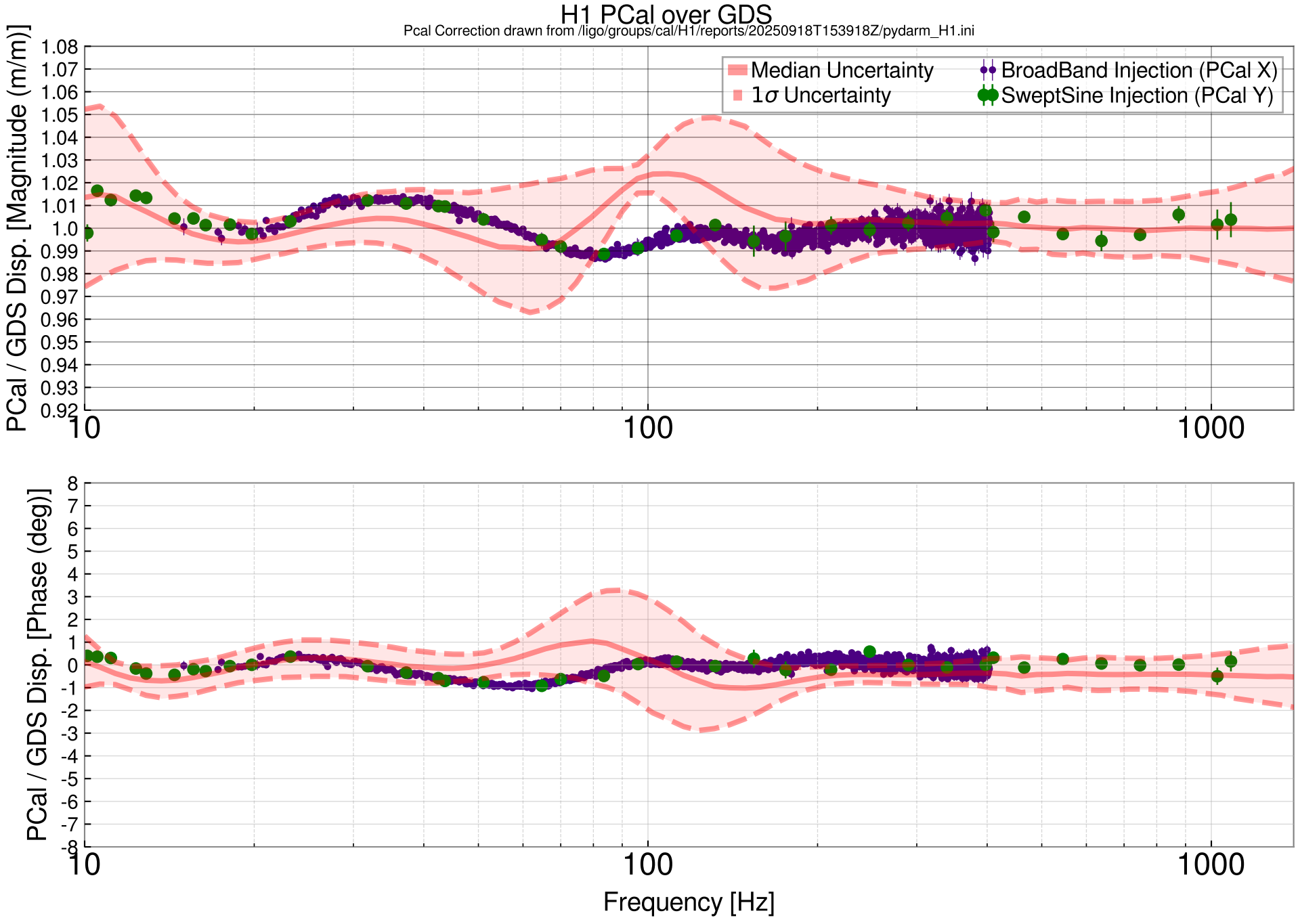
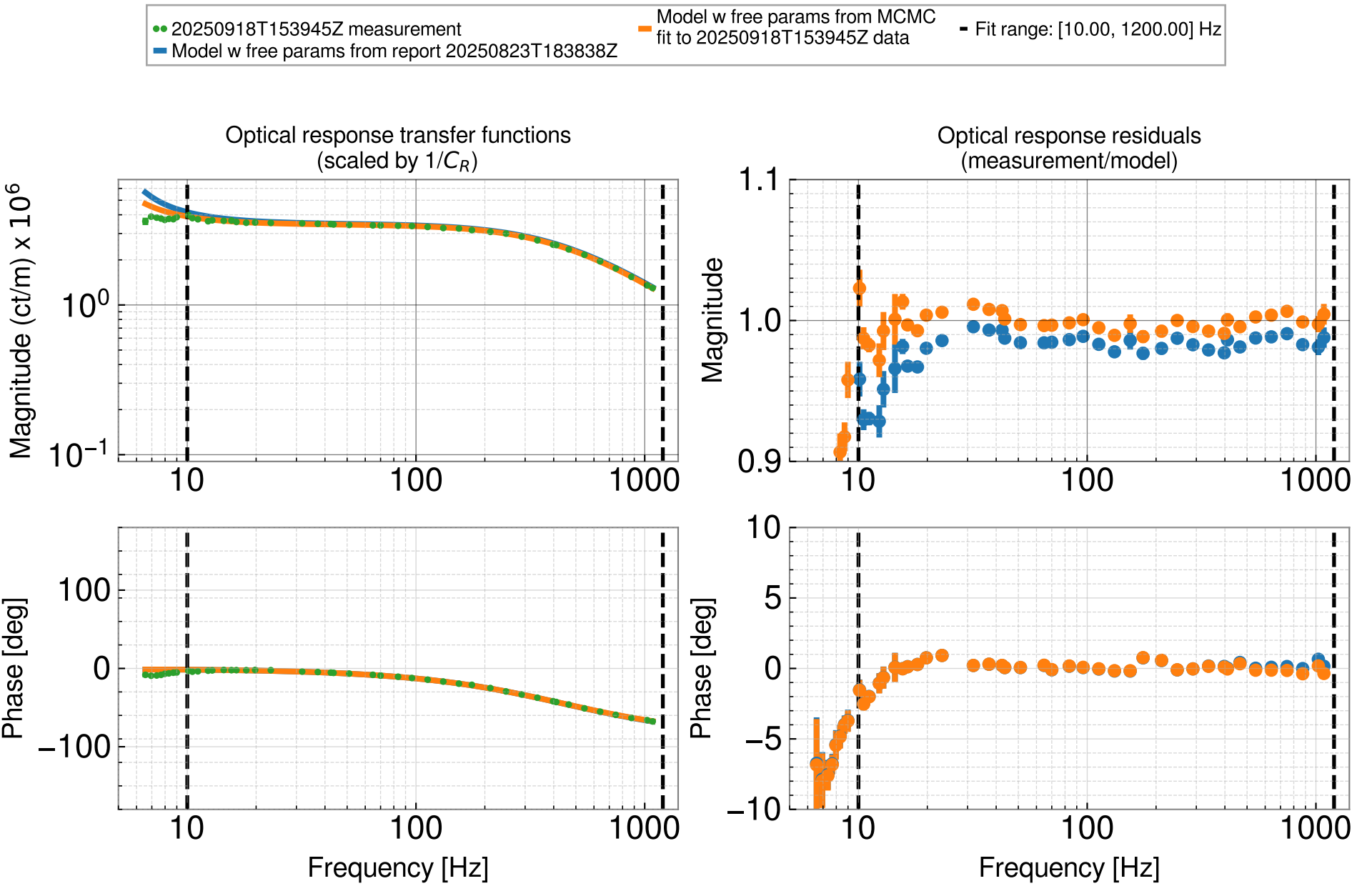
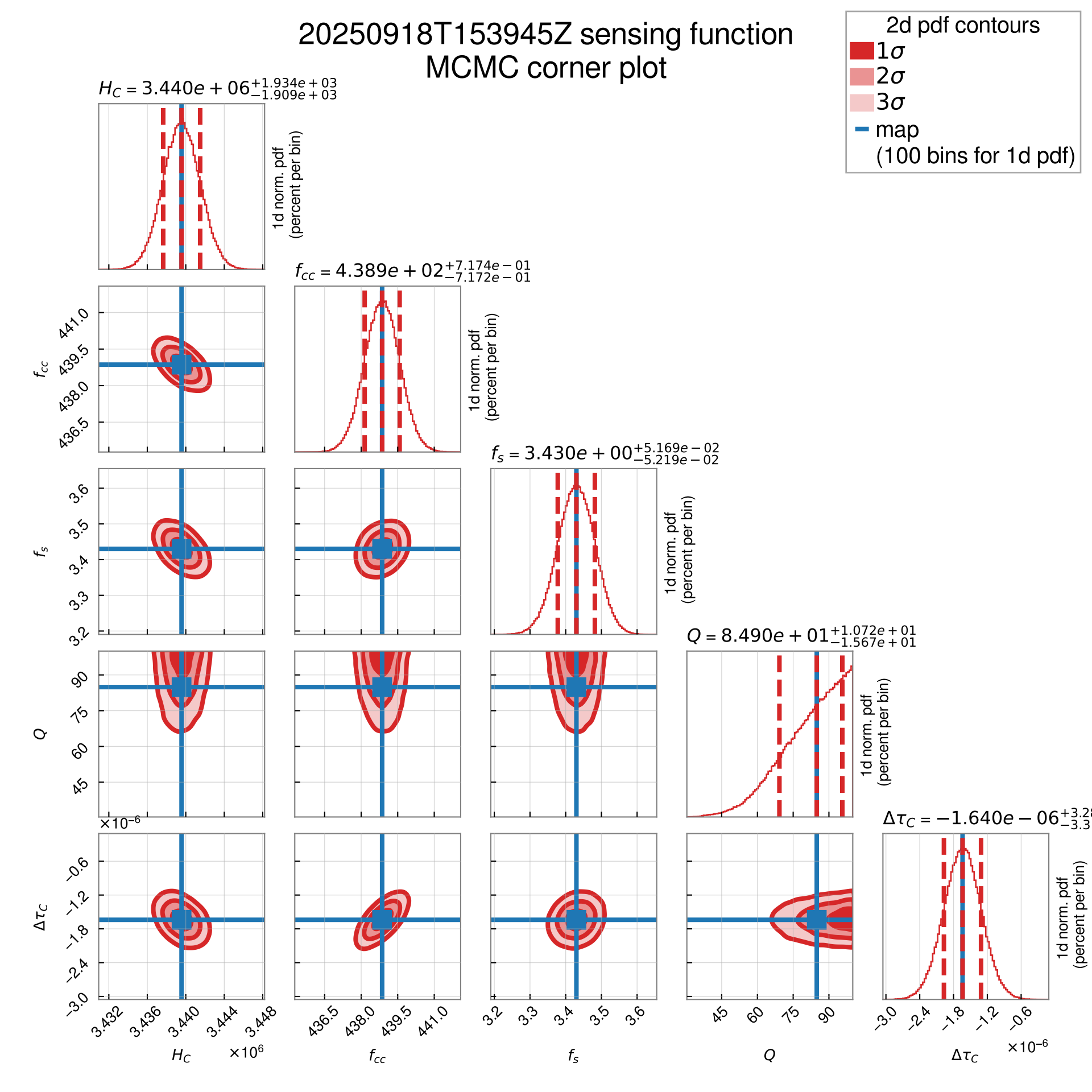

