PR > 1 mm

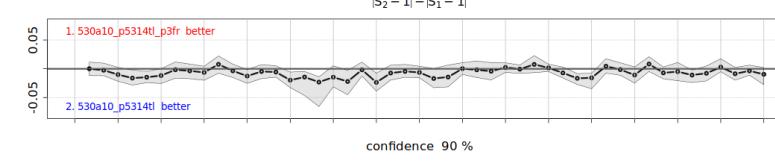
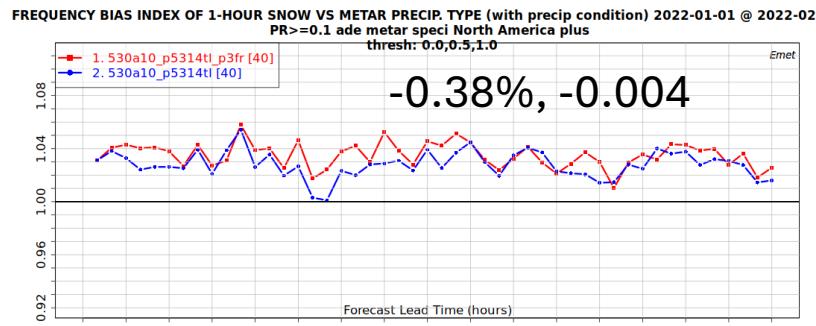
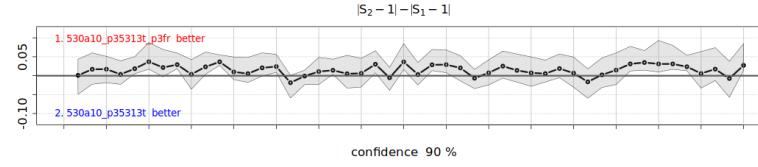
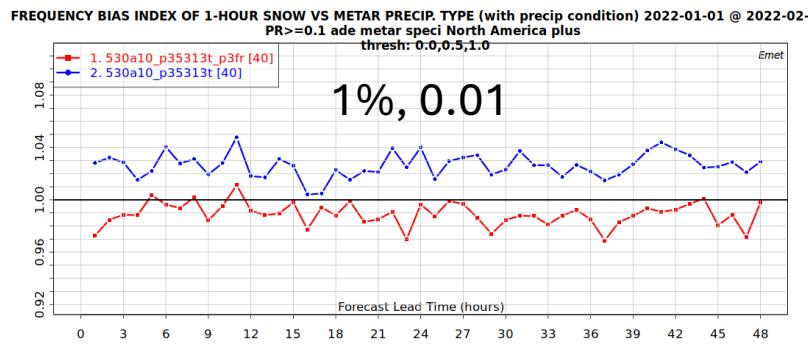
V5.3.14FL



SN (P3)
SN1+SN2+SN3+
WS
SN (Bourgouin)
RN (P3) RN1+RN2
RN (Bourgouin)

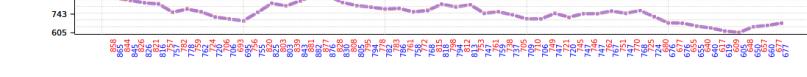
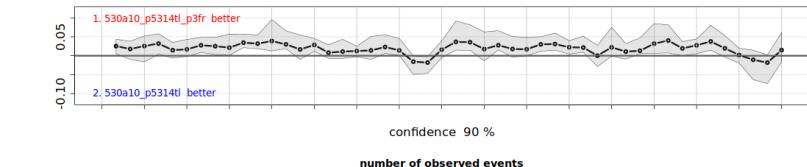
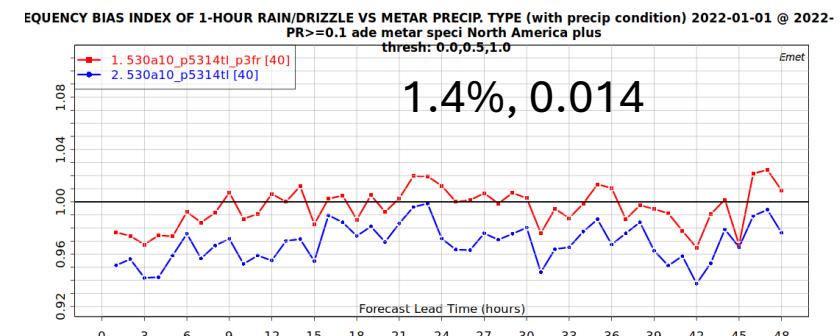
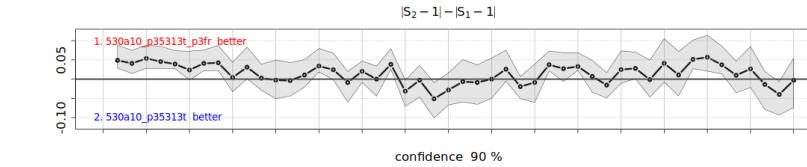
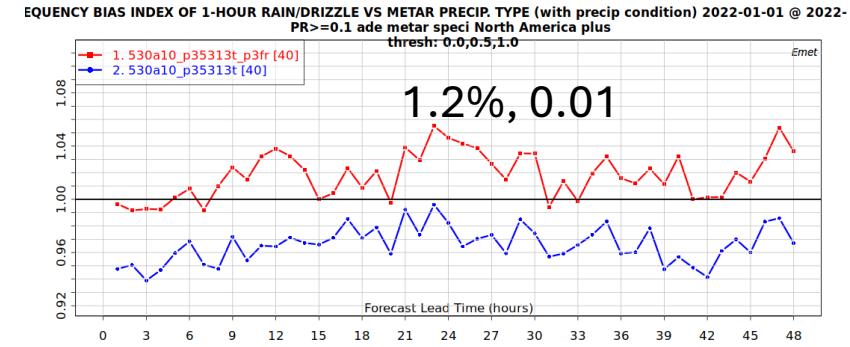
Snow

V5.3.13



Rain

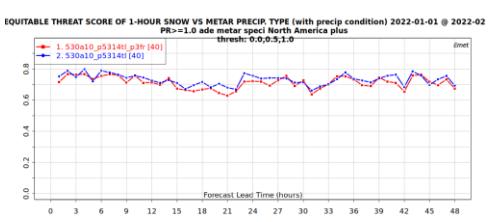
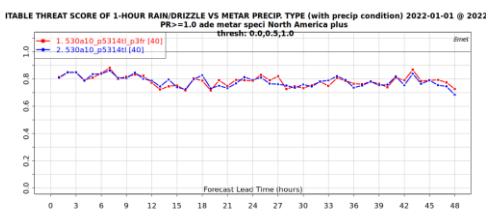
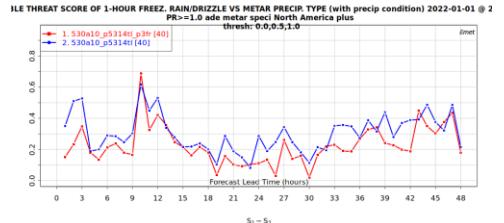
PR > 0.1 mm



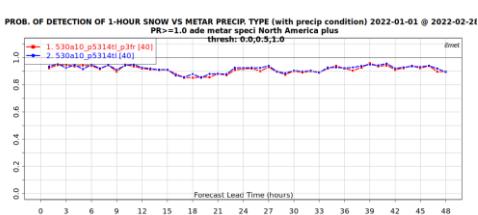
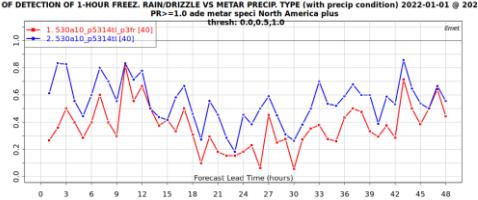
SN (P3)
SN1+SN2+SN3+
WS
SN (Bourgouin)
RN (P3) RN1+RN2
RN (Bourgouin)

v5.3.14FL -- Bourgouin vs. P3 (FR, SN, RN)

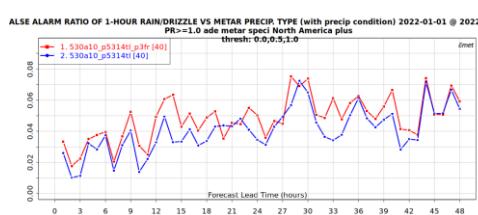
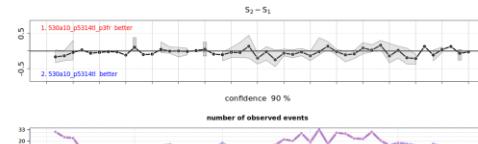
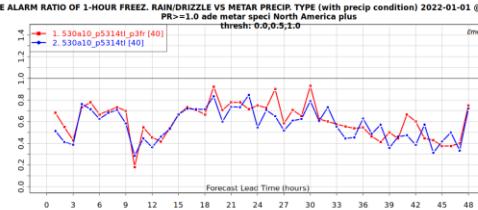
ETS



POD

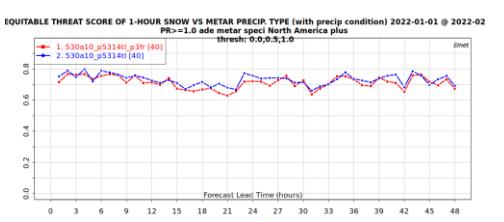
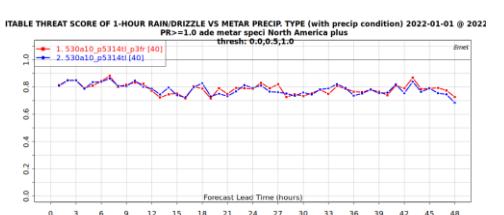
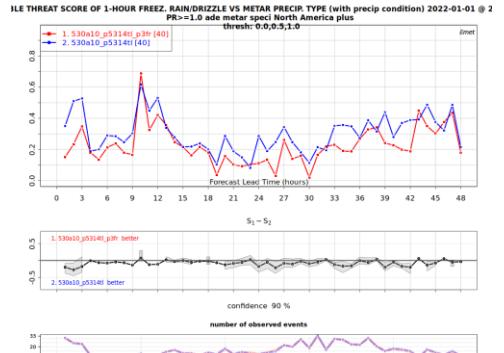


FAR

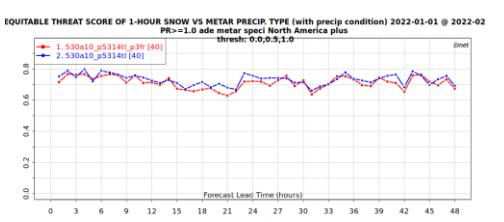
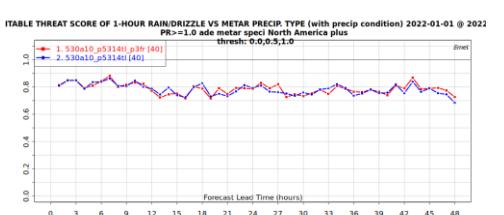
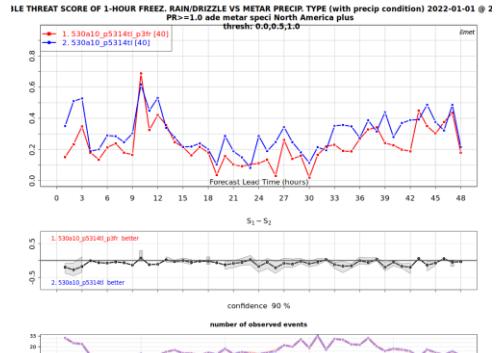


PR > 1 mm

FR



RN



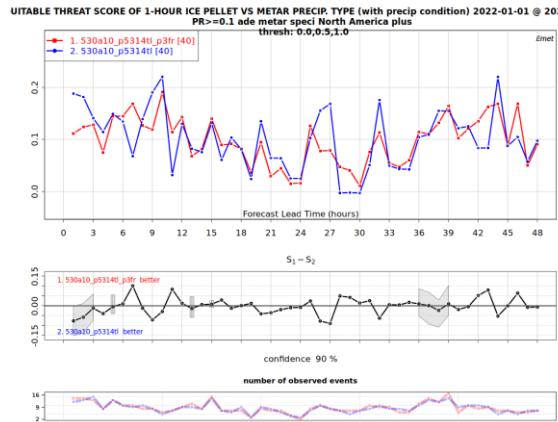
SN

Similar to
v5.3.13

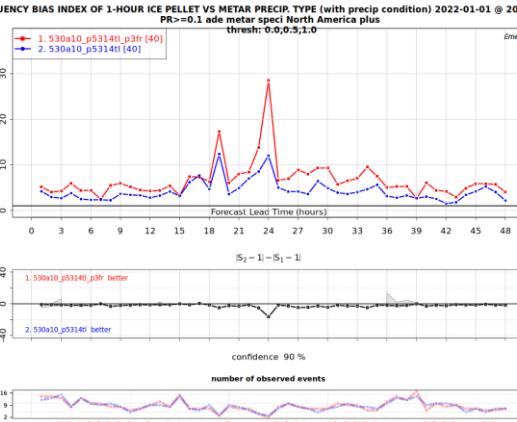
v5.3.14FL -- Bourgouin vs. P3 (PE)

Similar to v5.3.13

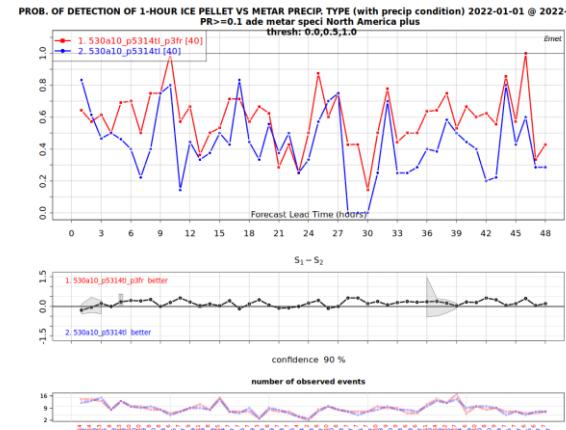
ETS



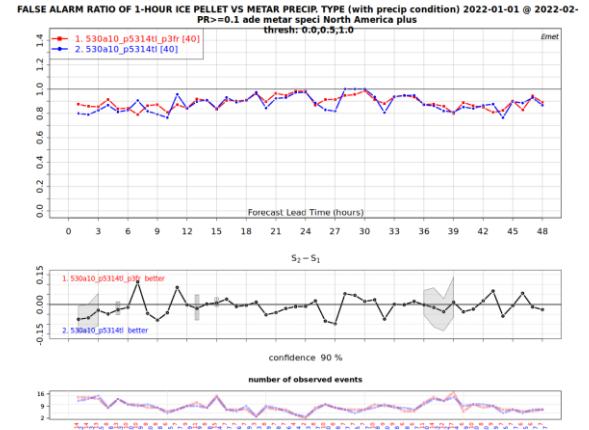
FBI



POD

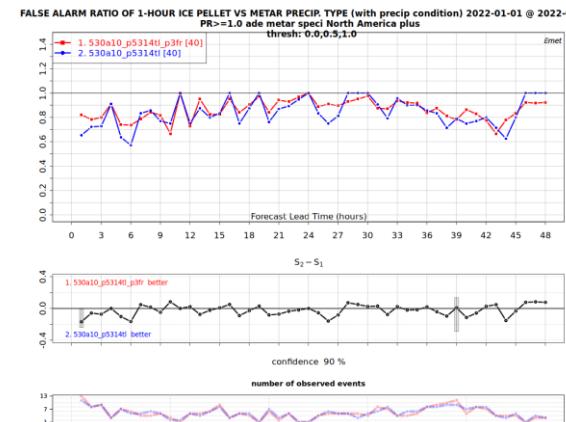


FAR



PR >
0.1
mm

The figure consists of six panels arranged in a 3x2 grid. The top row contains two line graphs showing the Threat Score of 1-hour ice pellet vs metar precipitation type over 48 hours of forecast lead time. The left graph is for PR >= 1.0 ade metar speci North America plus, and the right graph is for PR >= 1.0 ade metar speci North America plus. Both graphs show two series: 1. 530a10_p5314t_p3fr [40] (red line) and 2. 530a10_p5314t [40] (blue line). The y-axis ranges from -0.4 to 0.4, and the x-axis shows forecast lead times at 0, 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, and 48 hours. The bottom row contains four scatter plots showing the Frequency Bias Index (S2 - 1) - (S1 - 1) over the same 48-hour period. The left column shows S1 - S2, and the right column shows S2 - 1 - (S1 - 1). The top row graphs have a threshold of 0.0, 0.5, 1.0, while the bottom row graphs have a confidence level of 90%.



The figure consists of three vertically stacked panels. The top panel is a line graph titled "PROB. OF DETECTION OF 1-HOUR ICE PELLET VS METAR PRECIP. TYPE (with precip condition) 2022-01-01 @ 2022-02-01". It plots the probability of detection (PR) against time in hours from 0 to 48. Two series are shown: a red line for S_1 and a blue line for S_2 . A legend indicates: 1. $530a10_p53140_p3f[40]$ and 2. $530a10_p53140[40]$. The y-axis ranges from 0.0 to 1.0. The middle panel is a line graph titled "confidence 90 %" showing the lower and upper bounds of the 90% confidence interval for the difference between S_1 and S_2 . The x-axis is labeled "number of observed events". The bottom panel is a line graph titled "number of observed events" showing the count of events over time.

