

Bug-fix of 2A23

A wrong index access to an array occurred in one of the 2A23 source file L2A23rtypes.c. The bug occurred in the early stage of bright band (BB) detection. Because of this bug, the following quantities are affected:

rain type,

BB related quantities (such as BB intensity, BB height),

status,

though the occurrence of changes in these quantities due to the bug are found to be negligibly small.

Comparison between the count of each rain type in 2A23 with the bug and that generated by the bug-fixed code is shown in the following two pages. The first page shows an example on a day of before the altitude change, and the second on a day of after the altitude change. The effect of the bug on the rain type count seems to be almost the same for both before the altitude change and after the altitude change. These tables clearly indicate that the effect of the bug is very small.

With bug bug fixed

---- stratiform -----

1 Feb. 1998

(16 orbits of data)

Before altitude change

100	92037	92057	+20	V=S	H=S	BB exists
110	0	0	0	V=S	H=O	BB exists
120	85139	85126	-13	V=O	H=S	
130	7687	7687	0	V=S	H=C	BB certain
140	19778	19775	-3	V=O	H=S	BB hardly expected
152	25529	25527	-2	V=O	H=S	shallow non-isolated
160	12779	12779	0	V=O	H=S	BB may exists
170	8580	8580	0	V=O	H=S	maybe cloud
(nBB	99724	99744	+24)		

stra = 251529

→ 251531

+2

conv = 49475

→ 49743

-2

other = 6274

→ 6274

0

---- convective -----

200	4029	4027	-1	V=C	H=C	
210	23075	23077	+2	V=O	H=C	
220	1	1	0	V=C	H=O	
230	0	0	0	V=C	H=C	(BB exists)
240	161	161	0	V=C	H=S	
251	37	37	0	V=C	H=C	shallow isolated
252	104	104	0	V=C	H=C	shallow non-isolated
261	0	0	0	V=C	H=O	shallow isolated
262	0	0	0	V=C	H=O	shallow non-isolated
271	1140	1140	0	V=O	H=C	shallow isolated
272	2493	2493	0	V=O	H=C	shallow non-isolated
281	0	0	0	V=C	H=S	shallow isolated
282	0	0	0	V=C	H=S	shallow non-isolated
291	18435	18433	-2	V=O	H=S	shallow isolated

---- other -----

300	5718	5718	0	V=O	H=O	
312	0	0	0	V=O	H=O	shallow non-isolated
313	556	556	0	V=O	H=O	shallow if sidelobe clutter were not relected

Counts of rain type by 2A23 having the bug and those generated by the bug-fixed code.

1 Feb. 2002

(16 orbits of data)

After altitude change

stra = 214566

→ 214569

+3

conv = 50998

→ 50994

-4

other = 3962

→ 3963

+1

	With bug	bug fixed		V=S	H=S	BB exists
---- stratiform -----						
100	80760	80781	+21	V=S	H=S	BB exists
110	0	0	0	V=S	H=O	BB exists
120	80258	80238	-20	V=O	H=S	
130	6632	6636	+4	V=S	H=C	BB certain
140	8892	8894	+2	V=O	H=S	BB hardly expected
152	22864	22861	-3	V=O	H=S	shallow non-isolated
160	11829	11828	-1	V=O	H=S	BB may exist
170	3331	3331	0	V=O	H=S	maybe cloud
(nBB	87392	87417	+25)			
---- convective -----						
200	5816	5815	-1	V=C	H=C	
210	25793	25791	-2	V=O	H=C	
220	1	1	0	V=C	H=O	
230	0	0	0	V=C	H=C	(BB exists)
240	247	247	0	V=C	H=S	
251	26	26	0	V=C	H=C	shallow isolated
252	107	107	0	V=C	H=C	shallow non-isolated
261	0	0	0	V=C	H=O	shallow isolated
262	0	0	0	V=C	H=O	shallow non-isolated
271	1116	1116	0	V=O	H=C	shallow isolated
272	2856	2855	-1	V=O	H=C	shallow non-isolated
281	0	0	0	V=C	H=S	shallow isolated
282	0	0	0	V=C	H=S	shallow non-isolated
291	15036	15036	0	V=O	H=S	shallow isolated
---- other -----						
300	3706	3707	+1	V=O	H=O	
312	0	0	0	V=O	H=O	shallow non-isolated
313	256	256	0	V=O	H=O	shallow if sidelobe clutter were not rejected.

Counts of rain type by 2A23 having the bug and those generated by the bug-fixed code.