H1 PCal over GDS
Pcal Correction drawn from /ligo/groups/cal/H1/reports/20250918T153918Z/pydarm_H1.ini
Median Uncertainty
1σ Uncertainty
BroadBand Injection (PCal X)
SweptSine Injection (PCal Y)
PCal / GDS Disp. [Magnitude (m/m)]
PCal / GDS Disp. [Phase (deg)]
Frequency [Hz]
10
100
1000

# H1 sensing model MCMC summary

All fixed parameters drawn from /ligo/groups/cal/H1/reports/20250918T153918Z/pydarm_H1.ini

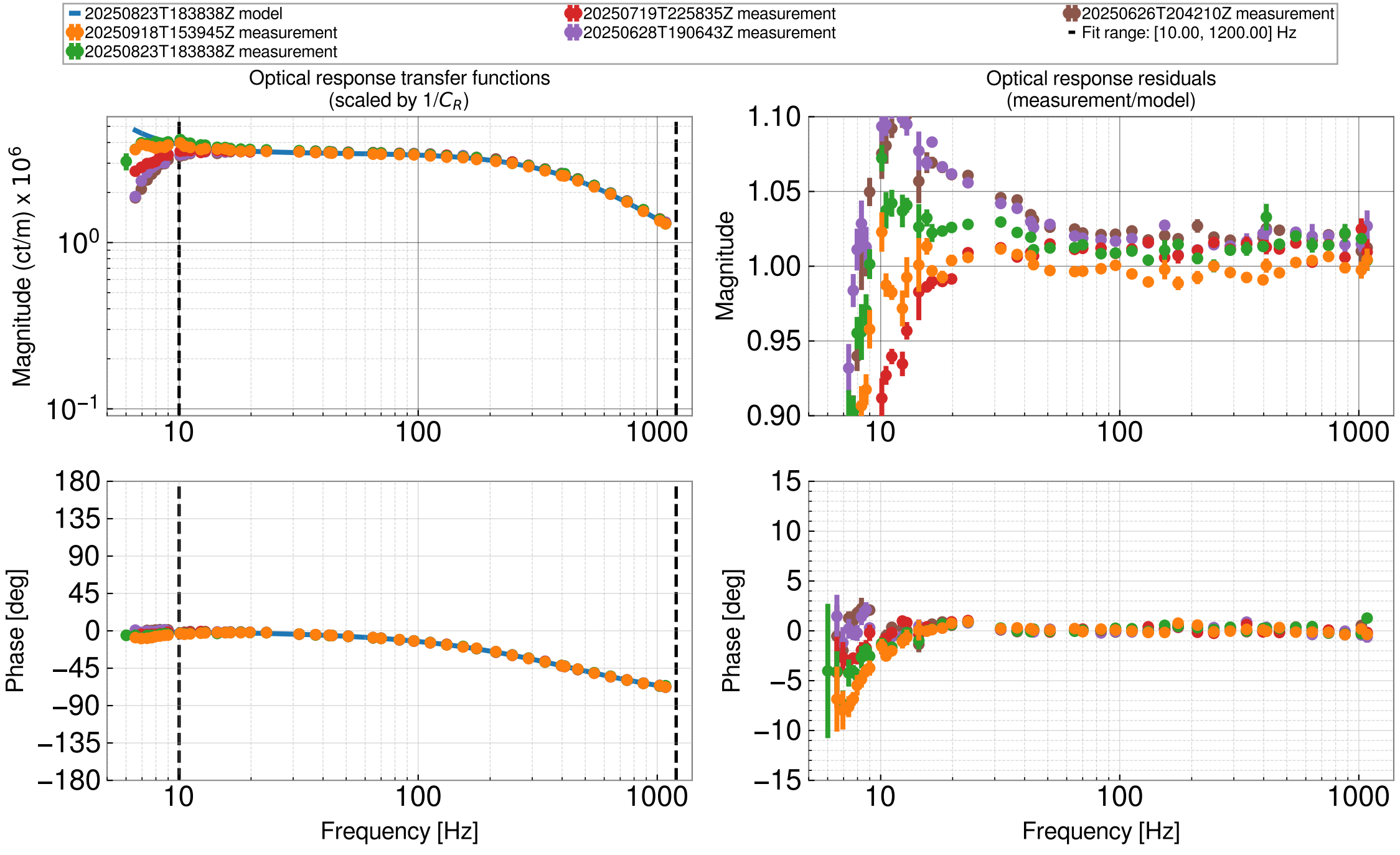


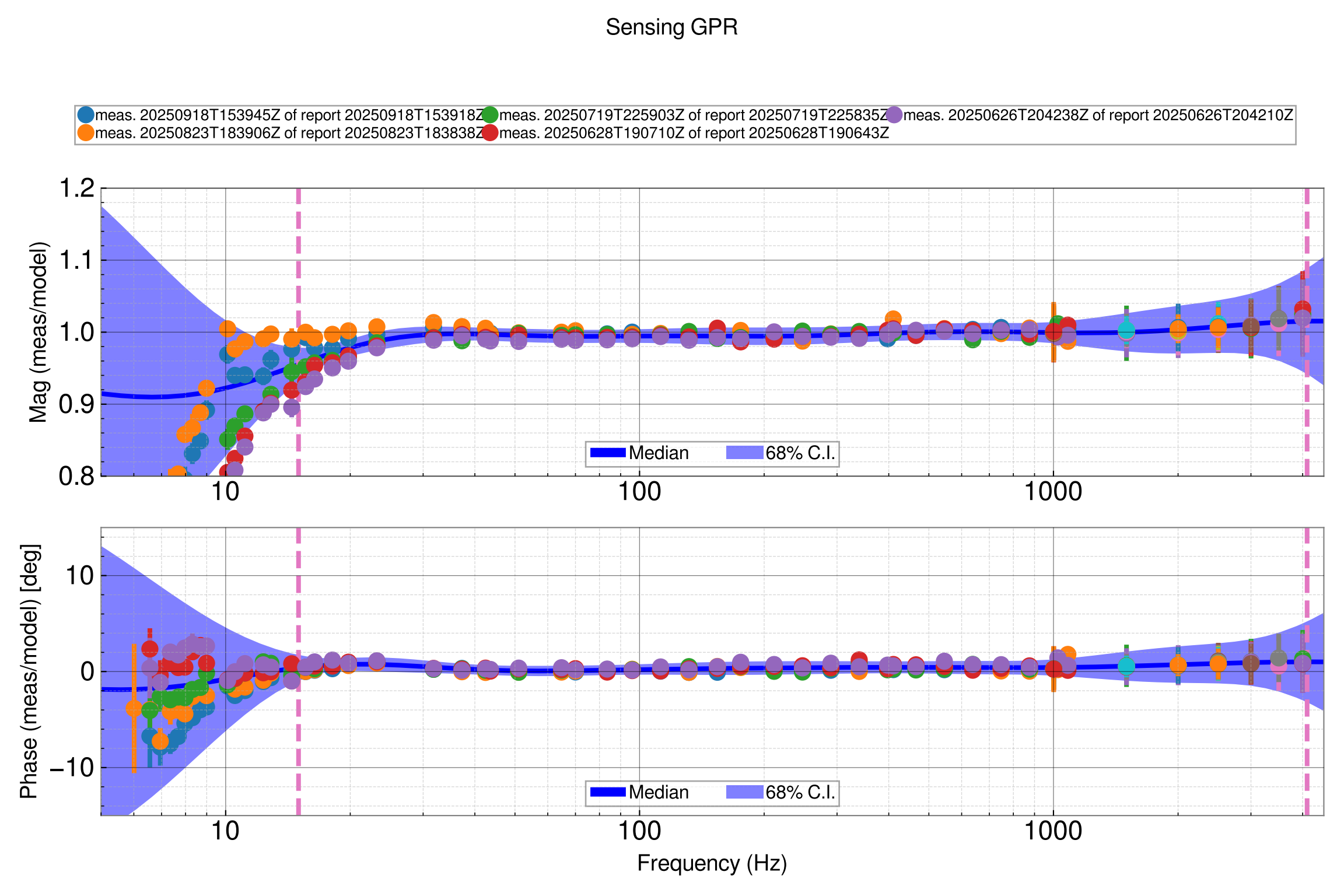

| Parameter | (value +/-) | value | + | - |
|---|---|---|---|---|
| Optical gain, H_c (ct/m) | 3.44e+06 | 1934 (0.06%) | 1909 (0.06%) | |
| Cavity_pole, f_cc (Hz) | 438.9 | 0.7174 (0.16%) | 0.7172 (0.16%) | |
| Detuned SRC spring frequency, f_s (Hz) | 3.43 | 0.05169 (1.51%) | 0.05219 (1.52%) | |
| Detuned SRC spring quality factor, Q_s | 84.9 | 10.72 (12.63%) | 15.67 (18.46%) | |
| Residual time delay, tau_c (s) | -1.64e-06 | 3.281e-07 (-20.01%) | 3.311e-07 (-20.19%) | |


20250918T153945Z sensing function
MCMC corner plot
2d pdf contours
1σ
2σ
3σ
map
(100 bins for 1d pdf)
$H_C = 3.440e+06^{+1.934e+03}_{-1.909e+03}$
$f_{cc} = 4.389e+02^{+7.174e-01}_{-7.172e-01}$
$f_s = 3.430e+00^{+5.169e-02}_{-5.219e-02}$
$Q = 8.490e+01^{+1.072e+01}_{-1.567e+01}$
$\Delta\tau_C = -1.640e-06^{+3.2}_{-3.3}$
1d norm. pdf
(percent per bin)
$H_C$
$f_{cc}$
$f_s$
$Q$
$\Delta\tau_C$
$\times 10^6$
$\times 10^{-6}$

# H1 sensing model history (last 9 measurements)

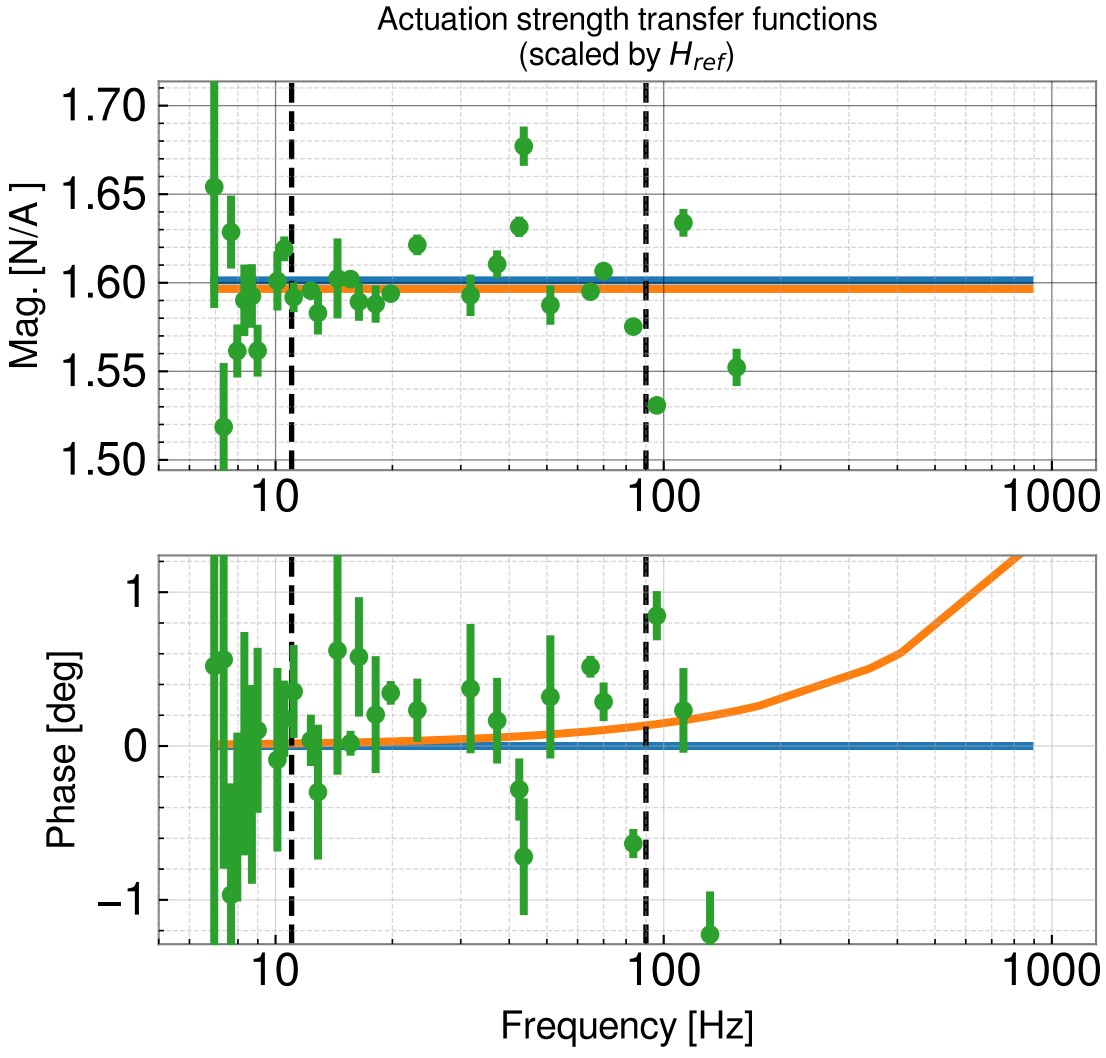
All fixed parameters drawn from /ligo/groups/cal/H1/reports/20250918T153918Z/pydarm_H1.ini

