

# Supporting information for “Daily calibration of the Fluxgate Magnetometer onboard the Cluster spacecraft”

N. Gimmich<sup>1</sup>, H.U. Auster<sup>1</sup>, O.D. Constantinescu<sup>1,2</sup>,  
K.H. Fornaçon<sup>1</sup>, K.H. Glassmeier<sup>1</sup>, and F. Plaschke<sup>1</sup>

<sup>1</sup>Institute for Geophysics and Extraterrestrial Physics,  
TU Braunschweig, Germany

<sup>2</sup>Institute for Space Sciences, Bucharest, Romania

September 24, 2025

This document contains the plots of the Cluster FGM calibration parameters evolution over the entire duration of the mission. Parameters which remain constant over time (`offset_r2`, `Matrix_sc`, `Matrix_dr`) are omitted. The names of the parameters are those used in the `cfgnew` calibration files. Elements of the matrices are plotted in subplots arranged in the same order as in the matrix. The labels correspond to the calibration matrix Eq.(8) in the main paper.

## List of Figures

S1	Cluster 1 Angle_xyz . . . . .	3
S2	Cluster 1 offset_sc . . . . .	4
S3	Cluster 1 offset_r3 . . . . .	5
S4	Cluster 1 offset_r4 . . . . .	6
S5	Cluster 1 offset_r5 . . . . .	7
S6	Cluster 1 offset_r6 . . . . .	8
S7	Cluster 1 offset_r7 . . . . .	9
S8	Cluster 1 Matrix_r2 . . . . .	10
S9	Cluster 1 Matrix_r3 . . . . .	11
S10	Cluster 1 Matrix_r4 . . . . .	12
S11	Cluster 1 Matrix_r5 . . . . .	13
S12	Cluster 1 Matrix_r6 . . . . .	14

S13	Cluster 1 Matrix_r7 . . . . .	15
S14	Cluster 2 Angle_xyz . . . . .	16
S15	Cluster 2 offset_sc . . . . .	17
S16	Cluster 2 offset_r3 . . . . .	18
S17	Cluster 2 offset_r4 . . . . .	19
S18	Cluster 2 offset_r5 . . . . .	20
S19	Cluster 2 offset_r6 . . . . .	21
S20	Cluster 2 offset_r7 . . . . .	22
S21	Cluster 2 Matrix_r2 . . . . .	23
S22	Cluster 2 Matrix_r3 . . . . .	24
S23	Cluster 2 Matrix_r4 . . . . .	25
S24	Cluster 2 Matrix_r5 . . . . .	26
S25	Cluster 2 Matrix_r6 . . . . .	27
S26	Cluster 2 Matrix_r7 . . . . .	28
S27	Cluster 3 Angle_xyz . . . . .	29
S28	Cluster 3 offset_sc . . . . .	30
S29	Cluster 3 offset_r3 . . . . .	31
S30	Cluster 3 offset_r4 . . . . .	32
S31	Cluster 3 offset_r5 . . . . .	33
S32	Cluster 3 offset_r6 . . . . .	34
S33	Cluster 3 offset_r7 . . . . .	35
S34	Cluster 3 Matrix_r2 . . . . .	36
S35	Cluster 3 Matrix_r3 . . . . .	37
S36	Cluster 3 Matrix_r4 . . . . .	38
S37	Cluster 3 Matrix_r5 . . . . .	39
S38	Cluster 3 Matrix_r6 . . . . .	40
S39	Cluster 3 Matrix_r7 . . . . .	41
S40	Cluster 4 Angle_xyz . . . . .	42
S41	Cluster 4 offset_sc . . . . .	43
S42	Cluster 4 offset_r3 . . . . .	44
S43	Cluster 4 offset_r4 . . . . .	45
S44	Cluster 4 offset_r5 . . . . .	46
S45	Cluster 4 offset_r6 . . . . .	47
S46	Cluster 4 offset_r7 . . . . .	48
S47	Cluster 4 Matrix_r2 . . . . .	49
S48	Cluster 4 Matrix_r3 . . . . .	50
S49	Cluster 4 Matrix_r4 . . . . .	51
S50	Cluster 4 Matrix_r5 . . . . .	52
S51	Cluster 4 Matrix_r6 . . . . .	53
S52	Cluster 4 Matrix_r7 . . . . .	54
S53	Cluster 1 maximum error due to calibration . . . . .	55
S54	Cluster 2 maximum error due to calibration . . . . .	56
S55	Cluster 3 maximum error due to calibration . . . . .	57
S56	Cluster 4 maximum error due to calibration . . . . .	58

