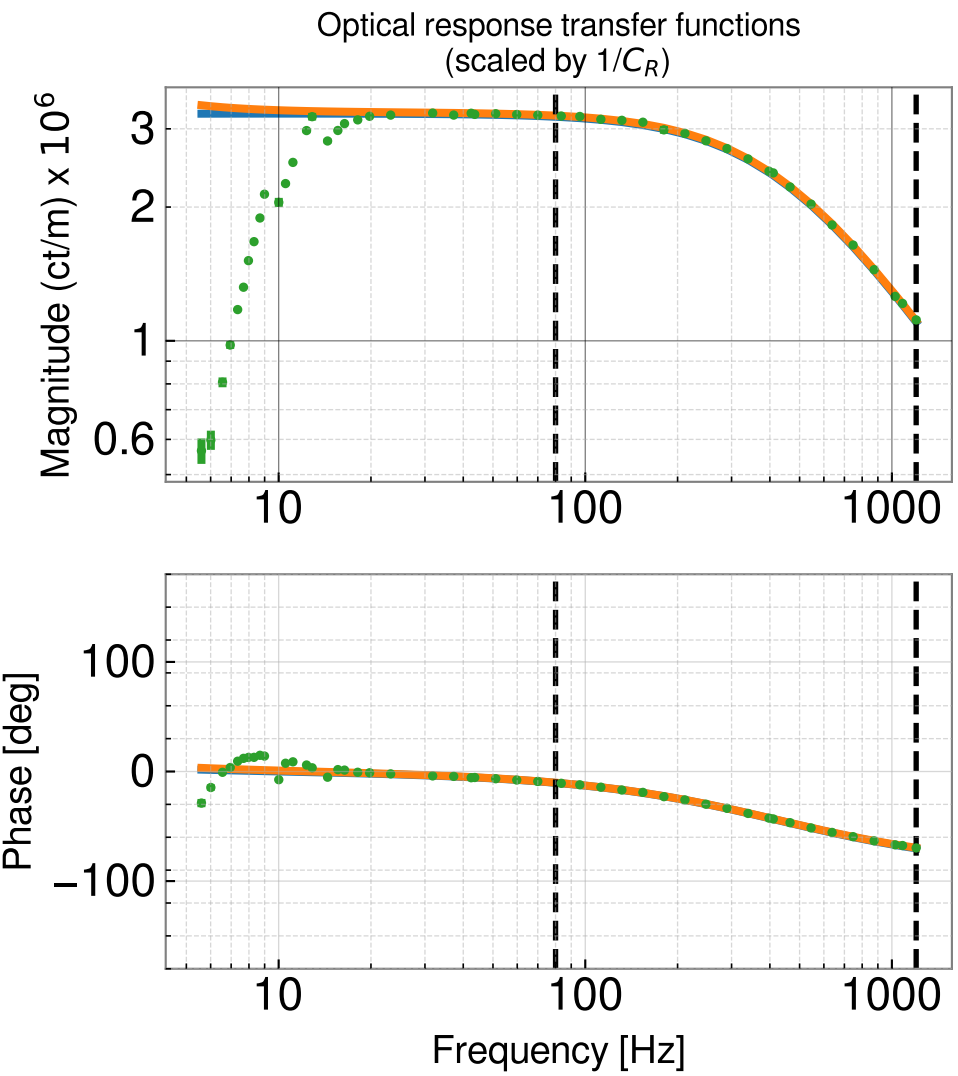
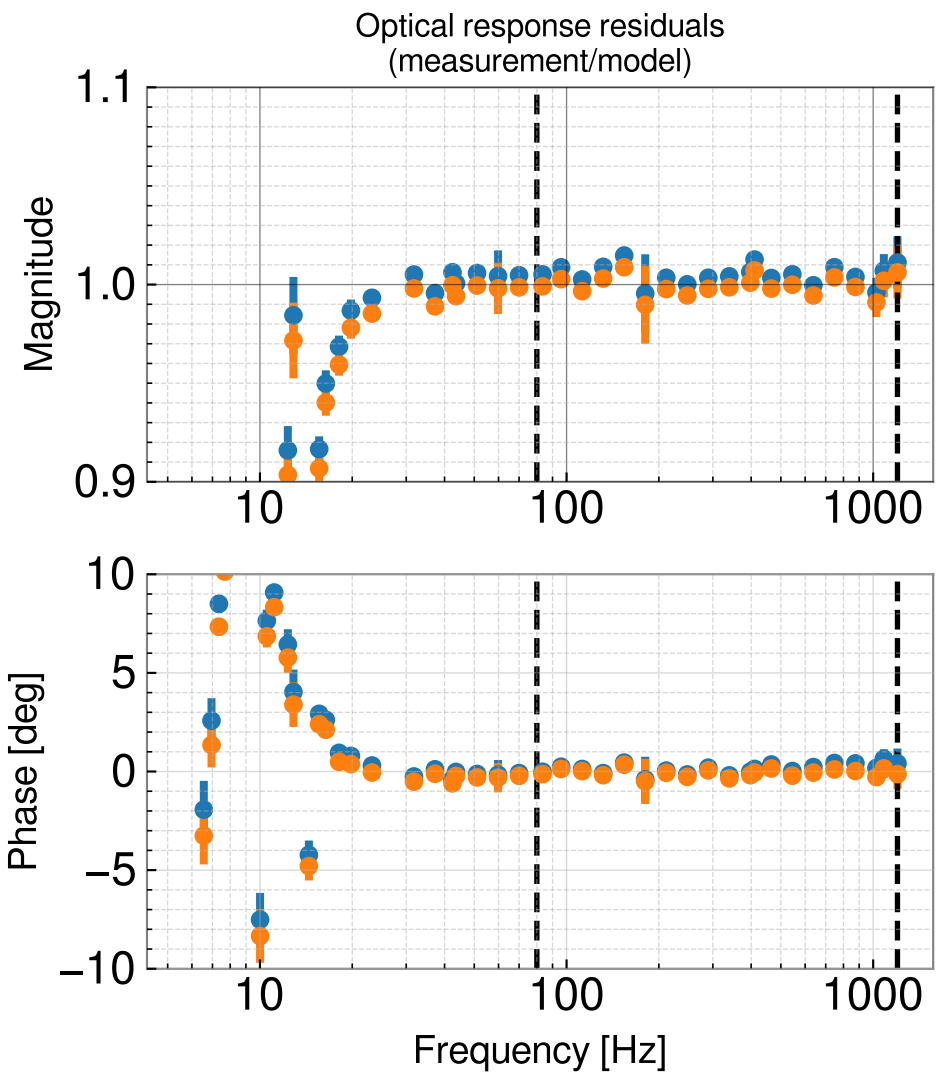
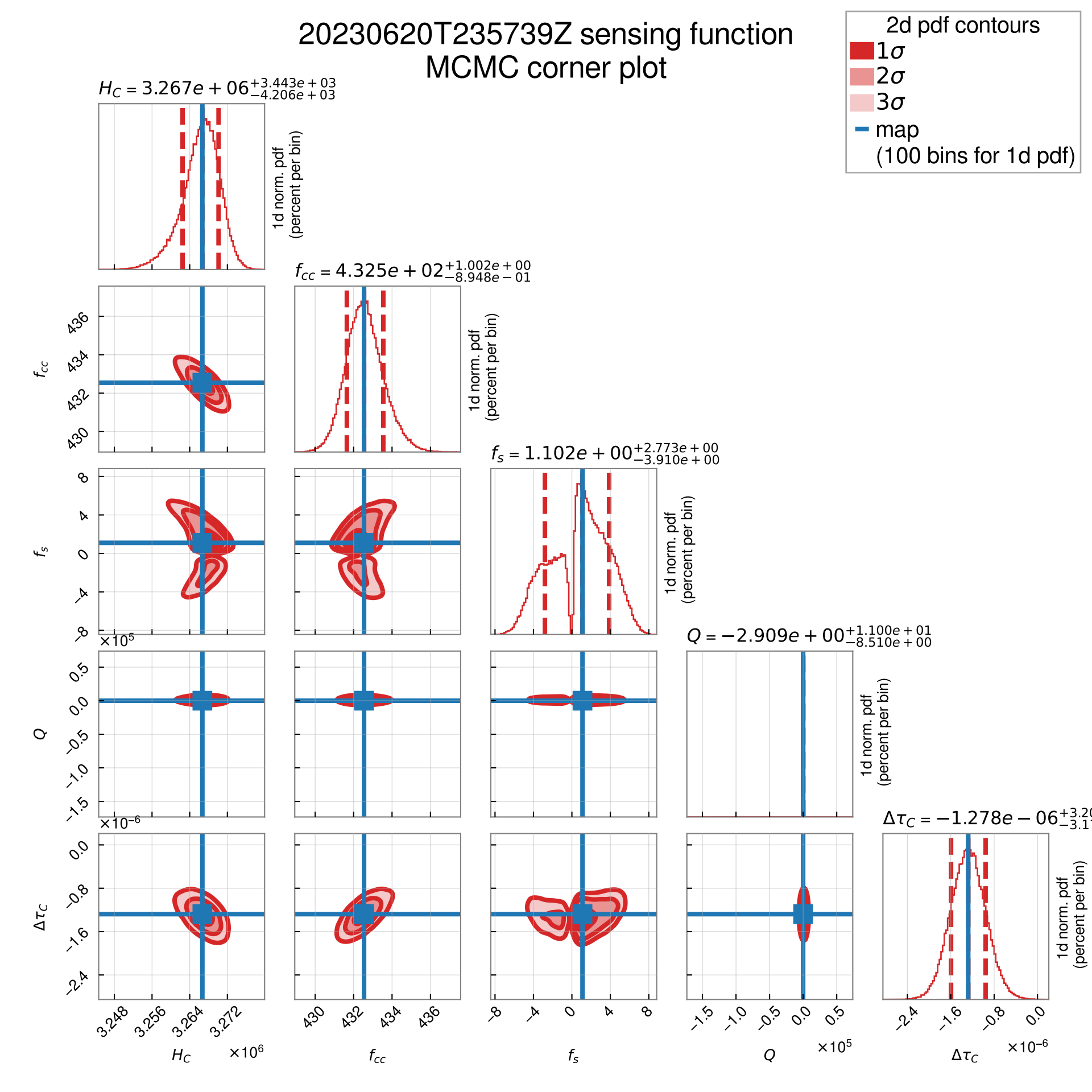
H1 sensing model MCMC summary

