P3-v5.3.13

HRDPS validation in GEM5.3.10-a10 and PA3a configuration

v5.3.12 vs. v5.3.13

Note: Lookup table 1 for v5.3.13 are the same as for v5.4.3, it just reads in a few more dummy (columns) that are used for full3mom and prognostic aerosols.

Difference

- Bugfix to collection rates in all lookup tables.
- New lookup table version:
 - LT1: from 6.6-2moml, 6.6-3moml to 6.9-2moml and 6.9-3moml
 - LT2: from 6.1 to 6.2 (only bug for collection rates)

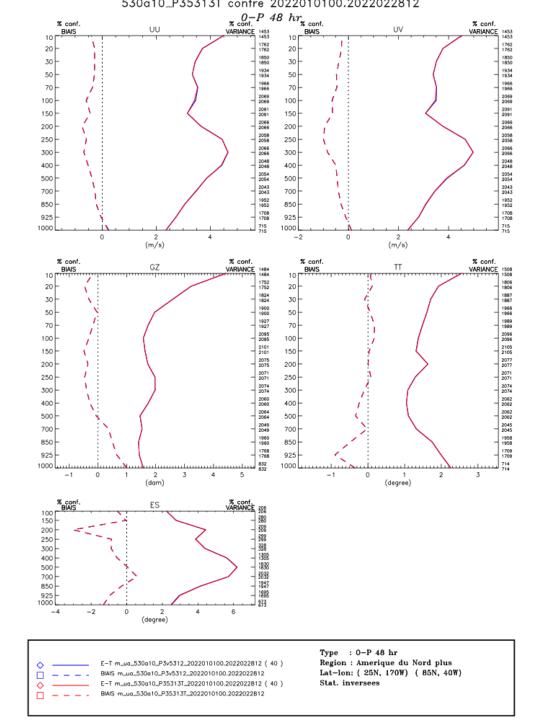
History of LT1:

- $6.6 \rightarrow \text{ for P3v5.3.6 to P3v5.3.12}$
- 6.7 → includes full3mom new columns
- 6.8 → bugfix for m6shd (full3mom) NaNs, also added 2 new columns for prognostic aerosols
- $6.9 \rightarrow$ bugfix for collection rates

Note: only winter 2022 (40 cases) is shown because changes were very small.

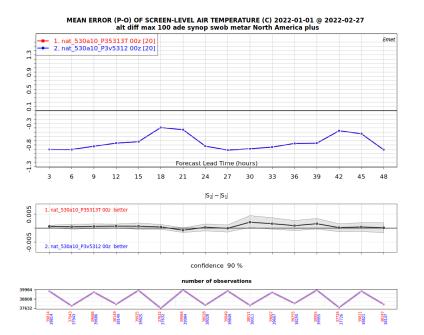
Scores v5.3.12 vs. 5.3.13

Arcad → completely neutral

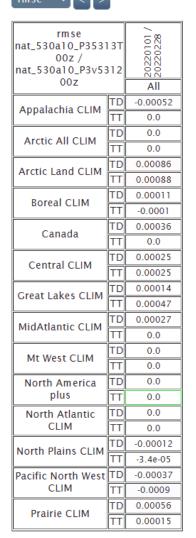


Scores v5.3.12 vs. 5.3.13

• Emet TT, TD, UV, P0 neutral



bias <					
bias nat_530a10_P3531 00z / nat_530a10_P3v53	20220101 /				
002	All				
Appalachia CLIM	TD	0.0			
	TD	0.0			
Arctic All CLIM	TT	-0.00052			
	TD	0.0			
Arctic Land CLIM	TT	-0.00053			
Darrad CLIM	TD	-0.00038			
Boreal CLIM	TT	9.8e-05			
Canada	TD	6.8e-05			
Callaua	TT	-0.00015			
Central CLIM	TD	6.6e-05			
Central CLIM	TT	0.00053			
Great Lakes CLIM	TD	0.0			
Great Eakes CEIM	TT	0.00042			
MidAtlantic CLIM	TD	5.5e-06			
martiantic cent	TT	-0.00082			
Mt West CLIM	TD	0.0			
THE WOOL GEIN	TT	0.0			
North America	TD	0.00022			
plus	TT	0.00022			
North Atlantic	TD	0.00013			
CLIM	TT	0.00027			
North Plains CLIM	TD	0.0			
	TT	0.00041			
Pacific North West CLIM	TD	-0.002			
CLIM	TT	0.0			
Prairie CLIM	ΓD	0.0011			
	TT	0.00056			



