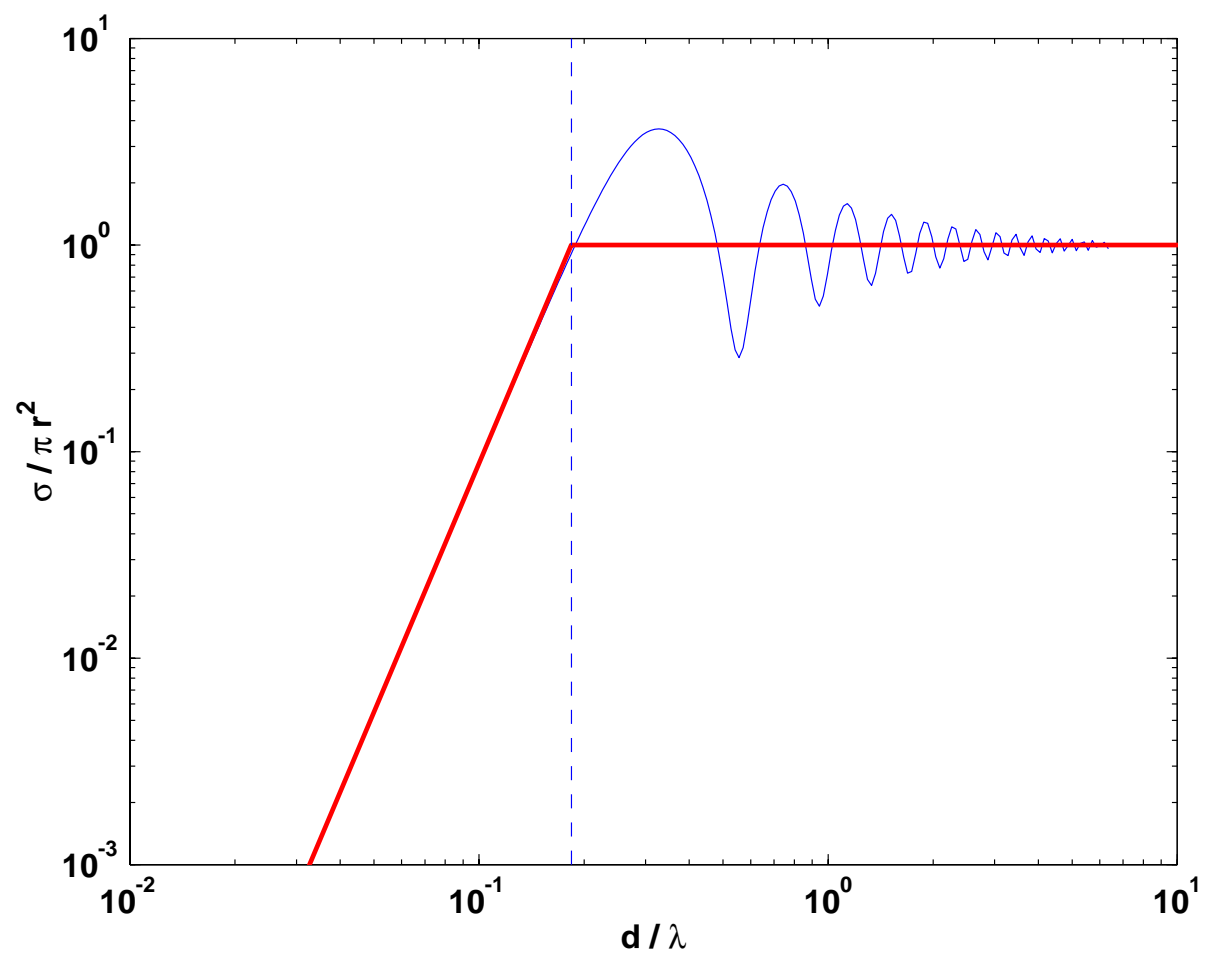


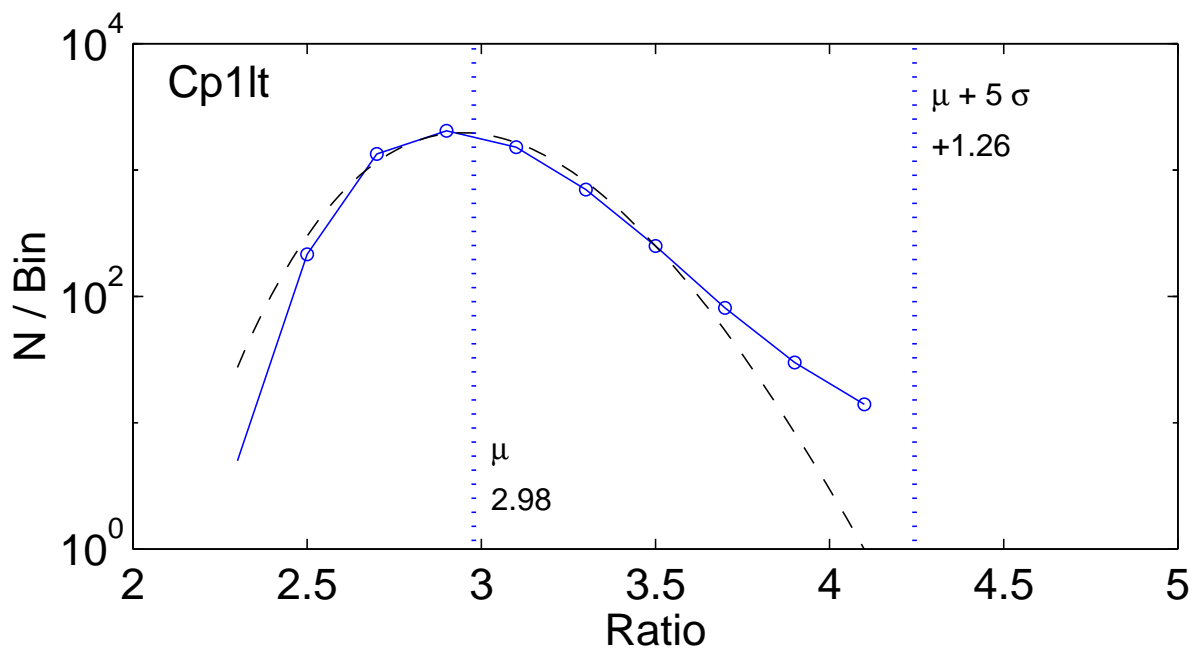
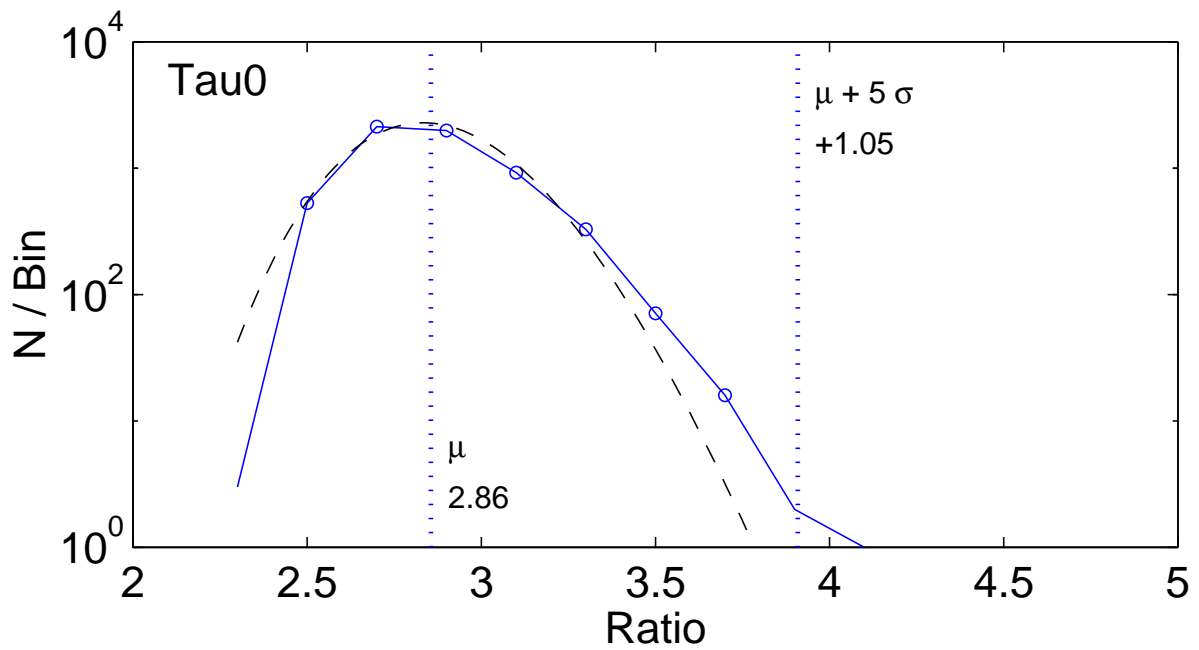
Model for scattering cross section