All fixed parameters drawn from /ligo/groups/cal/H1/reports/20230620T234012Z/pydarm_H1.ini



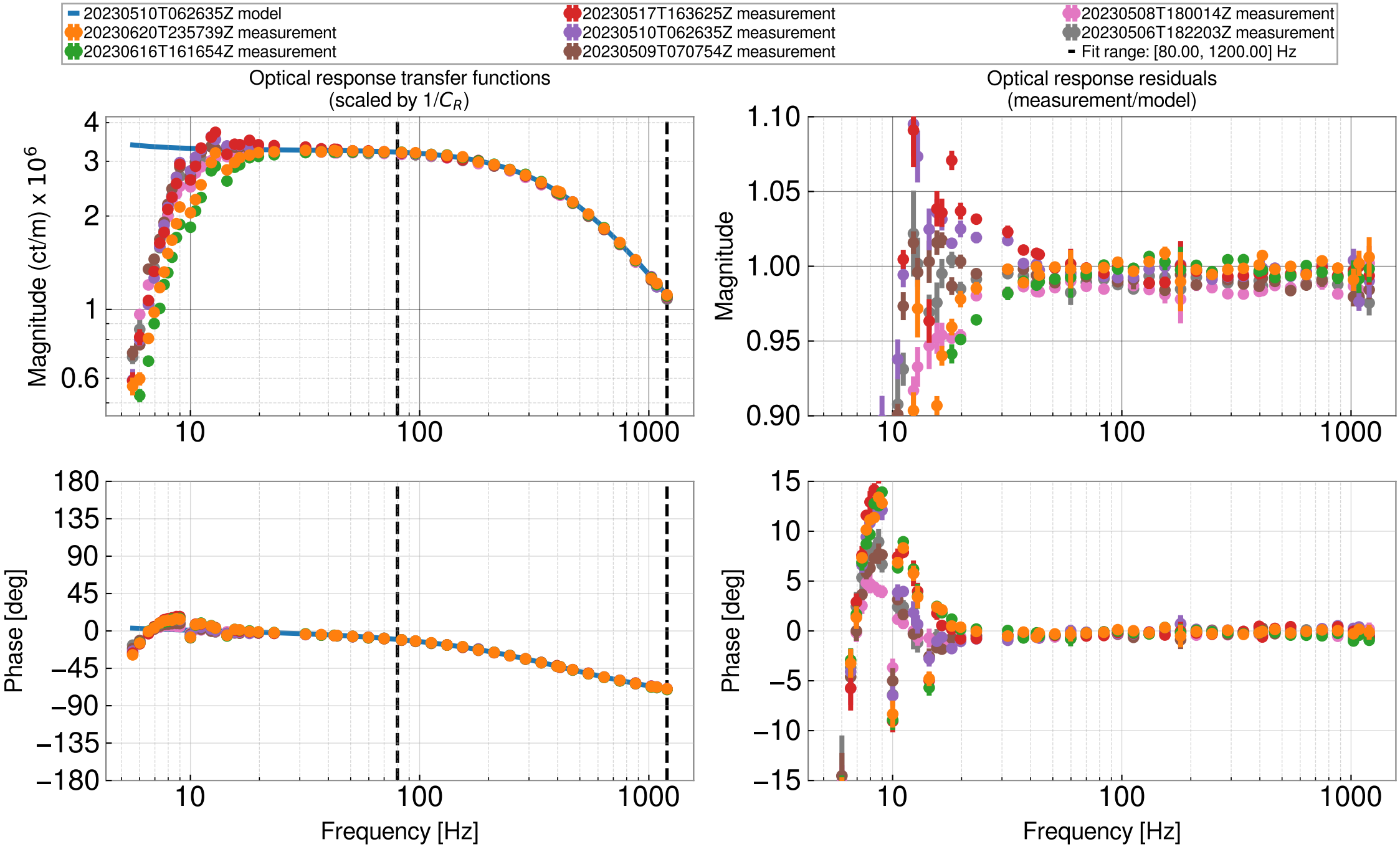


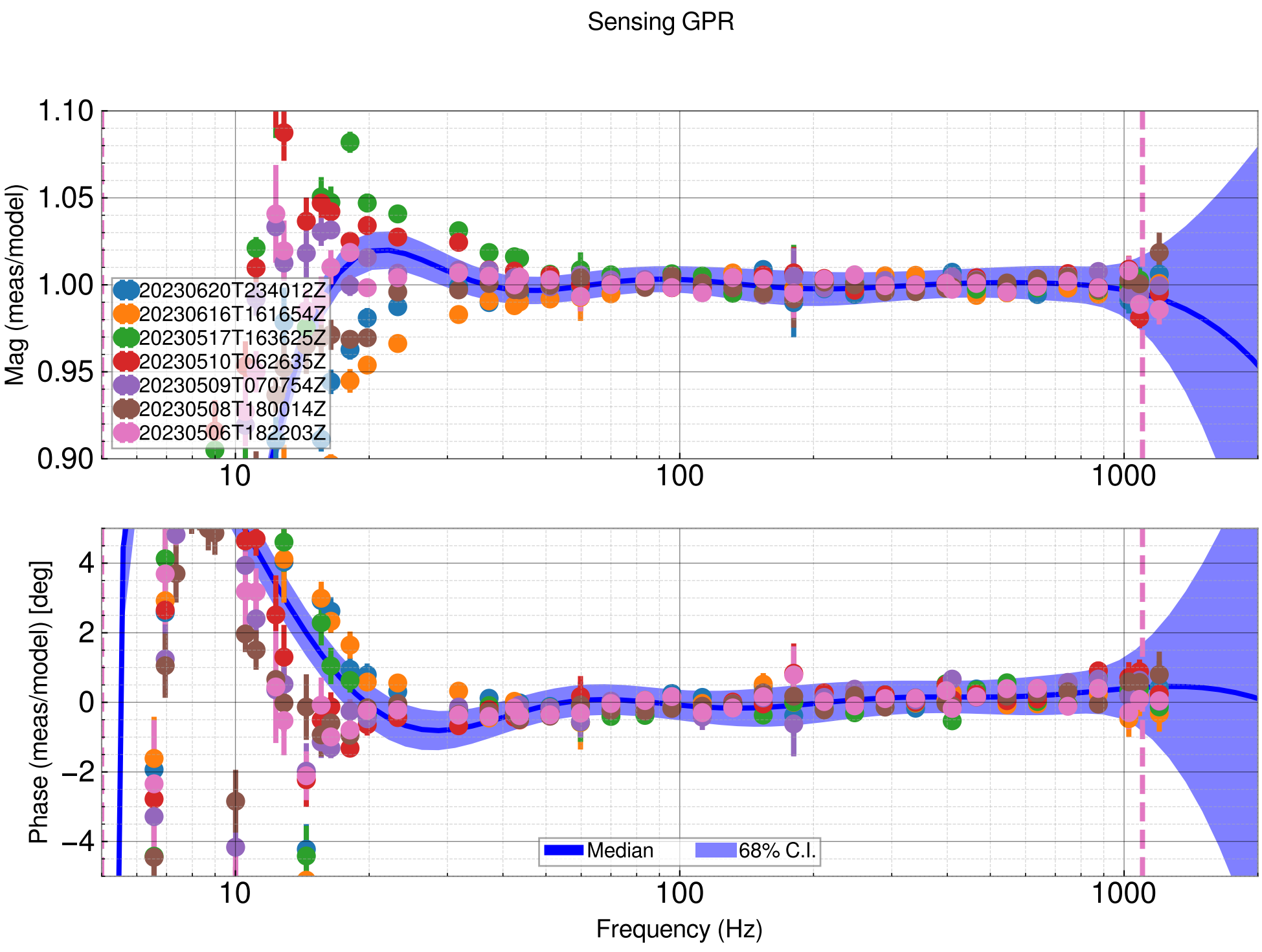
Parameter (value +/-)	value	+	-
Optical gain, H_c (ct/m)	3.267e+06	3443 (0.11%)	4206 (0.13%)
Cavity_pole, f_cc (Hz)	432.5	1.002 (0.23%)	0.8948 (0.21%)
Detuned SRC spring frequency, f_s (Hz)	1.102	2.773 (251.59%)	3.91 (354.77%)
Detuned SRC spring quality factor, Q_s	-2.909	11 (-378.22%)	8.51 (-292.52%)
Residual time delay, tau_c (s)	-1.278e-06	3.204e-07 (-25.07%)	3.174e-07 (-24.83%)


