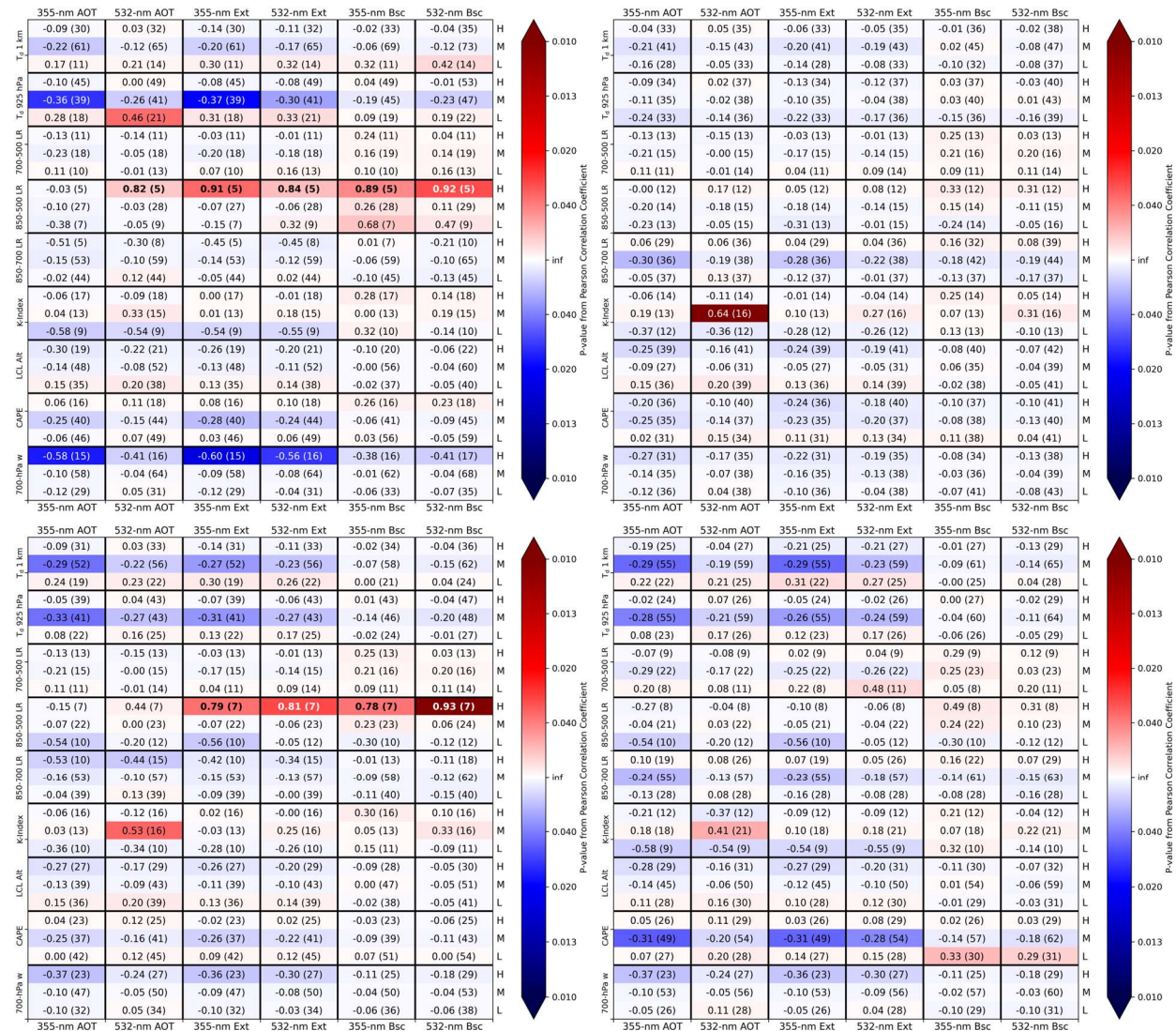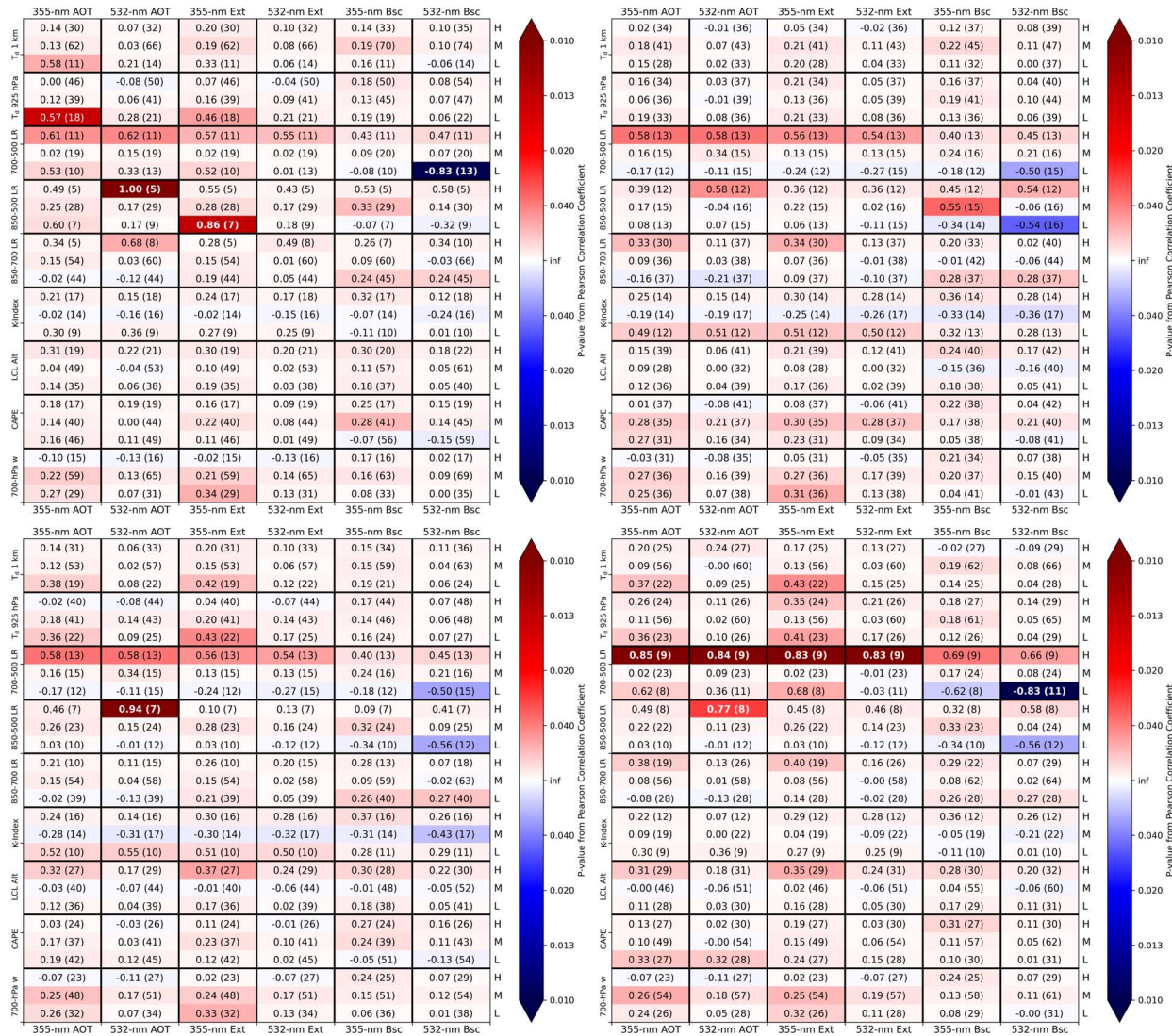# Supplemental material for Amiot et al.: Observed impacts of aerosol concentration on maritime tropical convection within constrained environments using airborne radiometer, radar, lidar, and dropsondes

Test 1 (upper left)

Param	Level	355-nm AOT	532-nm AOT	355-nm Ext	532-nm Ext	355-nm Bsc	532-nm Bsc
Td 1 km	H	-0.09 (30)	0.03 (32)	-0.14 (30)	-0.11 (32)	-0.02 (33)	-0.04 (35)
Td 1 km	M	-0.22 (61)	-0.12 (65)	-0.20 (61)	-0.17 (65)	-0.06 (69)	-0.12 (73)
Td 1 km	L	0.17 (11)	0.21 (14)	0.30 (11)	0.32 (14)	0.32 (11)	0.42 (14)
Td 925 hPa	H	-0.10 (45)	0.00 (49)	-0.08 (45)	-0.08 (49)	0.04 (49)	-0.01 (53)
Td 925 hPa	M	-0.36 (39)	-0.26 (41)	-0.37 (39)	-0.30 (41)	-0.19 (45)	-0.23 (47)
Td 925 hPa	L	0.28 (18)	0.46 (21)	0.31 (18)	0.33 (21)	0.09 (19)	0.19 (22)
700-500 LR	H	-0.13 (11)	-0.14 (11)	-0.03 (11)	-0.01 (11)	0.24 (11)	0.04 (11)
700-500 LR	M	-0.23 (18)	-0.05 (18)	-0.20 (18)	-0.18 (18)	0.16 (19)	0.14 (19)
700-500 LR	L	0.11 (10)	-0.01 (13)	0.07 (10)	0.16 (13)	0.10 (10)	0.16 (13)
850-500 LR	H	-0.03 (5)	**0.82 (5)**	**0.91 (5)**	**0.84 (5)**	**0.89 (5)**	**0.92 (5)**
850-500 LR	M	-0.10 (27)	-0.03 (28)	-0.07 (27)	-0.06 (28)	0.26 (28)	0.11 (29)
850-500 LR	L	-0.38 (7)	-0.05 (9)	-0.15 (7)	0.32 (9)	0.68 (7)	0.47 (9)
850-700 LR	H	-0.51 (5)	-0.30 (8)	-0.45 (5)	-0.45 (8)	0.01 (7)	-0.21 (10)
850-700 LR	M	-0.15 (53)	-0.10 (59)	-0.14 (53)	-0.12 (59)	-0.06 (59)	-0.10 (65)
850-700 LR	L	-0.02 (44)	0.12 (44)	-0.05 (44)	0.02 (44)	-0.10 (45)	-0.13 (45)
K-index	H	-0.06 (17)	-0.09 (18)	0.00 (17)	-0.01 (18)	0.28 (17)	0.14 (18)
K-index	M	0.04 (13)	0.33 (15)	0.01 (13)	0.18 (15)	0.00 (13)	0.19 (15)
K-index	L	-0.58 (9)	-0.54 (9)	-0.54 (9)	-0.55 (9)	0.32 (10)	-0.14 (10)
LCL Alt	H	-0.30 (19)	-0.22 (21)	-0.26 (19)	-0.20 (21)	-0.10 (20)	-0.06 (22)
LCL Alt	M	-0.14 (48)	-0.08 (52)	-0.13 (48)	-0.11 (52)	-0.00 (56)	-0.04 (60)
LCL Alt	L	0.15 (35)	0.20 (38)	0.13 (35)	0.14 (38)	-0.02 (37)	-0.05 (40)
CAPE	H	0.06 (16)	0.11 (18)	0.08 (16)	0.10 (18)	0.26 (16)	0.23 (18)
CAPE	M	-0.25 (40)	-0.15 (44)	-0.28 (40)	-0.24 (44)	-0.06 (41)	-0.09 (45)
CAPE	L	-0.06 (46)	0.07 (49)	0.03 (46)	0.06 (49)	0.03 (56)	-0.05 (59)
700-hPa w	H	-0.58 (15)	-0.41 (16)	-0.60 (15)	-0.56 (16)	-0.38 (16)	-0.41 (17)
700-hPa w	M	-0.10 (58)	-0.04 (64)	-0.09 (58)	-0.08 (64)	-0.01 (62)	-0.04 (68)
700-hPa w	L	-0.12 (29)	0.05 (31)	-0.12 (29)	-0.04 (31)	-0.06 (33)	-0.07 (35)

Test 2 (upper right)