PR > 1
mm

Timing v5.3.6

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Grep -a "Execution time" *

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HRnat_530a10_PA3actl_2022022812_M_4453365.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5441.9524 seconds (14.12 ms logging)
```

Mean (2MOM_noLF_n1):
 $220250/40 = 5506$ seconds

Timing v5.3.13

HRnat_530a10_P35313T_2022010100_M_4528735.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5560.1555 seconds (15.18 ms logging)
HRnat_530a10_P35313T_2022010212_M_4528739.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5752.3228 seconds (13.72 ms logging)
HRnat_530a10_P35313T_2022010400_M_4528741.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5648.3596 seconds (13.20 ms logging)
HRnat_530a10_P35313T_2022010512_M_4528742.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5520.5966 seconds (13.73 ms logging)
HRnat_530a10_P35313T_2022010700_M_4528753.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5689.7638 seconds (13.49 ms logging)
HRnat_530a10_P35313T_2022010812_M_4528732.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5545.0855 seconds (13.62 ms logging)
HRnat_530a10_P35313T_2022011000_M_4528774.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5515.8902 seconds (13.75 ms logging)
HRnat_530a10_P35313T_2022011112_M_4528760.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5482.2256 seconds (13.60 ms logging)
HRnat_530a10_P35313T_2022011300_M_4528756.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5532.4383 seconds (13.36 ms logging)
HRnat_530a10_P35313T_2022011412_M_4528781.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5553.5756 seconds (13.50 ms logging)
HRnat_530a10_P35313T_2022011600_M_4528782.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5565.1400 seconds (13.77 ms logging)
HRNat_530a10_P35313T_2022011712_M_4528783.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5574.8783 seconds (13.97 ms logging)
HRNat_530a10_P35313T_2022011900_M_4528772.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5515.2706 seconds (13.97 ms logging)
HRNat_530a10_P35313T_2022012012_M_4528749.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5530.6225 seconds (13.66 ms logging)
HRNat_530a10_P35313T_2022012200_M_4528744.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5550.3684 seconds (13.88 ms logging)
HRNat_530a10_P35313T_2022012312_M_4528771.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5428.5591 seconds (14.09 ms logging)
HRNat_530a10_P35313T_2022012500_M_4528736.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5384.5051 seconds (13.68 ms logging)
HRNat_530a10_P35313T_2022012612_M_4528729.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5444.5608 seconds (13.65 ms logging)
HRNat_530a10_P35313T_2022012800_M_4528780.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5574.4600 seconds (13.41 ms logging)
HRNat_530a10_P35313T_2022012912_M_4528789.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5749.0651 seconds (13.54 ms logging)
HRNat_530a10_P35313T_2022013100_M_4529159.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5386.6415 seconds (14.13 ms logging)
HRNat_530a10_P35313T_2022020112_M_4529161.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5424.0181 seconds (13.62 ms logging)
HRNat_530a10_P35313T_2022020300_M_4529163.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5566.8092 seconds (13.78 ms logging)
HRNat_530a10_P35313T_2022020412_M_4529166.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5596.9427 seconds (13.66 ms logging)
HRNat_530a10_P35313T_2022020600_M_4529168.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5491.9851 seconds (14.23 ms logging)
HRNat_530a10_P35313T_2022020712_M_4529167.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5485.8368 seconds (13.52 ms logging)
HRNat_530a10_P35313T_2022020900_M_4529165.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5555.7424 seconds (13.67 ms logging)
HRNat_530a10_P35313T_2022021012_M_4529170.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5386.0668 seconds (13.94 ms logging)
HRNat_530a10_P35313T_2022021200_M_4529171.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5374.7710 seconds (13.89 ms logging)
HRNat_530a10_P35313T_2022021312_M_4529169.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5526.7886 seconds (13.53 ms logging)
HRNat_530a10_P35313T_2022021500_M_4529175.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5419.7554 seconds (14.11 ms logging)
HRNat_530a10_P35313T_2022021612_M_4529173.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5496.8354 seconds (13.64 ms logging)
HRNat_530a10_P35313T_2022021800_M_4529177.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5636.6898 seconds (13.70 ms logging)
HRNat_530a10_P35313T_2022021912_M_4529178.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5543.5745 seconds (13.71 ms logging)
HRNat_530a10_P35313T_2022022100_M_4529183.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5425.1493 seconds (13.56 ms logging)
HRNat_530a10_P35313T_2022022212_M_4529181.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5494.9121 seconds (13.80 ms logging)
HRNat_530a10_P35313T_2022022400_M_4529184.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5517.2154 seconds (13.67 ms logging)
HRNat_530a10_P35313T_2022022512_M_4529180.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5442.1864 seconds (13.66 ms logging)
HRNat_530a10_P35313T_2022022700_M_4529187.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5477.2324 seconds (14.03 ms logging)
HRNat_530a10_P35313T_2022022812_M_4529189.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5474.7376 seconds (13.74 ms logging)

Mean (2MOM_noLF_n1):

220821/40 = 5520 seconds (-0.13%)

Timing v5.3.14

HRnat_530a10_P35314T_2022010100_M_4566858.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5539.1469 seconds (13.40 ms logging)
HRnat_530a10_P35314T_2022010212_M_4566863.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5702.7311 seconds (13.34 ms logging)
HRnat_530a10_P35314T_2022010400_M_4566848.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5565.9317 seconds (13.51 ms logging)
HRnat_530a10_P35314T_2022010512_M_4566861.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5529.9992 seconds (13.77 ms logging)
HRnat_530a10_P35314T_2022010700_M_4566868.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5614.4304 seconds (13.36 ms logging)
HRnat_530a10_P35314T_2022010812_M_4566854.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5463.8206 seconds (13.35 ms logging)
HRnat_530a10_P35314T_2022011000_M_4566871.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5467.2939 seconds (13.76 ms logging)
HRnat_530a10_P35314T_2022011112_M_4566884.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5404.6790 seconds (13.60 ms logging)
HRnat_530a10_P35314T_2022011300_M_4566870.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5451.0425 seconds (13.65 ms logging)
HRnat_530a10_P35314T_2022011412_M_4566886.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5521.4016 seconds (13.53 ms logging)
HRnat_530a10_P35314T_2022011600_M_4566853.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5483.7060 seconds (13.37 ms logging)
HRNat_530a10_P35314T_2022011712_M_4566879.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5568.0553 seconds (13.68 ms logging)
HRNat_530a10_P35314T_2022011900_M_4566857.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5510.3228 seconds (13.73 ms logging)
HRNat_530a10_P35314T_2022012012_M_4566852.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5493.3345 seconds (13.47 ms logging)
HRNat_530a10_P35314T_2022012200_M_4566873.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5494.0376 seconds (13.86 ms logging)
HRNat_530a10_P35314T_2022012312_M_4566880.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5369.3044 seconds (13.58 ms logging)
HRNat_530a10_P35314T_2022012500_M_4566867.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5350.7144 seconds (13.64 ms logging)
HRNat_530a10_P35314T_2022012612_M_4566865.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5407.6152 seconds (13.32 ms logging)
HRNat_530a10_P35314T_2022012800_M_4566843.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5544.9767 seconds (13.49 ms logging)
HRNat_530a10_P35314T_2022012912_M_4566889.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5698.5934 seconds (13.54 ms logging)
HRNat_530a10_P35314T_2022013100_M_4567187.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5336.5137 seconds (13.43 ms logging)
HRNat_530a10_P35314T_2022020112_M_4567189.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5386.7856 seconds (13.54 ms logging)
HRNat_530a10_P35314T_2022020300_M_4567190.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5422.8279 seconds (13.71 ms logging)
HRNat_530a10_P35314T_2022020412_M_4567191.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5467.3502 seconds (13.36 ms logging)
HRNat_530a10_P35314T_2022020600_M_4567188.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5446.0372 seconds (13.54 ms logging)
HRNat_530a10_P35314T_2022020712_M_4567211.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5450.2427 seconds (13.87 ms logging)
HRNat_530a10_P35314T_2022020900_M_4567217.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5533.1442 seconds (13.42 ms logging)
HRNat_530a10_P35314T_2022021012_M_4567227.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5375.1154 seconds (14.82 ms logging)
HRNat_530a10_P35314T_2022021200_M_4567230.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5374.6365 seconds (13.83 ms logging)
HRNat_530a10_P35314T_2022021312_M_4567232.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5516.7504 seconds (13.34 ms logging)
HRNat_530a10_P35314T_2022021500_M_4567255.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5363.8138 seconds (13.64 ms logging)
HRNat_530a10_P35314T_2022021612_M_4567265.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5469.9788 seconds (13.62 ms logging)
HRNat_530a10_P35314T_2022021800_M_4567262.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5617.5971 seconds (13.44 ms logging)
HRNat_530a10_P35314T_2022021912_M_4567258.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5484.5912 seconds (13.66 ms logging)
HRNat_530a10_P35314T_2022022100_M_4567281.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5451.8357 seconds (13.84 ms logging)
HRNat_530a10_P35314T_2022022212_M_4567282.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5471.1615 seconds (13.66 ms logging)
HRNat_530a10_P35314T_2022022400_M_4567298.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5460.3636 seconds (13.50 ms logging)
HRNat_530a10_P35314T_2022022512_M_4567306.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5464.0724 seconds (13.66 ms logging)
HRNat_530a10_P35314T_2022022700_M_4567361.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5440.2581 seconds (13.71 ms logging)
HRNat_530a10_P35314T_2022022812_M_4567396.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5517.8689 seconds (13.76 ms logging)

Mean (2MOM_noLF_n1):

$219212/40 = 5480$ seconds (-0.72%)

Timing v5.3.14FL

HRnat_530a10_P5314TL_2022010100_M_4566859.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5754.1508 seconds (13.91 ms logging)
HRnat_530a10_P5314TL_2022010212_M_4566864.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5882.2037 seconds (13.78 ms logging)
HRnat_530a10_P5314TL_2022010400_M_4566849.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5791.4423 seconds (13.83 ms logging)
HRnat_530a10_P5314TL_2022010512_M_4566856.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5703.0139 seconds (13.75 ms logging)
HRnat_530a10_P5314TL_2022010700_M_4566869.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5830.7763 seconds (13.89 ms logging)
HRnat_530a10_P5314TL_2022010812_M_4566927.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5706.5820 seconds (13.57 ms logging)
HRnat_530a10_P5314TL_2022011000_M_4566890.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5629.6374 seconds (13.99 ms logging)
HRnat_530a10_P5314TL_2022011112_M_4566883.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5637.8190 seconds (13.60 ms logging)
HRnat_530a10_P5314TL_2022011300_M_4566932.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5684.7961 seconds (13.70 ms logging)
HRnat_530a10_P5314TL_2022011412_M_4566887.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5728.1482 seconds (13.71 ms logging)
HRnat_530a10_P5314TL_2022011600_M_4566931.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5676.5187 seconds (13.60 ms logging)
HRNat_530a10_P5314TL_2022011712_M_4566881.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5781.5197 seconds (13.85 ms logging)
HRNat_530a10_P5314TL_2022011900_M_4566933.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5703.8977 seconds (13.72 ms logging)
HRNat_530a10_P5314TL_2022012012_M_4566934.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5696.2527 seconds (13.66 ms logging)
HRNat_530a10_P5314TL_2022012200_M_4566935.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5733.1125 seconds (14.21 ms logging)
HRNat_530a10_P5314TL_2022012312_M_4566925.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5558.6439 seconds (13.86 ms logging)
HRNat_530a10_P5314TL_2022012500_M_4566913.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5562.3907 seconds (13.73 ms logging)
HRNat_530a10_P5314TL_2022012612_M_4566866.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5613.3915 seconds (13.89 ms logging)
HRNat_530a10_P5314TL_2022012800_M_4566936.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5718.4565 seconds (14.08 ms logging)
HRNat_530a10_P5314TL_2022012912_M_4566888.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5910.5760 seconds (13.62 ms logging)
HRNat_530a10_P5314TL_2022013100_M_4567218.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5511.2656 seconds (13.70 ms logging)
HRNat_530a10_P5314TL_2022020112_M_4567212.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5607.3930 seconds (13.75 ms logging)
HRNat_530a10_P5314TL_2022020300_M_4567228.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5613.4428 seconds (13.48 ms logging)
HRNat_530a10_P5314TL_2022020412_M_4567263.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5741.5991 seconds (13.50 ms logging)
HRNat_530a10_P5314TL_2022020600_M_4567266.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5689.2031 seconds (14.06 ms logging)
HRNat_530a10_P5314TL_2022020712_M_4567271.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5675.3520 seconds (13.66 ms logging)
HRNat_530a10_P5314TL_2022020900_M_4567305.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5732.8475 seconds (13.99 ms logging)
HRNat_530a10_P5314TL_2022021012_M_4567308.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5542.4169 seconds (13.61 ms logging)
