

XMM Radiation Environment Workshop

XMM Science Operations Centre

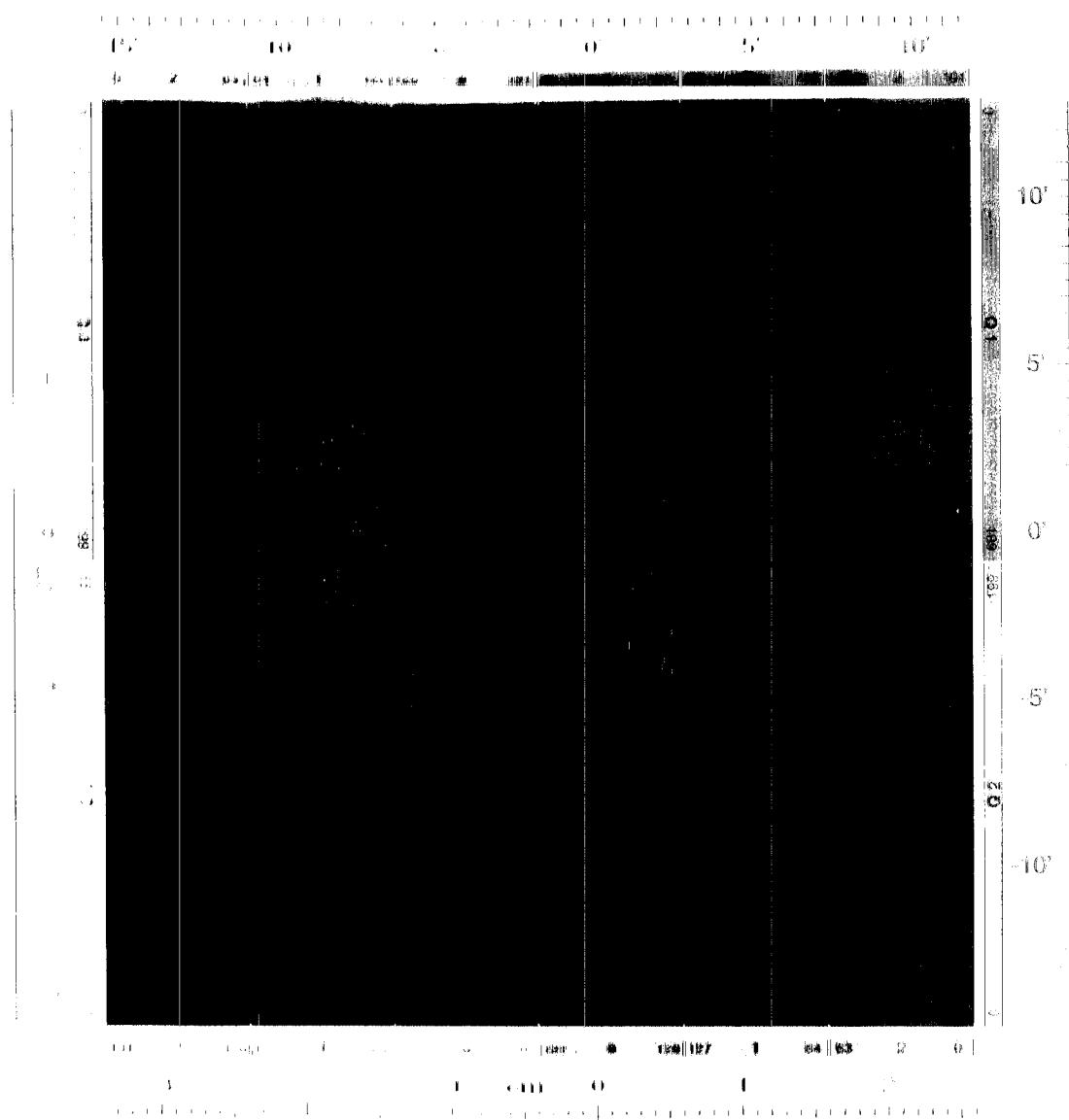
Villanueva Madrid

November 20 - December 1, 2000