1 Cluster 1

3

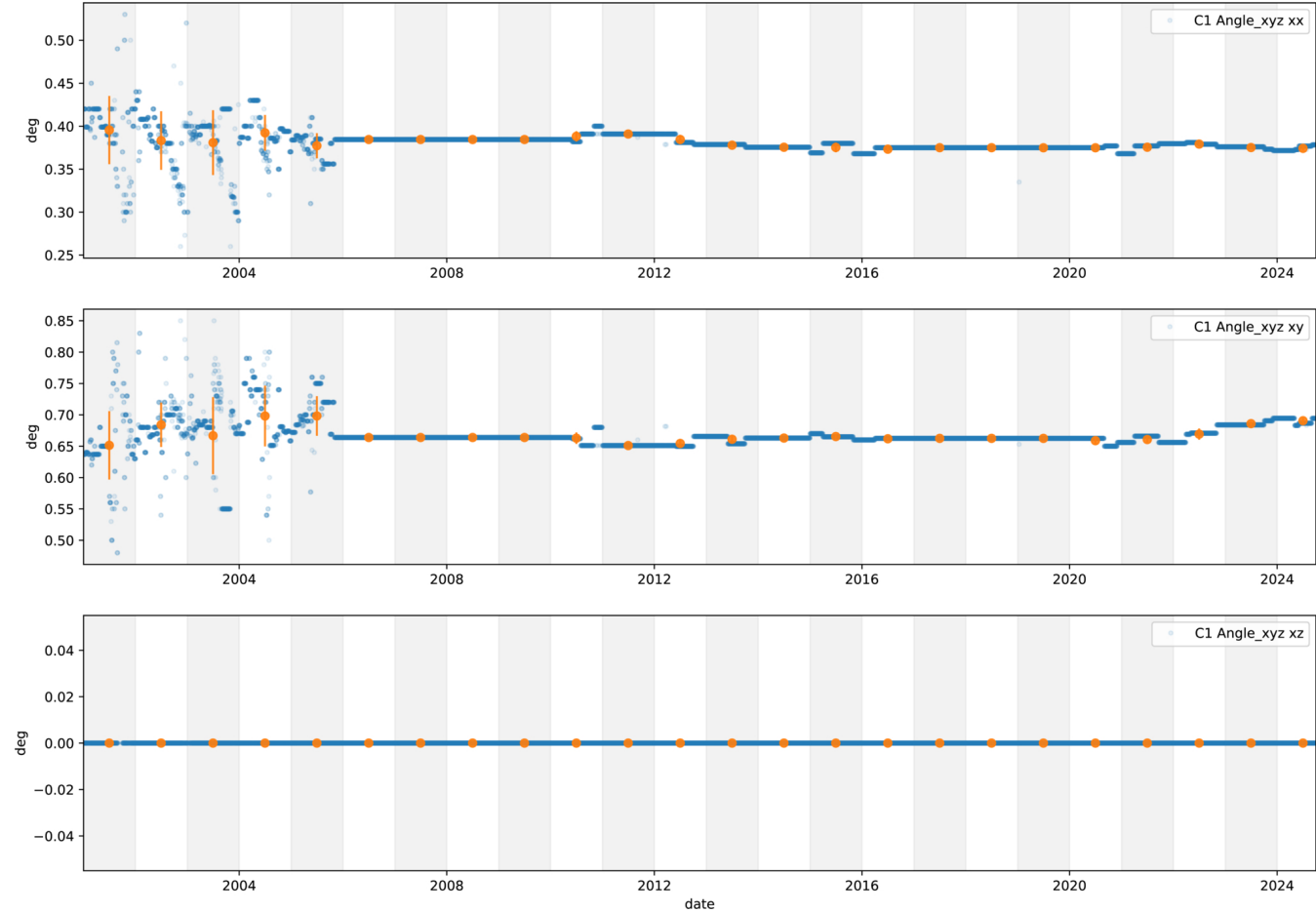


Figure S1: Cluster 1 Angle\_xyz

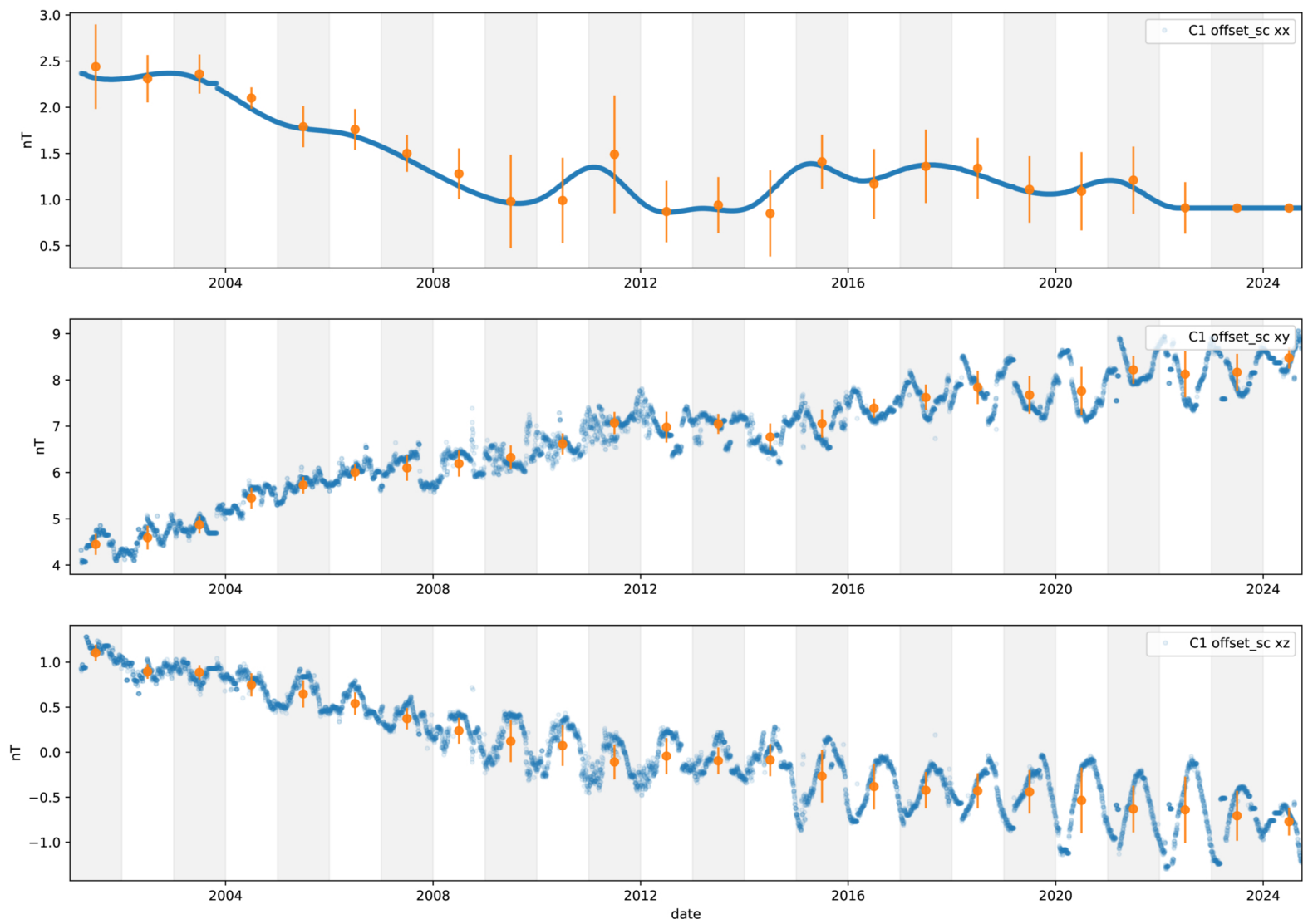


Figure S2: Cluster 1 offset\_sc

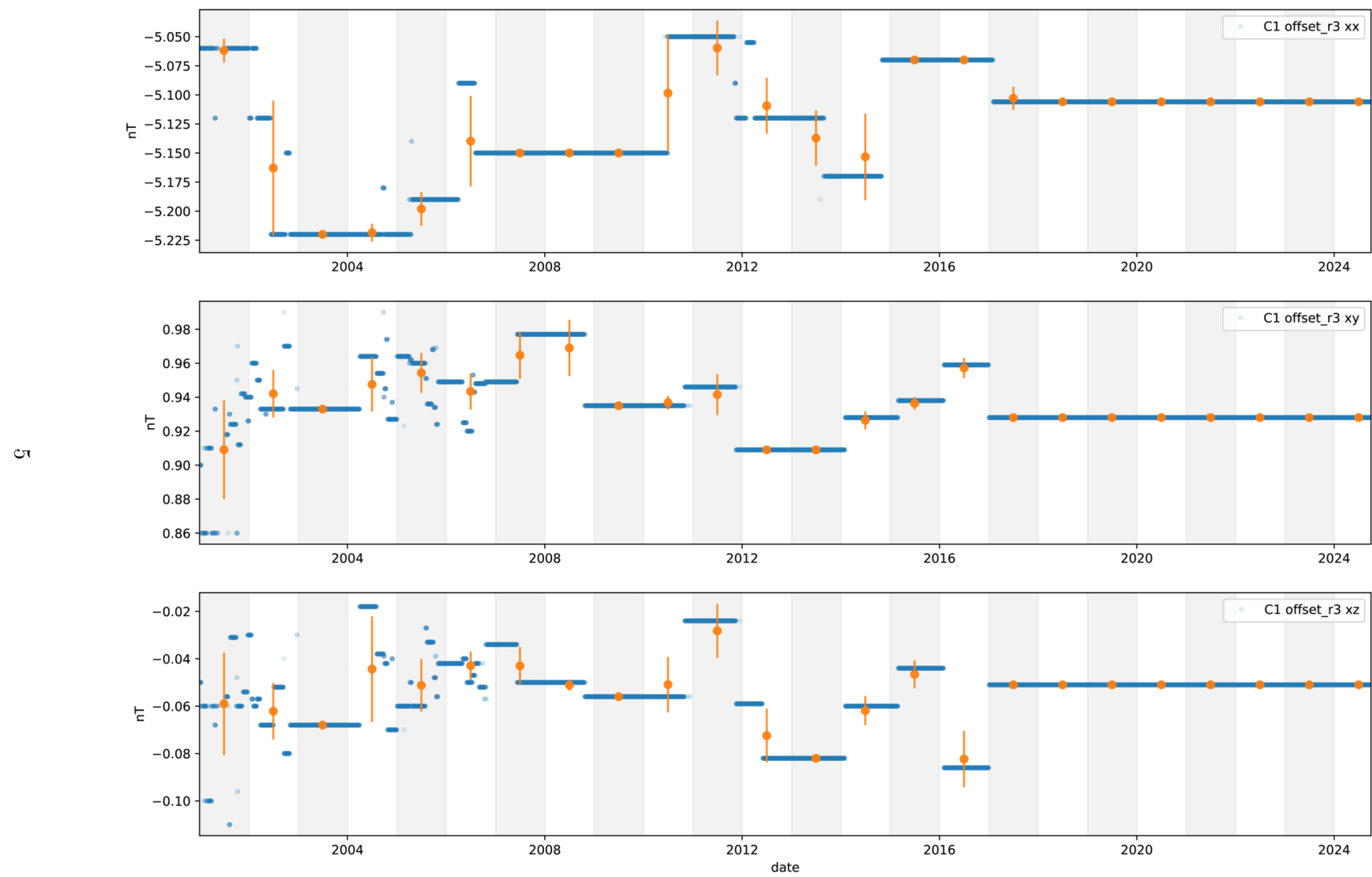


Figure S3: Cluster 1 offset\_r3

9

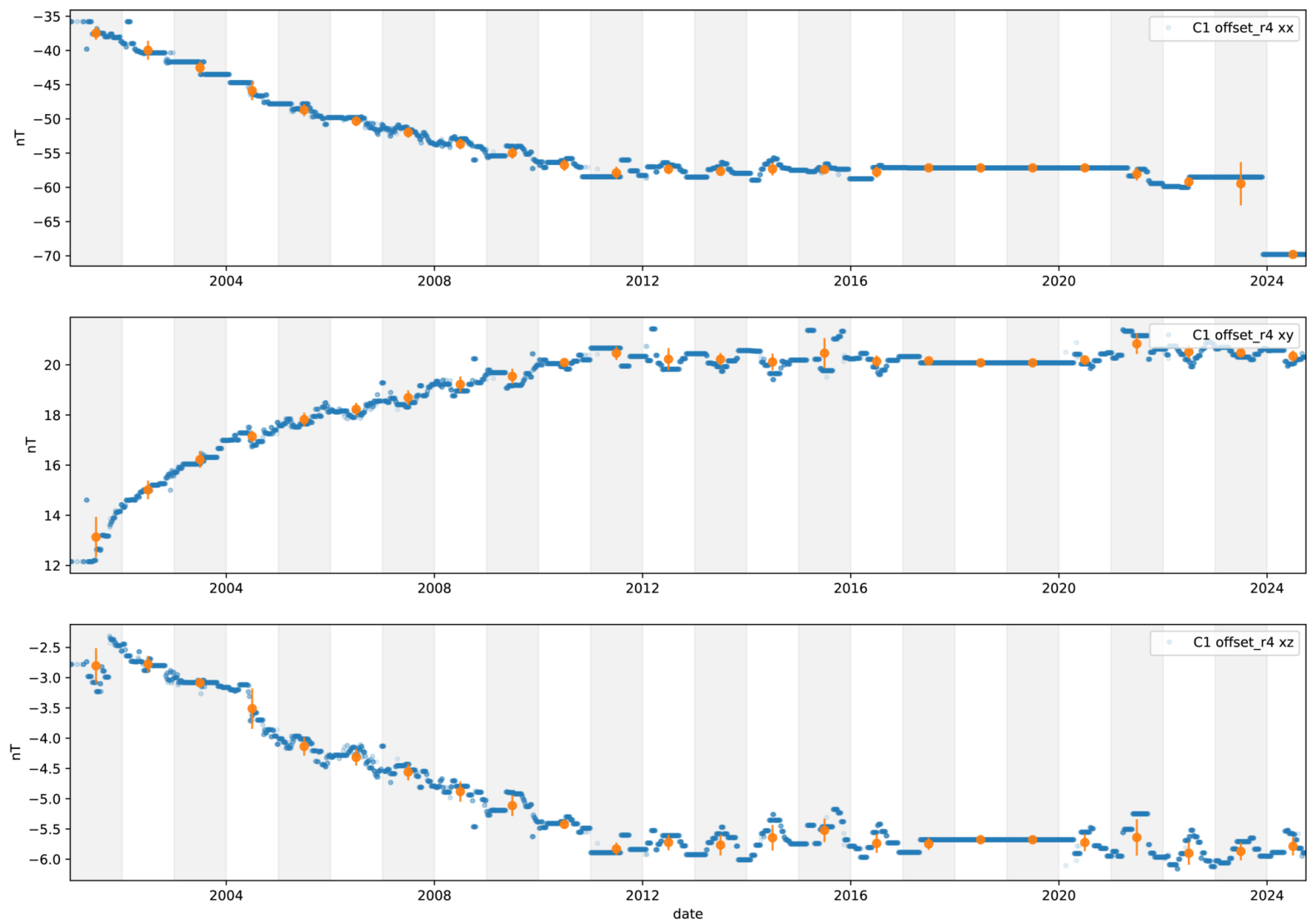


Figure S4: Cluster 1 offset\_r4

7

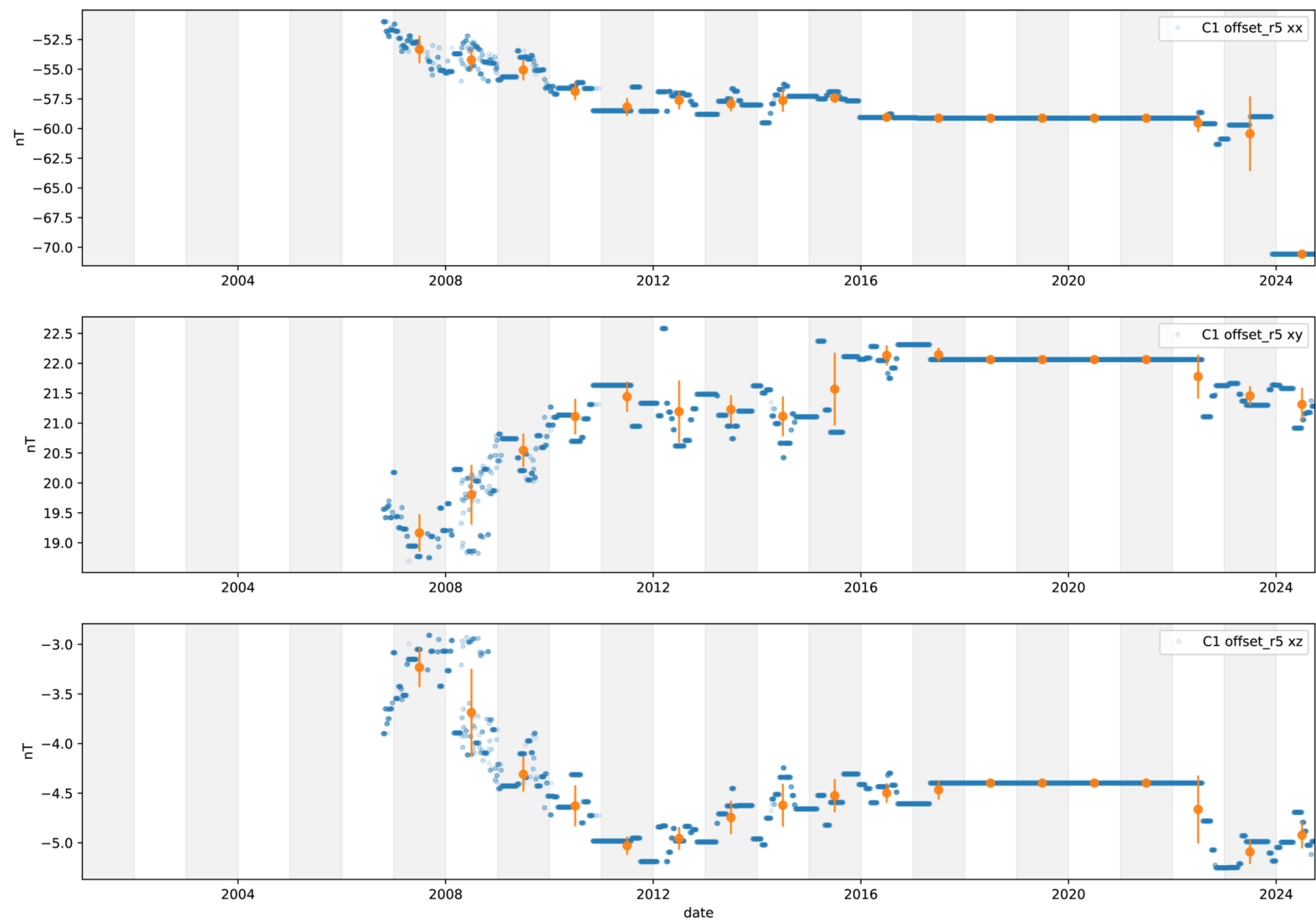


Figure S5: Cluster 1 offset\_r5

8

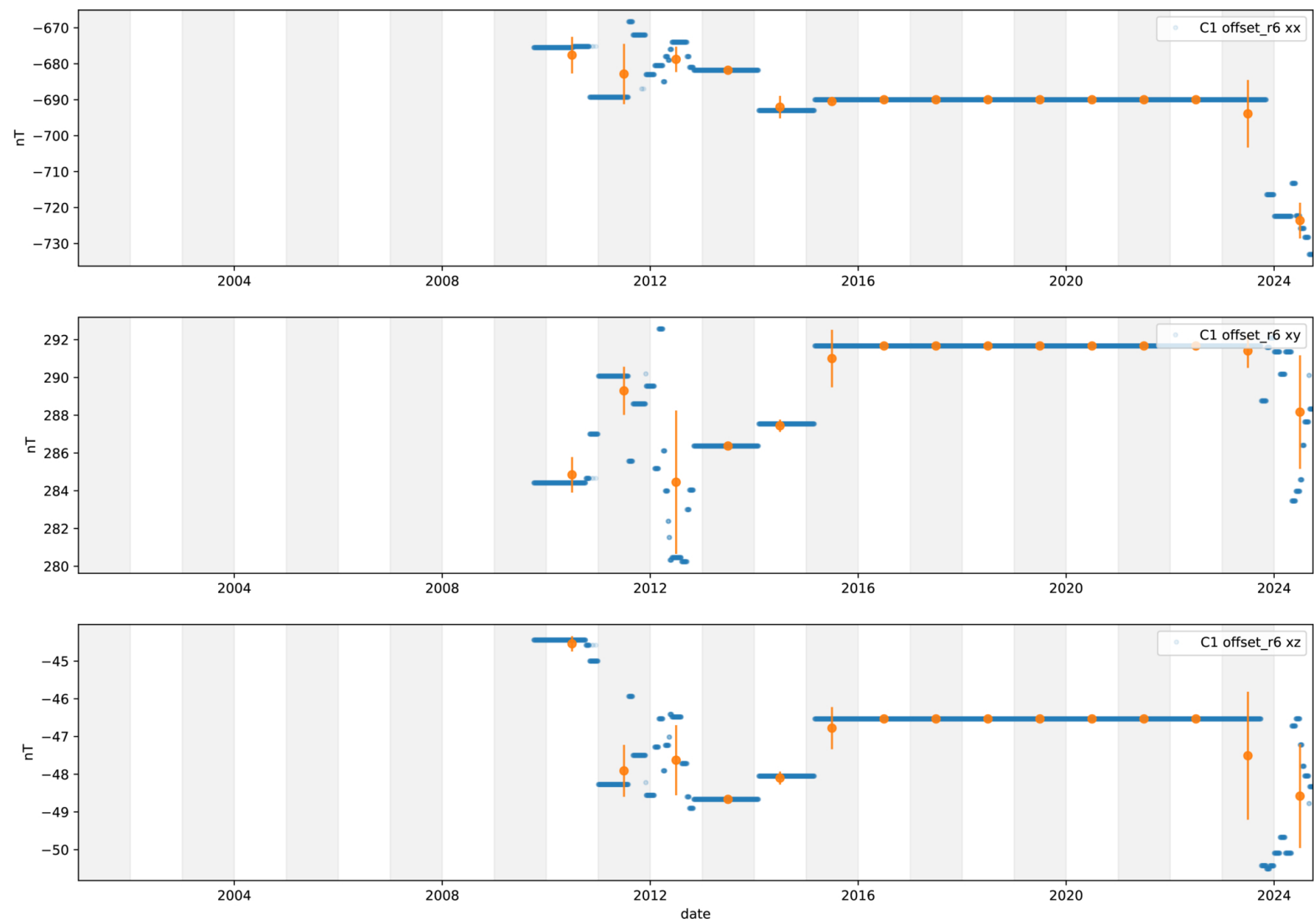


Figure S6: Cluster 1 offset\_r6

6

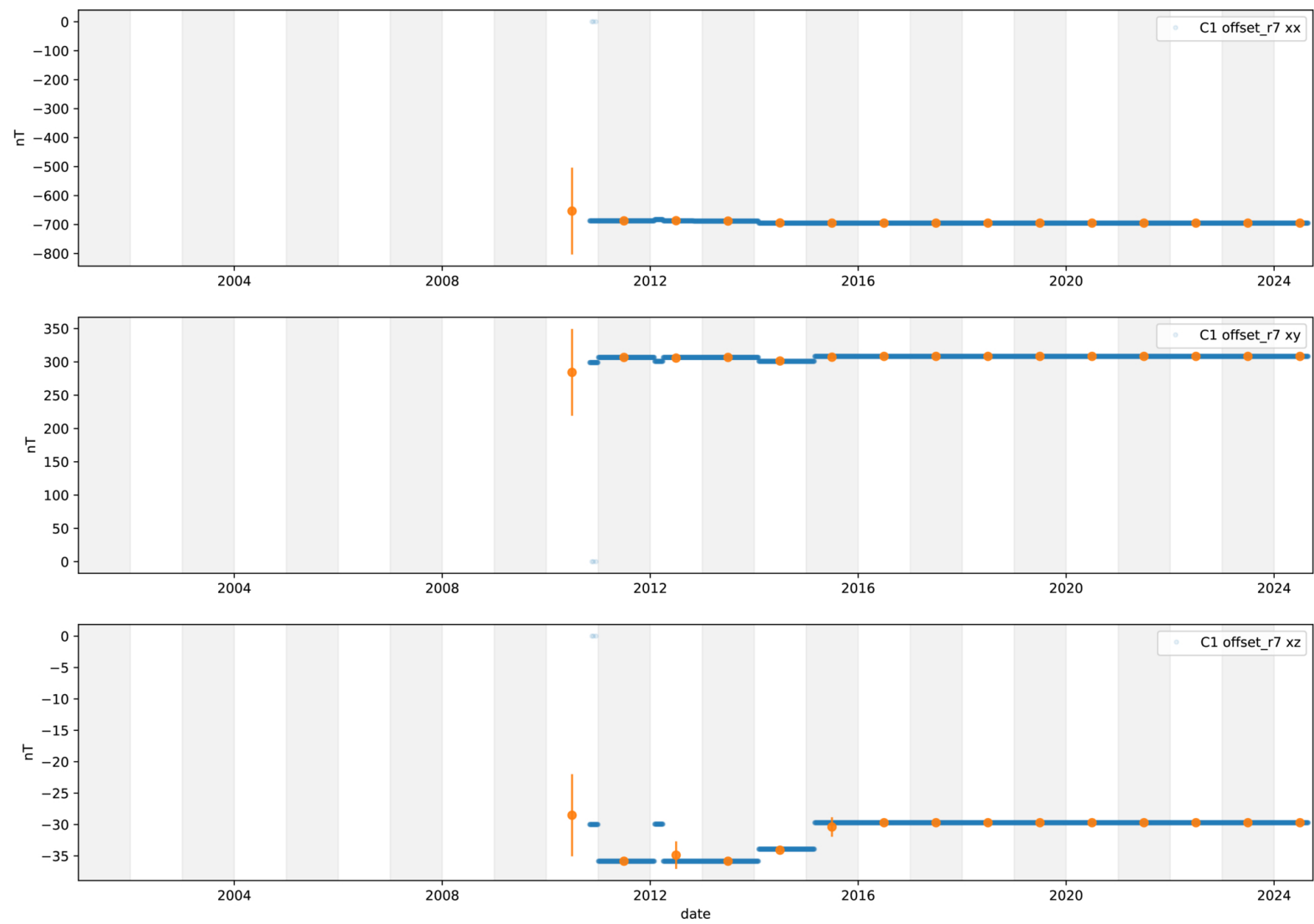


Figure S7: Cluster 1 offset\_r7

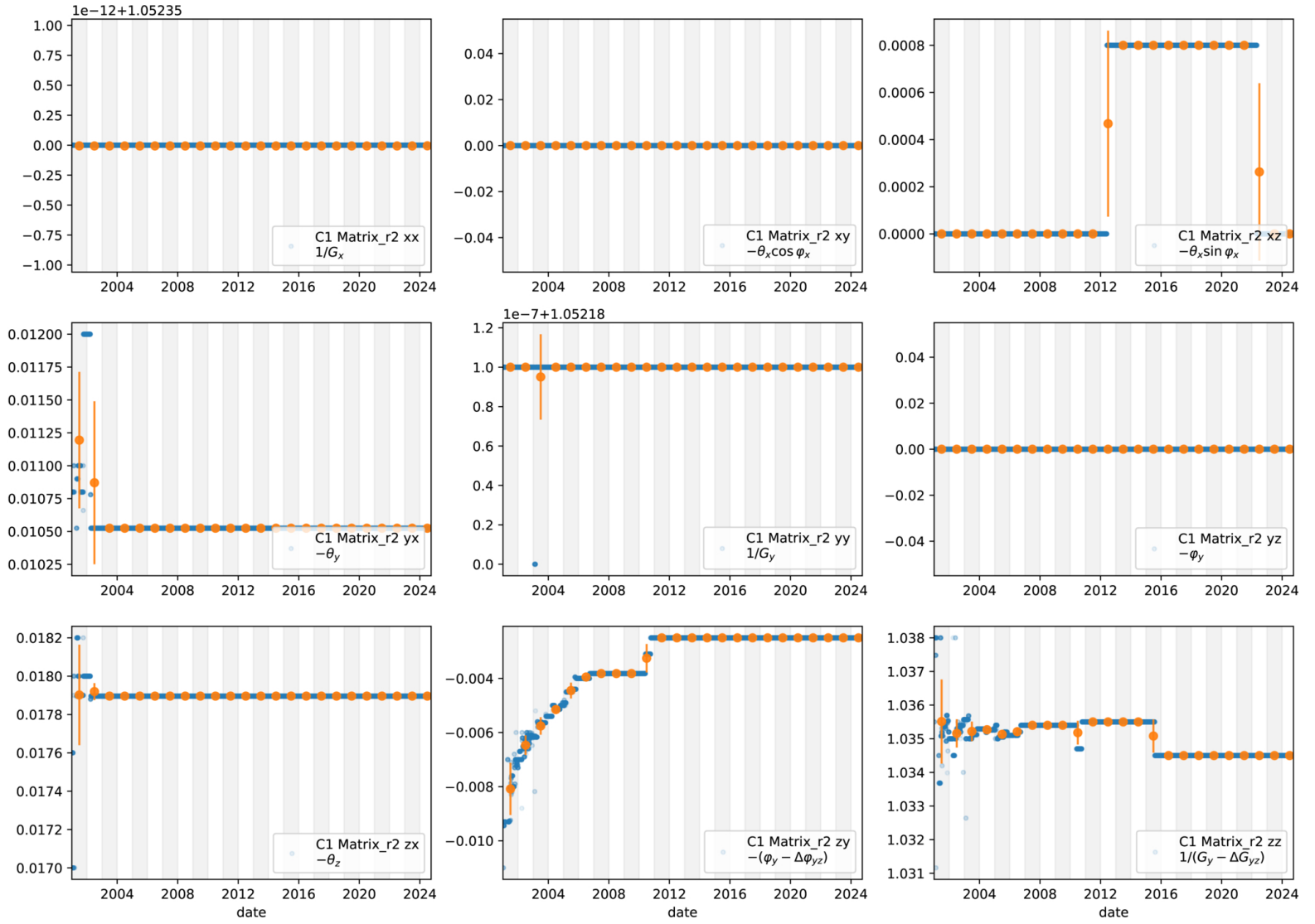


Figure S8: Cluster 1 Matrix\_r2