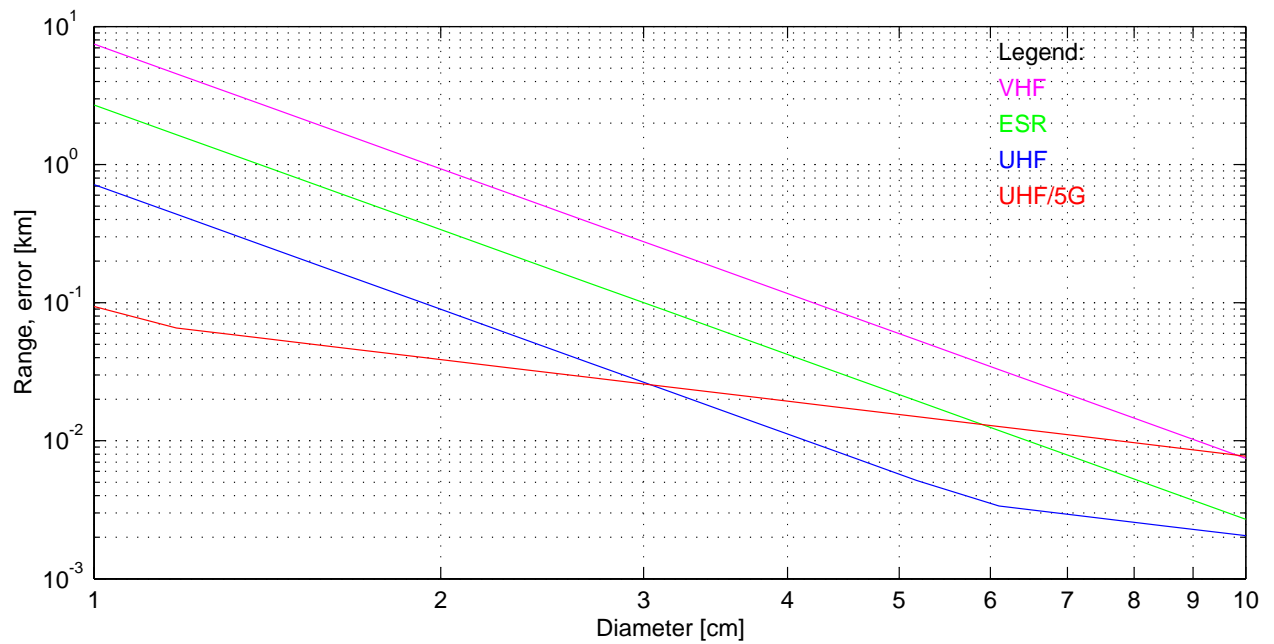
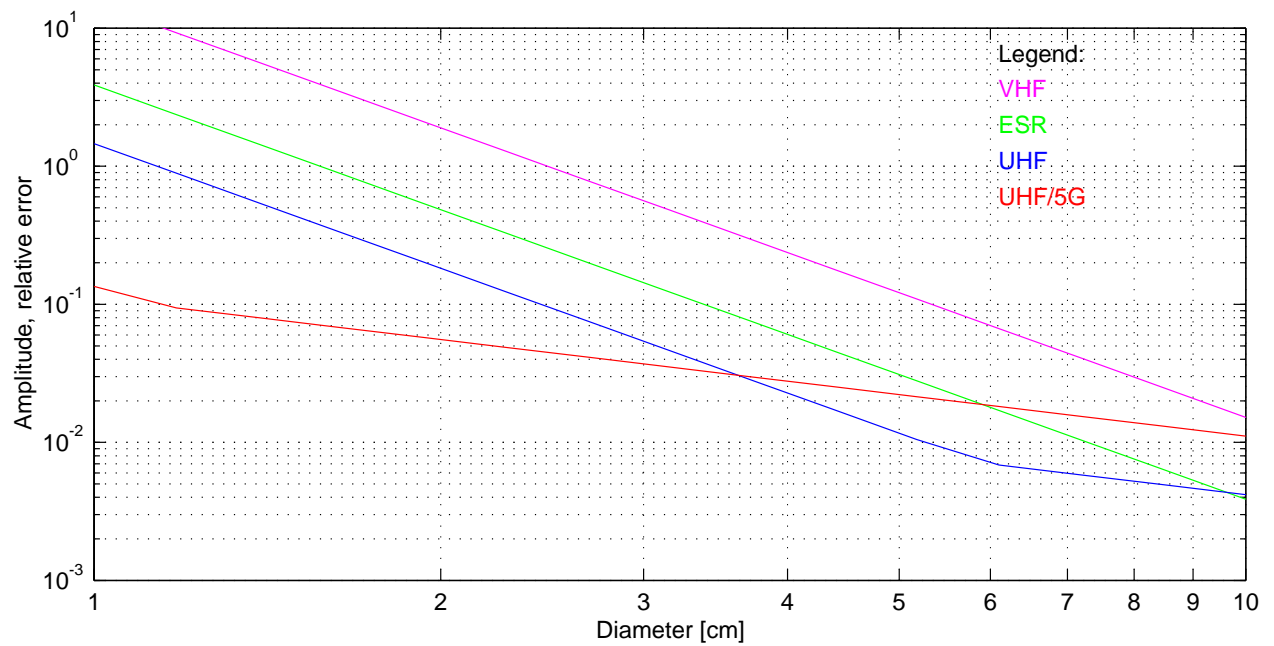
Sensitivity comparison