Param	Level	355-nm AOT	532-nm AOT	355-nm Ext	532-nm Ext	355-nm Bsc	532-nm Bsc
Td 1 km	H	-0.04 (33)	0.05 (35)	-0.06 (33)	-0.05 (35)	-0.01 (36)	-0.02 (38)
Td 1 km	M	-0.21 (41)	-0.15 (43)	-0.20 (41)	-0.19 (43)	0.02 (45)	-0.08 (47)
Td 1 km	L	-0.16 (28)	-0.05 (33)	-0.14 (28)	-0.08 (33)	-0.10 (32)	-0.08 (37)
Td 925 hPa	H	-0.09 (34)	0.02 (37)	-0.13 (34)	-0.12 (37)	0.03 (37)	-0.03 (40)
Td 925 hPa	M	-0.11 (35)	-0.02 (38)	-0.10 (35)	-0.04 (38)	0.03 (40)	0.01 (43)
Td 925 hPa	L	-0.24 (33)	-0.14 (36)	-0.22 (33)	-0.17 (36)	-0.15 (36)	-0.16 (39)
700-500 LR	H	-0.13 (13)	-0.15 (13)	-0.03 (13)	-0.01 (13)	0.25 (13)	0.03 (13)
700-500 LR	M	-0.21 (15)	-0.00 (15)	-0.17 (15)	-0.14 (15)	0.21 (16)	0.20 (16)
700-500 LR	L	0.11 (11)	-0.01 (14)	0.04 (11)	0.09 (14)	0.09 (11)	0.11 (14)
850-500 LR	H	-0.00 (12)	0.17 (12)	0.05 (12)	0.08 (12)	0.33 (12)	0.31 (12)
850-500 LR	M	-0.20 (14)	-0.18 (15)	-0.18 (14)	-0.14 (15)	0.15 (14)	-0.11 (15)
850-500 LR	L	-0.23 (13)	-0.05 (15)	-0.31 (13)	-0.01 (15)	-0.24 (14)	-0.05 (16)
850-700 LR	H	0.06 (29)	0.06 (36)	0.04 (29)	0.04 (36)	0.16 (32)	0.08 (39)
850-700 LR	M	-0.30 (36)	-0.19 (38)	-0.28 (36)	-0.22 (38)	-0.18 (42)	-0.19 (44)
850-700 LR	L	-0.05 (37)	0.13 (37)	-0.12 (37)	-0.01 (37)	-0.13 (37)	-0.17 (37)
K-index	H	-0.06 (14)	-0.11 (14)	-0.01 (14)	-0.04 (14)	0.25 (14)	0.05 (14)
K-index	M	0.19 (13)	0.64 (16)	0.10 (13)	0.27 (16)	0.07 (13)	0.31 (16)
K-index	L	-0.37 (12)	-0.36 (12)	-0.28 (12)	-0.26 (12)	0.13 (13)	-0.10 (13)
LCL Alt	H	-0.25 (39)	-0.16 (41)	-0.24 (39)	-0.19 (41)	-0.08 (42)	-0.07 (42)
LCL Alt	M	-0.09 (27)	-0.06 (31)	-0.05 (27)	-0.05 (31)	0.06 (35)	-0.04 (39)
LCL Alt	L	0.15 (36)	0.20 (39)	0.13 (36)	0.14 (39)	-0.02 (38)	-0.05 (41)
CAPE	H	-0.20 (37)	-0.10 (40)	-0.24 (37)	-0.18 (40)	-0.10 (41)	-0.10 (41)
CAPE	M	-0.25 (35)	-0.14 (37)	-0.23 (35)	-0.20 (37)	-0.08 (38)	-0.13 (40)
CAPE	L	0.02 (31)	0.15 (34)	0.11 (31)	0.13 (34)	0.11 (38)	0.04 (41)
700-hPa w	H	-0.27 (32)	-0.17 (35)	-0.22 (31)	-0.19 (35)	-0.08 (34)	-0.13 (38)
700-hPa w	M	-0.14 (35)	-0.07 (38)	-0.16 (35)	-0.13 (38)	-0.03 (36)	-0.04 (39)
700-hPa w	L	-0.12 (36)	0.04 (38)	-0.10 (36)	-0.04 (38)	-0.07 (41)	-0.08 (43)

Test 3 (lower left)

Param	Level	355-nm AOT	532-nm AOT	355-nm Ext	532-nm Ext	355-nm Bsc	532-nm Bsc
Td 1 km	H	-0.09 (31)	0.03 (33)	-0.14 (31)	-0.11 (33)	-0.02 (34)	-0.04 (36)
Td 1 km	M	-0.29 (52)	-0.22 (56)	-0.27 (52)	-0.23 (56)	-0.07 (58)	-0.15 (62)
Td 1 km	L	0.24 (19)	0.23 (22)	0.30 (19)	0.26 (22)	0.00 (21)	0.04 (24)
Td 925 hPa	H	-0.05 (39)	0.04 (43)	-0.07 (39)	-0.06 (43)	0.01 (43)	-0.04 (47)
Td 925 hPa	M	-0.33 (41)	-0.27 (43)	-0.31 (41)	-0.27 (43)	-0.14 (46)	-0.20 (48)
Td 925 hPa	L	0.08 (22)	0.16 (25)	0.13 (22)	0.17 (25)	-0.02 (24)	-0.01 (27)
700-500 LR	H	-0.13 (13)	-0.15 (13)	-0.03 (13)	-0.01 (13)	0.25 (13)	0.03 (13)
700-500 LR	M	-0.21 (15)	-0.00 (15)	-0.17 (15)	-0.14 (15)	0.21 (16)	0.20 (16)
700-500 LR	L	0.11 (11)	-0.01 (14)	0.04 (11)	0.09 (14)	0.09 (11)	0.11 (14)
850-500 LR	H	-0.15 (7)	0.44 (7)	**0.79 (7)**	**0.81 (7)**	**0.78 (7)**	**0.93 (7)**
850-500 LR	M	-0.07 (22)	0.00 (23)	-0.07 (22)	-0.06 (23)	0.23 (23)	0.06 (24)
850-500 LR	L	-0.54 (10)	-0.20 (12)	-0.56 (10)	-0.05 (12)	-0.30 (10)	-0.12 (12)
850-700 LR	H	-0.53 (10)	-0.44 (15)	-0.42 (10)	-0.34 (15)	-0.01 (13)	-0.11 (18)
850-700 LR	M	-0.16 (53)	-0.10 (57)	-0.15 (53)	-0.13 (57)	-0.09 (58)	-0.12 (62)
850-700 LR	L	-0.04 (39)	0.13 (39)	-0.09 (39)	-0.00 (39)	-0.11 (40)	-0.15 (40)
K-index	H	-0.06 (16)	-0.12 (16)	0.02 (16)	-0.00 (16)	0.30 (16)	0.10 (16)
K-index	M	0.03 (13)	0.53 (16)	-0.03 (13)	0.25 (16)	0.05 (13)	0.33 (16)
K-index	L	-0.36 (10)	-0.34 (10)	-0.28 (10)	-0.26 (10)	0.15 (11)	-0.09 (11)
LCL Alt	H	-0.27 (27)	-0.17 (29)	-0.26 (27)	-0.20 (29)	-0.09 (28)	-0.05 (30)
LCL Alt	M	-0.13 (39)	-0.09 (43)	-0.11 (39)	-0.10 (43)	0.00 (47)	-0.05 (51)
LCL Alt	L	0.15 (36)	0.20 (39)	0.13 (36)	0.14 (39)	-0.02 (38)	-0.05 (41)
CAPE	H	0.04 (23)	0.12 (25)	-0.02 (23)	0.02 (25)	-0.03 (23)	-0.06 (25)
CAPE	M	-0.25 (37)	-0.16 (41)	-0.26 (37)	-0.22 (41)	-0.09 (39)	-0.11 (43)
CAPE	L	0.00 (42)	0.12 (45)	0.09 (42)	0.12 (45)	0.07 (51)	0.00 (54)
700-hPa w	H	-0.37 (23)	-0.24 (27)	-0.36 (23)	-0.30 (27)	-0.11 (25)	-0.18 (29)
700-hPa w	M	-0.10 (47)	-0.05 (50)	-0.09 (47)	-0.08 (50)	-0.04 (50)	-0.04 (53)
700-hPa w	L	-0.10 (32)	0.05 (34)	-0.10 (32)	-0.03 (34)	-0.06 (36)	-0.06 (38)

Test 4 (lower right)

Param	Level	355-nm AOT	532-nm AOT	355-nm Ext	532-nm Ext	355-nm Bsc	532-nm Bsc
Td 1 km	H	-0.19 (25)	-0.04 (27)	-0.21 (25)	-0.21 (27)	-0.01 (27)	-0.13 (29)
Td 1 km	M	-0.29 (55)	-0.19 (59)	-0.29 (55)	-0.23 (59)	-0.09 (61)	-0.14 (65)
Td 1 km	L	0.22 (22)	0.21 (25)	0.31 (25)	0.27 (25)	-0.00 (25)	0.04 (28)
Td 925 hPa	H	-0.02 (24)	0.07 (26)	-0.05 (24)	-0.02 (26)	0.00 (27)	-0.02 (29)
Td 925 hPa	M	-0.28 (55)	-0.21 (59)	-0.26 (55)	-0.24 (59)	-0.04 (60)	-0.11 (64)
Td 925 hPa	L	0.08 (23)	0.17 (26)	0.12 (23)	0.17 (26)	-0.06 (26)	-0.05 (29)
700-500 LR	H	-0.07 (9)	-0.08 (9)	0.02 (9)	0.04 (9)	0.29 (9)	0.12 (9)
700-500 LR	M	-0.29 (22)	-0.17 (22)	-0.25 (22)	-0.26 (22)	0.25 (23)	0.03 (23)
700-500 LR	L	0.20 (8)	0.08 (11)	0.22 (8)	0.48 (11)	0.25 (8)	0.20 (11)
850-500 LR	H	-0.27 (8)	-0.04 (8)	-0.10 (8)	-0.06 (8)	0.49 (8)	0.31 (8)
850-500 LR	M	-0.04 (21)	0.03 (22)	-0.05 (21)	-0.04 (22)	0.24 (22)	0.10 (23)
850-500 LR	L	-0.54 (10)	-0.20 (12)	-0.56 (10)	-0.05 (12)	-0.30 (10)	-0.12 (12)
850-700 LR	H	0.10 (19)	0.08 (26)	0.07 (19)	0.05 (26)	0.16 (22)	0.07 (29)
850-700 LR	M	-0.24 (55)	-0.13 (57)	-0.23 (55)	-0.18 (57)	-0.14 (61)	-0.15 (63)
850-700 LR	L	-0.13 (28)	0.08 (28)	-0.16 (28)	-0.08 (28)	-0.08 (28)	-0.16 (28)
K-index	H	-0.21 (12)	-0.37 (12)	-0.09 (12)	-0.09 (12)	0.21 (12)	-0.04 (12)
K-index	M	0.18 (18)	0.41 (21)	0.10 (18)	0.18 (21)	0.07 (18)	0.22 (21)
K-index	L	-0.58 (9)	-0.54 (9)	-0.54 (9)	-0.55 (9)	0.32 (10)	-0.14 (10)
LCL Alt	H	-0.28 (29)	-0.16 (31)	-0.27 (29)	-0.20 (31)	-0.11 (30)	-0.07 (32)
LCL Alt	M	-0.14 (45)	-0.06 (50)	-0.12 (45)	-0.10 (50)	0.01 (54)	-0.06 (59)
LCL Alt	L	0.11 (28)	0.16 (30)	0.10 (28)	0.12 (30)	-0.01 (29)	-0.03 (31)
CAPE	H	0.05 (26)	0.11 (29)	0.03 (26)	0.08 (29)	0.02 (26)	0.03 (29)
CAPE	M	-0.31 (49)	-0.20 (54)	-0.31 (49)	-0.28 (54)	-0.14 (57)	-0.18 (62)
CAPE	L	0.07 (27)	0.20 (28)	0.14 (27)	0.15 (28)	0.33 (30)	0.29 (31)
700-hPa w	H	-0.37 (23)	-0.24 (27)	-0.36 (23)	-0.30 (27)	-0.11 (25)	-0.18 (29)
700-hPa w	M	-0.10 (53)	-0.05 (56)	-0.10 (53)	-0.09 (56)	-0.02 (57)	-0.03 (60)
700-hPa w	L	-0.05 (26)	0.04 (28)	-0.03 (26)	-0.03 (28)	-0.04 (29)	-0.06 (31)

Figure S1: Tables of Pearson correlation coefficients from comparing maximum AMPR CLW with mean HSRL2 AOT, extinction (Ext), and backscatter (Bsc) at 355 and 532 nm (top and bottom borders) within environmental bins stratified by the nine AVAPS parameters (left border) at low (L), medium (M), and high (H) magnitudes (right border) across the CAMP²Ex scenes. Within each cell, the listed value is the Pearson correlation coefficient and the parenthesized value indicates the number of data points used in the comparison. Cells with a Pearson correlation coefficient ≥ 0.70 contain bolded text. Reds (blues) represent positive (negative) Pearson correlation coefficients, and the color shading corresponds to the magnitude of the p-value according to the colorbar, with darker shades of each color associated with lower p-values (i.e., greater statistical significance). Color shading begins to increase substantially around a p-value of 0.05 and reaches a maximum for p-values around 0.01. The four different tables result from the four sensitivity tests detailed in Table 2 (main text), with Test 1 (upper left), Test 2 (upper right), Test 3 (lower left), and Test 4 (lower right) presented herein.

Figure S2: As in Fig. S1 but using AMPR 10.7-GHz polarization-corrected temperature (PCT) as the convective parameter.