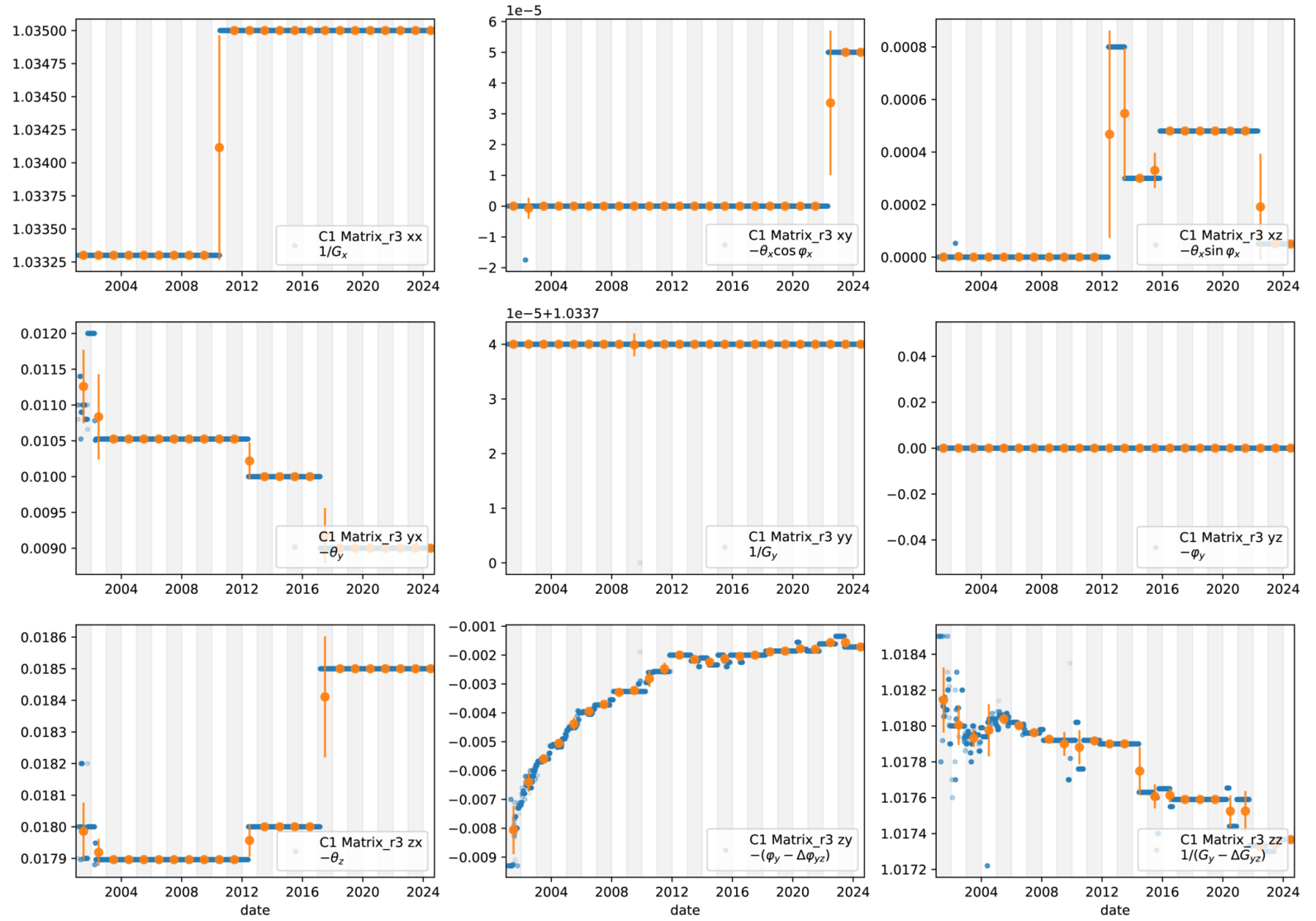


Figure S9: Cluster 1 Matrix\_r3

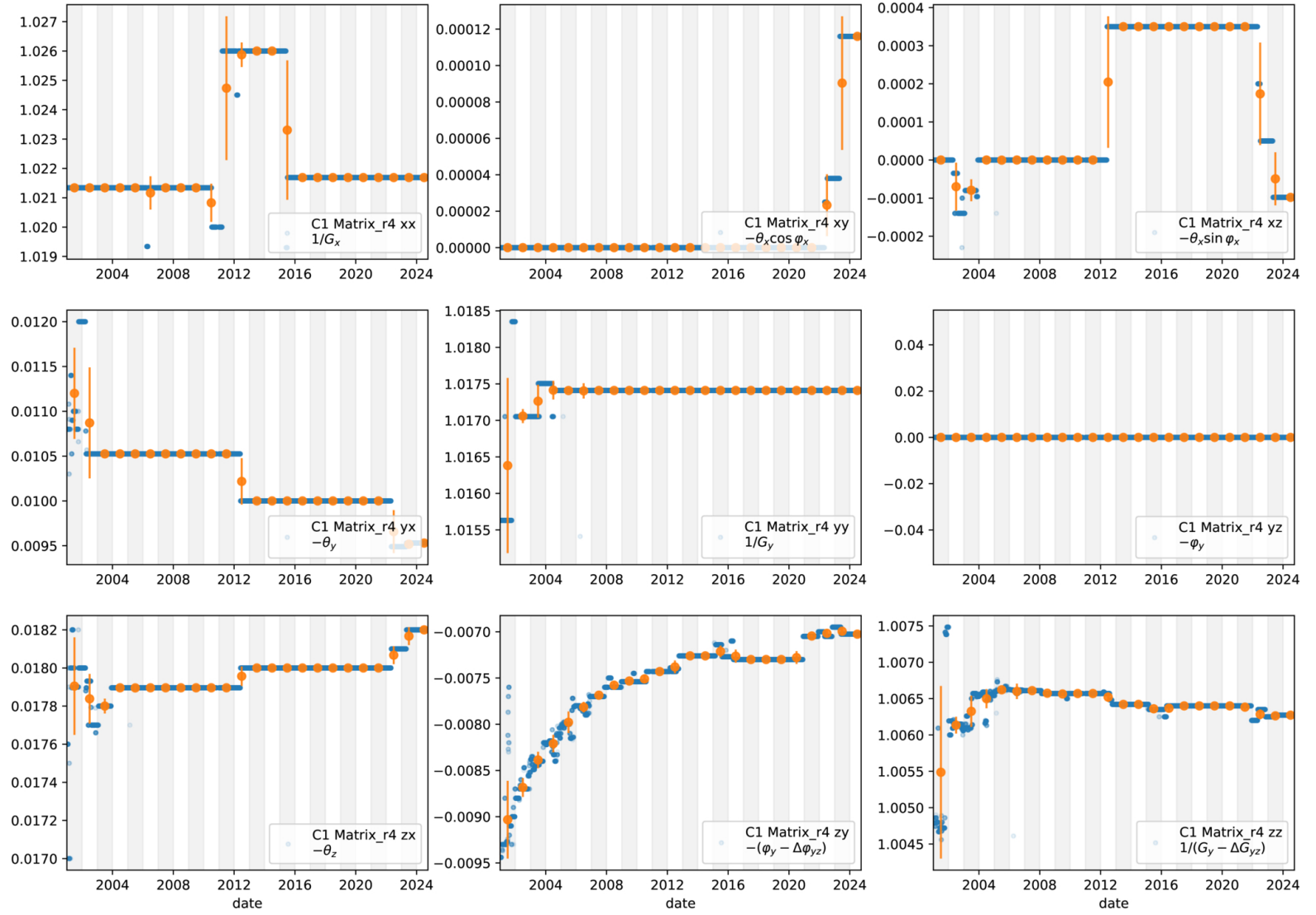


Figure S10: Cluster 1 Matrix\_r4

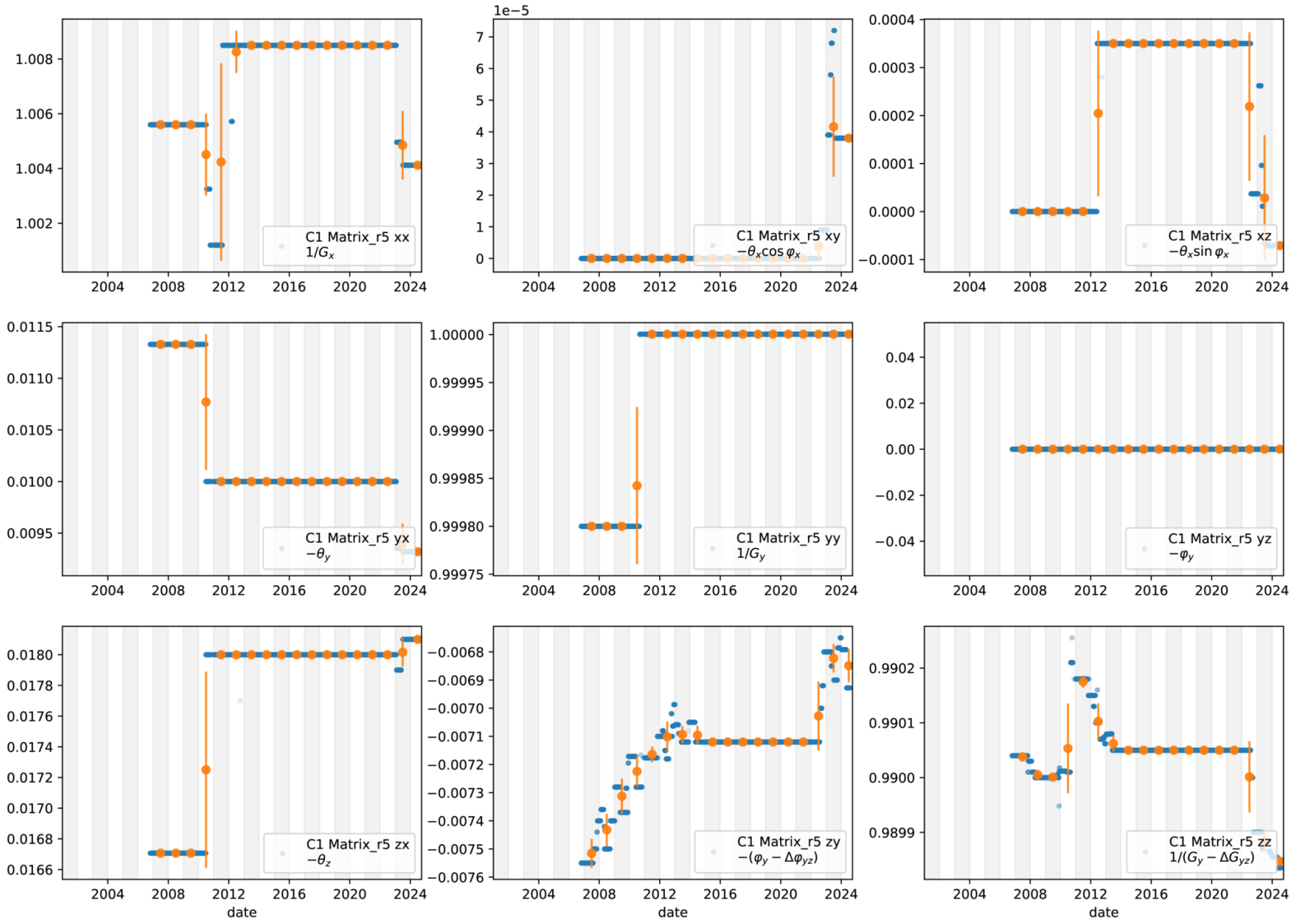


Figure S11: Cluster 1 Matrix\_r5

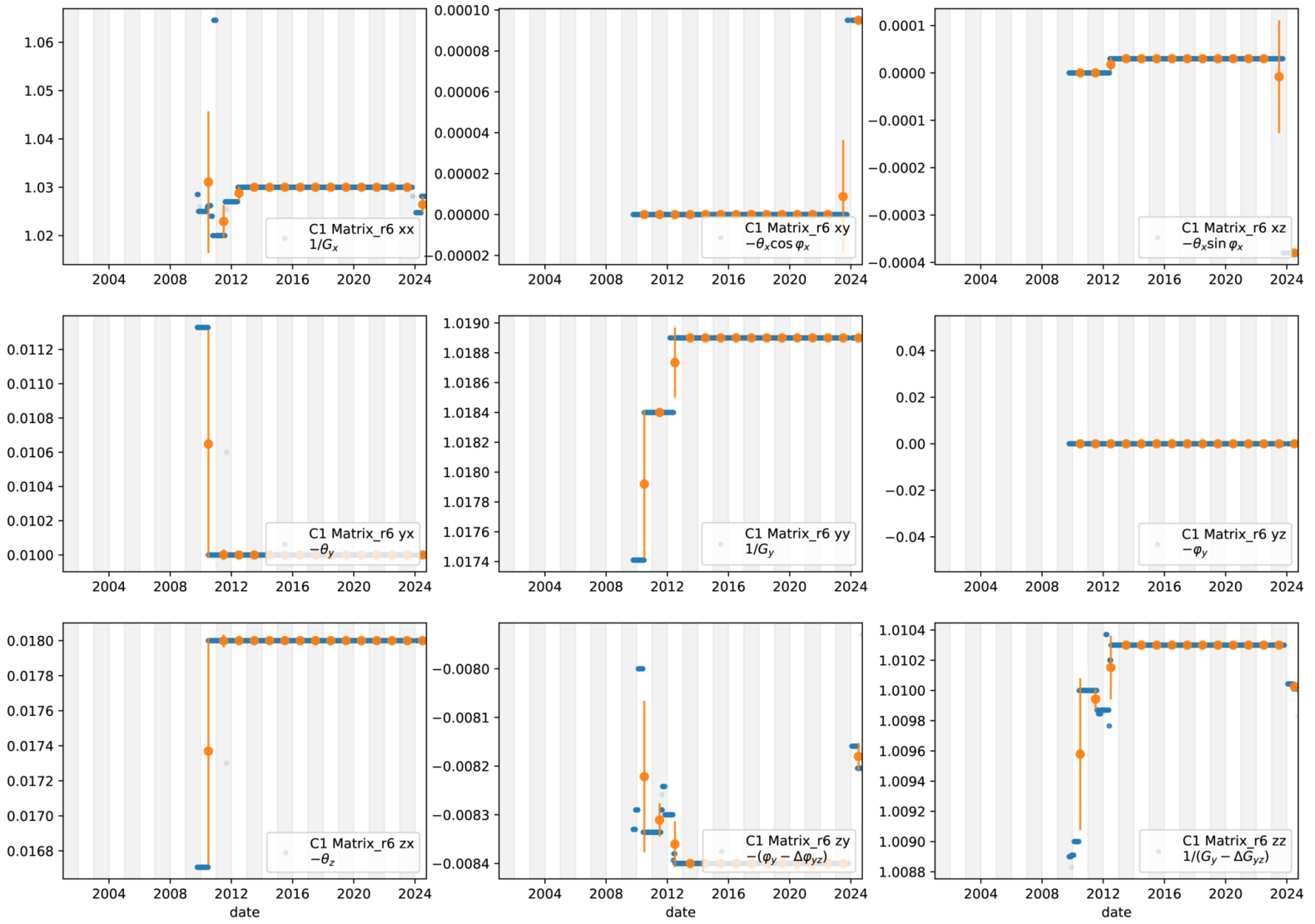


Figure S12: Cluster 1 Matrix\_r6

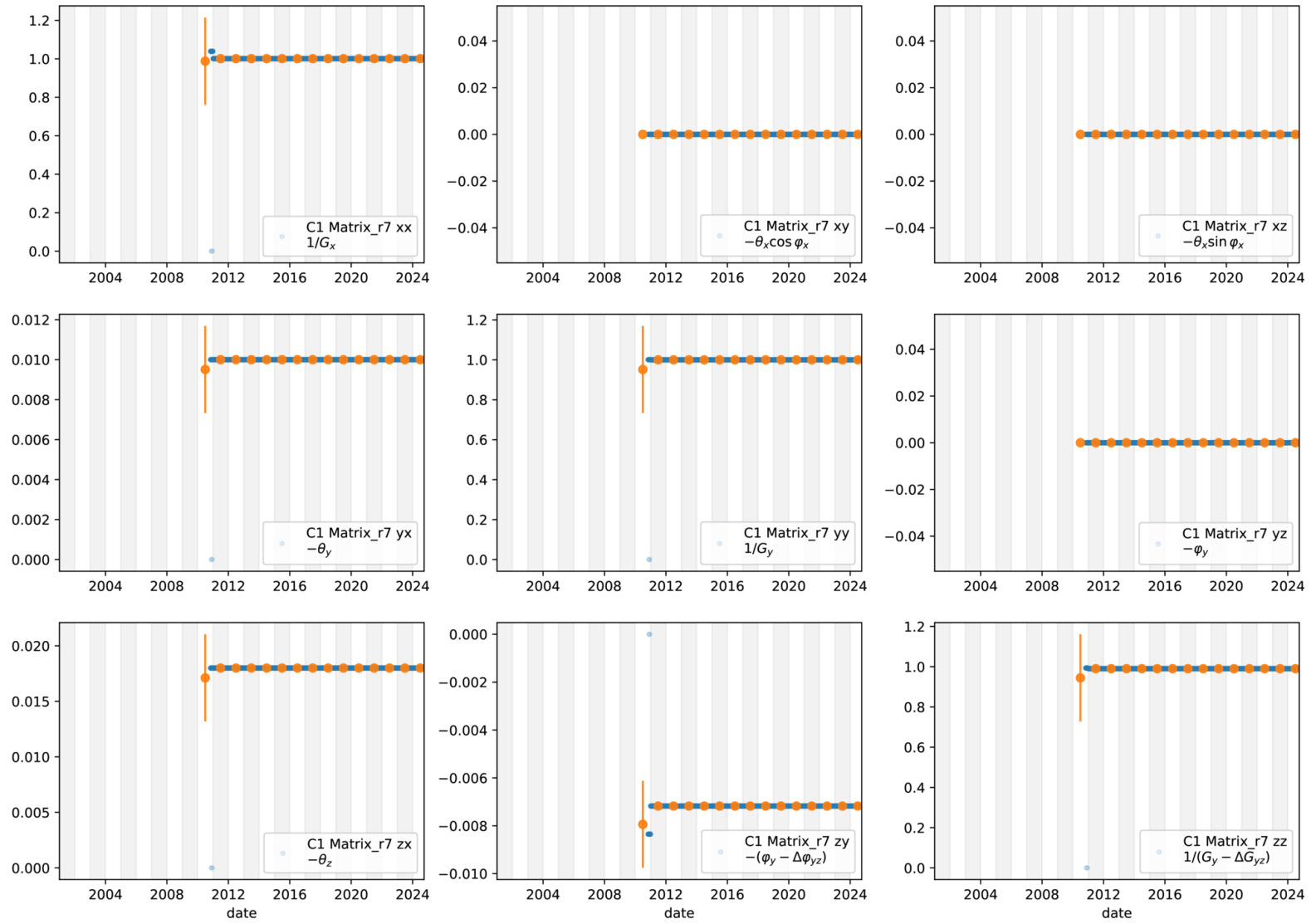


Figure S13: Cluster 1 Matrix\_r7

## 2 Cluster 2

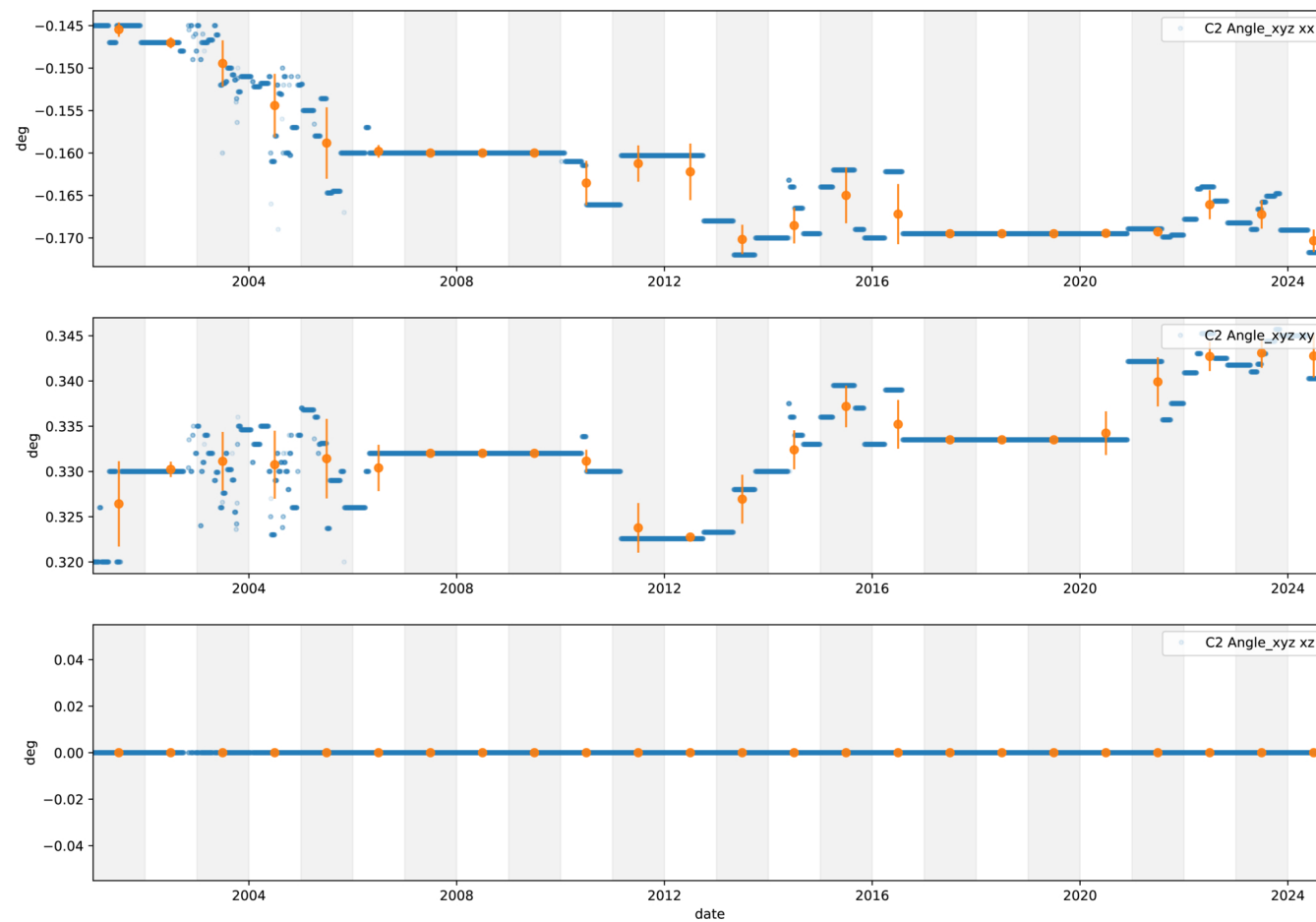


Figure S14: Cluster 2 Angle\_xyz

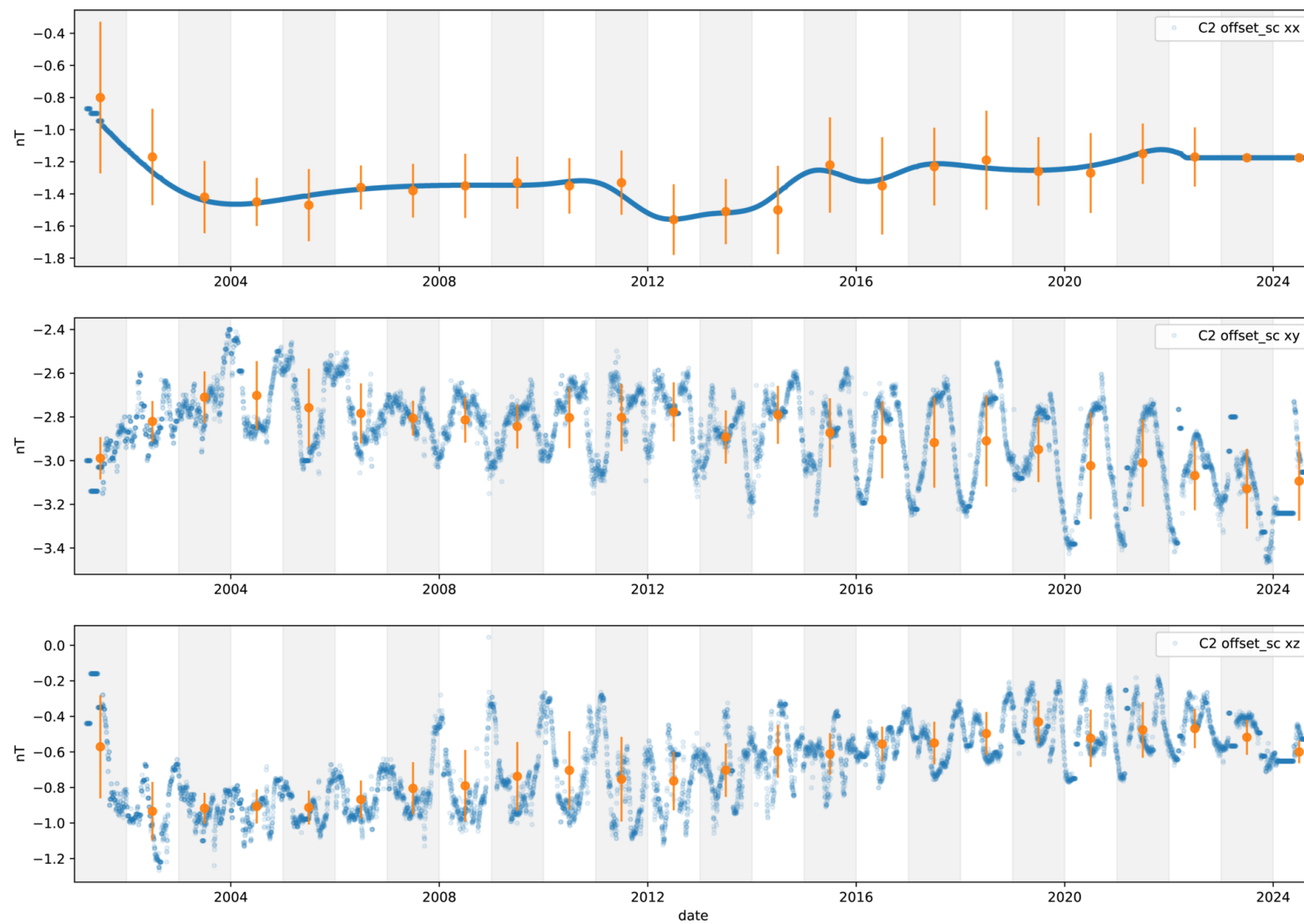


Figure S15: Cluster 2 offset\_sc

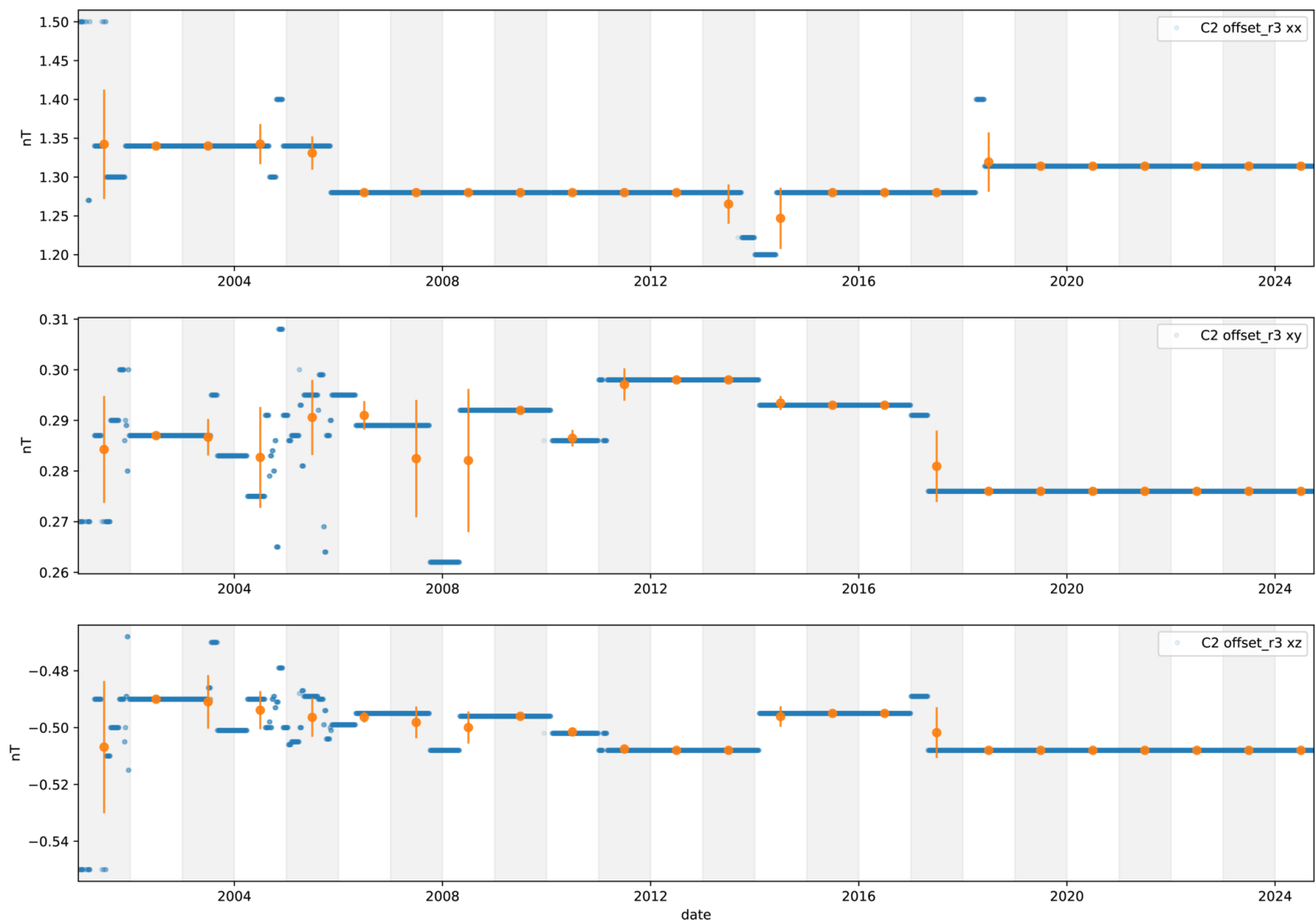


Figure S16: Cluster 2 offset\_r3