20230620T235739Z sensing function
MCMC corner plot
2d pdf contours
1σ
2σ
3σ
map
(100 bins for 1d pdf)
$H_C = 3.267e+06^{+3.443e+03}_{-4.206e+03}$
$f_{cc} = 4.325e+02^{+1.002e+00}_{-8.948e-01}$
$f_s = 1.102e+00^{+2.773e+00}_{-3.910e+00}$
$Q = -2.909e+00^{+1.100e+01}_{-8.510e+00}$
$\Delta\tau_C = -1.278e-06^{+3.20}_{-3.1}$
1d norm. pdf
(percent per bin)
H_C
f_{cc}
f_s
Q
$\Delta\tau_C$
×10^6
×10^5
×10^−6

H1 sensing model history

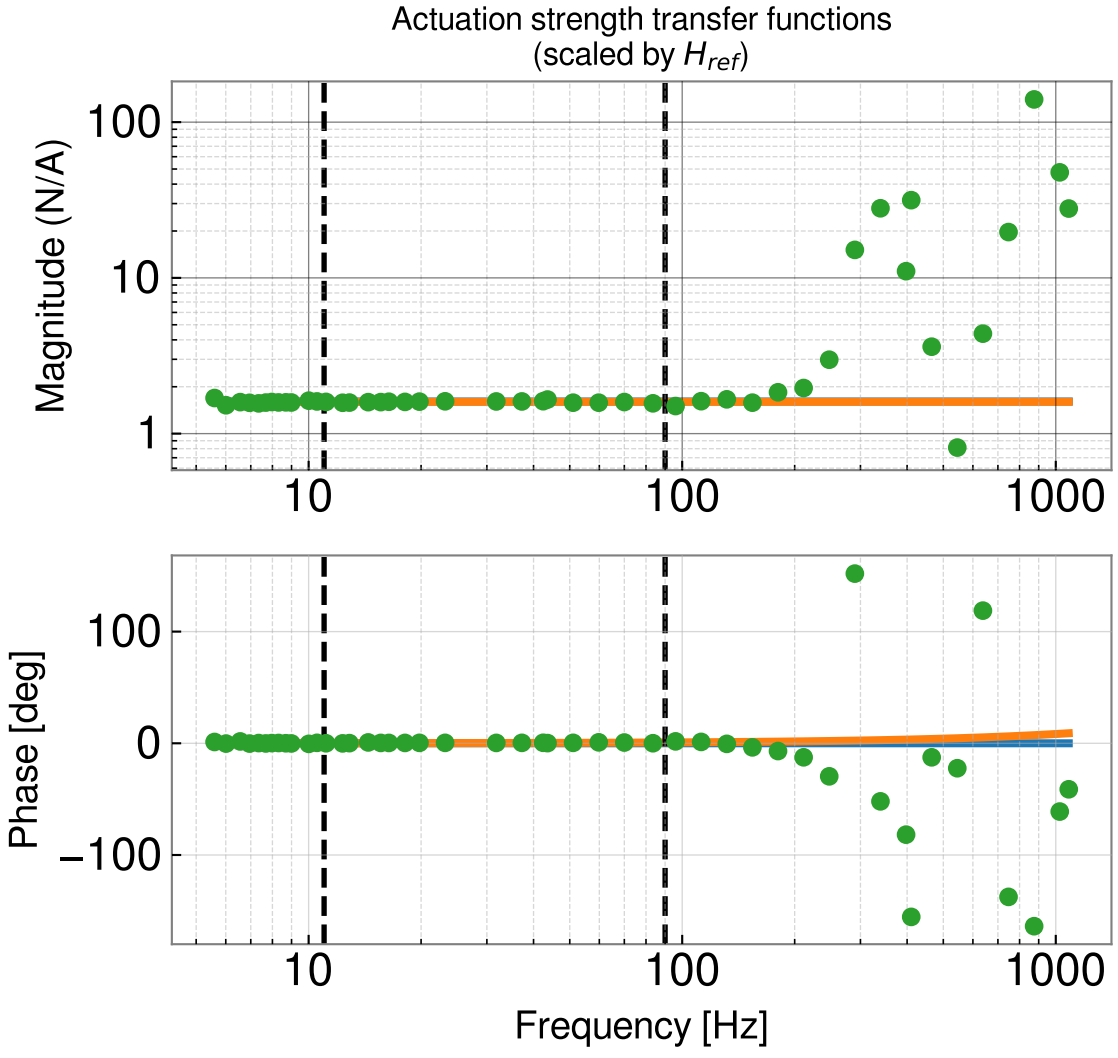
All fixed parameters drawn from /ligo/groups/cal/H1/reports/20230620T234012Z/pydarm_H1.ini

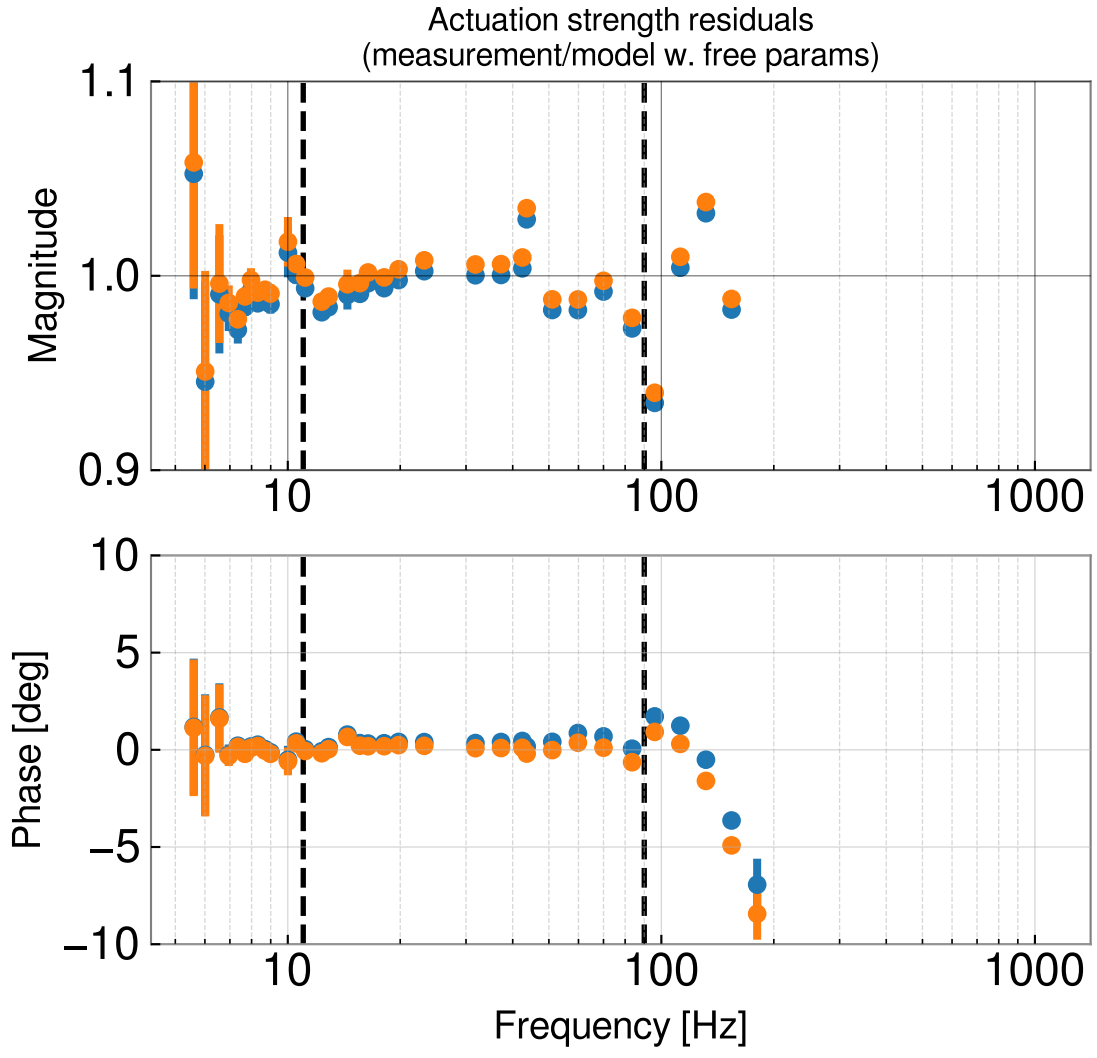



Sensing GPR
Mag (meas/model)
1.10
1.05
1.00
0.95
0.90
20230620T234012Z
20230616T161654Z
20230517T163625Z
20230510T062635Z
20230509T070754Z
20230508T180014Z
20230506T182203Z
10
100
1000
Phase (meas/model) [deg]
4
2
0
−2
−4
Median
68% C.I.
10
100
1000
Frequency (Hz)