Top-left panel

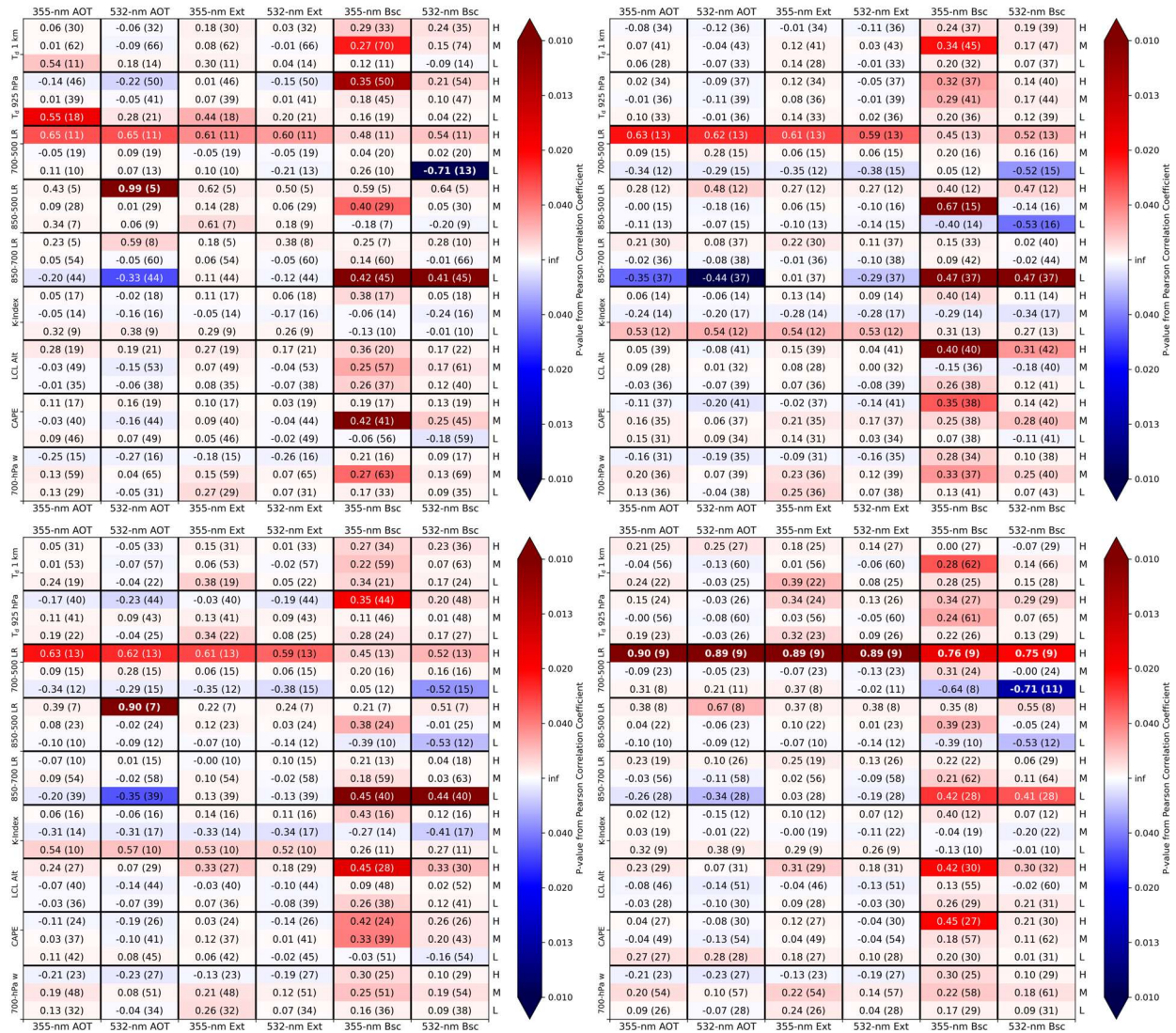|		355-nm AOT	532-nm AOT	355-nm Ext	532-nm Ext	355-nm Bsc	532-nm Bsc	
T_f 1 km		0.06 (30)	-0.06 (32)	0.18 (30)	0.03 (32)	0.29 (33)	0.24 (35)	H
		0.01 (62)	-0.09 (66)	0.08 (62)	-0.01 (66)	0.27 (70)	0.15 (74)	M
		0.54 (11)	0.18 (14)	0.30 (11)	0.04 (14)	0.12 (11)	-0.09 (14)	L
T_d 925 hPa		-0.14 (46)	-0.22 (50)	0.01 (46)	-0.15 (50)	0.35 (50)	0.21 (54)	H
		0.01 (39)	-0.05 (41)	0.07 (39)	0.01 (41)	0.18 (45)	0.10 (47)	M
		0.55 (18)	0.28 (21)	0.44 (18)	0.20 (21)	0.16 (19)	0.04 (22)	L
700-500 LR		0.65 (11)	0.65 (11)	0.61 (11)	0.60 (11)	0.48 (11)	0.54 (11)	H
		-0.05 (19)	0.09 (19)	-0.05 (19)	-0.05 (19)	0.04 (20)	0.02 (20)	M
		0.11 (10)	0.07 (13)	0.10 (10)	-0.21 (13)	0.26 (10)	-0.71 (13)	L
850-500 LR		0.43 (5)	0.99 (5)	0.62 (5)	0.50 (5)	0.59 (5)	0.64 (5)	H
		0.09 (28)	0.01 (29)	0.14 (28)	0.06 (29)	0.40 (29)	0.05 (30)	M
		0.34 (7)	0.06 (9)	0.61 (7)	0.18 (9)	-0.18 (7)	-0.20 (9)	L
850-700 LR		0.23 (5)	0.59 (8)	0.18 (5)	0.38 (8)	0.25 (7)	0.28 (10)	H
		0.05 (54)	-0.05 (60)	0.06 (54)	-0.05 (60)	0.14 (60)	-0.01 (66)	M
		-0.20 (44)	-0.33 (44)	0.11 (44)	-0.12 (44)	0.42 (45)	0.41 (45)	L
K-index		0.05 (17)	-0.02 (18)	0.11 (17)	0.06 (18)	0.38 (17)	0.05 (18)	H
		-0.05 (14)	-0.16 (16)	-0.05 (14)	-0.17 (16)	-0.06 (14)	-0.24 (16)	M
		0.32 (9)	0.38 (9)	0.29 (9)	0.26 (9)	-0.13 (10)	-0.01 (10)	L
LCL Alt		0.28 (19)	0.19 (21)	0.27 (19)	0.17 (21)	0.36 (20)	0.17 (22)	H
		-0.03 (49)	-0.15 (53)	0.07 (49)	-0.04 (53)	0.25 (57)	0.17 (61)	M
		-0.01 (35)	-0.06 (38)	0.08 (35)	-0.07 (38)	0.26 (37)	0.12 (40)	L
CAPE		0.11 (17)	0.16 (19)	0.10 (17)	0.03 (19)	0.19 (17)	0.13 (19)	H
		-0.03 (40)	-0.16 (44)	0.09 (40)	-0.04 (44)	0.42 (41)	0.25 (45)	M
		0.09 (46)	0.07 (49)	0.05 (46)	-0.02 (49)	-0.06 (56)	-0.18 (59)	L
700-hPa w		-0.25 (15)	-0.27 (16)	-0.18 (15)	-0.26 (16)	0.21 (16)	0.09 (17)	H
		0.13 (59)	0.04 (65)	0.15 (59)	0.07 (65)	0.27 (63)	0.13 (69)	M
		0.13 (29)	-0.05 (31)	0.27 (29)	0.07 (31)	0.17 (33)	0.09 (35)	L

Top-right panel

		355-nm AOT	532-nm AOT	355-nm Ext	532-nm Ext	355-nm Bsc	532-nm Bsc	
T_f 1 km		-0.08 (34)	-0.12 (36)	-0.01 (34)	-0.11 (36)	0.24 (37)	0.19 (39)	H
		0.07 (41)	-0.04 (43)	0.12 (41)	0.03 (43)	0.34 (45)	0.17 (47)	M
		0.06 (28)	-0.07 (33)	0.14 (28)	-0.01 (33)	0.20 (32)	0.07 (37)	L
T_d 925 hPa		0.02 (34)	-0.09 (37)	0.12 (34)	-0.05 (37)	0.32 (37)	0.14 (40)	H
		-0.01 (36)	-0.11 (39)	0.08 (36)	-0.01 (39)	0.29 (41)	0.17 (44)	M
		0.10 (33)	-0.01 (36)	0.14 (33)	0.02 (36)	0.20 (36)	0.12 (39)	L
700-500 LR		0.63 (13)	0.62 (13)	0.61 (13)	0.59 (13)	0.45 (13)	0.52 (13)	H
		0.09 (15)	0.28 (15)	0.06 (15)	0.06 (15)	0.20 (16)	0.16 (16)	M
		-0.34 (12)	-0.29 (12)	-0.35 (12)	-0.38 (15)	0.05 (12)	-0.52 (15)	L
850-500 LR		0.28 (12)	0.48 (12)	0.27 (12)	0.27 (12)	0.40 (12)	0.47 (12)	H
		-0.00 (15)	-0.18 (16)	0.06 (15)	-0.10 (16)	0.67 (15)	-0.14 (16)	M
		-0.11 (13)	-0.07 (15)	-0.10 (13)	-0.14 (15)	-0.40 (14)	-0.53 (16)	L
850-700 LR		0.21 (30)	0.08 (37)	0.22 (30)	0.11 (37)	0.15 (33)	0.02 (40)	H
		-0.02 (36)	-0.08 (38)	-0.01 (36)	-0.10 (38)	0.09 (42)	-0.02 (44)	M
		-0.35 (37)	-0.44 (37)	0.01 (37)	-0.29 (37)	0.47 (37)	0.47 (37)	L
K-index		0.06 (14)	-0.06 (14)	0.13 (14)	0.09 (14)	0.40 (14)	0.11 (14)	H
		-0.24 (14)	-0.20 (17)	-0.28 (14)	-0.28 (17)	-0.29 (14)	-0.34 (17)	M
		0.53 (12)	0.54 (12)	0.54 (12)	0.53 (12)	0.31 (13)	0.27 (13)	L
LCL Alt		0.05 (39)	-0.08 (41)	0.15 (39)	0.04 (41)	0.40 (40)	0.31 (42)	H
		0.09 (28)	0.01 (32)	0.08 (28)	0.00 (32)	-0.15 (36)	-0.18 (40)	M
		-0.03 (36)	-0.07 (39)	0.07 (36)	-0.08 (39)	0.26 (38)	0.12 (41)	L
CAPE		-0.11 (37)	-0.20 (41)	-0.02 (37)	-0.14 (41)	0.35 (38)	0.14 (42)	H
		0.16 (35)	0.06 (37)	0.21 (35)	0.17 (37)	0.25 (38)	0.28 (40)	M
		0.15 (31)	0.09 (34)	0.14 (31)	0.03 (34)	0.07 (38)	-0.11 (41)	L
700-hPa w		-0.16 (31)	-0.19 (35)	-0.09 (31)	-0.16 (35)	0.28 (34)	0.10 (38)	H
		0.20 (36)	-0.04 (39)	0.23 (36)	0.12 (39)	0.33 (37)	0.25 (40)	M
		0.13 (36)	-0.07 (38)	0.25 (36)	0.07 (38)	0.13 (41)	0.07 (43)	L

Bottom-left panel

		355-nm AOT	532-nm AOT	355-nm Ext	532-nm Ext	355-nm Bsc	532-nm Bsc	
T_f 1 km		0.05 (31)	-0.05 (33)	0.15 (31)	0.01 (33)	0.27 (34)	0.23 (36)	H
		0.01 (53)	-0.07 (57)	0.06 (53)	-0.02 (57)	0.22 (59)	0.07 (63)	M
		0.24 (19)	-0.04 (22)	0.38 (19)	0.05 (22)	0.34 (21)	0.17 (24)	L
T_d 925 hPa		-0.17 (40)	-0.23 (44)	-0.03 (40)	-0.19 (44)	0.35 (44)	0.20 (48)	H
		0.11 (41)	0.09 (43)	0.13 (41)	0.09 (43)	0.11 (46)	0.01 (48)	M
		0.19 (22)	-0.04 (25)	0.34 (22)	0.08 (25)	0.28 (24)	0.17 (27)	L
700-500 LR		0.63 (13)	0.62 (13)	0.61 (13)	0.59 (13)	0.45 (13)	0.52 (13)	H
		0.09 (15)	0.28 (15)	0.06 (15)	0.06 (15)	0.20 (16)	0.16 (16)	M
		-0.34 (12)	-0.29 (15)	-0.35 (12)	-0.38 (15)	0.05 (12)	-0.52 (15)	L
850-500 LR		0.39 (7)	0.90 (7)	0.22 (7)	0.24 (7)	0.21 (7)	0.51 (7)	H
		0.08 (23)	-0.02 (24)	0.12 (23)	0.03 (24)	0.38 (24)	-0.01 (25)	M
		-0.10 (10)	-0.09 (12)	-0.07 (10)	-0.14 (12)	-0.39 (10)	-0.53 (12)	L
850-700 LR		-0.07 (10)	0.01 (15)	-0.00 (10)	0.10 (15)	0.21 (13)	0.04 (18)	H
		0.09 (54)	-0.02 (58)	0.06 (54)	-0.02 (58)	0.18 (59)	0.03 (63)	M
		-0.20 (39)	-0.35 (39)	0.13 (39)	-0.13 (39)	0.45 (40)	0.44 (40)	L
K-index		0.06 (16)	-0.06 (16)	0.14 (16)	0.11 (16)	0.43 (16)	0.12 (16)	H
		-0.31 (14)	-0.31 (17)	-0.33 (14)	-0.34 (17)	-0.27 (14)	-0.41 (17)	M
		0.54 (10)	0.57 (10)	0.53 (10)	0.52 (10)	0.26 (11)	0.27 (11)	L
LCL Alt		0.24 (27)	0.07 (29)	0.33 (27)	0.18 (29)	0.45 (28)	0.33 (30)	H
		-0.07 (40)	-0.14 (44)	-0.03 (40)	-0.10 (44)	0.09 (48)	0.02 (52)	M
		-0.03 (36)	-0.07 (39)	0.07 (36)	-0.08 (39)	0.26 (38)	0.12 (41)	L
CAPE		-0.11 (24)	-0.19 (26)	0.03 (24)	-0.14 (26)	0.42 (24)	0.26 (26)	H
		0.03 (37)	-0.10 (41)	0.12 (37)	0.01 (41)	0.33 (39)	0.20 (43)	M
		0.11 (42)	0.08 (45)	0.06 (42)	-0.02 (45)	-0.03 (51)	-0.16 (54)	L
700-hPa w		-0.21 (23)	-0.23 (27)	-0.13 (23)	-0.19 (27)	0.30 (25)	0.10 (29)	H
		0.19 (48)	0.08 (51)	0.21 (48)	0.12 (51)	0.25 (51)	0.19 (54)	M
		0.13 (32)	-0.04 (34)	0.26 (32)	0.07 (34)	0.16 (36)	0.09 (38)	L

