Supplementary Materials

Table S1 shows the statistical results of the aggregation parameter over Wuhan, China, where the highest value of γ is also corresponding to the 45° oriented buildings. Figure 1 shows that most of the pixels in 45° oriented building are dark blue ($\gamma>1.5$).

Table S2, Table S3, and Table S4 show the statistical results of the estimated scattering powers in 8 types of samples over Wuhan, China. Figure S2, Figure S3 and Figure S4 present the output maps of ADAM, FDD and 7CD in 8 types of samples over Wuhan, China.

Table S1. The statistical results of the aggregation parameter γ for 8 types of samples over Wuhan, China.

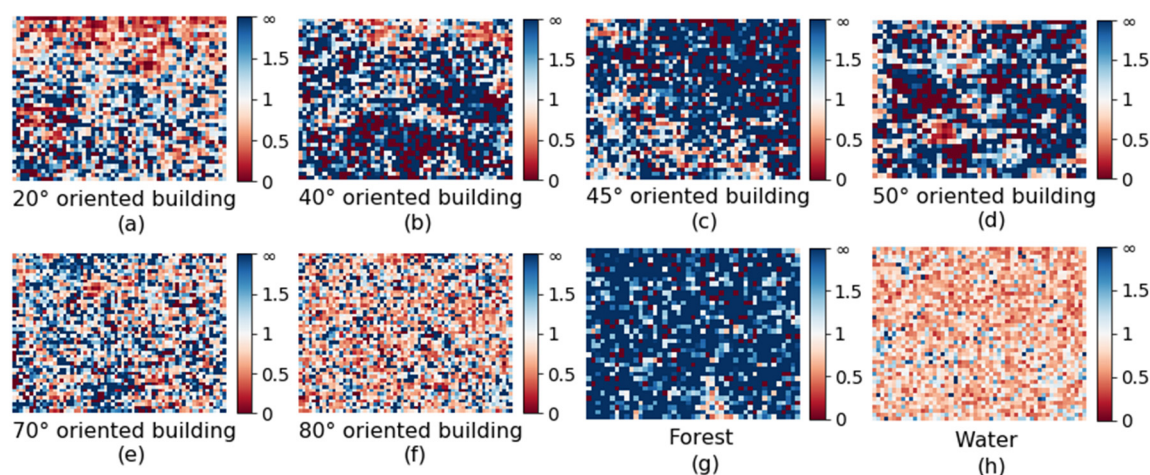|	Aggregation parameter γ	
	Mean	STD
20°oriented building	1.02	0.70
40°oriented building	1.43	1.21
45°oriented building	1.99	1.66
50°oriented building	1.45	1.25
70°oriented building	1.18	0.76
80°oriented building	0.89	0.51
Forest	2.44	1.45
Water	0.73	0.25

Figure S1. The determined aggregation parameter γ of building samples over Wuhan, China.

Table S2. The statistical results of the P_s in 8 types of samples over Wuhan, China.

P_s	Mean			STD		
San Francisco, USA	ADAM	FDD	7CD	ADAM	FDD	7CD
20°oriented building	0.07	0.06	0.18	0.09	0.15	0.17
40°oriented building	0.04	-0.03	0.24	0.08	0.24	0.23
45°oriented building	0.06	-0.02	0.23	0.10	0.22	0.20
50°oriented building	0.03	-0.02	0.20	0.06	0.19	0.19
70°oriented building	0.05	0.04	0.18	0.07	0.12	0.16
80°oriented building	0.10	0.11	0.26	0.12	0.20	0.24

Forest	0.07	0.01	0.19	0.08	0.14	0.09
Water	0.01	0.01	0.01	0.00	0.00	0.00

Table S3. The statistical results of the P_d in 8 types of samples over Wuhan, China.

P_d	Mean			STD		
San Francisco, USA	ADAM	FDD	7CD	ADAM	FDD	7CD
20°oriented building	0.29	0.29	0.26	0.32	0.34	0.29
40°oriented building	0.40	0.31	0.20	0.37	0.35	0.23
45°oriented building	0.19	0.09	0.13	0.19	0.21	0.13
50°oriented building	0.27	0.18	0.13	0.26	0.25	0.14
60°oriented building	0.27	0.26	0.23	0.27	0.27	0.23
70°oriented building	0.40	0.43	0.36	0.37	0.39	0.33
Forest	0.11	0.04	0.09	0.06	0.11	0.05
Water	0.01	0.01	0.01	0.00	0.00	0.00

Table S4. The statistical results of the P_v in 8 types of samples over Wuhan, China.