H1SUSEX L1 actuation model MCMC summary

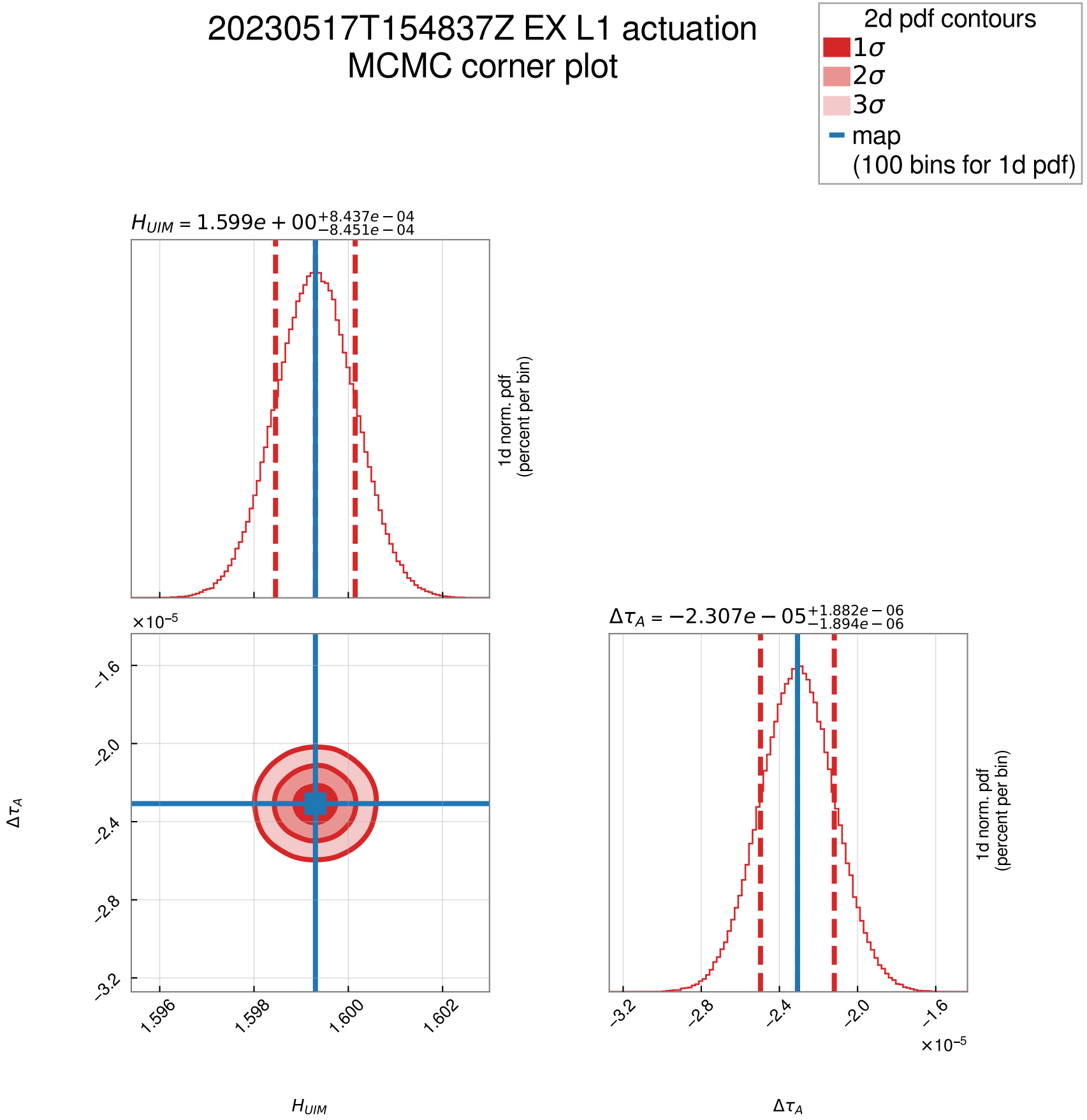
All fixed parameters drawn from /ligo/groups/cal/H1/reports/20230620T234012Z/pydarm_H1.ini





Parameter (value +/-)	value	+	-
Actuation Gain, Hau (N/A)	1.599	0.0008437 (0.05%)	0.0008451 (0.05%)
Residual time delay, tau_A (s)	-2.307e-05	1.882e-06 (-8.16%)	1.894e-06 (-8.21%)

20230517T154837Z EX L1 actuation
MCMC corner plot



H1SUSEX L1 actuation model history

All fixed parameters drawn from /ligo/groups/cal/H1/reports/20230620T234012Z/pydarm_H1.ini

20230510T062635Z model
20230517T154837Z measurement
20230517T154837Z measurement
20230517T154837Z measurement
20230509T062006Z measurement
20230509T062006Z measurement
20230508T171226Z measurement
20230506T173415Z measurement
20230505T165823Z measurement
20230505T165823Z measurement
20230505T003821Z measurement
20230504T050304Z measurement
MCMC Fit Range: 11 Hz to 90 Hz

Actuation strength transfer functions
(scaled by H_{ref})

Magnitude x 10^0 (N/A)

Actuation strength residuals
(measurement/model w. free params)

Magnitude

Phase [deg]

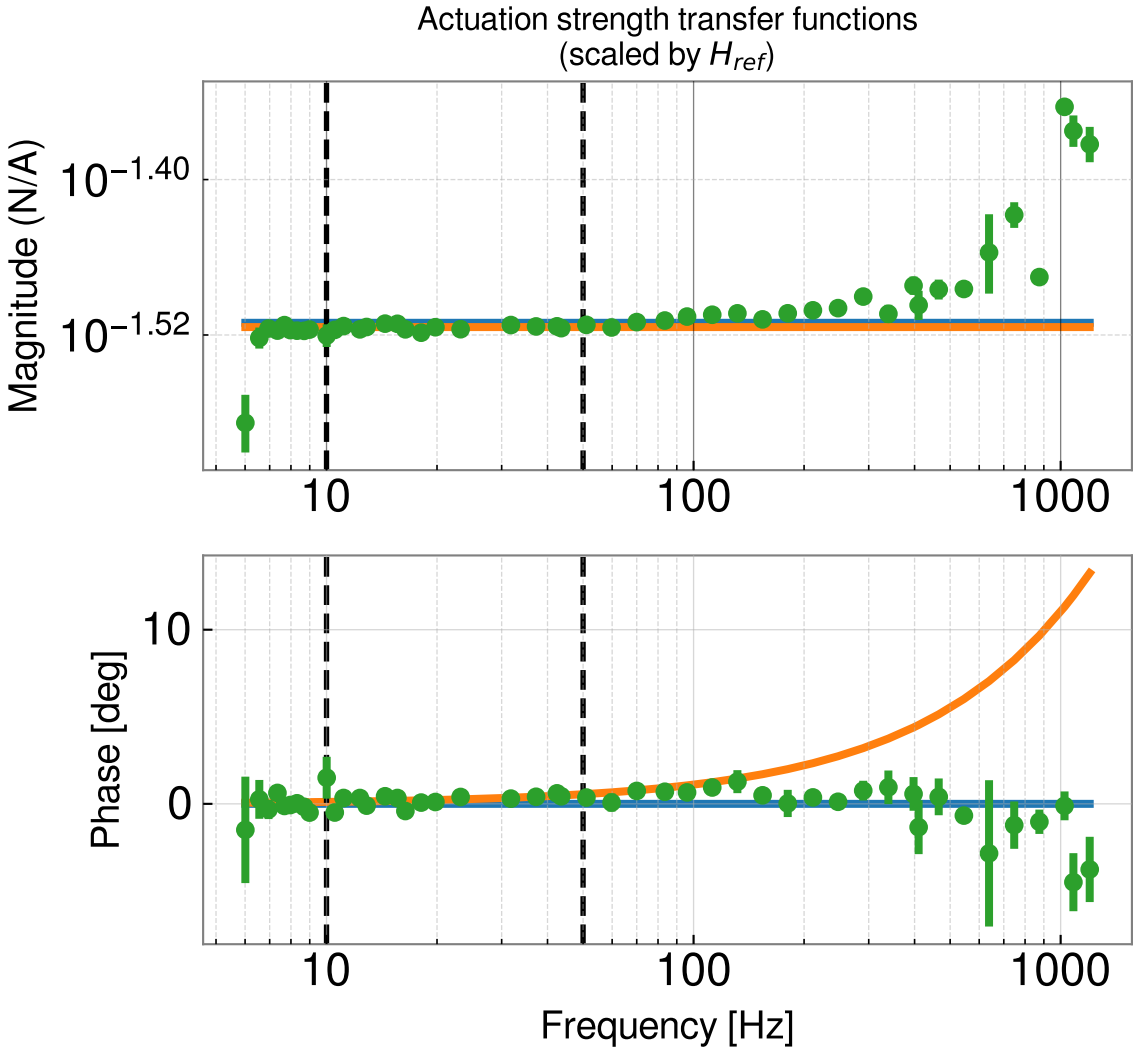
Phase [deg]