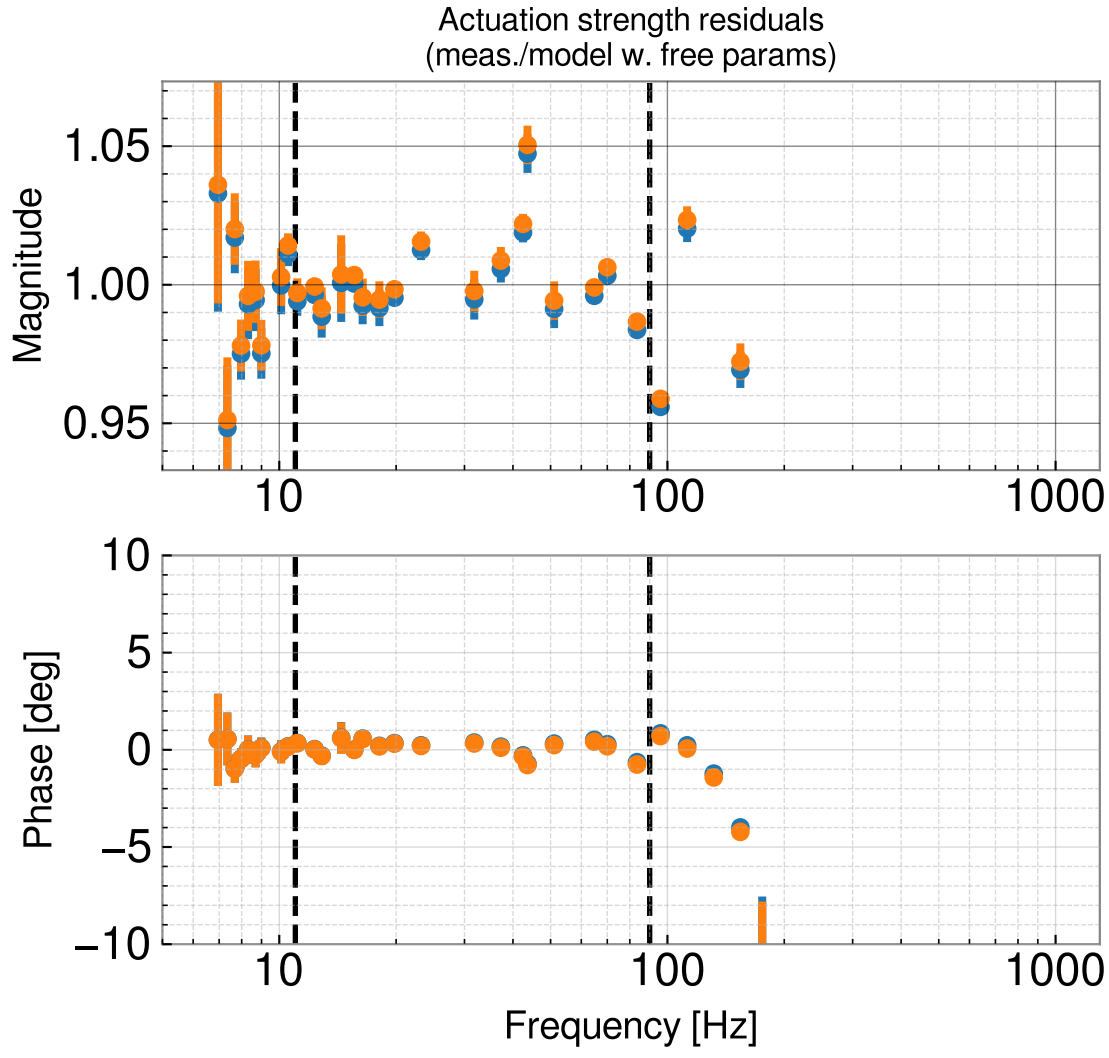



Sensing GPR
meas. 20250918T153945Z of report 20250918T153918Z
meas. 20250719T225903Z of report 20250719T225835Z
meas. 20250626T204238Z of report 20250626T204210Z
meas. 20250823T183906Z of report 20250823T183838Z
meas. 20250628T190710Z of report 20250628T190643Z
Mag (meas/model)
1.2
1.1
1.0
0.9
0.8
Median
68% C.I.
10
100
1000
Phase (meas/model) [deg]
10
0
−10
Median
68% C.I.
10
100
1000
Frequency (Hz)

# H1SUSEX L1 actuation model MCMC summary

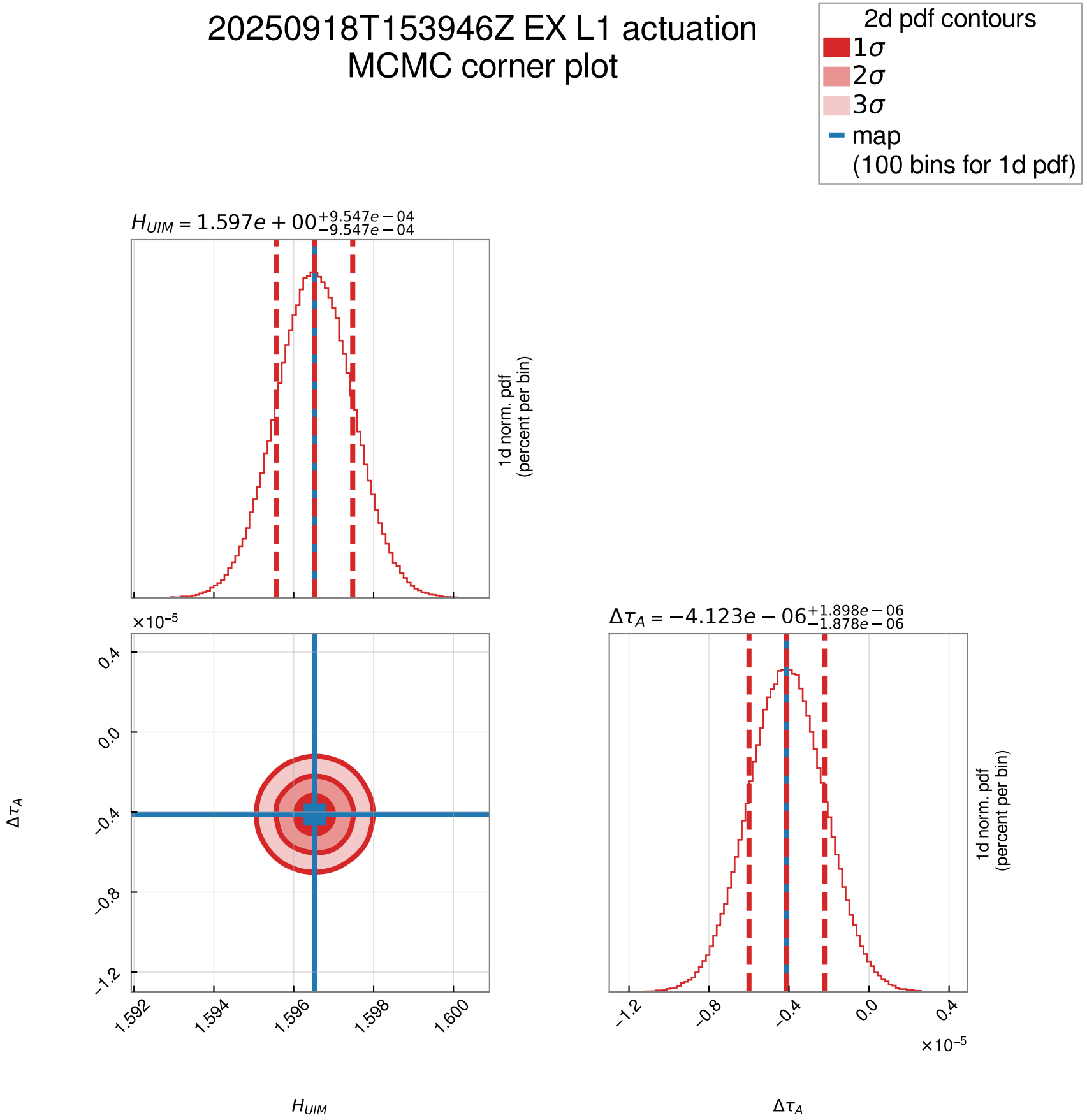
All fixed parameters drawn from /ligo/groups/cal/H1/reports/20250918T153918Z/pydarm_H1.ini




| Parameter (value +/-) | value | + | - |
|---|---|---|---|
| Actuation Gain, Hau (N/A) | 1.597 | 0.0009547 (0.06%) | 0.0009547 (0.06%) |
| Residual time delay, tau_A (s) | -4.123e-06 | 1.898e-06 (-46.02%) | 1.878e-06 (-45.56%) |