Radar properties	VHF	ESR	UHF	FGAN	U5G	LUO
Frequency [MHz]	224	500	933	1330	5000	5625
Wavelength [m]	1.338	0.600	0.321	0.225	0.060	0.053
Transmission [MW]	3.0	1.0	1.5	1.6	0.003	0.3
Antenna gain [dB]	43.1	45.3	48.1	49.7	62.5	47.5
Max duty cycle [%]	12.5	25.0	12.5	3.7	25.0	0.12
Noise temperature [K]	100	60	80	209	60	300
Energy-to-noise ratio for 3 cm target						
Cross section σ_* [mm ²]	0.16	3.9	47	190	710	710
Received power [aW]	0.18	0.81	15.3	69.3	12.1	0.96
$\sqrt{\text{SNR}_N}$	1.3	4.9	13.2	9.4	19.1	0.2
Ref. diameter [cm]	2.5	1.6	1.1	1.3	0.5	12.7

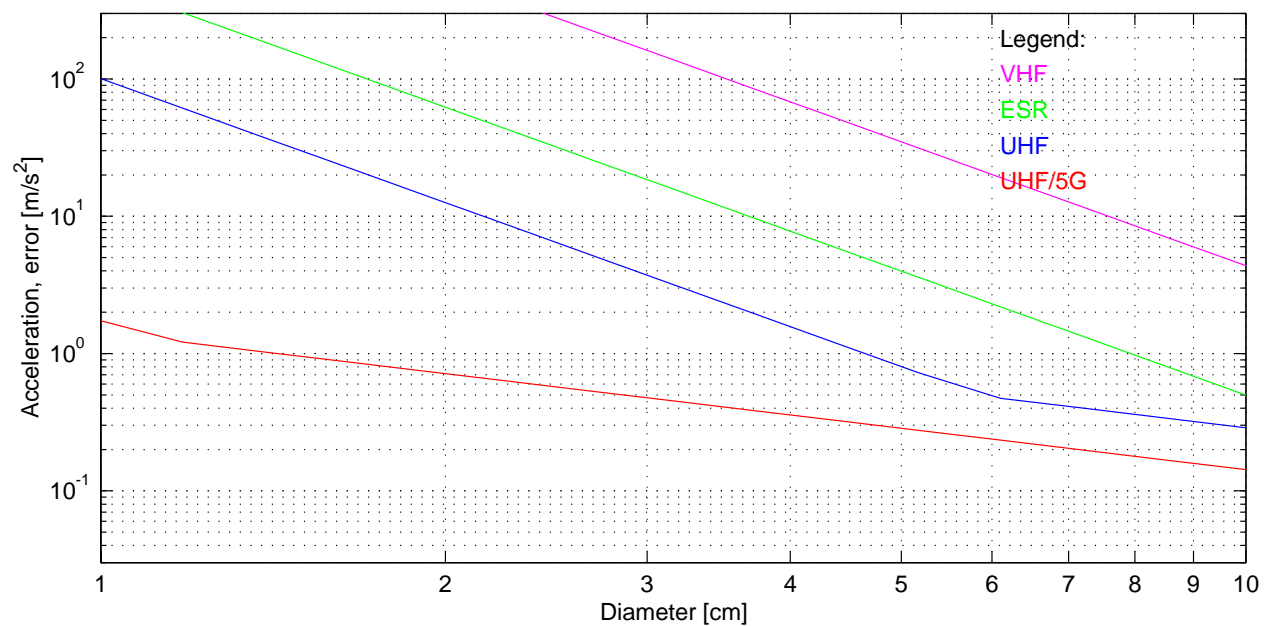
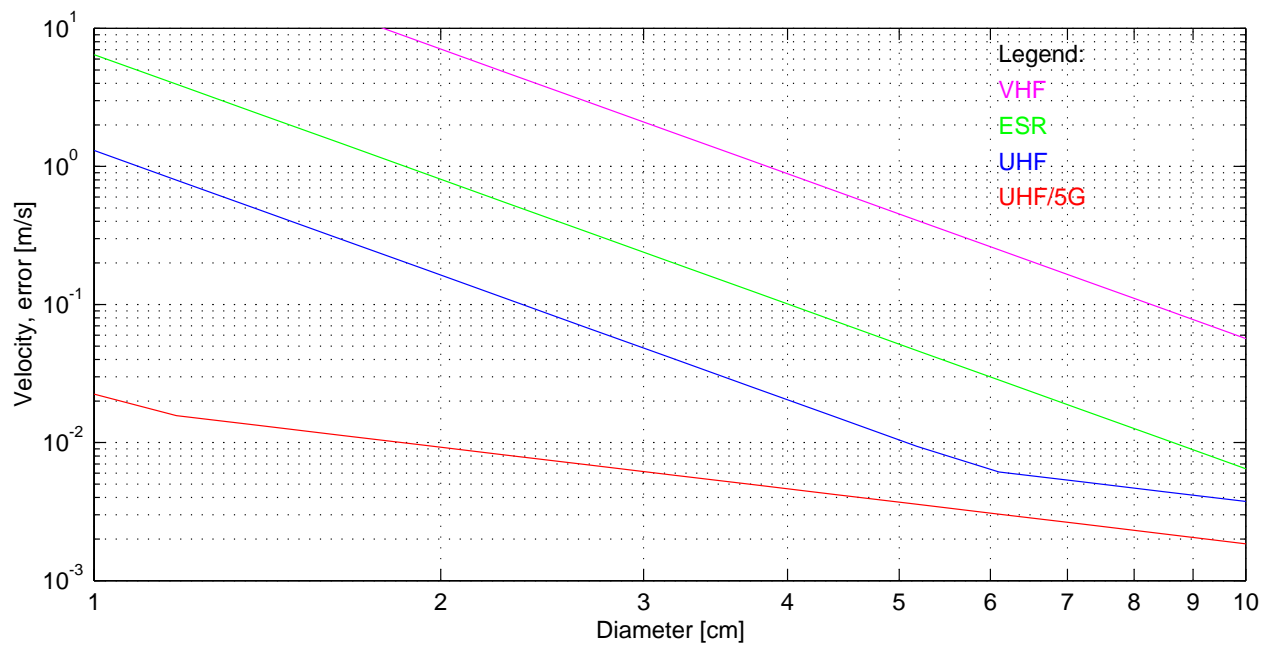
Distribution of ratio \mathcal{R} when there is no signal