Bottom-right panel

		355-nm AOT	532-nm AOT	355-nm Ext	532-nm Ext	355-nm Bsc	532-nm Bsc	
T_f 1 km		0.21 (25)	0.25 (27)	0.18 (25)	0.14 (27)	0.00 (27)	-0.07 (29)	H
		-0.04 (56)	-0.13 (60)	0.01 (56)	-0.06 (60)	0.28 (62)	0.14 (66)	M
		0.24 (22)	-0.03 (25)	0.39 (22)	0.08 (25)	0.28 (25)	0.15 (28)	L
T_d 925 hPa		0.15 (24)	-0.03 (26)	0.34 (24)	0.13 (26)	0.34 (27)	0.29 (29)	H
		-0.00 (56)	-0.08 (60)	0.03 (56)	-0.05 (60)	0.24 (61)	0.07 (65)	M
		0.19 (23)	-0.03 (26)	0.32 (23)	0.09 (26)	0.22 (26)	0.13 (29)	L
700-500 LR		0.90 (9)	0.89 (9)	0.89 (9)	0.89 (9)	0.76 (9)	0.75 (9)	H
		-0.09 (23)	-0.05 (23)	-0.07 (23)	-0.13 (23)	0.31 (24)	-0.00 (24)	M
		0.31 (8)	0.21 (11)	0.37 (8)	-0.02 (11)	-0.64 (8)	-0.71 (11)	L
850-500 LR		0.38 (8)	0.67 (8)	0.37 (8)	0.38 (8)	0.35 (8)	0.55 (8)	H
		0.04 (22)	-0.06 (23)	0.10 (22)	0.01 (23)	0.39 (23)	-0.05 (24)	M
		-0.10 (10)	-0.09 (12)	-0.07 (10)	-0.14 (12)	-0.39 (10)	-0.53 (12)	L
850-700 LR		0.23 (19)	0.10 (26)	0.25 (19)	0.13 (26)	0.22 (22)	0.06 (29)	H
		-0.03 (56)	-0.11 (58)	0.02 (56)	-0.09 (58)	0.21 (62)	0.11 (64)	M
		-0.26 (28)	-0.34 (28)	0.03 (28)	-0.19 (28)	0.42 (28)	0.41 (28)	L
K-index		0.02 (12)	-0.15 (12)	0.10 (12)	0.07 (12)	0.40 (12)	0.07 (12)	H
		0.03 (19)	-0.01 (22)	-0.00 (19)	-0.11 (22)	-0.04 (19)	-0.20 (22)	M
		0.32 (9)	0.38 (9)	0.29 (9)	0.26 (9)	-0.13 (10)	-0.01 (10)	L
LCL Alt		0.23 (29)	0.07 (31)	0.31 (29)	0.18 (31)	0.42 (30)	0.30 (32)	H
		-0.08 (46)	-0.14 (51)	-0.04 (46)	-0.13 (51)	0.13 (55)	-0.02 (60)	M
		-0.03 (28)	-0.10 (30)	0.09 (28)	-0.03 (30)	0.26 (29)	0.21 (31)	L
CAPE		0.04 (27)	-0.08 (30)	0.12 (27)	-0.04 (30)	0.45 (27)	0.21 (30)	H
		-0.04 (49)	-0.13 (54)	0.04 (49)	-0.04 (54)	0.18 (57)	0.11 (62)	M
		0.27 (27)	0.28 (28)	0.18 (27)	0.04 (28)	0.20 (30)	0.01 (31)	L
700-hPa w		-0.21 (23)	-0.23 (27)	-0.13 (23)	-0.19 (27)	0.30 (25)	0.10 (29)	H
		0.20 (54)	0.10 (57)	0.22 (54)	0.14 (57)	0.22 (58)	0.18 (61)	M
		0.09 (26)	-0.07 (28)	0.24 (26)	0.04 (28)	0.17 (29)	0.07 (31)	L

Legend (color bars): P-value from Pearson Correlation Coefficient — 0.010, 0.013, 0.020, 0.040, inf

Figure S3: As in Fig. S1 but using AMPR 19.35-GHz PCT as the convective parameter.

Top-left panel

		355-nm AOT	532-nm AOT	355-nm Ext	532-nm Ext	355-nm Bsc	532-nm Bsc	
Td 1 km		0.08 (30)	0.09 (32)	0.10 (30)	0.02 (32)	0.12 (33)	0.10 (35)	H
		0.03 (61)	-0.02 (65)	0.08 (61)	0.01 (65)	0.19 (69)	0.07 (73)	M
		0.36 (11)	0.13 (14)	0.20 (11)	-0.00 (14)	0.13 (11)	-0.10 (14)	L
Td 925 hPa		-0.01 (45)	-0.05 (49)	0.06 (45)	-0.07 (49)	0.21 (49)	0.11 (53)	H
		-0.01 (39)	-0.05 (41)	0.03 (39)	-0.02 (41)	0.12 (45)	0.01 (47)	M
		0.13 (18)	0.33 (21)	0.29 (18)	0.14 (21)	0.07 (19)	-0.02 (22)	L
700-500 LR		0.34 (11)	0.35 (11)	0.31 (11)	0.30 (11)	0.23 (11)	0.26 (11)	H
		-0.06 (18)	0.14 (18)	-0.06 (18)	-0.06 (18)	0.08 (19)	0.03 (19)	M
		-0.03 (10)	-0.00 (13)	0.02 (10)	-0.26 (13)	0.31 (10)	-0.45 (13)	L
850-500 LR		0.39 (5)	0.98 (5)	0.65 (5)	0.53 (5)	0.62 (5)	0.67 (5)	H
		0.08 (27)	0.04 (28)	0.13 (27)	0.07 (28)	0.37 (28)	0.05 (29)	M
		0.13 (7)	-0.02 (9)	0.21 (7)	-0.12 (9)	0.09 (7)	0.13 (9)	L
850-700 LR		0.06 (5)	0.39 (8)	0.02 (5)	0.17 (8)	0.11 (7)	0.07 (10)	H
		0.05 (53)	-0.01 (59)	0.05 (53)	-0.04 (59)	0.07 (59)	-0.05 (65)	M
		0.01 (44)	-0.05 (44)	0.18 (44)	0.04 (44)	0.21 (45)	0.21 (45)	L
K-index		0.01 (17)	0.01 (18)	0.04 (17)	0.00 (18)	0.28 (17)	0.03 (18)	H
		0.02 (13)	-0.12 (15)	0.07 (13)	-0.09 (15)	0.22 (13)	-0.09 (15)	M
		0.06 (9)	0.10 (9)	0.02 (9)	-0.04 (9)	-0.18 (10)	-0.16 (10)	L
LCL Alt		0.28 (19)	0.21 (21)	0.27 (19)	0.17 (21)	0.44 (20)	0.20 (22)	H
		-0.04 (48)	-0.12 (52)	0.05 (48)	-0.04 (52)	0.14 (56)	0.08 (60)	M
		0.14 (35)	0.15 (38)	0.13 (35)	0.02 (38)	0.12 (37)	0.03 (40)	L
CAPE		0.16 (16)	0.29 (18)	0.12 (16)	0.08 (18)	0.20 (16)	0.18 (18)	H
		-0.00 (40)	-0.08 (44)	0.06 (40)	-0.03 (44)	0.27 (41)	0.13 (45)	M
		0.15 (46)	0.17 (49)	0.11 (46)	0.04 (49)	-0.00 (56)	-0.15 (59)	L
700-hPa w		-0.34 (15)	-0.27 (16)	-0.31 (15)	-0.33 (16)	-0.02 (16)	-0.09 (17)	H
		0.21 (58)	0.11 (64)	0.23 (58)	0.14 (64)	0.23 (62)	0.12 (68)	M
		0.13 (29)	0.10 (31)	0.16 (29)	0.04 (31)	0.01 (33)	-0.04 (35)	L

Top-right panel

		355-nm AOT	532-nm AOT	355-nm Ext	532-nm Ext	355-nm Bsc	532-nm Bsc	
Td 1 km		0.06 (33)	0.08 (35)	0.05 (33)	-0.01 (35)	0.12 (36)	0.09 (38)	H
		0.13 (41)	0.03 (43)	0.17 (41)	0.08 (43)	0.34 (45)	0.15 (47)	M
		-0.02 (28)	-0.05 (33)	0.02 (28)	-0.07 (33)	0.02 (32)	-0.07 (37)	L
Td 925 hPa		0.05 (34)	0.03 (37)	0.06 (34)	-0.05 (37)	0.17 (37)	0.05 (40)	H
		0.03 (35)	-0.04 (38)	0.10 (35)	0.03 (38)	0.25 (40)	0.12 (43)	M
		0.06 (33)	0.02 (36)	0.08 (33)	0.00 (36)	0.06 (36)	0.01 (39)	L
700-500 LR		0.34 (13)	0.35 (13)	0.32 (13)	0.31 (13)	0.21 (13)	0.25 (13)	H
		-0.06 (15)	0.13 (15)	-0.08 (15)	-0.08 (15)	0.09 (16)	0.04 (16)	M
		-0.01 (11)	-0.02 (14)	0.12 (11)	-0.13 (14)	0.34 (11)	-0.35 (14)	L
850-500 LR		0.11 (12)	0.33 (12)	0.10 (12)	0.11 (12)	0.25 (12)	0.32 (12)	H
		0.10 (14)	-0.12 (15)	0.19 (14)	-0.02 (15)	0.82 (14)	-0.07 (15)	M
		-0.17 (13)	-0.11 (15)	-0.18 (13)	-0.27 (15)	-0.17 (14)	-0.42 (16)	L
850-700 LR		0.17 (29)	0.06 (36)	0.18 (29)	0.09 (36)	0.14 (32)	0.01 (39)	H
		-0.03 (36)	-0.03 (38)	-0.05 (36)	-0.11 (38)	-0.04 (42)	-0.12 (44)	M
		-0.04 (37)	-0.09 (37)	0.15 (37)	0.02 (37)	0.24 (37)	0.25 (37)	L
K-index		0.03 (14)	-0.03 (14)	0.07 (14)	0.03 (14)	0.31 (14)	0.07 (14)	H
		-0.11 (13)	0.01 (16)	-0.10 (13)	-0.14 (16)	0.29 (13)	-0.00 (16)	M
		0.17 (12)	0.17 (12)	0.18 (12)	0.16 (12)	0.09 (13)	-0.00 (13)	L
LCL Alt		0.07 (39)	-0.03 (41)	0.13 (39)	0.04 (41)	0.30 (40)	0.19 (42)	H
		0.10 (27)	0.02 (31)	0.11 (27)	0.02 (31)	-0.18 (35)	-0.18 (39)	M
		0.13 (36)	0.14 (39)	0.12 (36)	0.02 (39)	0.12 (38)	0.03 (41)	L
CAPE		-0.13 (36)	-0.17 (40)	-0.07 (36)	-0.16 (40)	0.22 (37)	0.05 (41)	H
		0.24 (35)	0.21 (37)	0.26 (35)	0.24 (37)	0.15 (38)	0.17 (40)	M
		0.23 (31)	0.26 (34)	0.20 (31)	0.11 (34)	0.14 (38)	-0.07 (41)	L
700-hPa w		-0.21 (31)	-0.19 (35)	-0.15 (31)	-0.20 (35)	0.14 (34)	-0.01 (38)	H
		0.30 (35)	0.17 (38)	0.32 (35)	0.20 (38)	0.30 (36)	0.24 (39)	M
		0.13 (36)	0.11 (38)	0.16 (36)	0.06 (38)	-0.02 (41)	-0.05 (43)	L