HRNat_530a10_P5314TL_2022021200_M_4567376.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5552.7663 seconds (14.23 ms logging)
HRNat_530a10_P5314TL_2022021312_M_4567377.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5704.5030 seconds (13.85 ms logging)
HRNat_530a10_P5314TL_2022021500_M_4567414.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5602.9368 seconds (13.65 ms logging)
HRNat_530a10_P5314TL_2022021612_M_4567694.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5680.7841 seconds (14.12 ms logging)
HRNat_530a10_P5314TL_2022021800_M_4567696.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5791.3184 seconds (13.94 ms logging)
HRNat_530a10_P5314TL_2022021912_M_4567698.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5688.0538 seconds (13.87 ms logging)
HRNat_530a10_P5314TL_2022022100_M_4567697.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5570.5174 seconds (13.52 ms logging)
HRNat_530a10_P5314TL_2022022212_M_4567699.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5675.9249 seconds (13.74 ms logging)
HRNat_530a10_P5314TL_2022022400_M_4567702.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5675.6607 seconds (13.57 ms logging)
HRNat_530a10_P5314TL_2022022512_M_4567701.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5672.7570 seconds (13.54 ms logging)
HRNat_530a10_P5314TL_2022022700_M_4567704.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5619.2008 seconds (13.67 ms logging)
HRNat_530a10_P5314TL_2022022812_M_4567705.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5687.3144 seconds (13.82 ms logging)

Mean (2MOM_LF_n1):

$227319/40 = 5682$ seconds (+3%)

5640, 5645

Predicted liquid fraction + 3MOM

P3-v5.3.14LF3M

HRDPS validation in GEM5.3.10-a10 and PA3a configuration

2-moment (LF) vs. 3-moment (LF)

Winter 2022 40 cases series

Objective and set-up

To test 3-moment (old version) in v5.3.14 (HM-changes)

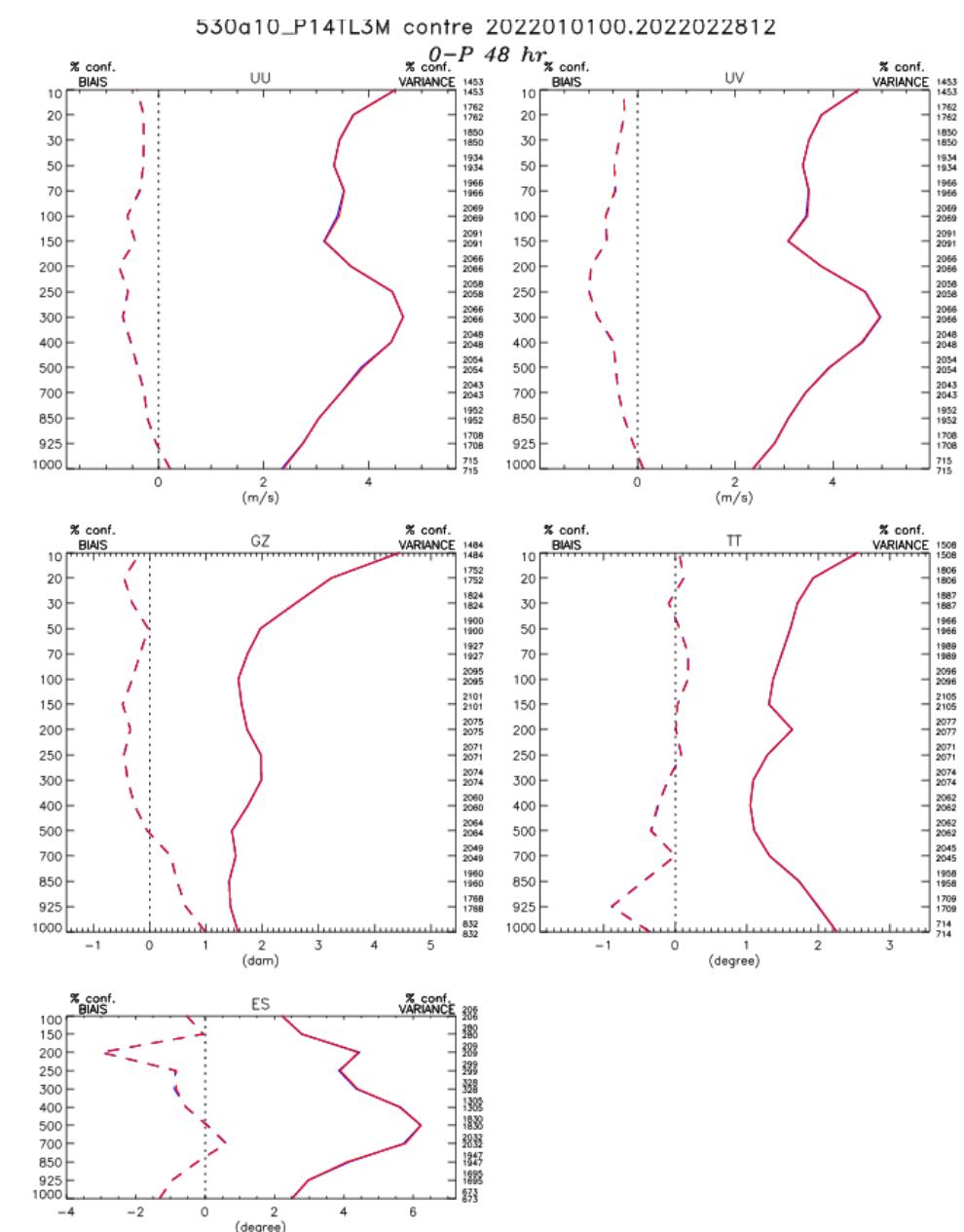
Experimental set-up

- GEM 5.3.0-a10, HRDPS PA3a configuration for 40 cases winter and 42 summer 2022 cases

Experiment	Description	Rime splintering
p3v5314LF	2MOM_LF_n1 + HM changes	HM (rain and cloud) Relaxed Dmin_HM to initiate HM from 1 mm to 0.25 mm Compute HM for $q_{i,rim} > q_{small}$ and not only for $Firim > 0.5$ (this has no impacts) $T_{kbot} < 9^\circ\text{C}$ instead of $T_{kbot} < 5^\circ\text{C}$ Increase $\rho_{i,rim}$ from 750 kg/m^3 to 850 kg/m^3 to differentiate between SN3 and PE1 and increase Firim from 0.5 to 0.6 to differentiate between SN2 and SN3 (only diagnostic) + predicted liquid fraction
p3v5314LF 3M	3MOM_LF_n1 + HM changes	Same as above

Scores v5.3.14FL vs. 5.3.14FL3M

- Arcad → completely neutral

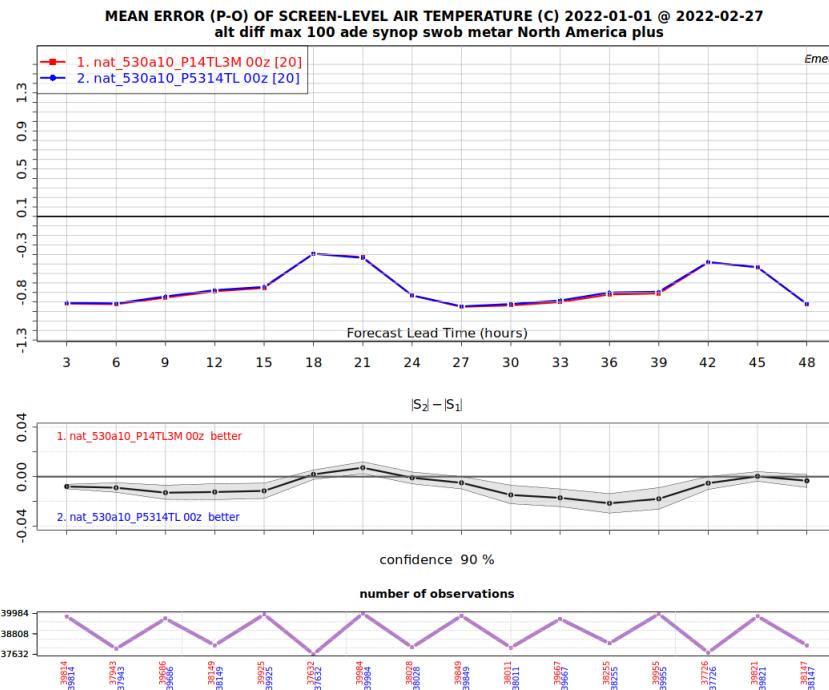


◊ — E-T m_uu_530a10_P5314TL_2022010100.2022022812 (40)
◻ - - - BIAS m_uu_530a10_P5314TL_2022010100.2022022812
◊ — E-T m_uu_530a10_P14TL3M_2022010100.2022022812 (40)
◻ - - - BIAS m_uu_530a10_P14TL3M_2022010100.2022022812

Type : 0-P 48 hr
 Region : Amerique du Nord plus
 Lat-lon: (25N, 170W) (85N, 40W)
 Stat. inversees

Scores v5.3.14FL vs. 5.3.14FL3M

- Emet TT, TD, UV, P0
- Very small differences



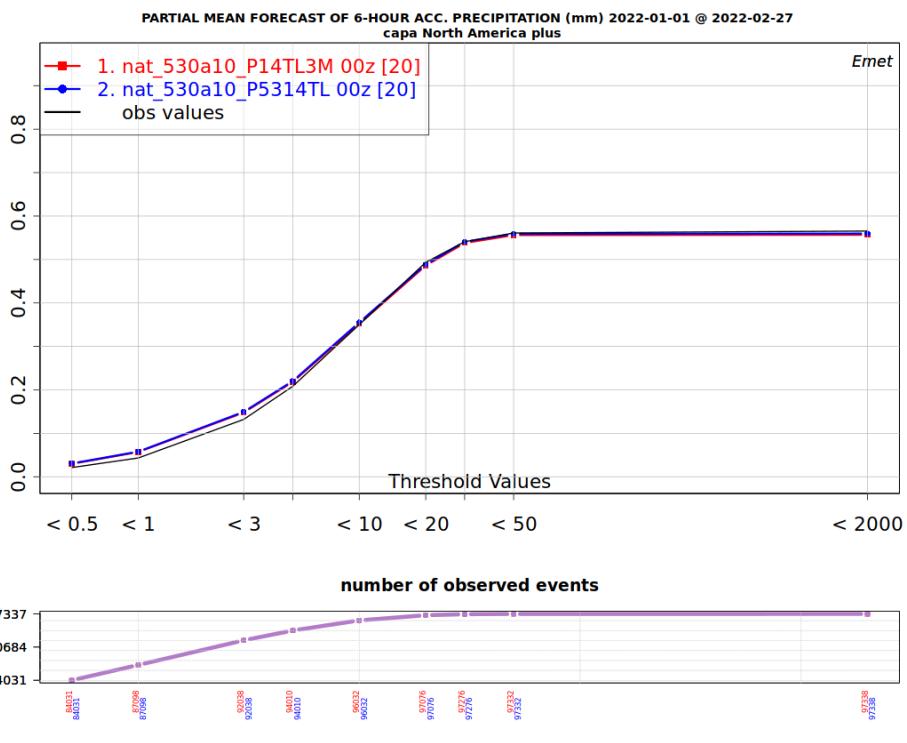
bias		rmse		stdev	
bias	nat_530a10_P14TL3M 00z / nat_530a10_P5314TL 00z	rmse	nat_530a10_P14TL3M 00z / nat_530a10_P5314TL 00z	stdev	nat_530a10_P14TL3M 00z / nat_530a10_P5314TL 00z
	20220101 / 20220228		20220101 / 20220228		20220101 / 20220228
All		All		All	
Appalachia CLIM	TD 0.0	rmse	Appalachia CLIM	stdev	Appalachia CLIM
	TT -0.0021				
Arctic All CLIM	TD 0.014	rmse	Arctic All CLIM	stdev	Arctic All CLIM
	TT 0.02				
Arctic Land CLIM	TD 0.017	rmse	Arctic Land CLIM	stdev	Arctic Land CLIM
	TT 0.019				
Boreal CLIM	TD -0.0068	rmse	Boreal CLIM	stdev	Boreal CLIM
	TT 0.00034				
Canada	TD -0.0032	rmse	Canada	stdev	Canada
	TT -0.0053				
Central CLIM	TD -0.0039	rmse	Central CLIM	stdev	Central CLIM
	TT -0.012				
Central Plains CLIM	TD 0.0	rmse	Central Plains CLIM	stdev	Central Plains CLIM
	TT -0.005				
Great Lakes CLIM	TD -0.00033	rmse	Great Lakes CLIM	stdev	Great Lakes CLIM
	TT -0.0053				
MidAtlantic CLIM	TD -0.0022	rmse	MidAtlantic CLIM	stdev	MidAtlantic CLIM
	TT -0.0023				
Mt West CLIM	TD -0.017	rmse	Mt West CLIM	stdev	Mt West CLIM
	TT -0.013				
North America plus	TD -0.0026	rmse	North America plus	stdev	North America plus
	TT -0.0077				
North Atlantic CLIM	TD -0.0029	rmse	North Atlantic CLIM	stdev	North Atlantic CLIM
	TT -1.3e-06				
North Plains CLIM	TD 0.00052	rmse	North Plains CLIM	stdev	North Plains CLIM
	TT -0.0069				
Pacific North West CLIM	TD 0.0	rmse	Pacific North West CLIM	stdev	Pacific North West CLIM
	TT -0.0018				
Prairie CLIM	TD -0.0062	rmse	Prairie CLIM	stdev	Prairie CLIM
	TT -0.016				

bias	
nat_530a10_P14TL3M 00z / nat_530a10_P5314TL 00z	20220101 / 20220228
All	
Appalachia CLIM	P0 -0.0018
Arctic All CLIM	P0 -0.003
Arctic Land CLIM	P0 -0.0029
Boreal CLIM	P0 -0.00097
Canada	P0 -0.0019
Central CLIM	P0 -0.0037
Central Plains CLIM	P0 0.0
Great Lakes CLIM	P0 0.0
MidAtlantic CLIM	P0 0.0
Mt West CLIM	P0 0.027
North America plus	P0 -0.0023
North Atlantic CLIM	P0 -0.001
North Plains CLIM	P0 -0.0038
Pacific North West CLIM	P0 0.00016
Prairie CLIM	P0 -0.0017

bias	
nat_530a10_P14TL3M 00z / nat_530a10_P5314TL 00z	20220101 / 20220228
All	
Appalachia CLIM	UV 0.0
Arctic All CLIM	UV 0.0
Arctic Land CLIM	UV 0.0
Boreal CLIM	UV 0.0
Canada	UV 0.00071
Central CLIM	UV -0.00073
Central Plains CLIM	UV 0.0
Great Lakes CLIM	UV -0.0008
MidAtlantic CLIM	UV 0.0006
Mt West CLIM	UV 0.0
North America plus	UV 0.00053
North Atlantic CLIM	UV 0.00091
North Plains CLIM	UV -0.0005
Pacific North West CLIM	UV 0.00035
Prairie CLIM	UV 0.0

Scores v5.3.14FL vs. v5.3.14FL3M

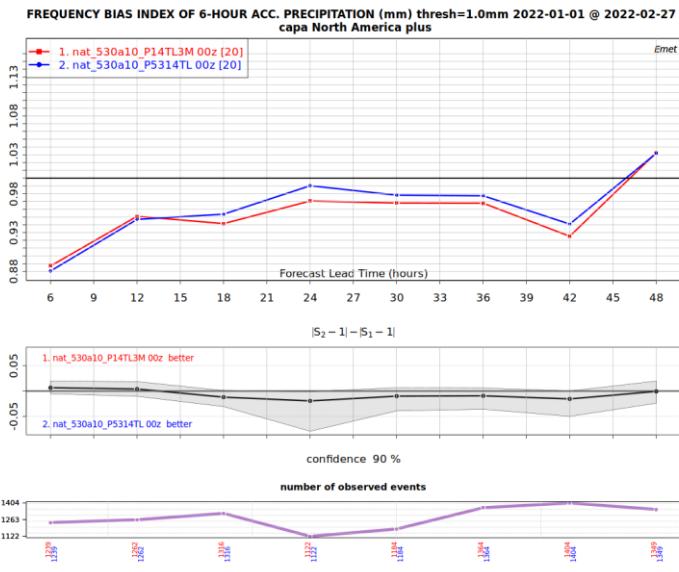
- Emet (PR6 and PR24)



fbi		ets		pod		far	
pmean	/	ets	/	pod	/	far	/
nat_530a10_P14TL3M	20220101 /	nat_530a10_P14TL3M	20220101 /	nat_530a10_P14TL3M	20220101 /	nat_530a10_P14TL3M	20220101 /
00z /	20220228	00z /	20220228	00z /	20220228	00z /	20220228
nat_530a10_P5314TL	All	nat_530a10_P5314TL	All	nat_530a10_P5314TL	All	nat_530a10_P5314TL	All
00z		00z		00z		00z	
Appalachia CLIM	PR24 -0.011	Appalachia CLIM	PR24 0.0081	Appalachia CLIM	PR24 0.0045	Appalachia CLIM	PR24 0.0046
	PR6 -0.0016		PR6 0.0023		PR6 0.0063		PR6 0.0046
Arctic All CLIM	PR24 0.0	Arctic All CLIM	PR24 0.0	Arctic All CLIM	PR24 0.0	Arctic All CLIM	PR24 0.0
	PR6 -0.0027		PR6 0.018		PR6 0.0		PR6 0.0092
Arctic Land CLIM	PR24 0.0	Arctic Land CLIM	PR24 0.0	Arctic Land CLIM	PR24 0.0	Arctic Land CLIM	PR24 0.0
	PR6 0.019		PR6 0.0		PR6 0.0		PR6 0.0
Boreal CLIM	PR24 0.0	Boreal CLIM	PR24 0.0	Boreal CLIM	PR24 0.014	Boreal CLIM	PR24 0.0
	PR6 0.0		PR6 -0.01		PR6 -0.0057		PR6 0.0
Canada	PR24 0.0	Canada	PR24 0.0	Canada	PR24 0.0	Canada	PR24 -0.0013
	PR6 0.0		PR6 -0.0032		PR6 -0.0048		PR6 0.0
Central CLIM	PR24 -0.0063	Central CLIM	PR24 -0.025	Central CLIM	PR24 -0.017	Central CLIM	PR24 -0.041
	PR6 -0.011		PR6 0.0014		PR6 -0.0052		PR6 0.0059
Central Plains CLIM	PR24 0.0	Central Plains CLIM	PR24 0.0	Central Plains CLIM	PR24 0.0	Central Plains CLIM	PR24 0.0
	PR6 0.0		PR6 0.0		PR6 0.0		PR6 0.0
Great Lakes CLIM	PR24 0.0	Great Lakes CLIM	PR24 -0.015	Great Lakes CLIM	PR24 0.0	Great Lakes CLIM	PR24 -0.012
	PR6 -0.032		PR6 0.0		PR6 0.0		PR6 0.0
MidAtlantic CLIM	PR24 0.0025	MidAtlantic CLIM	PR24 0.0018	MidAtlantic CLIM	PR24 -0.001	MidAtlantic CLIM	PR24 0.0
	PR6 -0.024		PR6 0.0027		PR6 -0.01		PR6 0.0067
Mt West CLIM	PR24 -0.019	Mt West CLIM	PR24 0.0	Mt West CLIM	PR24 0.0	Mt West CLIM	PR24 0.0
	PR6 0.0		PR6 -0.0039		PR6 -0.0033		PR6 0.0
North America plus	PR24 -0.0033	North America plus	PR24 0.0	North America plus	PR24 0.0	North America plus	PR24 0.0025
	PR6 -0.0018		PR6 -0.00061		PR6 -0.0014		PR6 0.0
North Atlantic CLIM	PR24 -0.034	North Atlantic CLIM	PR24 -0.0019	North Atlantic CLIM	PR24 0.0057	North Atlantic CLIM	PR24 -0.012
	PR6 -0.004		PR6 0.0025		PR6 0.0		PR6 0.0
North Plains CLIM	PR24 0.0	North Plains CLIM	PR24 -0.025	North Plains CLIM	PR24 0.0	North Plains CLIM	PR24 -0.023
	PR6 -0.14		PR6 0.0		PR6 0.0		PR6 0.0
Pacific North West CLIM	PR24 0.0	Pacific North West CLIM	PR24 0.0	Pacific North West CLIM	PR24 0.0	Pacific North West CLIM	PR24 0.0
	PR6 0.0		PR6 0.0		PR6 0.0		PR6 0.0
Prairie CLIM	PR24 -0.02	Prairie CLIM	PR24 -0.014	Prairie CLIM	PR24 -0.019	Prairie CLIM	PR24 -0.01
	PR6 -0.021		PR6 -0.0027		PR6 -0.0092		PR6 0.0059

Scores v5.3.14FL vs. v5.3.14FL3M

- FBI



fbi1

		20220101 / 20220228
fbi1	nat_530a10_P14TL3M 00z / nat_530a10_P5314TL 00z	All
Appalachia CLIM	PR6	-0.00026
Arctic All CLIM	PR6	0.0039
Arctic Land CLIM	PR6	0.0046
Boreal CLIM	PR6	-0.0048
Canada	PR6	-0.00049
Central CLIM	PR6	-0.017
Central Plains CLIM	PR6	0.0
Great Lakes CLIM	PR6	0.011
MidAtlantic CLIM	PR6	-0.012
Mt West CLIM	PR6	0.0
North America plus	PR6	-0.0025
North Atlantic CLIM	PR6	-0.0029
North Plains CLIM	PR6	0.029
Pacific North West CLIM	PR6	0.0
Prairie CLIM	PR6	-0.023

fbi2

		20220101 / 20220228
fbi2	nat_530a10_P14TL3M 00z / nat_530a10_P5314TL 00z	All
Appalachia CLIM	PR6	0.00051
Arctic All CLIM	PR6	-0.017
Arctic Land CLIM	PR6	0.024
Boreal CLIM	PR6	0.022
Canada	PR6	0.0036
Central CLIM	PR6	-0.0035
Central Plains CLIM	PR6	0.0
Great Lakes CLIM	PR6	-0.033
MidAtlantic CLIM	PR6	-0.0028
Mt West CLIM	PR6	-0.013
North America plus	PR6	0.0022
North Atlantic CLIM	PR6	0.0
North Plains CLIM	PR6	0.0
Pacific North West CLIM	PR6	0.0
Prairie CLIM	PR6	0.026

fbi5

		20220101 / 20220228
fbi5	nat_530a10_P14TL3M 00z / nat_530a10_P5314TL 00z	All
Appalachia CLIM	PR6	-0.0018
Arctic All CLIM	PR6	0.0
Arctic Land CLIM	PR6	0.0
Boreal CLIM	PR6	0.0
Canada	PR6	0.0
Central CLIM	PR6	-0.049
Central Plains CLIM	PR6	0.0
Great Lakes CLIM	PR6	0.0
MidAtlantic CLIM	PR6	0.0062
Mt West CLIM	PR6	0.026
North America plus	PR6	-0.0017
North Atlantic CLIM	PR6	-0.036
North Plains CLIM	PR6	0.0
Pacific North West CLIM	PR6	-0.0032
Prairie CLIM	PR6	-0.049

fbi10

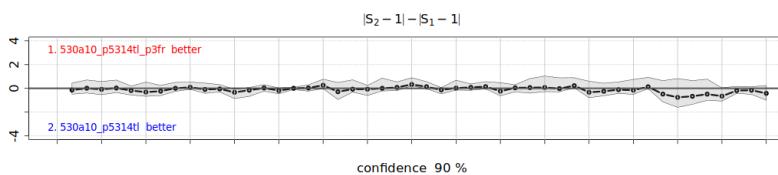
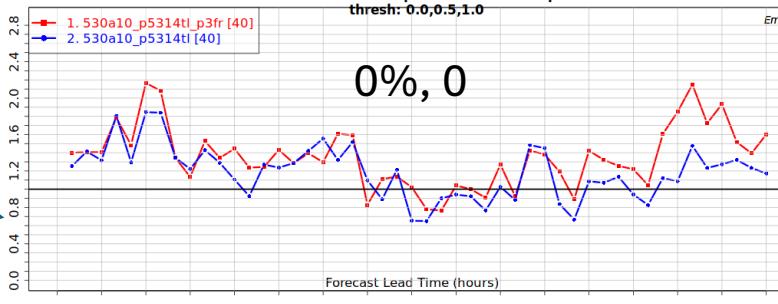
		20220101 / 20220228
fbi10	nat_530a10_P14TL3M 00z / nat_530a10_P5314TL 00z	All
Appalachia CLIM	PR6	0.0046
Arctic All CLIM	PR6	0.0
Arctic Land CLIM	PR6	0.0
Boreal CLIM	PR6	0.064
Canada	PR6	-0.0046
Central CLIM	PR6	0.0
Central Plains CLIM	PR6	0.0
Great Lakes CLIM	PR6	-0.067
MidAtlantic CLIM	PR6	0.0043
Mt West CLIM	PR6	0.0
North America plus	PR6	0.007
North Atlantic CLIM	PR6	-0.036
North Plains CLIM	PR6	0.0
Pacific North West CLIM	PR6	-0.023
Prairie CLIM	PR6	0.0

PR>0.1 mm

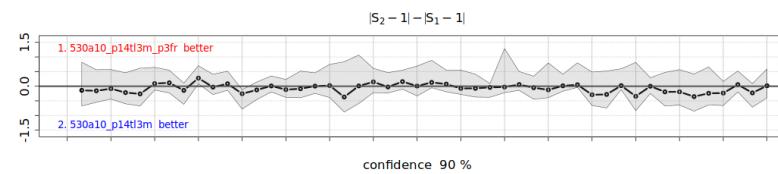
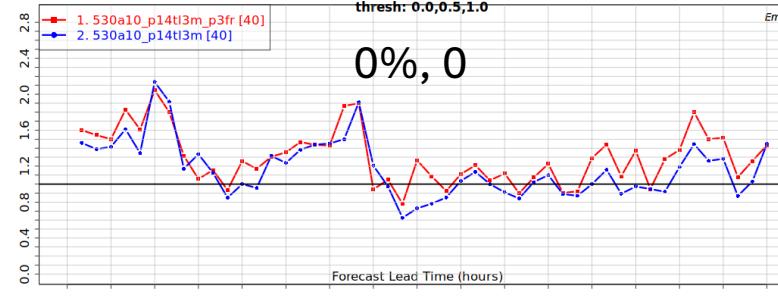
PR>1 mm

V5.3.14FL

ENCY BIAS INDEX OF 1-HOUR FREEZ. RAIN/DRIZZLE VS METAR PRECIP. TYPE (with precip condition) 2022-01-01 @ 20
PR>=0.1 ade metar speci North America plus
thresh: 0.0,0.5,1.0



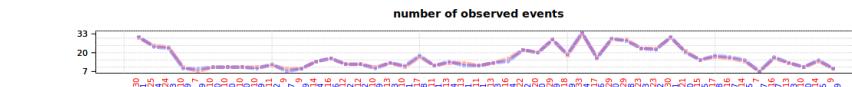
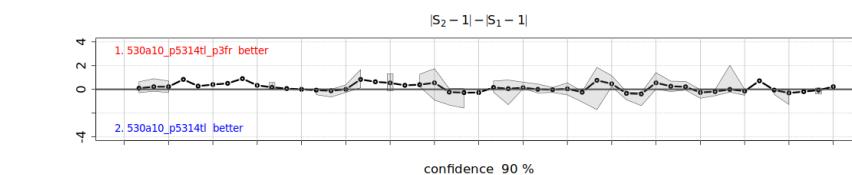
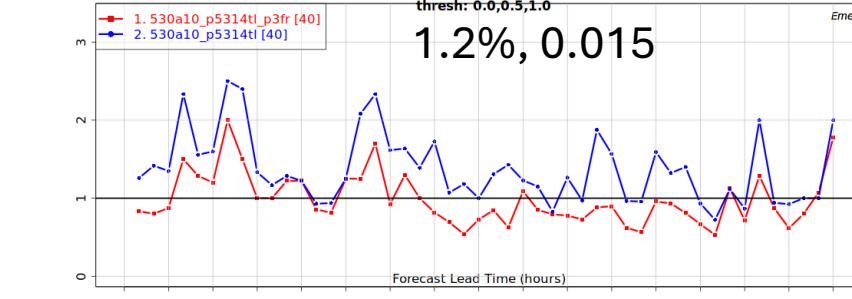
ENCY BIAS INDEX OF 1-HOUR FREEZ. RAIN/DRIZZLE VS METAR PRECIP. TYPE (with precip condition) 2022-01-01 @ 20
PR>=0.1 ade metar speci North America plus
thresh: 0.0,0.5,1.0



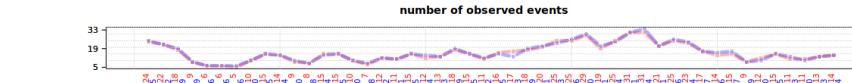
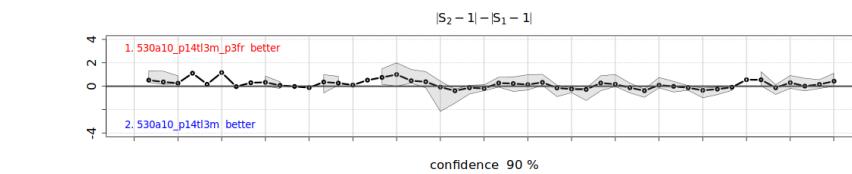
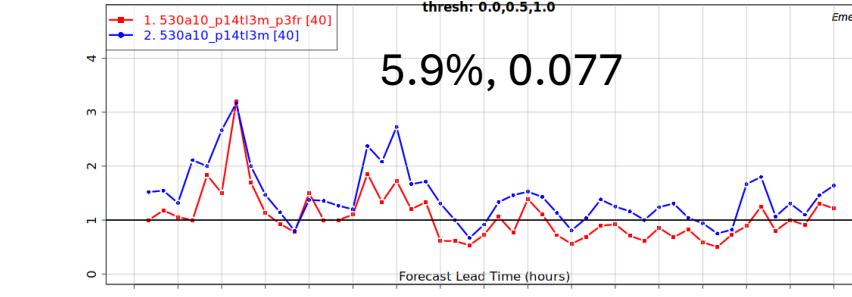
FR (P3) = FR1+FR2
FR (Bourguoin)

V5.3.14FL3M

ENCY BIAS INDEX OF 1-HOUR FREEZ. RAIN/DRIZZLE VS METAR PRECIP. TYPE (with precip condition) 2022-01-01 @ 20
PR>=1.0 ade metar speci North America plus
thresh: 0.0,0.5,1.0

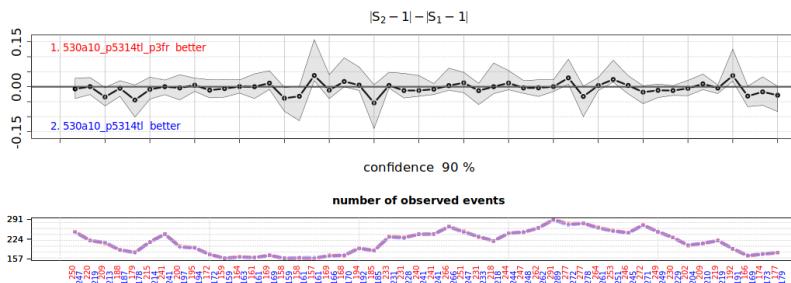
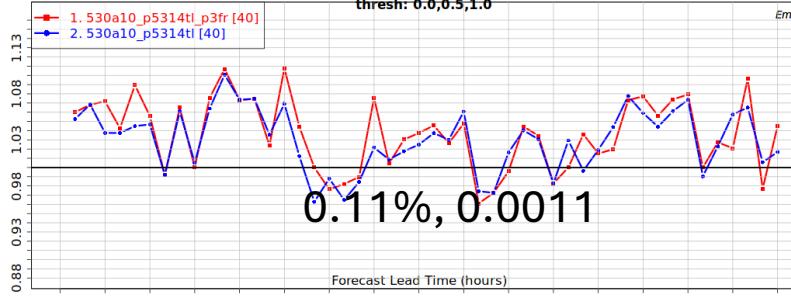


ENCY BIAS INDEX OF 1-HOUR FREEZ. RAIN/DRIZZLE VS METAR PRECIP. TYPE (with precip condition) 2022-01-01 @ 20
PR>=1.0 ade metar speci North America plus
thresh: 0.0,0.5,1.0

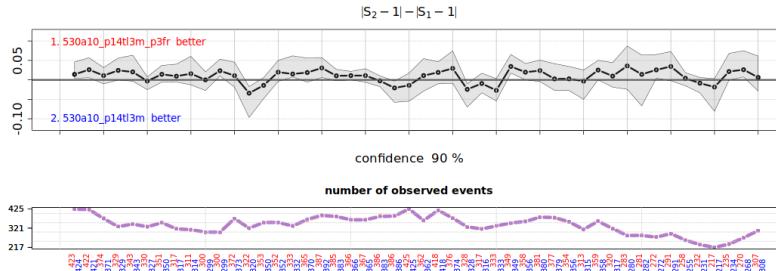
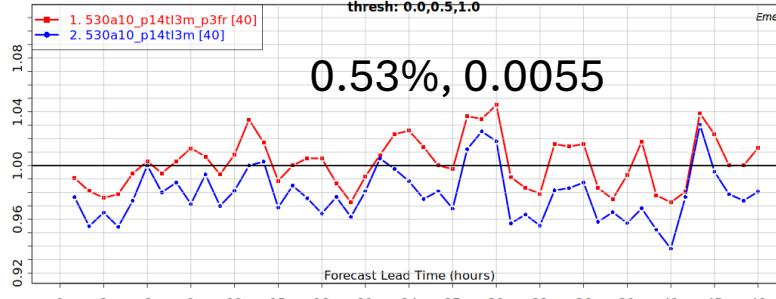


Snow

FREQUENCY BIAS INDEX OF 1-HOUR SNOW VS METAR PRECIP. TYPE (with precip condition) 2022-01-01 @ 2022-02-22
PR>=1.0 ade metar speci North America plus
thresh: 0.0,0.5,1.0

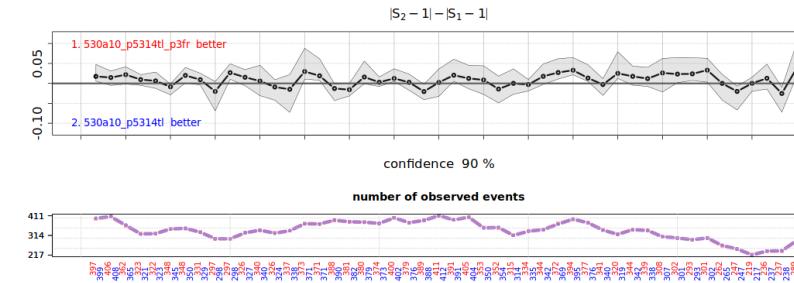
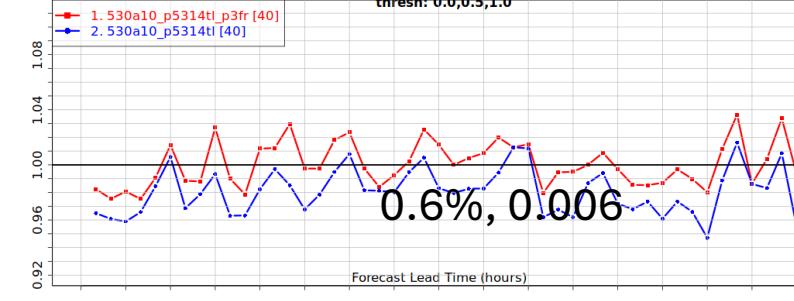


EQUENCY BIAS INDEX OF 1-HOUR RAIN/DRIZZLE VS METAR PRECIP. TYPE (with precip condition) 2022-01-01 @ 2022-02-22
PR>=1.0 ade metar speci North America plus
thresh: 0.0,0.5,1.0

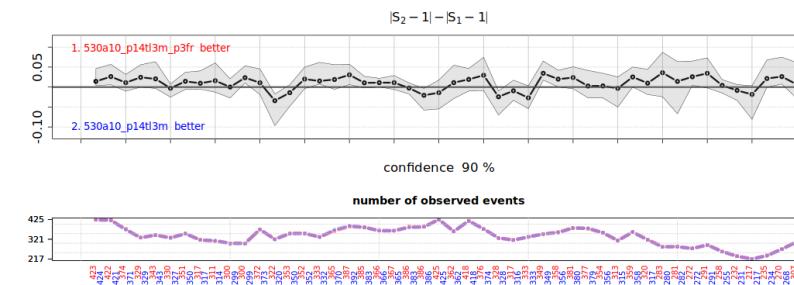
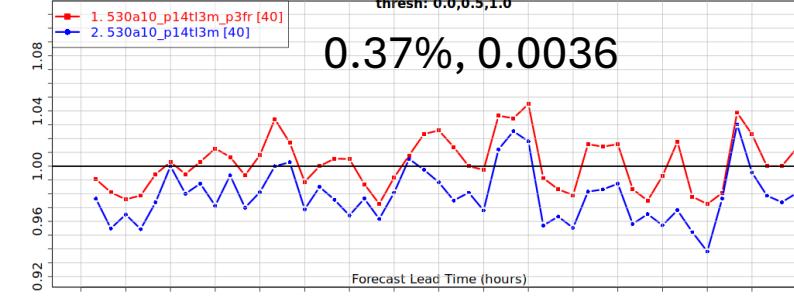


Rain

EQUENCY BIAS INDEX OF 1-HOUR RAIN/DRIZZLE VS METAR PRECIP. TYPE (with precip condition) 2022-01-01 @ 2022-02-22
PR>=1.0 ade metar speci North America plus
thresh: 0.0,0.5,1.0



EQUENCY BIAS INDEX OF 1-HOUR RAIN/DRIZZLE VS METAR PRECIP. TYPE (with precip condition) 2022-01-01 @ 2022-02-22
PR>=1.0 ade metar speci North America plus
thresh: 0.0,0.5,1.0



PR > 1 mm

V5.3.14LF



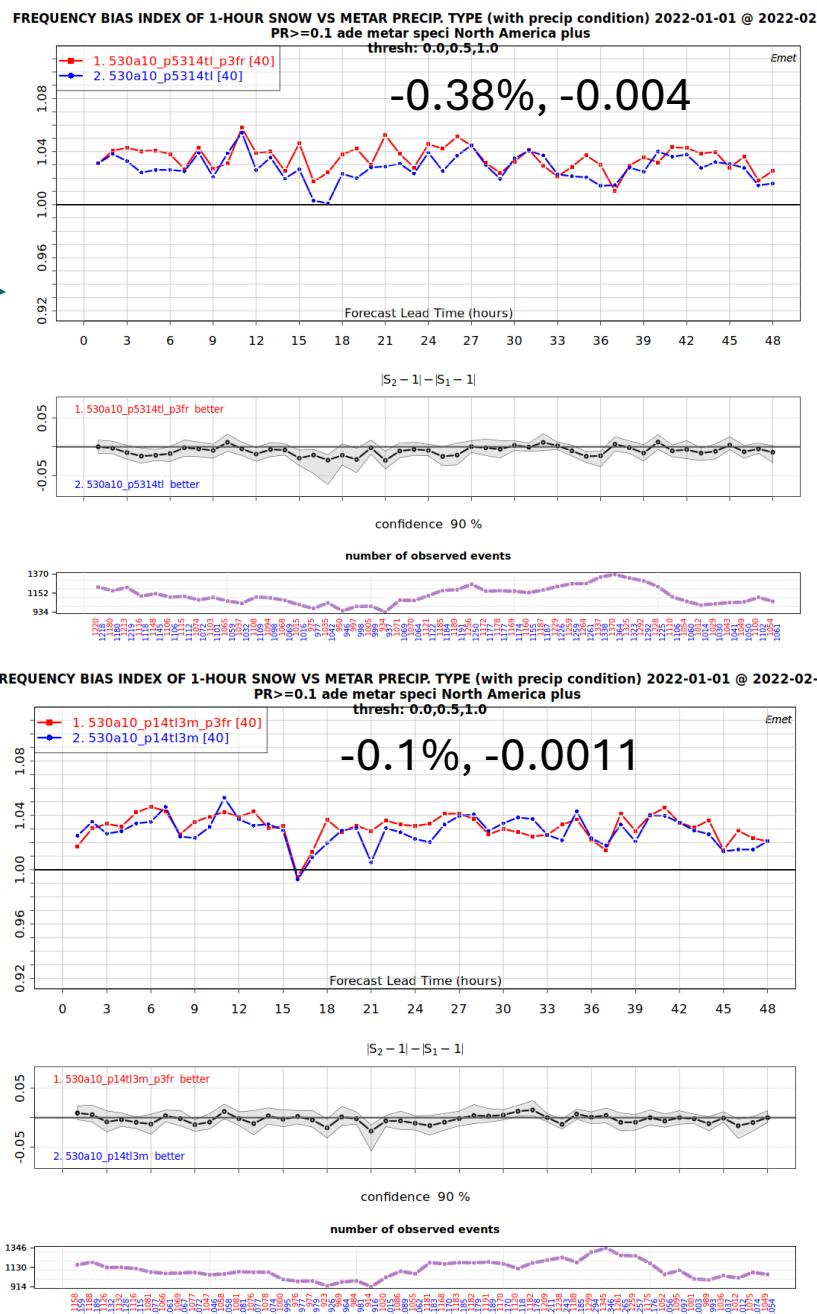
SN (P3)
SN1+SN2+SN3+
WS
SN (Bourgouin)
RN (P3) RN1+RN2
RN (Bourgouin)

V5.3.14FL3M



Snow

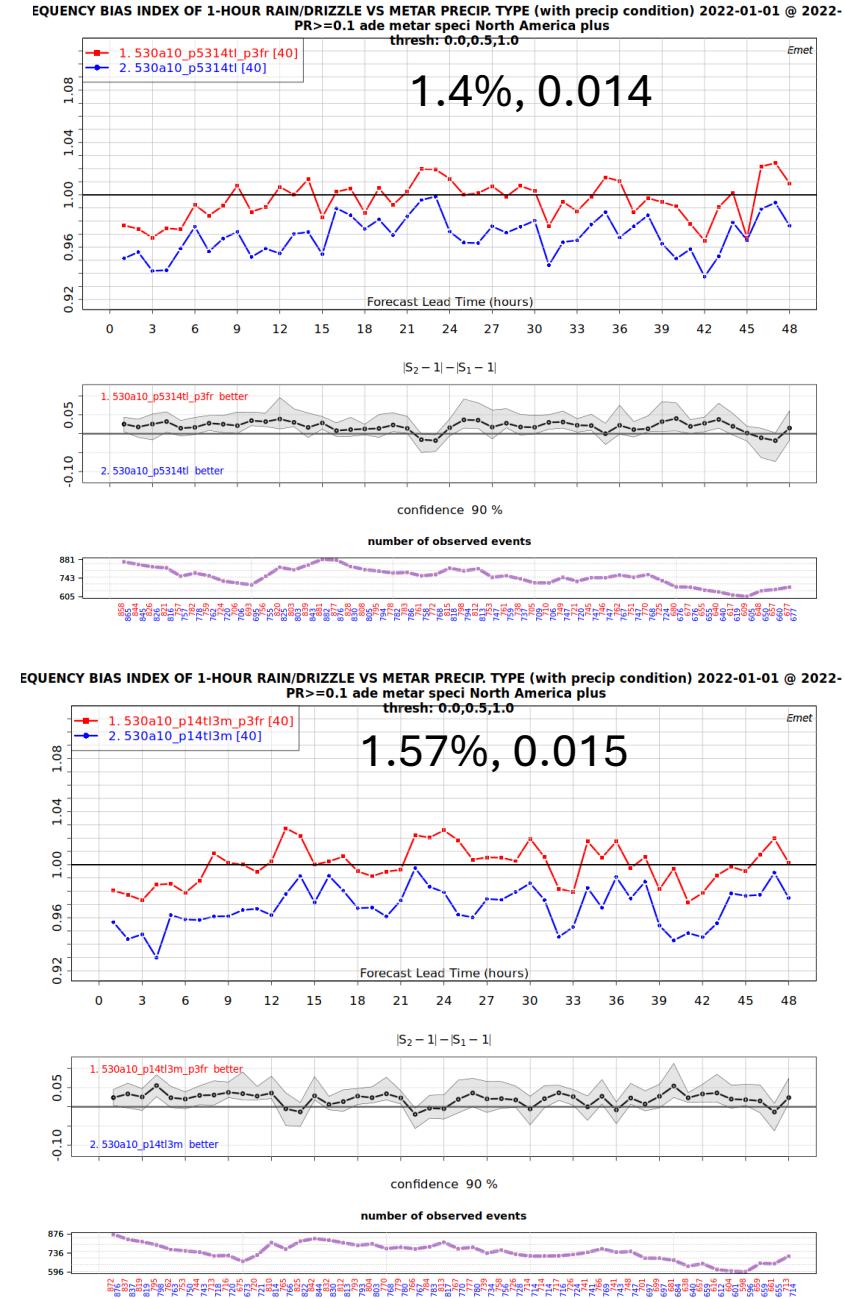
V5.3.14FL



Rain

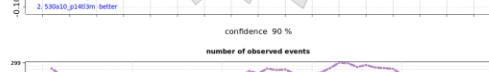
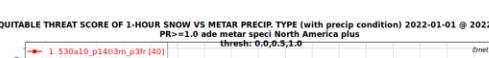
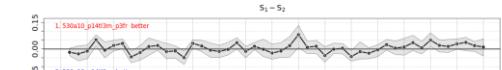
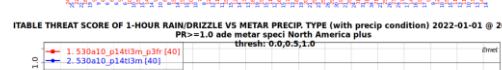
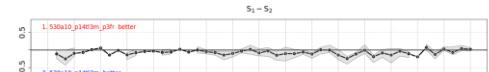
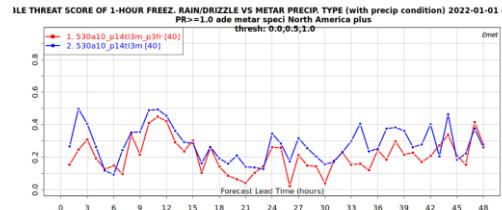
PR > 0.1 mm

SN (P3)
SN1+SN2+SN3+
WS
SN (Bourgouin)
RN (P3) RN1+RN2
RN (Bourgouin)



v5.3.14FL3M -- Bourgouin vs. P3 (FR, SN, RN)

ETS



v5.3.14FL3M -- Bourgouin vs. P3 (PE)

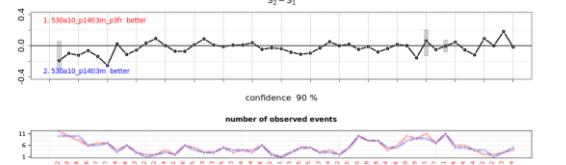
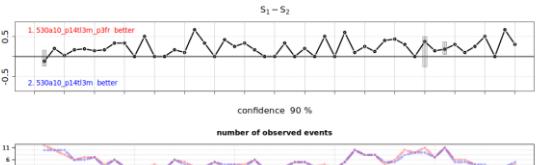
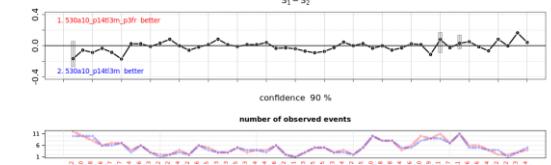
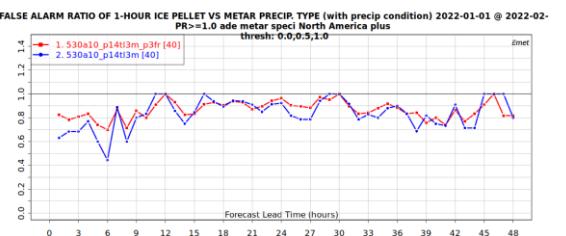
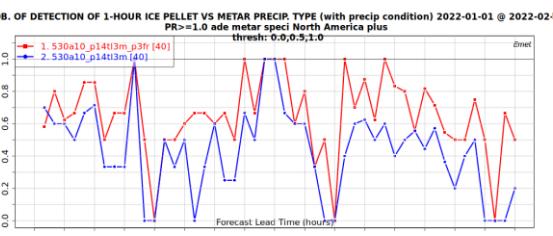
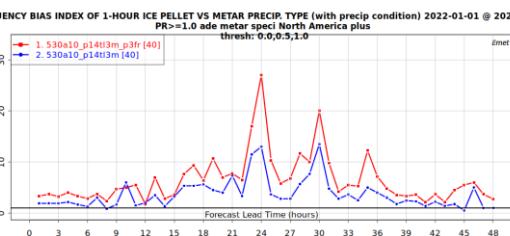
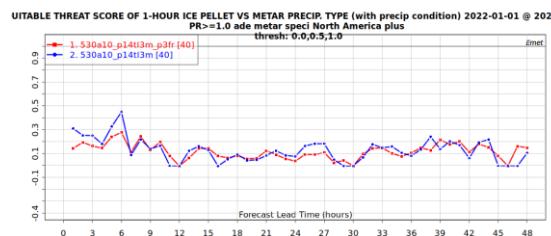
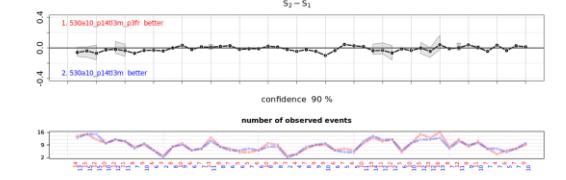
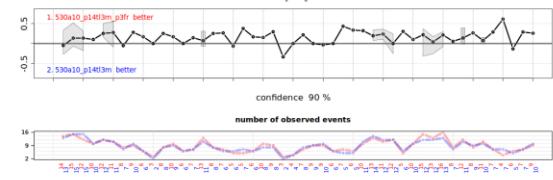
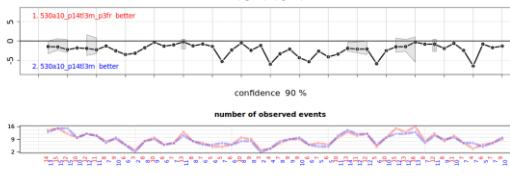
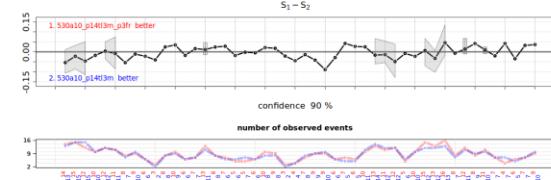
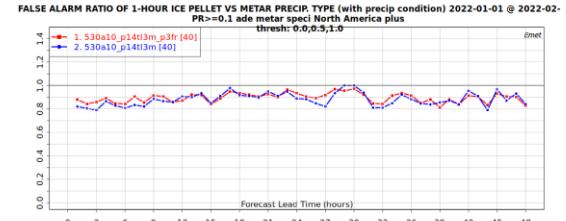
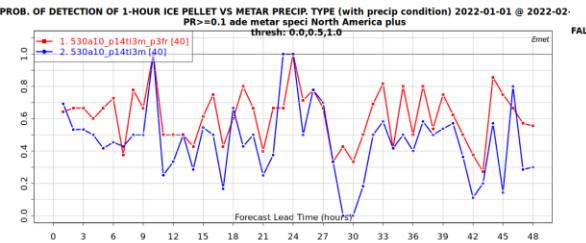
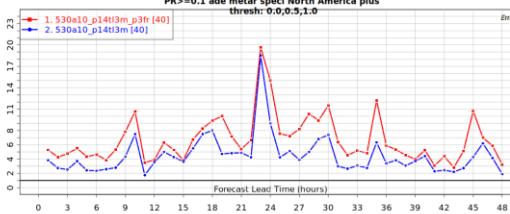
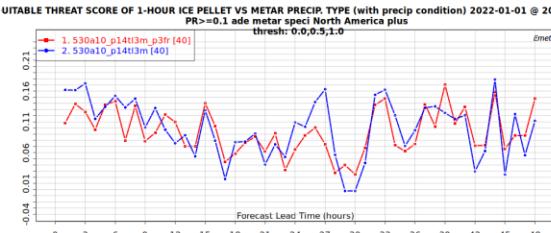
Similar to v5.3.14FL

ETS

FBI

POD

FAR



PR >
0.1
mm

PR > 1
mm

Timing v5.3.14FL winter

HRnat_530a10_P5314TL_2022010100_M_4566859.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5754.1508 seconds (13.91 ms logging)
HRnat_530a10_P5314TL_2022010212_M_4566864.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5882.2037 seconds (13.78 ms logging)
HRnat_530a10_P5314TL_2022010400_M_4566849.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5791.4423 seconds (13.83 ms logging)
HRnat_530a10_P5314TL_2022010512_M_4566856.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5703.0139 seconds (13.75 ms logging)
HRnat_530a10_P5314TL_2022010700_M_4566869.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5830.7763 seconds (13.89 ms logging)
HRnat_530a10_P5314TL_2022010812_M_4566927.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5706.5820 seconds (13.57 ms logging)