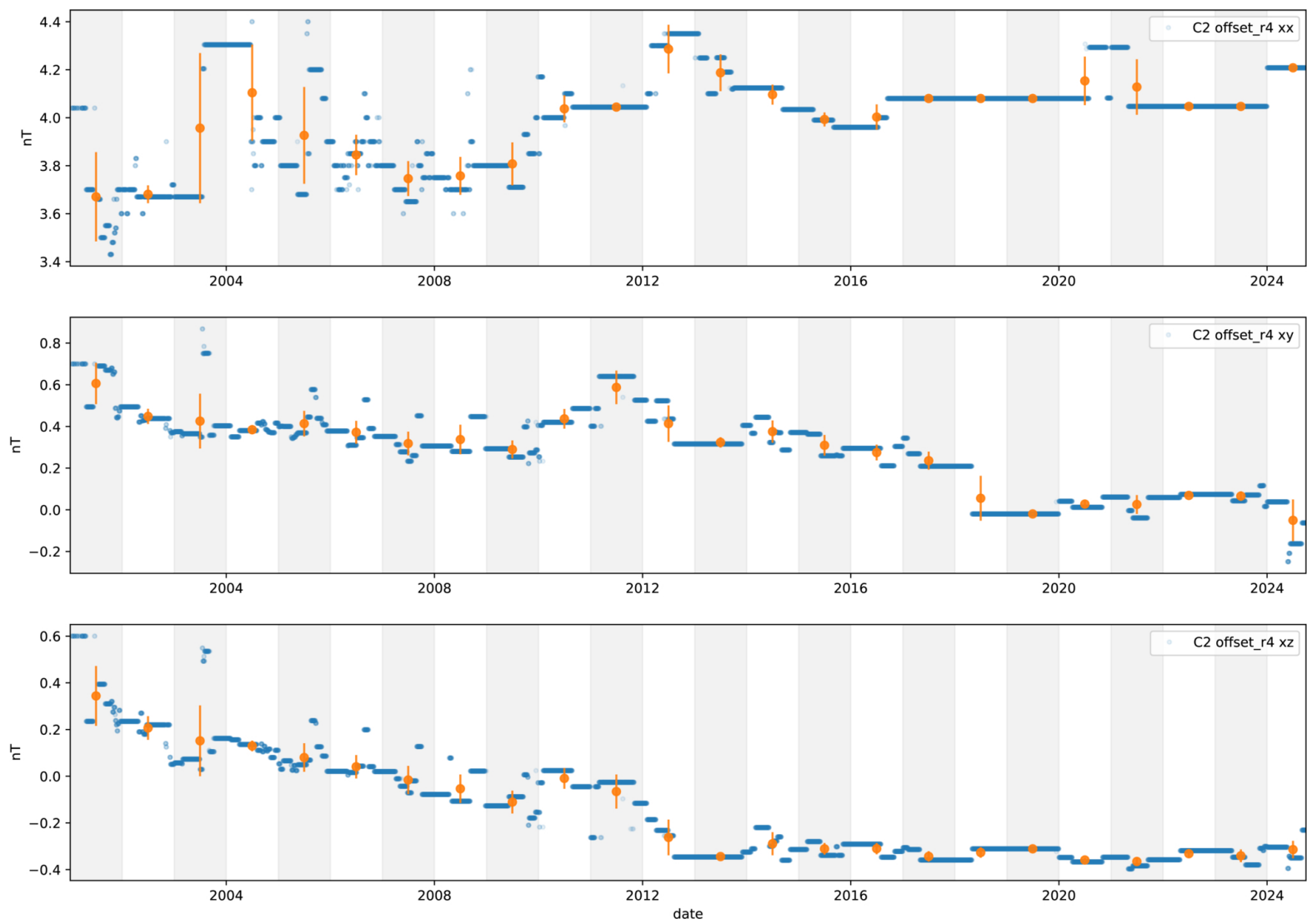


Figure S17: Cluster 2 offset\_r4

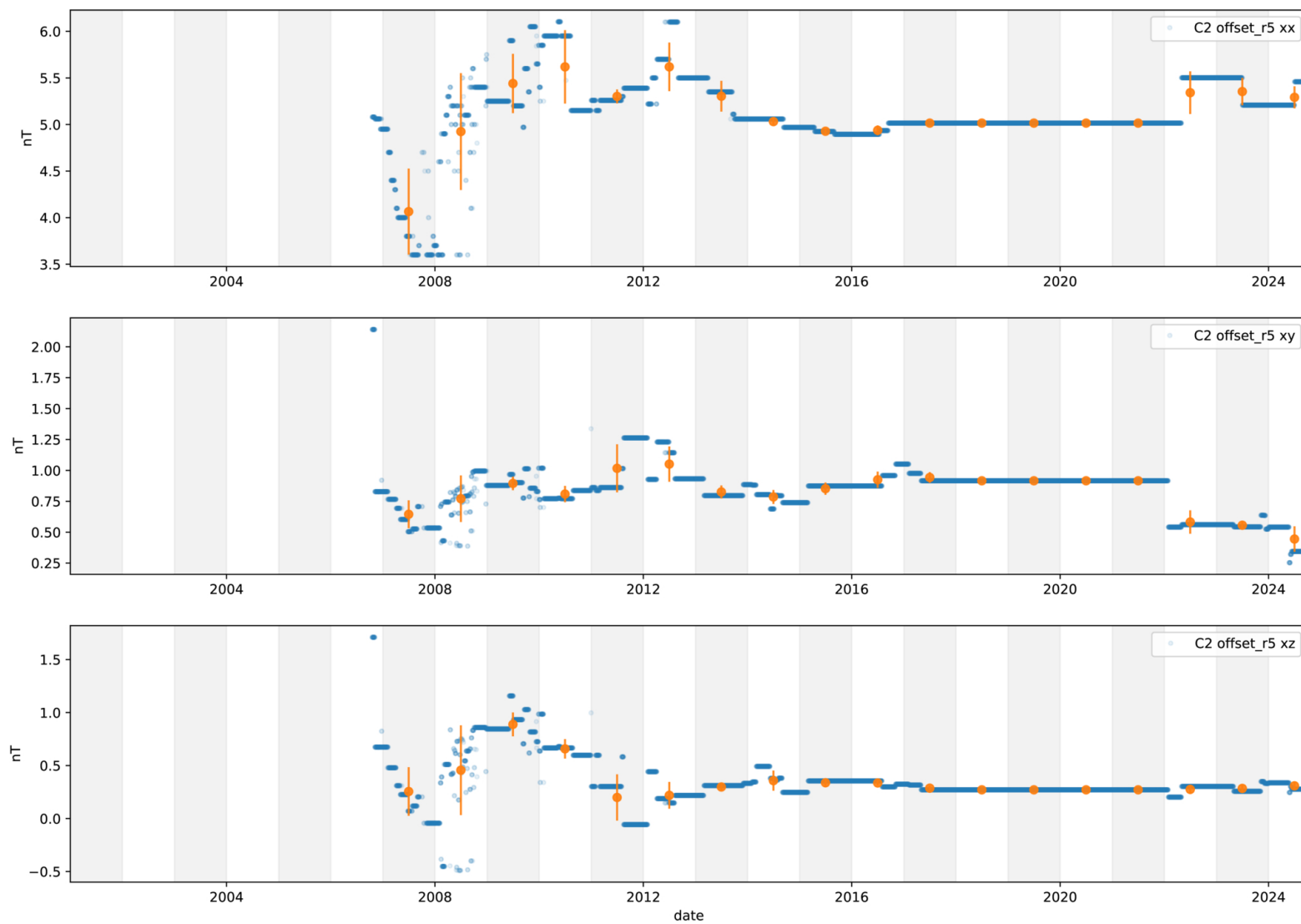


Figure S18: Cluster 2 offset\_r5

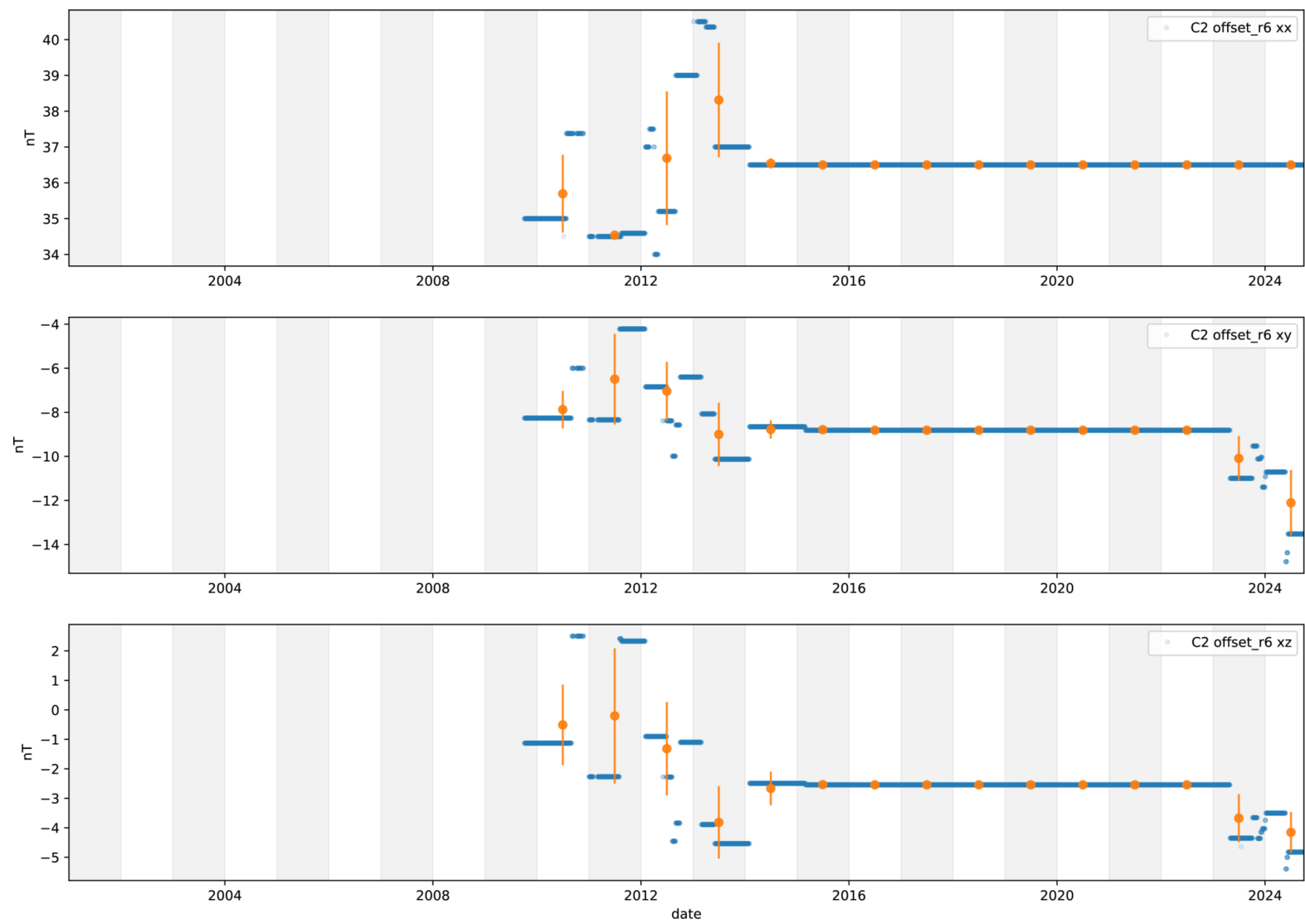


Figure S19: Cluster 2 offset\_r6

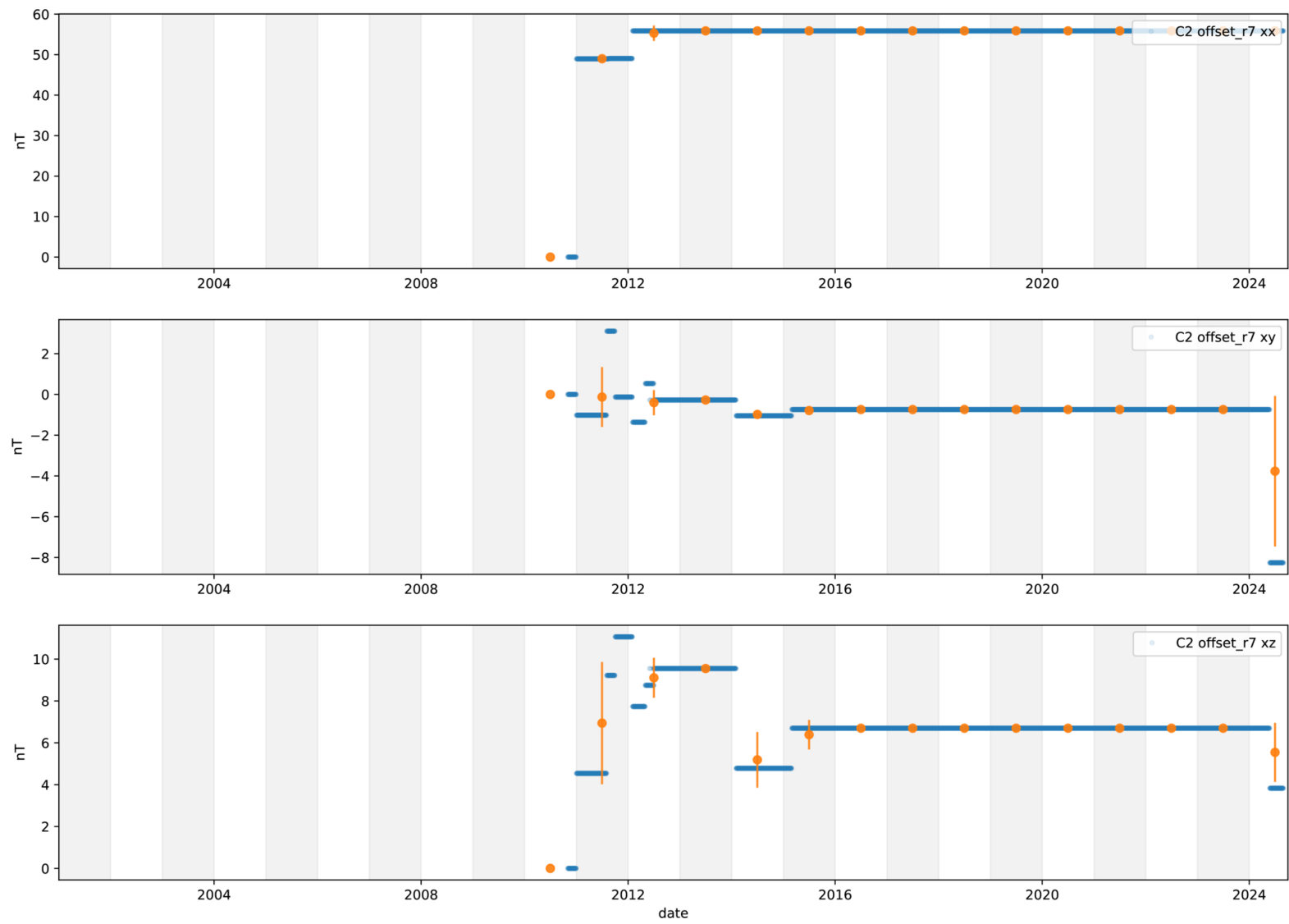


Figure S20: Cluster 2 offset\_r7

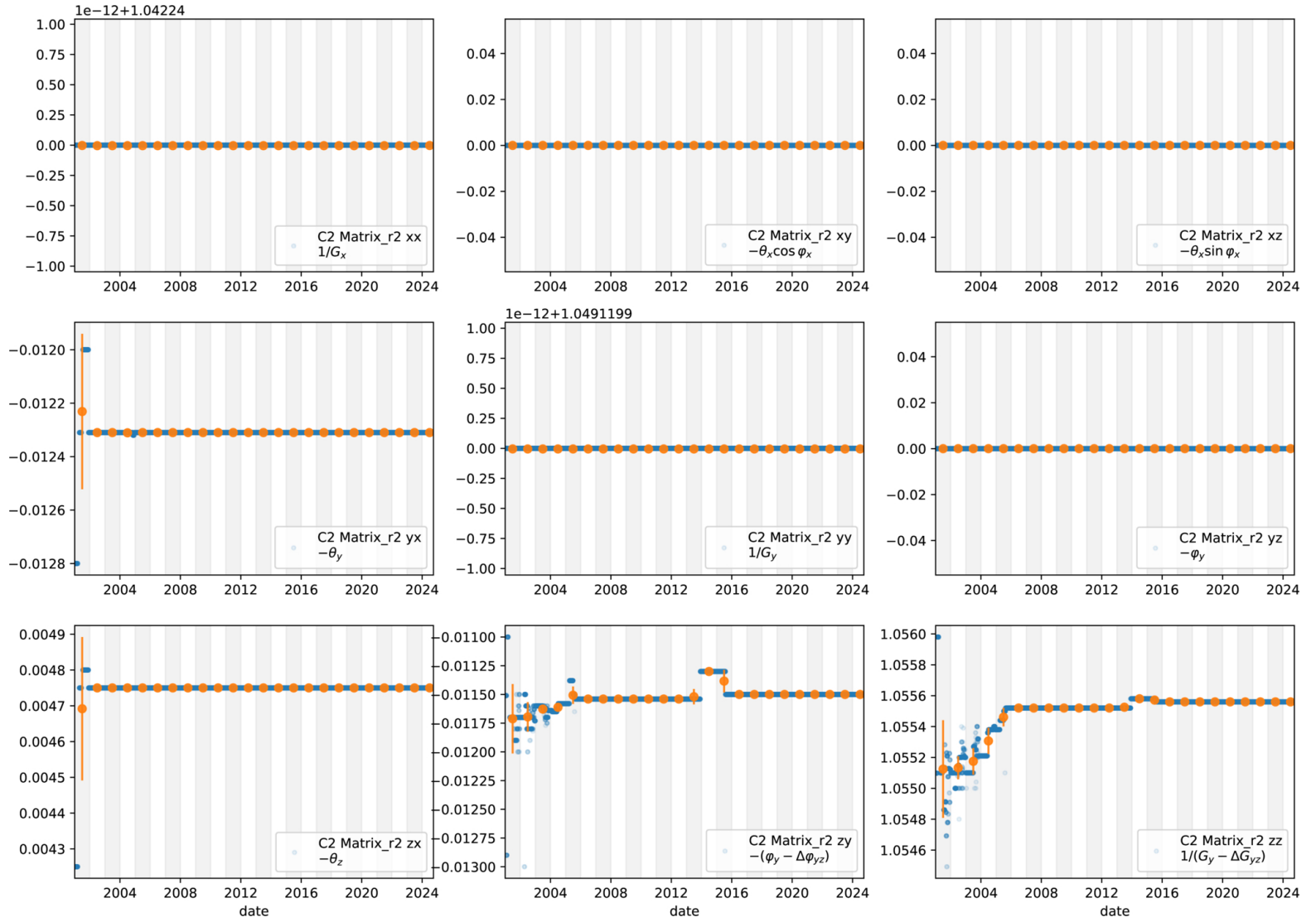


Figure S21: Cluster 2 Matrix\_r2

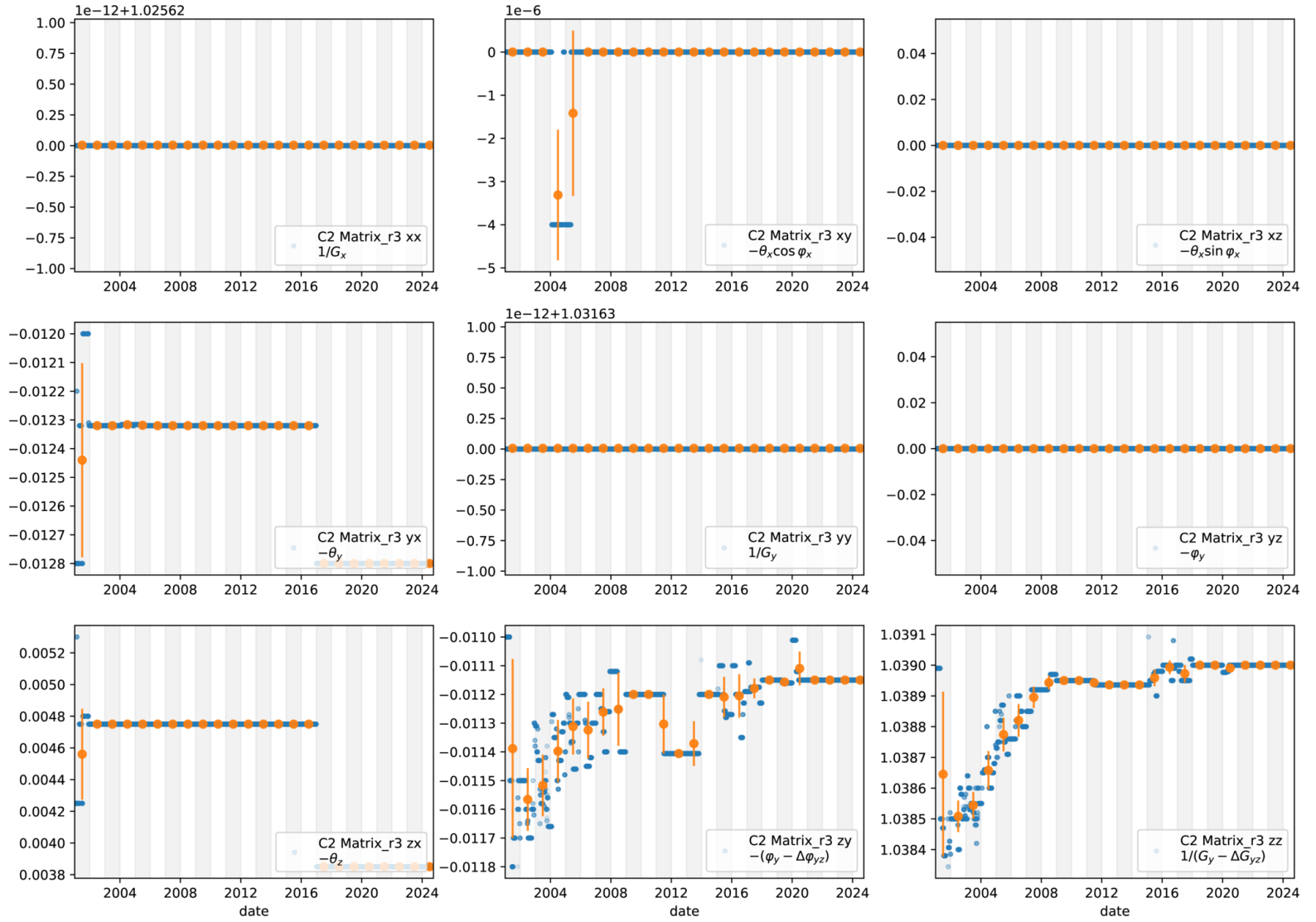


Figure S22: Cluster 2 Matrix\_r3

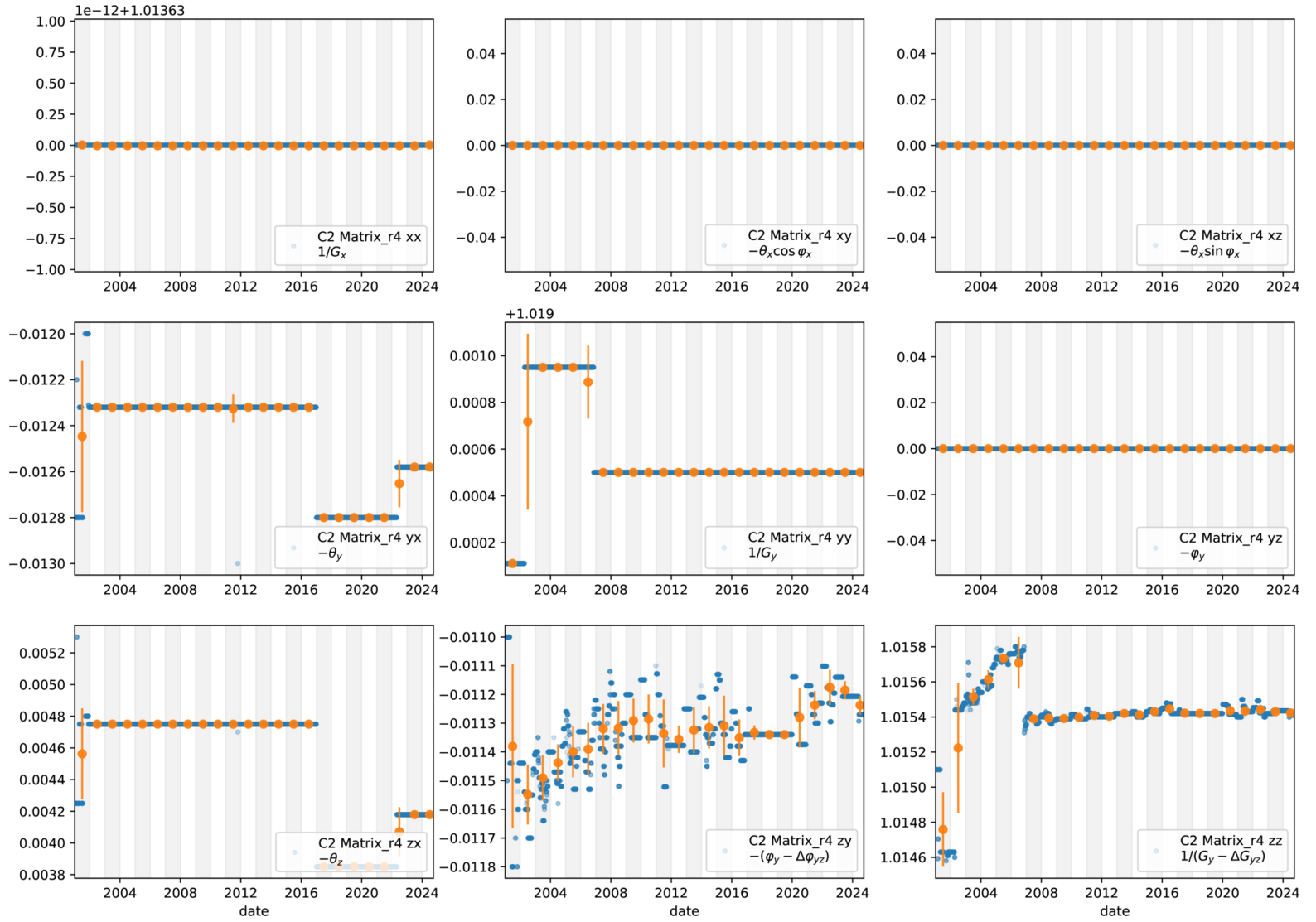


Figure S23: Cluster 2 Matrix\_r4

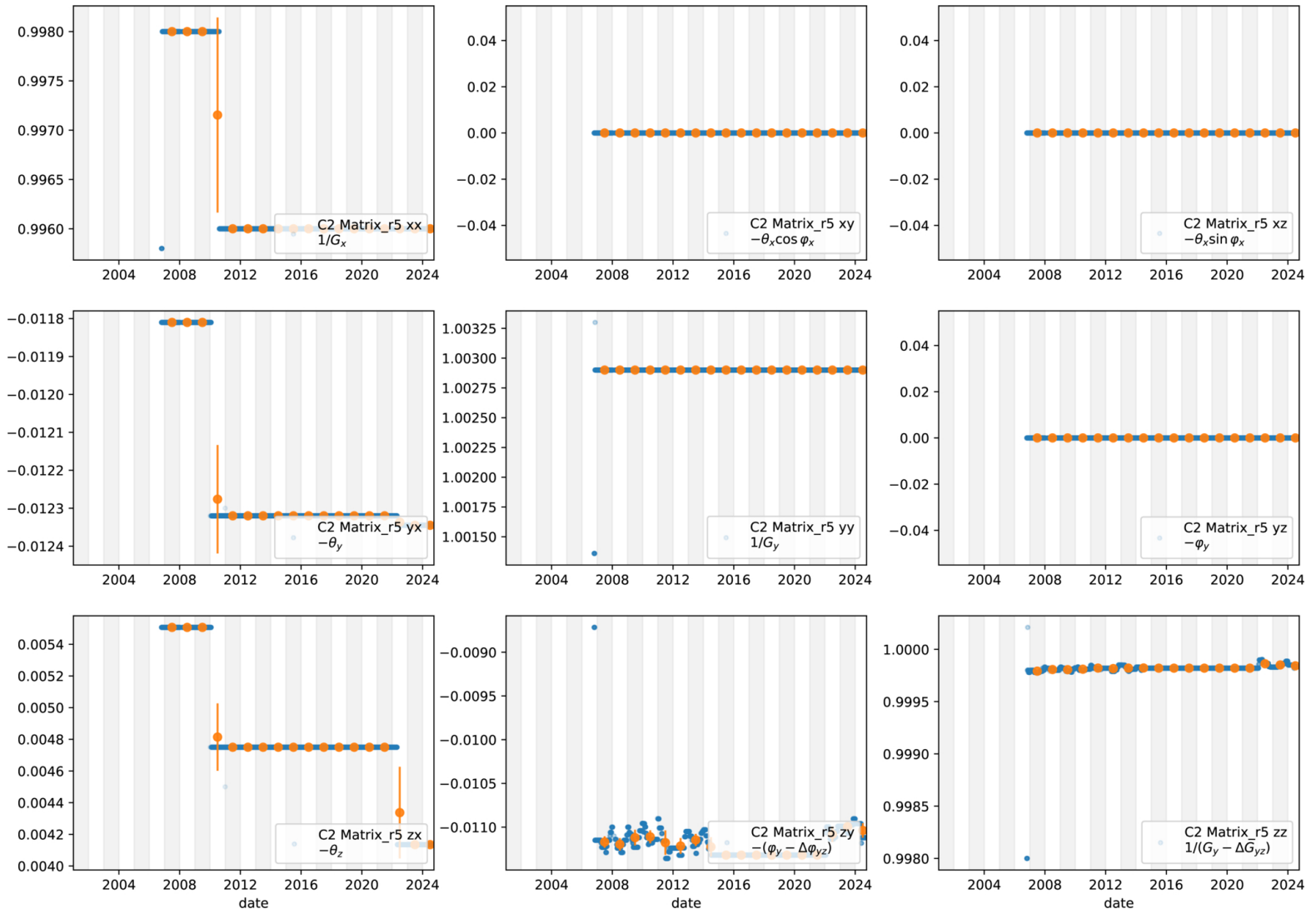


Figure S24: Cluster 2 Matrix\_r5

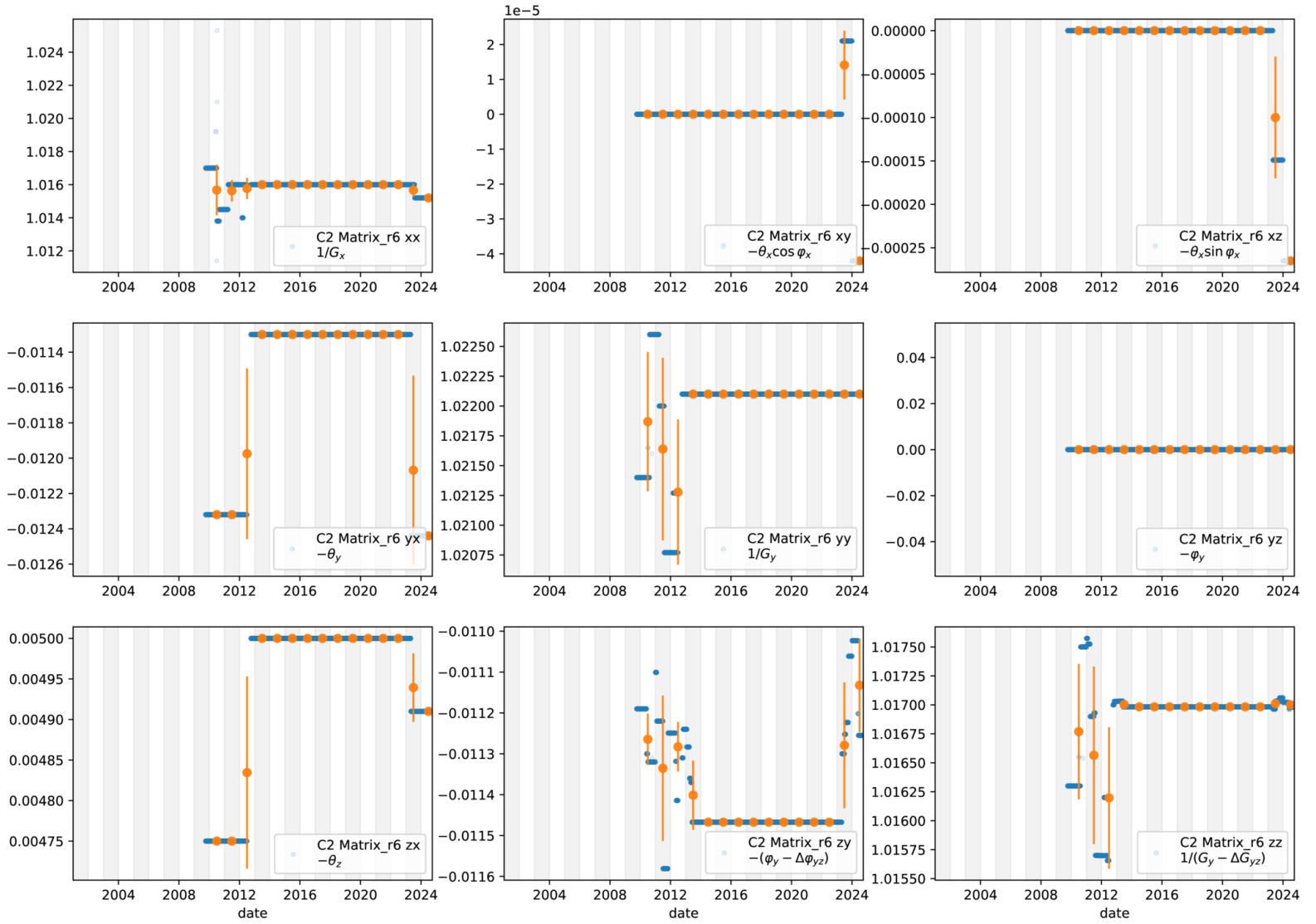