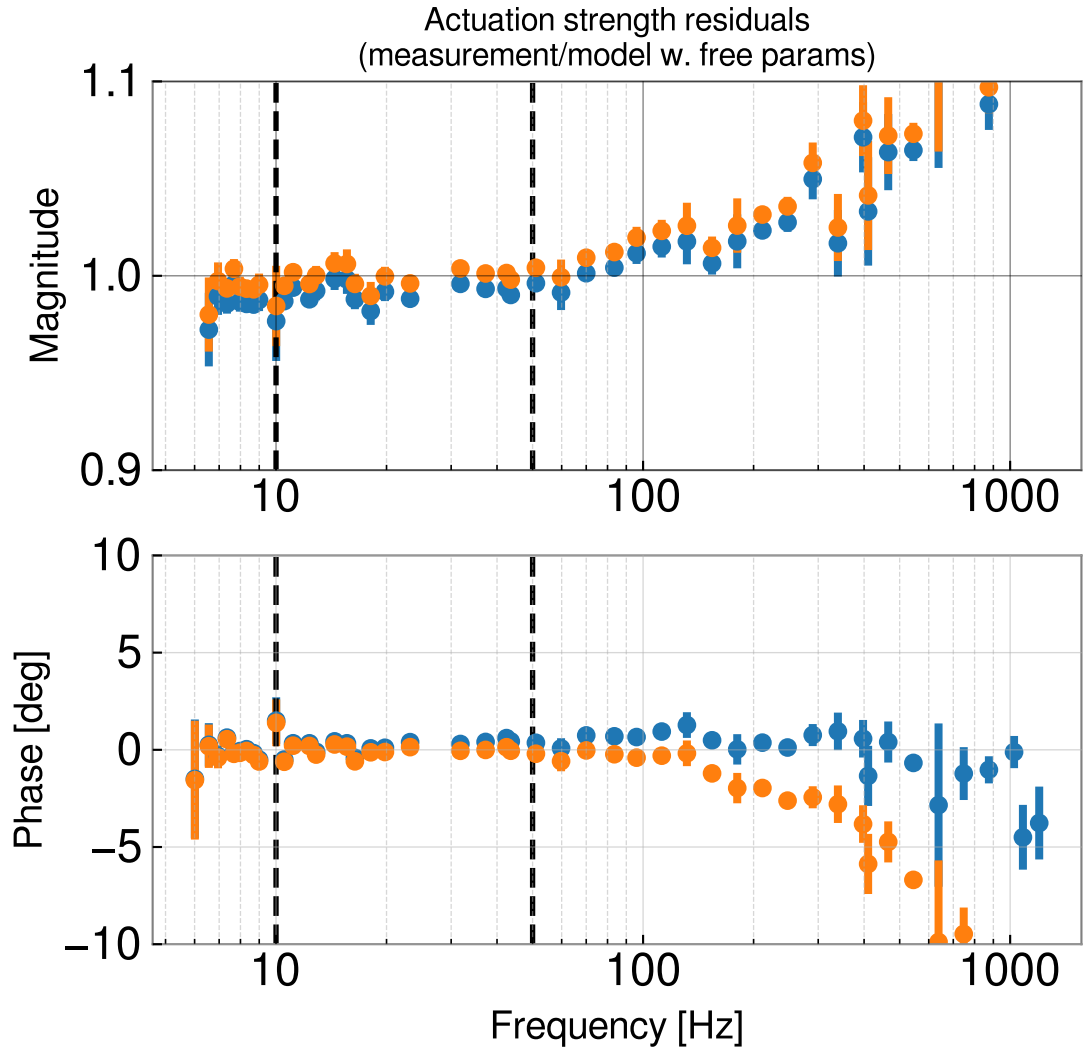
Frequency [Hz]

Frequency [Hz]

H1SUSEX L2 actuation model MCMC summary

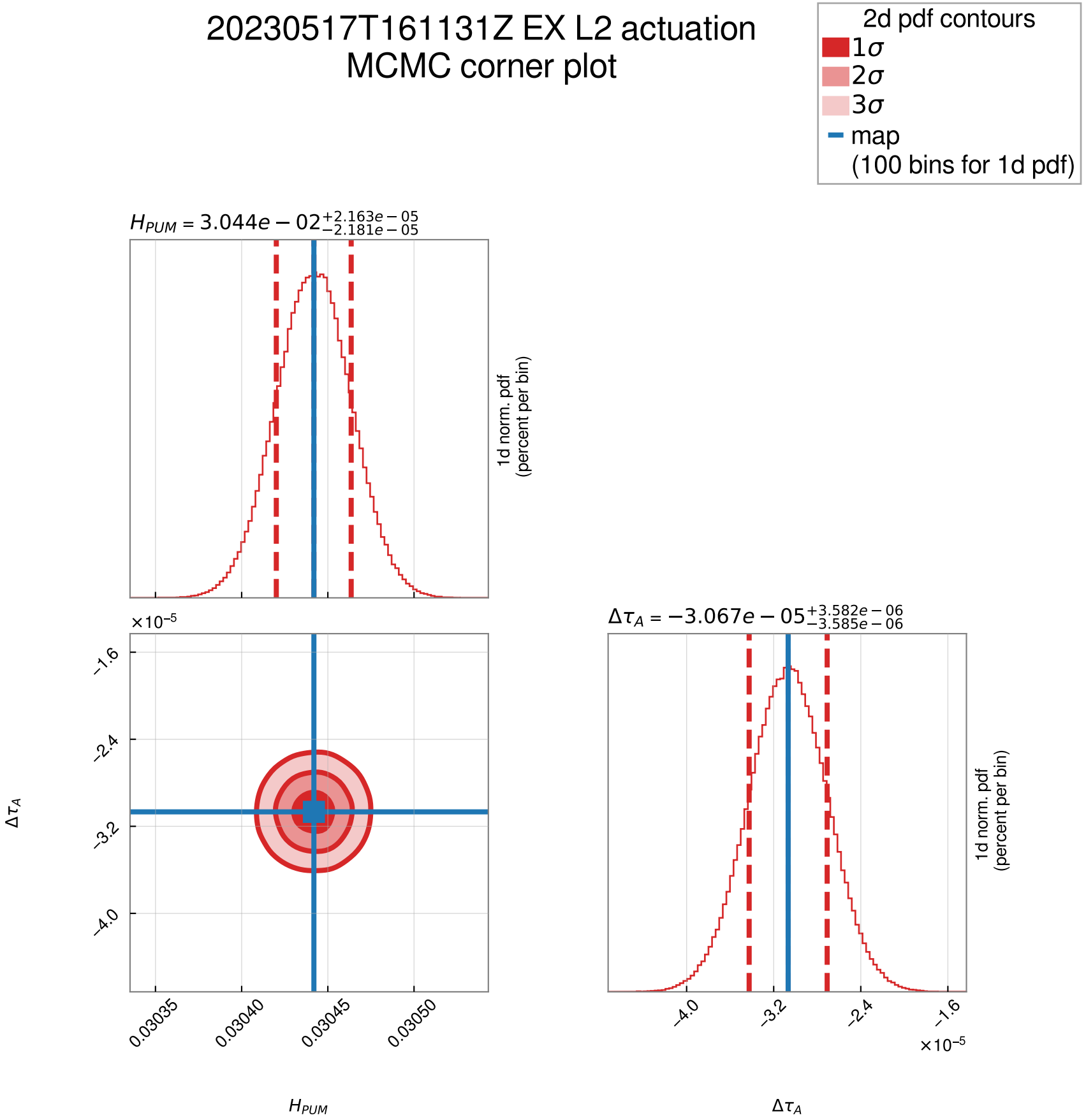
All fixed parameters drawn from /ligo/groups/cal/H1/reports/20230620T234012Z/pydarm_H1.ini