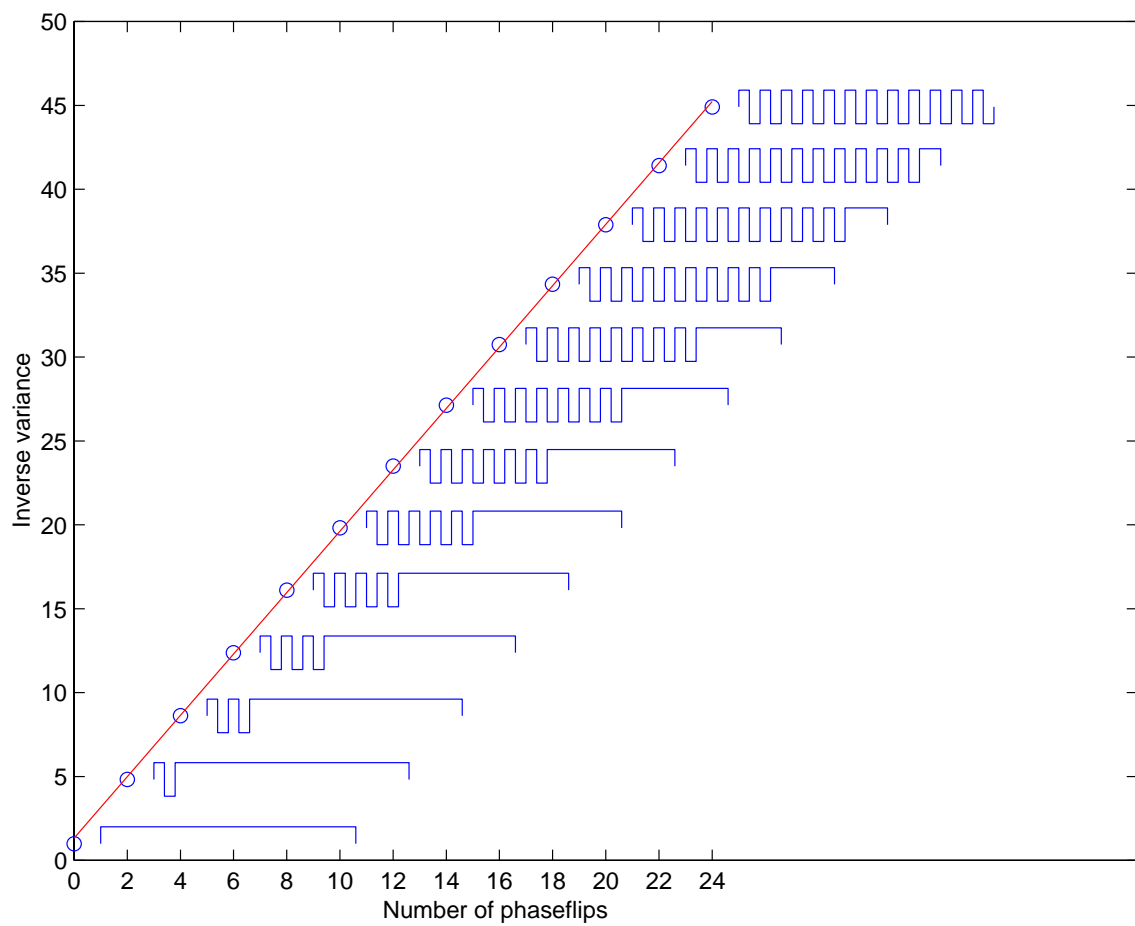
Amplitude and range error as function of target size



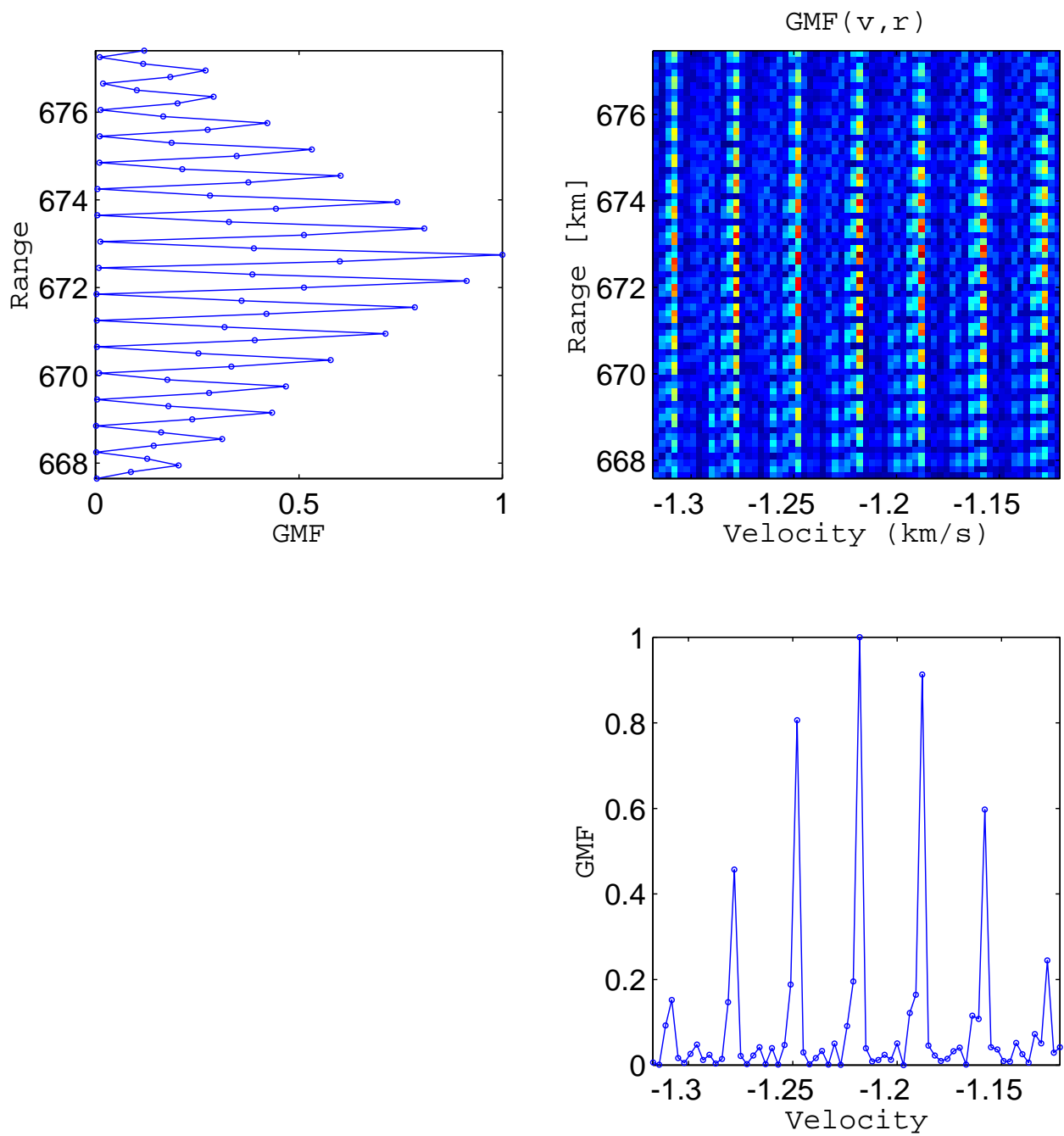
Velocity and acceleration error as function of target size