Figure S25: Cluster 2 Matrix\_r6

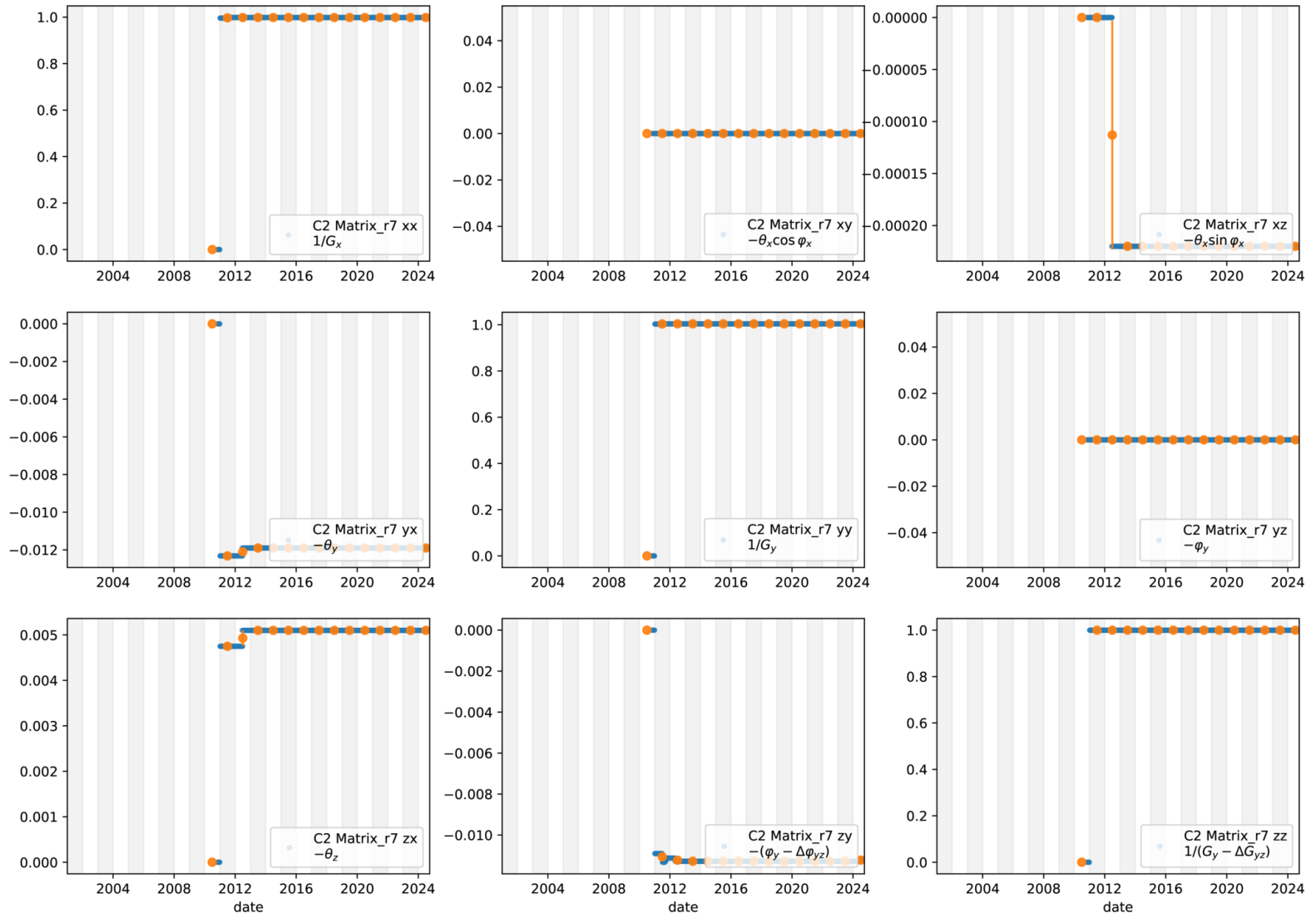


Figure S26: Cluster 2 Matrix\_r7

### 3 Cluster 3

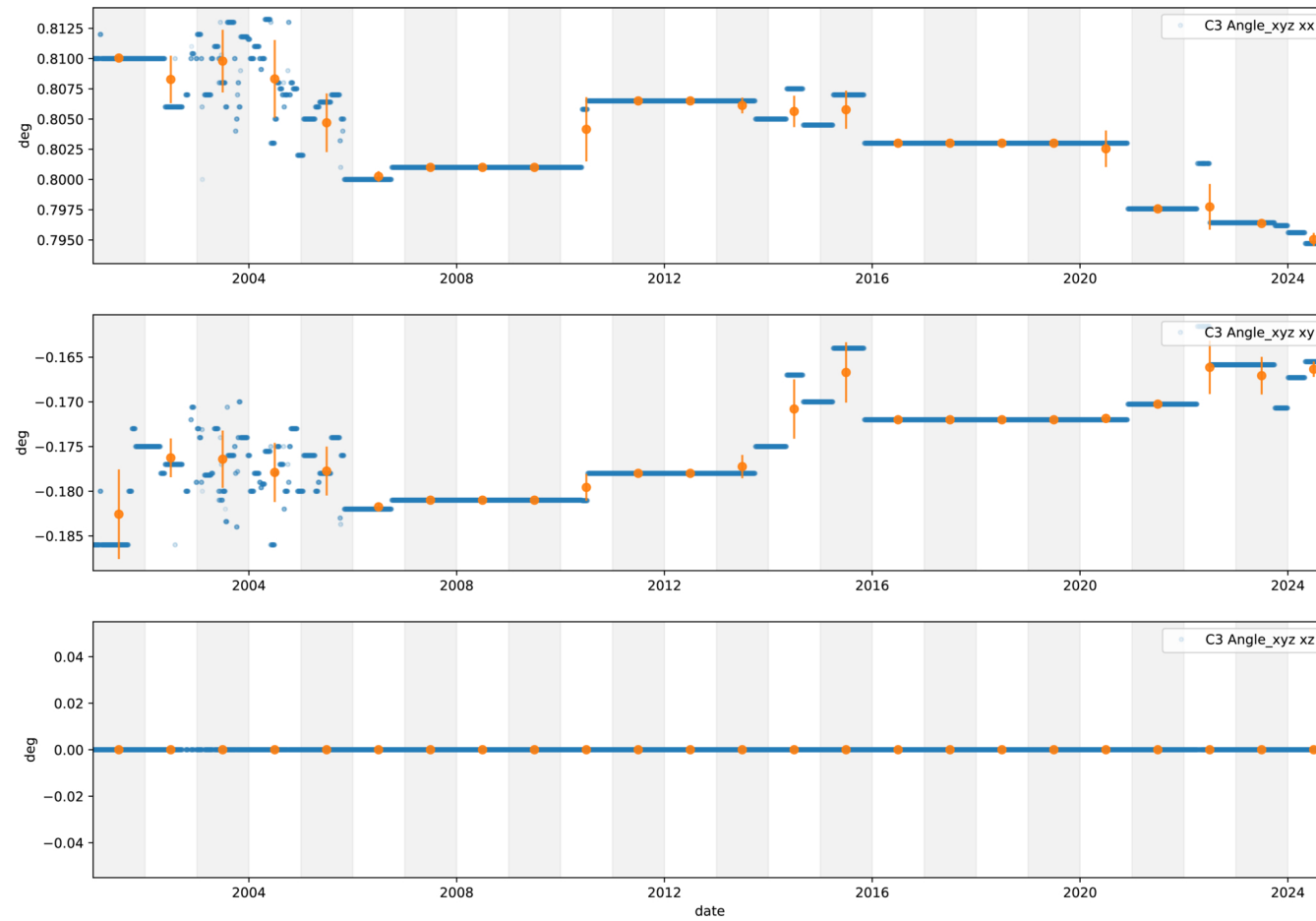


Figure S27: Cluster 3 Angle\_xyz

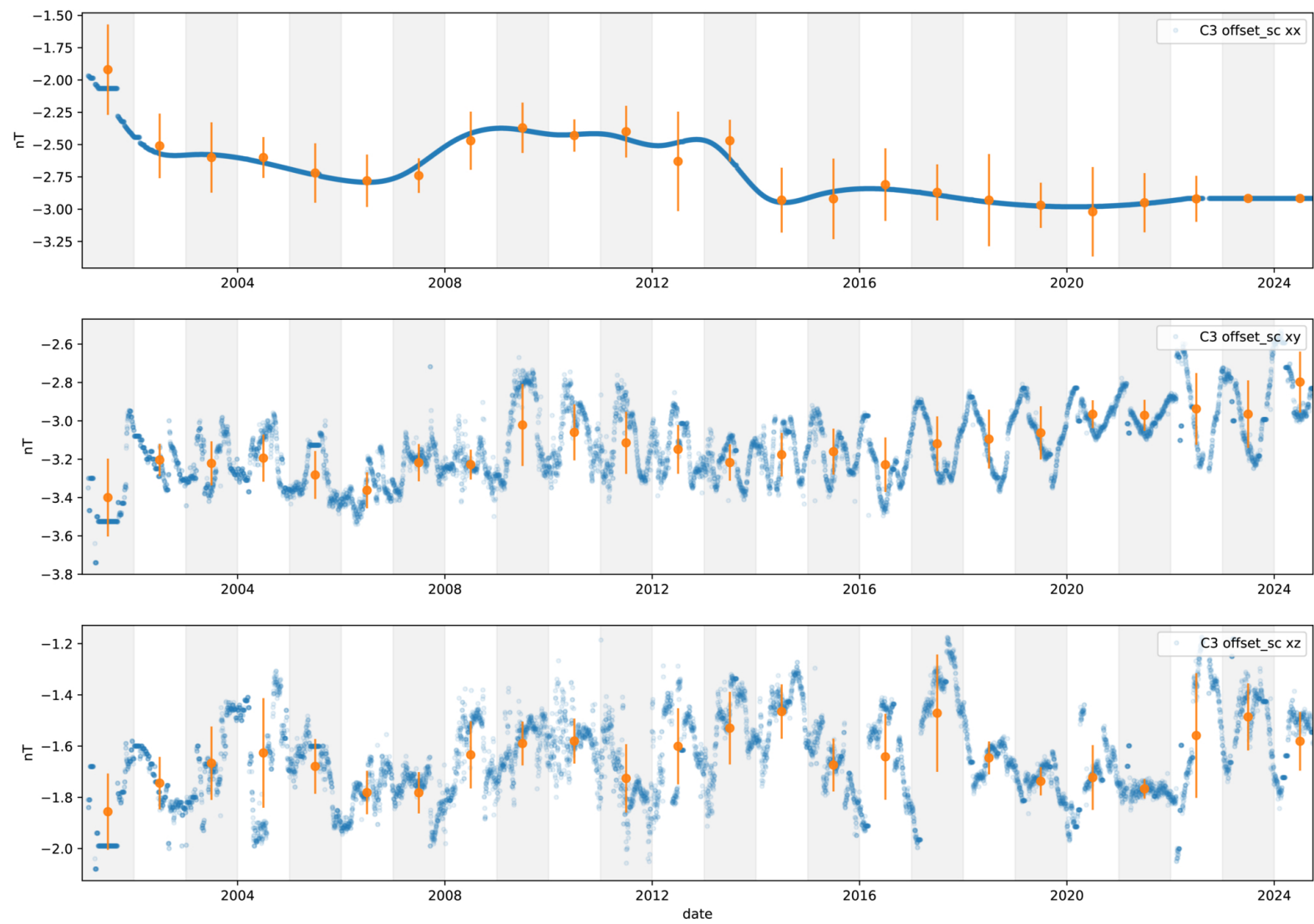


Figure S28: Cluster 3 offset\_sc

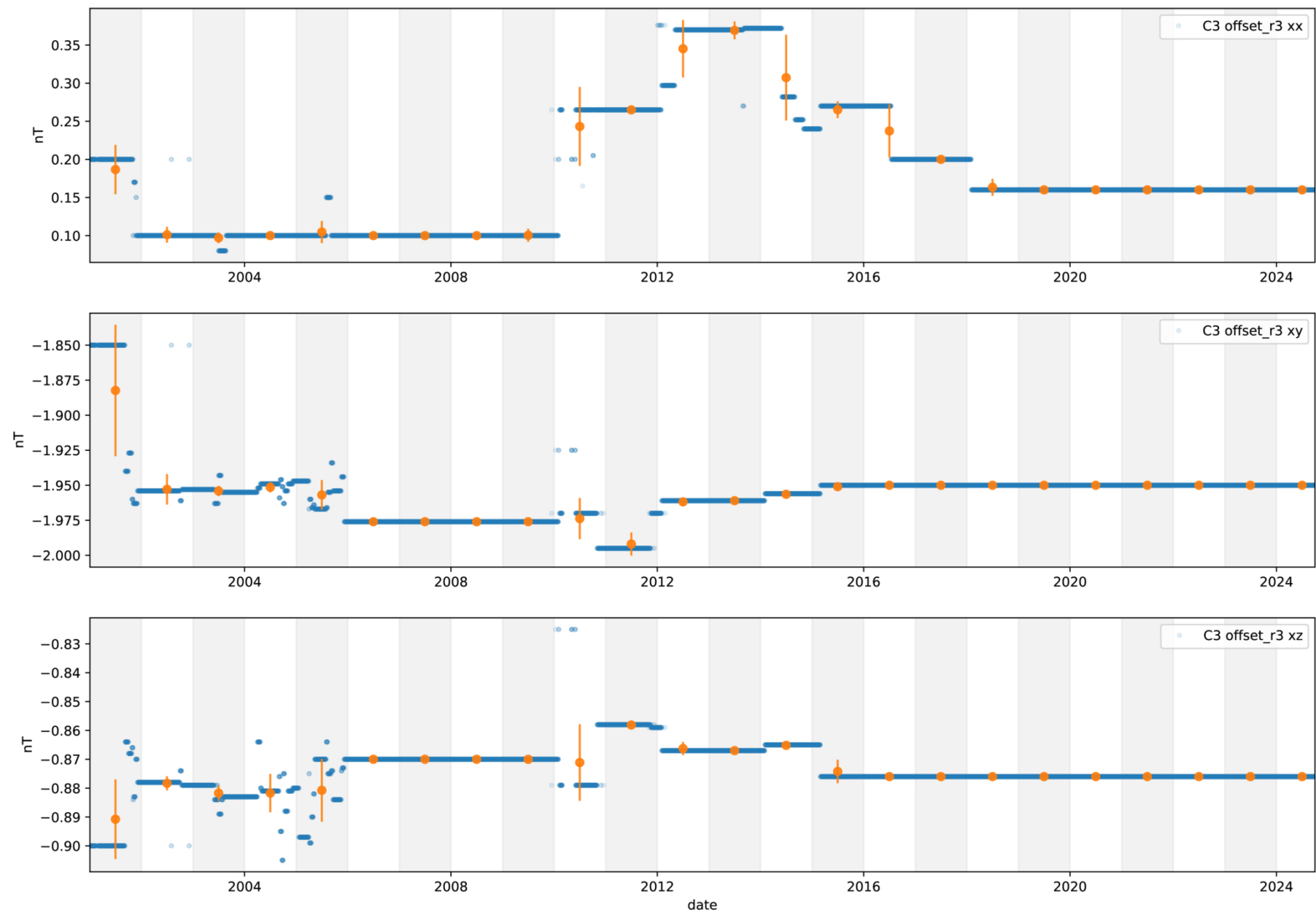


Figure S29: Cluster 3 offset\_r3

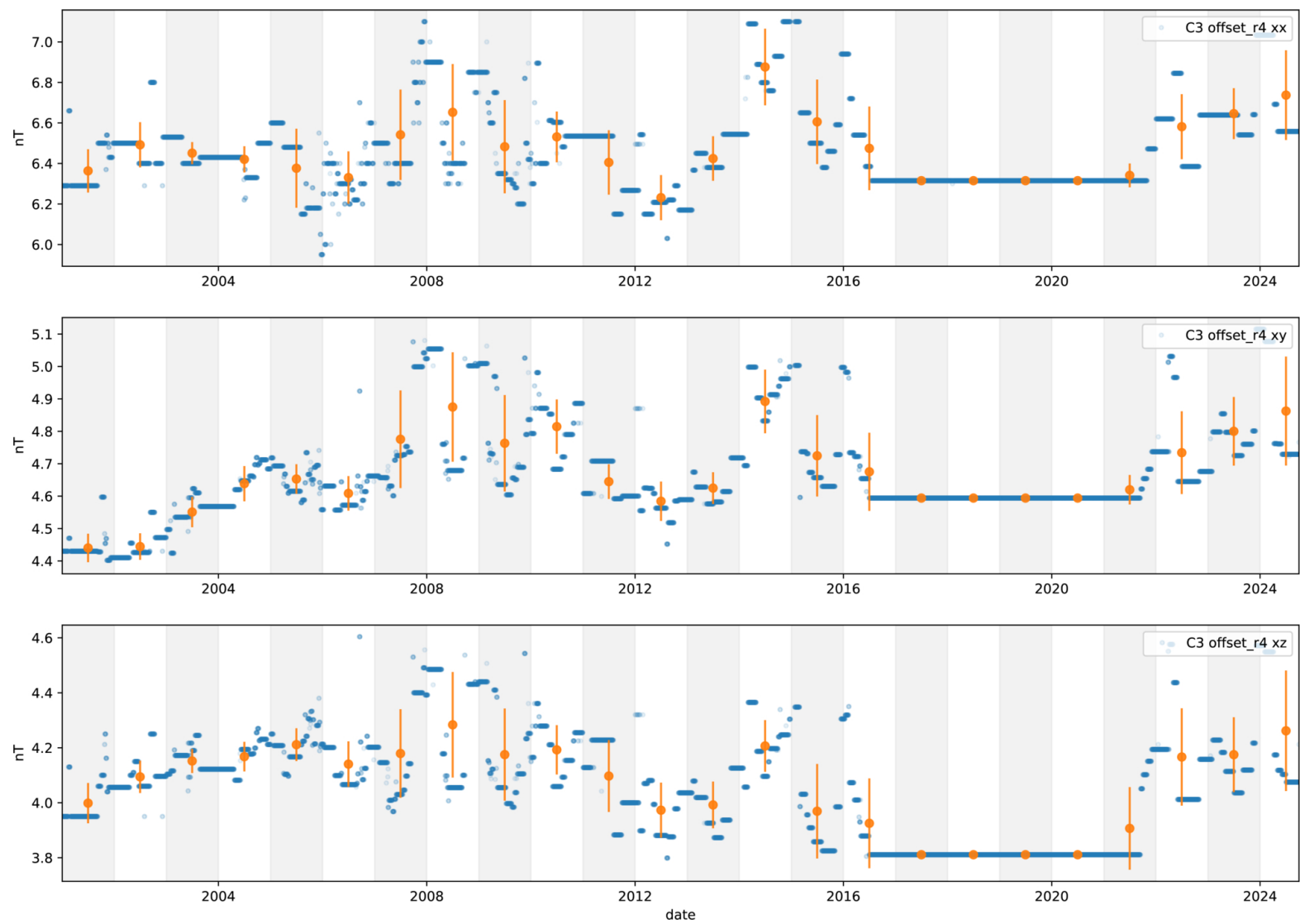


Figure S30: Cluster 3 offset\_r4

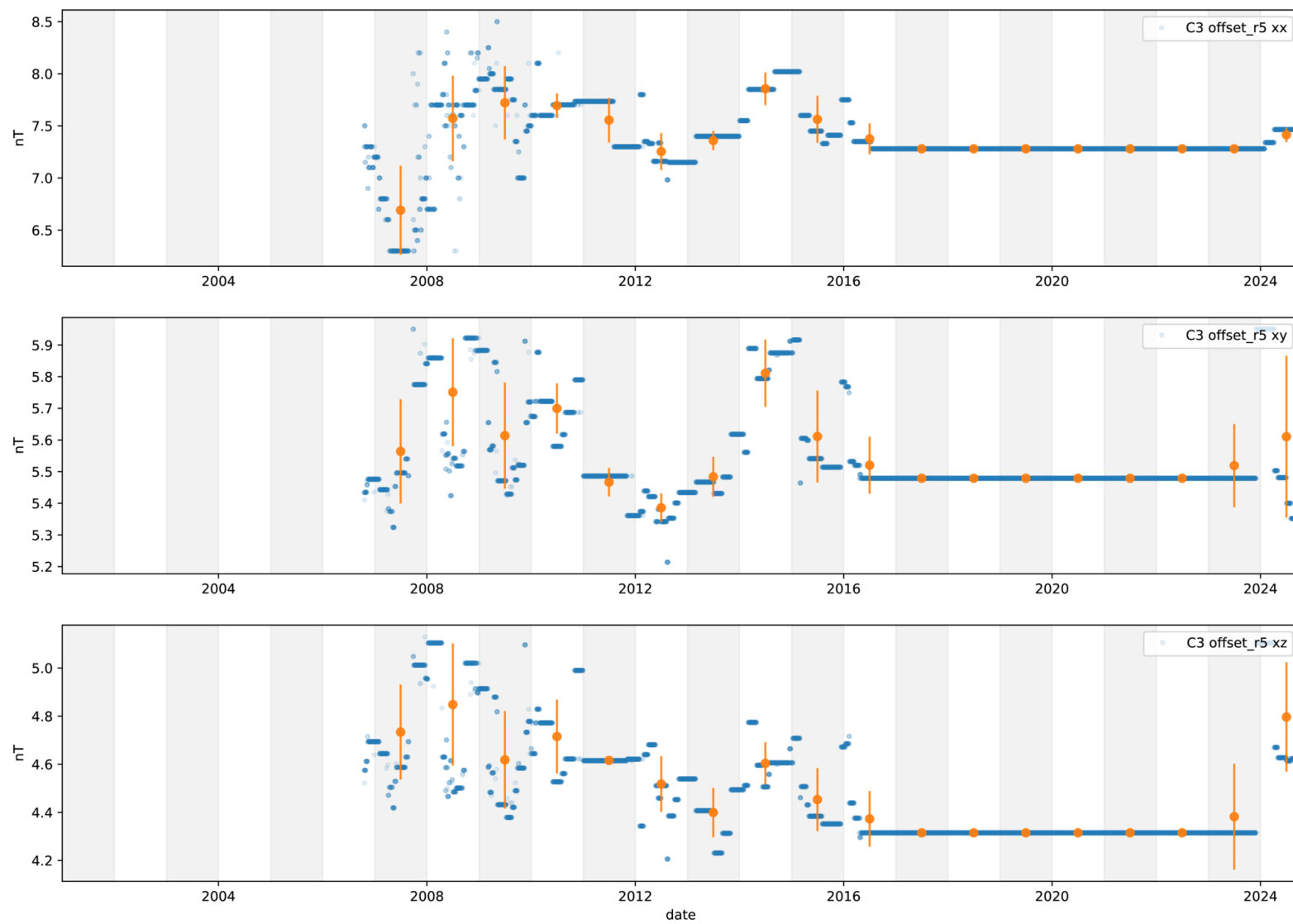


Figure S31: Cluster 3 offset\_r5

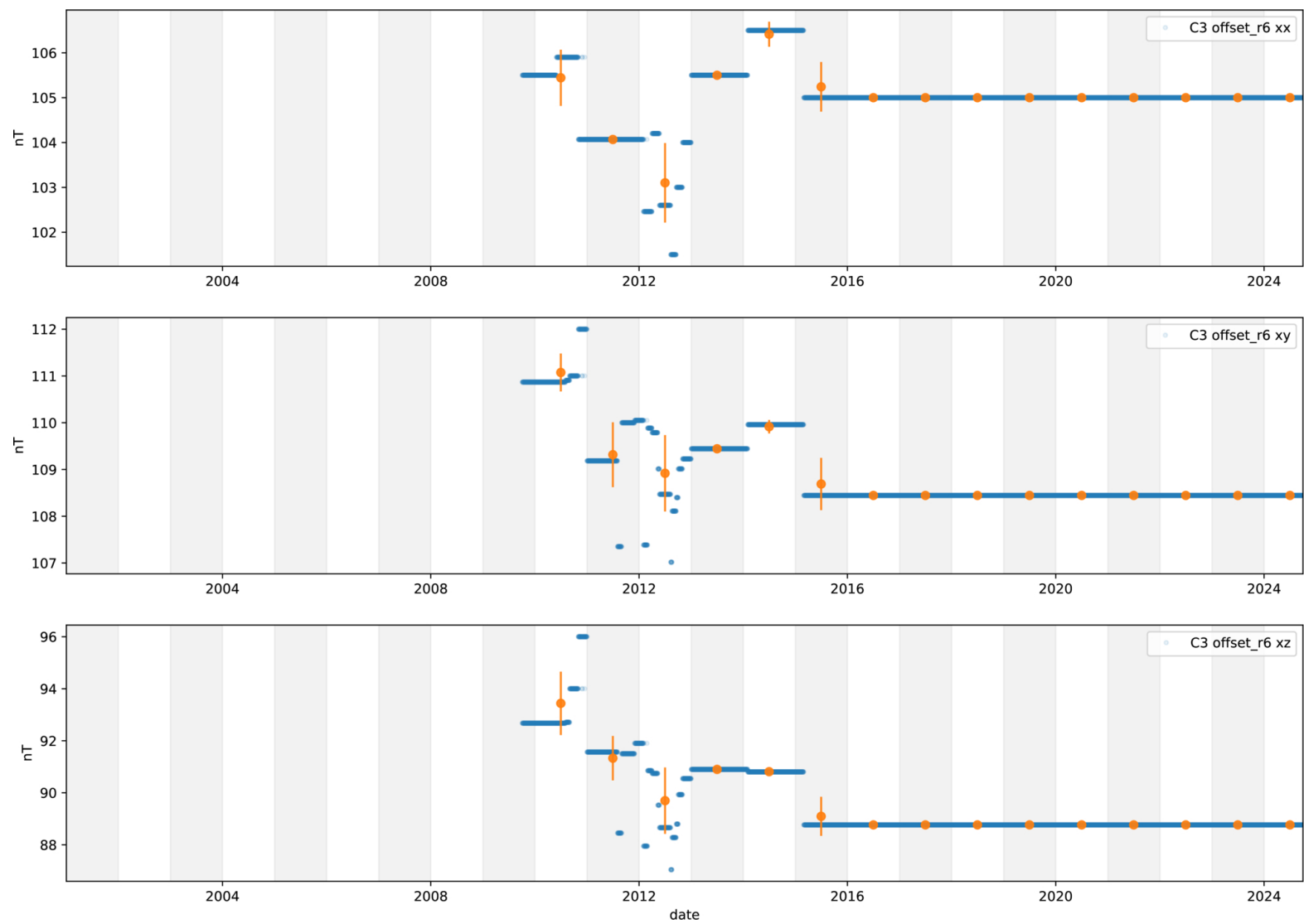


Figure S32: Cluster 3 offset\_r6

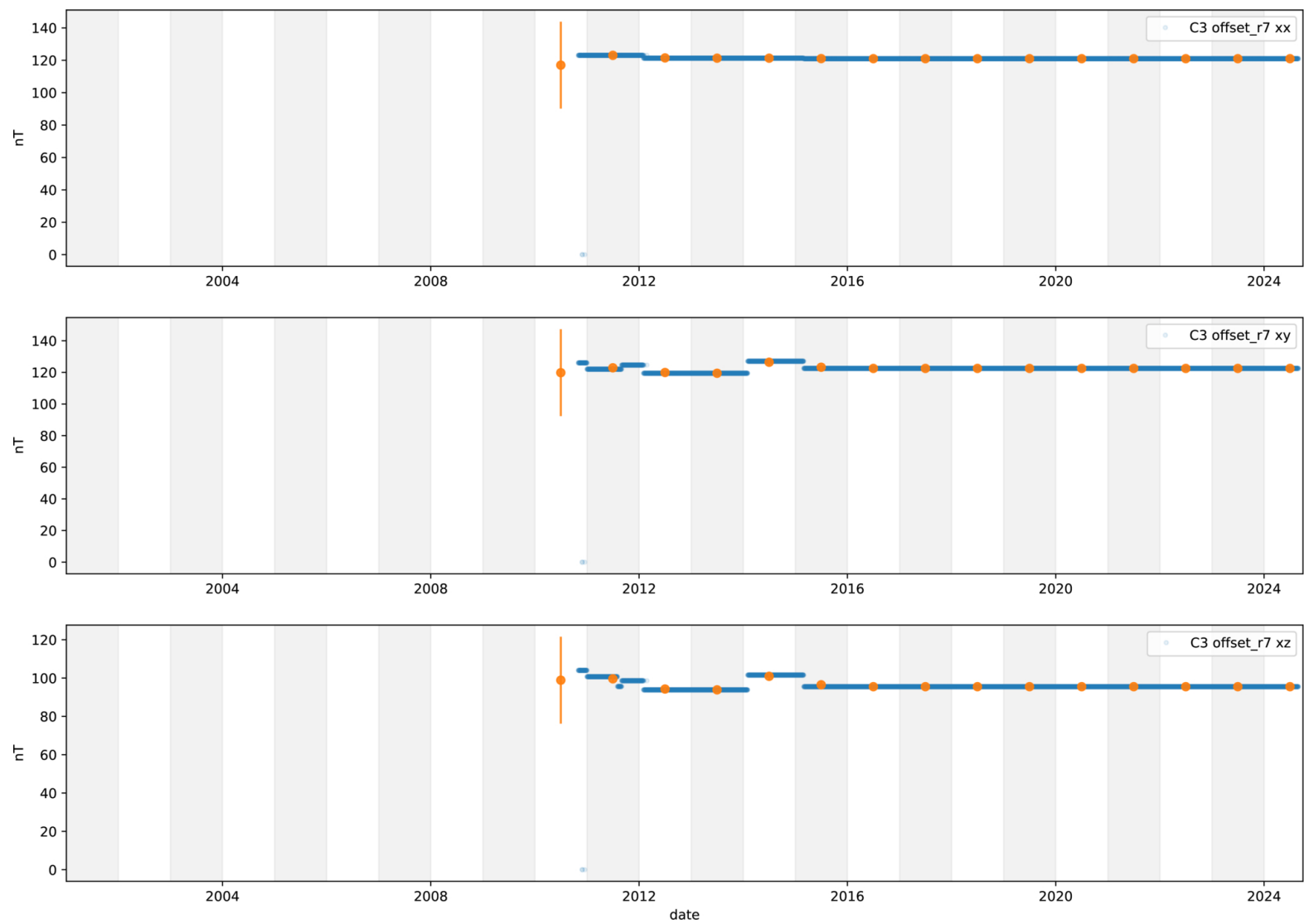