stdev V			
stdev nat_530a10_P3531 00z / nat_530a10_P3v53	20220101 /		
00z		All	
Appalachia CLIM	TD	-0.00023	
Apparaema ezim	TT	0.00014	
Arctic All CLIM	TD	0.00095	
Arctic All CEIM	TT	0.0011	
Arctic Land CLIM	TD	0.0012	
Arctic Land CLIM	TT	0.00096	
Boreal CLIM	TD	0.00014	
BOTEAT CLIM	TT	0.00011	
Canada	TD	0.00046	
Callada	TT	0.0	
Control CLIM	TD	0.00018	
Central CLIM	TT	0.00021	
Great Lakes CLIM	TD	0.00048	
Great Lakes CLIM	TT	-3.1e-05	
MidAtlantic CLIM	TD	0.00025	
MIGAGAITIC CLIM	TT	0.0	
Mt West CLIM	TD	0.0	
MIL WEST CLIM	TT	0.0	
North America	TD	6.4e-05	
plus	TT	6.7e-05	
North Atlantic	TD	0.0	
CLIM	TT	0.0	
North Plains CLIM	TD	0.0	
NOTHI FIAIRS CLIM	TT	-0.00011	
Pacific North West	TD	-0.0006	
CLIM	TT	-0.00082	
Prairie CLIM	TD	0.00055	
PIAITIE CLIM	TT	1e-05	

bias 🗸 < >

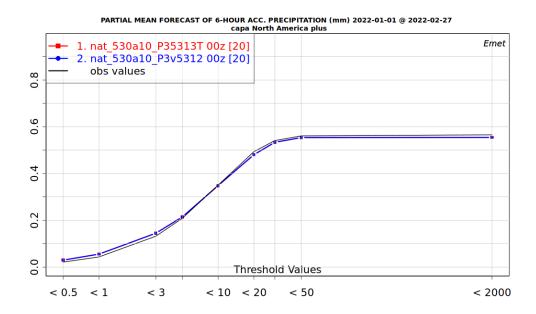
bias nat_530a10_P3v53 00z / nat_530a10_P3v53	20220101 /				
	All				
Appalachia CLIM	P0	-0.0026			
Arctic All CLIM	P0	-0.00052			
Arctic Land CLIM	Arctic Land CLIM PO				
Boreal CLIM	P0	-0.0016			
Canada	P0	-0.0032			
Central CLIM	PO	-0.0026			
Central Plains CLIM	PO	0.0			
Great Lakes CLIM	PO	-0.00089			
MidAtlantic CLIM	PO	-0.0022			
Mt West CLIM	PO	-0.004			
North America plus	PO	-0.0037			
North Atlantic CLIM	PO	-0.0033			
North Plains CLIM	P0	-0.0021			
Pacific North West CLIM	PO	0.0013			
Prairie CLIM	P0	0.0			

bias 🗸 < >

bias nat_530a10_P3v53 00z / nat_530a10_P3v53 00z	E 20220101 / 20220228	
Appalachia CLIM	UV	0.0
Arctic All CLIM	UV	-0.0012
Arctic Land CLIM	UV	-0.00076
Boreal CLIM	U٧	0.0
Canada	UV	-0.0007
Central CLIM	UV	-0.00035
Central Plains CLIM	UV	-0.0026
Great Lakes CLIM	UV	-2.5e-05
MidAtlantic CLIM	UV	0.0023
Mt West CLIM	UV	0.0026
North America plus	UV	-7e-05
North Atlantic CLIM	UV	0.00089
North Plains CLIM	UV	-9.1e-05
Pacific North West CLIM	UV	0.0
Prairie CLIM	UV	0.00097

Scores v5.3.12 vs. v5.3.13

Emet (PR6 and PR24)



					numb	er of	obse	rved e	events
97337 -								1	
90684 -									
84031 -									
	84031	87098 87098	92038 92038	94010	96032	97076 97076	97276	97332	97338 97338