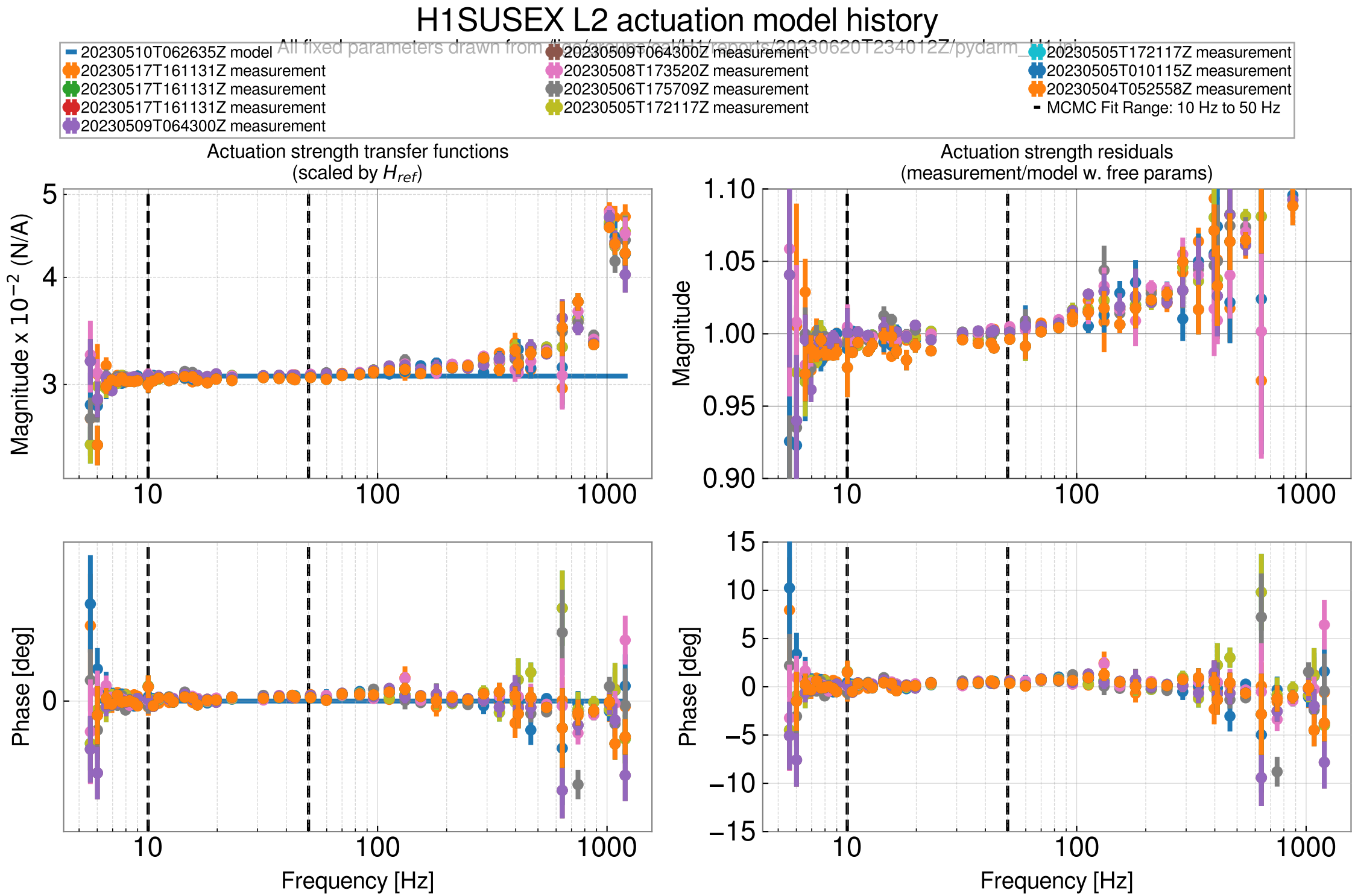




Parameter (value +/-)	value	+	-
Actuation Gain, Hap (N/A)	0.03044	2.163e-05 (0.07%)	2.181e-05 (0.07%)
Residual time delay, tau_A (s)	-3.067e-05	3.582e-06 (-11.68%)	3.585e-06 (-11.69%)

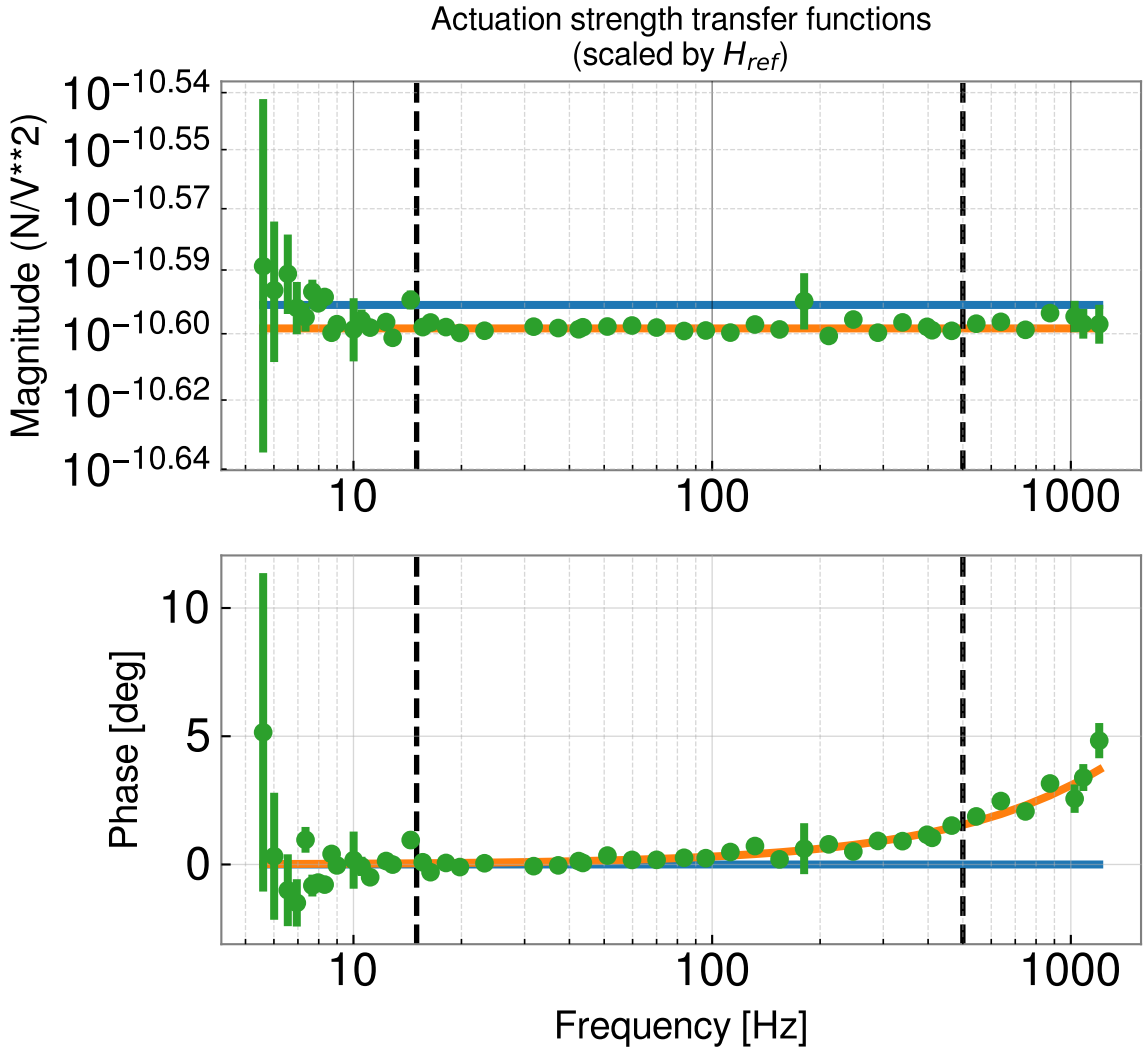
20230517T161131Z EX L2 actuation
MCMC corner plot

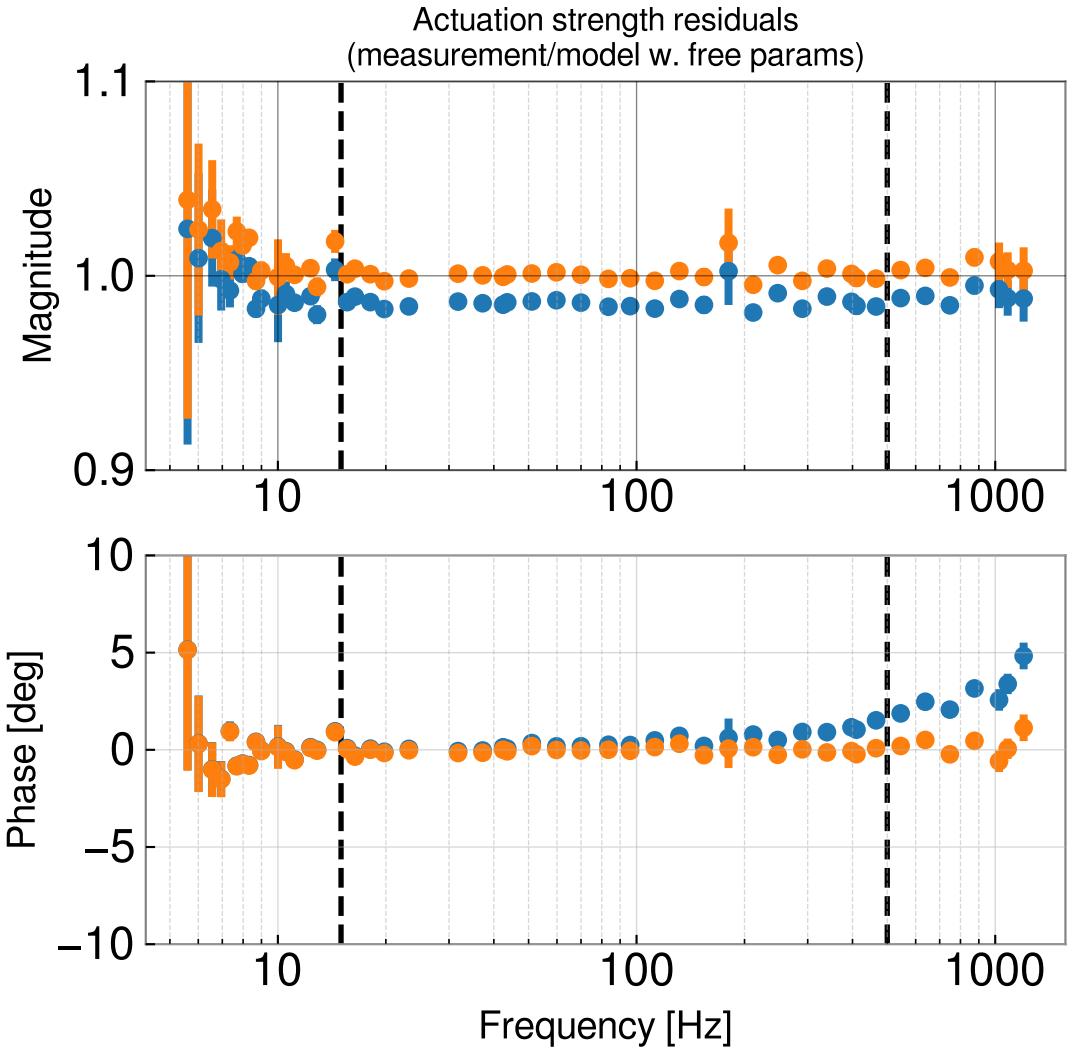



H1SUSEX L2 actuation model history
All fixed parameters drawn from /ligo/groups/cal/H1/reports/20230620T234012Z/pydarm_H1.ini
20230510T062635Z model
20230517T161131Z measurement
20230517T161131Z measurement
20230517T161131Z measurement
20230509T064300Z measurement
20230509T064300Z measurement
20230508T173520Z measurement
20230506T175709Z measurement
20230505T172117Z measurement
20230505T172117Z measurement
20230505T010115Z measurement
20230504T052558Z measurement
MCMC Fit Range: 10 Hz to 50 Hz
Actuation strength transfer functions
(scaled by H_{ref})
Actuation strength residuals
(measurement/model w. free params)
Magnitude x 10^{-2} (N/A)
Magnitude
Phase [deg]
Phase [deg]
Frequency [Hz]
Frequency [Hz]