Bottom-left panel

		355-nm AOT	532-nm AOT	355-nm Ext	532-nm Ext	355-nm Bsc	532-nm Bsc	
Td 1 km		0.07 (31)	0.09 (33)	0.08 (31)	0.00 (33)	0.11 (34)	0.09 (36)	H
		0.03 (52)	-0.05 (56)	0.08 (52)	-0.00 (56)	0.21 (58)	0.04 (62)	M
		0.23 (19)	0.10 (22)	0.26 (19)	0.06 (22)	0.13 (21)	0.04 (24)	L
Td 925 hPa		-0.02 (39)	-0.04 (43)	0.03 (39)	-0.08 (43)	0.20 (43)	0.10 (47)	H
		0.08 (41)	0.05 (43)	0.10 (41)	0.05 (43)	0.15 (46)	0.01 (48)	M
		0.19 (22)	0.09 (25)	0.25 (22)	0.09 (25)	0.10 (24)	0.03 (27)	L
700-500 LR		0.34 (13)	0.35 (13)	0.32 (13)	0.31 (13)	0.21 (13)	0.25 (13)	H
		-0.06 (15)	0.13 (15)	-0.08 (15)	-0.08 (15)	0.09 (16)	0.04 (16)	M
		-0.01 (11)	-0.02 (14)	0.12 (11)	-0.13 (14)	0.34 (11)	-0.35 (14)	L
850-500 LR		0.36 (7)	0.91 (7)	0.20 (7)	0.24 (7)	0.19 (7)	0.51 (7)	H
		0.11 (22)	0.04 (23)	0.14 (22)	0.06 (23)	0.39 (23)	0.01 (24)	M
		-0.22 (10)	-0.17 (12)	-0.21 (10)	-0.31 (12)	-0.12 (10)	-0.32 (12)	L
850-700 LR		-0.14 (10)	-0.05 (15)	-0.09 (10)	0.02 (15)	0.12 (13)	-0.03 (18)	H
		0.08 (53)	0.02 (57)	0.08 (53)	-0.02 (57)	0.10 (58)	-0.02 (62)	M
		0.01 (39)	-0.05 (39)	0.19 (39)	0.04 (39)	0.22 (40)	0.23 (40)	L
K-index		0.02 (16)	-0.04 (16)	0.08 (16)	0.05 (16)	0.34 (16)	0.08 (16)	H
		-0.35 (13)	-0.27 (16)	-0.29 (13)	-0.32 (16)	0.35 (13)	-0.18 (16)	M
		0.18 (10)	0.20 (10)	0.17 (10)	0.15 (10)	0.03 (11)	-0.00 (11)	L
LCL Alt		0.27 (27)	0.13 (29)	0.32 (27)	0.19 (29)	0.36 (28)	0.22 (30)	H
		-0.09 (39)	-0.13 (43)	-0.04 (39)	-0.10 (43)	0.01 (47)	-0.04 (51)	M
		0.13 (36)	0.14 (39)	0.12 (36)	0.02 (39)	0.12 (38)	0.03 (41)	L
CAPE		-0.03 (23)	-0.05 (25)	0.04 (23)	-0.09 (25)	0.29 (23)	0.17 (25)	H
		0.03 (37)	-0.04 (41)	0.08 (37)	-0.00 (41)	0.19 (39)	0.09 (43)	M
		0.16 (42)	0.18 (45)	0.12 (42)	0.04 (45)	0.04 (51)	-0.13 (54)	L
700-hPa w		-0.24 (23)	-0.21 (27)	-0.19 (23)	-0.23 (27)	0.15 (25)	-0.01 (29)	H
		0.29 (47)	0.18 (50)	0.30 (47)	0.20 (50)	0.21 (50)	0.18 (53)	M
		0.13 (32)	0.11 (34)	0.15 (32)	0.05 (34)	0.00 (36)	-0.03 (38)	L

Bottom-right panel

		355-nm AOT	532-nm AOT	355-nm Ext	532-nm Ext	355-nm Bsc	532-nm Bsc	
Td 1 km		0.20 (25)	0.36 (27)	0.13 (25)	0.10 (27)	0.01 (27)	-0.05 (29)	H
		-0.03 (55)	-0.09 (59)	0.01 (55)	-0.06 (59)	0.21 (61)	0.06 (65)	M
		0.23 (22)	0.10 (25)	0.28 (22)	0.09 (25)	0.09 (25)	0.01 (28)	L
Td 925 hPa		0.18 (24)	0.13 (26)	0.24 (24)	0.12 (26)	0.16 (27)	0.13 (29)	H
		-0.00 (55)	-0.06 (59)	0.02 (55)	-0.05 (59)	0.21 (60)	0.03 (64)	M
		0.19 (23)	0.09 (26)	0.24 (23)	0.09 (26)	0.06 (26)	0.00 (29)	L
700-500 LR		0.97 (9)	0.98 (9)	0.95 (9)	0.95 (9)	0.86 (9)	0.90 (9)	H
		-0.08 (22)	-0.00 (22)	-0.07 (22)	-0.11 (22)	0.24 (23)	-0.02 (23)	M
		0.08 (8)	0.07 (11)	0.10 (8)	-0.20 (11)	-0.49 (8)	-0.55 (11)	L
850-500 LR		0.21 (8)	0.55 (8)	0.21 (8)	0.22 (8)	0.25 (8)	0.43 (8)	H
		0.08 (21)	0.00 (22)	0.12 (21)	0.04 (22)	0.38 (22)	-0.02 (23)	M
		-0.22 (10)	-0.17 (12)	-0.21 (10)	-0.31 (12)	-0.12 (10)	-0.32 (12)	L
850-700 LR		0.15 (19)	0.04 (26)	0.17 (19)	0.07 (26)	0.14 (22)	0.01 (29)	H
		0.01 (55)	-0.03 (57)	0.02 (55)	-0.06 (57)	0.09 (61)	0.01 (63)	M
		0.04 (28)	0.04 (28)	0.15 (28)	0.05 (28)	0.18 (28)	0.20 (28)	L
K-index		-0.04 (12)	-0.15 (12)	0.02 (12)	-0.00 (12)	0.30 (12)	0.01 (12)	H
		0.12 (18)	0.10 (21)	0.09 (18)	-0.04 (21)	0.15 (18)	-0.07 (21)	M
		0.06 (9)	0.10 (9)	0.02 (9)	-0.04 (9)	-0.18 (10)	-0.16 (10)	L
LCL Alt		0.27 (29)	0.14 (31)	0.32 (29)	0.20 (31)	0.36 (30)	0.22 (32)	H
		-0.09 (45)	-0.09 (50)	-0.06 (45)	-0.12 (50)	0.02 (54)	-0.09 (59)	M
		0.08 (28)	0.07 (30)	0.10 (28)	0.02 (30)	0.12 (29)	0.10 (31)	L
CAPE		0.01 (26)	-0.03 (29)	0.06 (26)	-0.05 (29)	0.30 (26)	0.12 (29)	H
		-0.01 (49)	-0.06 (54)	0.04 (49)	-0.02 (54)	0.07 (57)	0.01 (62)	M
		0.33 (27)	0.45 (28)	0.25 (27)	0.18 (28)	0.33 (30)	0.15 (31)	L
700-hPa w		-0.24 (23)	-0.21 (27)	-0.19 (23)	-0.23 (27)	0.15 (25)	-0.01 (29)	H
		0.28 (53)	0.18 (56)	0.29 (53)	0.21 (56)	0.18 (57)	0.16 (60)	M
		0.12 (26)	0.11 (28)	0.14 (26)	0.03 (28)	0.00 (29)	-0.04 (31)	L

P-value from Pearson Correlation Coefficient

0.010	
0.013	
0.020	
0.040	
inf	
0.040	
0.020	
0.013	
0.010	

Figure S4: As in Fig. S1 but using AMPR 37.1-GHz PCT as the convective parameter.

4

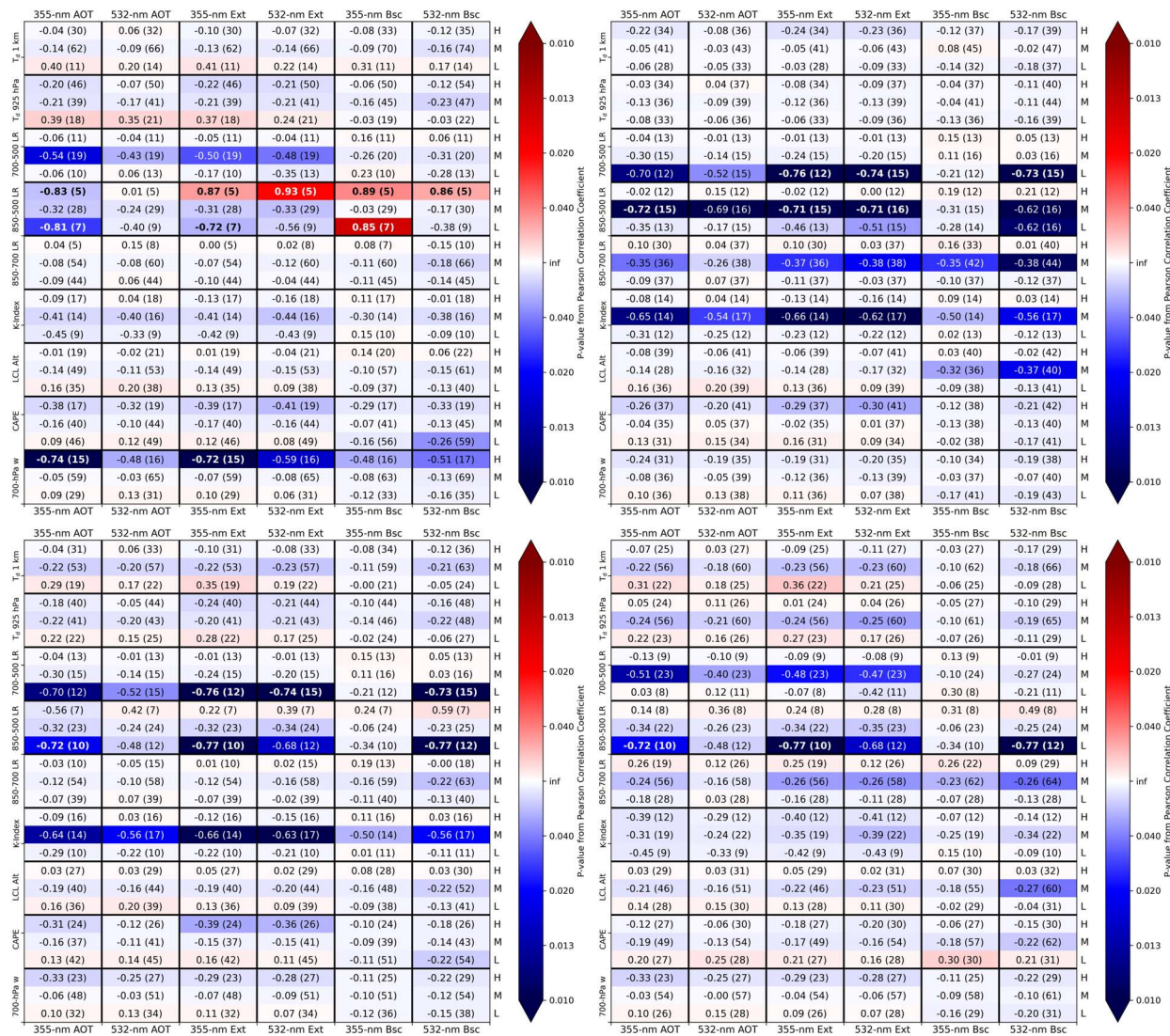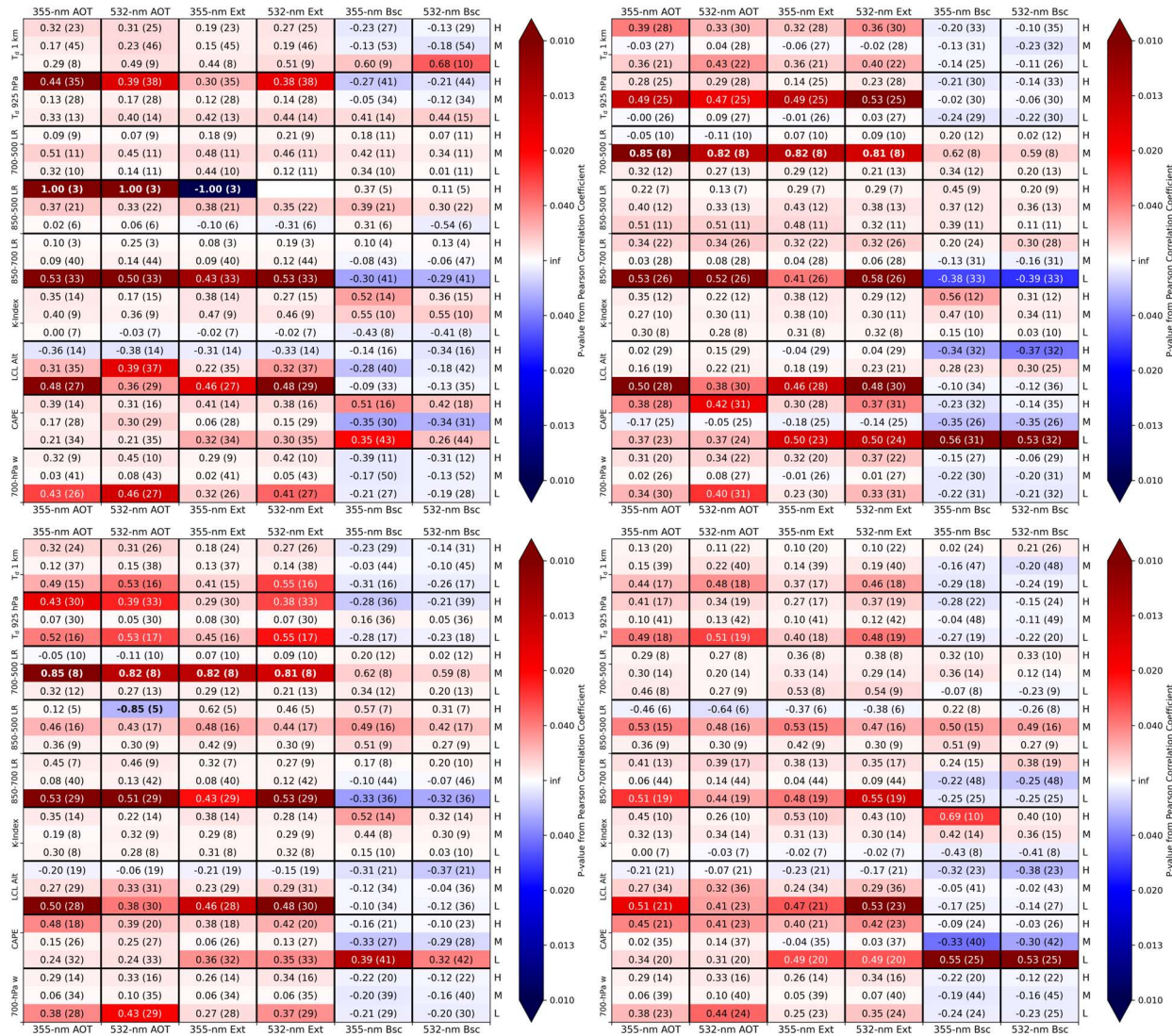Figure S5: As in Fig. S1 but using AMPR 85.5-GHz PCT as the convective parameter.