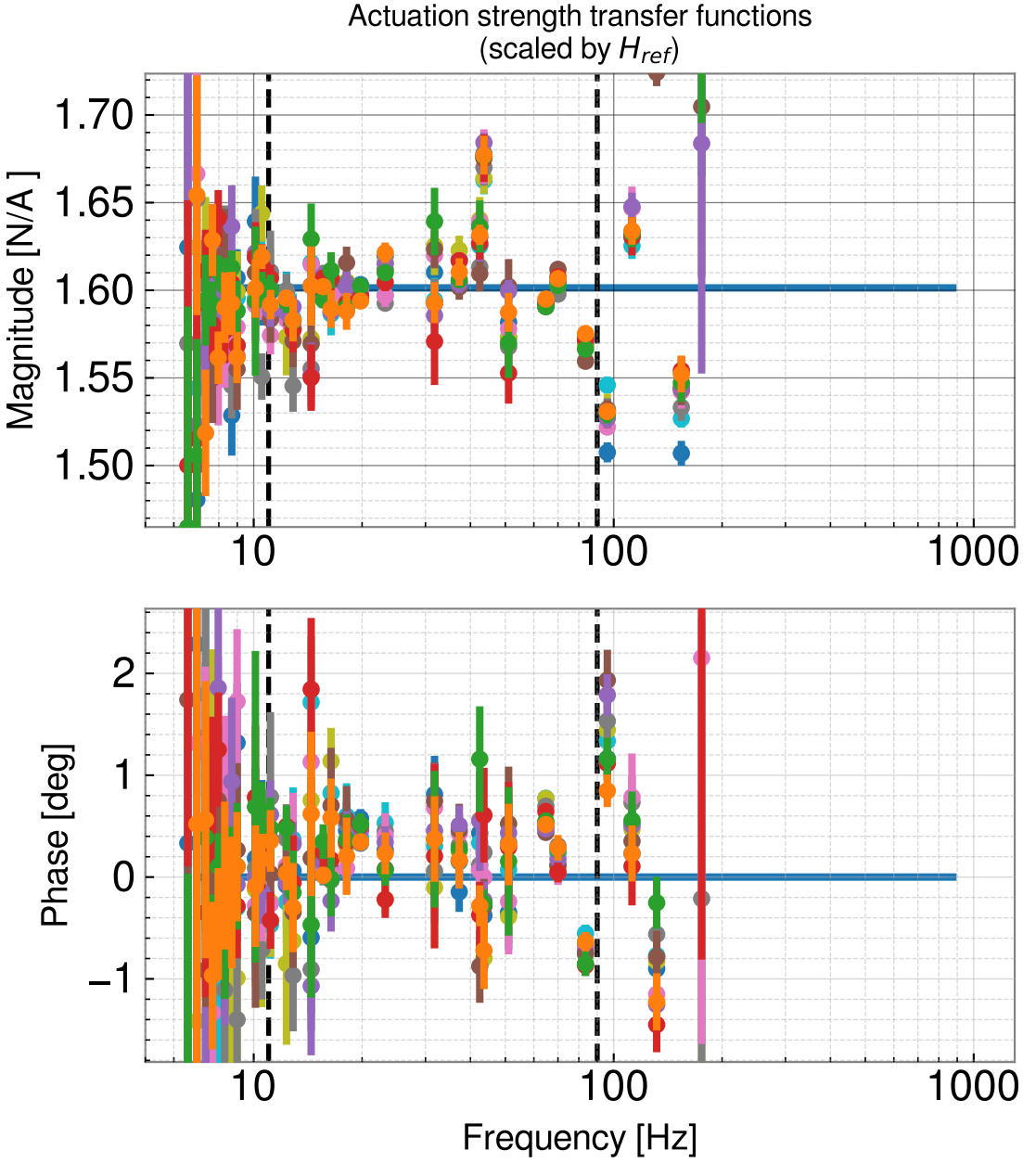
# 20250918T153946Z EX L1 actuation
# MCMC corner plot

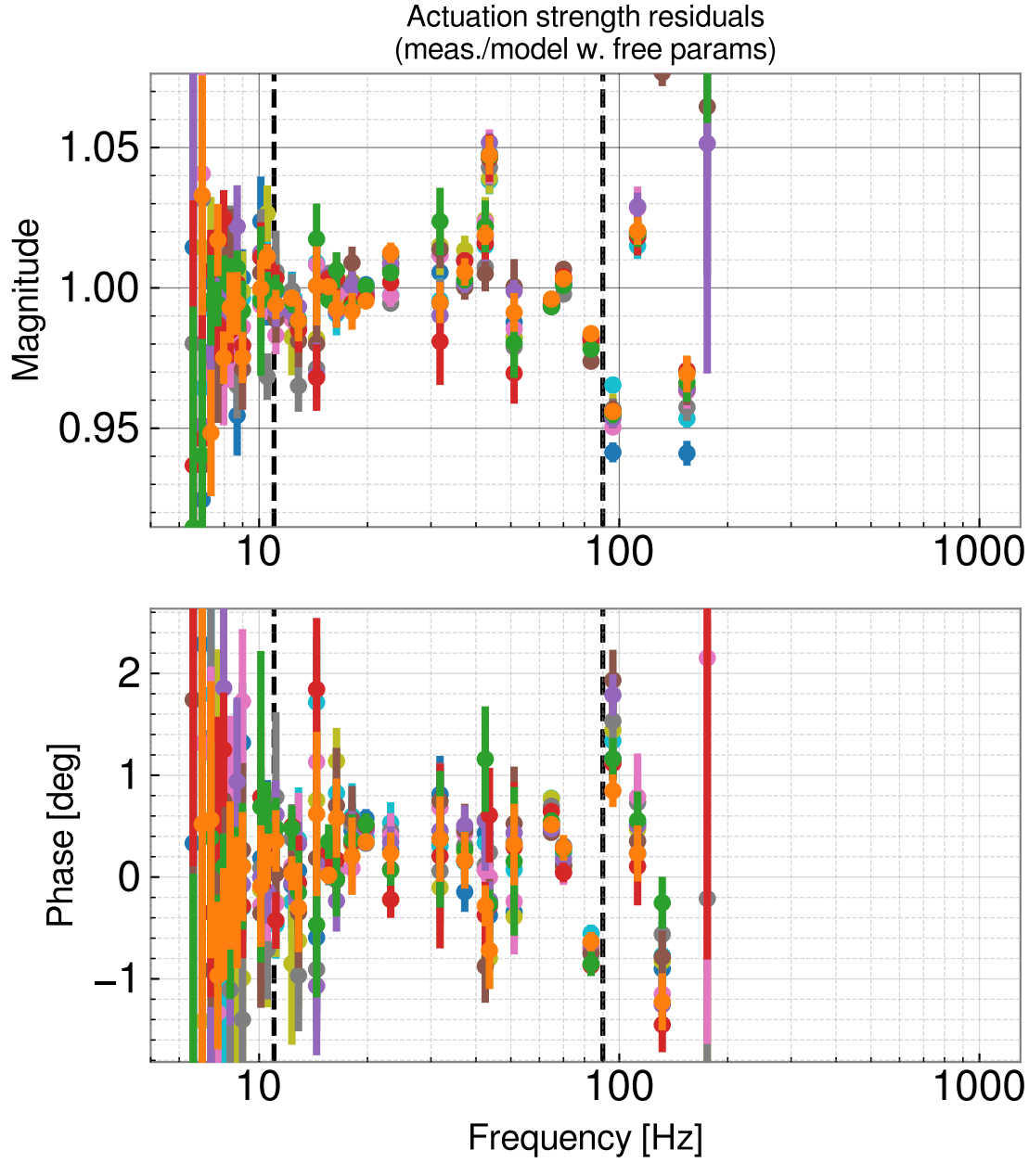


# H1SUSEX L1 actuation model history (last 9 measurements)

All fixed parameters drawn from /ligo/groups/cal/H1/reports/20250918T153918Z/pydarm_H1.ini

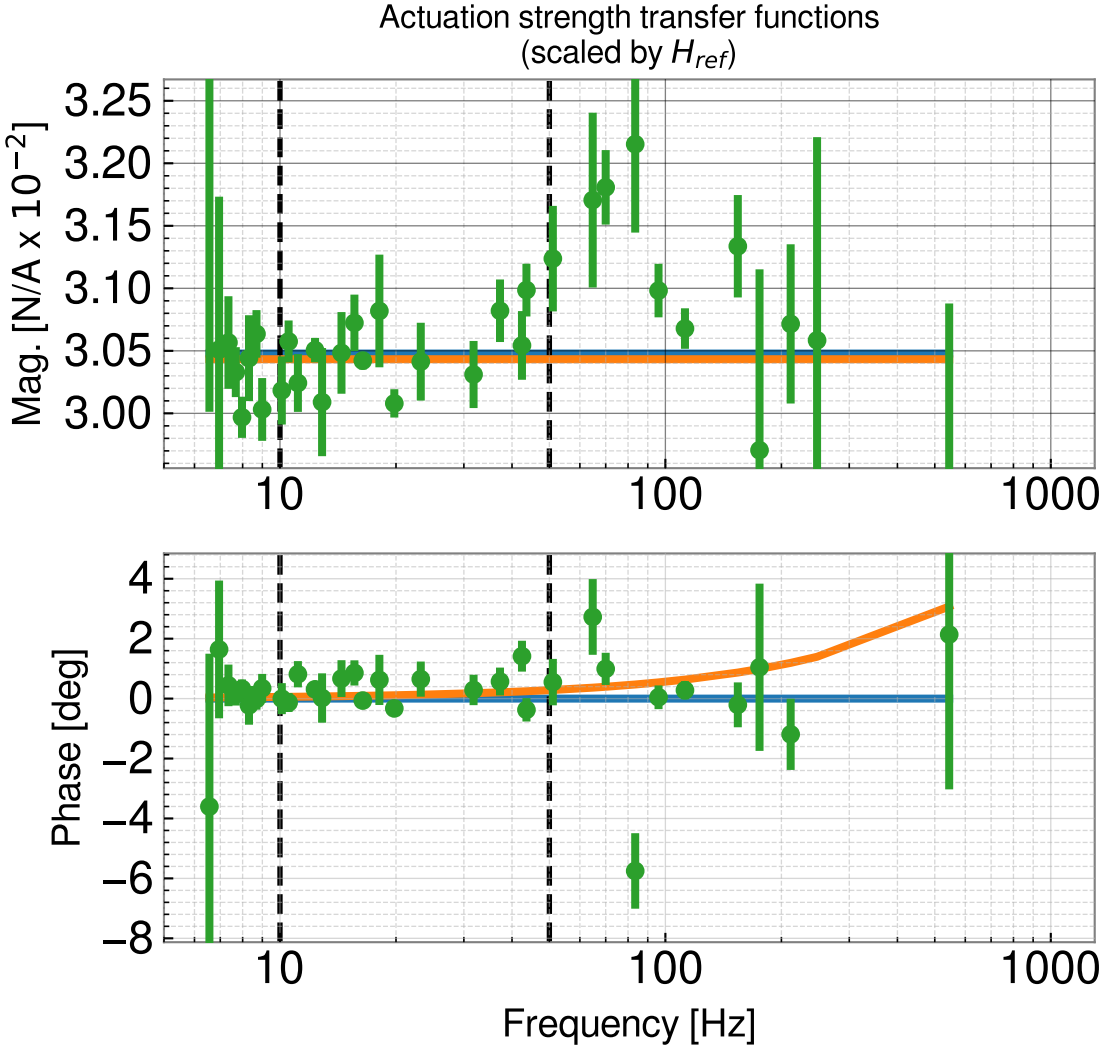
20250823T183838Z model
20250918T153946Z measurement
20250823T183906Z measurement
20250719T225903Z measurement
20250628T190710Z measurement
20250626T204238Z measurement
20250621T183614Z measurement
20250614T183710Z measurement
20250610T224037Z measurement
20250330T013352Z measurement
20250322T190720Z measurement
MCMC Fit Range: 11 Hz to 90 Hz