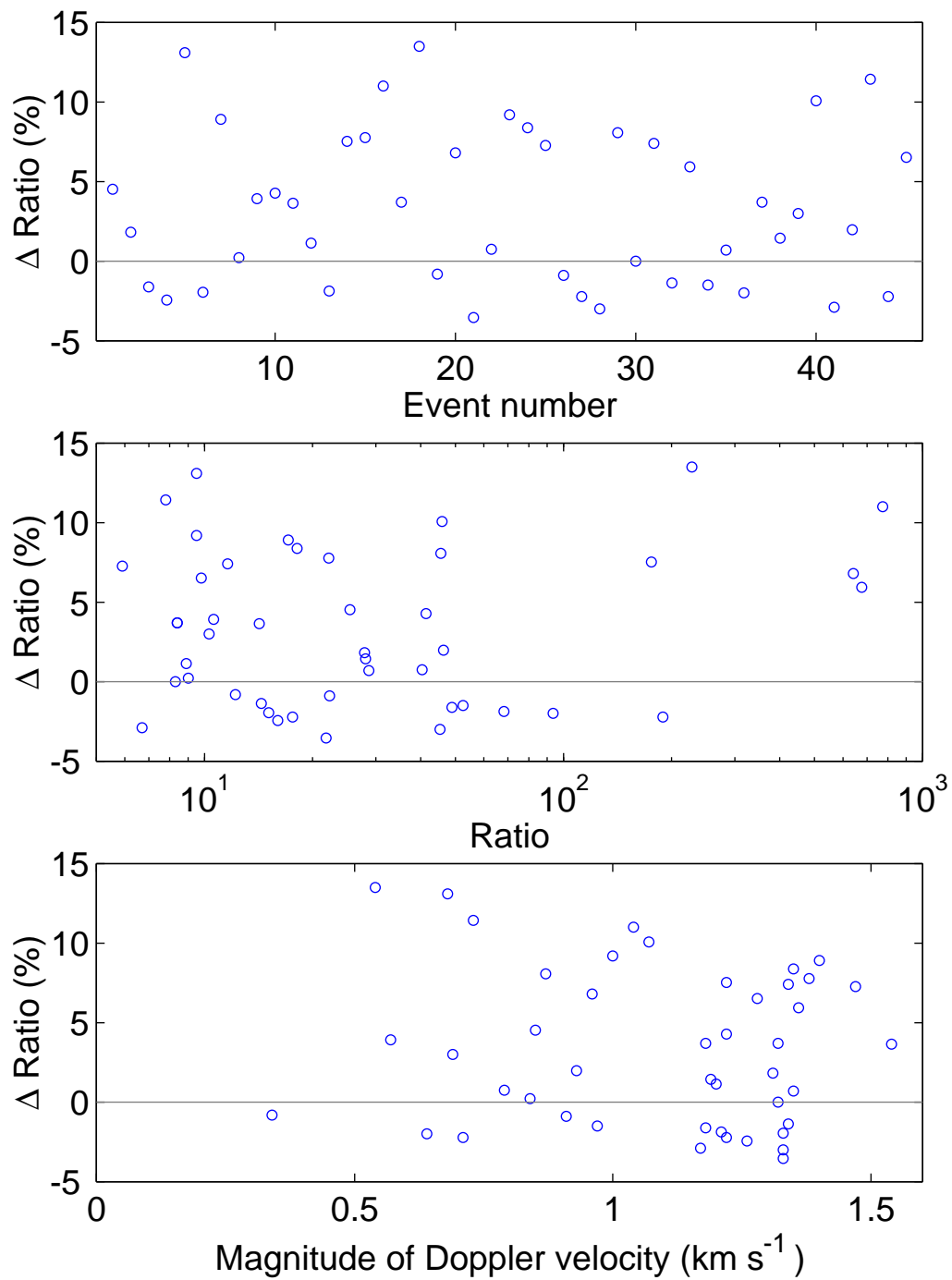
Effect of the number of phase flips to range accuracy