Top-left panel

	355-nm AOT	532-nm AOT	355-nm Ext	532-nm Ext	355-nm Bsc	532-nm Bsc	
T_d 1 km	0.32 (23)	0.31 (25)	0.19 (23)	0.27 (25)	-0.23 (27)	-0.13 (29)	H
	0.17 (45)	0.23 (46)	0.15 (45)	0.19 (46)	-0.13 (53)	-0.18 (54)	M
	0.29 (8)	0.49 (9)	0.44 (8)	0.51 (9)	0.60 (9)	0.68 (10)	L
T_d 925 hPa	0.44 (35)	0.39 (38)	0.30 (35)	0.38 (38)	-0.27 (41)	-0.21 (44)	H
	0.13 (28)	0.17 (28)	0.12 (28)	0.14 (28)	-0.05 (34)	-0.12 (34)	M
	0.33 (13)	0.40 (14)	0.42 (13)	0.44 (14)	0.41 (14)	0.44 (15)	L
700-500 LR	0.09 (9)	0.07 (9)	0.18 (9)	0.21 (9)	0.18 (11)	0.07 (11)	H
	0.51 (11)	0.45 (11)	0.48 (11)	0.46 (11)	0.42 (11)	0.34 (11)	M
	0.32 (10)	0.14 (11)	0.44 (10)	0.12 (11)	0.34 (10)	0.01 (11)	L
850-500 LR	1.00 (3)	1.00 (3)	-1.00 (3)		0.37 (5)	0.11 (5)	H
	0.37 (21)	0.33 (22)	0.38 (21)	0.35 (22)	0.39 (21)	0.30 (22)	M
	0.02 (6)	0.06 (6)	-0.10 (6)	-0.31 (6)	0.31 (6)	-0.54 (6)	L
850-700 LR	0.10 (3)	0.25 (3)	0.08 (3)	0.19 (3)	0.10 (4)	0.13 (4)	H
	0.09 (40)	0.14 (44)	0.09 (40)	0.12 (44)	-0.08 (43)	-0.06 (47)	M
	0.53 (33)	0.50 (33)	0.43 (33)	0.53 (33)	-0.30 (41)	-0.29 (41)	L
K-index	0.35 (14)	0.17 (15)	0.38 (14)	0.27 (15)	0.52 (14)	0.36 (15)	H
	0.40 (9)	0.36 (9)	0.47 (9)	0.46 (9)	0.55 (10)	0.55 (10)	M
	0.00 (7)	-0.03 (7)	-0.02 (7)	-0.02 (7)	-0.43 (8)	-0.41 (8)	L
LCL Alt	-0.36 (14)	-0.38 (14)	-0.31 (14)	-0.33 (14)	-0.14 (16)	-0.34 (16)	H
	0.31 (35)	0.39 (37)	0.22 (35)	0.32 (37)	-0.28 (40)	-0.18 (42)	M
	0.48 (27)	0.36 (29)	0.46 (27)	0.48 (29)	-0.09 (33)	-0.13 (35)	L
CAPE	0.39 (14)	0.31 (16)	0.41 (14)	0.38 (16)	0.51 (16)	0.42 (18)	H
	0.17 (28)	0.30 (29)	0.06 (28)	0.15 (29)	-0.35 (30)	-0.34 (31)	M
	0.21 (34)	0.21 (35)	0.32 (34)	0.30 (35)	0.35 (43)	0.26 (44)	L
700-hPa w	0.32 (9)	0.45 (10)	0.29 (9)	0.42 (10)	-0.39 (11)	-0.31 (12)	H
	0.03 (41)	0.08 (43)	0.02 (41)	0.05 (43)	-0.17 (50)	-0.13 (52)	M
	0.43 (26)	0.46 (27)	0.32 (26)	0.41 (27)	-0.21 (27)	-0.19 (28)	L

P-value from Pearson Correlation Coefficient; scale: 0.010, 0.013, 0.020, 0.040, inf, 0.040, 0.020, 0.013, 0.010

Top-right panel

	355-nm AOT	532-nm AOT	355-nm Ext	532-nm Ext	355-nm Bsc	532-nm Bsc	
T_d 1 km	0.39 (28)	0.33 (30)	0.32 (28)	0.36 (30)	-0.20 (33)	-0.10 (35)	H
	-0.03 (27)	0.04 (28)	-0.06 (27)	-0.02 (28)	-0.13 (31)	-0.23 (32)	M
	0.36 (21)	0.43 (22)	0.36 (21)	0.40 (22)	-0.14 (25)	-0.11 (26)	L
T_d 925 hPa	0.28 (25)	0.29 (28)	0.14 (25)	0.23 (28)	-0.21 (30)	-0.14 (33)	H
	0.49 (25)	0.47 (25)	0.49 (25)	0.53 (25)	-0.02 (30)	-0.06 (30)	M
	-0.00 (26)	0.09 (27)	-0.01 (26)	0.03 (27)	-0.24 (29)	-0.22 (30)	L
700-500 LR	-0.05 (10)	-0.11 (10)	0.07 (10)	0.09 (10)	0.20 (12)	0.02 (12)	H
	0.85 (8)	0.82 (8)	0.82 (8)	0.81 (8)	0.62 (8)	0.59 (8)	M
	0.32 (12)	0.27 (13)	0.29 (12)	0.21 (13)	0.34 (12)	0.20 (13)	L
850-500 LR	0.22 (7)	0.13 (7)	0.29 (7)	0.29 (7)	0.45 (9)	0.20 (9)	H
	0.40 (12)	0.33 (13)	0.43 (12)	0.38 (13)	0.37 (12)	0.36 (13)	M
	0.51 (11)	0.51 (11)	0.48 (11)	0.32 (11)	0.39 (11)	0.11 (11)	L
850-700 LR	0.34 (22)	0.34 (26)	0.32 (22)	0.32 (26)	0.20 (24)	0.30 (28)	H
	0.03 (28)	0.08 (28)	0.04 (28)	0.06 (28)	-0.13 (31)	-0.16 (31)	M
	0.53 (26)	0.52 (26)	0.41 (26)	0.58 (26)	-0.38 (33)	-0.39 (33)	L
K-index	0.35 (12)	0.22 (12)	0.38 (12)	0.29 (12)	0.56 (12)	0.31 (12)	H
	0.27 (10)	0.30 (11)	0.38 (10)	0.30 (11)	0.47 (10)	0.34 (11)	M
	0.30 (8)	0.28 (8)	0.31 (8)	0.32 (8)	0.15 (10)	0.03 (10)	L
LCL Alt	0.02 (29)	0.15 (29)	-0.04 (29)	0.04 (29)	-0.34 (32)	-0.37 (32)	H
	0.16 (19)	0.22 (21)	0.18 (19)	0.23 (21)	0.28 (23)	0.30 (25)	M
	0.50 (28)	0.38 (30)	0.46 (28)	0.48 (30)	-0.10 (34)	-0.12 (36)	L
CAPE	0.38 (28)	0.42 (31)	0.30 (28)	0.37 (31)	-0.23 (32)	-0.14 (35)	H
	-0.17 (25)	-0.05 (25)	-0.18 (25)	-0.14 (25)	-0.35 (26)	-0.35 (26)	M
	0.37 (23)	0.37 (24)	0.50 (23)	0.50 (24)	0.56 (31)	0.53 (32)	L
700-hPa w	0.31 (20)	0.34 (22)	0.32 (20)	0.37 (22)	-0.15 (27)	-0.06 (29)	H
	0.02 (26)	0.08 (27)	-0.01 (26)	0.01 (27)	-0.22 (30)	-0.20 (31)	M
	0.34 (30)	0.40 (31)	0.23 (30)	0.33 (31)	-0.22 (31)	-0.21 (32)	L

P-value from Pearson Correlation Coefficient; scale: 0.010, 0.013, 0.020, 0.040, inf, 0.040, 0.020, 0.013, 0.010

Bottom-left panel

	355-nm AOT	532-nm AOT	355-nm Ext	532-nm Ext	355-nm Bsc	532-nm Bsc	
T_d 1 km	0.32 (24)	0.31 (26)	0.18 (24)	0.27 (26)	-0.23 (29)	-0.14 (31)	H
	0.12 (37)	0.15 (38)	0.13 (37)	0.14 (38)	-0.03 (44)	-0.10 (45)	M
	0.49 (15)	0.53 (16)	0.41 (15)	0.55 (16)	-0.31 (16)	-0.26 (17)	L
T_d 925 hPa	0.43 (30)	0.39 (33)	0.29 (30)	0.38 (33)	-0.28 (36)	-0.21 (39)	H
	0.07 (30)	0.05 (30)	0.08 (30)	0.07 (30)	0.16 (36)	0.05 (36)	M
	0.52 (16)	0.53 (17)	0.45 (16)	0.55 (17)	-0.28 (17)	-0.23 (18)	L
700-500 LR	-0.05 (10)	-0.11 (10)	0.07 (10)	0.09 (10)	0.20 (12)	0.02 (12)	H
	0.85 (8)	0.82 (8)	0.82 (8)	0.81 (8)	0.62 (8)	0.59 (8)	M
	0.32 (12)	0.27 (13)	0.29 (12)	0.21 (13)	0.34 (12)	0.20 (13)	L
850-500 LR	0.12 (5)	-0.85 (5)	0.62 (5)	0.46 (5)	0.57 (7)	0.31 (7)	H
	0.46 (16)	0.43 (17)	0.48 (16)	0.44 (17)	0.49 (16)	0.42 (17)	M
	0.36 (9)	0.30 (9)	0.42 (9)	0.30 (9)	0.51 (9)	0.27 (9)	L
850-700 LR	0.45 (7)	0.46 (9)	0.32 (7)	0.27 (9)	0.17 (8)	0.20 (10)	H
	0.08 (40)	0.13 (42)	0.08 (40)	0.12 (42)	-0.25 (44)	-0.07 (46)	M
	0.53 (29)	0.51 (29)	0.43 (29)	0.53 (29)	-0.33 (36)	-0.32 (36)	L
K-index	0.35 (14)	0.22 (14)	0.38 (14)	0.28 (14)	0.52 (14)	0.32 (14)	H
	0.19 (8)	0.32 (9)	0.29 (8)	0.29 (9)	0.44 (8)	0.30 (9)	M
	0.30 (8)	0.28 (8)	0.31 (8)	0.32 (8)	0.15 (10)	0.03 (10)	L
LCL Alt	-0.20 (19)	-0.06 (19)	-0.21 (19)	-0.15 (19)	-0.31 (21)	-0.37 (21)	H
	0.27 (29)	0.33 (31)	0.23 (29)	0.29 (31)	-0.12 (34)	-0.04 (36)	M
	0.50 (28)	0.38 (30)	0.46 (28)	0.48 (30)	-0.10 (34)	-0.12 (36)	L
CAPE	0.48 (18)	0.39 (20)	0.38 (18)	0.42 (20)	-0.16 (21)	-0.10 (23)	H
	0.15 (26)	0.25 (27)	0.06 (26)	0.13 (27)	-0.33 (27)	-0.29 (28)	M
	0.24 (32)	0.24 (33)	0.36 (32)	0.35 (33)	0.39 (41)	0.32 (42)	L
700-hPa w	0.29 (14)	0.33 (16)	0.26 (14)	0.34 (16)	-0.22 (20)	-0.12 (22)	H
	0.06 (34)	0.10 (35)	0.06 (34)	0.06 (35)	-0.20 (39)	-0.16 (40)	M
	0.38 (28)	0.43 (29)	0.27 (28)	0.37 (29)	-0.21 (29)	-0.20 (30)	L

Columns (bottom axis): 355-nm AOT, 532-nm AOT, 355-nm Ext, 532-nm Ext, 355-nm Bsc, 532-nm Bsc