HRnat_530a10_P5314TL_2022011000_M_4566890.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5629.6374 seconds (13.99 ms logging)
HRnat_530a10_P5314TL_2022011112_M_4566883.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5637.8190 seconds (13.60 ms logging)
HRnat_530a10_P5314TL_2022011300_M_4566932.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5684.7961 seconds (13.70 ms logging)
HRnat_530a10_P5314TL_2022011412_M_4566887.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5728.1482 seconds (13.71 ms logging)
HRnat_530a10_P5314TL_2022011600_M_4566931.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5676.5187 seconds (13.60 ms logging)
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HRnat_530a10_P5314TL_2022011900_M_4566933.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5703.8977 seconds (13.72 ms logging)
HRnat_530a10_P5314TL_2022012012_M_4566934.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5696.2527 seconds (13.66 ms logging)
HRnat_530a10_P5314TL_2022012200_M_4566935.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5733.1125 seconds (14.21 ms logging)
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HRnat_530a10_P5314TL_2022012500_M_4566913.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5562.3907 seconds (13.73 ms logging)
HRnat_530a10_P5314TL_2022012612_M_4566866.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5613.3915 seconds (13.89 ms logging)
HRnat_530a10_P5314TL_2022012800_M_4566936.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5718.4565 seconds (14.08 ms logging)
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HRnat_530a10_P5314TL_2022020300_M_4567228.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5613.4428 seconds (13.48 ms logging)
HRnat_530a10_P5314TL_2022020412_M_4567263.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5741.5991 seconds (13.50 ms logging)
HRnat_530a10_P5314TL_2022020600_M_4567266.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5689.2031 seconds (14.06 ms logging)
HRnat_530a10_P5314TL_2022020712_M_4567271.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5675.3520 seconds (13.66 ms logging)
HRnat_530a10_P5314TL_2022020900_M_4567305.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5732.8475 seconds (13.99 ms logging)
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HRnat_530a10_P5314TL_2022021200_M_4567376.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5552.7663 seconds (14.23 ms logging)
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HRnat_530a10_P5314TL_2022021612_M_4567694.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5680.7841 seconds (14.12 ms logging)
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Mean (2MOM_LF_n1):

$227319/40 = 5682$ seconds (+3%)

5640, 5645

Timing v5.3.14FL3M winter

HRnat_530a10_P14TL3M_2022010100_M_4573033.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6602.8478 seconds (14.09 ms logging)
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HRNat_530a10_P14TL3M_2022012200_M_4573073.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6827.7273 seconds (14.28 ms logging)
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HRNat_530a10_P14TL3M_2022012612_M_4573060.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6551.4251 seconds (14.70 ms logging)
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HRNat_530a10_P14TL3M_2022020600_M_4574067.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6483.3920 seconds (13.95 ms logging)
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HRNat_530a10_P14TL3M_2022021500_M_4574166.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6482.4028 seconds (14.27 ms logging)
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HRNat_530a10_P14TL3M_2022021800_M_4574193.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6636.8613 seconds (13.84 ms logging)
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HRNat_530a10_P14TL3M_2022022400_M_4574241.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6810.6079 seconds (13.93 ms logging)
HRNat_530a10_P14TL3M_2022022512_M_4574272.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6536.6468 seconds (14.25 ms logging)
HRNat_530a10_P14TL3M_2022022700_M_4574278.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6362.7212 seconds (13.99 ms logging)
HRNat_530a10_P14TL3M_2022022812_M_4574295.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6454.1240 seconds (13.99 ms logging)

Mean (3MOM_LF_n1):

$259951/40 = 6498$ seconds (+14%)

Conclusions winter 2022 (v5.3.14)

- Rime splintering is improving the explicit freezing rain FBI even when using 1 ice category. It reduces spatial overestimation as well as overestimation in accumulation.
- Including the predicted liquid fraction improves many things without adding cost (<3%). These improvements are:
 - Better physical processes (Cholette et al. 2019)
 - Decrease of freezing rain (Cholette et al. 2020; 2024)
 - Improved reflectivity (bright band; Cholette et al. 2023)
 - Change the phase when wet snow is accumulated (Cholette et al. 2025)
- Other scores remain quite neutral with these changes (both rime splintering and LF_on), with a very small cooling when rime splintering is included.
- Small deterioration of PE but there is no way to know if the scores are significant (very low number of cases).
- In some cases, P3_FR acc. is smaller than FR_bourgouin and PE is higher, so I think we should find a way to validate these accumulations, since we base our analysis only on phase scores.

Appendix for winter 2022

Since FR for P3 and Bourgouin are similar, I did a test with:

Pcptype='nil' (P3v5.3.14FL)

Conclusions:

Very similar then with pcptype='bourgé', but a 2% saving execution time

Timing v5.3.14FL pcptype='nil'

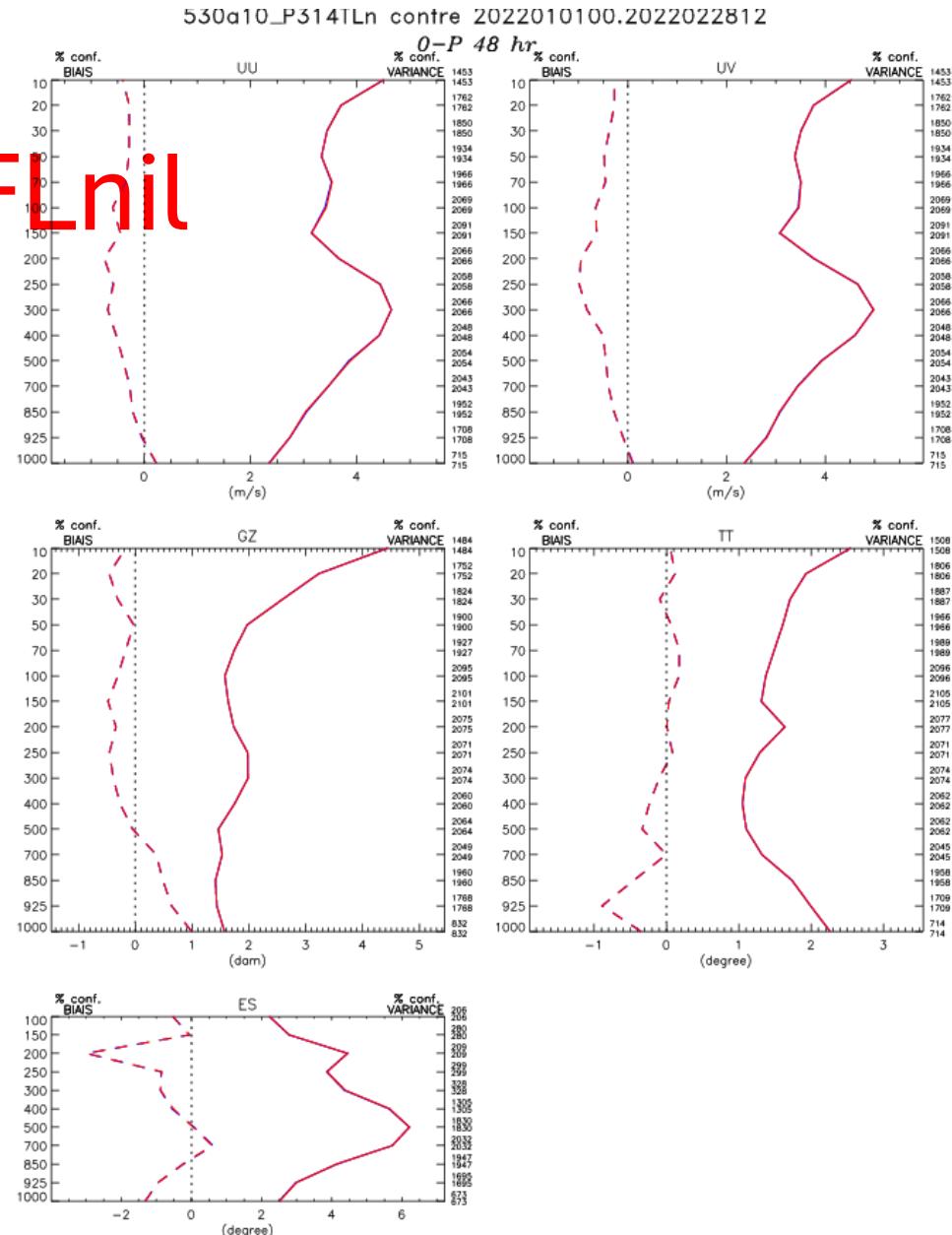
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HRnat_530a10_P314TLn_2022010212_M_4583061.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5906.9718 seconds (13.72 ms logging)
HRnat_530a10_P314TLn_2022010400_M_4583056.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5767.1797 seconds (14.00 ms logging)
HRnat_530a10_P314TLn_2022010512_M_4583060.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5708.1593 seconds (14.34 ms logging)
HRnat_530a10_P314TLn_2022010700_M_4583037.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5843.9094 seconds (13.86 ms logging)
HRnat_530a10_P314TLn_2022010812_M_4583057.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5695.2816 seconds (13.37 ms logging)
HRnat_530a10_P314TLn_2022011000_M_4583071.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5683.8620 seconds (13.54 ms logging)
HRnat_530a10_P314TLn_2022011112_M_4583054.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5651.5873 seconds (13.90 ms logging)
HRnat_530a10_P314TLn_2022011300_M_4583069.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5656.0500 seconds (13.58 ms logging)
HRnat_530a10_P314TLn_2022011412_M_4583072.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5721.5311 seconds (13.54 ms logging)
HRnat_530a10_P314TLn_2022011600_M_4583022.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5716.1615 seconds (13.79 ms logging)
HRNat_530a10_P314TLn_2022011712_M_4583058.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5805.9058 seconds (13.93 ms logging)
HRnat_530a10_P314TLn_2022011900_M_4583066.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5700.5242 seconds (13.60 ms logging)
HRnat_530a10_P314TLn_2022012012_M_4583015.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5694.2238 seconds (13.81 ms logging)
HRnat_530a10_P314TLn_2022012200_M_4583020.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5707.1569 seconds (13.92 ms logging)
HRnat_530a10_P314TLn_2022012312_M_4583073.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5561.0126 seconds (13.67 ms logging)
HRnat_530a10_P314TLn_2022012500_M_4583075.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5546.9165 seconds (13.77 ms logging)
HRnat_530a10_P314TLn_2022012612_M_4583055.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5582.0915 seconds (14.07 ms logging)
HRnat_530a10_P314TLn_2022012800_M_4583077.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5726.6107 seconds (13.60 ms logging)
HRnat_530a10_P314TLn_2022012912_M_4583064.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5916.4701 seconds (13.82 ms logging)
HRnat_530a10_P314TLn_2022013100_M_4583813.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5524.3436 seconds (13.90 ms logging)
HRNat_530a10_P314TLn_2022020112_M_4583825.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5584.6401 seconds (13.92 ms logging)
HRnat_530a10_P314TLn_2022020300_M_4583851.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5685.9997 seconds (13.81 ms logging)
HRnat_530a10_P314TLn_2022020412_M_4583871.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5701.5295 seconds (13.73 ms logging)
HRnat_530a10_P314TLn_2022020600_M_4583884.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5677.0293 seconds (13.88 ms logging)
HRnat_530a10_P314TLn_2022020712_M_4584341.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5709.9074 seconds (13.73 ms logging)
HRnat_530a10_P314TLn_2022020900_M_4584382.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5720.0444 seconds (13.88 ms logging)
HRnat_530a10_P314TLn_2022021012_M_4584377.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5557.1097 seconds (13.73 ms logging)
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HRnat_530a10_P314TLn_2022021800_M_4584566.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5795.1625 seconds (13.99 ms logging)
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HRnat_530a10_P314TLn_2022022100_M_4584684.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5562.2979 seconds (13.50 ms logging)
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HRnat_530a10_P314TLn_2022022512_M_4584759.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5681.5769 seconds (14.08 ms logging)
HRnat_530a10_P314TLn_2022022700_M_4584800.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5640.7314 seconds (13.63 ms logging)
HRnat_530a10_P314TLn_2022022812_M_4584844.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5656.5992 seconds (13.78 ms logging)

Mean (2MOM_LF_n1):

222377/40 = 5559 seconds (-2%)

Scores v5.3.14FL vs. 5.3.14Fnil

- Arcad → completely neutral



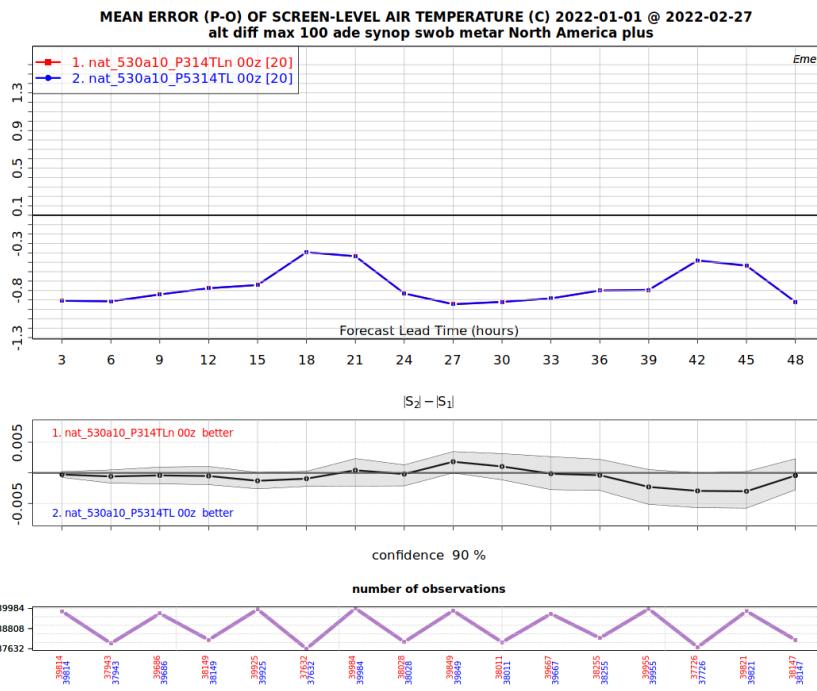
◆ ———	E-T m_ua_530a10_P5314TL_2022010100.2022022812 (40)
□ - - -	BIAIS m_ua_530a10_P5314TL_2022010100.2022022812
◇ ———	E-T m_ua_530a10_P5314TLn_2022010100.2022022812 (40)
□ - - -	BIAIS m_ua_530a10_P5314TLn_2022010100.2022022812

Type : 0-P 48 hr
Region : Amerique du Nord plus
Lat-lon: (25N, 170W) (85N, 40W)
Stat. inversees

Scores v5.3.14FL vs. 5.3.14FLnil

- Emet TT, TD, UV, P0

Very small differences



bias	<	>
bias nat_530a10_P314TLn 00z / nat_530a10_P5314TL 00z	20220101 / 20220208	20220208
	All	
Appalachia CLIM	TD TT	0.001 0.0
Arctic All CLIM	TD TT	0.00079 0.0
Arctic Land CLIM	TD TT	0.0015 0.0
Boreal CLIM	TD TT	-0.00047 0.0
Canada	TD TT	-0.0013 0.0
Central CLIM	TD TT	3.2e-05 0.00076
Central Plains CLIM	TD TT	0.0 0.0015
Great Lakes CLIM	TD TT	0.00032 0.00082
MidAtlantic CLIM	TD TT	-0.0012 -0.0015
Mt West CLIM	TD TT	-0.0024 -0.0012
North America plus	TD TT	-0.00051 0.0
North Atlantic CLIM	TD TT	-0.0008 -0.0011
North Plains CLIM	TD TT	-7.6e-05 0.00048
Pacific North West CLIM	TD TT	0.0 0.0019
Prairie CLIM	TD TT	-0.00049 0.00045

rmse	<	>
nat_530a10_P314TLn00z / nat_530a10_P5314TL00z		/
		20220101 20220228 20220320
		All
Appalachia CLIM	TD	0.0019
	TT	0.0
Arctic All CLIM	TD	0.00079
	TT	0.00039
Arctic Land CLIM	TD	0.00085
	TT	0.00034
Boreal CLIM	TD	0.0
	TT	0.0
Canada	TD	0.0
	TT	0.0
Central CLIM	TD	0.00027
	TT	0.00065
Central Plains CLIM	TD	0.0
	TT	0.00052
Great Lakes CLIM	TD	0.0
	TT	0.00024
MidAtlantic CLIM	TD	0.0015
	TT	0.0
Mt West CLIM	TD	-0.0023
	TT	-0.0014
North America plus	TD	0.00051
	TT	7.3e-05
North Atlantic CLIM	TD	0.0
	TT	0.0
North Plains CLIM	TD	0.0
	TT	0.0
Pacific North West CLIM	TD	0.0
	TT	-0.00077
Prairie CLIM	TD	0.0
	TT	0.0013

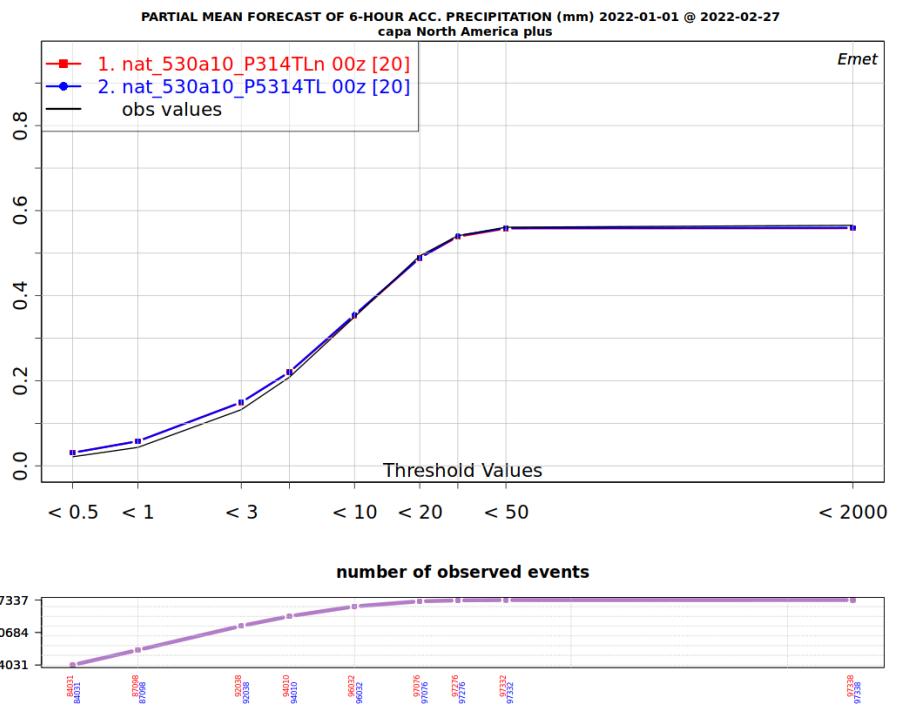
stdev	▼	<	>
nat_530a10_P314TLn00z / nat_530a10_P5314TL00z			20220101 / 20220228
		All	
Appalachia CLIM	TD	0.0016	
	TT	0.0	
Arctic All CLIM	TD	0.0	
	TT	0.00065	
Arctic Land CLIM	TD	0.0	
	TT	0.00037	
Boreal CLIM	TD	0.0005	
	TT	0.0	
Canada	TD	0.0	
	TT	0.0	
Central CLIM	TD	0.0	
	TT	0.00025	
Central Plains CLIM	TD	0.0	
	TT	0.0	
Great Lakes CLIM	TD	0.0	
	TT	0.0	
MidAtlantic CLIM	TD	0.0017	
	TT	0.0016	
Mt West CLIM	TD	0.0011	
	TT	0.0	
North America plus	TD	0.00036	
	TT	0.0	
North Atlantic CLIM	TD	0.00039	
	TT	0.0	
North Plains CLIM	TD	0.0	
	TT	0.0	
Pacific North West CLIM	TD	0.0	
	TT	-0.00083	
Prairie CLIM	TD	0.0	
	TT	0.0007	

bias		/
nat_530a10_P314TLn00z /		20220101 /
nat_530a10_P5314TL00z		20220228
		All
Appalachia CLIM	PO	-0.0012
Arctic All CLIM	PO	0.0
Arctic Land CLIM	PO	0.00046
Boreal CLIM	PO	0.00028
Canada	PO	0.0
Central CLIM	PO	0.00022
Central Plains CLIM	PO	0.0
Great Lakes CLIM	PO	0.0
MidAtlantic CLIM	PO	-0.0031
Mt West CLIM	PO	0.00069
North America plus	PO	0.0
North Atlantic CLIM	PO	-0.0004
North Plains CLIM	PO	0.00045
Pacific North West CLIM	PO	0.00063
Prairie CLIM	PO	0.0

bias		<	>
bias			
nat_530a10_P314TLn00z / nat_530a10_P5314TL00z			
		2022/10/1 2022/10/2	
		All	
Appalachia CLIM	UV	-0.00089	
Arctic All CLIM	UV	0.00033	
Arctic Land CLIM	UV	0.00026	
Boreal CLIM	UV	0.0	
Canada	UV	-4.9e-05	
Central CLIM	UV	-0.00075	
Central Plains CLIM	UV	0.0011	
Great Lakes CLIM	UV	0.00022	
MidAtlantic CLIM	UV	-0.0015	
Mt West CLIM	UV	0.0	
North America plus	UV	-0.00025	
North Atlantic CLIM	UV	-0.0013	
North Plains CLIM	UV	-0.0012	
Pacific North West CLIM	UV	-0.0019	
Prairie CLIM	UV	-0.00052	

Scores v5.3.13FL vs. v5.3.14FLnil

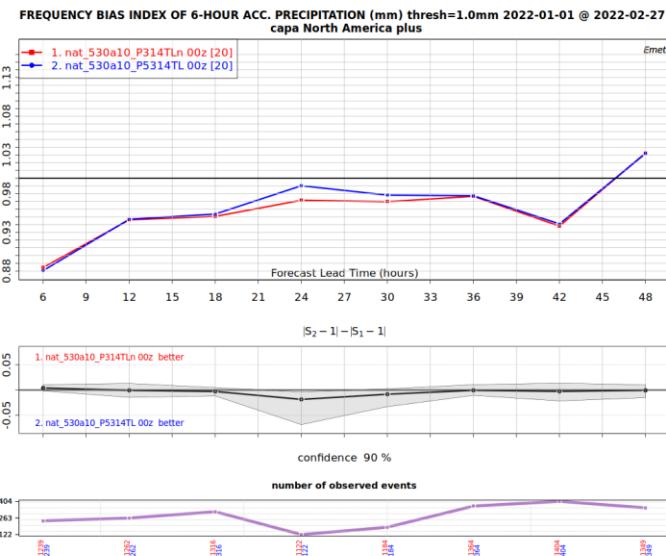
- Emet (PR6 and PR24



pmean		ets		far		pod	
nat_530a10_P314TLn 00z / nat_530a10_P5314TL 00z	/ 20222022 20222022 20222022	ets nat_530a10_P314TLn 00z / nat_530a10_P5314TL 00z	/ 20222022 20222022 20222022	far nat_530a10_P314TLn 00z / nat_530a10_P5314TL 00z	/ 20222022 20222022 20222022	pod nat_530a10_P314TLn 00z / nat_530a10_P5314TL 00z	/ 20222022 20222022 20222022
All	All	All	All	All	All	All	All
Appalachia CLIM	PR24 -0.0051 PR6 -0.0015	Appalachia CLIM	PR24 0.0046 PR6 0.0015	Appalachia CLIM	PR24 0.0043 PR6 0.0034	Appalachia CLIM	PR24 0.0028 PR6 0.0031
Arctic All CLIM	PR24 0.0 PR6 0.0	Arctic All CLIM	PR24 0.0 PR6 0.0	Arctic All CLIM	PR24 -0.02 PR6 0.0	Arctic All CLIM	PR24 0.0 PR6 0.0
Arctic Land CLIM	PR24 0.0 PR6 0.0	Arctic Land CLIM	PR24 0.0 PR6 0.0	Arctic Land CLIM	PR24 -0.022 PR6 0.0	Arctic Land CLIM	PR24 0.0 PR6 0.0
Boreal CLIM	PR24 0.0 PR6 0.0048	Boreal CLIM	PR24 0.0 PR6 -0.017	Boreal CLIM	PR24 0.0 PR6 0.0	Boreal CLIM	PR24 -0.0023 PR6 -0.016