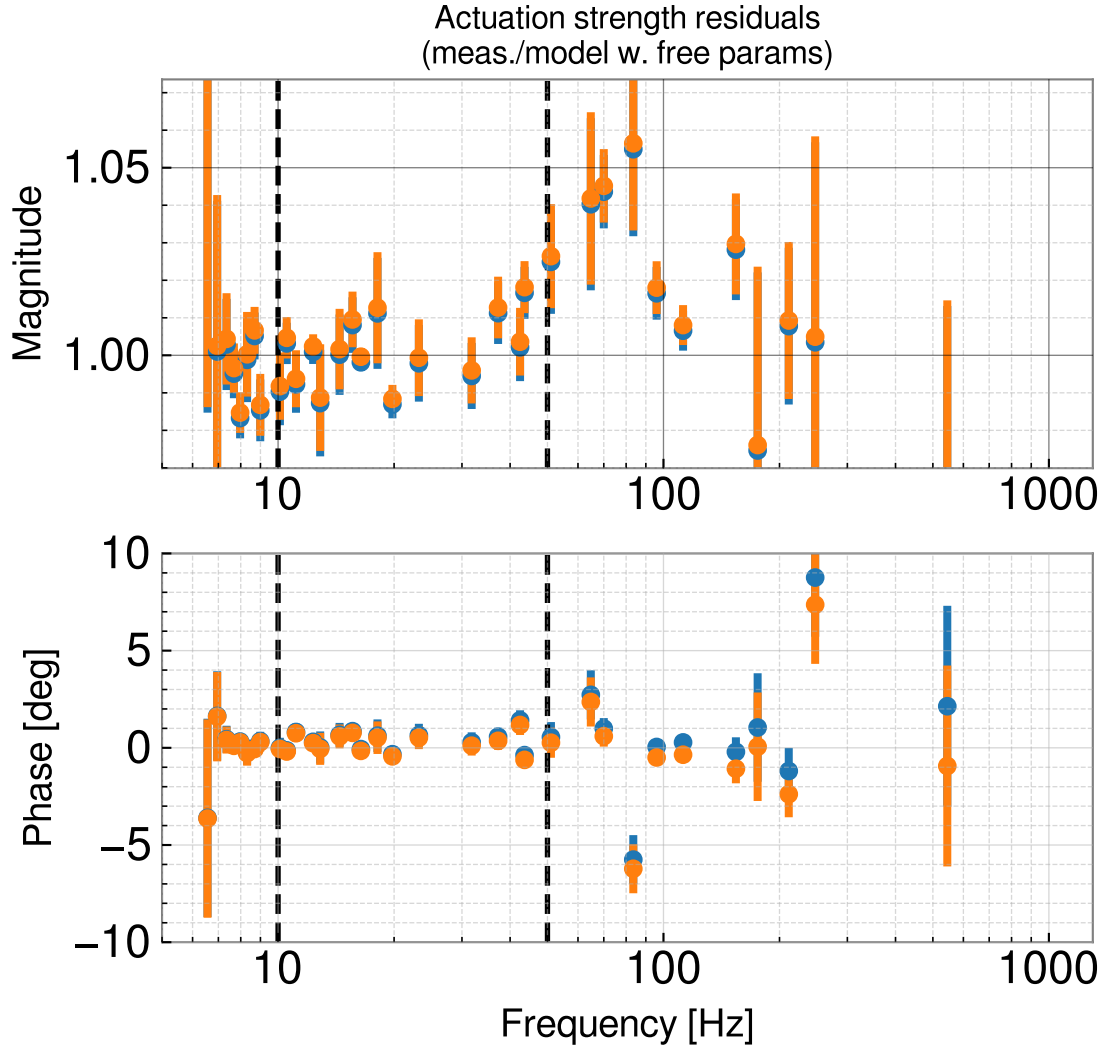


# H1SUSEX L2 actuation model MCMC summary

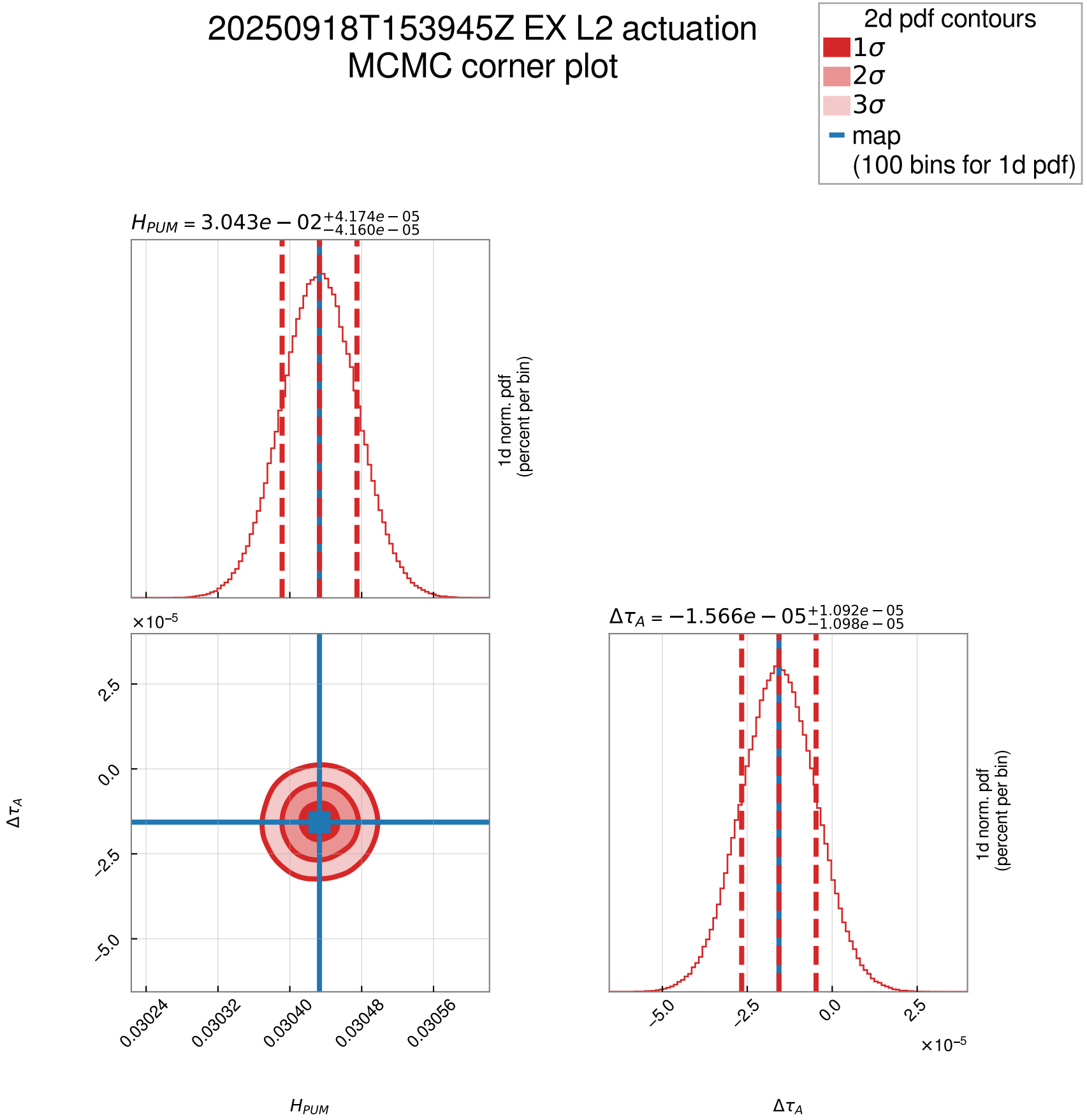
All fixed parameters drawn from /ligo/groups/cal/H1/reports/20250918T153918Z/pydarm_H1.ini




| Parameter (value +/-) | value | + | - |
|---|---|---|---|
| Actuation Gain, Hap (N/A) | 0.03043 | 4.174e-05 (0.14%) | 4.16e-05 (0.14%) |
| Residual time delay, tau_A (s) | -1.566e-05 | 1.092e-05 (-69.72%) | 1.098e-05 (-70.10%) |

# 20250918T153945Z EX L2 actuation
# MCMC corner plot

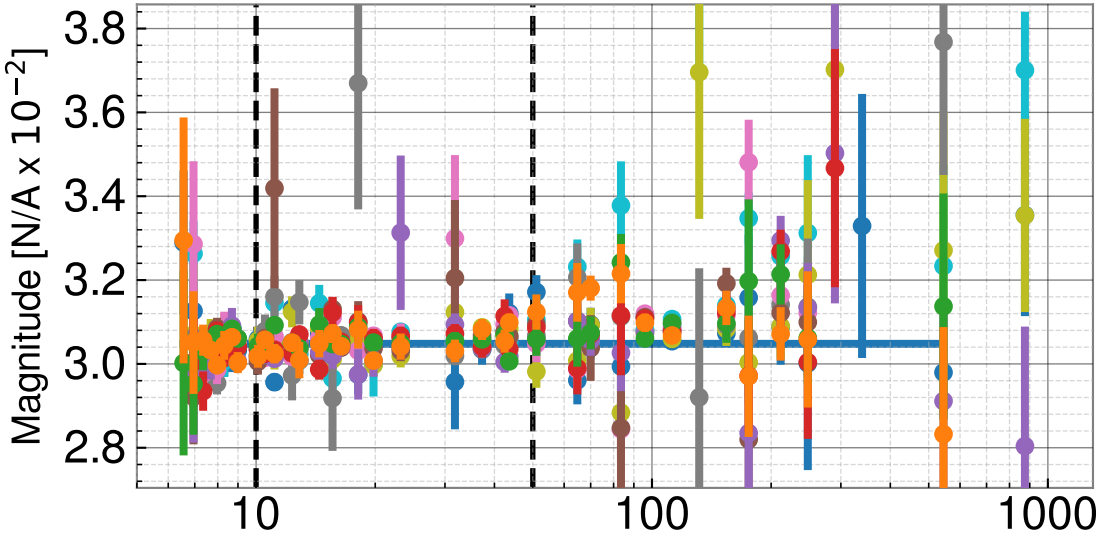


# H1SUSEX L2 actuation model history (last 9 measurements)

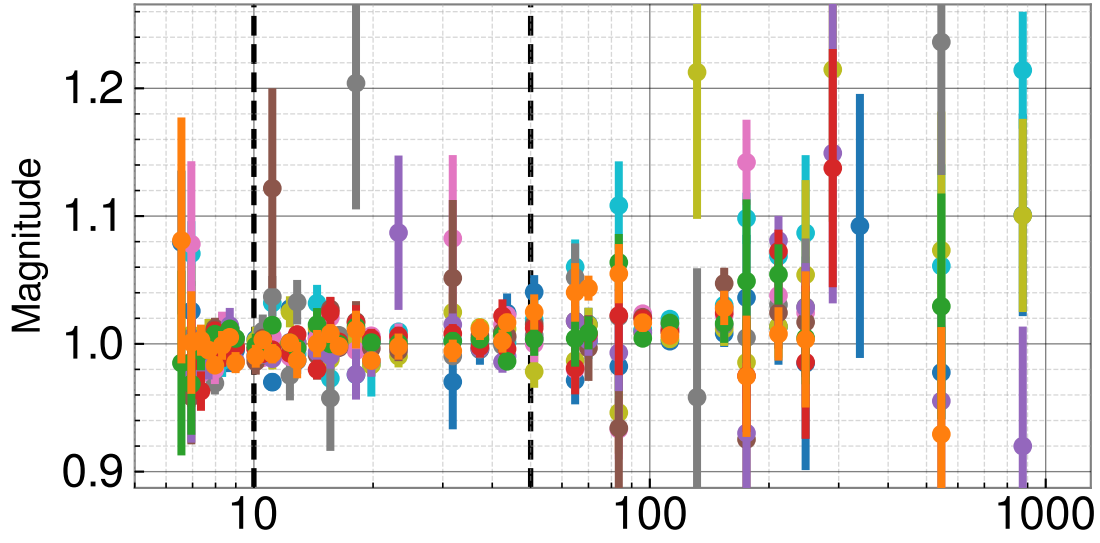
All fixed parameters drawn from /ligo/groups/cal/H1/reports/20250918T153918Z/pydarm_H1.ini