Bottom-right panel

	355-nm AOT	532-nm AOT	355-nm Ext	532-nm Ext	355-nm Bsc	532-nm Bsc	
T_d 1 km	0.13 (20)	0.11 (22)	0.10 (20)	0.10 (22)	0.02 (24)	0.21 (26)	H
	0.15 (39)	0.22 (40)	0.14 (39)	0.19 (40)	-0.16 (47)	-0.20 (48)	M
	0.44 (17)	0.48 (18)	0.37 (17)	0.46 (18)	-0.29 (18)	-0.24 (19)	L
T_d 925 hPa	0.41 (17)	0.34 (19)	0.27 (17)	0.37 (19)	-0.28 (22)	-0.15 (24)	H
	0.10 (41)	0.13 (42)	0.10 (41)	0.12 (42)	-0.04 (49)	-0.11 (49)	M
	0.49 (18)	0.51 (19)	0.40 (18)	0.48 (19)	-0.27 (19)	-0.22 (20)	L
700-500 LR	0.29 (8)	0.27 (8)	0.36 (8)	0.38 (8)	0.32 (10)	0.33 (10)	H
	0.30 (14)	0.20 (14)	0.33 (14)	0.29 (14)	0.36 (14)	0.12 (14)	M
	0.46 (8)	0.27 (9)	0.53 (8)	0.54 (9)	-0.07 (8)	-0.23 (9)	L
850-500 LR	-0.46 (6)	-0.64 (6)	-0.37 (6)	-0.38 (6)	0.22 (8)	-0.26 (8)	H
	0.53 (16)	0.48 (16)	0.53 (16)	0.47 (16)	0.50 (15)	0.49 (16)	M
	0.36 (9)	0.30 (9)	0.42 (9)	0.30 (9)	0.51 (9)	0.27 (9)	L
850-700 LR	0.41 (13)	0.39 (17)	0.38 (13)	0.35 (17)	0.24 (15)	0.38 (19)	H
	0.06 (44)	0.14 (44)	0.04 (44)	0.09 (44)	-0.22 (48)	-0.25 (48)	M
	0.51 (19)	0.44 (19)	0.48 (19)	0.55 (19)	-0.25 (25)	-0.25 (25)	L
K-index	0.45 (10)	0.26 (10)	0.53 (10)	0.43 (10)	0.69 (10)	0.40 (10)	H
	0.32 (13)	0.34 (14)	0.31 (13)	0.30 (14)	0.42 (14)	0.36 (15)	M
	0.00 (7)	-0.03 (7)	-0.02 (7)	-0.02 (7)	-0.43 (8)	-0.41 (8)	L
LCL Alt	-0.21 (21)	-0.07 (21)	-0.23 (21)	-0.17 (21)	-0.32 (23)	-0.38 (23)	H
	0.27 (34)	0.32 (36)	0.24 (34)	0.29 (36)	-0.05 (41)	-0.02 (43)	M
	0.51 (21)	0.41 (23)	0.47 (21)	0.53 (23)	-0.17 (25)	-0.14 (27)	L
CAPE	0.45 (21)	0.41 (23)	0.40 (21)	0.42 (23)	-0.09 (24)	-0.03 (26)	H
	0.02 (35)	0.14 (37)	-0.04 (35)	0.03 (37)	-0.33 (40)	-0.30 (42)	M
	0.34 (20)	0.31 (20)	0.49 (20)	0.49 (20)	0.55 (25)	0.53 (25)	L
700-hPa w	0.29 (14)	0.33 (16)	0.26 (14)	0.34 (16)	-0.22 (20)	-0.12 (22)	H
	0.06 (39)	0.10 (40)	0.05 (39)	0.07 (40)	-0.19 (44)	-0.16 (45)	M
	0.38 (23)	0.44 (24)	0.25 (23)	0.35 (24)	-0.24 (24)	-0.23 (25)	L

Columns (bottom axis): 355-nm AOT, 532-nm AOT, 355-nm Ext, 532-nm Ext, 355-nm Bsc, 532-nm Bsc

Figure S6: As in Fig. S1 but using maximum APR-3 Ku-band composite Z_H as the convective parameter.

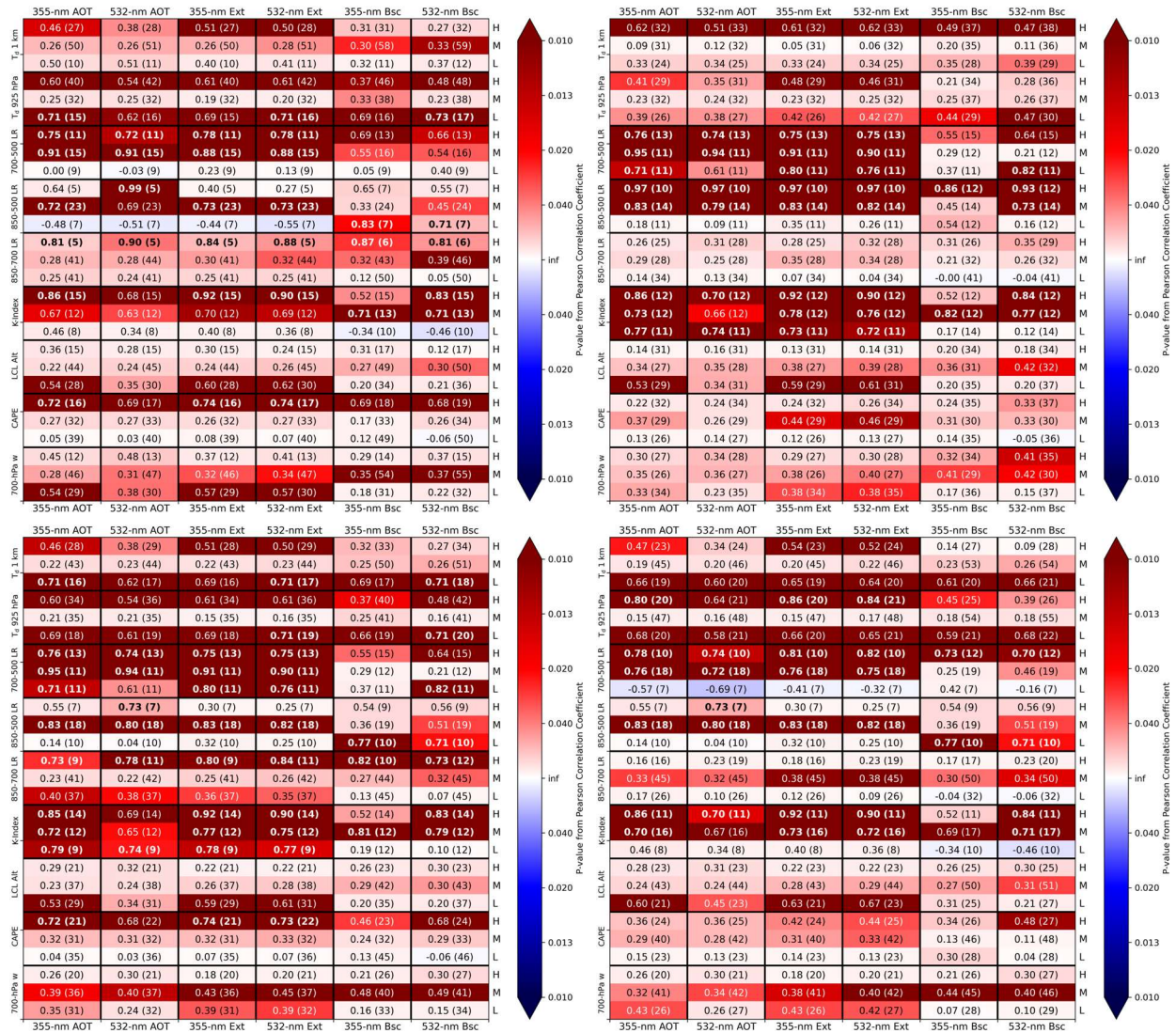Figure S7: As in Fig. S1 but using the number of APR-3 Ku-band composite Z_H pixels ≥ 30 dBZ within a given scene as the convective parameter.

Top-left panel

	355-nm AOT	532-nm AOT	355-nm Ext	532-nm Ext	355-nm Bsc	532-nm Bsc	
Td 1 km	0.41 (26)	0.31 (27)	0.41 (26)	0.37 (27)	0.41 (29)	0.45 (30)	H
	-0.01 (47)	-0.03 (47)	-0.02 (47)	-0.02 (47)	-0.02 (50)	-0.06 (50)	M
	0.20 (8)	0.19 (8)	0.19 (8)	0.24 (8)	0.13 (8)	-0.16 (8)	L
Td 925 hPa	0.44 (37)	0.32 (38)	0.38 (37)	0.35 (38)	0.19 (40)	0.34 (41)	H
	0.00 (31)	-0.01 (31)	-0.01 (31)	-0.01 (31)	0.05 (34)	-0.04 (34)	M
	0.30 (13)	0.24 (13)	0.27 (13)	0.28 (13)	0.21 (13)	0.14 (13)	L
700-500 LR	0.30 (12)	0.22 (12)	0.35 (12)	0.35 (12)	0.42 (14)	0.23 (14)	H
	0.75 (11)	0.75 (11)	0.70 (11)	0.67 (11)	0.58 (12)	0.70 (12)	M
	0.07 (9)	0.04 (9)	0.16 (9)	-0.20 (9)	0.44 (9)	0.12 (9)	L
850-500 LR					0.74 (6)	0.94 (6)	H
	0.51 (21)	0.46 (21)	0.53 (21)	0.50 (21)	0.54 (22)	0.47 (22)	M
	-0.32 (7)	-0.28 (7)	-0.43 (7)	-0.61 (7)	0.57 (7)	-0.09 (7)	L
850-700 LR	0.05 (5)	-0.01 (5)	-0.09 (5)	-0.03 (5)	-0.40 (5)	-0.40 (5)	H
	-0.02 (41)	-0.05 (42)	-0.02 (41)	-0.03 (42)	-0.06 (43)	-0.06 (44)	M
	0.42 (35)	0.40 (35)	0.43 (35)	0.42 (35)	0.36 (38)	0.32 (38)	L
K-Index	0.53 (12)	0.40 (12)	0.61 (12)	0.51 (12)	0.68 (12)	0.65 (12)	H
	0.68 (13)	0.69 (13)	0.66 (13)	0.64 (13)	0.57 (14)	0.65 (14)	M
	-0.06 (7)	-0.19 (7)	-0.11 (7)	-0.15 (7)	-0.03 (9)	-0.31 (9)	L
LCL Alt	-0.24 (13)	-0.28 (13)	-0.22 (13)	-0.23 (13)	-0.09 (14)	-0.31 (14)	H
	0.17 (43)	0.16 (43)	0.14 (43)	0.15 (43)	0.07 (45)	0.12 (45)	M
	0.28 (25)	0.16 (26)	0.32 (25)	0.27 (26)	0.29 (28)	0.28 (29)	L
CAPE	0.70 (16)	0.52 (17)	0.73 (16)	0.66 (17)	0.75 (18)	0.67 (19)	H
	-0.07 (30)	-0.08 (30)	-0.10 (30)	-0.11 (30)	-0.15 (30)	-0.13 (30)	M
	0.17 (35)	0.13 (35)	0.16 (35)	0.17 (35)	0.14 (39)	0.03 (39)	L
700-hPa w	0.09 (11)	0.04 (11)	0.11 (11)	0.13 (11)	0.09 (12)	0.06 (12)	H
	0.02 (44)	-0.00 (45)	0.03 (44)	0.02 (45)	-0.02 (46)	-0.02 (47)	M
	0.27 (26)	0.24 (26)	0.20 (26)	0.18 (26)	0.06 (28)	0.17 (28)	L

Top-right panel

	355-nm AOT	532-nm AOT	355-nm Ext	532-nm Ext	355-nm Bsc	532-nm Bsc	
Td 1 km	0.53 (31)	0.38 (32)	0.54 (31)	0.50 (32)	0.50 (34)	0.53 (35)	H
	-0.13 (30)	-0.14 (30)	-0.16 (30)	-0.16 (30)	-0.08 (33)	-0.19 (33)	M
	0.09 (20)	0.07 (20)	0.06 (20)	0.07 (20)	-0.01 (20)	-0.02 (20)	L
Td 925 hPa	0.37 (29)	0.25 (30)	0.32 (29)	0.28 (30)	0.23 (32)	0.32 (33)	H
	0.25 (27)	0.23 (27)	0.23 (27)	0.23 (27)	0.20 (30)	0.17 (30)	M
	-0.13 (25)	-0.14 (25)	-0.12 (25)	-0.12 (25)	-0.16 (25)	-0.19 (25)	L
700-500 LR	0.32 (14)	0.26 (14)	0.34 (14)	0.34 (14)	0.34 (16)	0.25 (16)	H
	0.83 (7)	0.87 (7)	0.80 (7)	0.78 (7)	0.76 (8)	0.80 (8)	M
	0.47 (11)	0.43 (11)	0.49 (11)	0.37 (11)	0.50 (11)	0.49 (11)	L
850-500 LR	0.58 (10)	0.58 (10)	0.64 (10)	0.66 (10)	0.72 (12)	0.58 (12)	H
	0.49 (11)	0.41 (11)	0.51 (11)	0.46 (11)	0.51 (11)	0.46 (11)	M
	0.33 (11)	0.32 (11)	0.30 (11)	0.09 (11)	0.48 (12)	0.39 (12)	L
850-700 LR	0.13 (22)	0.11 (23)	0.08 (23)	0.07 (23)	0.07 (22)	0.06 (23)	H
	-0.07 (28)	-0.10 (28)	-0.06 (28)	-0.06 (28)	-0.09 (32)	-0.05 (32)	M
	0.39 (31)	0.36 (31)	0.39 (31)	0.37 (31)	0.25 (32)	0.21 (32)	L
K-Index	0.56 (9)	0.45 (9)	0.61 (9)	0.52 (9)	0.72 (9)	0.62 (9)	H
	0.57 (13)	0.53 (13)	0.60 (13)	0.57 (13)	0.55 (13)	0.59 (13)	M
	0.37 (10)	0.32 (10)	0.35 (10)	0.35 (10)	0.32 (13)	0.23 (13)	L
LCL Alt	-0.09 (28)	-0.11 (28)	-0.09 (28)	-0.09 (28)	-0.05 (29)	-0.13 (29)	H
	0.25 (27)	0.23 (27)	0.23 (27)	0.23 (27)	0.11 (29)	0.17 (29)	M
	0.30 (27)	0.18 (27)	0.32 (26)	0.27 (27)	0.28 (28)	0.28 (30)	L
CAPE	0.37 (30)	0.31 (31)	0.38 (30)	0.35 (31)	0.46 (32)	0.42 (33)	H
	-0.16 (29)	-0.18 (29)	-0.18 (29)	-0.18 (29)	-0.35 (29)	-0.31 (29)	M
	0.36 (22)	0.38 (22)	0.28 (22)	0.33 (22)	0.29 (26)	0.28 (26)	L
700-hPa w	0.07 (25)	0.05 (25)	0.08 (25)	0.09 (25)	0.08 (27)	0.03 (27)	H
	0.04 (25)	-0.00 (26)	0.05 (25)	0.03 (26)	-0.02 (26)	0.01 (27)	M
	0.23 (31)	0.18 (31)	0.14 (31)	0.13 (31)	-0.04 (33)	0.08 (33)	L