Monitoring the CTE of the EPIC-pn camera in orbit

Thomas Dennerl

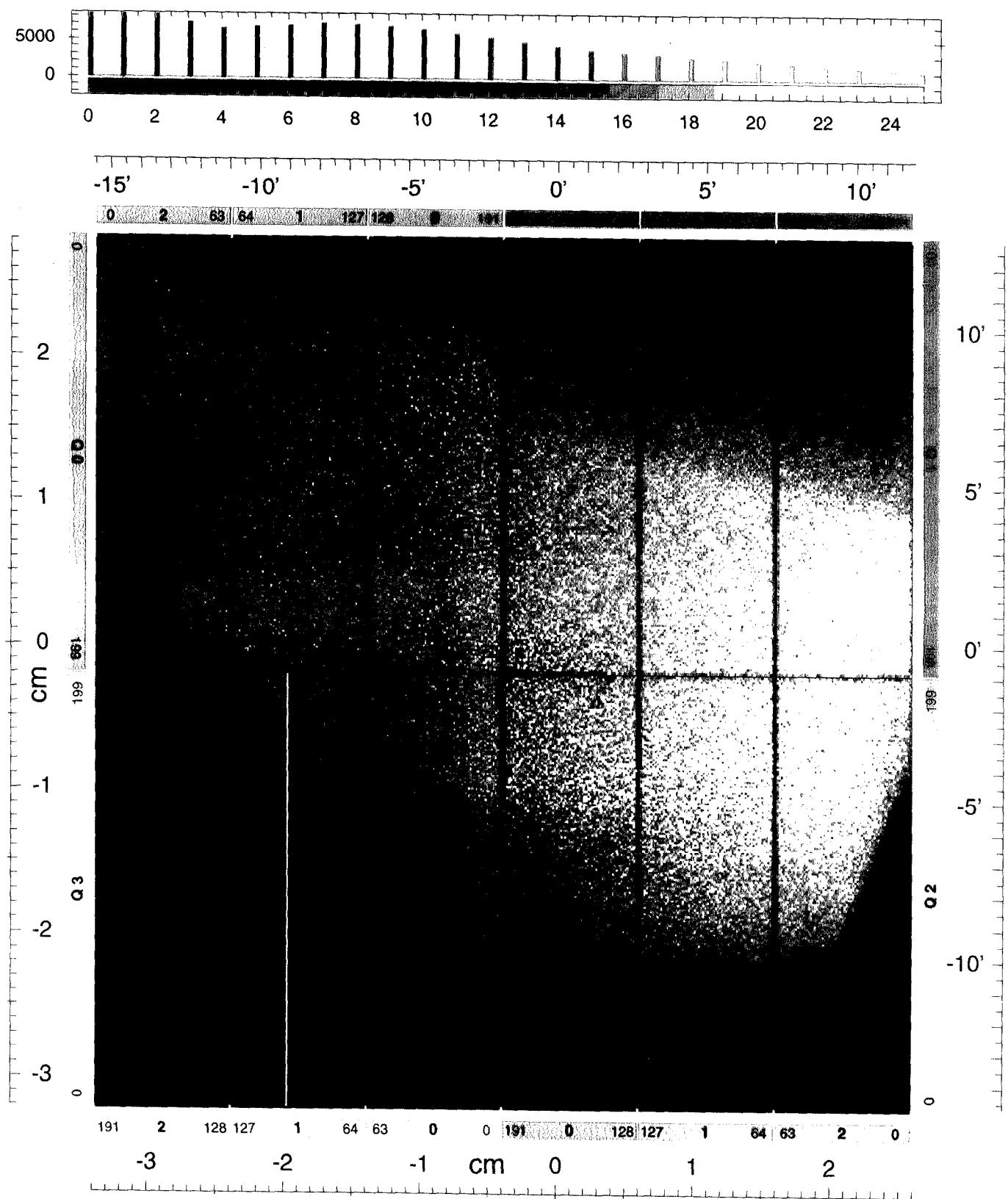
Max-Planck-Institut für extraterrestrische Physik
Giessenbachstraße
D-85740 Garching, Germany