Canada	PR24 0.0095 PR6 0.024	Canada	PR24 0.0 PR6 0.0	Canada	PR24 0.0 PR6 0.0	Canada	PR24 0.0015 PR6 -0.0064
Central CLIM	PR24 -0.0058 PR6 0.0041	Central CLIM	PR24 -0.0026 PR6 0.0	Central CLIM	PR24 0.0016 PR6 0.0	Central CLIM	PR24 0.0 PR6 0.0
Central Plains CLIM	PR24 0.0 PR6 0.0	Central Plains CLIM	PR24 0.0 PR6 0.0	Central Plains CLIM	PR24 0.0 PR6 0.0	Central Plains CLIM	PR24 0.0 PR6 0.0
Great Lakes CLIM	PR24 0.0 PR6 -0.016	Great Lakes CLIM	PR24 0.0 PR6 -0.0013	Great Lakes CLIM	PR24 0.0 PR6 -0.0064	Great Lakes CLIM	PR24 0.0 PR6 -0.0087
MidAtlantic CLIM	PR24 0.0013 PR6 0.0084	MidAtlantic CLIM	PR24 0.00095 PR6 0.014	MidAtlantic CLIM	PR24 0.024 PR6 0.0037	MidAtlantic CLIM	PR24 0.0011 PR6 0.0088
Mt West CLIM	PR24 -0.012 PR6 0.0	Mt West CLIM	PR24 0.014 PR6 0.0	Mt West CLIM	PR24 0.016 PR6 0.0	Mt West CLIM	PR24 0.0043 PR6 0.0012
North America plus	PR24 -0.0051 PR6 -0.00029	North America plus	PR24 0.00048 PR6 0.00094	North America plus	PR24 0.0025 PR6 0.0	North America plus	PR24 0.0 PR6 0.00096
North Atlantic CLIM	PR24 -0.0049 PR6 0.0055	North Atlantic CLIM	PR24 -0.0019 PR6 0.0015	North Atlantic CLIM	PR24 -0.0032 PR6 0.0	North Atlantic CLIM	PR24 -0.0022 PR6 0.0
North Plains CLIM	PR24 0.0 PR6 0.0	North Plains CLIM	PR24 0.0 PR6 0.0	North Plains CLIM	PR24 0.0089 PR6 0.0	North Plains CLIM	PR24 0.0 PR6 0.0
Pacific North West CLIM	PR24 -0.0089 PR6 -0.023	Pacific North West CLIM	PR24 -0.0046 PR6 0.0	Pacific North West CLIM	PR24 -0.002 PR6 0.0	Pacific North West CLIM	PR24 -0.0045 PR6 -0.0013
Prairie CLIM	PR24 0.0 PR6 -0.0037	Prairie CLIM	PR24 0.0 PR6 -0.0018	Prairie CLIM	PR24 0.0 PR6 0.0	Prairie CLIM	PR24 0.0 PR6 0.0

Scores v5.3.14FL vs. v5.3.14FLnil

- FBI



fbi1	
nat_530a10_P314TLn 00z / nat_530a10_P5314TL 00z	20220101 / 20220228
All	All
Appalachia CLIM	PR6 -0.0066
Arctic All CLIM	PR6 -0.013
Arctic Land CLIM	PR6 -0.0066
Boreal CLIM	PR6 0.0042
Canada	PR6 0.0029
Central CLIM	PR6 -0.0031
Central Plains CLIM	PR6 0.0
Great Lakes CLIM	PR6 0.0
MidAtlantic CLIM	PR6 0.0018
Mt West CLIM	PR6 -0.0042
North America plus	PR6 -0.0023
North Atlantic CLIM	PR6 0.0032
North Plains CLIM	PR6 0.029
Pacific North West CLIM	PR6 0.0
Prairie CLIM	PR6 -0.0079

fbi2	
nat_530a10_P314TLn 00z / nat_530a10_P5314TL 00z	20220101 / 20220228
All	All
Appalachia CLIM	PR6 -0.0012
Arctic All CLIM	PR6 0.0
Arctic Land CLIM	PR6 0.0
Boreal CLIM	PR6 0.0025
Canada	PR6 0.0039
Central CLIM	PR6 0.0
Central Plains CLIM	PR6 0.0
Great Lakes CLIM	PR6 -0.0071
MidAtlantic CLIM	PR6 0.0
Mt West CLIM	PR6 -0.013
North America plus	PR6 -0.0025
North Atlantic CLIM	PR6 0.0
North Plains CLIM	PR6 0.0
Pacific North West CLIM	PR6 0.0
Prairie CLIM	PR6 0.039

fbi5	
nat_530a10_P314TLn 00z / nat_530a10_P5314TL 00z	20220101 / 20220228
All	All
Appalachia CLIM	PR6 -0.0038
Arctic All CLIM	PR6 0.0
Arctic Land CLIM	PR6 0.0
Boreal CLIM	PR6 0.0042
Canada	PR6 0.00054
Central CLIM	PR6 -0.017
Central Plains CLIM	PR6 0.0
Great Lakes CLIM	PR6 0.0
MidAtlantic CLIM	PR6 0.0
Mt West CLIM	PR6 -0.042
North America plus	PR6 -0.0027
North Atlantic CLIM	PR6 0.0013
North Plains CLIM	PR6 0.0
Pacific North West CLIM	PR6 -0.0074
Prairie CLIM	PR6 -0.017

fbi10	
nat_530a10_P314TLn 00z / nat_530a10_P5314TL 00z	20220101 / 20220228
All	All
Appalachia CLIM	PR6 0.011
Arctic All CLIM	PR6 0.0
Arctic Land CLIM	PR6 0.0
Boreal CLIM	PR6 0.022
Canada	PR6 0.0011
Central CLIM	PR6 0.0
Central Plains CLIM	PR6 0.0
Great Lakes CLIM	PR6 -0.067
MidAtlantic CLIM	PR6 0.0091
Mt West CLIM	PR6 0.0
North America plus	PR6 -0.0044
North Atlantic CLIM	PR6 -0.015
North Plains CLIM	PR6 0.0
Pacific North West CLIM	PR6 -0.0099
Prairie CLIM	PR6 0.0

PR>0.1 mm

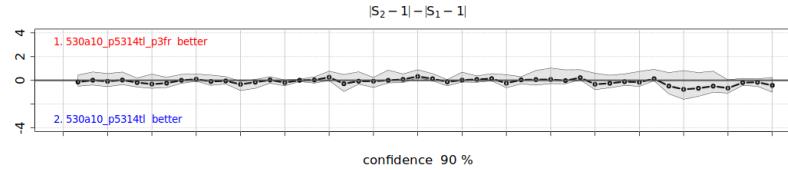
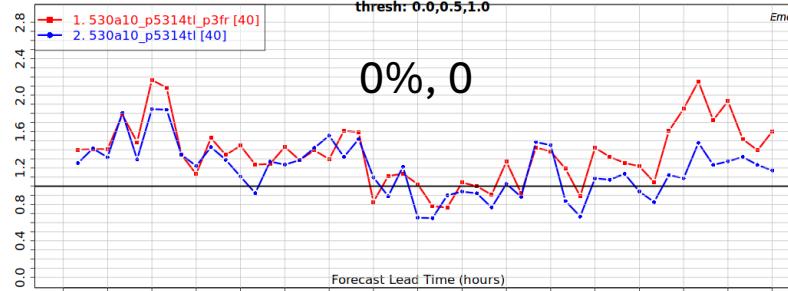
PR>1 mm

V5.3.14LF

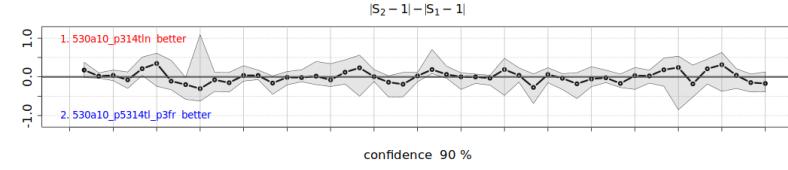
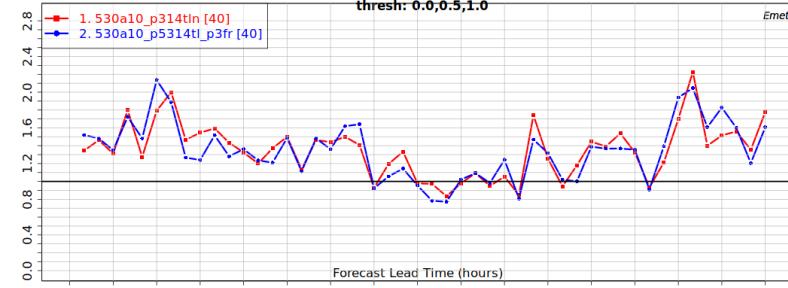
FR (P3) = FR1+FR2
FR (Bourguin)

V5.3.14FLnil

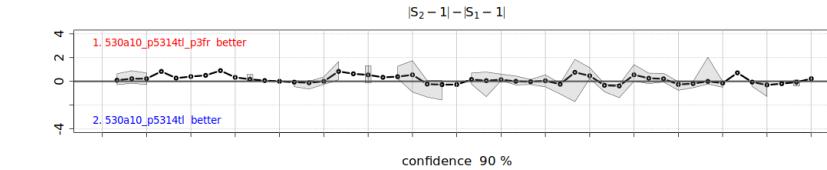
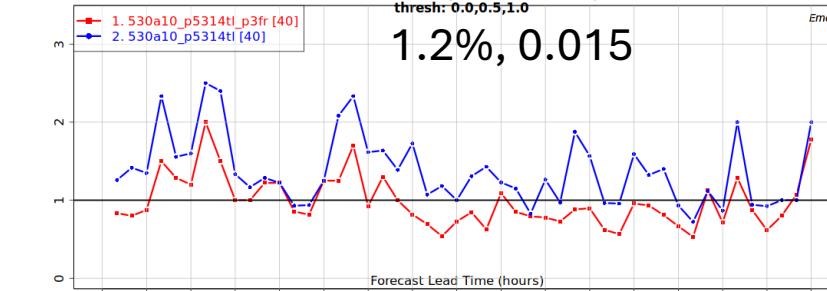
ENCY BIAS INDEX OF 1-HOUR FREEZ. RAIN/DRIZZLE VS METAR PRECIP. TYPE (with precip condition) 2022-01-01 @ 20
PR>=0.1 ade metar speci North America plus



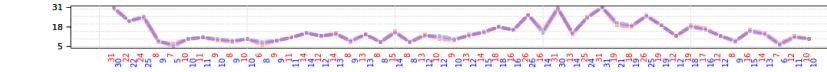
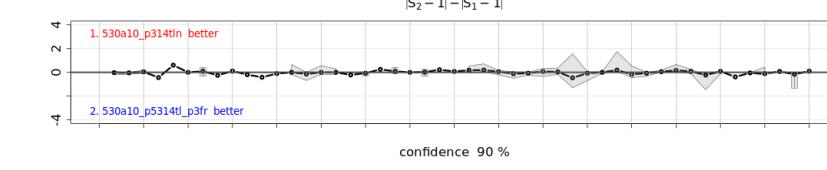
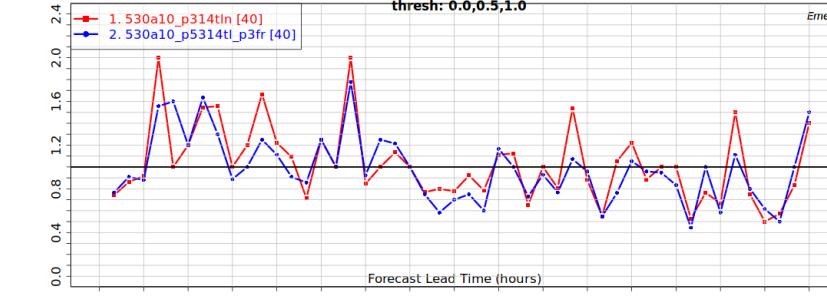
ENCY BIAS INDEX OF 1-HOUR FREEZ. RAIN/DRIZZLE VS METAR PRECIP. TYPE (with precip condition) 2022-01-01 @ 20
PR>=0.1 ade metar speci North America plus



ENCY BIAS INDEX OF 1-HOUR FREEZ. RAIN/DRIZZLE VS METAR PRECIP. TYPE (with precip condition) 2022-01-01 @ 20
PR>=1.0 ade metar speci North America plus

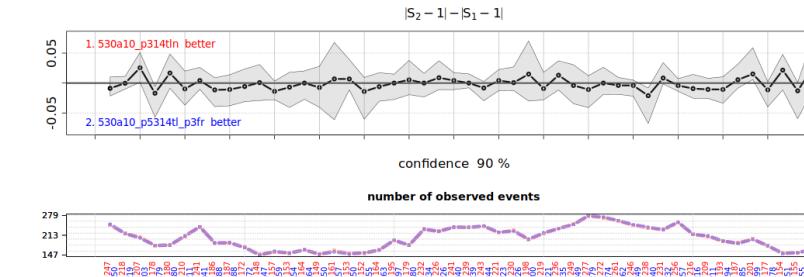
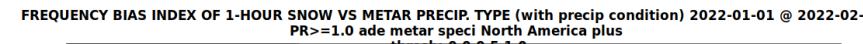
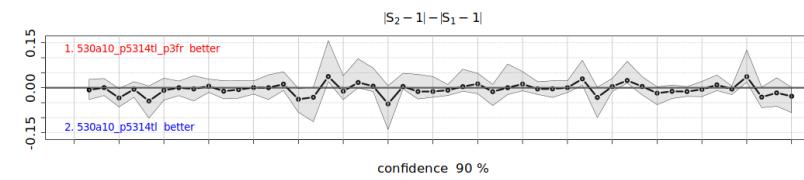
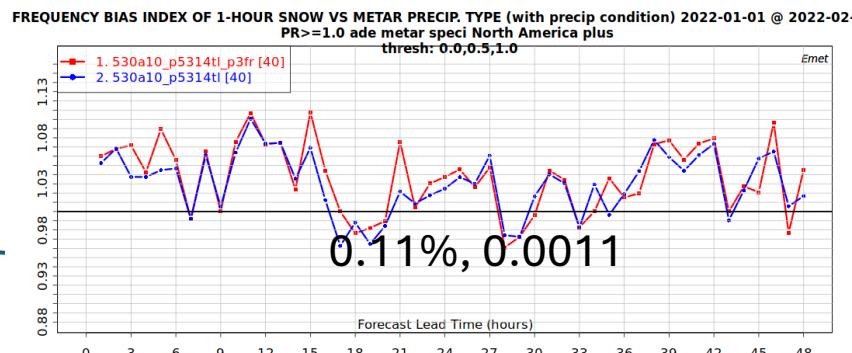


ENCY BIAS INDEX OF 1-HOUR FREEZ. RAIN/DRIZZLE VS METAR PRECIP. TYPE (with precip condition) 2022-01-01 @ 20
PR>=1.0 ade metar speci North America plus



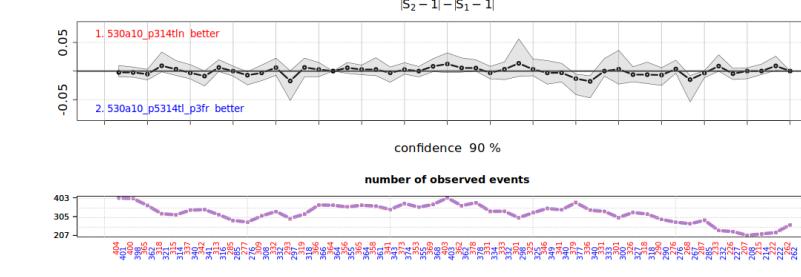
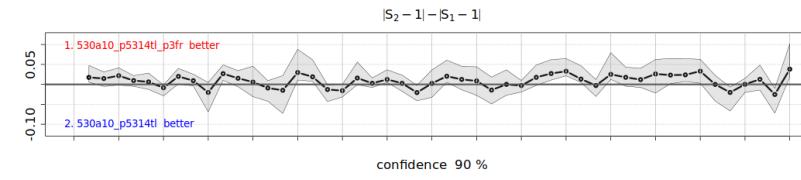
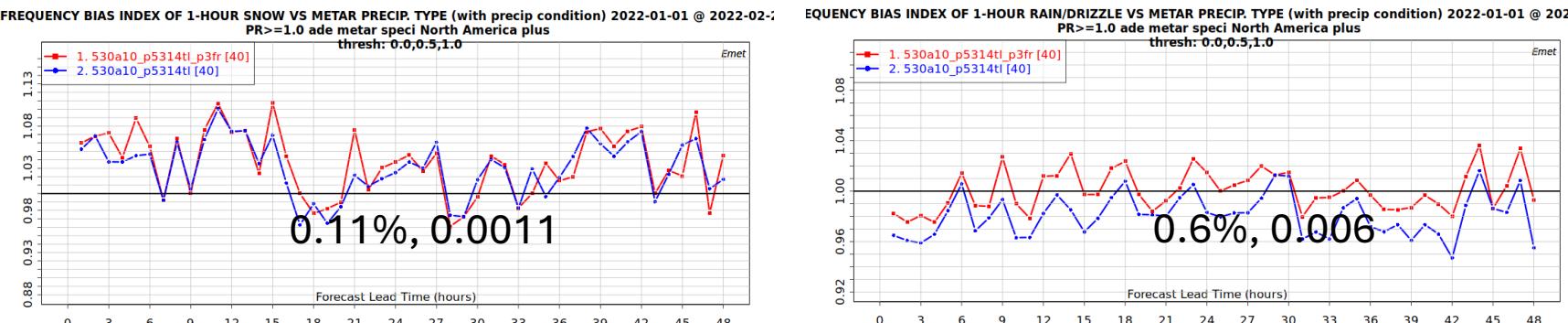
Snow

V5.3.14FL



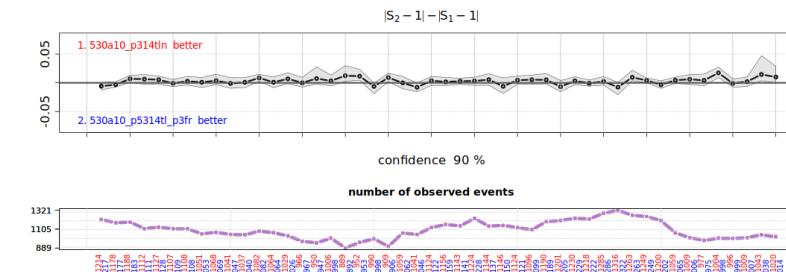
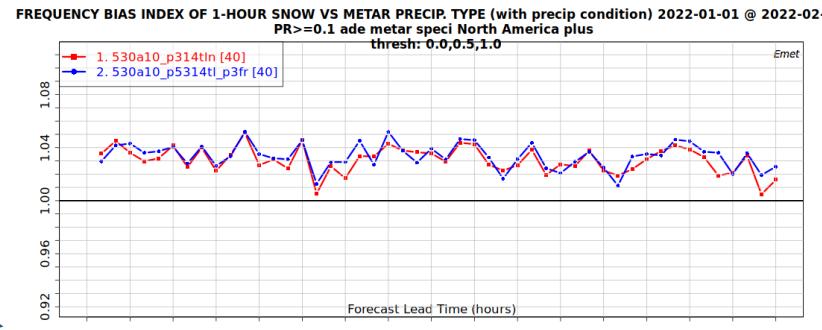
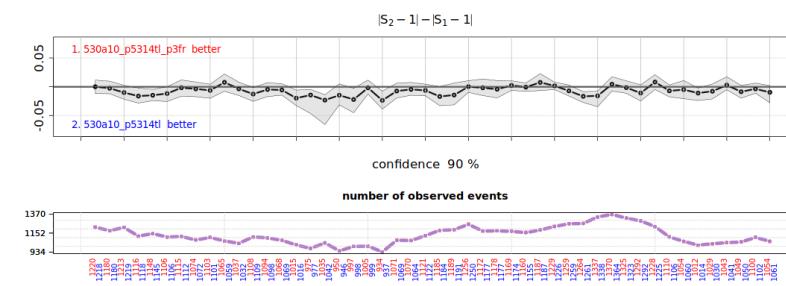
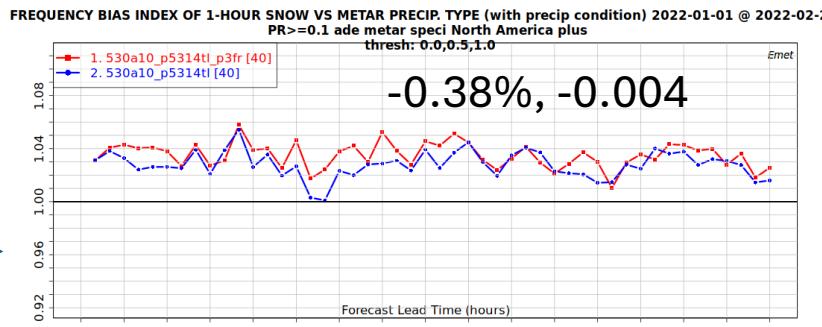
Rain

PR > 1 mm

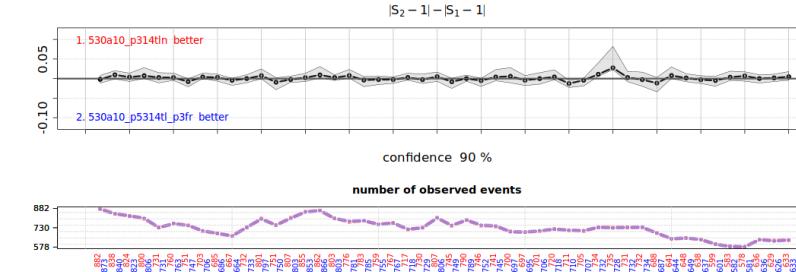
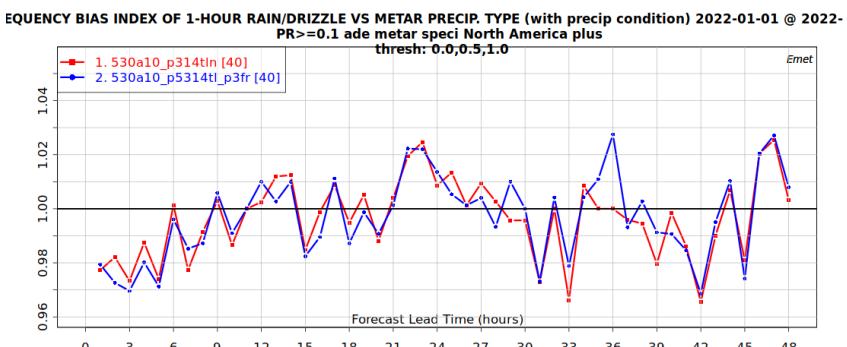
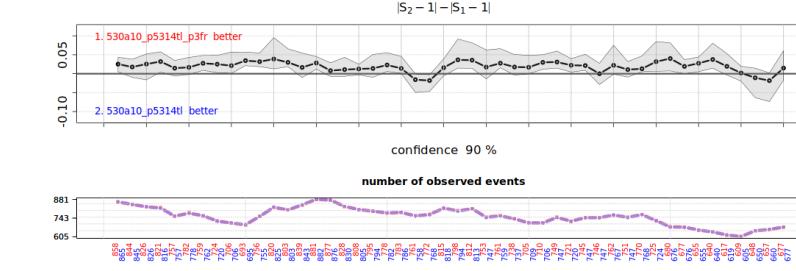
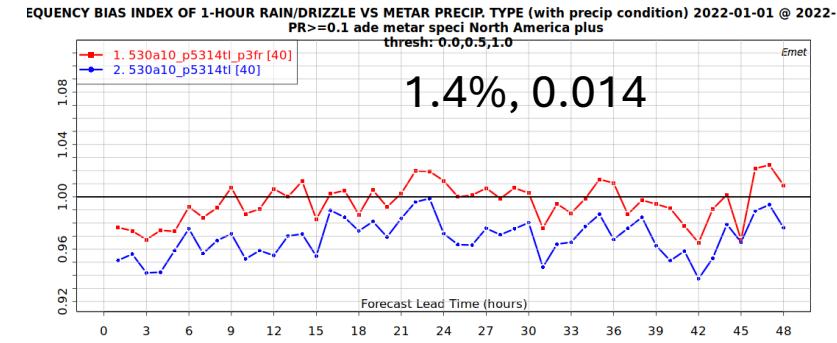


SN (P3)
SN1+SN2+SN3+
WS
SN (Bourgouin)
RN (P3) RN1+RN2
RN (Bourgouin)

Snow



Rain



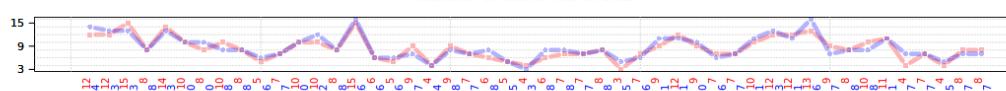
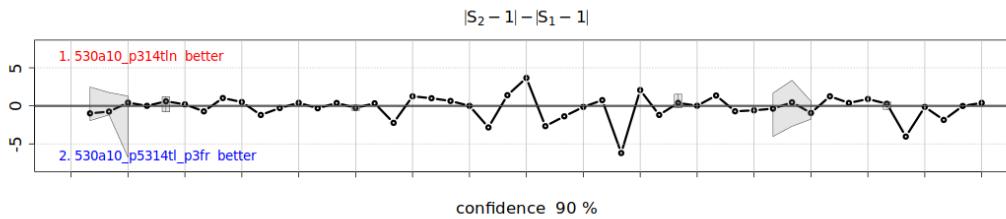
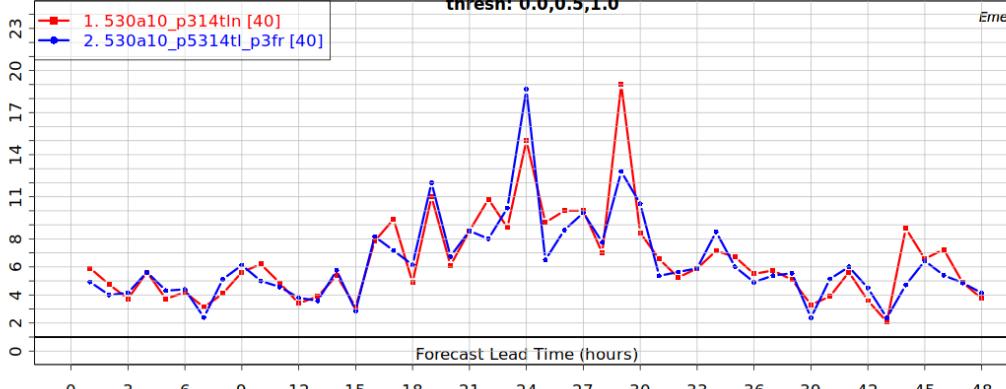
PR > 0.1 mm

SN (P3)
 SN1+SN2+SN3+
 WS
 SN (Bourgouin)

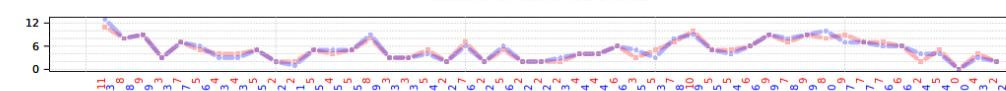
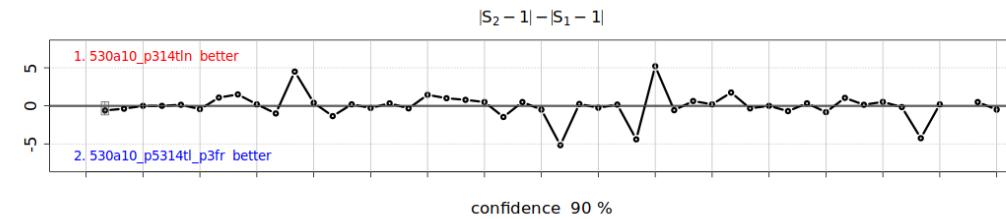
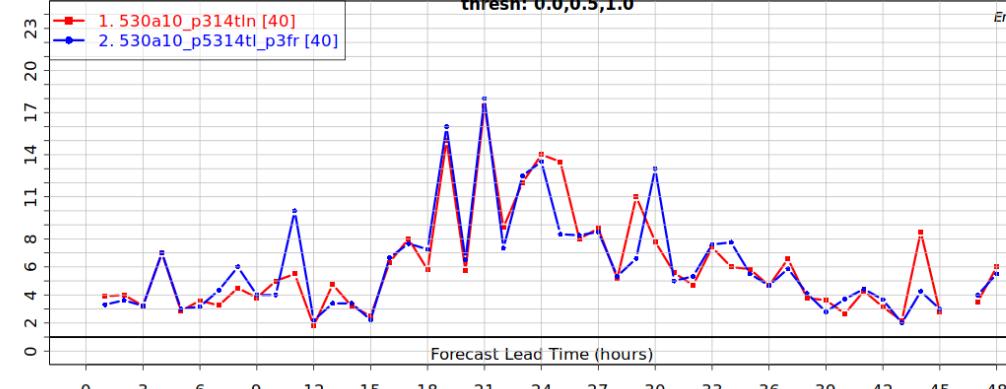
RN (P3) RN1+RN2
 RN (Bourgouin)

Scores PE FBI v5.3.14FL vs. v5.3.14FLnil

REQUENCY BIAS INDEX OF 1-HOUR ICE PELLET VS METAR PRECIP. TYPE (with precip condition) 2022-01-01 @ 2022-01-01
PR>=0.1 ade metar speci North America plus



REQUENCY BIAS INDEX OF 1-HOUR ICE PELLET VS METAR PRECIP. TYPE (with precip condition) 2022-01-01 @ 2022-01-01
PR>=1.0 ade metar speci North America plus



Summer 2022 (42 cases)

Objective and set-up

To test latest P3 version for summer

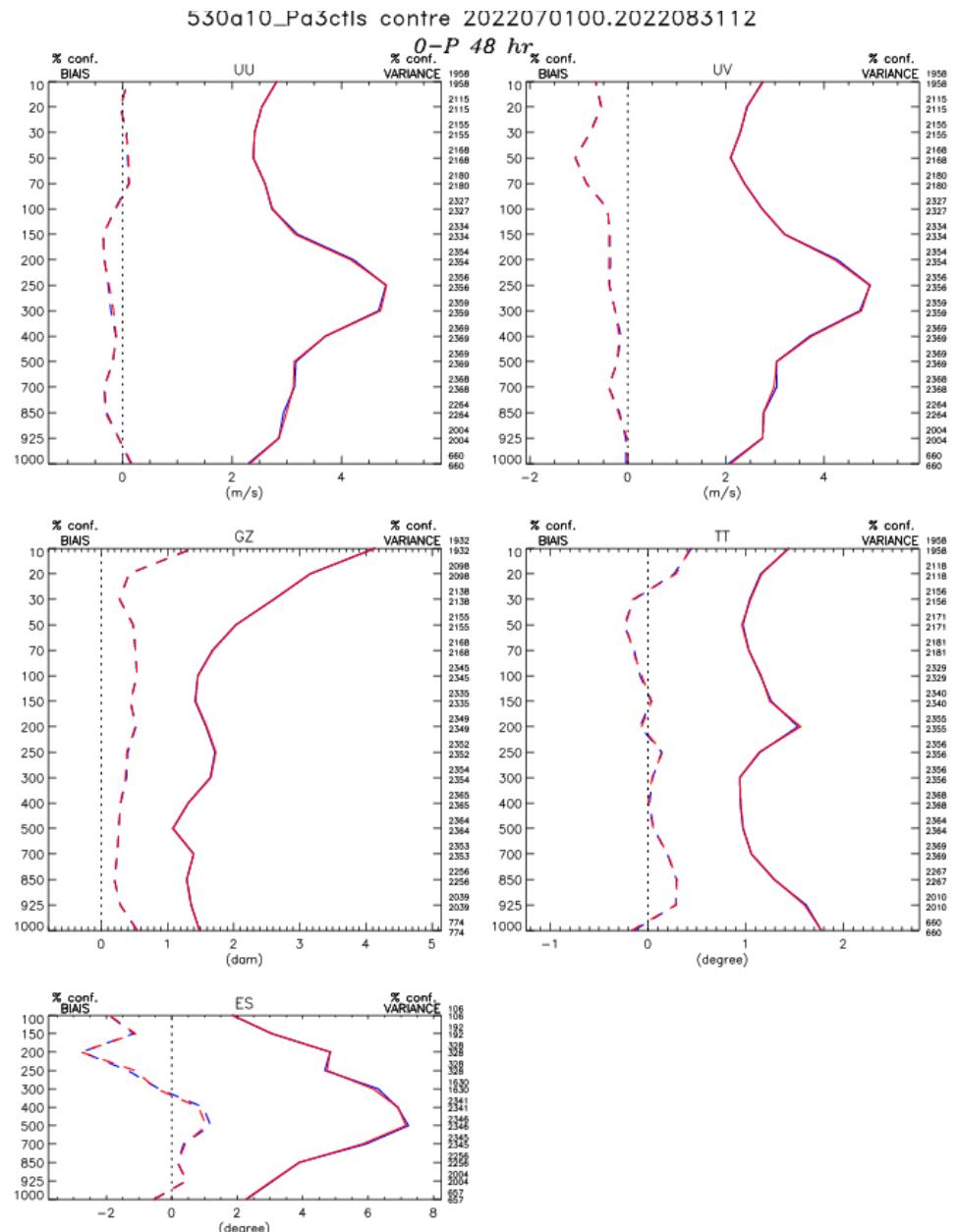
Experimental set-up

- GEM 5.3.0-a10, HRDPS PA3a configuration for 42 cases summer 2022

Experiment	Description
530a11	Control (from Manon) v5.3.6
p3v5313	Control for v5.3.14
p3v5314	2MOM_noLF_n1 + HM changes

Scores v5.3.6 vs. 5.3.13

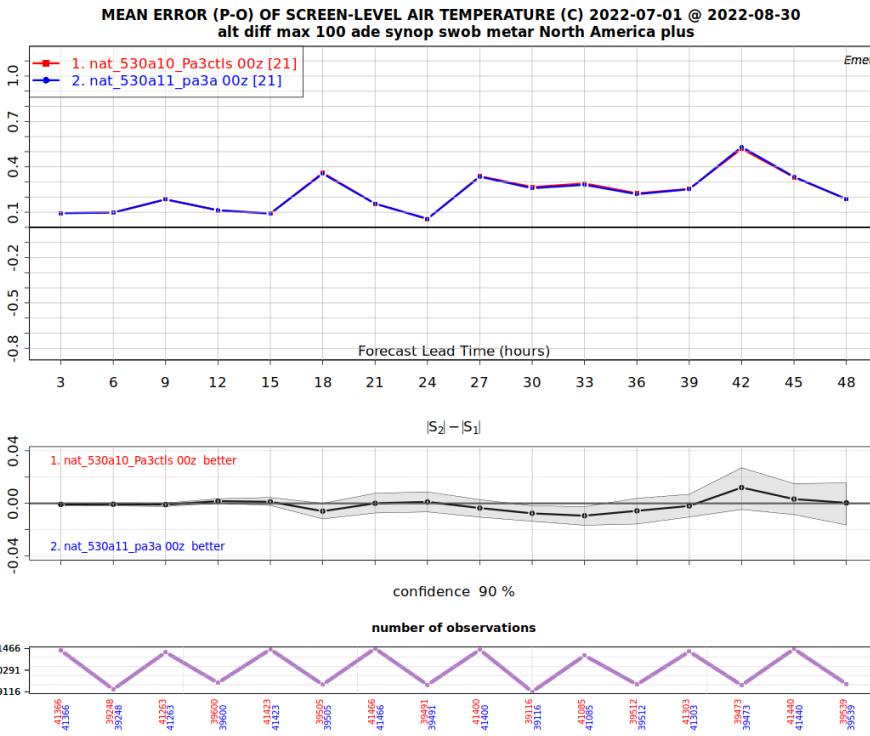
- Arcad → completely neutral



Type : O-P 48 hr
 Region : Amerique du Nord plus
 Lat-lon: (25N, 170W) (85N, 40W)
 Stat. inversees

Scores v5.3.6 vs. 5.3.13

- Emet TT, TD, UV, P0
- Very small differences



bias < >

bias		nat_530a10_Pa3ctls 00z / nat_530a11_pa3a 00z		20220701 / 20220831	
				All	
Appalachia CLIM	TD	-0.0044	TT	-0.0039	
Arctic All CLIM	TD	-0.00062	TT	0.0	
Arctic Land CLIM	TD	-0.0012	TT	0.0	
Boreal CLIM	TD	-0.0022	TT	0.00042	
Canada	TD	0.0013	TT	0.0	
Central CLIM	TD	0.0019	TT	-0.0033	
Central Plains CLIM	TD	-0.00079	TT	-0.0048	
Great Lakes CLIM	TD	0.0	TT	-0.004	
MidAtlantic CLIM	TD	0.0	TT	0.0061	
Mt West CLIM	TD	0.0	TT	0.0041	
North America plus	TD	0.0014	TT	-0.0013	
North Atlantic CLIM	TD	0.0012	TT	0.0027	
North Plains CLIM	TD	-0.00032	TT	0.0	
Pacific North West CLIM	TD	0.0	TT	0.0059	
Prairie CLIM	TD	0.0041	TT	-0.0057	

rmse < >

rmse		nat_530a10_Pa3ctls 00z / nat_530a11_pa3a 00z		20220701 / 20220831	
				All	
Appalachia CLIM	TD	0.0042	TT	0.0013	
Arctic All CLIM	TD	-0.0033	TT	0.0	
Arctic Land CLIM	TD	-0.0049	TT	0.0	
Boreal CLIM	TD	0.0011	TT	0.0	
Canada	TD	0.0	TT	-0.0012	
Central CLIM	TD	0.0018	TT	-0.0003	
Central Plains CLIM	TD	0.0076	TT	0.0	
Great Lakes CLIM	TD	0.0014	TT	0.0013	
MidAtlantic CLIM	TD	0.0	TT	0.0036	
Mt West CLIM	TD	-0.0042	TT	0.00018	
North America plus	TD	0.00013	TT	0.00029	
North Atlantic CLIM	TD	0.0	TT	-0.00057	
North Plains CLIM	TD	0.0014	TT	0.0017	
Pacific North West CLIM	TD	0.0	TT	0.0	
Prairie CLIM	TD	0.0018	TT	-0.0025	

stdev < >

stdev		nat_530a10_Pa3ctls 00z / nat_530a11_pa3a 00z		20220701 / 20220831	
				All	
Appalachia CLIM	TD	0.006	TT	0.0	
Arctic All CLIM	TD	-0.0037	TT	0.0	
Arctic Land CLIM	TD	-0.0046	TT	0.0	
Boreal CLIM	TD	0.0012	TT	-0.002	
Canada	TD	0.0	TT	-0.0013	
Central CLIM	TD	0.0007	TT	0.00075	
Central Plains CLIM	TD	0.0099	TT	0.0	
Great Lakes CLIM	TD	0.0028	TT	0.0015	
MidAtlantic CLIM	TD	0.0	TT	0.0	
Mt West CLIM	TD	0.0	TT	-0.00046	
North America plus	TD	7.5e-05	TT	0.0003	
North Atlantic CLIM	TD	0.0	TT	-0.0026	
North Plains CLIM	TD	0.0011	TT	0.0016	
Pacific North West CLIM	TD	0.0	TT	0.0	
Prairie CLIM	TD	-8.2e-05	TT	-0.00013	

bias < >

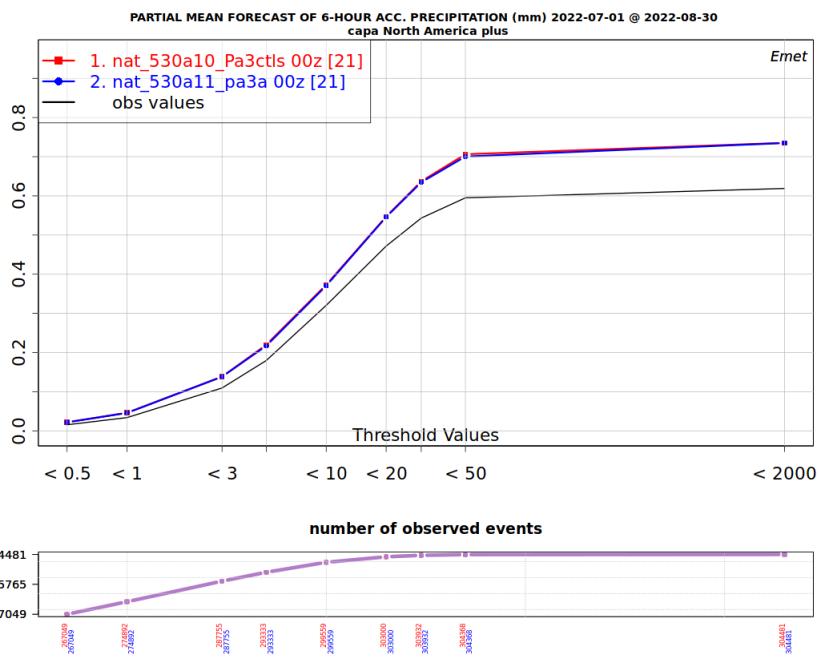
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				All	
Appalachia CLIM	P0	0.003	Arctic All CLIM	P0	0.00045
Arctic Land CLIM	P0	0.00071	Boreal CLIM	P0	0.00037
Canada	P0	0.00021	Central CLIM	P0	-0.00049
Central Plains CLIM	P0	0.0	Great Lakes CLIM	P0	0.00018
MidAtlantic CLIM	P0	-0.0014	Mt West CLIM	P0	0.0
North America plus	P0	0.0002	North Atlantic CLIM	P0	0.0011
North Plains CLIM	P0	0.0001	North Pacific West CLIM	P0	-0.00076
Pacific North West CLIM	P0	-0.00076	Prairie CLIM	P0	0.0

bias < >

bias		nat_530a10_Pa3ctls 00z / nat_530a11_pa3a 00z		20220701 / 20220831	
				All	
Appalachia CLIM	UV	0.0032	Arctic All CLIM	UV	0.0
Arctic Land CLIM	UV	0.0	Boreal CLIM	UV	-0.005
Canada	UV	0.0	Central CLIM	UV	1.6e-05
Central Plains CLIM	UV	0.012	Great Lakes CLIM	UV	-0.0011
MidAtlantic CLIM	UV	0.0	Mt West CLIM	UV	0.0
Mt West CLIM	UV	0.0	North America plus	UV	9.6e-05
North Atlantic CLIM	UV	0.0	North Pacific West CLIM	UV	0.00014
North Plains CLIM	UV	0.0	Prairie CLIM	UV	0.0013

Scores v5.3.6 vs. v5.3.13

- Emet (PR6 and PR24)



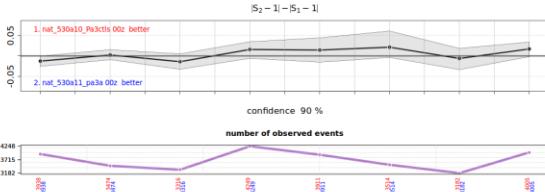
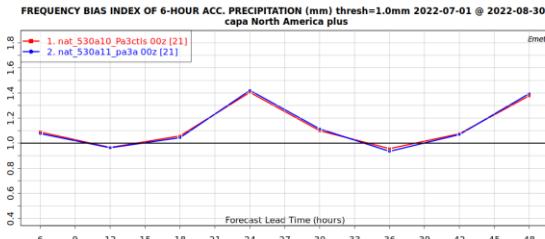
pmean		20220701 / 20220831	
nat_530a10_Pa3ctls 00z / nat_530a11_pa3a 00z		All	
Appalachia CLIM	PR24	0.0	
	PR6	0.0	
Arctic All CLIM	PR24	0.018	
	PR6	0.0062	
Arctic Land CLIM	PR24	0.025	
	PR6	0.0086	
Boreal CLIM	PR24	-0.022	
	PR6	0.0	
Canada	PR24	-0.028	
	PR6	-0.03	
Central CLIM	PR24	0.0	
	PR6	0.0	
Central Plains CLIM	PR24	0.0	
	PR6	-0.025	
Great Lakes CLIM	PR24	0.0045	
	PR6	0.0033	
MidAtlantic CLIM	PR24	0.0	
	PR6	0.0	
Mt West CLIM	PR24	0.0	
	PR6	0.0	
North America plus	PR24	0.0	
	PR6	0.031	
North Atlantic CLIM	PR24	0.0	
	PR6	0.0	
North Plains CLIM	PR24	0.0	
	PR6	-0.02	
Pacific North West CLIM	PR24	0.0	
	PR6	0.0	
Prairie CLIM	PR24	0.0	
	PR6	0.12	

ets		20220701 / 20220831	
nat_530a10_Pa3ctls 00z / nat_530a11_pa3a 00z		All	
Appalachia CLIM	PR24	0.0051	
	PR6	0.0	
Arctic All CLIM	PR24	0.0098	
	PR6	-0.0011	
Arctic Land CLIM	PR24	0.0081	
	PR6	-0.0016	
Boreal CLIM	PR24	0.0	
	PR6	-0.0012	
Canada	PR24	0.0	
	PR6	0.013	
Central CLIM	PR24	0.0	
	PR6	0.0	
Central Plains CLIM	PR24	0.0	
	PR6	0.0	
Great Lakes CLIM	PR24	0.0062	
	PR6	0.0	
MidAtlantic CLIM	PR24	-0.0019	
	PR6	-0.0039	
Mt West CLIM	PR24	0.0016	
	PR6	0.0083	
North America plus	PR24	0.0015	
	PR6	0.0028	
North Atlantic CLIM	PR24	-0.0024	
	PR6	-0.017	
North Plains CLIM	PR24	0.0	
	PR6	0.011	
Pacific North West CLIM	PR24	1.7e-05	
	PR6	0.0	
Prairie CLIM	PR24	0.0	
	PR6	0.0	

far		>	
far		20220701 / 20220831	
nat_530a10_Pa3ctls 00z / nat_530a11_pa3a 00z		All	
Appalachia CLIM	PR24	0.0068	
	PR6	0.0	
Arctic All CLIM	PR24	-0.011	
	PR6	-0.011	
Arctic Land CLIM	PR24	0.004	
	PR6	-0.0095	
Boreal CLIM	PR24	0.0	
	PR6	0.0048	
Canada	PR24	0.0	
	PR6	0.0082	
Central CLIM	PR24	0.0	
	PR6	0.0	
Central Plains CLIM	PR24	0.0	
	PR6	0.0	
Great Lakes CLIM	PR24	0.0041	
	PR6	0.0	
MidAtlantic CLIM	PR24	0.0078	
	PR6	-0.0045	
Mt West CLIM	PR24	0.012	
	PR6	0.0	
North America plus	PR24	0.0	
	PR6	0.0	
North Atlantic CLIM	PR24	-0.0024	
	PR6	-0.017	
North Plains CLIM	PR24	0.0	
	PR6	0.011	
Pacific North West CLIM	PR24	1.7e-05	
	PR6	0.0	
Prairie CLIM	PR24	0.0	
	PR6	0.0	

Scores v5.3.6 vs. v5.3.13

- FBI



fbi1 < >

fbi1		nat_530a10_Pa3ctls 00z / nat_530a11_pa3a 00z	20220701 / 20220831
		All	
Appalachia CLIM	PR6	-0.0092	
Arctic All CLIM	PR6	0.0081	
Arctic Land CLIM	PR6	0.0081	
Boreal CLIM	PR6	-0.0018	
Canada	PR6	-0.0025	
Central CLIM	PR6	0.0083	
Central Plains CLIM	PR6	0.017	
Great Lakes CLIM	PR6	0.035	
MidAtlantic CLIM	PR6	0.0	
Mt West CLIM	PR6	0.0	
North America plus	PR6	-0.02	
North Atlantic CLIM	PR6	0.0016	
North Plains CLIM	PR6	0.0063	
North Plains CLIM	PR6	0.0	
Pacific North West CLIM	PR6	0.0	
Prairie CLIM	PR6	0.0077	

fbi2 < >

fbi2		nat_530a10_Pa3ctls 00z / nat_530a11_pa3a 00z	20220701 / 20220831
		All	
Appalachia CLIM	PR6	0.029	
Arctic All CLIM	PR6	0.0097	
Arctic Land CLIM	PR6	0.012	
Boreal CLIM	PR6	-0.007	
Canada	PR6	0.0	
Central CLIM	PR6	0.0	
Central Plains CLIM	PR6	0.0	
Great Lakes CLIM	PR6	0.011	
MidAtlantic CLIM	PR6	0.0	
Mt West CLIM	PR6	0.011	
North America plus	PR6	0.0034	
North Atlantic CLIM	PR6	-0.016	
North Plains CLIM	PR6	0.0	
Pacific North West CLIM	PR6	-0.0054	
Prairie CLIM	PR6	0.0077	

fbi5 < >

fbi5		nat_530a10_Pa3ctls 00z / nat_530a11_pa3a 00z	20220701 / 20220831
		All	
Appalachia CLIM	PR6	0.05	
Arctic All CLIM	PR6	0.011	
Arctic Land CLIM	PR6	0.039	
Boreal CLIM	PR6	0.0035	
Canada	PR6	0.0076	
Central CLIM	PR6	0.0	
Central Plains CLIM	PR6	0.0	
Great Lakes CLIM	PR6	0.0065	
MidAtlantic CLIM	PR6	0.0	
Mt West CLIM	PR6	0.013	
North America plus	PR6	-0.0031	
North Atlantic CLIM	PR6	0.0058	
North Plains CLIM	PR6	-0.026	
Pacific North West CLIM	PR6	0.0	
Prairie CLIM	PR6	0.0	

fbi10 < >

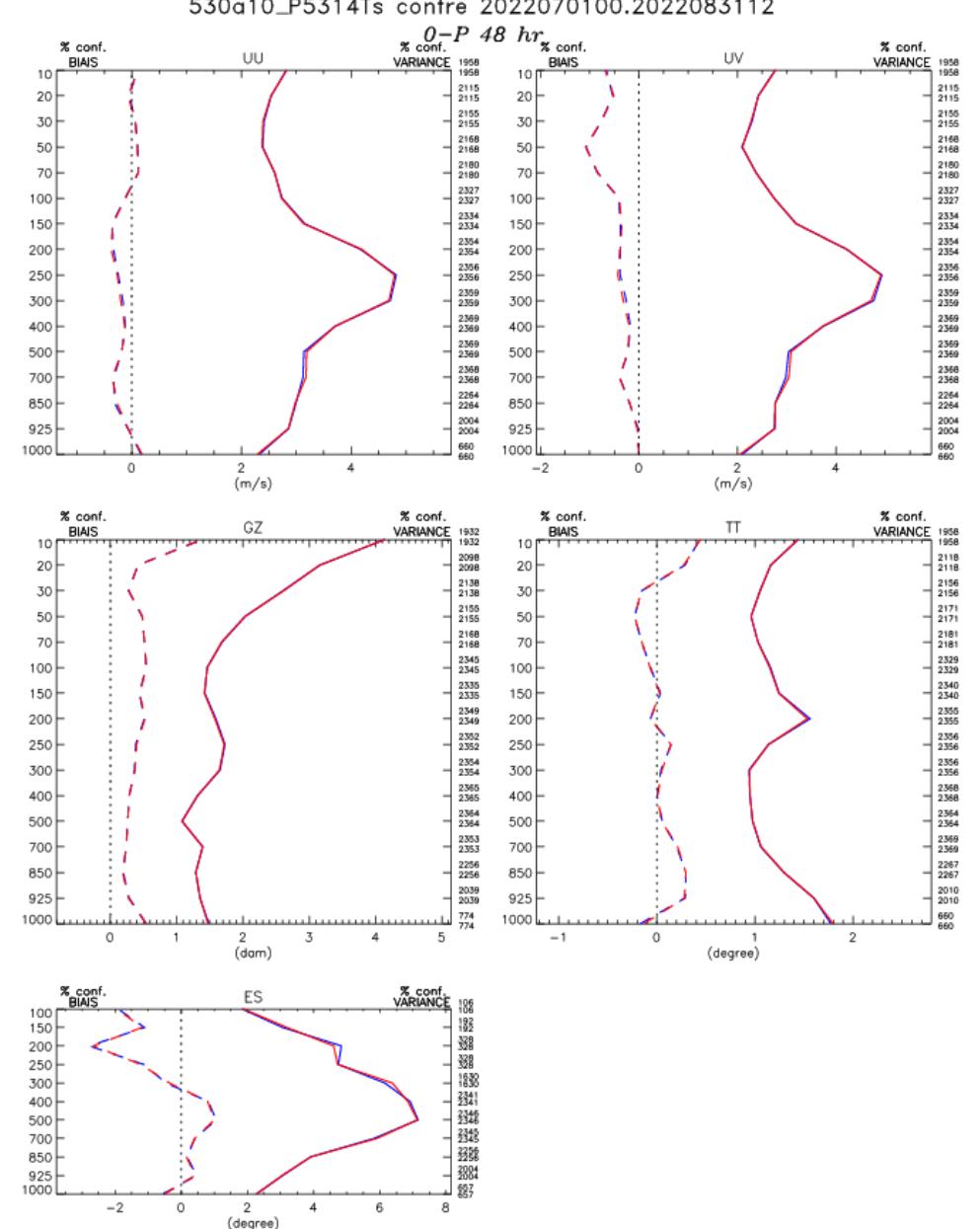
fbi10		nat_530a10_Pa3ctls 00z / nat_530a11_pa3a 00z	20220701 / 20220831
		All	
Appalachia CLIM	PR6	0.0	
Arctic All CLIM	PR6	0.054	
Arctic Land CLIM	PR6	0.028	
Boreal CLIM	PR6	-0.046	
Canada	PR6	-0.024	
Central CLIM	PR6	-0.034	
Central Plains CLIM	PR6	-0.14	
Great Lakes CLIM	PR6	-0.021	
MidAtlantic CLIM	PR6	0.0	
Mt West CLIM	PR6	0.0	
North America plus	PR6	-0.025	
North Atlantic CLIM	PR6	0.0	
North Plains CLIM	PR6	0.0	
Pacific North West CLIM	PR6	-0.093	
Prairie CLIM	PR6	0.0	

V5.3.14

Experiment	Description	Rime splintering
p3v5313	Control (similar to v5.3.6 in GEM, see github) 2MOM_noLF_n1	HM (rain only) for $F_i,liq < 0.1$ Ice splinters with $D_{init_HM} = 0.01$ mm
p3v5314	2MOM_noLF_n1 + HM changes	HM (rain and cloud) Relaxed D_{min_HM} to initiate HM from 1 mm to 0.25 mm Compute HM for $q_{i,rim} > q_{small}$ and not only for $F_{irim} > 0.5$ (this has no impacts) $T_{kbot} < 9^\circ\text{C}$ instead of $T_{kbot} < 5^\circ\text{C}$ Increase $\rho_{i,rim}$ from 750 kg/m^3 to 850 kg/m^3 to differentiate between SN3 and PE1 and increase F_{irim} from 0.5 to 0.6 to differentiate between SN2 and SN3 (only diagnostic)

Scores v5.3.13 vs. 5.3.14

- Arcad → completely neutral

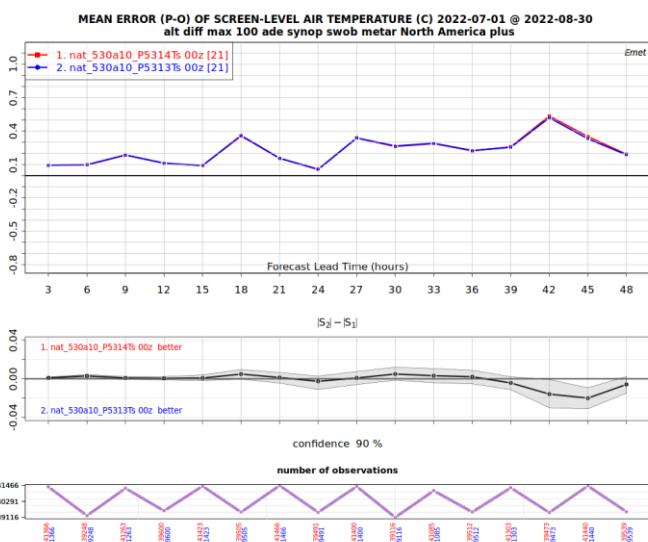


◊ —	E-T m_uo_530a10_P5313Ts_2022070100.2022083112 (42)
□ - - -	BIAIS m_uo_530a10_P5313Ts_2022070100.2022083112