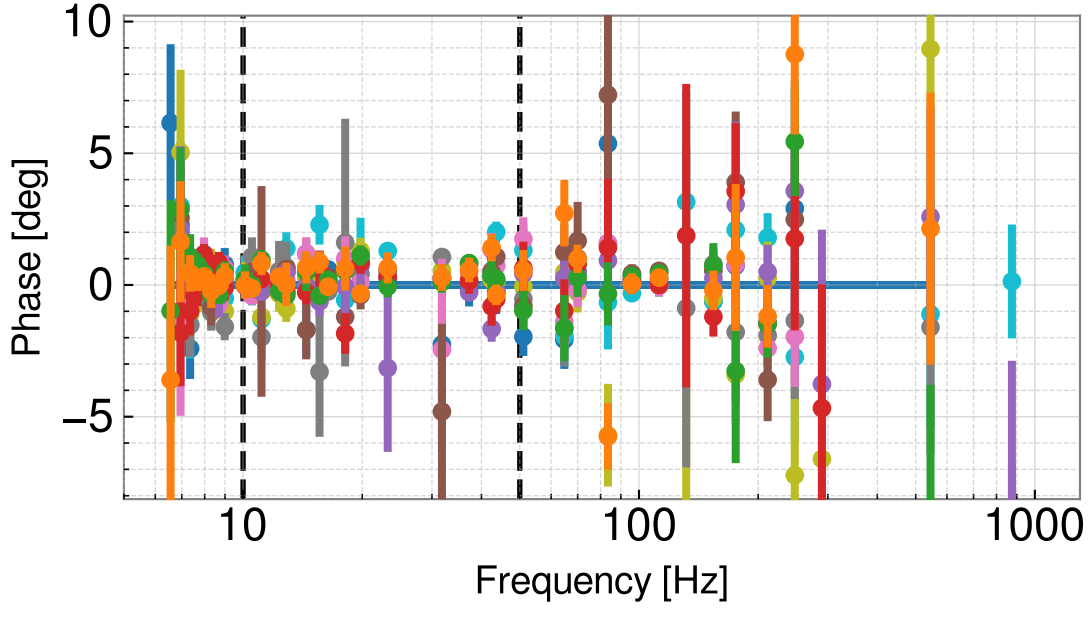
20250823T183838Z model
20250918T153945Z measurement
20250823T183906Z measurement
20250719T225903Z measurement
20250628T190710Z measurement
20250626T204238Z measurement
20250621T183614Z measurement
20250614T183710Z measurement
20250610T224037Z measurement
20250330T013352Z measurement
20250322T190720Z measurement
MCMC Fit Range: 10 Hz to 50 Hz

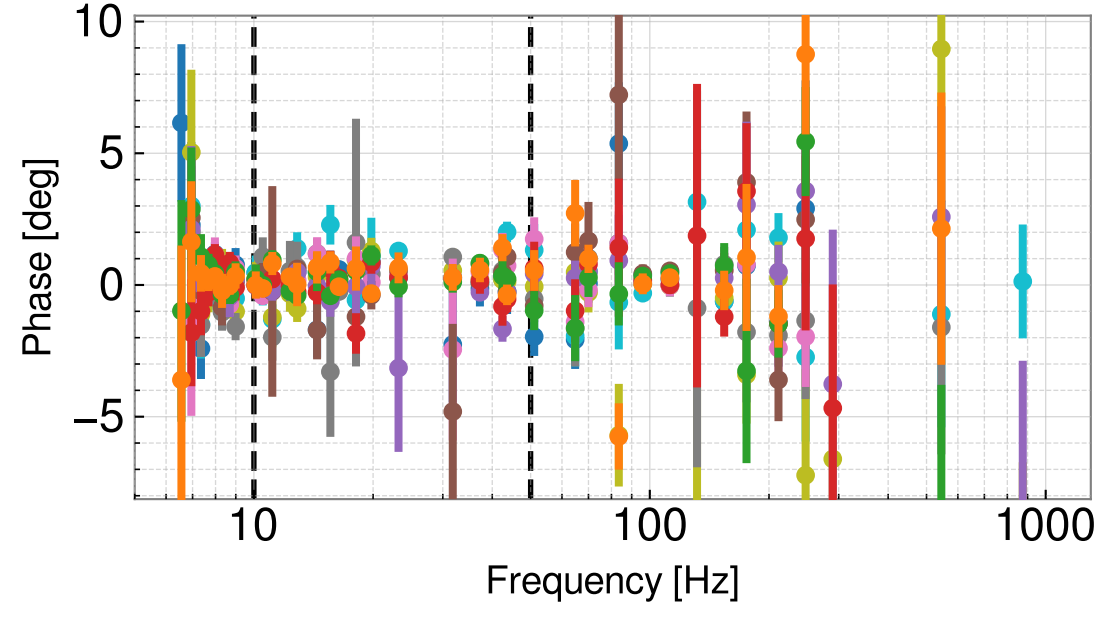
Actuation strength transfer functions
(scaled by $H_{ref}$)