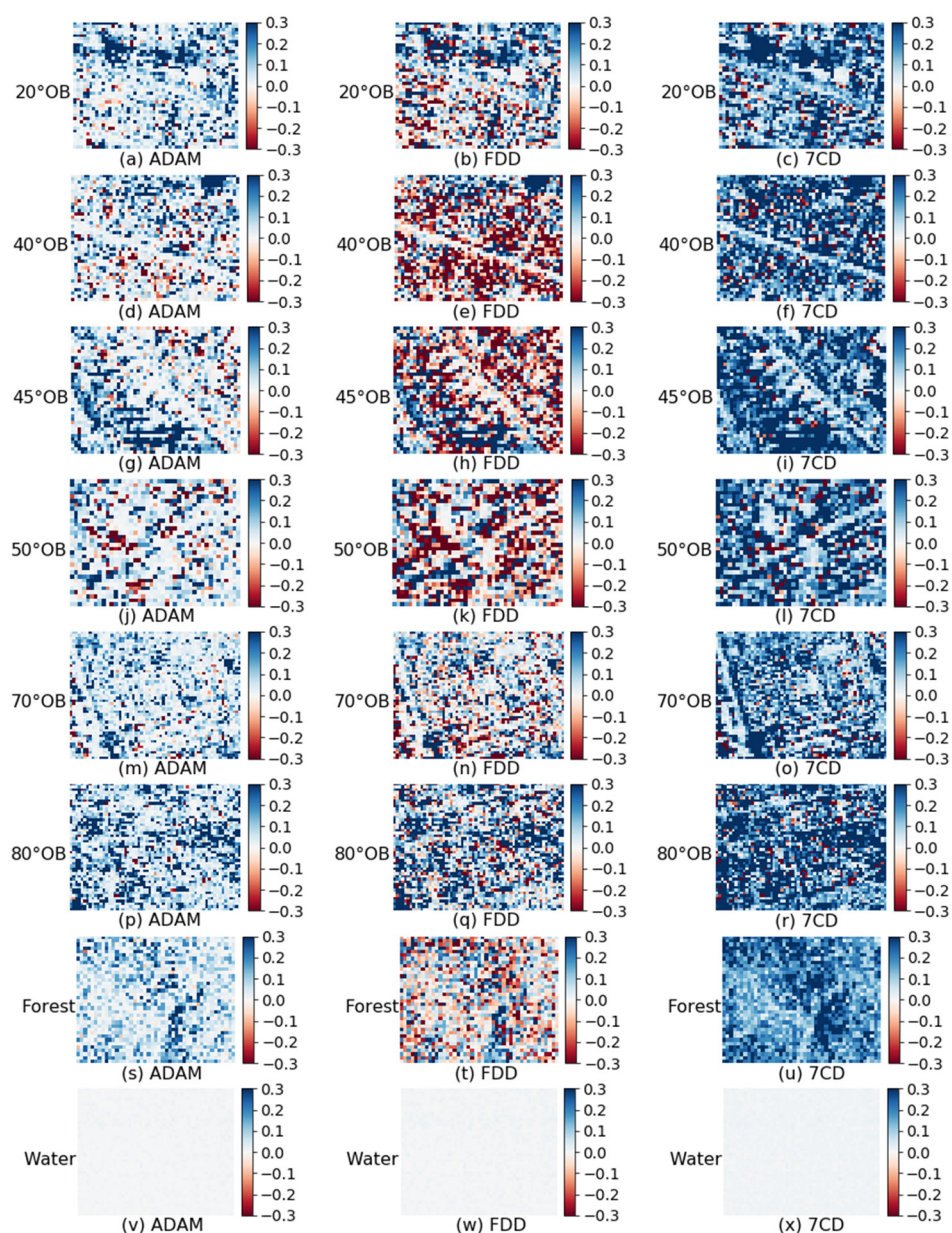| P_v	Mean			STD		
San Francisco, USA	ADAM	FDD	7CD	ADAM	FDD	7CD
20°oriented building	0.32	0.34	-0.24	0.24	0.28	0.35
40°oriented building	0.53	0.70	-0.43	0.36	0.54	0.54
45°oriented building	0.47	0.69	-0.01	0.36	0.56	0.23
50°oriented building	0.41	0.59	-0.21	0.30	0.51	0.35
60°oriented building	0.32	0.35	-0.17	0.21	0.25	0.27
70°oriented building	0.44	0.40	-0.41	0.26	0.23	0.49
Forest	0.31	0.46	0.09	0.11	0.18	0.14
Water	0.01	0.01	-0.01	0.00	0.00	0.00