Bottom-left panel

	355-nm AOT	532-nm AOT	355-nm Ext	532-nm Ext	355-nm Bsc	532-nm Bsc	
Td 1 km	0.40 (27)	0.30 (28)	0.39 (27)	0.36 (28)	0.39 (30)	0.44 (31)	H
	-0.04 (41)	-0.06 (41)	-0.05 (41)	-0.05 (41)	-0.05 (44)	-0.11 (44)	M
	0.32 (13)	0.26 (13)	0.30 (13)	0.32 (13)	0.24 (13)	0.18 (13)	L
Td 925 hPa	0.46 (33)	0.34 (34)	0.45 (33)	0.40 (34)	0.32 (36)	0.42 (37)	H
	-0.07 (32)	-0.09 (32)	-0.10 (32)	-0.10 (32)	-0.09 (35)	-0.15 (35)	M
	0.37 (16)	0.33 (16)	0.33 (16)	0.33 (16)	0.23 (16)	0.19 (16)	L
700-500 LR	0.32 (14)	0.26 (14)	0.34 (14)	0.34 (14)	0.34 (16)	0.25 (16)	H
	0.83 (7)	0.87 (7)	0.80 (7)	0.78 (7)	0.76 (8)	0.80 (8)	M
	0.47 (11)	0.43 (11)	0.49 (11)	0.37 (11)	0.50 (11)	0.49 (11)	L
850-500 LR	-0.52 (6)	0.18 (6)	0.94 (6)	0.97 (6)	0.84 (8)	0.93 (8)	H
	0.53 (17)	0.48 (17)	0.55 (17)	0.52 (17)	0.59 (18)	0.52 (18)	M
	0.02 (9)	-0.08 (9)	0.09 (9)	-0.11 (9)	0.72 (9)	0.39 (9)	L
850-700 LR	0.30 (9)	0.23 (10)	0.12 (9)	0.10 (10)	-0.15 (9)	-0.09 (10)	H
	-0.03 (40)	-0.07 (40)	-0.03 (40)	-0.03 (40)	-0.06 (43)	-0.05 (43)	M
	0.45 (32)	0.42 (32)	0.45 (32)	0.43 (32)	0.36 (34)	0.33 (34)	L
K-Index	0.53 (11)	0.42 (11)	0.60 (11)	0.51 (11)	0.68 (11)	0.65 (11)	H
	0.61 (13)	0.62 (13)	0.59 (13)	0.56 (13)	0.48 (13)	0.57 (13)	M
	0.38 (8)	0.31 (8)	0.40 (8)	0.39 (8)	0.44 (11)	0.22 (11)	L
LCL Alt	-0.17 (19)	-0.19 (19)	-0.14 (19)	-0.14 (19)	-0.04 (20)	-0.17 (20)	H
	0.18 (36)	0.16 (36)	0.16 (36)	0.17 (36)	0.07 (38)	0.12 (38)	M
	0.30 (26)	0.18 (27)	0.32 (26)	0.27 (27)	0.28 (29)	0.28 (30)	L
CAPE	0.65 (20)	0.47 (21)	0.68 (20)	0.60 (21)	0.61 (22)	0.64 (23)	H
	-0.04 (29)	-0.04 (29)	-0.06 (29)	-0.07 (29)	-0.17 (29)	-0.12 (29)	M
	0.16 (32)	0.13 (32)	0.14 (32)	0.15 (32)	0.14 (36)	0.04 (36)	L
700-hPa w	0.07 (19)	0.06 (19)	0.07 (19)	0.08 (19)	0.16 (20)	0.07 (20)	H
	0.04 (34)	0.00 (35)	0.05 (34)	0.04 (35)	-0.05 (36)	-0.01 (37)	M
	0.24 (28)	0.21 (28)	0.17 (28)	0.16 (28)	0.06 (30)	0.14 (30)	L

Bottom-right panel

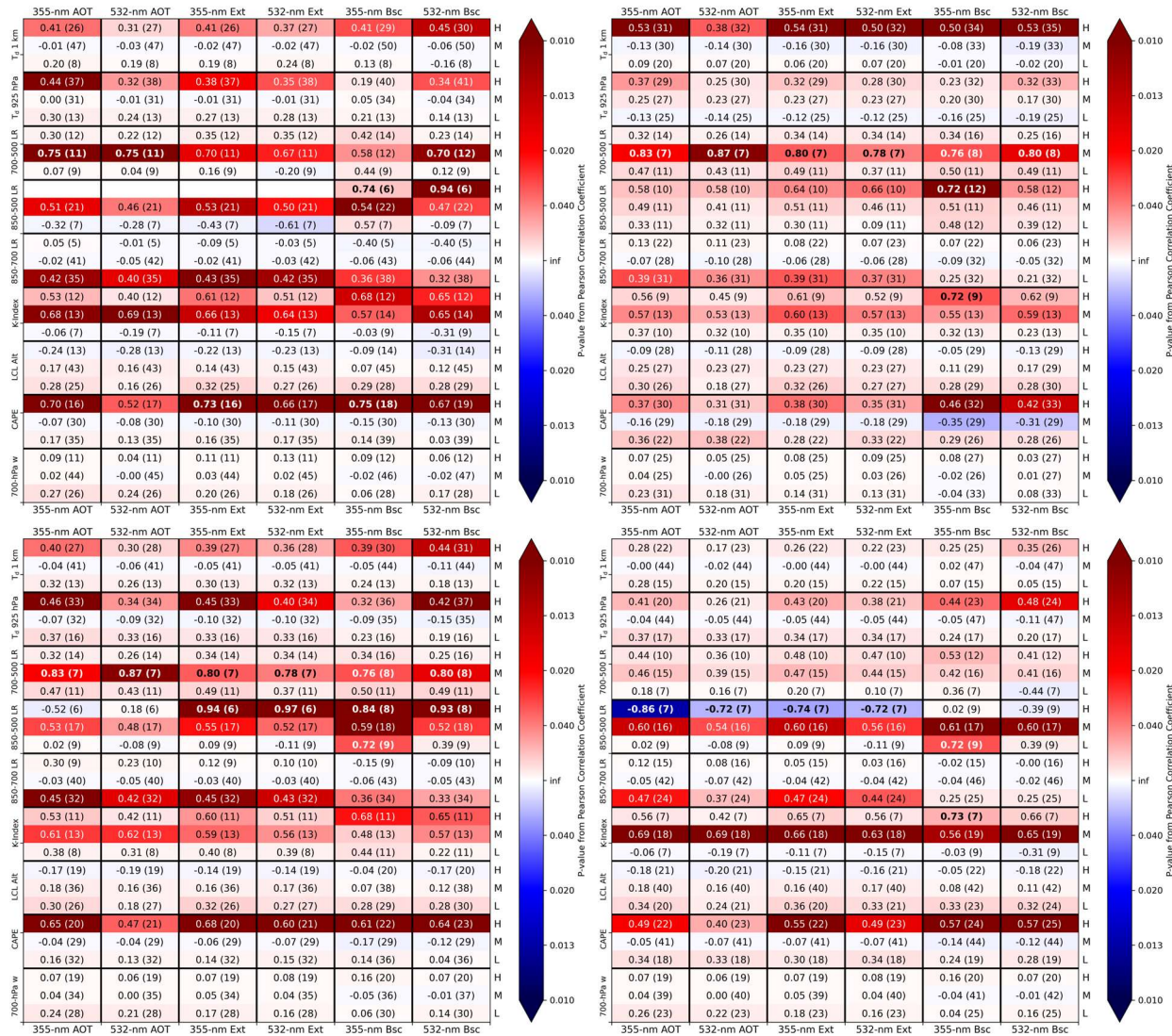|	355-nm AOT	532-nm AOT	355-nm Ext	532-nm Ext	355-nm Bsc	532-nm Bsc	
Td 1 km	0.28 (22)	0.17 (23)	0.26 (22)	0.22 (23)	0.25 (25)	0.35 (26)	H
	-0.00 (42)	-0.02 (44)	-0.00 (44)	-0.00 (44)	0.02 (47)	-0.04 (47)	M
	0.28 (15)	0.20 (15)	0.20 (15)	0.22 (15)	0.07 (15)	0.05 (15)	L
Td 925 hPa	0.41 (20)	0.26 (21)	0.43 (20)	0.38 (21)	0.44 (23)	0.48 (24)	H
	-0.04 (44)	-0.05 (44)	-0.04 (44)	-0.05 (44)	-0.05 (47)	-0.11 (47)	M
	0.37 (17)	0.33 (17)	0.34 (17)	0.34 (17)	0.24 (17)	0.20 (17)	L
700-500 LR	0.44 (10)	0.36 (10)	0.48 (10)	0.47 (10)	0.53 (12)	0.41 (12)	H
	0.46 (15)	0.39 (15)	0.47 (15)	0.44 (15)	0.42 (16)	0.41 (16)	M
	0.18 (7)	0.16 (7)	0.20 (7)	0.10 (7)	0.36 (7)	-0.44 (7)	L
850-500 LR	-0.86 (7)	-0.72 (7)	-0.74 (7)	-0.72 (7)	0.02 (9)	-0.39 (9)	H
	0.60 (16)	0.54 (16)	0.60 (16)	0.56 (16)	0.61 (17)	0.60 (17)	M
	0.02 (9)	-0.08 (9)	0.09 (9)	-0.11 (9)	0.72 (9)	0.39 (9)	L
850-700 LR	0.12 (15)	0.08 (16)	0.05 (15)	0.03 (16)	-0.02 (15)	-0.00 (16)	H
	-0.04 (42)	-0.07 (42)	-0.04 (42)	-0.04 (42)	-0.04 (46)	-0.02 (46)	M
	0.47 (24)	0.37 (24)	0.47 (24)	0.44 (24)	0.25 (25)	0.25 (25)	L
K-Index	0.56 (7)	0.42 (7)	0.65 (7)	0.56 (7)	0.73 (7)	0.66 (7)	H
	0.69 (18)	0.69 (18)	0.66 (18)	0.63 (18)	0.56 (19)	0.65 (19)	M
	-0.06 (7)	-0.19 (7)	-0.11 (7)	-0.15 (7)	-0.03 (9)	-0.31 (9)	L
LCL Alt	-0.18 (21)	-0.20 (21)	-0.15 (21)	-0.16 (21)	-0.05 (22)	-0.18 (22)	H
	0.18 (40)	0.16 (40)	0.16 (40)	0.17 (40)	0.08 (42)	0.11 (42)	M
	0.34 (20)	0.24 (21)	0.36 (20)	0.33 (23)	0.33 (23)	0.32 (24)	L
CAPE	0.49 (22)	0.40 (23)	0.55 (22)	0.49 (23)	0.57 (24)	0.57 (25)	H
	-0.05 (41)	-0.07 (41)	-0.07 (41)	-0.07 (41)	-0.14 (44)	-0.12 (44)	M
	0.34 (18)	0.33 (18)	0.30 (18)	0.34 (18)	0.24 (19)	0.28 (19)	L
700-hPa w	0.07 (19)	0.06 (19)	0.07 (19)	0.08 (19)	0.16 (20)	0.07 (20)	H
	0.04 (39)	0.00 (40)	0.05 (39)	0.04 (40)	-0.04 (41)	-0.01 (42)	M
	0.26 (23)	0.22 (23)	0.18 (23)	0.16 (23)	0.04 (25)	0.16 (25)	L

Figure S8: As in Fig. S1 but using maximum APR-3 Ku-/Ka-band dual-frequency ratio (DFR) as the convective parameter.