H1SUSEX L3 actuation model MCMC summary

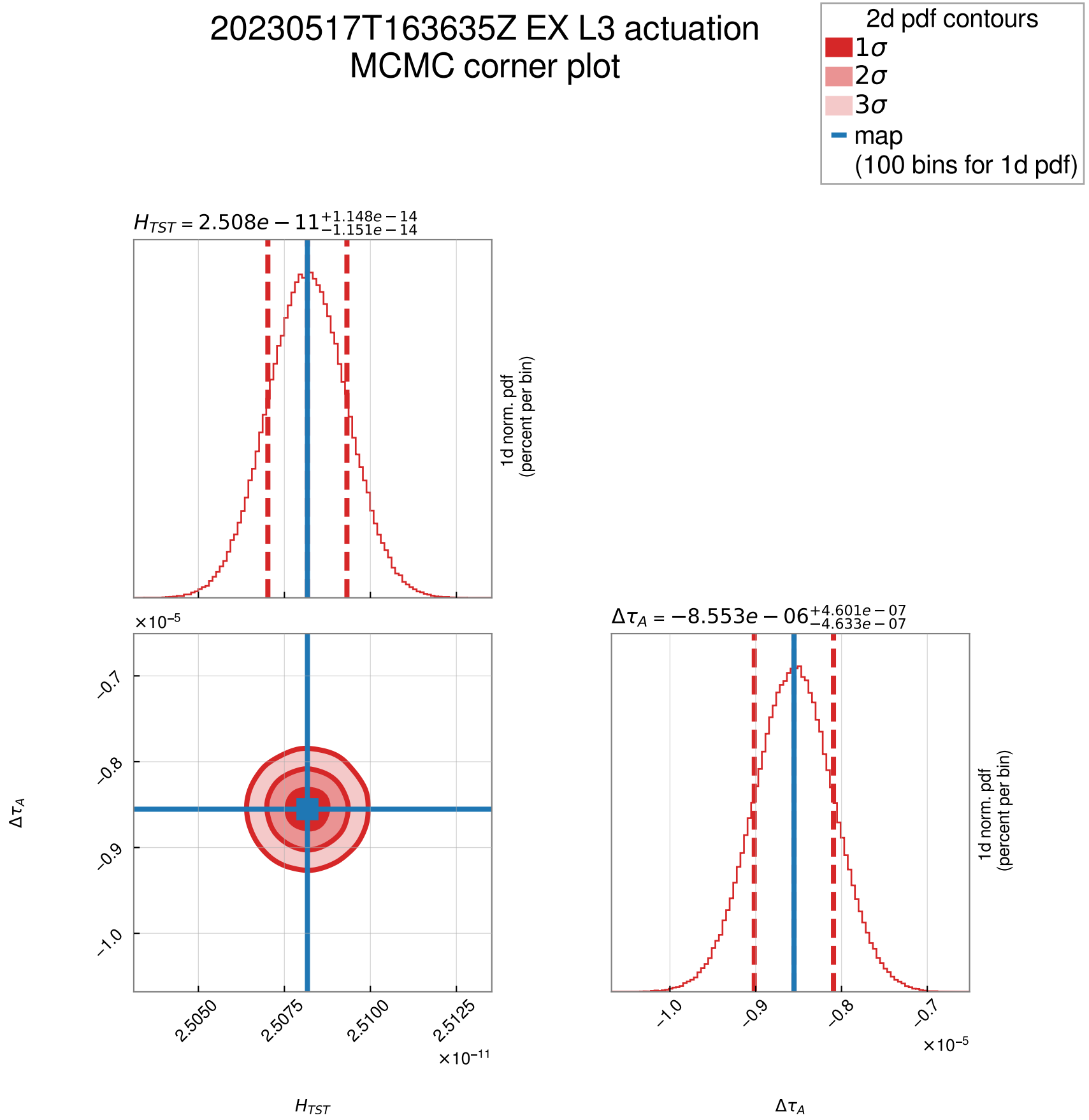
All fixed parameters drawn from /ligo/groups/cal/H1/reports/20230620T234012Z/pydarm_H1.ini





Parameter	(value +/-)	value	+	-
Actuation Gain, Hat (N/V**2)		2.508e-11	1.148e-14 (0.05%)	1.151e-14 (0.05%)
Residual time delay, tau_A (s)		-8.553e-06	4.601e-07 (-5.38%)	4.633e-07 (-5.42%)

20230517T163635Z EX L3 actuation
MCMC corner plot



H1SUSEX L3 actuation model history

All fixed parameters drawn from /home/aparis/cal/H1/reports/20230620T234012Z/pydarm_H1.ini

20230510T062635Z model
20230517T163635Z measurement
20230517T163635Z measurement
20230517T163635Z measurement
20230509T070804Z measurement
20230509T070804Z measurement
20230508T180024Z measurement
20230506T182213Z measurement
20230505T174621Z measurement
20230505T174621Z measurement
20230505T012619Z measurement
20230504T055102Z measurement
MCMC Fit Range: 15 Hz to 500 Hz

Actuation strength transfer functions
(scaled by H_{ref})

Magnitude x 10^{-11} (N/V**2)

Actuation strength residuals
(measurement/model w. free params)