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

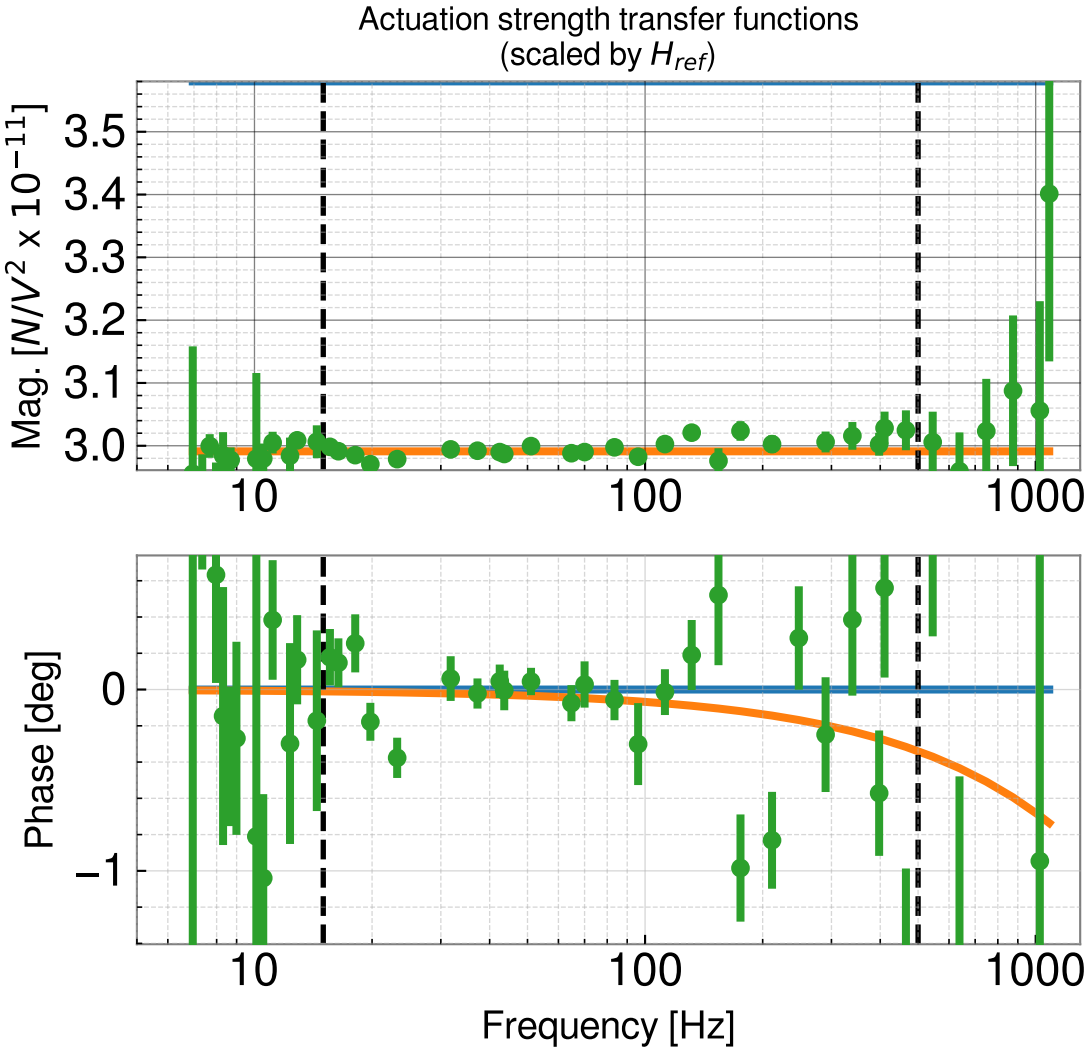


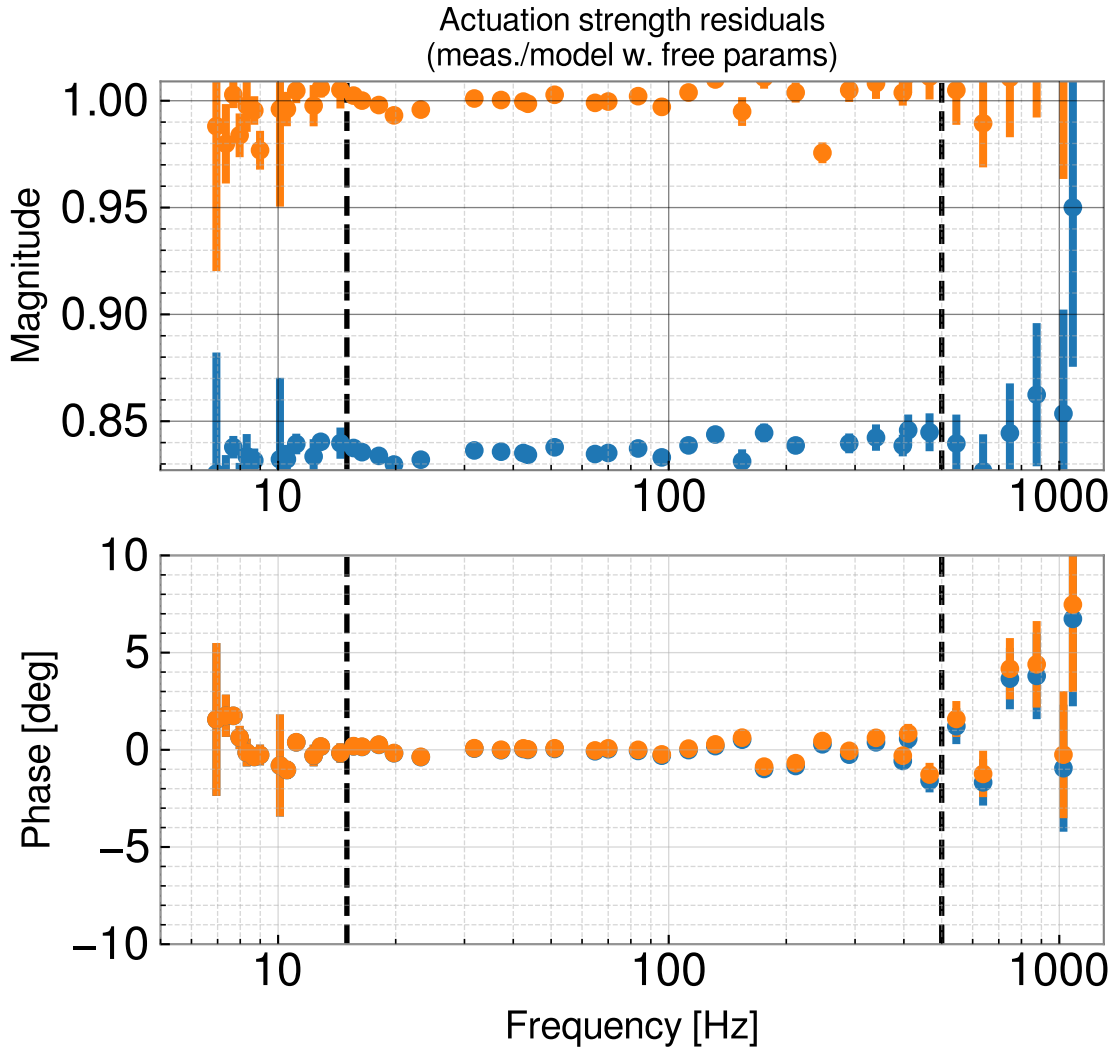



# H1SUSEX L3 actuation model MCMC summary

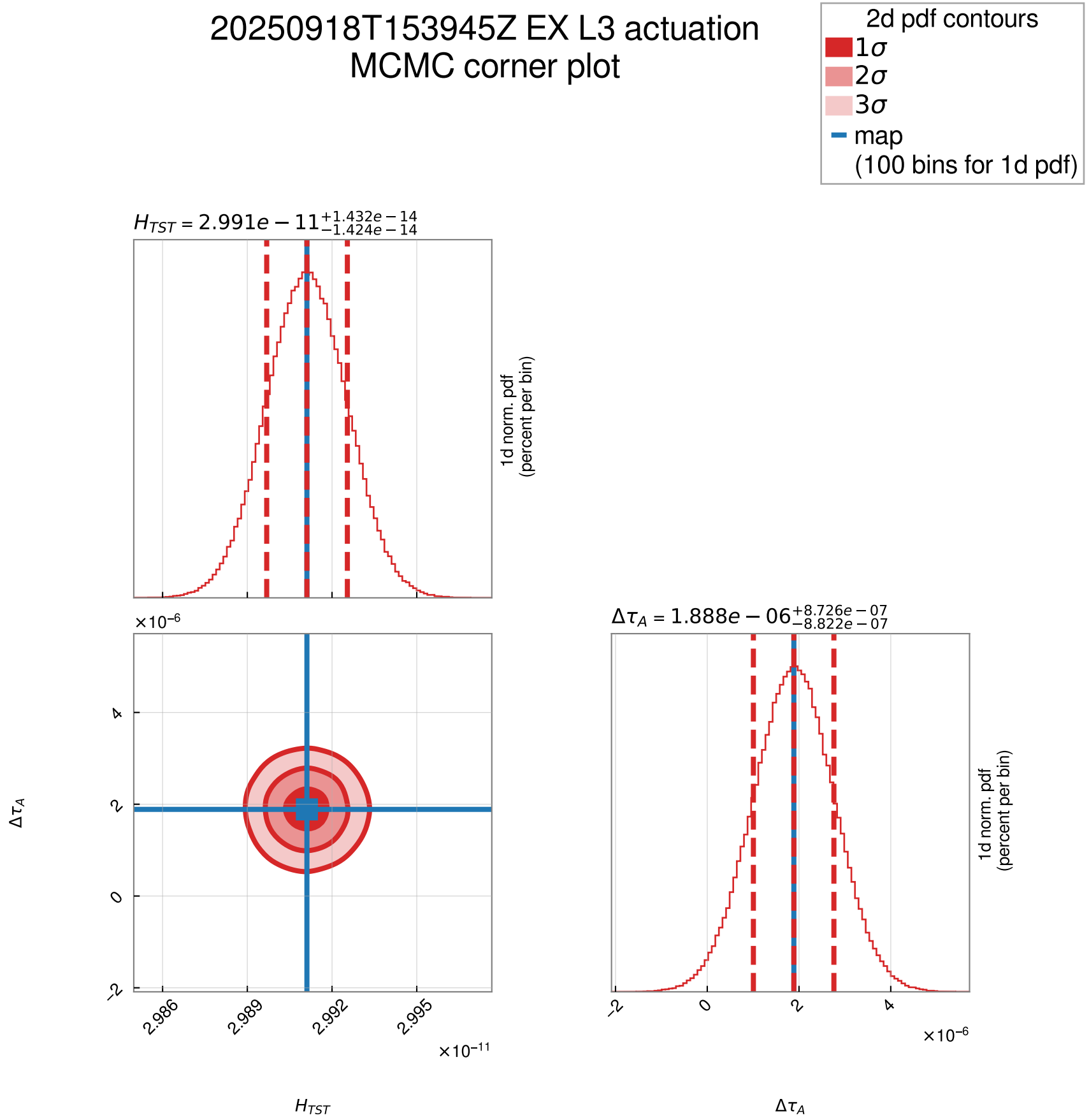
All fixed parameters drawn from /ligo/groups/cal/H1/reports/20250918T153918Z/pydarm_H1.ini




| Parameter (value +/-) | value | + | - |
|---|---|---|---|
| Actuation Gain, Hat (N/V**2) | 2.991e-11 | 1.432e-14 (0.05%) | 1.424e-14 (0.05%) |
| Residual time delay, tau_A (s) | 1.888e-06 | 8.726e-07 (46.22%) | 8.822e-07 (46.73%) |

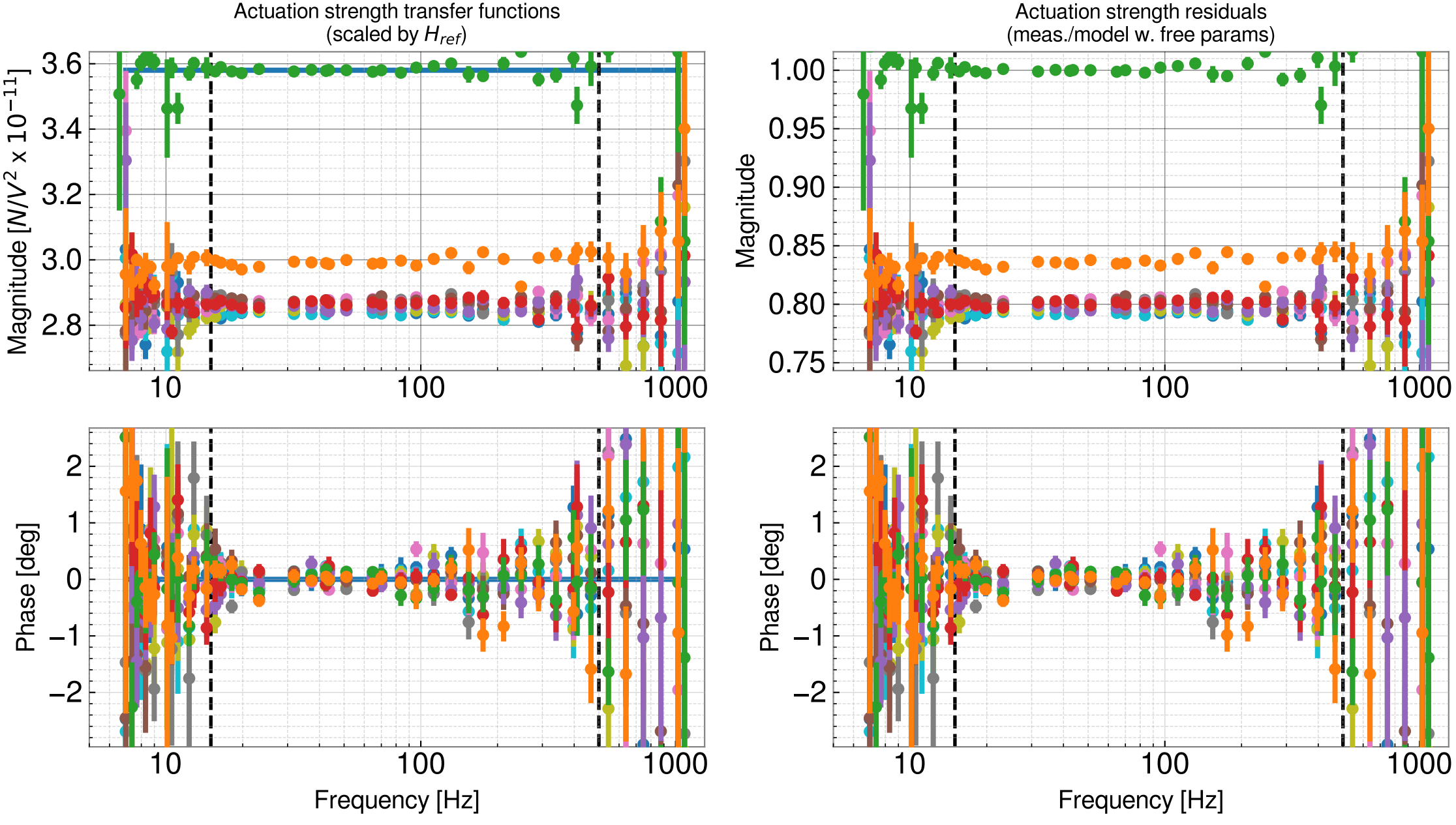
# 20250918T153945Z EX L3 actuation
# MCMC corner plot