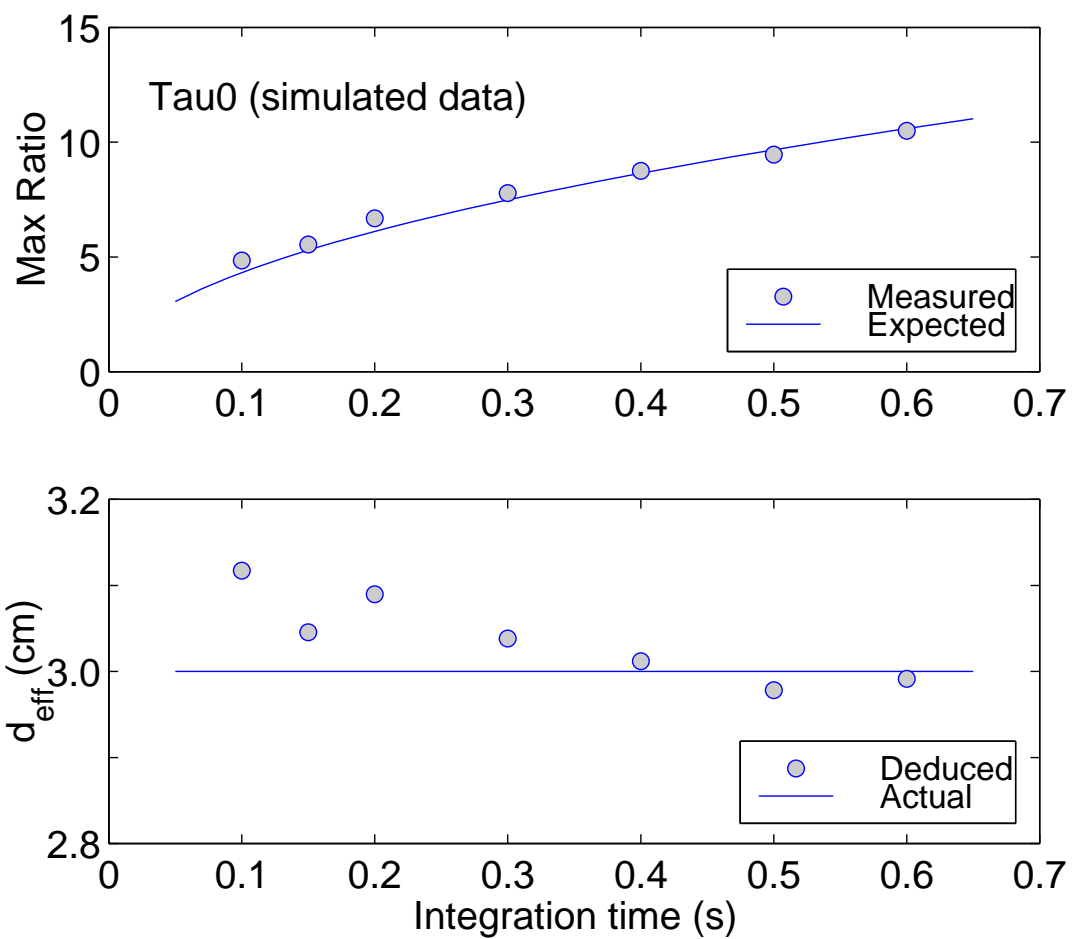
Two-dimensional GMF



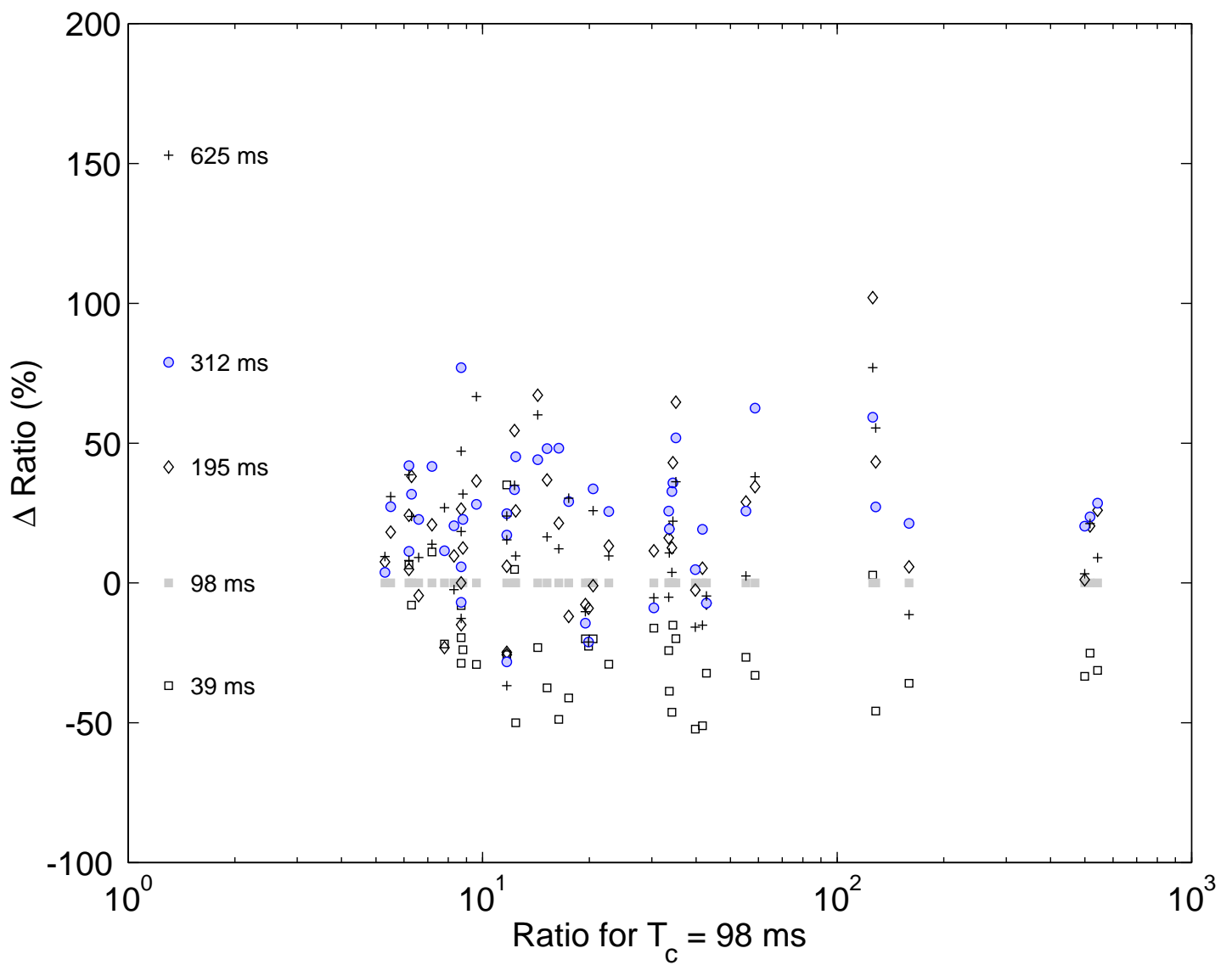
Effect of GMF algorithm on detection sensitivity