◊ —	E-T m_uo_530a10_P5314Ts_2022070100.2022083112 (42)
□ - - -	BIAIS m_uo_530a10_P5314Ts_2022070100.2022083112

Type : O-P 48 hr
Region : Amerique du Nord plus
Lat-lon: (25N, 170W) (85N, 40W)
Stat. inversees

Scores v5.3.13 vs. 5.3.14

- Emet TT, TD, UV, P0
- Very small differences



bias		<	>
nat_530a10_P5314Ts 00z / nat_530a10_P5313Ts 00z	20220701 / 20220831		
All			
Appalachia CLIM	TD 0.0		
	TT 0.0		
Arctic All CLIM	TD 0.00022		
	TT 0.0025		
Arctic Land CLIM	TD 0.00042		
	TT 0.0042		
Boreal CLIM	TD 0.0014		
	TT -0.0084		
Canada	TD 0.0		
	TT 0.0079		
Central CLIM	TD 7.9e-05		
	TT 0.0027		
Central Plains CLIM	TD 0.0072		
	TT 0.0046		
Great Lakes CLIM	TD -0.001		
	TT -0.00066		
MidAtlantic CLIM	TD 0.0018		
	TT -0.0068		
Mt West CLIM	TD 0.0		
	TT -0.002		
North America plus	TD 0.0		
	TT -0.002		
North Atlantic CLIM	TD -0.00096		
	TT -0.0038		
North Plains CLIM	TD 0.00094		
	TT -0.0017		
Pacific North West CLIM	TD 0.0		
	TT 0.0		
Prairie CLIM	TD 0.0		
	TT 0.011		

rmse		<	>
nat_530a10_P5314Ts 00z / nat_530a10_P5313Ts 00z	20220701 / 20220831		
All			
Appalachia CLIM	TD 0.0		
	TT 0.0		
Arctic All CLIM	TD 0.00022		
	TT 0.0025		
Arctic Land CLIM	TD 0.00042		
	TT 0.0042		
Boreal CLIM	TD 0.0014		
	TT -0.0084		
Canada	TD 0.0		
	TT 0.0079		
Central CLIM	TD 7.9e-05		
	TT 0.0027		
Central Plains CLIM	TD 0.0072		
	TT 0.0046		
Great Lakes CLIM	TD -0.001		
	TT -0.00066		
MidAtlantic CLIM	TD 0.0018		
	TT -0.0068		
Mt West CLIM	TD 0.0		
	TT -0.002		
North America plus	TD 0.0		
	TT -0.002		
North Atlantic CLIM	TD -0.00096		
	TT -0.0038		
North Plains CLIM	TD 0.00094		
	TT -0.0017		
Pacific North West CLIM	TD 0.0		
	TT 0.0		
Prairie CLIM	TD 0.0		
	TT -0.0022		

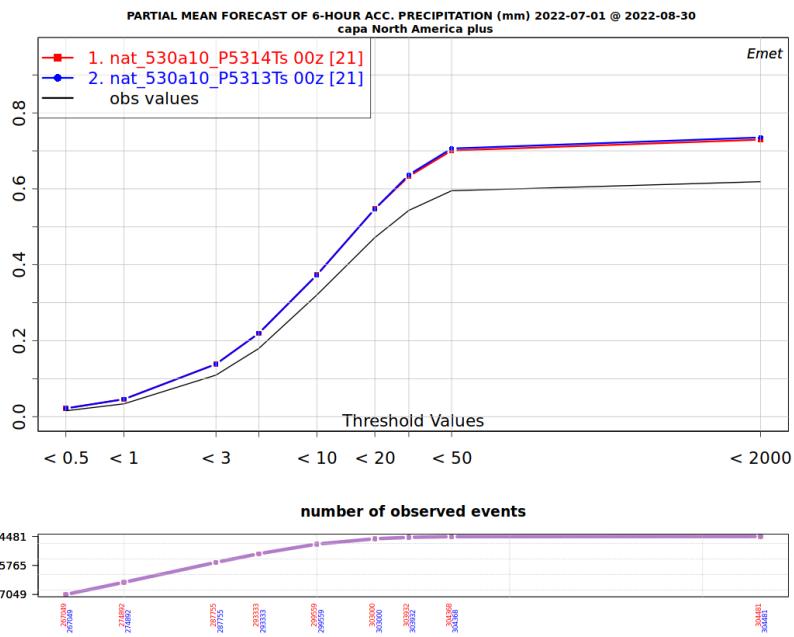
stdev		<	>
nat_530a10_P5314Ts 00z / nat_530a10_P5313Ts 00z	20220701 / 20220831		
All			
Appalachia CLIM	TD 0.0		
	TT 0.0		
Arctic All CLIM	TD 0.0015		
	TT -0.0016		
Arctic Land CLIM	TD 0.0015		
	TT -0.0015		
Boreal CLIM	TD 0.0005		
	TT 0.0		
Canada	TD 0.0014		
	TT 0.00084		
Central CLIM	TD -0.00049		
	TT 0.0		
Central Plains CLIM	TD 0.0		
	TT 0.0086		
Great Lakes CLIM	TD -0.00027		
	TT -0.0025		
MidAtlantic CLIM	TD 0.0		
	TT -0.0012		
Mt West CLIM	TD -0.0022		
	TT 0.0		
North America plus	TD 0.0		
	TT 0.0		
North Atlantic CLIM	TD -0.0031		
	TT 0.0091		
North Plains CLIM	TD -0.00041		
	TT -0.0019		
MidAtlantic CLIM	TD 0.0		
	TT -0.0013		
Mt West CLIM	TD -0.0023		
	TT 0.0		
North America plus	TD 0.0		
	TT 0.0		
North Atlantic CLIM	TD 0.0		
	TT 0.0028		
North Plains CLIM	TD 0.0		
	TT 0.0		
Pacific North West CLIM	TD 0.0		
	TT 0.0		
Prairie CLIM	TD -0.0029		
	TT -0.0024		

bias		20220701 / 20220831
nat_530a10_P5314Ts 00z / nat_530a10_P5313Ts 00z	All	
Appalachia CLIM	P0 0.0	
Arctic All CLIM	P0 0.014	
Arctic Land CLIM	P0 0.014	
Boreal CLIM	P0 0.0058	
Canada	P0 0.0014	
Central CLIM	P0 -0.0016	
Central Plains CLIM	P0 -0.0048	
Great Lakes CLIM	P0 0.0	
MidAtlantic CLIM	P0 -0.0022	
Mt West CLIM	P0 -0.0026	
North America plus	P0 -0.00053	
North Atlantic CLIM	P0 0.0046	
North Plains CLIM	P0 0.0	
Pacific North West CLIM	P0 0.001	
Prairie CLIM	P0 -0.0031	

bias		20220701 / 20220831
nat_530a10_P5314Ts 00z / nat_530a10_P5313Ts 00z	All	
Appalachia CLIM	UV 0.0	
Arctic All CLIM	UV 0.0	
Arctic Land CLIM	UV -0.0015	
Boreal CLIM	UV 0.0033	
Canada	UV -0.0011	
Central CLIM	UV 0.0	
Central Plains CLIM	UV -0.0038	
Great Lakes CLIM	UV -0.0028	
MidAtlantic CLIM	UV 0.0	
Mt West CLIM	UV 0.0039	
North America plus	UV 4.5e-05	
North Atlantic CLIM	UV 0.0013	
North Plains CLIM	UV 0.0	
Pacific North West CLIM	UV -0.0033	
Prairie CLIM	UV -0.0023	

Scores v5.3.13 vs. v5.3.14

- Emet (PR6 and PR24)



ets < >

far < >

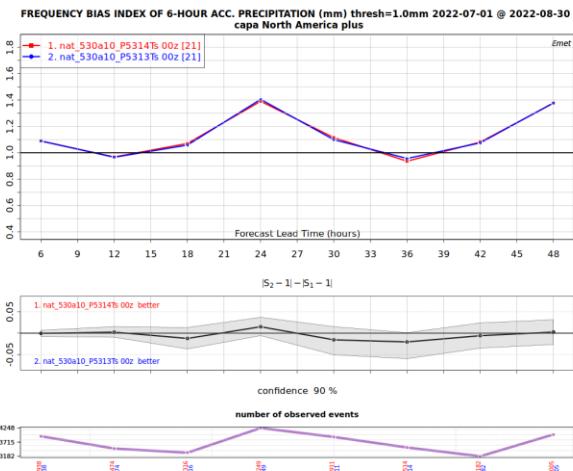
pod < >

fbi

fbi		ets		far		pod		
nat_530a10_P5314Ts 00z / nat_530a10_P5313Ts 00z		nat_530a10_P5314Ts 00z / nat_530a10_P5313Ts 00z		nat_530a10_P5314Ts 00z / nat_530a10_P5313Ts 00z		nat_530a10_P5314Ts 00z / nat_530a10_P5313Ts 00z		
20220701 / 20220831		20220701 / 20220831		20220701 / 20220831		20220701 / 20220831		
All		All		All		All		
Appalachia CLIM	PR24	-0.0029	Appalachia CLIM	PR24	-0.0025	Appalachia CLIM	PR24	-0.0028
	PR6	0.0		PR6	0.0		PR6	0.0
Arctic All CLIM	PR24	-0.0043	Arctic All CLIM	PR24	-0.0027	Arctic All CLIM	PR24	0.0047
	PR6	0.07		PR6	0.01		PR6	0.012
Arctic Land CLIM	PR24	-0.0049	Arctic Land CLIM	PR24	-0.0033	Arctic Land CLIM	PR24	0.0
	PR6	0.093		PR6	0.0013		PR6	0.015
Boreal CLIM	PR24	0.0	Boreal CLIM	PR24	0.0	Boreal CLIM	PR24	-0.0071
	PR6	0.0021		PR6	0.0044		PR6	-0.0023
Canada	PR24	0.0	Canada	PR24	0.0	Canada	PR24	0.0
	PR6	0.027		PR6	0.0058		PR6	0.0
Central CLIM	PR24	0.0	Central CLIM	PR24	-0.0032	Central CLIM	PR24	0.0
	PR6	0.0		PR6	0.0025		PR6	0.0
Central Plains CLIM	PR24	0.017	Central Plains CLIM	PR24	0.0	Central Plains CLIM	PR24	-0.01
	PR6	0.0		PR6	0.0		PR6	0.0
Great Lakes CLIM	PR24	-0.015	Great Lakes CLIM	PR24	0.0	Great Lakes CLIM	PR24	-0.0093
	PR6	0.0		PR6	0.0		PR6	0.0
MidAtlantic CLIM	PR24	-0.015	MidAtlantic CLIM	PR24	-0.0084	MidAtlantic CLIM	PR24	-0.014
	PR6	-0.018		PR6	0.0012		PR6	0.01
Mt West CLIM	PR24	0.0	Mt West CLIM	PR24	0.00052	Mt West CLIM	PR24	-0.0079
	PR6	0.0		PR6	-0.0031		PR6	-0.006
North America plus	PR24	0.0	North America plus	PR24	-0.0026	North America plus	PR24	0.0
	PR6	0.0		PR6	0.0		PR6	0.0
North Atlantic CLIM	PR24	0.0	North Atlantic CLIM	PR24	0.0034	North Atlantic CLIM	PR24	0.012
	PR6	0.0		PR6	0.0082		PR6	-0.077
North Plains CLIM	PR24	0.06	North Plains CLIM	PR24	0.0	North Plains CLIM	PR24	0.0026
	PR6	0.02		PR6	0.0		PR6	0.006
Pacific North West CLIM	PR24	0.0	Pacific North West CLIM	PR24	0.0024	Pacific North West CLIM	PR24	0.002
	PR6	0.001		PR6	0.0		PR6	0.002
Prairie CLIM	PR24	0.0	Prairie CLIM	PR24	0.0	Prairie CLIM	PR24	-0.0045
	PR6	0.0		PR6	-0.0045		PR6	-0.0069

Scores v5.3.13 vs. v5.3.14

- FBI



fbi1		
fbi1	nat_530a10_P5314Ts	00z / 20220701 / 20220831
nat_530a10_P5313Ts	00z	All
Appalachia CLIM	PR6	0.017
Arctic All CLIM	PR6	0.0057
Arctic Land CLIM	PR6	0.0
Boreal CLIM	PR6	0.0
Canada	PR6	-0.0034
Central CLIM	PR6	-0.0073
Central Plains CLIM	PR6	-0.029
Great Lakes CLIM	PR6	0.0018
MidAtlantic CLIM	PR6	0.0052
Mt West CLIM	PR6	0.0
North America plus	PR6	0.0
North Atlantic CLIM	PR6	-2.8e-05
North Plains CLIM	PR6	0.0
Pacific North West CLIM	PR6	0.0081
Prairie CLIM	PR6	-0.011

fbi2		
fbi2	nat_530a10_P5314Ts	00z / 20220701 / 20220831
nat_530a10_P5313Ts	00z	All
Appalachia CLIM	PR6	0.0
Arctic All CLIM	PR6	0.0
Arctic Land CLIM	PR6	0.0
Boreal CLIM	PR6	-0.0042
Canada	PR6	0.0
Central CLIM	PR6	0.0
Central Plains CLIM	PR6	-0.048
Great Lakes CLIM	PR6	0.0027
MidAtlantic CLIM	PR6	-0.0098
Mt West CLIM	PR6	-0.012
North America plus	PR6	-0.0067
North Atlantic CLIM	PR6	0.011
North Plains CLIM	PR6	0.0
Pacific North West CLIM	PR6	0.0
Prairie CLIM	PR6	-0.033

fbi5		
fbi5	nat_530a10_P5314Ts	00z / 20220701 / 20220831
nat_530a10_P5313Ts	00z	All
Appalachia CLIM	PR6	0.015
Arctic All CLIM	PR6	-0.025
Arctic Land CLIM	PR6	-0.0077
Boreal CLIM	PR6	-0.0089
Canada	PR6	0.0046
Central CLIM	PR6	0.012
Central Plains CLIM	PR6	0.02
Great Lakes CLIM	PR6	-0.0032
MidAtlantic CLIM	PR6	-0.036
Mt West CLIM	PR6	-0.0056
North America plus	PR6	-0.00037
North Atlantic CLIM	PR6	0.0
North Plains CLIM	PR6	-0.024
Pacific North West CLIM	PR6	-0.026
Prairie CLIM	PR6	-0.00045

fbi10		
fbi10	nat_530a10_P5314Ts	00z / 20220701 / 20220831
nat_530a10_P5313Ts	00z	All
Appalachia CLIM	PR6	0.032
Arctic All CLIM	PR6	0.0
Arctic Land CLIM	PR6	0.0
Boreal CLIM	PR6	0.0089
Canada	PR6	0.03
Central CLIM	PR6	0.041
Central Plains CLIM	PR6	0.0
Great Lakes CLIM	PR6	-0.017
MidAtlantic CLIM	PR6	-0.02
Mt West CLIM	PR6	0.0
North America plus	PR6	0.016
North Atlantic CLIM	PR6	0.024
North Plains CLIM	PR6	0.0
Pacific North West CLIM	PR6	0.036
Prairie CLIM	PR6	-0.0089

Timing v5.3.6

HRnat_530a10_Pa3ctls_2022070100_M_4582992.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5566.3472 seconds (13.85 ms logging)
HRnat_530a10_Pa3ctls_2022070212_M_4582984.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5598.5447 seconds (13.43 ms logging)
HRnat_530a10_Pa3ctls_2022070400_M_4582966.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5647.2154 seconds (13.71 ms logging)
HRnat_530a10_Pa3ctls_2022070512_M_4583000.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5686.2003 seconds (13.56 ms logging)
HRnat_530a10_Pa3ctls_2022070700_M_4583011.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5656.3555 seconds (13.56 ms logging)
HRnat_530a10_Pa3ctls_2022070812_M_4583010.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5722.5522 seconds (13.40 ms logging)
HRnat_530a10_Pa3ctls_2022071000_M_4582996.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5681.1729 seconds (13.57 ms logging)
HRnat_530a10_Pa3ctls_2022071112_M_4582989.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5598.0317 seconds (13.56 ms logging)
HRnat_530a10_Pa3ctls_2022071300_M_4582994.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5591.5255 seconds (13.68 ms logging)
HRnat_530a10_Pa3ctls_2022071412_M_4582987.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5596.7476 seconds (13.65 ms logging)
HRnat_530a10_Pa3ctls_2022071600_M_4583012.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5593.1546 seconds (13.72 ms logging)
HRnat_530a10_Pa3ctls_2022071712_M_4583016.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5595.9422 seconds (13.50 ms logging)
HRnat_530a10_Pa3ctls_2022071900_M_4582985.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5651.1927 seconds (13.40 ms logging)
HRnat_530a10_Pa3ctls_2022072012_M_4583009.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5490.5867 seconds (13.60 ms logging)
HRnat_530a10_Pa3ctls_2022072200_M_4583014.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5519.1458 seconds (13.84 ms logging)
HRnat_530a10_Pa3ctls_2022072312_M_4583005.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5606.4022 seconds (13.43 ms logging)
HRnat_530a10_Pa3ctls_2022072500_M_4583004.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5618.2809 seconds (13.85 ms logging)
HRnat_530a10_Pa3ctls_2022072612_M_4582988.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5590.9695 seconds (13.90 ms logging)
HRnat_530a10_Pa3ctls_2022072800_M_4583013.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5539.3442 seconds (13.45 ms logging)
HRnat_530a10_Pa3ctls_2022072912_M_4582999.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5554.5525 seconds (13.71 ms logging)
HRnat_530a10_Pa3ctls_2022073100_M_4583647.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5596.2898 seconds (13.34 ms logging)
HRnat_530a10_Pa3ctls_2022080112_M_4583648.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5591.9851 seconds (13.69 ms logging)
HRnat_530a10_Pa3ctls_2022080300_M_4583652.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5635.1617 seconds (13.87 ms logging)
HRnat_530a10_Pa3ctls_2022080412_M_4583645.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5652.3158 seconds (13.34 ms logging)
HRnat_530a10_Pa3ctls_2022080600_M_4583651.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5632.5590 seconds (13.70 ms logging)
HRnat_530a10_Pa3ctls_2022080712_M_4583660.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5615.1978 seconds (13.74 ms logging)
HRnat_530a10_Pa3ctls_2022080900_M_4583654.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5552.5437 seconds (13.73 ms logging)
HRnat_530a10_Pa3ctls_2022081012_M_4583680.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5542.9899 seconds (13.69 ms logging)
HRnat_530a10_Pa3ctls_2022081200_M_4583696.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5528.5475 seconds (13.64 ms logging)
HRnat_530a10_Pa3ctls_2022081312_M_4583714.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5610.3968 seconds (13.33 ms logging)
HRnat_530a10_Pa3ctls_2022081500_M_4583706.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5630.2268 seconds (13.57 ms logging)
HRnat_530a10_Pa3ctls_2022081612_M_4583745.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5667.8040 seconds (13.78 ms logging)
HRnat_530a10_Pa3ctls_2022081800_M_4583740.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5564.8270 seconds (13.74 ms logging)
HRnat_530a10_Pa3ctls_2022081912_M_4583747.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5517.3753 seconds (13.46 ms logging)
HRnat_530a10_Pa3ctls_2022082100_M_4583779.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5538.6323 seconds (13.34 ms logging)
HRnat_530a10_Pa3ctls_2022082212_M_4583776.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5597.8056 seconds (13.89 ms logging)
HRnat_530a10_Pa3ctls_2022082400_M_4583749.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5583.0686 seconds (13.56 ms logging)
HRnat_530a10_Pa3ctls_2022082512_M_4583743.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5564.9892 seconds (13.51 ms logging)
HRnat_530a10_Pa3ctls_2022082700_M_4583775.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5551.3104 seconds (13.58 ms logging)
HRnat_530a10_Pa3ctls_2022082812_M_4583811.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5630.6916 seconds (13.45 ms logging)
HRnat_530a10_Pa3ctls_2022083000_M_4585193.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5623.1600 seconds (13.43 ms logging)
HRnat_530a10_Pa3ctls_2022083112_M_4585294.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5559.1589 seconds (13.96 ms logging)

Mean (2MOM_noLF_n1):
 $235072/42 = 5597$ seconds

Timing v5.3.13

HRnat_530a10_P5313Ts_2022070100_M_4588567.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5580.4130 seconds (13.46 ms logging)
HRnat_530a10_P5313Ts_2022070212_M_4588552.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5590.0552 seconds (13.24 ms logging)
HRnat_530a10_P5313Ts_2022070400_M_4588572.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5618.6224 seconds (13.64 ms logging)
HRnat_530a10_P5313Ts_2022070512_M_4588556.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5646.8599 seconds (13.29 ms logging)
HRnat_530a10_P5313Ts_2022070700_M_4588578.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5654.4216 seconds (13.72 ms logging)
HRnat_530a10_P5313Ts_2022070812_M_4588561.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5664.8992 seconds (13.70 ms logging)
HRnat_530a10_P5313Ts_2022071000_M_4588582.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5662.4137 seconds (13.48 ms logging)
HRnat_530a10_P5313Ts_2022071112_M_4588560.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5599.6365 seconds (13.44 ms logging)
HRnat_530a10_P5313Ts_2022071300_M_4588564.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5553.0888 seconds (13.68 ms logging)
HRnat_530a10_P5313Ts_2022071412_M_4588581.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5586.8783 seconds (13.73 ms logging)
HRnat_530a10_P5313Ts_2022071600_M_4588566.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5554.6875 seconds (13.29 ms logging)