Figure S33: Cluster 3 offset\_r7

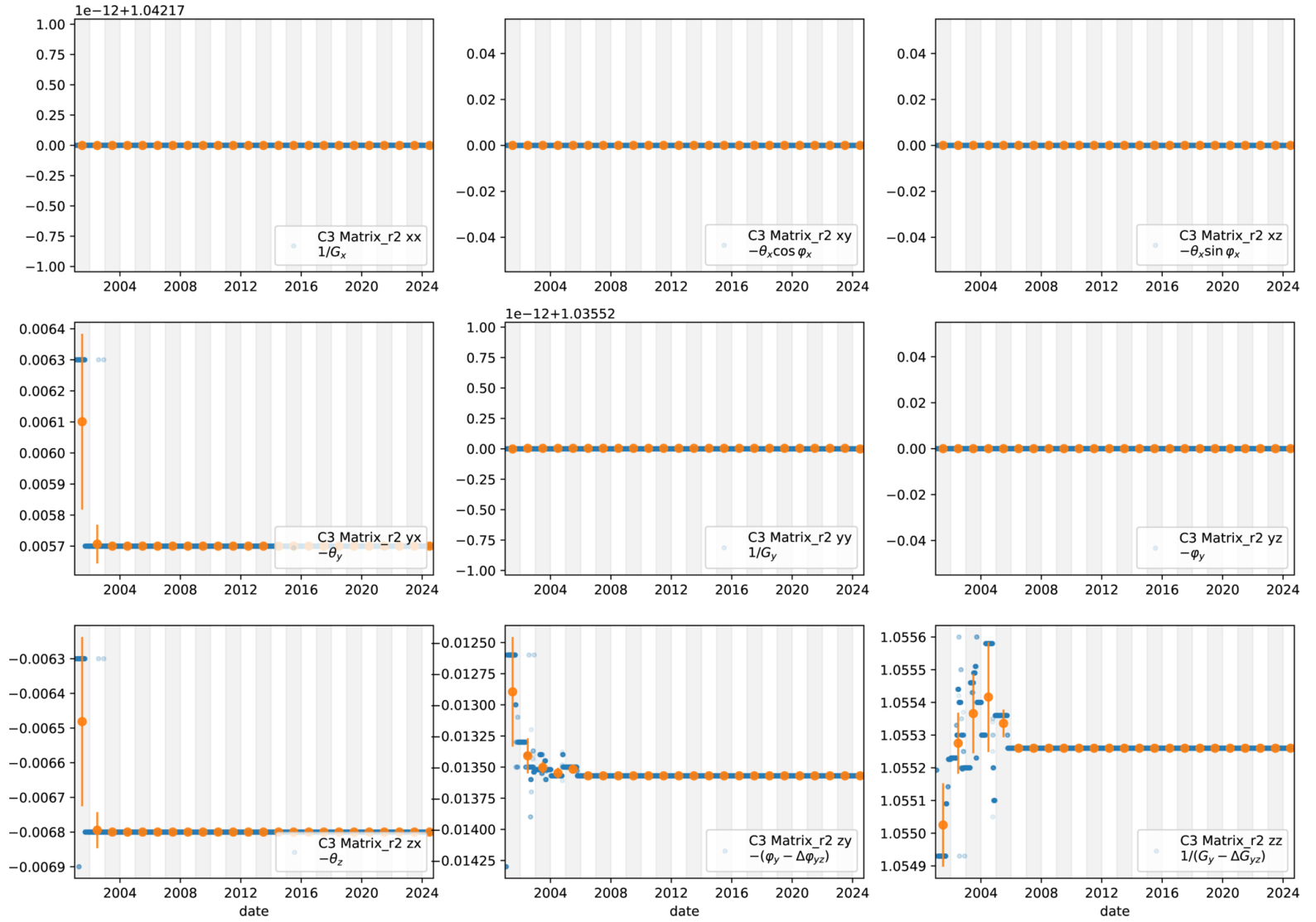


Figure S34: Cluster 3 Matrix\_r2

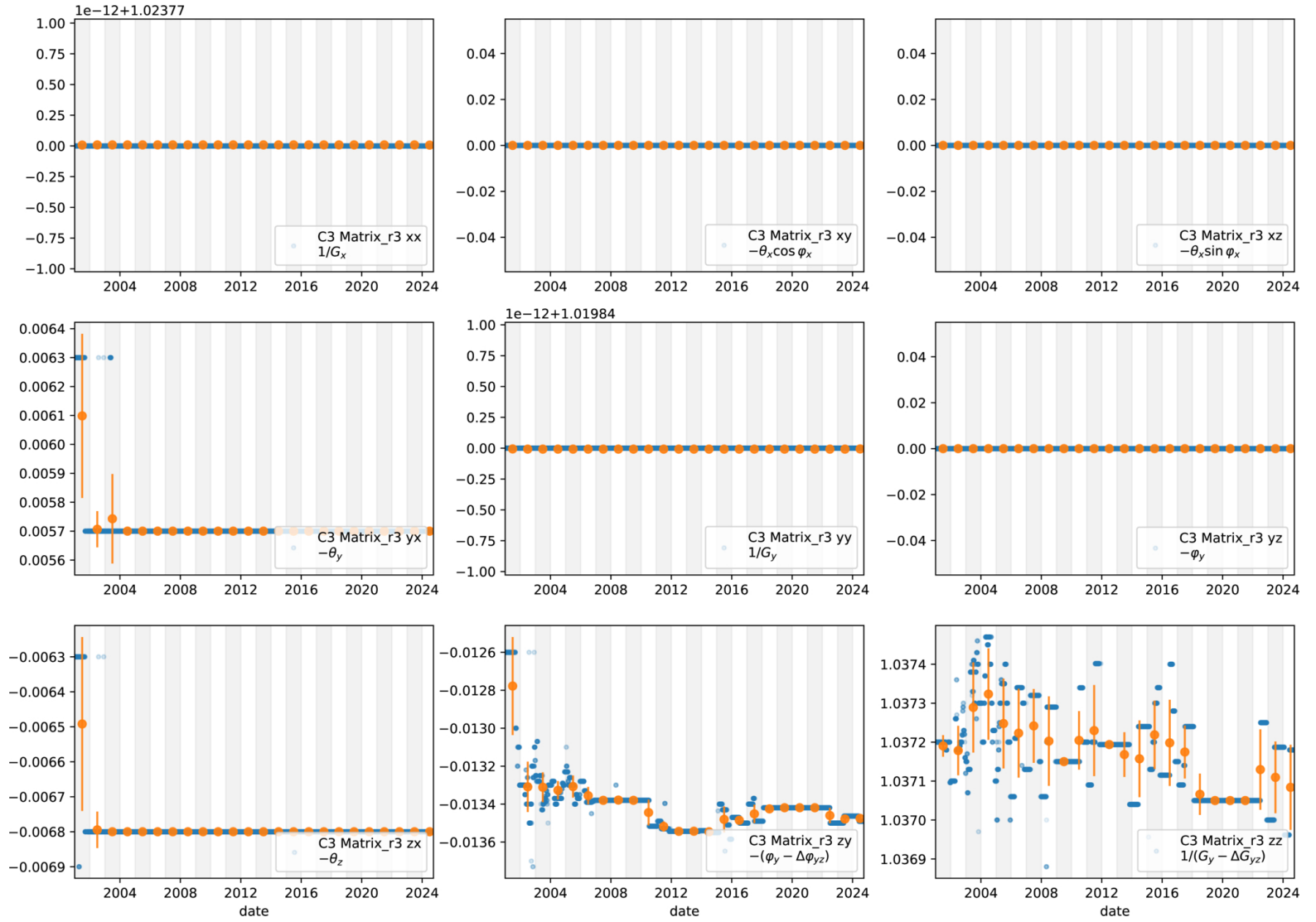


Figure S35: Cluster 3 Matrix\_r3

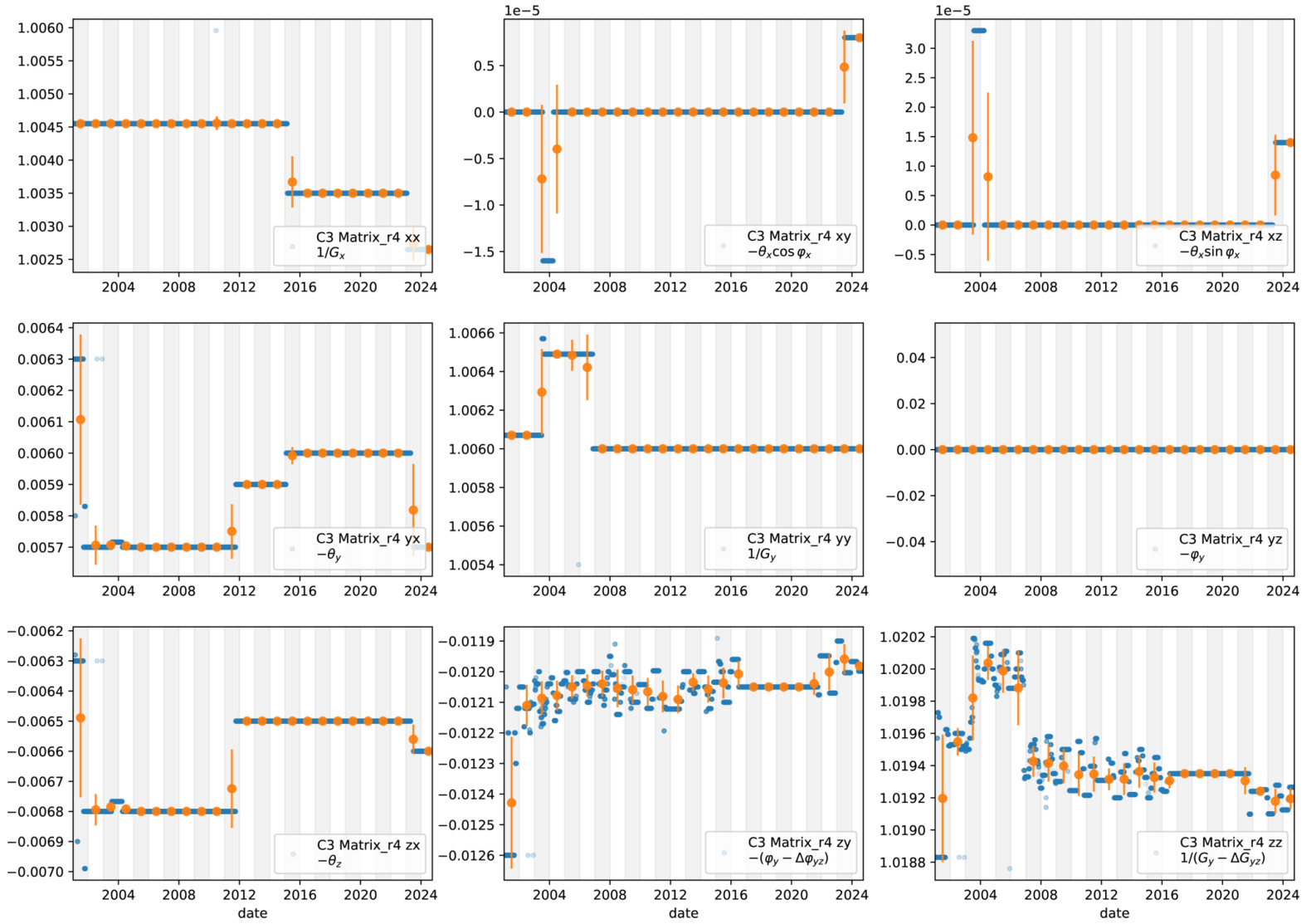


Figure S36: Cluster 3 Matrix\_r4

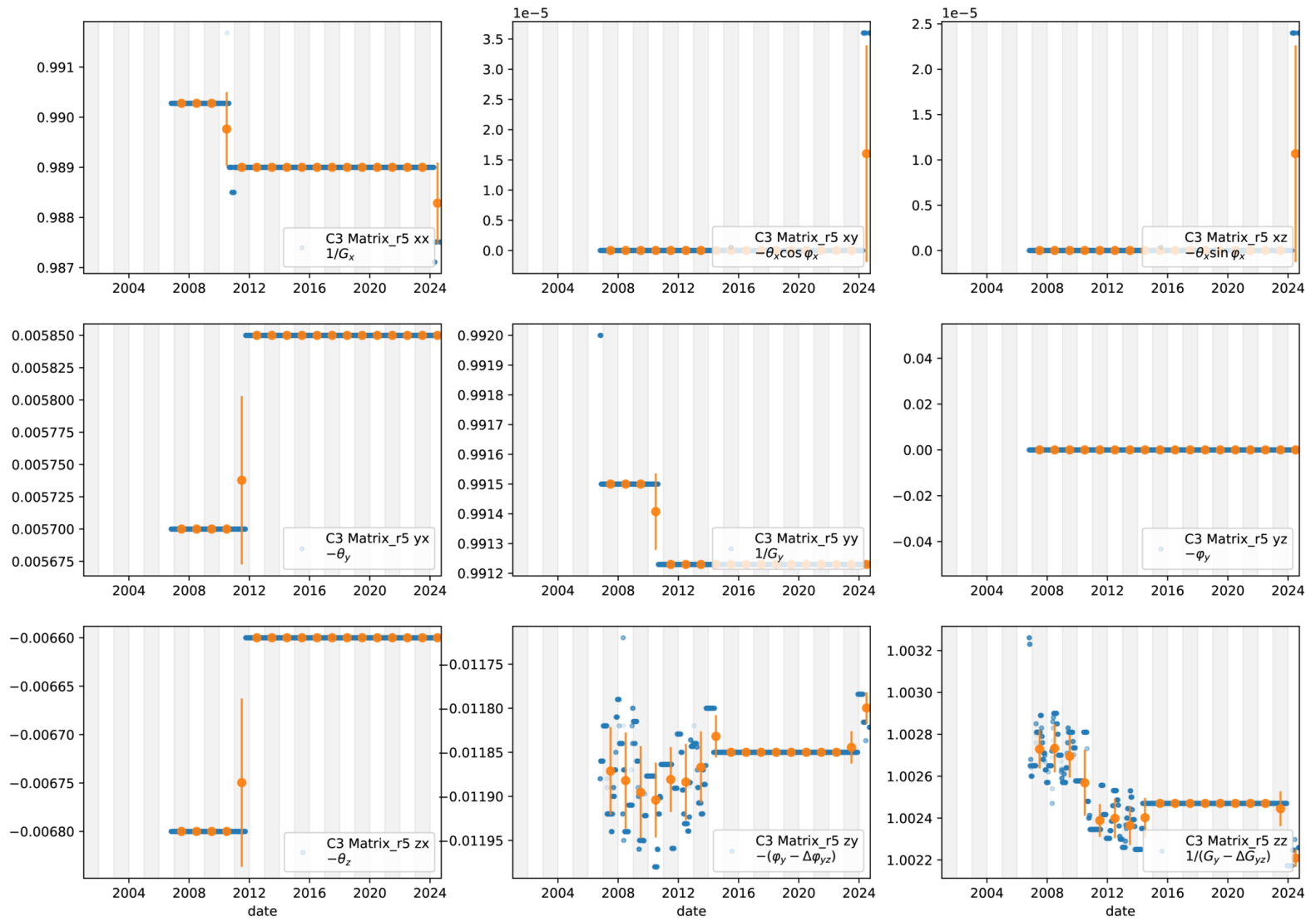


Figure S37: Cluster 3 Matrix\_r5

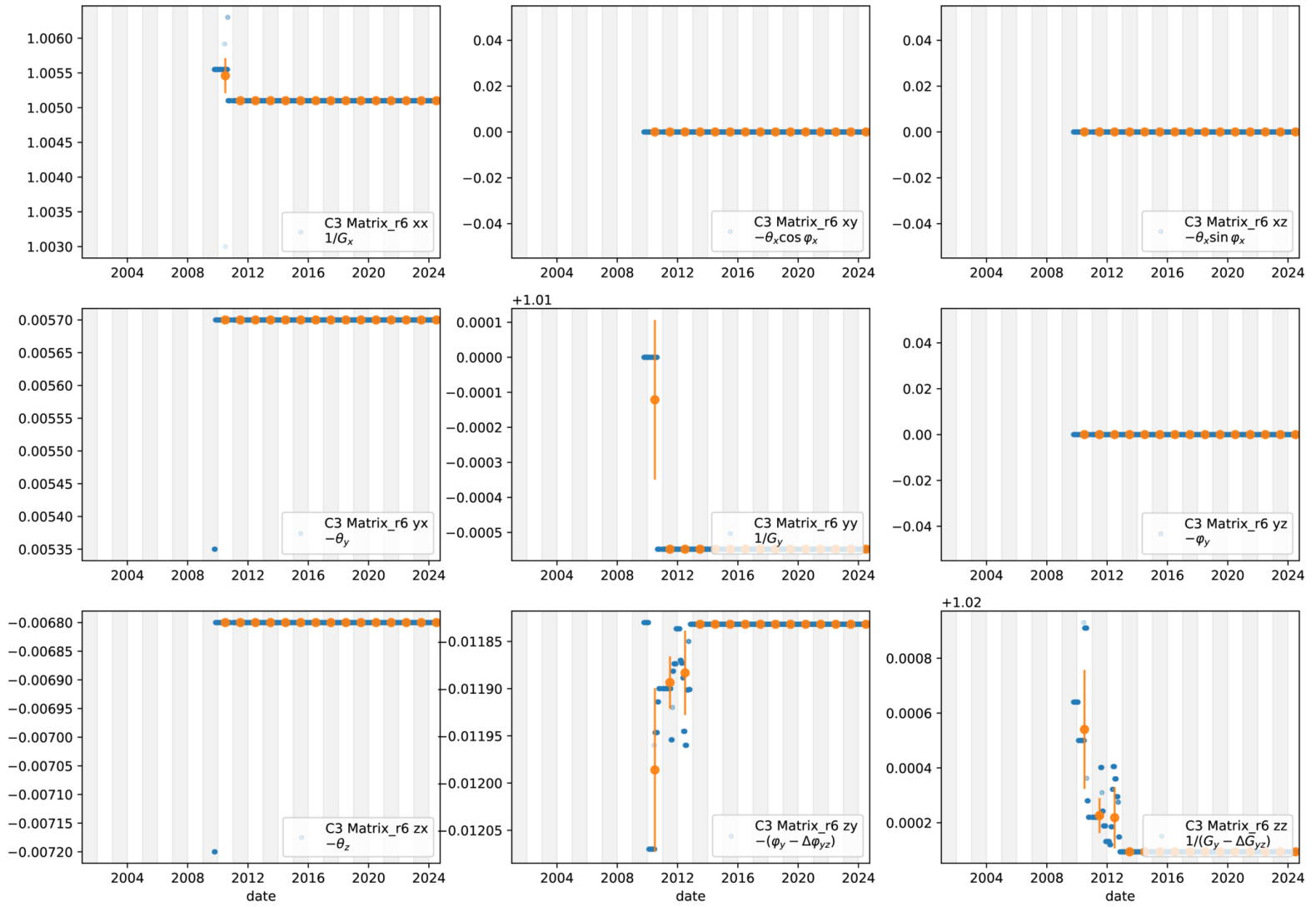


Figure S38: Cluster 3 Matrix\_r6

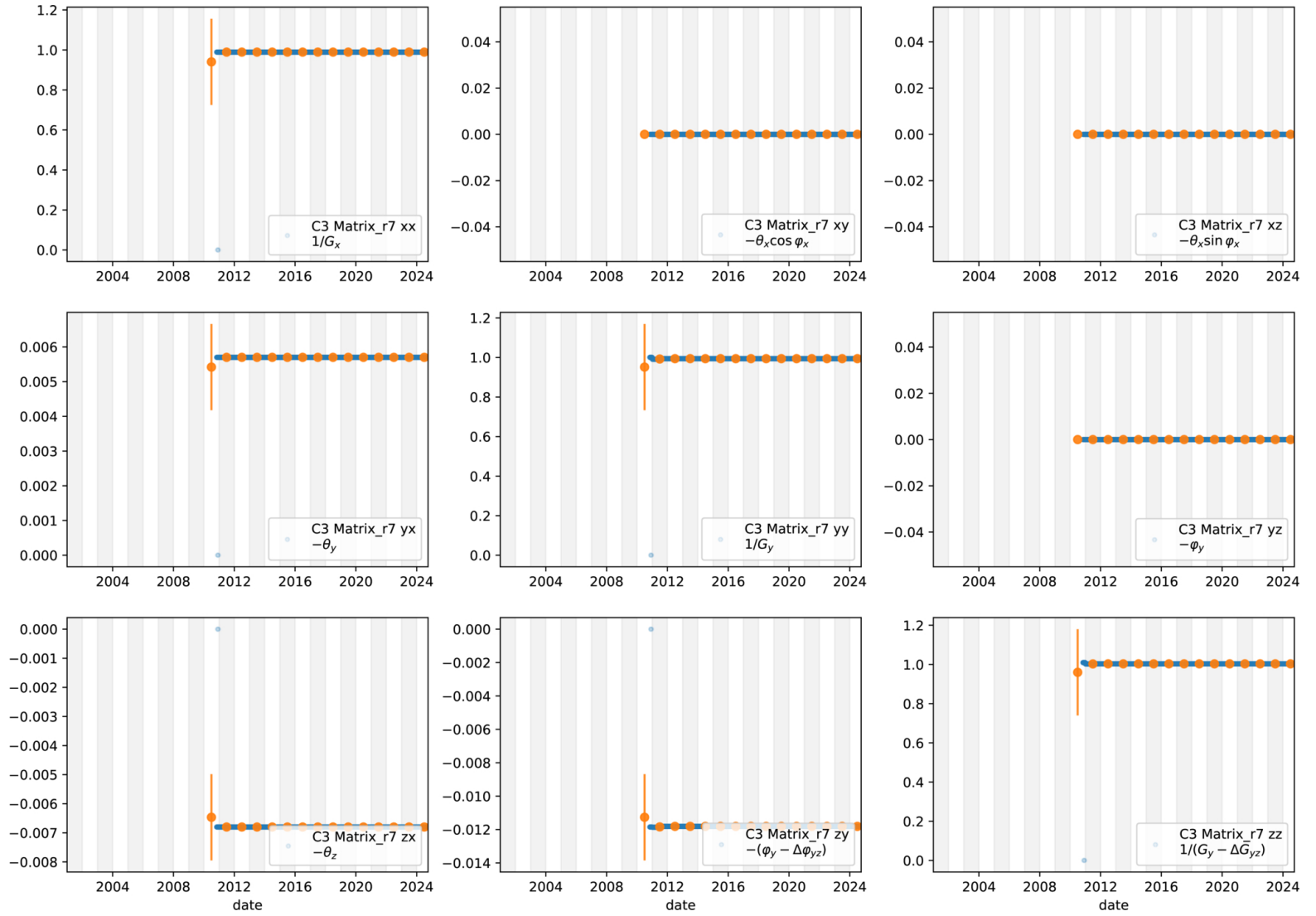


Figure S39: Cluster 3 Matrix\_r7

4 Cluster 4

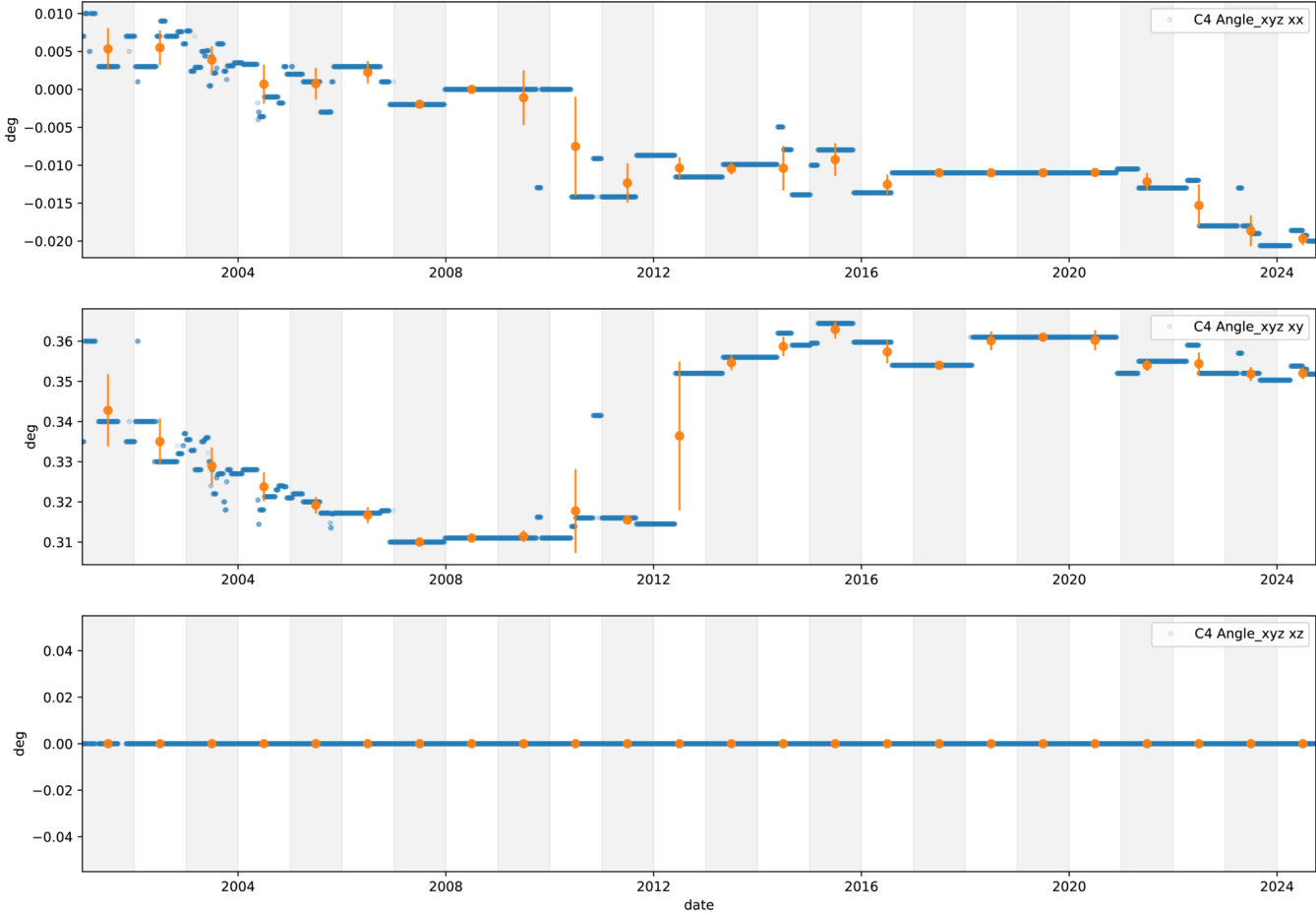


Figure S40: Cluster 4 Angle\_xyz

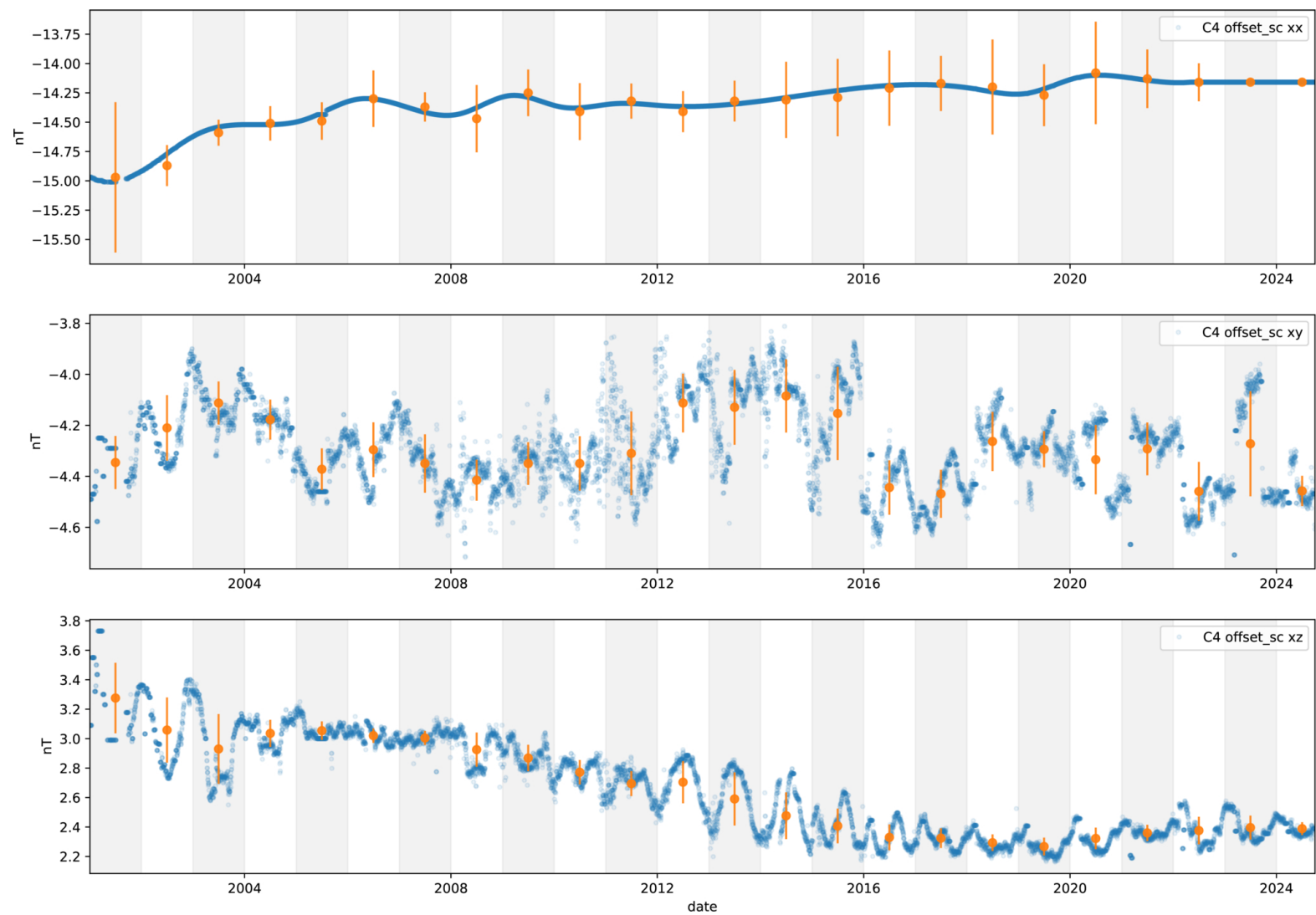