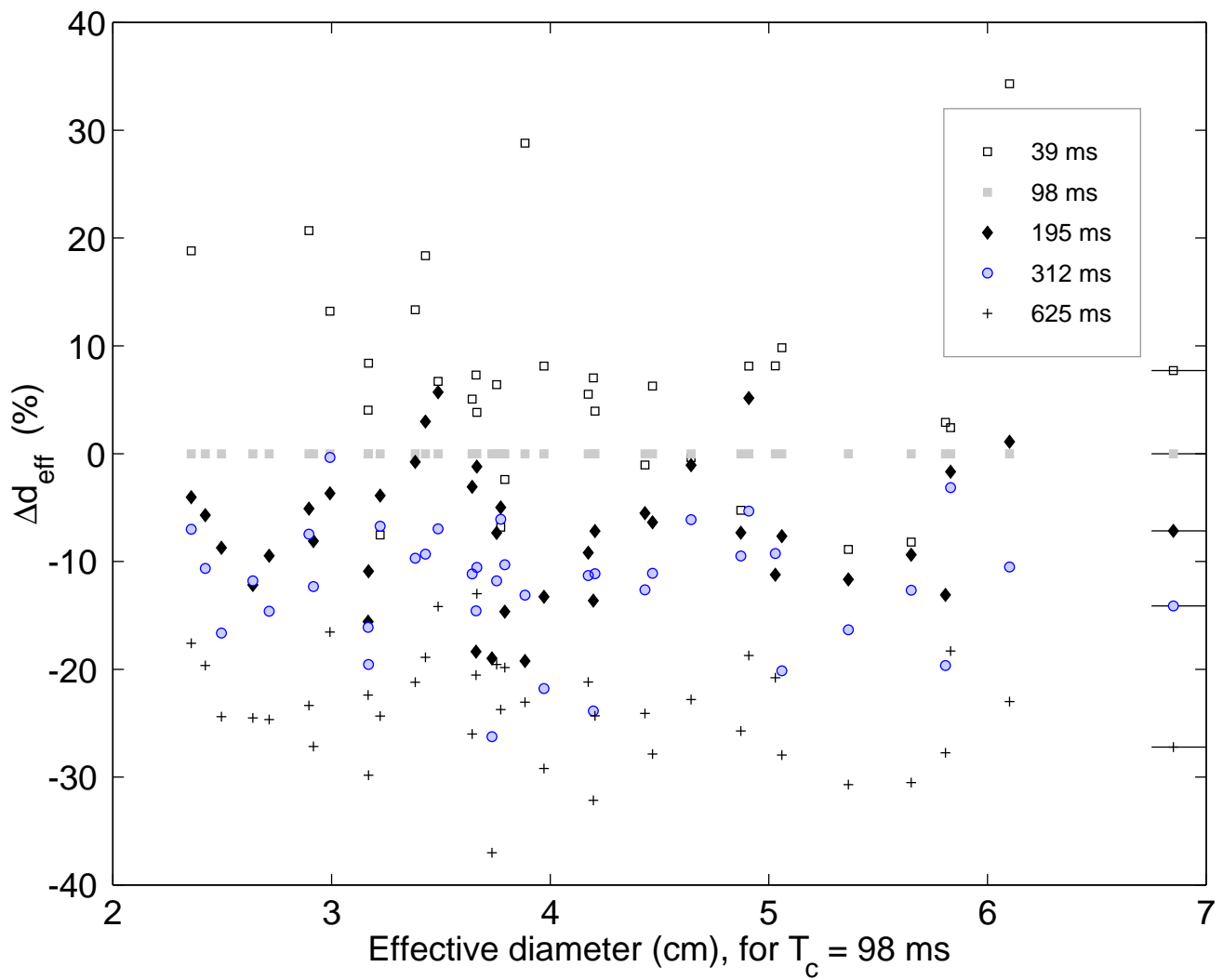
Coherence check with simulated data



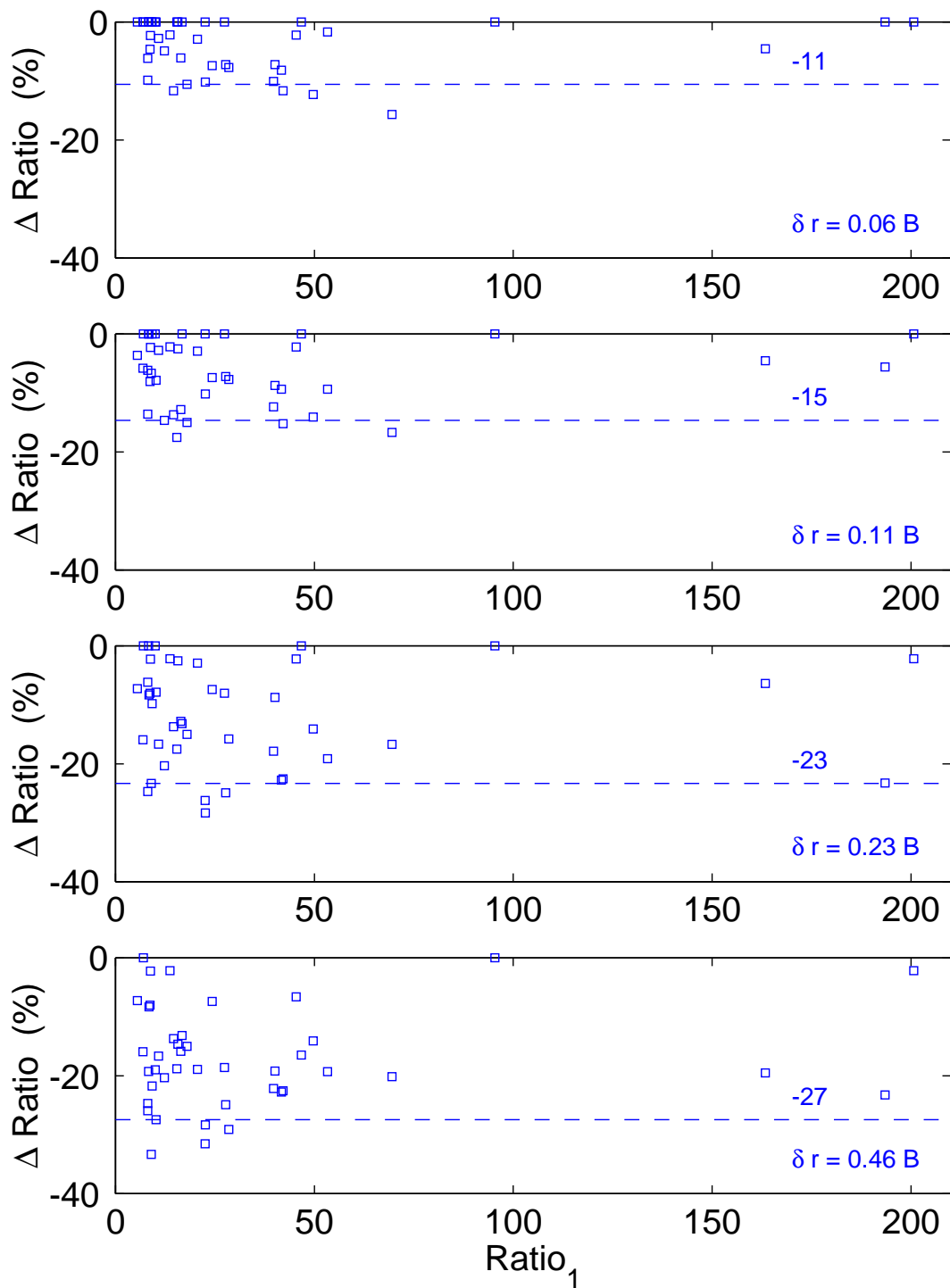
Dependence of \mathcal{R}_{\max} on integration time



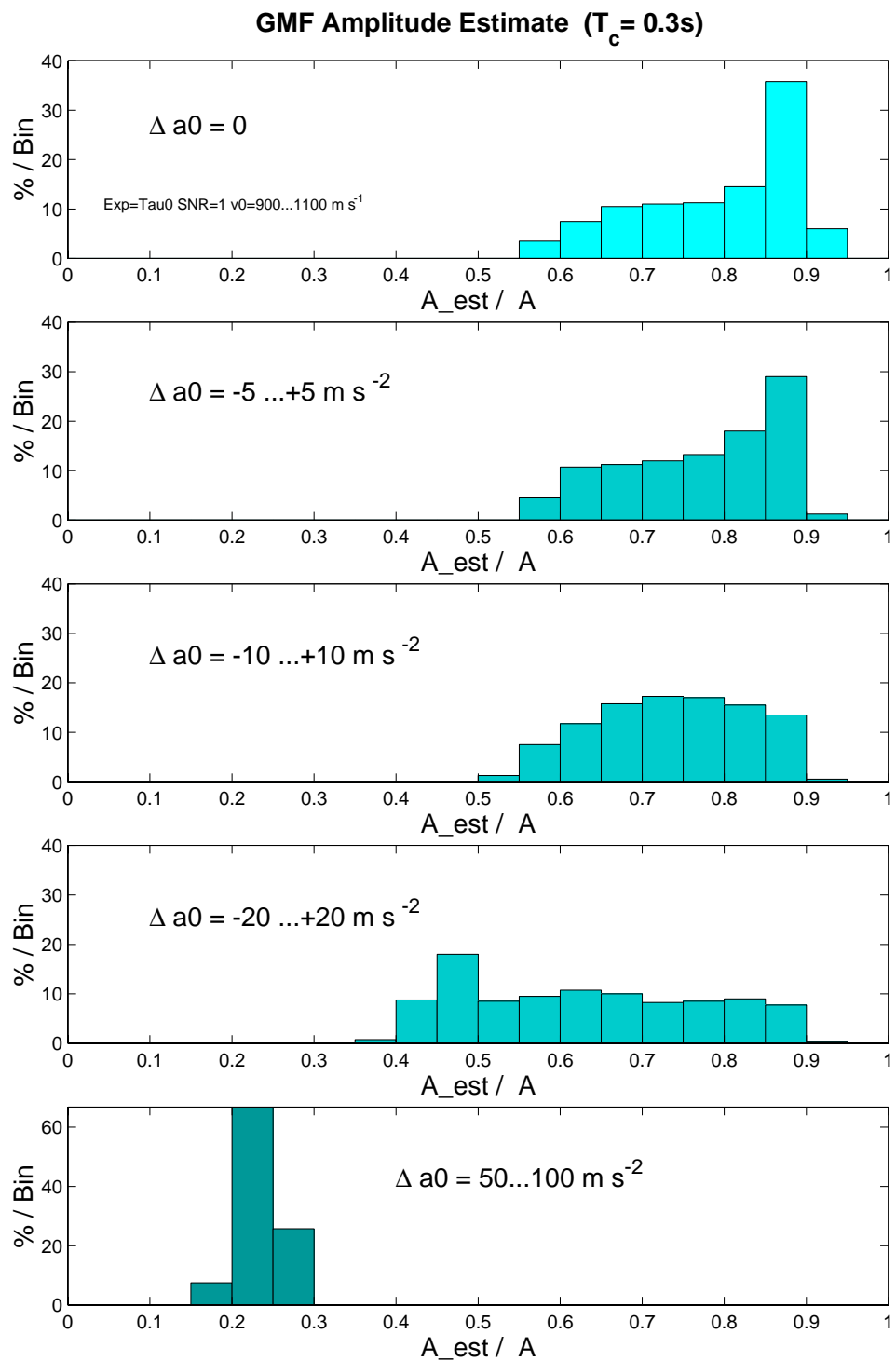
Diameter estimate for different integration times.