HRnat_530a10_P5313Ts_2022071712_M_4588540.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5619.9023 seconds (13.57 ms logging)
HRnat_530a10_P5313Ts_2022071900_M_4588542.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5618.1755 seconds (13.69 ms logging)
HRnat_530a10_P5313Ts_2022072012_M_4588539.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5516.1179 seconds (13.92 ms logging)
HRnat_530a10_P5313Ts_2022072200_M_4588588.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5502.5496 seconds (13.77 ms logging)
HRnat_530a10_P5313Ts_2022072312_M_4588570.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5613.0262 seconds (13.52 ms logging)
HRnat_530a10_P5313Ts_2022072500_M_4588574.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5598.6850 seconds (13.50 ms logging)
HRnat_530a10_P5313Ts_2022072612_M_4588571.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5592.9930 seconds (13.63 ms logging)
HRnat_530a10_P5313Ts_2022072800_M_4588589.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5555.7451 seconds (13.97 ms logging)
HRnat_530a10_P5313Ts_2022072912_M_4588575.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5524.9680 seconds (13.55 ms logging)
HRnat_530a10_P5313Ts_2022073100_M_4590228.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5540.7973 seconds (13.72 ms logging)
HRnat_530a10_P5313Ts_2022080112_M_4590265.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5607.6053 seconds (13.47 ms logging)
HRnat_530a10_P5313Ts_2022080300_M_4590264.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5590.0519 seconds (13.58 ms logging)
HRnat_530a10_P5313Ts_2022080412_M_4590270.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5602.0623 seconds (13.65 ms logging)
HRnat_530a10_P5313Ts_2022080600_M_4590277.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5645.8356 seconds (13.66 ms logging)
HRnat_530a10_P5313Ts_2022080712_M_4590281.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5616.8410 seconds (13.52 ms logging)
HRnat_530a10_P5313Ts_2022080900_M_4590327.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5526.2416 seconds (13.58 ms logging)
HRnat_530a10_P5313Ts_2022081012_M_4590338.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5530.6340 seconds (13.30 ms logging)
HRnat_530a10_P5313Ts_2022081200_M_4590346.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5527.0002 seconds (13.74 ms logging)
HRnat_530a10_P5313Ts_2022081312_M_4590348.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5571.3506 seconds (13.71 ms logging)
HRnat_530a10_P5313Ts_2022081500_M_4590493.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5577.2719 seconds (13.73 ms logging)
HRnat_530a10_P5313Ts_2022081612_M_4590521.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5590.5720 seconds (13.42 ms logging)
HRnat_530a10_P5313Ts_2022081800_M_4590489.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5542.1696 seconds (13.88 ms logging)
HRnat_530a10_P5313Ts_2022081912_M_4590513.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5504.8678 seconds (13.60 ms logging)
HRnat_530a10_P5313Ts_2022082100_M_4590971.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5522.0518 seconds (13.37 ms logging)
HRnat_530a10_P5313Ts_2022082212_M_4591021.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5614.2807 seconds (13.74 ms logging)
HRnat_530a10_P5313Ts_2022082400_M_4591055.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5581.2960 seconds (14.04 ms logging)
HRnat_530a10_P5313Ts_2022082512_M_4591101.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5557.9950 seconds (14.01 ms logging)
HRnat_530a10_P5313Ts_2022082700_M_4591137.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5599.5400 seconds (13.39 ms logging)
HRnat_530a10_P5313Ts_2022082812_M_4591141.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5598.1293 seconds (13.55 ms logging)
HRnat_530a10_P5313Ts_2022083000_M_4593019.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5646.0825 seconds (13.36 ms logging)
HRnat_530a10_P5313Ts_2022083112_M_4593044.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5576.4056 seconds (13.81 ms logging)

Mean (2MOM_noLF_n1):

$234503/42 = 5583$ seconds (-0.24%)

Timing v5.3.14

HRnat_530a10_P5314Ts_2022070100_M_4596222.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5556.3893 seconds (13.67 ms logging)
HRnat_530a10_P5314Ts_2022070212_M_4596237.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5547.6350 seconds (13.41 ms logging)
HRnat_530a10_P5314Ts_2022070400_M_4596217.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5638.0266 seconds (13.59 ms logging)
HRnat_530a10_P5314Ts_2022070512_M_4596244.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5637.8402 seconds (13.44 ms logging)
HRnat_530a10_P5314Ts_2022070700_M_4596228.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5700.8586 seconds (13.83 ms logging)
HRnat_530a10_P5314Ts_2022070812_M_4596241.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5686.4548 seconds (13.47 ms logging)
HRnat_530a10_P5314Ts_2022071000_M_4596213.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5720.0846 seconds (13.57 ms logging)
HRnat_530a10_P5314Ts_2022071112_M_4596214.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5820.7781 seconds (13.59 ms logging)
HRnat_530a10_P5314Ts_2022071300_M_4596219.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5560.1497 seconds (13.67 ms logging)
HRnat_530a10_P5314Ts_2022071412_M_4596223.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5549.3888 seconds (13.61 ms logging)
HRnat_530a10_P5314Ts_2022071600_M_4596240.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5567.8601 seconds (13.58 ms logging)
HRnat_530a10_P5314Ts_2022071712_M_4596250.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5606.1253 seconds (13.62 ms logging)
HRnat_530a10_P5314Ts_2022071900_M_4596249.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5577.5222 seconds (13.65 ms logging)
HRnat_530a10_P5314Ts_2022072012_M_4596226.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5502.3526 seconds (13.63 ms logging)
HRnat_530a10_P5314Ts_2022072200_M_4596231.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5477.6476 seconds (13.80 ms logging)
HRnat_530a10_P5314Ts_2022072312_M_4596255.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5589.3105 seconds (13.51 ms logging)
HRnat_530a10_P5314Ts_2022072500_M_4596234.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5616.0949 seconds (13.76 ms logging)
HRnat_530a10_P5314Ts_2022072612_M_4596239.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5605.1777 seconds (13.67 ms logging)
HRnat_530a10_P5314Ts_2022072800_M_4596235.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5566.0135 seconds (13.88 ms logging)
HRnat_530a10_P5314Ts_2022072912_M_4596252.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5490.9276 seconds (13.49 ms logging)
HRnat_530a10_P5314Ts_2022073100_M_4597244.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5559.0211 seconds (13.49 ms logging)
HRnat_530a10_P5314Ts_2022080112_M_4597444.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5598.9635 seconds (13.75 ms logging)
HRnat_530a10_P5314Ts_2022080300_M_4597442.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5606.2282 seconds (13.55 ms logging)
HRnat_530a10_P5314Ts_2022080412_M_4597441.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5571.1181 seconds (13.71 ms logging)
HRnat_530a10_P5314Ts_2022080600_M_4597454.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5587.7249 seconds (13.58 ms logging)
HRnat_530a10_P5314Ts_2022080712_M_4597447.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5578.0378 seconds (13.77 ms logging)
HRnat_530a10_P5314Ts_2022080900_M_4597449.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5542.7070 seconds (13.84 ms logging)
HRnat_530a10_P5314Ts_2022081012_M_4597477.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5539.3929 seconds (13.84 ms logging)
HRnat_530a10_P5314Ts_2022081200_M_4597654.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5502.7439 seconds (13.77 ms logging)
HRnat_530a10_P5314Ts_2022081312_M_4597769.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5543.1929 seconds (13.62 ms logging)
HRnat_530a10_P5314Ts_2022081500_M_4597795.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5584.4323 seconds (13.73 ms logging)
HRnat_530a10_P5314Ts_2022081612_M_4597815.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5569.1312 seconds (13.84 ms logging)
HRnat_530a10_P5314Ts_2022081800_M_4597867.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5553.0791 seconds (13.56 ms logging)
HRnat_530a10_P5314Ts_2022081912_M_4597870.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5475.9692 seconds (14.23 ms logging)
HRnat_530a10_P5314Ts_2022082100_M_4597935.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5542.9797 seconds (13.24 ms logging)
HRnat_530a10_P5314Ts_2022082212_M_4597985.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5584.4158 seconds (13.54 ms logging)
HRnat_530a10_P5314Ts_2022082400_M_4597988.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5567.0194 seconds (13.76 ms logging)
HRnat_530a10_P5314Ts_2022082512_M_4597983.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5587.6958 seconds (13.93 ms logging)
HRnat_530a10_P5314Ts_2022082700_M_4597989.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5588.6119 seconds (13.63 ms logging)
HRnat_530a10_P5314Ts_2022082812_M_4597998.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5568.3015 seconds (13.46 ms logging)
HRnat_530a10_P5314Ts_2022083000_M_4599016.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5579.0851 seconds (13.49 ms logging)
HRnat_530a10_P5314Ts_2022083112_M_4599027.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5516.3032 seconds (13.80 ms logging)

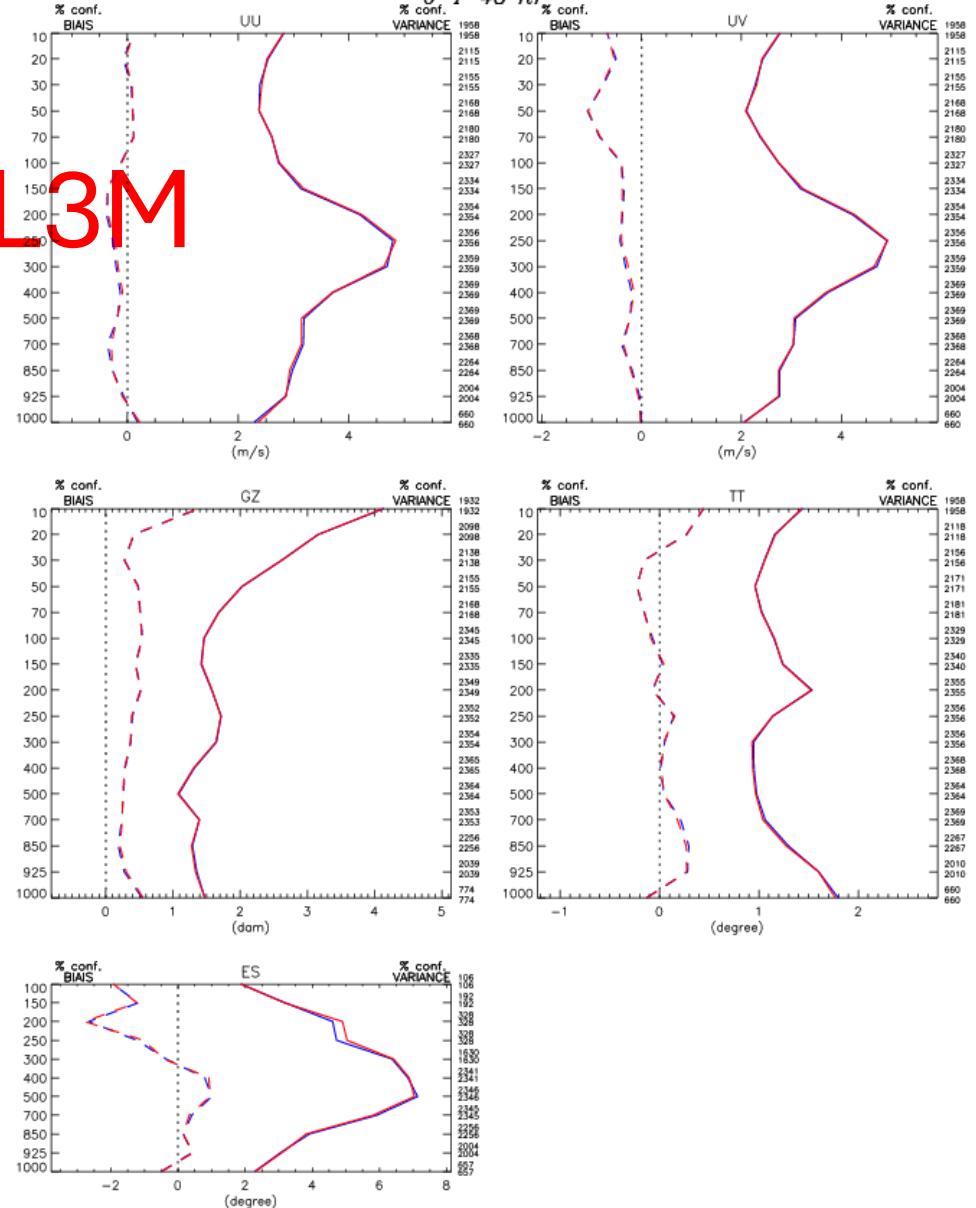
Mean (2MOM_noLF_n1):

$234345/42 = 5579$ seconds (-0.06%)

Predicted liquid fraction + 3MOM

Scores v5.3.14 vs. 5.3.14FL3M

- Arcad → neutral

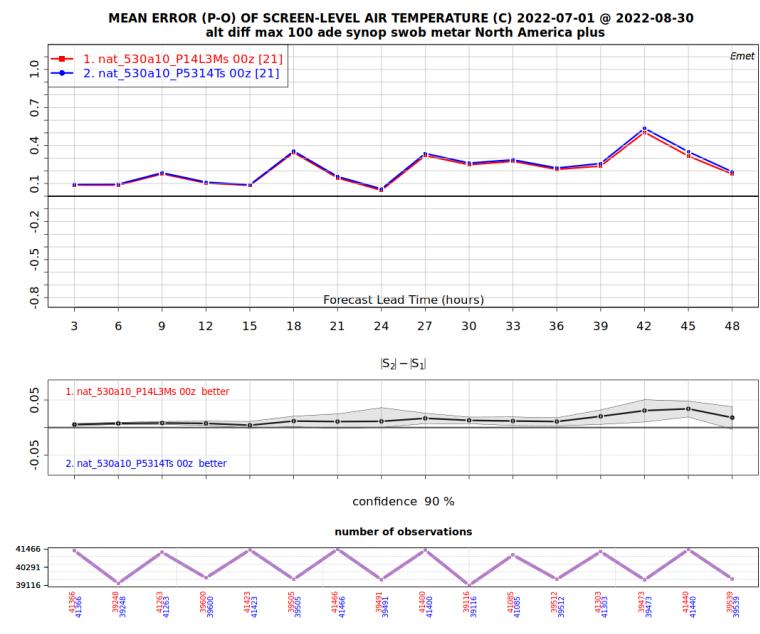


◊ —	E-T <code>m_usa_530a10_P5314Ts_2022070100.2022083112</code> (42)
□ - - -	BIAS <code>m_usa_530a10_P5314Ts_2022070100.2022083112</code>
◊ —	E-T <code>m_usa_530a10_P14L3Ms_2022070100.2022083112</code> (42)
□ - - -	BIAS <code>m_usa_530a10_P14L3Ms_2022070100.2022083112</code>

Type : O-P 48 hr
Region : Amerique du Nord plus
Lat-lon: (25N, 170W) (85N, 40W)
Stat. inversees

Scores v5.3.14 vs. 5.3.14FL3M

- Emet TT, TD, UV, P0
- Very small differences



bias < >

bias		nat_530a10_P14L3Ms 00z / nat_530a10_P5314Ts 00z		20220701 / 20220831	
		All		All	
Appalachia CLIM	TD	0.0	TT	0.0027	All
	TT	-0.009		TT	
Arctic All CLIM	TD	0.0013	TT	0.0043	All
	TT	-0.0079		TT	
Arctic Land CLIM	TD	0.0	TT	0.006	All
	TT	-0.01		TT	
Boreal CLIM	TD	-0.0023	TT	0.0	All
	TT	0.014		TT	
Canada	TD	-0.0019	TT	0.0045	All
	TT	-0.0051		TT	
Central CLIM	TD	-0.0036	TT	0.0058	All
	TT	0.016		TT	
Central Plains CLIM	TD	-0.0038	TT	0.01	All
	TT	0.0029		TT	
Great Lakes CLIM	TD	-0.0013	TT	0.0023	All
	TT	0.015		TT	
MidAtlantic CLIM	TD	0.004	TT	0.00062	All
	TT	0.0054		TT	
Mt West CLIM	TD	-0.007	TT	0.024	All
	TT	-0.011		TT	
North America plus	TD	-0.0048	TT	0.0052	All
	TT	0.012		TT	
North Atlantic CLIM	TD	-0.0012	TT	0.0	All
	TT	0.0084		TT	
North Plains CLIM	TD	-0.0069	TT	0.0076	All
	TT	0.0048		TT	
Pacific North West CLIM	TD	-0.003	TT	0.0025	All
	TT	0.0		TT	
Prairie CLIM	TD	-0.0054	TT	0.0057	All
	TT	0.0028		TT	

rmse < >

rmse		nat_530a10_P14L3Ms 00z / nat_530a10_P5314Ts 00z		20220701 / 20220831	
		All		All	
Appalachia CLIM	TD	0.0	TT	0.0027	All
	TT	-0.009		TT	
Arctic All CLIM	TD	0.0013	TT	0.0043	All
	TT	-0.0079		TT	
Arctic Land CLIM	TD	0.0	TT	0.006	All
	TT	-0.01		TT	
Boreal CLIM	TD	-0.0023	TT	0.0	All
	TT	0.014		TT	
Canada	TD	-0.0019	TT	0.0045	All
	TT	-0.0051		TT	
Central CLIM	TD	-0.0036	TT	0.0058	All
	TT	0.016		TT	
Central Plains CLIM	TD	-0.0038	TT	0.01	All
	TT	0.0029		TT	
Great Lakes CLIM	TD	-0.0013	TT	0.0023	All
	TT	0.015		TT	
MidAtlantic CLIM	TD	0.004	TT	0.00062	All
	TT	0.0054		TT	
Mt West CLIM	TD	-0.007	TT	0.024	All
	TT	-0.011		TT	
North America plus	TD	-0.0048	TT	0.0052	All
	TT	0.012		TT	
North Atlantic CLIM	TD	-0.0012	TT	0.0	All
	TT	0.0084		TT	
North Plains CLIM	TD	-0.0069	TT	0.0076	All
	TT	0.0048		TT	
Pacific North West CLIM	TD	-0.003	TT	0.0025	All
	TT	0.0		TT	
Prairie CLIM	TD	-0.0054	TT	0.0057	All
	TT	0.0028		TT	

stdev < >

stdev		nat_530a10_P14L3Ms 00z / nat_530a10_P5314Ts 00z		20220701 / 20220831	
		All		All	
Appalachia CLIM	TD	-0.0026	TT	0.0027	All
	TT	-0.0027		TT	
Arctic All CLIM	TD	0.0	TT	0.0062	All
	TT	0.0		TT	
Arctic Land CLIM	TD	0.0	TT	0.0052	All
	TT	0.0		TT	
Boreal CLIM	TD	0.0	TT	0.0085	All
	TT	0.0		TT	
Canada	TD	0.0051	TT	0.0098	All
	TT	0.0098		TT	
Central CLIM	TD	0.0093	TT	0.0023	All
	TT	0.0023		TT	
Central Plains CLIM	TD	0.011	TT	-0.015	All
	TT	-0.015		TT	
Great Lakes CLIM	TD	0.0011	TT	0.015	All
	TT	0.015		TT	
MidAtlantic CLIM	TD	0.00052	TT	0.0057	All
	TT	0.0057		TT	
Mt West CLIM	TD	0.023	TT	0.0022	All
	TT	0.0022		TT	
North America plus	TD	0.0062	TT	0.0084	All
	TT	0.0084		TT	
North Atlantic CLIM	TD	-0.0024	TT	0.0037	All
	TT	0.0037		TT	
North Plains CLIM	TD	0.0075	TT	0.0	All
	TT	0.0		TT	
Pacific North West CLIM	TD	0.0025	TT	0.0012	All
	TT	0.0012		TT	
Prairie CLIM	TD	0.0069	TT	0.0069	All
	TT	0.0069		TT	

bias < >

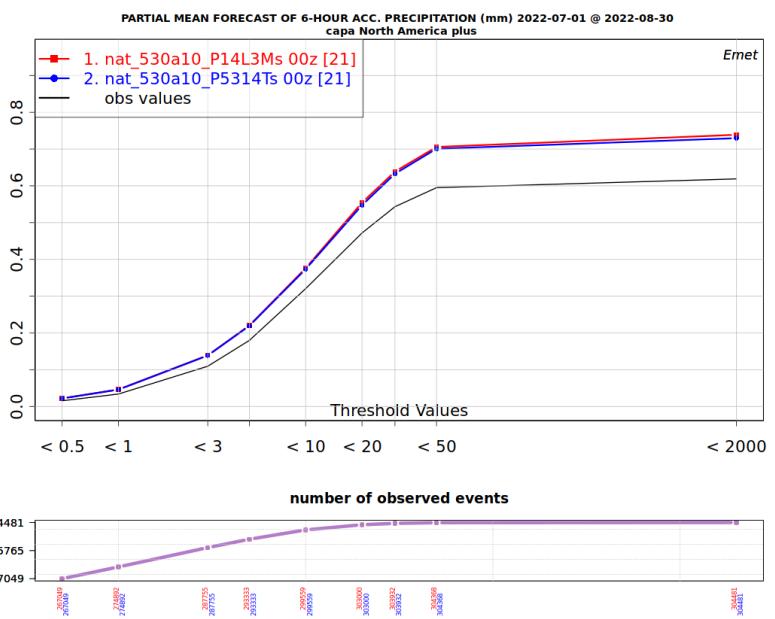
bias		nat_530a10_P14L3Ms 00z / nat_530a10_P5314Ts 00z		20220701 / 20220831	
		All		All	
Appalachia CLIM	P0	0.0056	Arctic All CLIM	P0	-0.018
Arctic Land CLIM	P0	-0.017	Boreal CLIM	P0	-0.02
Canada	P0	-0.015	Central CLIM	P0	-0.017
Central Plains CLIM	P0	0.016	Great Lakes CLIM	P0	0.019
MidAtlantic CLIM	P0	0.012	Mt West CLIM	P0	0.011
North America plus	P0	-0.0064	North Atlantic CLIM	P0	-0.02
North Plains CLIM	P0	-0.019	North Plains CLIM	P0	-0.019
Pacific North West CLIM	P0	0.0012	Pacific North West CLIM	P0	0.0012
Prairie CLIM	P0	0.0056	Prairie CLIM	P0	0.0056

bias < >

bias		nat_530a10_P14L3Ms 00z / nat_530a10_P5314Ts 00z		20220701 / 20220831	
		All		All	
Appalachia CLIM	UV	0.0	Arctic All CLIM	UV	0.0022
Arctic Land CLIM	UV	-0.0008	Boreal CLIM	UV	-0.00093
Canada	UV	-0.0002	Central CLIM	UV	-0.0041
Central Plains CLIM	UV	-0.0015	Great Lakes CLIM	UV	0.0
MidAtlantic CLIM	UV	6.1e-05	Mt West CLIM	UV	0.0067
North America plus	UV	-0.0016	North Atlantic CLIM	UV	-0.0044
North Plains CLIM	UV	-0.0029	North Plains CLIM	UV	-0.0029
Pacific North West CLIM	UV	0.0012	Pacific North West CLIM	UV	0.0012
Prairie CLIM	UV	-0.0013	Prairie CLIM	UV	-0.0013

Scores v5.3.14 vs. v5.3.14FL3M

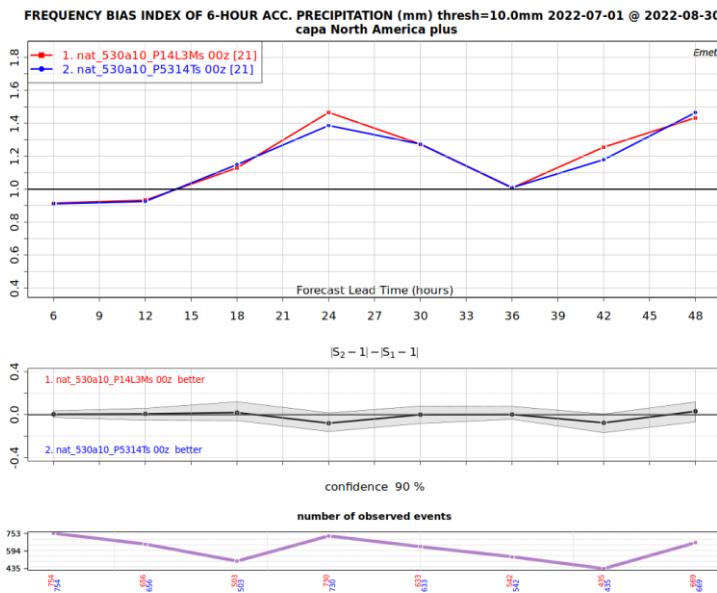
- Emet (PR6 and PR24)



ets		far		pod	
fbi		far		pod	
nat_530a10_P14L3Ms 00z / nat_530a10_P5314Ts 00z		nat_530a10_P14L3Ms 00z / nat_530a10_P5314Ts 00z		nat_530a10_P14L3Ms 00z / nat_530a10_P5314Ts 00z	
20220701 / 20220831		20220701 / 20220831		20220701 / 20220831	