Figure S2. The output map of surface scattering power P_s estimated by ADAM, FDD and 7CD for 8 types of samples over Wuhan, China.
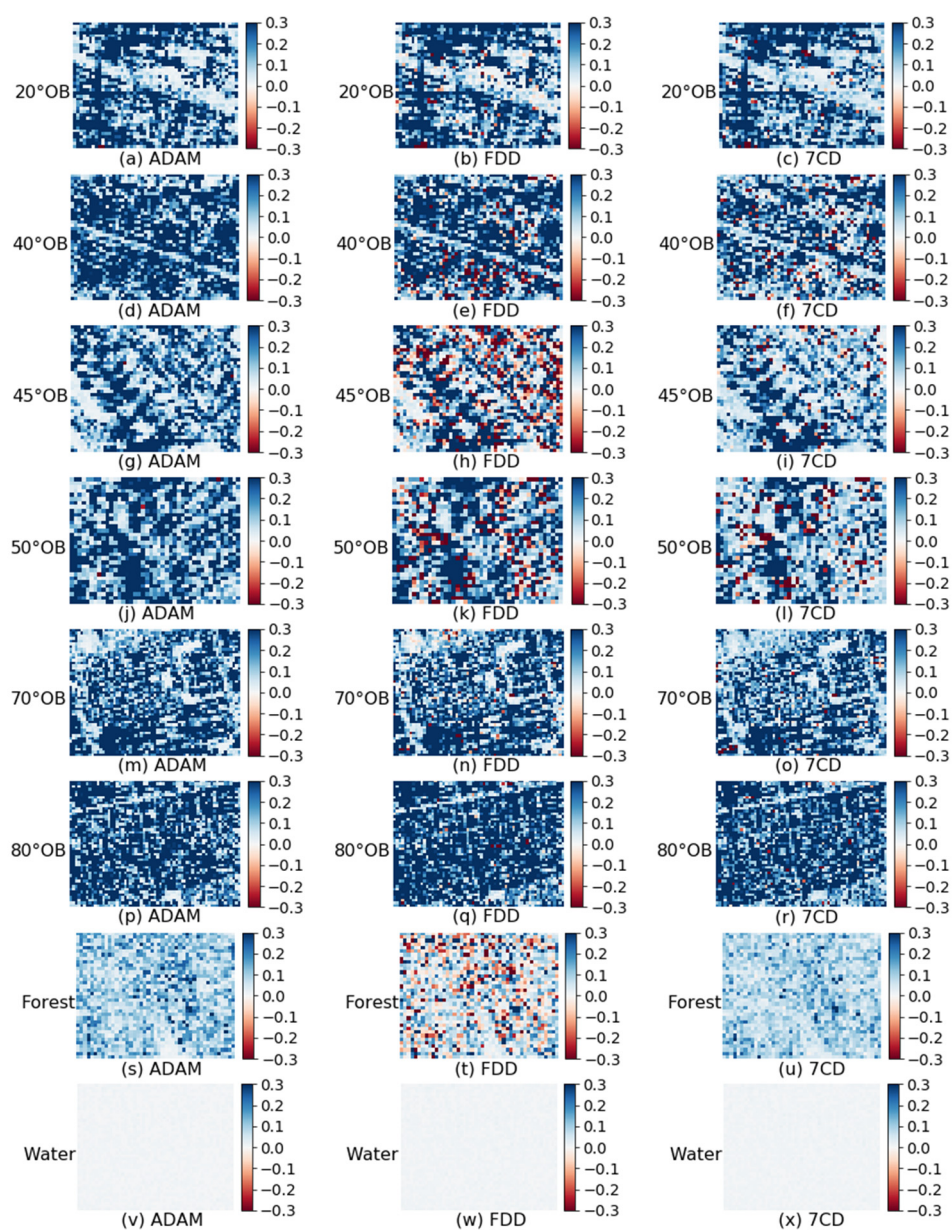
Figure S3. The output map of double-bounce scattering power P_d