Figure S41: Cluster 4 offset\_sc

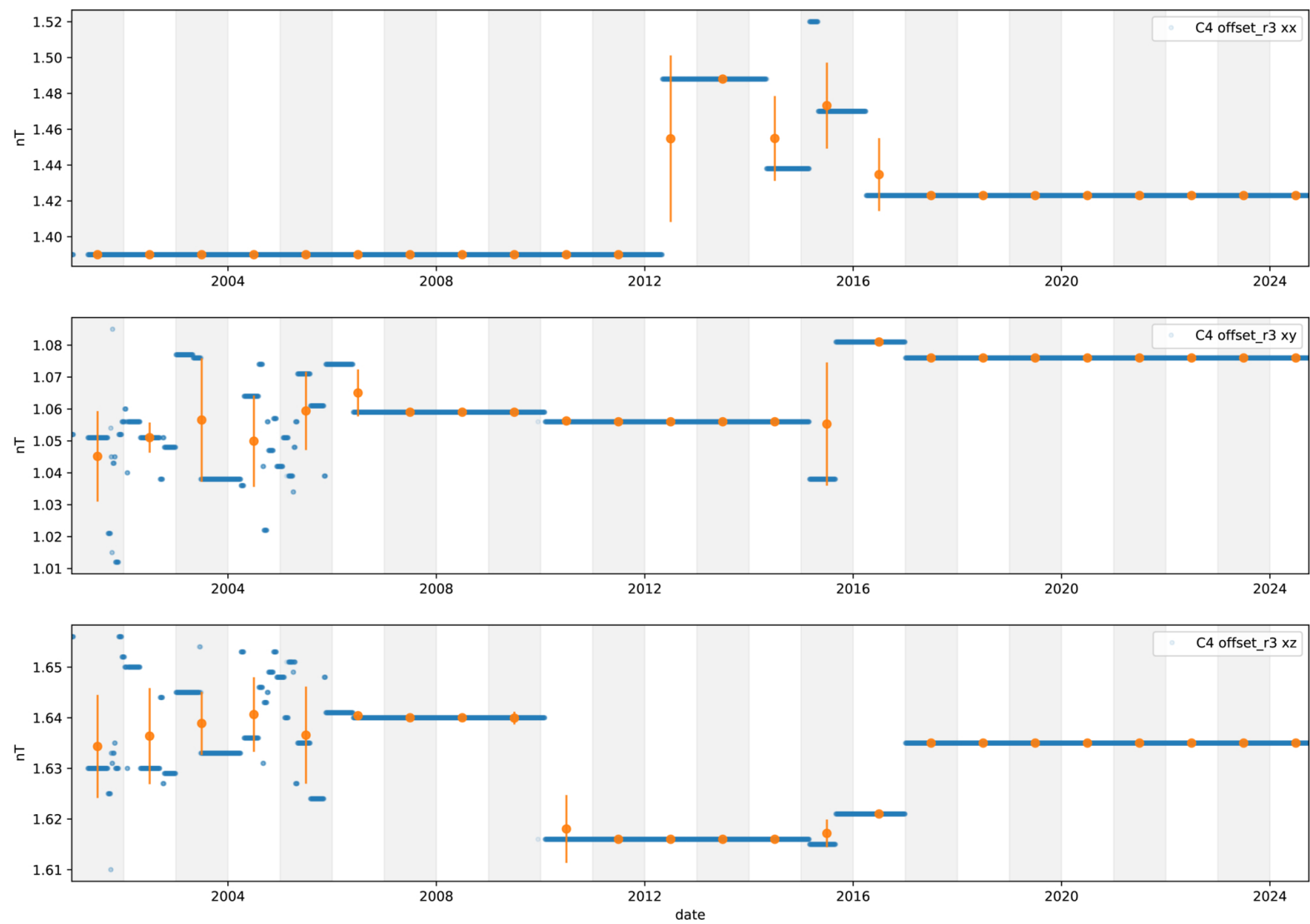


Figure S42: Cluster 4 offset\_r3

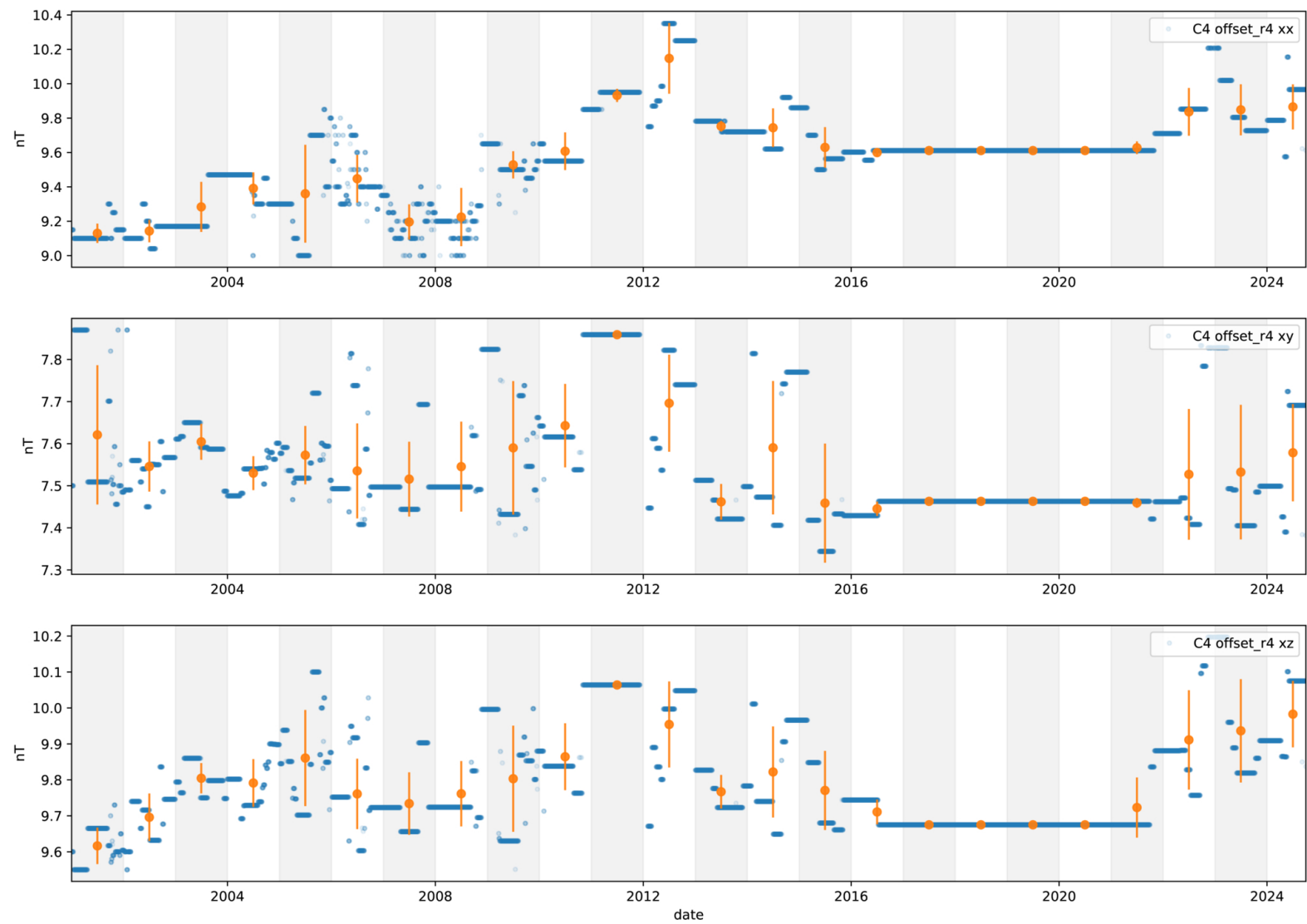


Figure S43: Cluster 4 offset\_r4

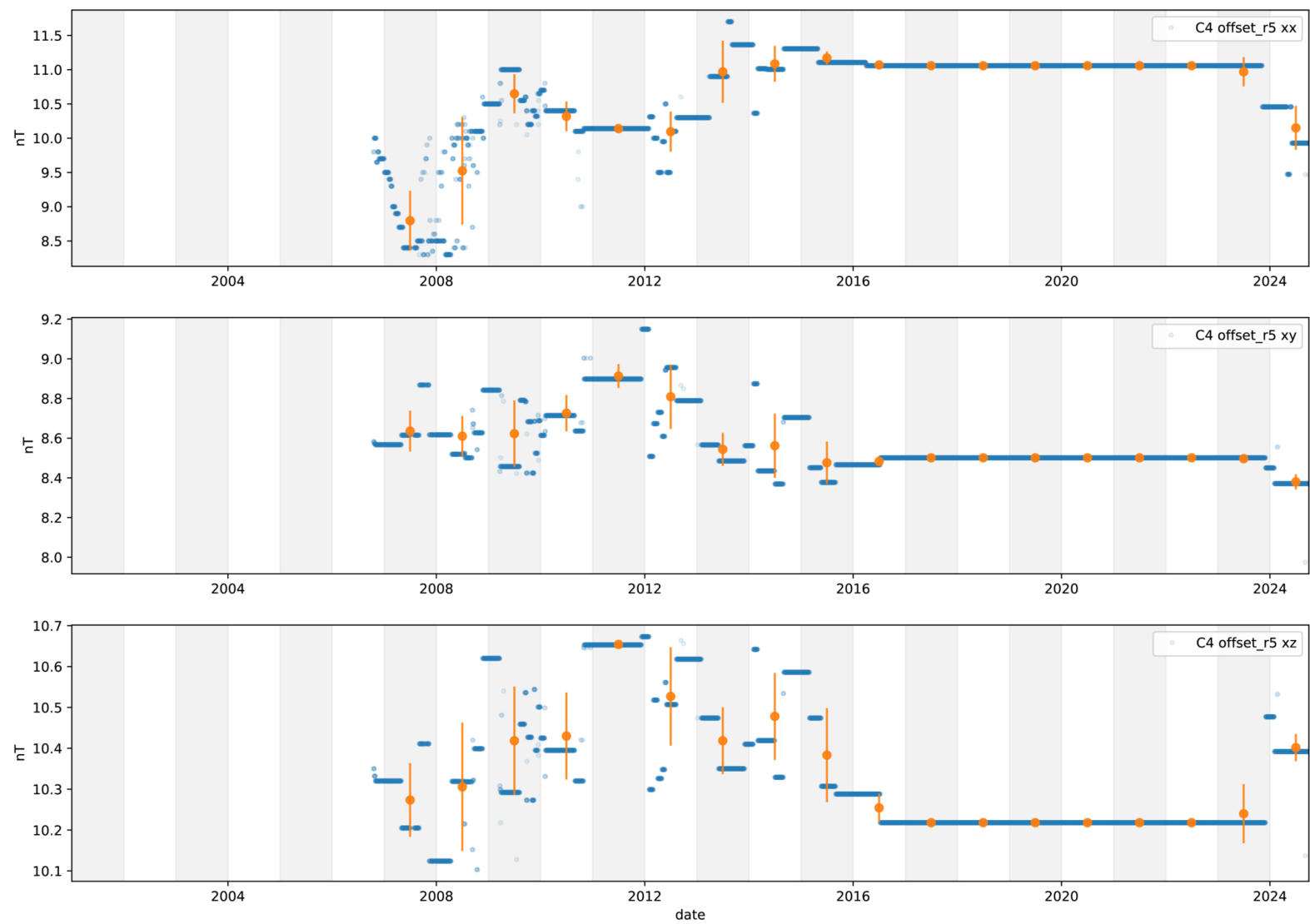


Figure S44: Cluster 4 offset\_r5

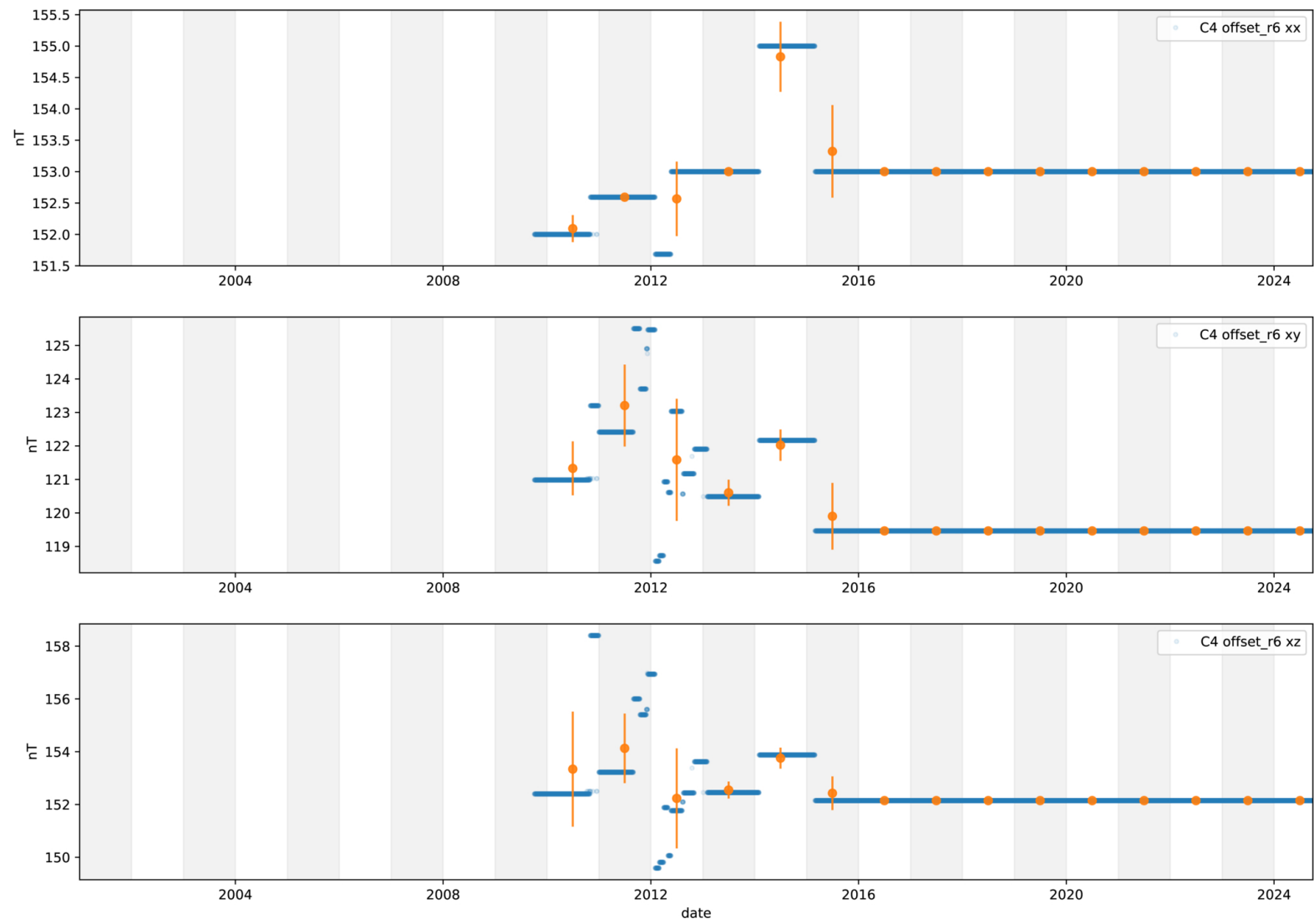


Figure S45: Cluster 4 offset\_r6

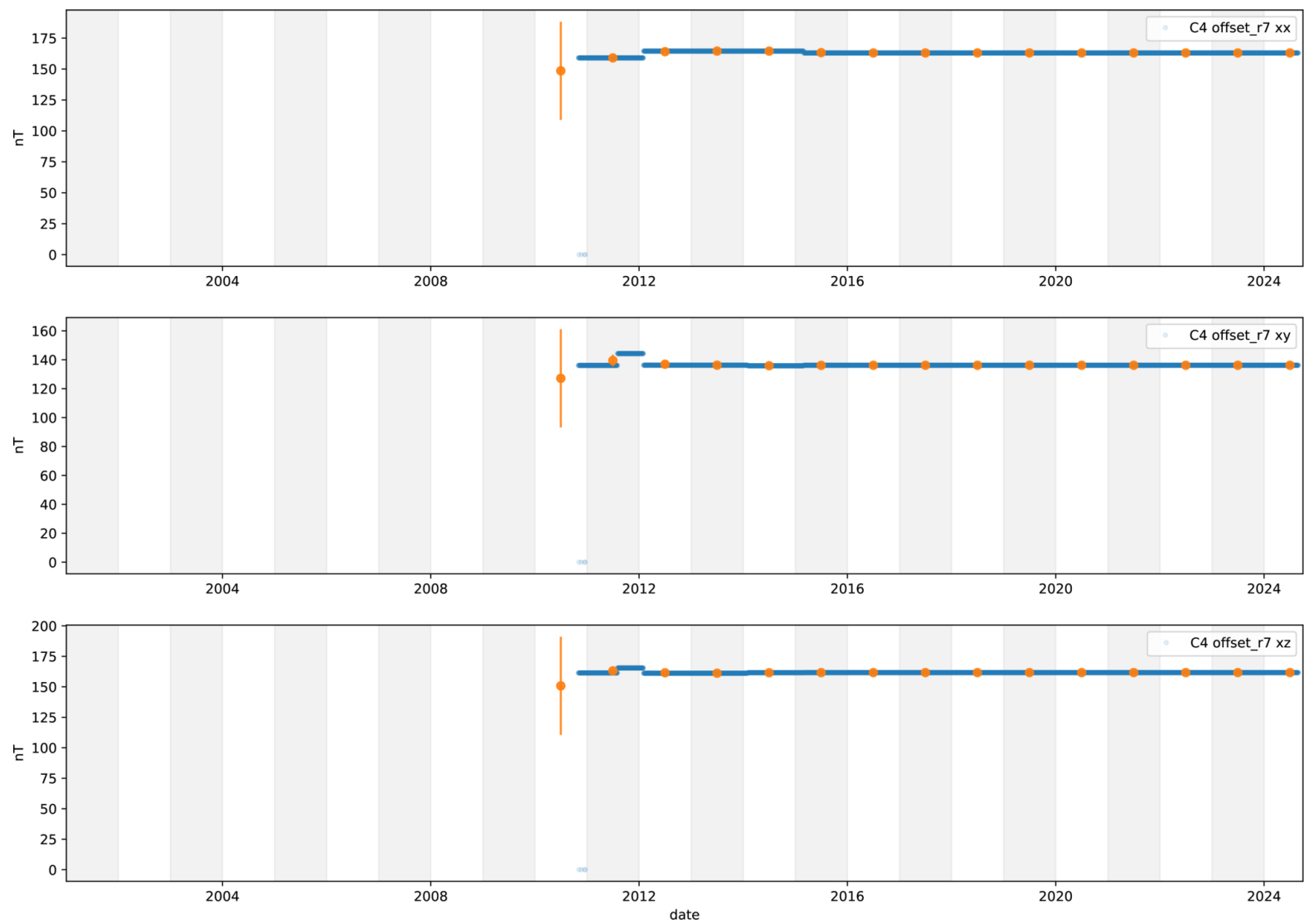


Figure S46: Cluster 4 offset\_r7

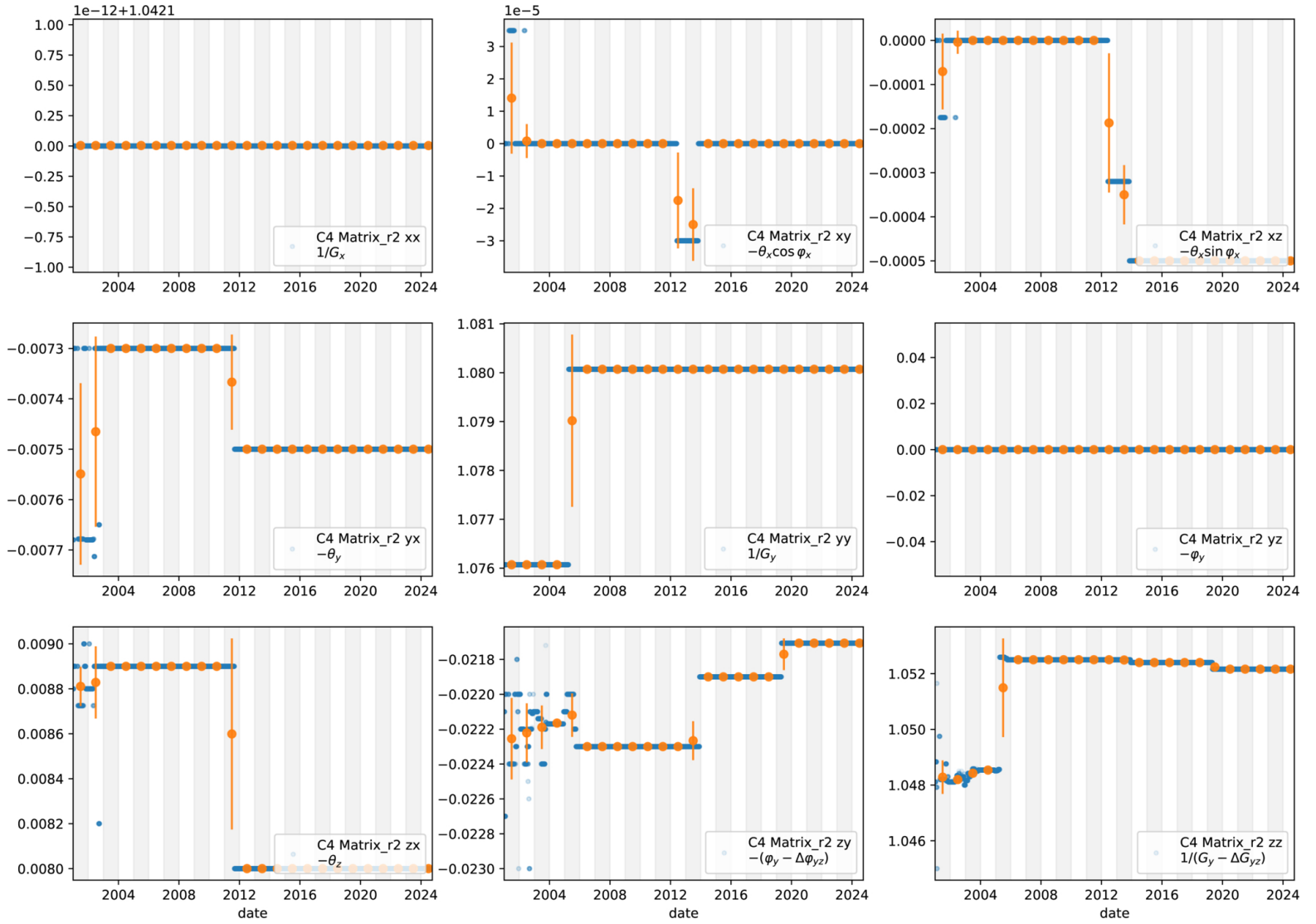


Figure S47: Cluster 4 Matrix\_r2

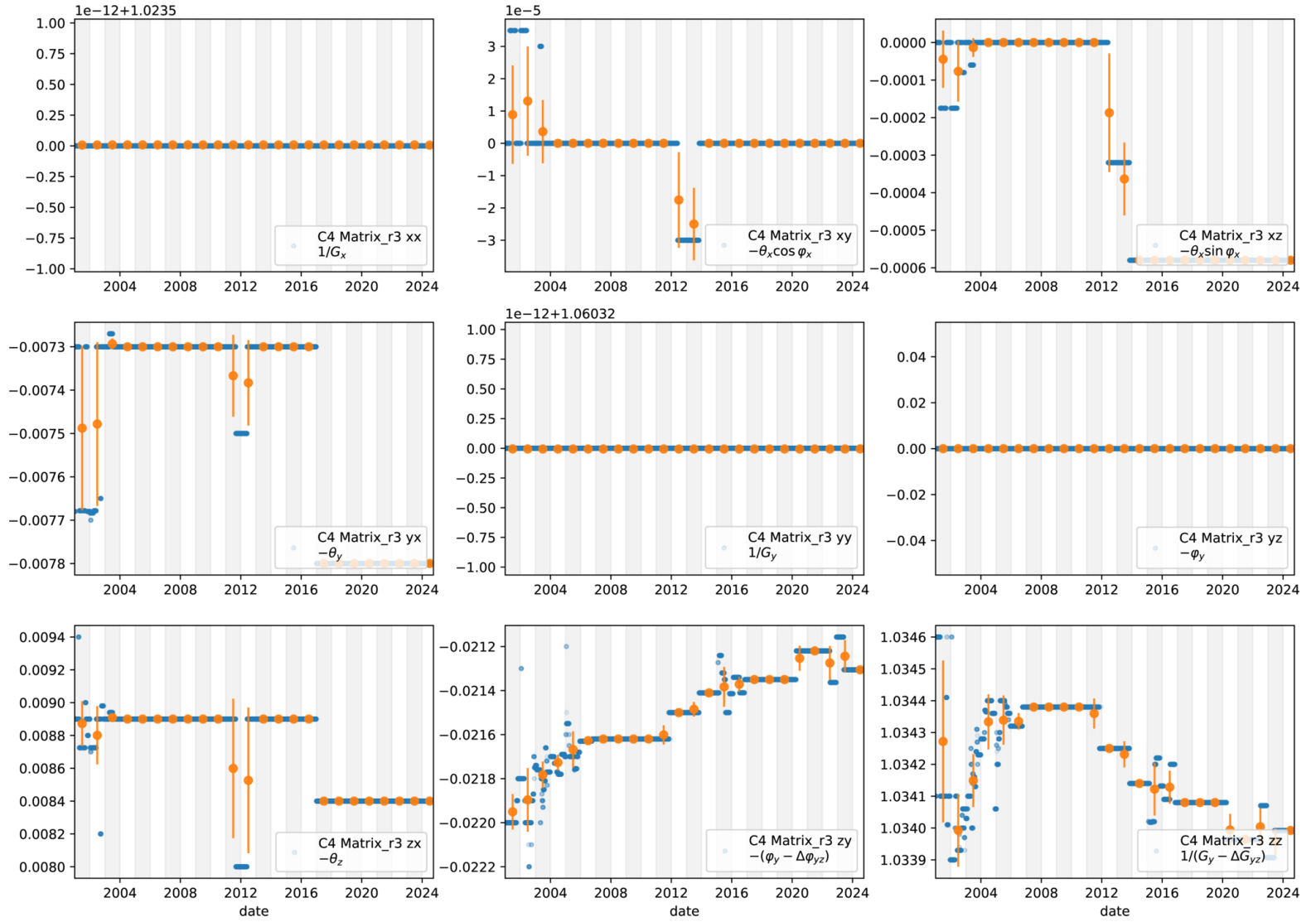


Figure S48: Cluster 4 Matrix\_r3

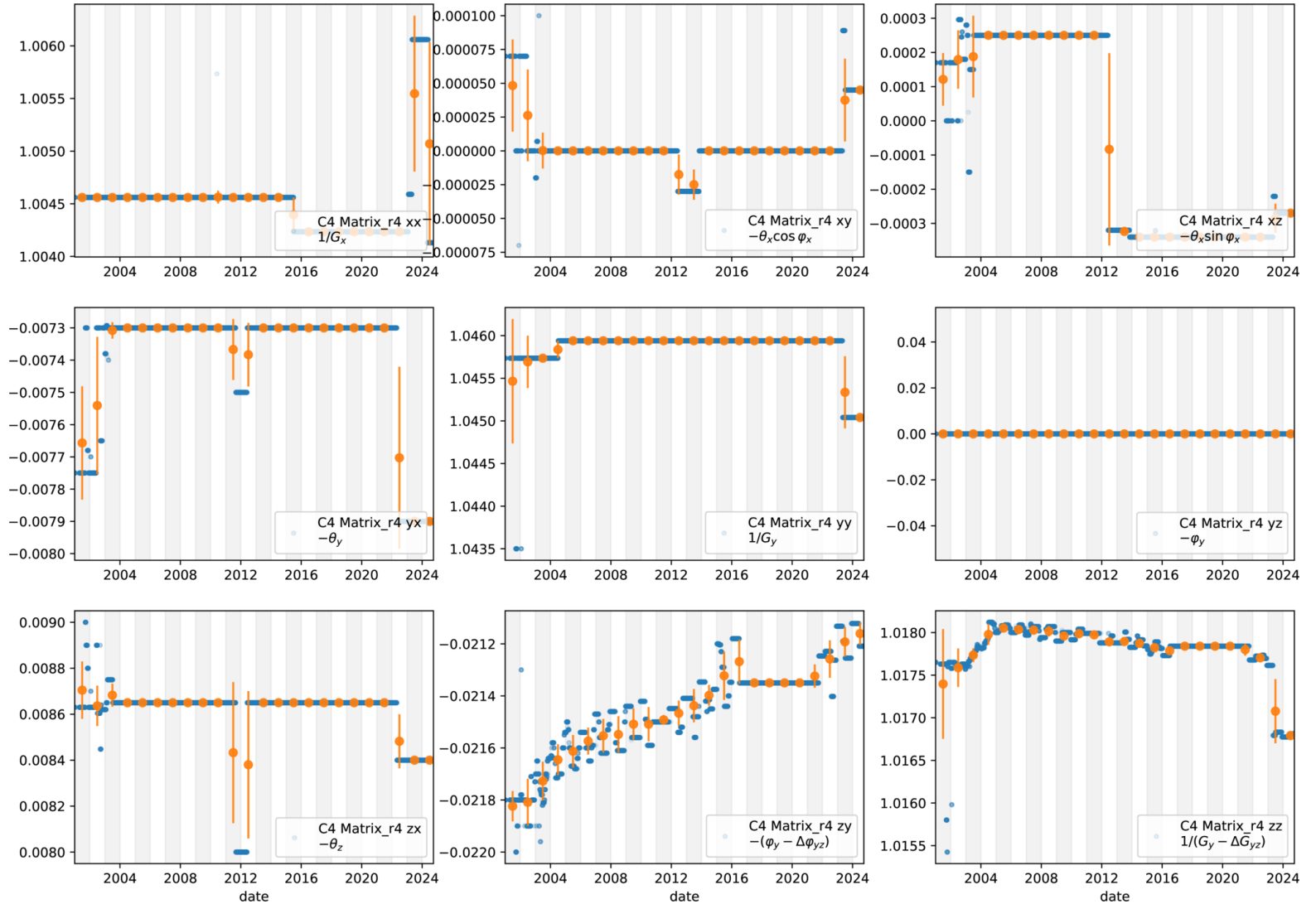


Figure S49: Cluster 4 Matrix\_r4