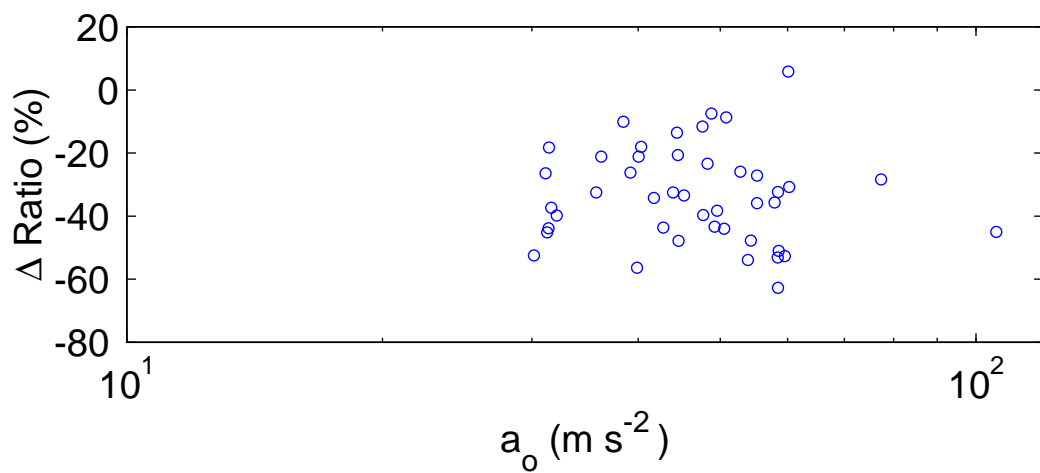
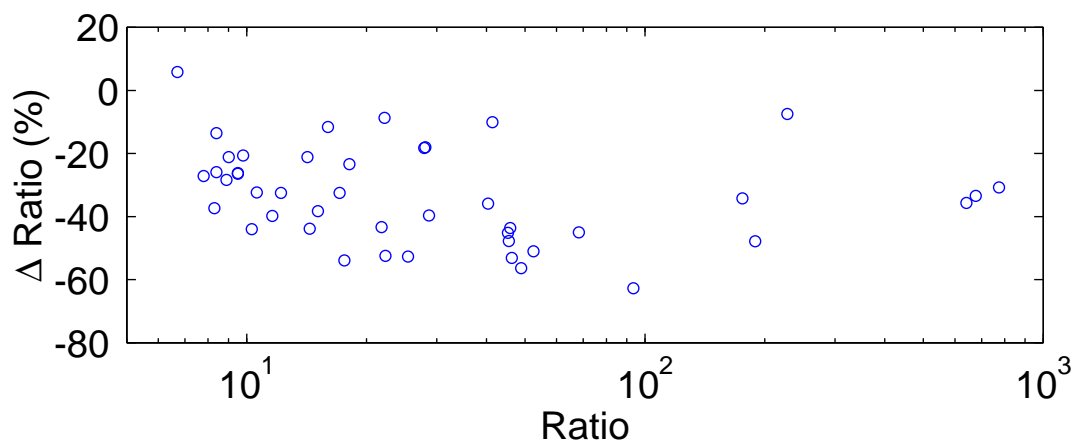
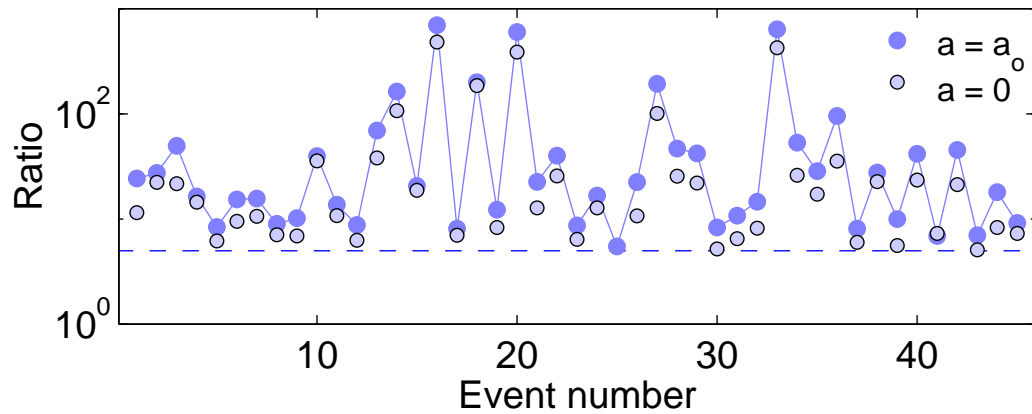
Effect of range gate spacing on detection sensitivity



Effect of acceleration correction to sensitivity (simulation)



Effect of acceleration correction to sensitivity (cp1lt data)



Required computing speed for real-time detection

	cp1lt	tau2	tau0
Sampling interval (μs)	0.5	0.5	1.0
Mflops in FFT/gate	0.27	0.27	0.27
Mflops in other ops/gate	0.44	0.53	0.56
Total Mflops/gate	0.71	0.80	0.83
Baud length (μs)	21	36	64
Range resolution (μs)	9	10	15
Number of gates/scan	740	666	444
Number of gates/s	1480	1330	890
Req. reading rate (MBytes/s)	2.6	2.6	1.3
Req. computing rate (Gflops/s)	1.1	1.1	0.7