estimated by ADAM, FDD and 7CD for 8 types of samples over Wuhan, China.
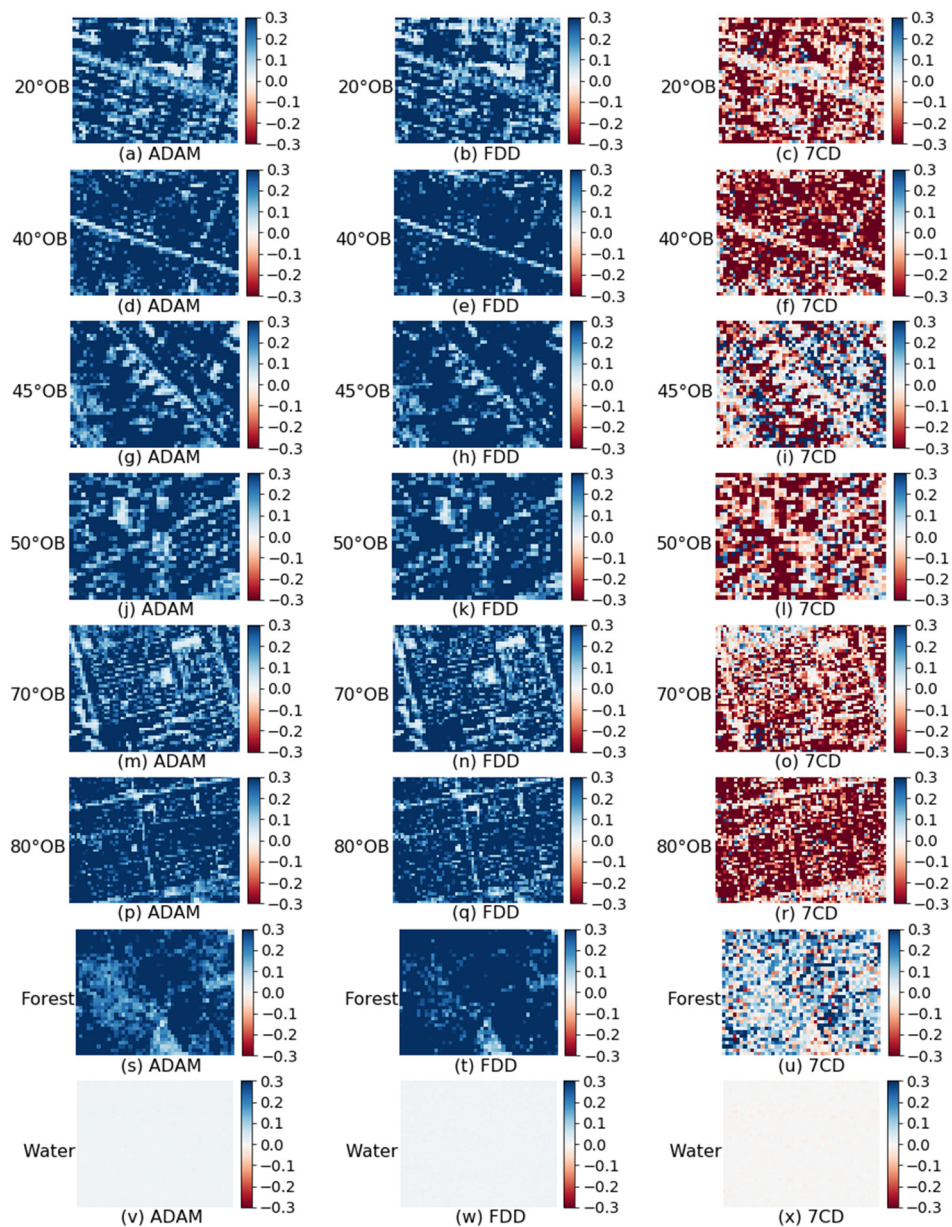
Figure S4. The output map of volume scattering power P_v estimated by ADAM, FDD and 7CD for 8 types of samples over Wuhan, China.