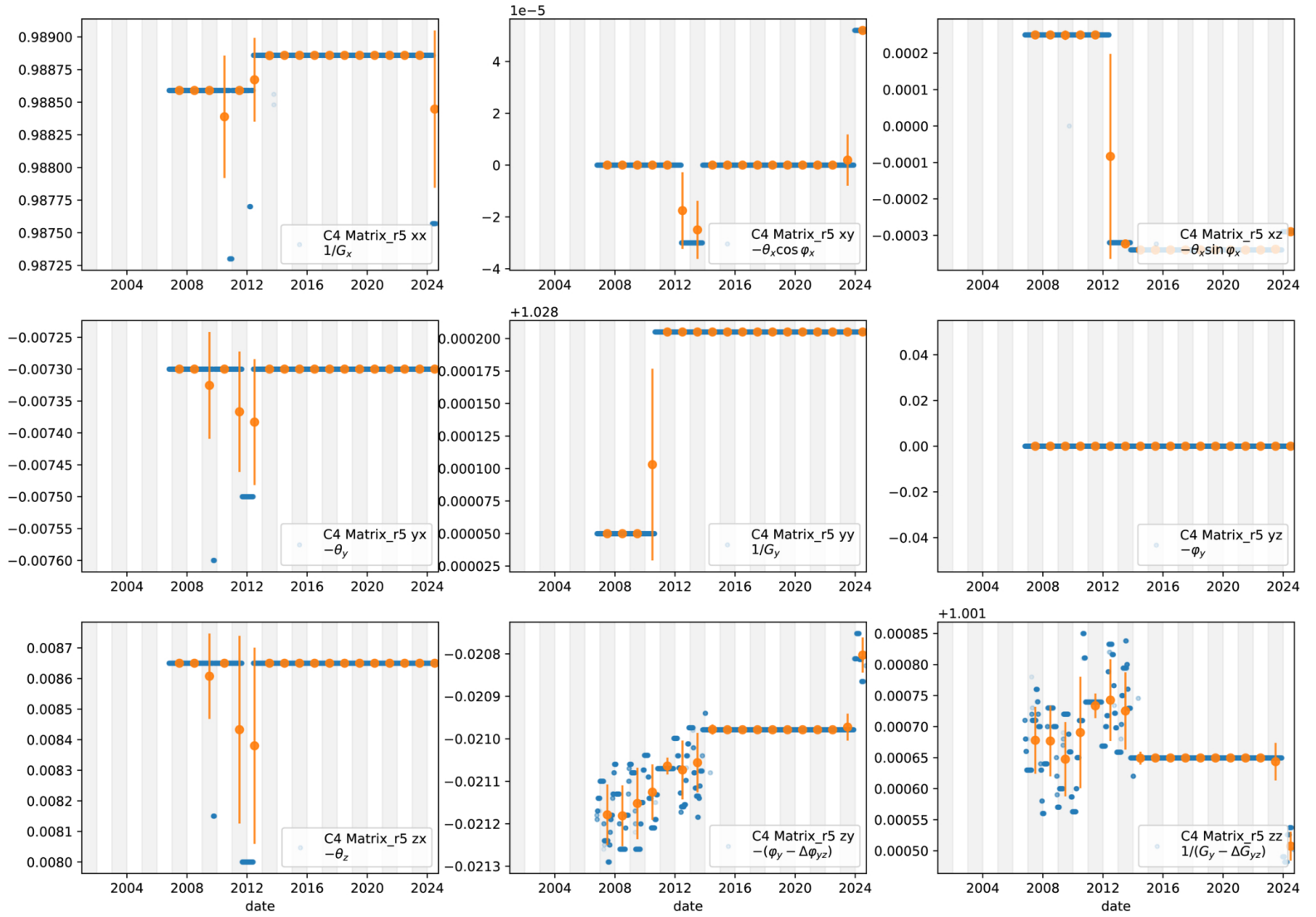


Figure S50: Cluster 4 Matrix\_r5

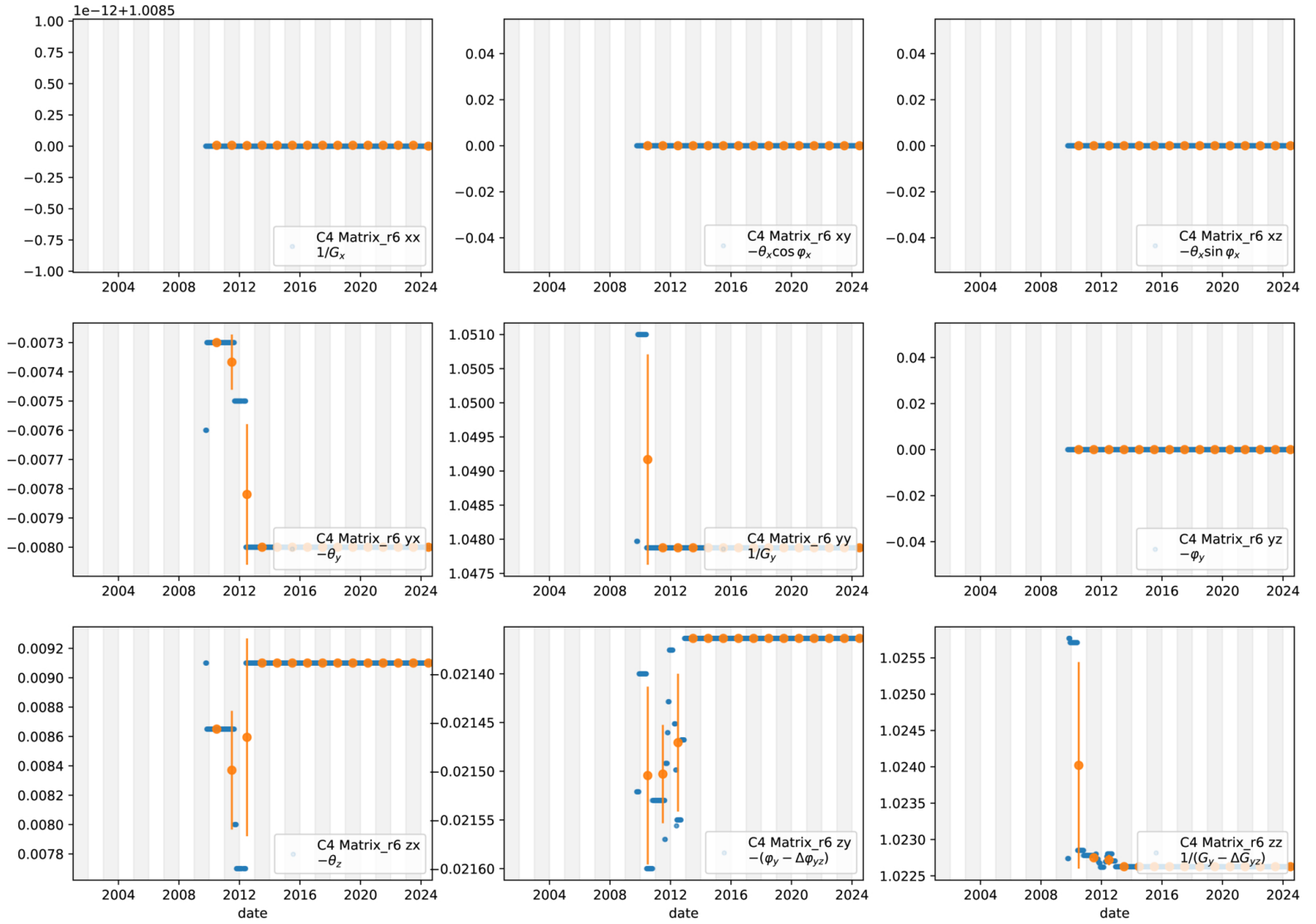


Figure S51: Cluster 4 Matrix\_r6

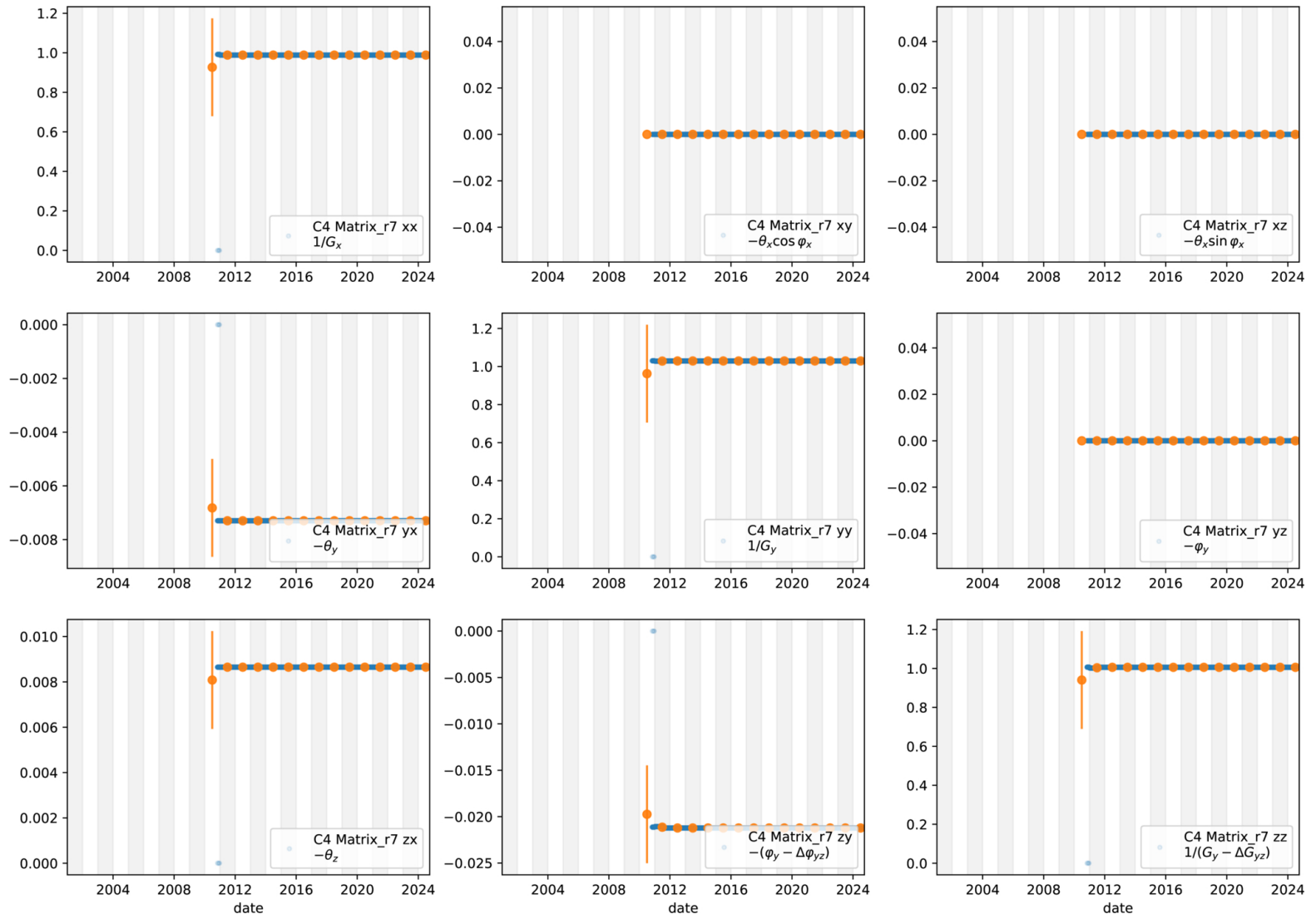


Figure S52: Cluster 4 Matrix\_r7

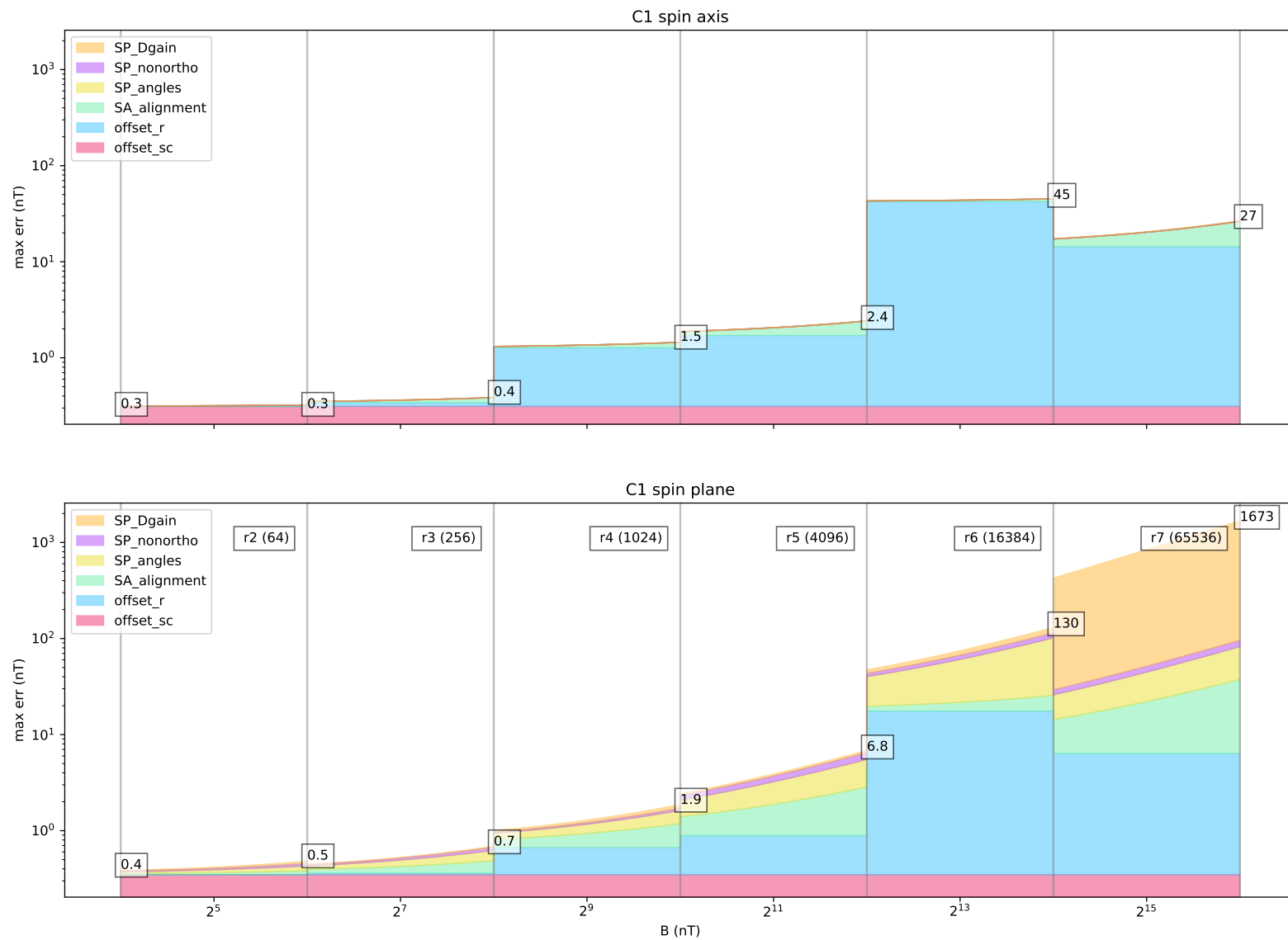


Figure S53: Cluster 1 maximum error due to calibration

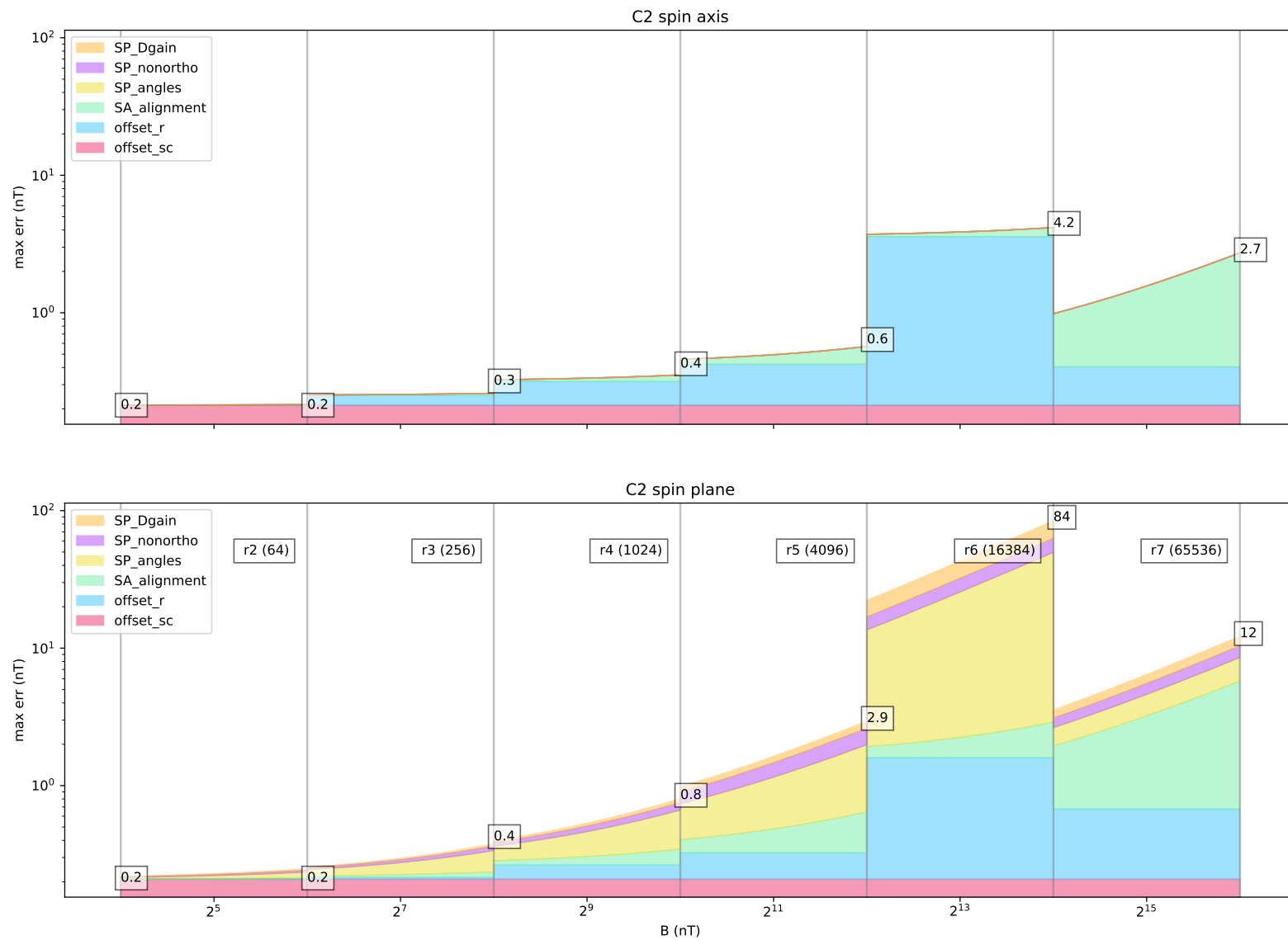


Figure S54: Cluster 2 maximum error due to calibration

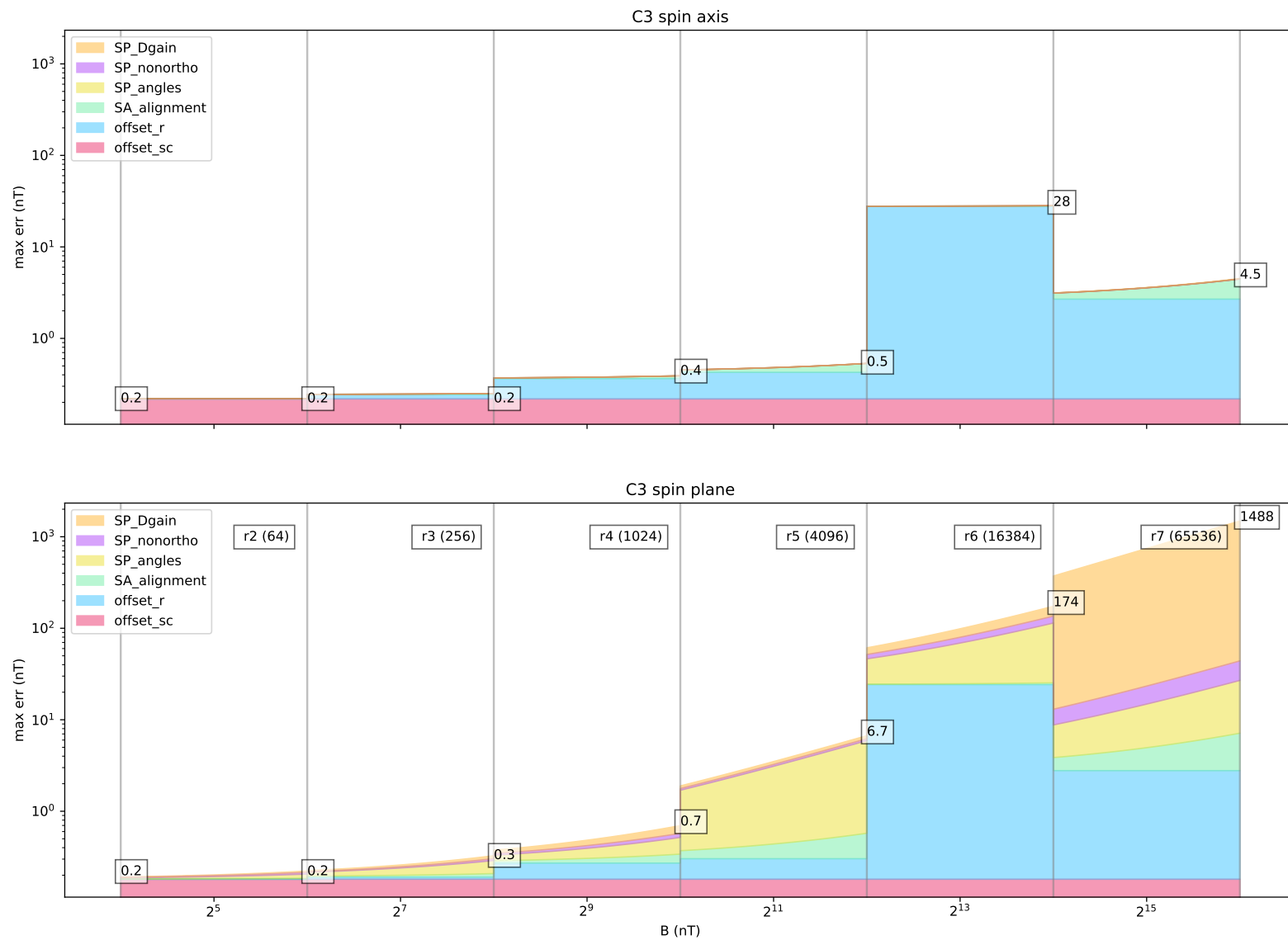


Figure S55: Cluster 3 maximum error due to calibration

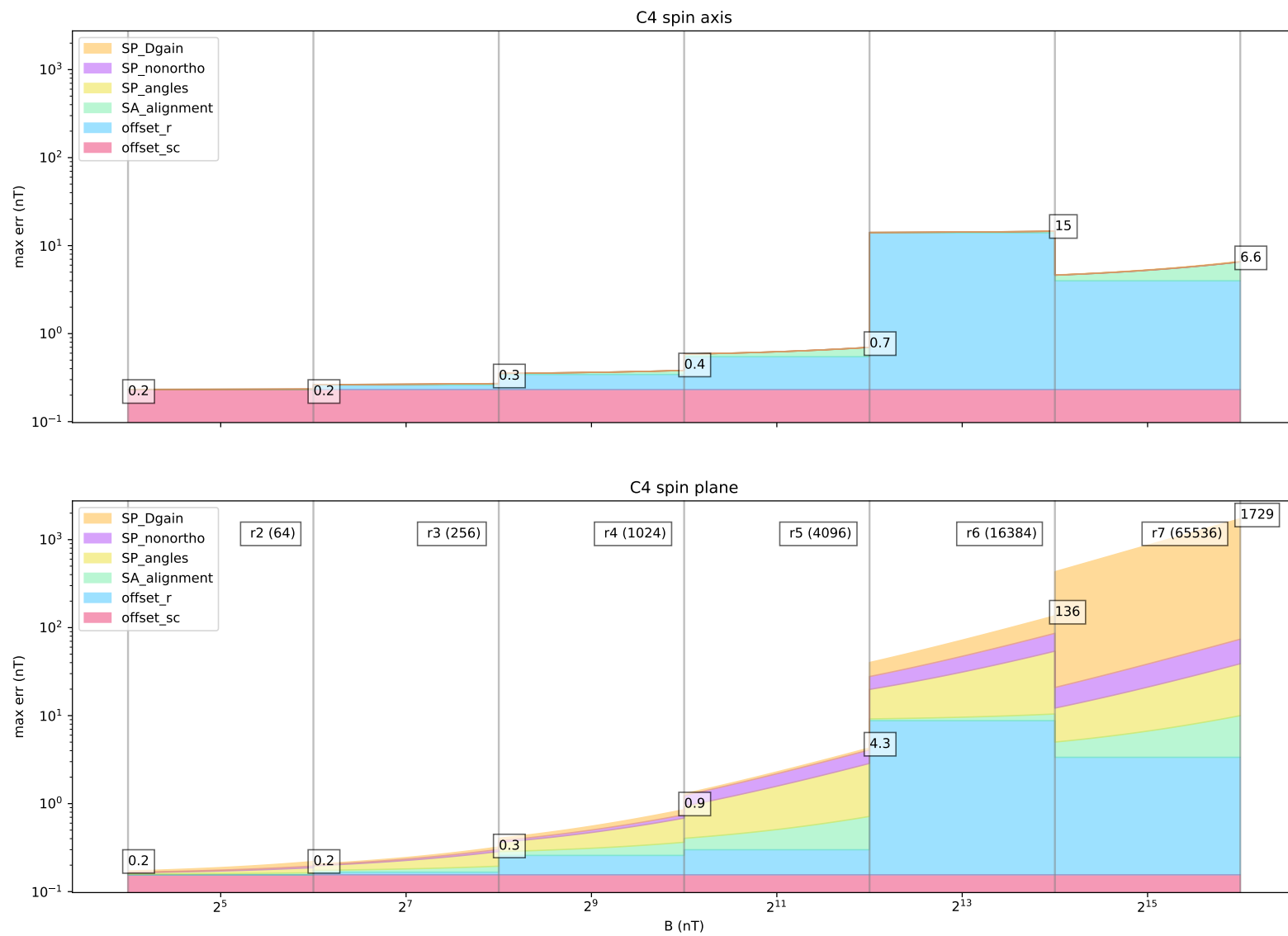


Figure S56: Cluster 4 maximum error due to calibration