All		All		All	
Appalachia CLIM	PR24	PR24	PR24	PR24	PR24
Appalachia CLIM	PR6	PR6	PR6	PR6	PR6
Arctic All CLIM	PR24	PR24	PR24	PR24	PR24
Arctic All CLIM	PR6	PR6	PR6	PR6	PR6
Arctic Land CLIM	PR24	PR24	PR24	PR24	PR24
Arctic Land CLIM	PR6	PR6	PR6	PR6	PR6
Boreal CLIM	PR24	PR24	PR24	PR24	PR24
Boreal CLIM	PR6	PR6	PR6	PR6	PR6
Canada	PR24	PR24	PR24	PR24	PR24
Canada	PR6	PR6	PR6	PR6	PR6
Central CLIM	PR24	PR24	PR24	PR24	PR24
Central CLIM	PR6	PR6	PR6	PR6	PR6
Central Plains CLIM	PR24	PR24	PR24	PR24	PR24
Central Plains CLIM	PR6	PR6	PR6	PR6	PR6
Great Lakes CLIM	PR24	PR24	PR24	PR24	PR24
Great Lakes CLIM	PR6	PR6	PR6	PR6	PR6
MidAtlantic CLIM	PR24	PR24	PR24	PR24	PR24
MidAtlantic CLIM	PR6	PR6	PR6	PR6	PR6
Mt West CLIM	PR24	PR24	PR24	PR24	PR24
Mt West CLIM	PR6	PR6	PR6	PR6	PR6
North America plus	PR24	PR24	PR24	PR24	PR24
North America plus	PR6	PR6	PR6	PR6	PR6
North Atlantic CLIM	PR24	PR24	PR24	PR24	PR24
North Atlantic CLIM	PR6	PR6	PR6	PR6	PR6
North Plains CLIM	PR24	PR24	PR24	PR24	PR24
North Plains CLIM	PR6	PR6	PR6	PR6	PR6
Pacific North West CLIM	PR24	PR24	PR24	PR24	PR24
Pacific North West CLIM	PR6	PR6	PR6	PR6	PR6
Prairie CLIM	PR24	PR24	PR24	PR24	PR24
Prairie CLIM	PR6	PR6	PR6	PR6	PR6

Scores v5.3.14 vs. v5.3.14FL3M

- FBI



fbi1			fbi2			fbi5			fbi10		
	<	>		<	>		<	>		<	>
nat_530a10_P14L3Ms 00z / nat_530a10_P5314Ts 00z	20220701 / 20220831	All	nat_530a10_P14L3Ms 00z / nat_530a10_P5314Ts 00z	20220701 / 20220831	All	nat_530a10_P14L3Ms 00z / nat_530a10_P5314Ts 00z	20220701 / 20220831	All	nat_530a10_P14L3Ms 00z / nat_530a10_P5314Ts 00z	20220701 / 20220831	All
Appalachia CLIM	PR6	0.0	Appalachia CLIM	PR6	0.01	Appalachia CLIM	PR6	0.0	Appalachia CLIM	PR6	-0.044
Arctic All CLIM	PR6	-0.0062	Arctic All CLIM	PR6	-0.017	Arctic All CLIM	PR6	0.0082	Arctic All CLIM	PR6	-0.021
Arctic Land CLIM	PR6	-0.0067	Arctic Land CLIM	PR6	-0.01	Arctic Land CLIM	PR6	0.0093	Arctic Land CLIM	PR6	0.01
Boreal CLIM	PR6	0.0025	Boreal CLIM	PR6	0.0045	Boreal CLIM	PR6	0.0	Boreal CLIM	PR6	0.0
Canada	PR6	0.0029	Canada	PR6	0.0	Canada	PR6	0.0	Canada	PR6	-0.021
Central CLIM	PR6	-0.0081	Central CLIM	PR6	0.0	Central CLIM	PR6	-0.031	Central CLIM	PR6	0.0071
Central Plains CLIM	PR6	0.029	Central Plains CLIM	PR6	0.058	Central Plains CLIM	PR6	0.0	Central Plains CLIM	PR6	0.0
Great Lakes CLIM	PR6	-0.0094	Great Lakes CLIM	PR6	0.017	Great Lakes CLIM	PR6	0.034	Great Lakes CLIM	PR6	0.047
MidAtlantic CLIM	PR6	-0.012	MidAtlantic CLIM	PR6	0.015	MidAtlantic CLIM	PR6	0.048	MidAtlantic CLIM	PR6	0.052
Mt West CLIM	PR6	0.0	Mt West CLIM	PR6	-0.01	Mt West CLIM	PR6	0.0	Mt West CLIM	PR6	0.0
North America plus	PR6	0.0017	North America plus	PR6	0.0024	North America plus	PR6	0.0	North America plus	PR6	0.0
North Atlantic CLIM	PR6	-0.012	North Atlantic CLIM	PR6	0.0	North Atlantic CLIM	PR6	0.0	North Atlantic CLIM	PR6	-0.023
North Plains CLIM	PR6	0.0	North Plains CLIM	PR6	-0.013	North Plains CLIM	PR6	0.0	North Plains CLIM	PR6	0.039
Pacific North West CLIM	PR6	0.013	Pacific North West CLIM	PR6	0.0	Pacific North West CLIM	PR6	0.0077	Pacific North West CLIM	PR6	-0.036
Prairie CLIM	PR6	-0.0019	Prairie CLIM	PR6	0.024	Prairie CLIM	PR6	0.0	Prairie CLIM	PR6	0.0

Timing v5.3.14 summer

HRnat_530a10_P5314Ts_2022070100_M_4596222.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5556.3893 seconds (13.67 ms logging)
HRnat_530a10_P5314Ts_2022070212_M_4596237.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5547.6350 seconds (13.41 ms logging)
HRnat_530a10_P5314Ts_2022070400_M_4596217.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5638.0266 seconds (13.59 ms logging)
HRnat_530a10_P5314Ts_2022070512_M_4596244.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5637.8402 seconds (13.44 ms logging)
HRnat_530a10_P5314Ts_2022070700_M_4596228.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5700.8586 seconds (13.83 ms logging)
HRnat_530a10_P5314Ts_2022070812_M_4596241.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5686.4548 seconds (13.47 ms logging)
HRnat_530a10_P5314Ts_2022071000_M_4596213.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5720.0846 seconds (13.57 ms logging)
HRnat_530a10_P5314Ts_2022071112_M_4596214.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5820.7781 seconds (13.59 ms logging)
HRnat_530a10_P5314Ts_2022071300_M_4596219.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5560.1497 seconds (13.67 ms logging)
HRnat_530a10_P5314Ts_2022071412_M_4596223.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5549.3888 seconds (13.61 ms logging)
HRnat_530a10_P5314Ts_2022071600_M_4596240.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5567.8601 seconds (13.58 ms logging)
HRnat_530a10_P5314Ts_2022071712_M_4596250.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5606.1253 seconds (13.62 ms logging)
HRnat_530a10_P5314Ts_2022071900_M_4596249.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5577.5222 seconds (13.65 ms logging)
HRnat_530a10_P5314Ts_2022072012_M_4596226.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5502.3526 seconds (13.63 ms logging)
HRnat_530a10_P5314Ts_2022072200_M_4596231.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5477.6476 seconds (13.80 ms logging)
HRnat_530a10_P5314Ts_2022072312_M_4596255.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5589.3105 seconds (13.51 ms logging)
HRnat_530a10_P5314Ts_2022072500_M_4596234.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5616.0949 seconds (13.76 ms logging)
HRnat_530a10_P5314Ts_2022072612_M_4596239.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5605.1777 seconds (13.67 ms logging)
HRnat_530a10_P5314Ts_2022072800_M_4596235.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5566.0135 seconds (13.88 ms logging)
HRnat_530a10_P5314Ts_2022072912_M_4596252.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5490.9276 seconds (13.49 ms logging)
HRnat_530a10_P5314Ts_2022073100_M_4597244.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5559.0211 seconds (13.49 ms logging)
HRnat_530a10_P5314Ts_2022080112_M_4597444.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5598.9635 seconds (13.75 ms logging)
HRnat_530a10_P5314Ts_2022080300_M_4597442.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5606.2282 seconds (13.55 ms logging)
HRnat_530a10_P5314Ts_2022080412_M_4597441.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5571.1181 seconds (13.71 ms logging)
HRnat_530a10_P5314Ts_2022080600_M_4597454.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5587.7249 seconds (13.58 ms logging)
HRnat_530a10_P5314Ts_2022080712_M_4597447.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5578.0378 seconds (13.77 ms logging)
HRnat_530a10_P5314Ts_2022080900_M_4597449.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5542.7070 seconds (13.84 ms logging)
HRnat_530a10_P5314Ts_2022081012_M_4597477.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5539.3929 seconds (13.84 ms logging)
HRnat_530a10_P5314Ts_2022081200_M_4597654.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5502.7439 seconds (13.77 ms logging)
HRnat_530a10_P5314Ts_2022081312_M_4597769.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5543.1929 seconds (13.62 ms logging)
HRnat_530a10_P5314Ts_2022081500_M_4597795.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5584.4323 seconds (13.73 ms logging)
HRnat_530a10_P5314Ts_2022081612_M_4597815.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5569.1312 seconds (13.84 ms logging)
HRnat_530a10_P5314Ts_2022081800_M_4597867.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5553.0791 seconds (13.56 ms logging)
HRnat_530a10_P5314Ts_2022081912_M_4597870.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5475.9692 seconds (14.23 ms logging)
HRnat_530a10_P5314Ts_2022082100_M_4597935.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5542.9797 seconds (13.24 ms logging)
HRnat_530a10_P5314Ts_2022082212_M_4597985.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5584.4158 seconds (13.54 ms logging)
HRnat_530a10_P5314Ts_2022082400_M_4597988.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5567.0194 seconds (13.76 ms logging)
HRnat_530a10_P5314Ts_2022082512_M_4597983.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5587.6958 seconds (13.93 ms logging)
HRnat_530a10_P5314Ts_2022082700_M_4597989.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5588.6119 seconds (13.63 ms logging)
HRnat_530a10_P5314Ts_2022082812_M_4597998.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5568.3015 seconds (13.46 ms logging)
HRnat_530a10_P5314Ts_2022083000_M_4599016.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5579.0851 seconds (13.49 ms logging)
HRnat_530a10_P5314Ts_2022083112_M_4599027.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 5516.3032 seconds (13.80 ms logging)

Mean (2MOM_noLF_n1):

$234345/42 = 5579$ seconds (-0.06%)

Timing v5.3.14FL3M summer

HRnat_530a10_P14L3Ms_2022070100_M_4602857.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6344.2018 seconds (13.96 ms logging)
HRnat_530a10_P14L3Ms_2022070212_M_4602882.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6491.1019 seconds (14.31 ms logging)
HRnat_530a10_P14L3Ms_2022070400_M_4602895.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6748.9002 seconds (14.79 ms logging)
HRnat_530a10_P14L3Ms_2022070512_M_4602902.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6458.4500 seconds (13.89 ms logging)
HRnat_530a10_P14L3Ms_2022070700_M_4602873.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6423.6210 seconds (14.11 ms logging)
HRnat_530a10_P14L3Ms_2022070812_M_4602897.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6415.0038 seconds (13.80 ms logging)
HRnat_530a10_P14L3Ms_2022071000_M_4602899.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6380.6089 seconds (13.91 ms logging)
HRnat_530a10_P14L3Ms_2022071112_M_4602849.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6410.8030 seconds (13.80 ms logging)
HRnat_530a10_P14L3Ms_2022071300_M_4602887.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6311.8356 seconds (13.82 ms logging)
HRnat_530a10_P14L3Ms_2022071412_M_4602850.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6312.6328 seconds (14.20 ms logging)
HRnat_530a10_P14L3Ms_2022071600_M_4602898.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6350.5033 seconds (13.80 ms logging)
HRNat_530a10_P14L3Ms_2022071712_M_4602918.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6394.5767 seconds (13.90 ms logging)
HRnat_530a10_P14L3Ms_2022071900_M_4602889.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6274.7195 seconds (13.98 ms logging)
HRnat_530a10_P14L3Ms_2022072012_M_4602900.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6204.5301 seconds (14.01 ms logging)
HRnat_530a10_P14L3Ms_2022072200_M_4602914.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6195.9209 seconds (14.22 ms logging)
HRnat_530a10_P14L3Ms_2022072312_M_4602891.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6315.7284 seconds (14.27 ms logging)
HRnat_530a10_P14L3Ms_2022072500_M_4602854.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6274.7259 seconds (14.44 ms logging)
HRnat_530a10_P14L3Ms_2022072612_M_4602912.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6248.5083 seconds (14.08 ms logging)
HRnat_530a10_P14L3Ms_2022072800_M_4602904.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6214.3690 seconds (14.12 ms logging)
HRnat_530a10_P14L3Ms_2022072912_M_4602896.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6145.4995 seconds (13.93 ms logging)
HRnat_530a10_P14L3Ms_2022073100_M_4604231.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6205.8873 seconds (14.22 ms logging)
HRNat_530a10_P14L3Ms_2022080112_M_4604237.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6307.3576 seconds (14.34 ms logging)
HRnat_530a10_P14L3Ms_2022080300_M_4604250.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6330.8111 seconds (13.80 ms logging)
HRnat_530a10_P14L3Ms_2022080412_M_4604279.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6328.9978 seconds (13.96 ms logging)
HRnat_530a10_P14L3Ms_2022080600_M_4604290.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6344.5731 seconds (13.85 ms logging)
HRnat_530a10_P14L3Ms_2022080712_M_4604296.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6280.7758 seconds (13.92 ms logging)
HRnat_530a10_P14L3Ms_2022080900_M_4604302.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6273.8029 seconds (14.44 ms logging)
HRnat_530a10_P14L3Ms_2022081012_M_4604297.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6214.2336 seconds (14.01 ms logging)
HRnat_530a10_P14L3Ms_2022081200_M_4604293.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6169.2249 seconds (14.08 ms logging)
HRnat_530a10_P14L3Ms_2022081312_M_4604307.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6189.6977 seconds (14.07 ms logging)
HRnat_530a10_P14L3Ms_2022081500_M_4604319.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6221.5156 seconds (14.05 ms logging)
HRnat_530a10_P14L3Ms_2022081612_M_4604331.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6343.5872 seconds (14.49 ms logging)
HRnat_530a10_P14L3Ms_2022081800_M_4604333.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6210.7125 seconds (14.14 ms logging)
HRnat_530a10_P14L3Ms_2022081912_M_4604337.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6128.9259 seconds (14.06 ms logging)
HRnat_530a10_P14L3Ms_2022082100_M_4604325.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6143.8215 seconds (14.20 ms logging)
HRnat_530a10_P14L3Ms_2022082212_M_4604396.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6296.7291 seconds (13.64 ms logging)
HRnat_530a10_P14L3Ms_2022082400_M_4604411.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6292.7489 seconds (13.95 ms logging)
HRnat_530a10_P14L3Ms_2022082512_M_4604483.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6231.8455 seconds (14.32 ms logging)
HRnat_530a10_P14L3Ms_2022082700_M_4604609.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6254.6666 seconds (14.18 ms logging)
HRnat_530a10_P14L3Ms_2022082812_M_4604639.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6357.7624 seconds (14.20 ms logging)
HRnat_530a10_P14L3Ms_2022083000_M_4605416.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6356.9669 seconds (13.95 ms logging)
HRnat_530a10_P14L3Ms_2022083112_M_4605425.sc6pbs-001-ib.out.000:oe-00000-00000: Execution time : 6414.8780 seconds (14.08 ms logging)

Mean (3MOM_LF_n1):

$264789/42 = 6304$ seconds (+13%)

Conclusions for summer 2022

- Arcad scores are neutral for both v5.3.13 and v5.3.14.
- Small differences in emet scores, but values are too small to be significant.
- Timings are similar, except for 3MOM, which increases it by 13%.
- Note and not shown: PE2 is increased with 3MOM compared to 2MOM, which is good news.