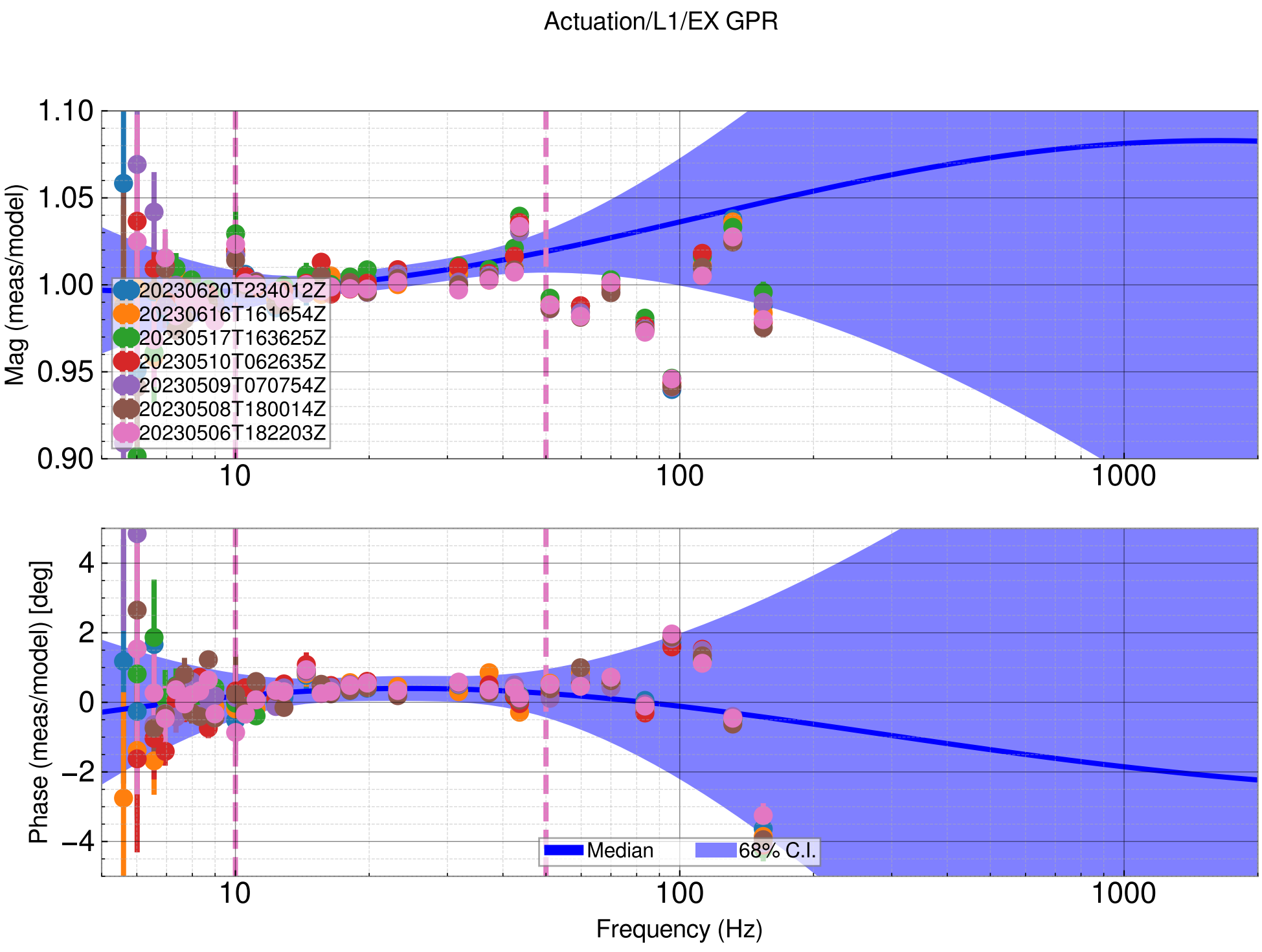
Magnitude

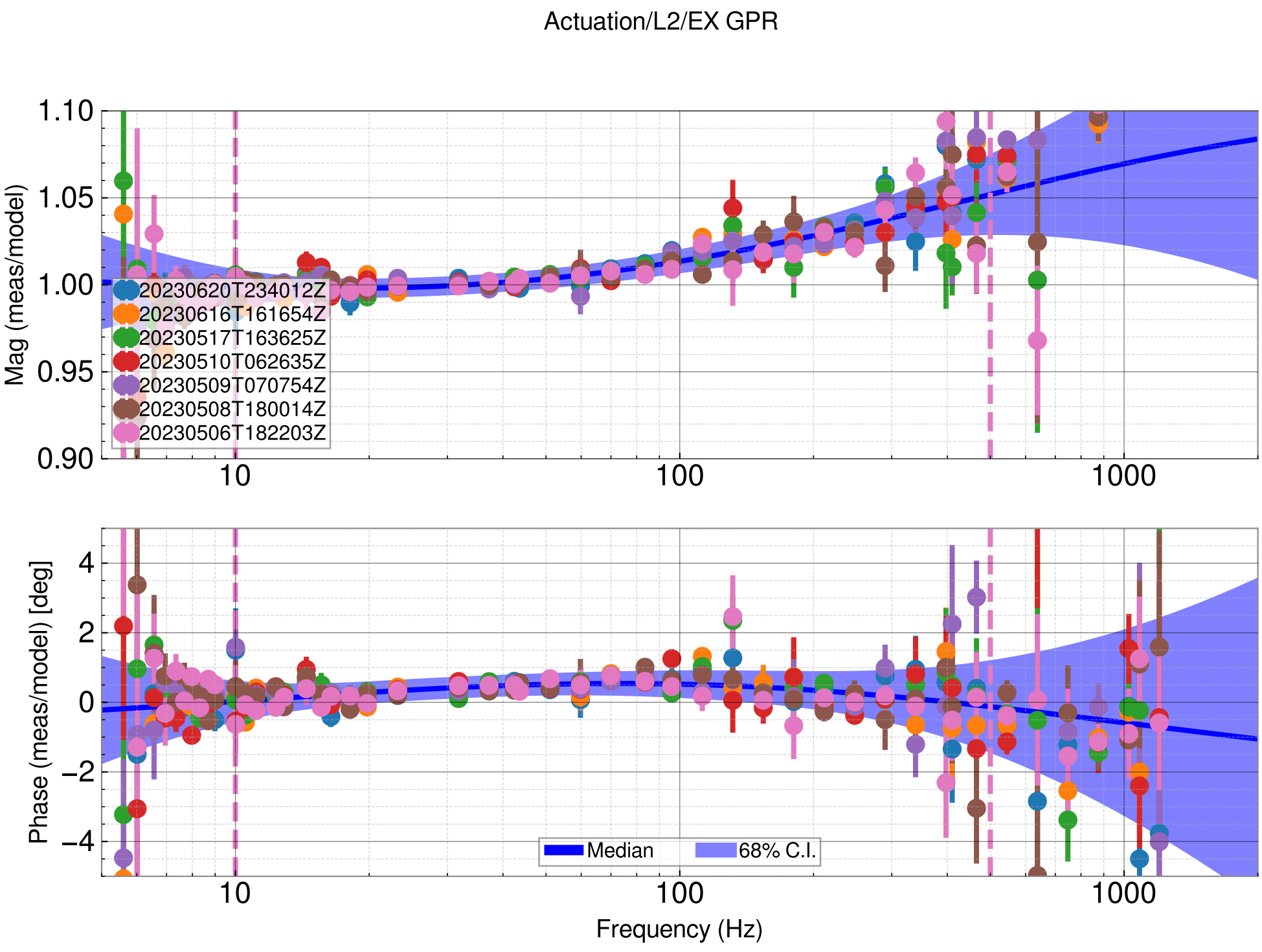
Phase [deg]

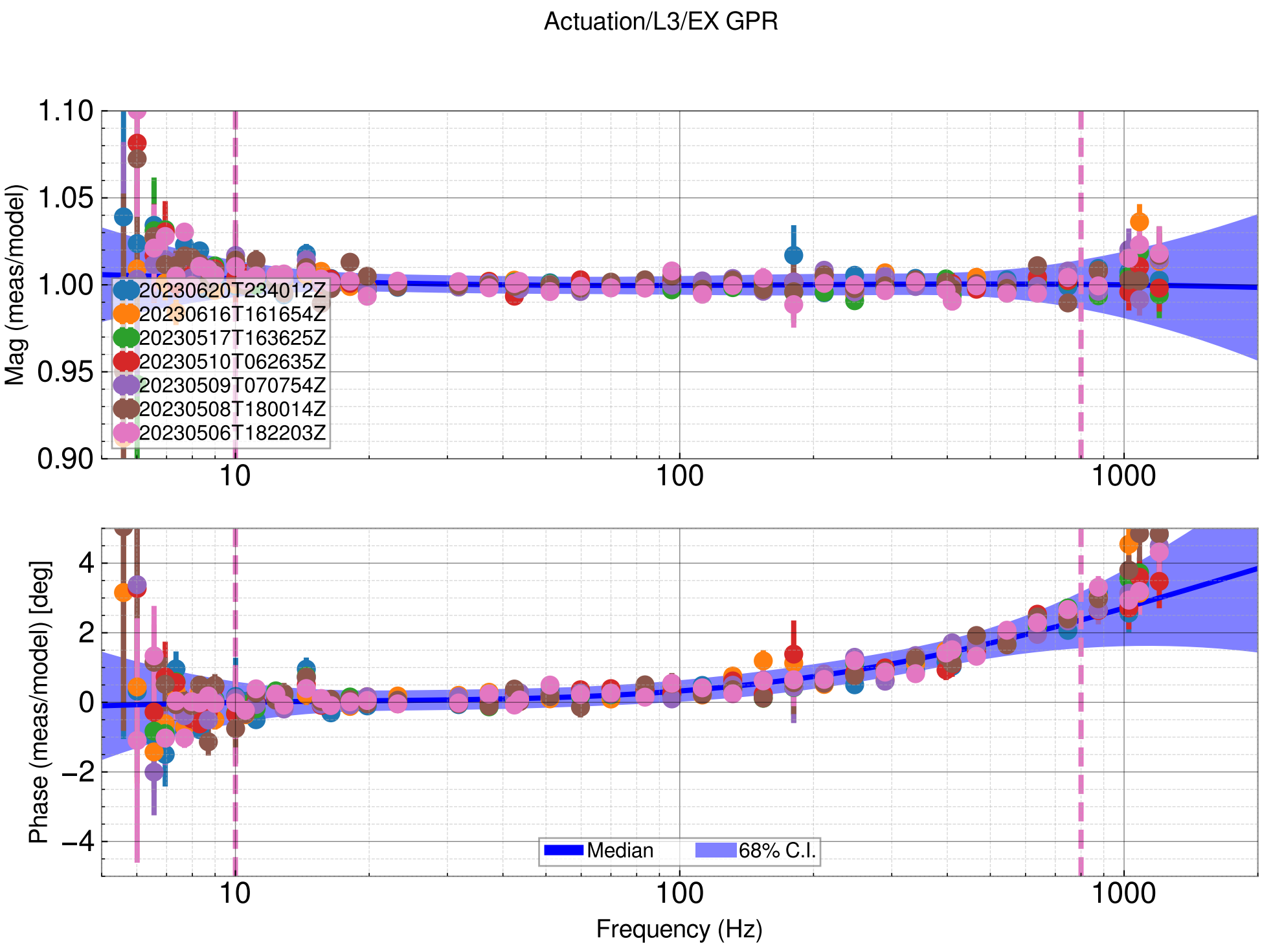
Phase [deg]

Frequency [Hz]

Frequency [Hz]


Actuation/L1/EX GPR
Mag (meas/model)
1.10
1.05
1.00
0.95
0.90
20230620T234012Z
20230616T161654Z
20230517T163625Z
20230510T062635Z
20230509T070754Z
20230508T180014Z
20230506T182203Z
10
100
1000
Phase (meas/model) [deg]
4
2
0
−2
−4
Median
68% C.I.
10
100
1000
Frequency (Hz)


Actuation/L2/EX GPR
Mag (meas/model)
1.10
1.05
1.00
0.95
0.90
20230620T234012Z
20230616T161654Z
20230517T163625Z
20230510T062635Z
20230509T070754Z
20230508T180014Z
20230506T182203Z
10
100
1000
Phase (meas/model) [deg]
4
2
0
−2
−4
Median
68% C.I.
10
100
1000
Frequency (Hz)


Actuation/L3/EX GPR
Mag (meas/model)
1.10
1.05
1.00
0.95
0.90
20230620T234012Z
20230616T161654Z
20230517T163625Z
20230510T062635Z
20230509T070754Z
20230508T180014Z
20230506T182203Z
10
100
1000
Phase (meas/model) [deg]
4
2
0
−2
−4
Median
68% C.I.
10
100
1000
Frequency (Hz)