ets	/ <	>	П	fb
			П	
ets nat_530a10_P35	313T	0101 /		nat
00z / nat_530a10_P3\ 00z	/5312	2025 IIA		na
	DD 2.4		ΙĒ	
Appalachia CLIM	PR24	0.00042	П	
CLIM	PR6	0.0	П	
Arctic All CLIM	PR24	0.0	П	Ar
	PR6	0.0	-	
Arctic Land	PR24	0.0	П	′
CLIM	PR6	0.0	П	
Boreal CLIM	PR24	-0.0051	П	E
	PR6	0.011)11	_
Canada	PR24	-0.0028	0.0	
	PR6			
Central CLIM	PR24	-0.0029		
Octivia octivi	PR6	0.0	П	C
Central Plains	PR24	0.0	П	С
CLIM	PR6	0.0	П	
Great Lakes	PR24	-0.0066	П	(
CLIM		-0.0027	П	
MidAtlantic	PR24	0.00042	П	1
CLIM	PR6	-0.00064	П	
Mt West CLIM	PR24	-0.0035	П	М
MIC WEST CLIM	PR6	0.0	П	IVI
North America	PR24	0.00018	П	No
plus	PR6 0.0	П		
North Atlantic	th Atlantic PR24 -0.0	-0.0025	П	N
CLIM	PR6	0.0042	П	
North Plains	PR24	0.0	П	N
CLIM	PR6	0.0	П	
Pacific North	PR24	0.0023		Р
West CLIM	PR6	-0.00064		'
Drainic CLIM	PR24	-5.2e-05		
Prairie CLIM	PR6	-0.0014		F

~	/ <	>	1	far 🔻	<	>
		_	П			
fbi _530a10_P35 00z / _530a10_P3\		20220101 /		far nat_530a10_P35 00z / nat_530a10_P3v 00z		20220101 /
00z		All		002		All
Appalachia	PR24	0.0		Appalachia	PR24	-0.0016
CLIM	PR6	0.0		CLIM	PR6	0.0
All CLUM	PR24	0.0		Arctic All CLIM	PR24	0.0
ctic All CLIM	PR6	0.018			PR6	0.0
Arctic Land	PR24	0.0		Arctic Land	PR24	0.0
CLIM	PR6	0.0		CLIM	PR6	0.0
1.00.00	PR24	0.0		Boreal CLIM	PR24	-0.0031
oreal CLIM	PR6	0.026		Borear CEIM	PR6	-6.4e-05
01-	PR24	0.0021		Canada	PR24	0.0
Canada	PR6	-0.0012		Cunudu	PR6	0.0
	PR24	-0.0047		Central CLIM	PR24	-0.014
entral CLIM	PR6	0.0 Central CLIM PR	PR6	0.0		
entral Plains	PR24	0.0		Central Plains	PR24	0.0
CLIM	PR6	0.0		CLIM	PR6	0.0
reat Lakes	PR24	0.0		Great Lakes	PR24	-0.0084
CLIM	PR6	0.018		CLIM	PR6	-0.0035
/lidAtlantic	PR24	-0.0092		MidAtlantic	PR24	-0.0035
CLIM	PR6	-0.02		CLIM	PR6	0.0
t West CLIM	PR24	0.0043		Mt West CLIM	PR24	0.0021
t west clim	PR6	0.0		MIC WEST CLIM	PR6	0.0
rth America	PR24	-0.00081		North America	PR24	0.0011
plus	PR6	-0.00042		plus	PR6	0.0
orth Atlantic	PR24	0.0		North Atlantic	PR24	0.0
CLIM	PR6	-0.0098		CLIM	PR6	0.0048
orth Plains	PR24	0.0		North Plains	PR24	0.0
CLIM	PR6	0.0		CLIM	PR6	0.0
acific North	PR24	-0.0017		Pacific North	PR24	0.0022
West CLIM	PR6	0.0		West CLIM	PR6	0.0
rairie CLIM	PR24	0.0036		Drairio CLIM	PR24	-0.017
Tunic CEIM	PR6	0.0		Prairie CLIM	PR6	0.0
			4 1			

pod	/	>
pod nat_530a10_P35 00z / nat_530a10_P3v 00z		20220101 / 20220228
	DD 2.4	7 ***
Appalachia CLIM	PR24 PR6	-0.0029
CEIM	PR24	0.0
Arctic All CLIM		0.0
	PR6 PR24	0.0
Arctic Land CLIM	PR6	0.0
CLIM	PR24	-0.0064
Boreal CLIM	PR6	
	PR24	-0.0016
Canada	PR6	0.0
	PR24	0.0
Central CLIM	PR6	0.0
Control Plains	PR24	0.0
Central Plains CLIM	PR6	0.0
	PR24	0.0
Great Lakes CLIM	PR6	-0.0064
MidAtlantic	PR24	4.6e-05
CLIM	PR6	-0.0074
	PR24	0.0074
Mt West CLIM	PR6	0.0
North America	PR24	0.00057
plus	PR6	0.0
North Atlantic	PR24	-0.0018
CLIM	PR6	0.0046
North Plains	PR24	0.0040
CLIM	PR6	0.0
Pacific North	PR24	0.0018
West CLIM	PR6	0.0018
	PR24	0.002
Prairie CLIM	PR6	-0.0017
		0.0017