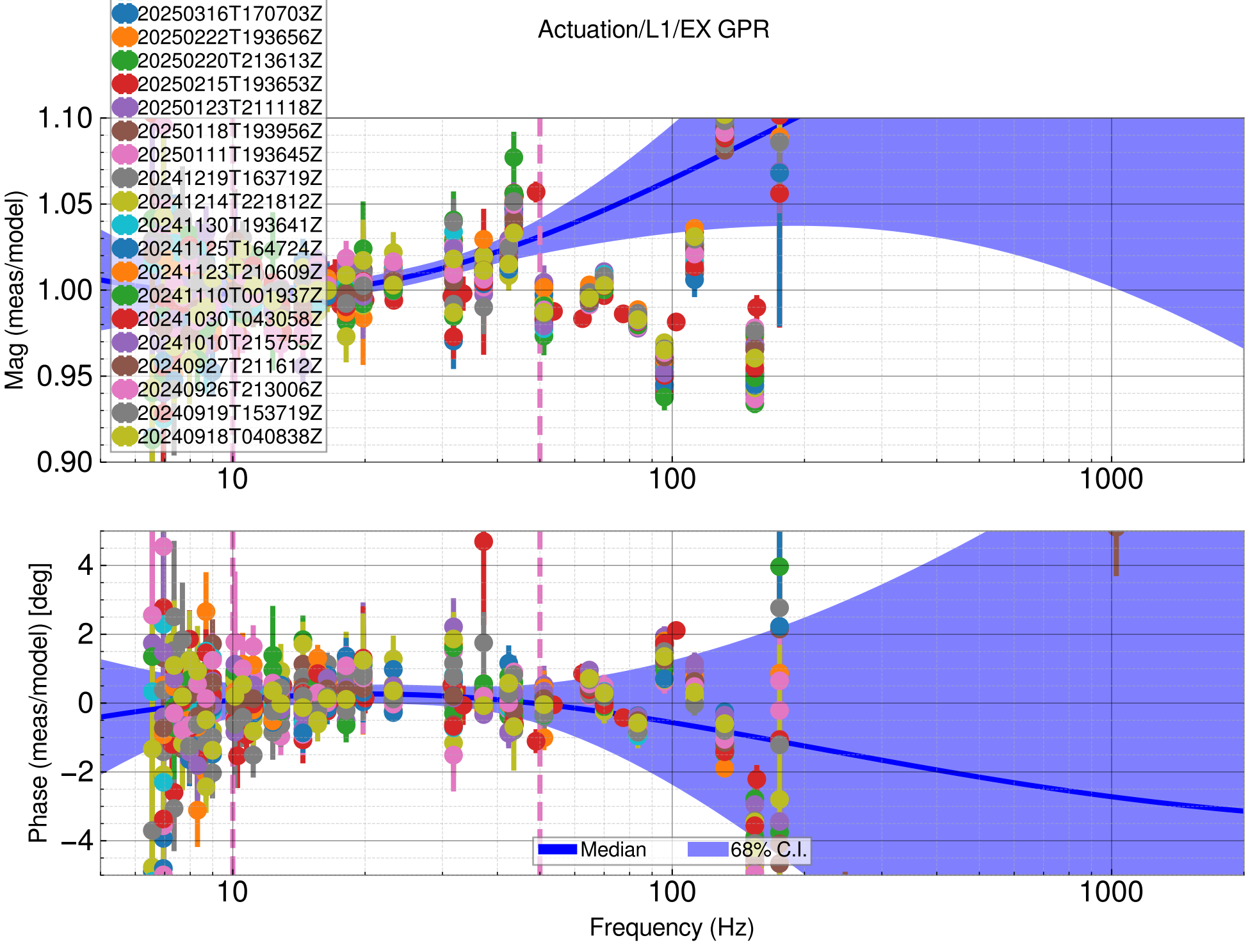


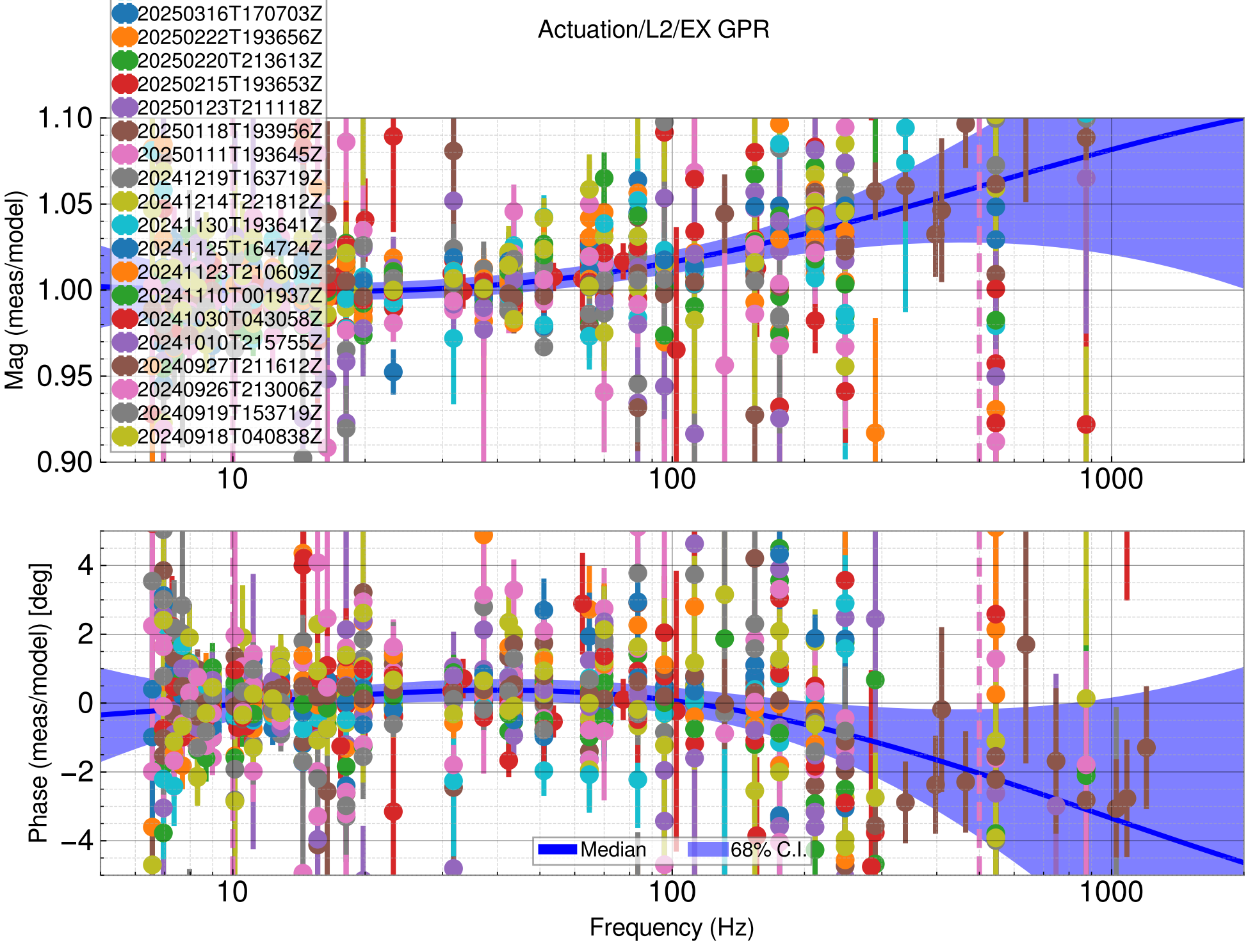
# H1SUSEX L3 actuation model history (last 9 measurements)

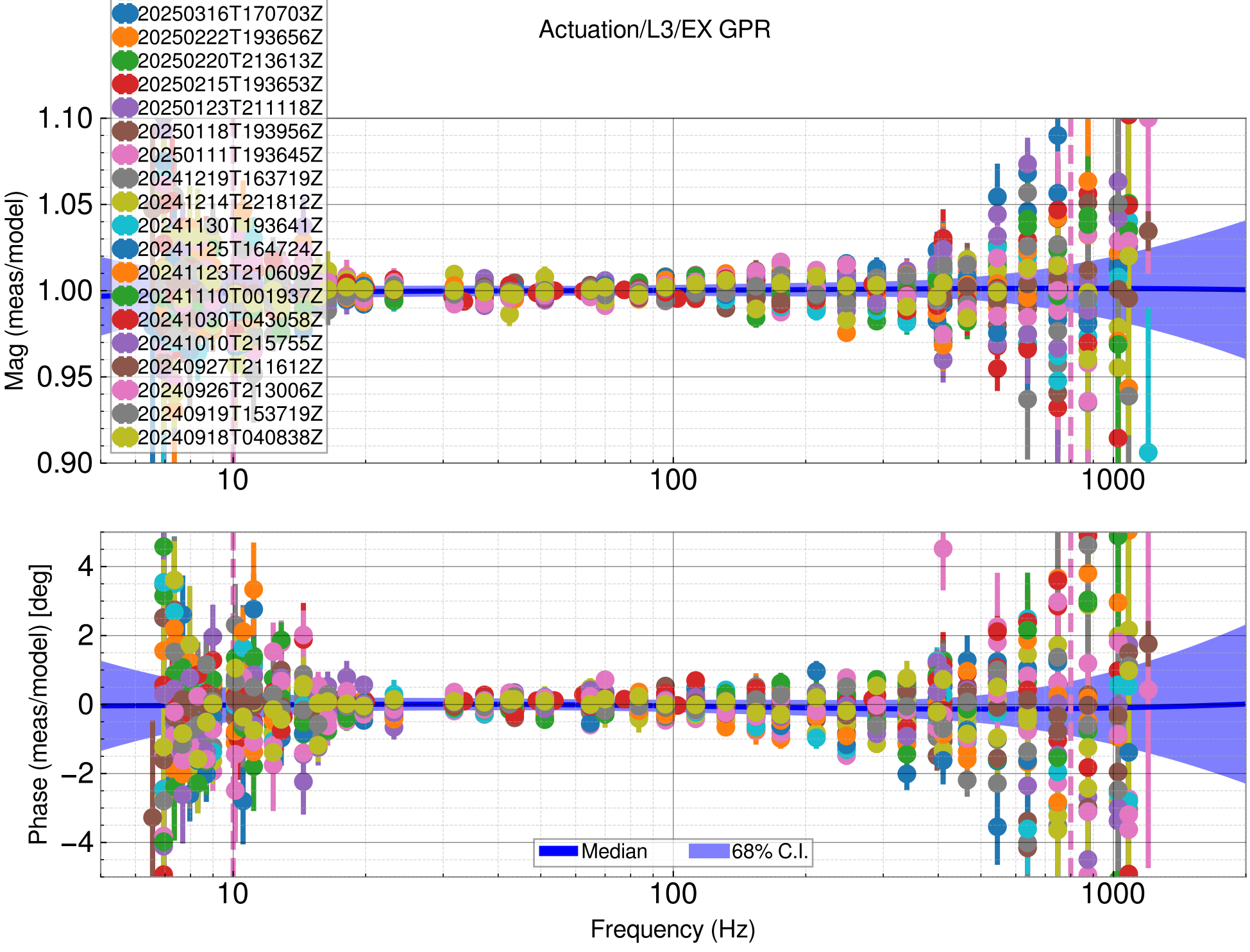
All fixed parameters drawn from /ligo/groups/cal/H1/reports/20250918T153918Z/pydarm_H1.ini

20250823T183838Z model
20250918T153945Z measurement
20250823T183906Z measurement
20250719T225903Z measurement
20250628T190710Z measurement
20250626T204238Z measurement
20250621T183614Z measurement
20250614T183710Z measurement
20250610T224037Z measurement
20250330T013353Z measurement
20250322T190720Z measurement
MCMC Fit Range: 15 Hz to 500 Hz




Actuation/L1/EX GPR
20250316T170703Z
20250222T193656Z
20250220T213613Z
20250215T193653Z
20250123T211118Z
20250118T193956Z
20250111T193645Z
20241219T163719Z
20241214T221812Z
20241130T193641Z
20241125T164724Z
20241123T210609Z
20241110T001937Z
20241030T043058Z
20241010T215755Z
20240927T211612Z
20240926T213006Z
20240919T153719Z
20240918T040838Z
Mag (meas/model)
1.10
1.05
1.00
0.95
0.90
10
100
1000
Phase (meas/model) [deg]
4
2
0
−2
−4
Median
68% C.I.
Frequency (Hz)


Actuation/L2/EX GPR
20250316T170703Z
20250222T193656Z
20250220T213613Z
20250215T193653Z
20250123T211118Z
20250118T193956Z
20250111T193645Z
20241219T163719Z
20241214T221812Z
20241130T193641Z
20241125T164724Z
20241123T210609Z
20241110T001937Z
20241030T043058Z
20241010T215755Z
20240927T211612Z
20240926T213006Z
20240919T153719Z
20240918T040838Z
Mag (meas/model)
1.10
1.05
1.00
0.95
0.90
10
100
1000
Phase (meas/model) [deg]
4
2
0
−2
−4
Median
68% C.I.
Frequency (Hz)


Actuation/L3/EX GPR
20250316T170703Z
20250222T193656Z
20250220T213613Z
20250215T193653Z
20250123T211118Z
20250118T193956Z
20250111T193645Z
20241219T163719Z
20241214T221812Z
20241130T193641Z
20241125T164724Z
20241123T210609Z
20241110T001937Z
20241030T043058Z
20241010T215755Z
20240927T211612Z
20240926T213006Z
20240919T153719Z
20240918T040838Z
Mag (meas/model)
1.10
1.05
1.00
0.95
0.90
10
100
1000
Phase (meas/model) [deg]
4
2
0
−2
−4
Median
68% C.I.
Frequency (Hz)