XMM / EPIC pn

pn023001_417_*_map.fits

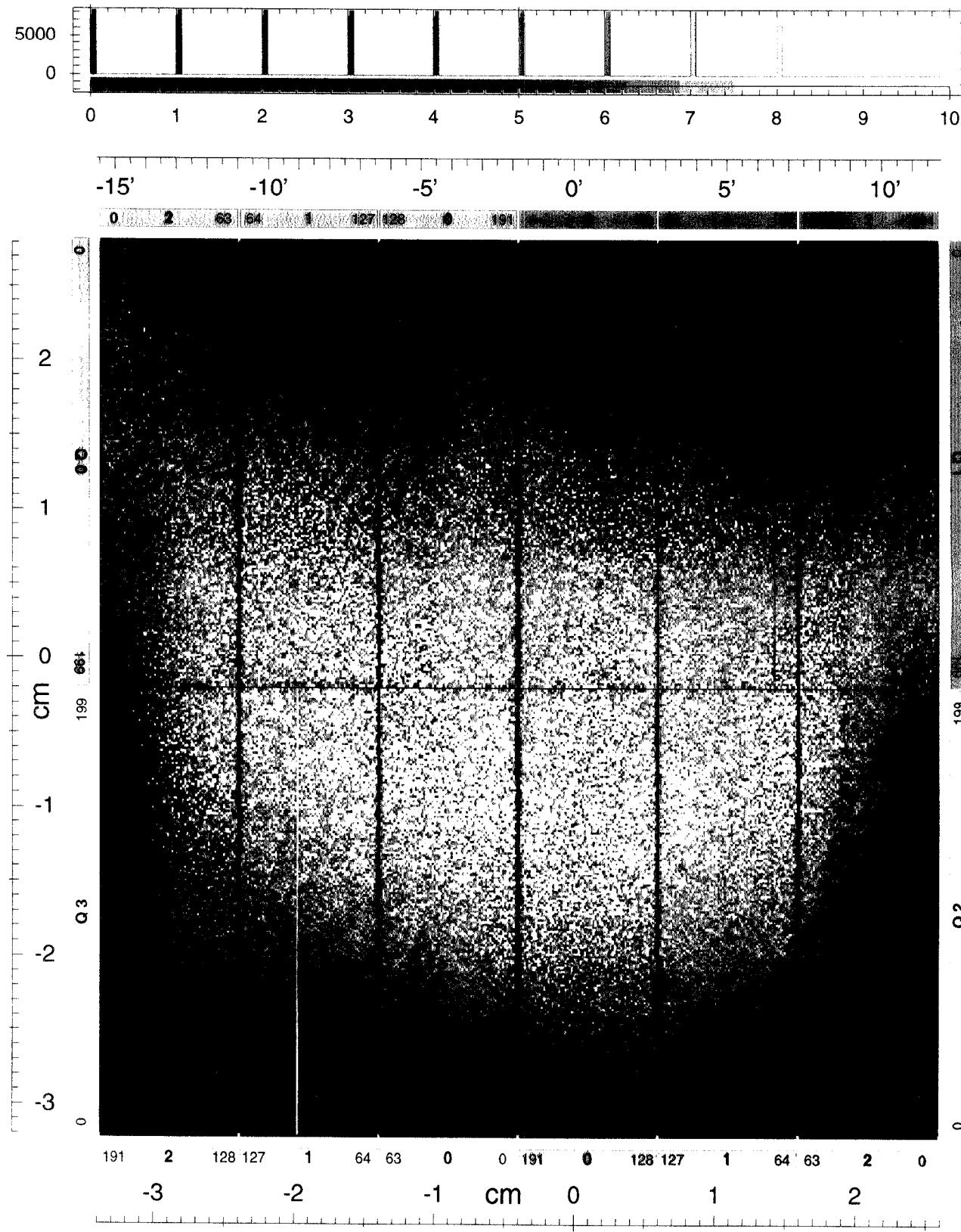
Mn-K (5.5 - 7.0 keV, ph 250-350c)



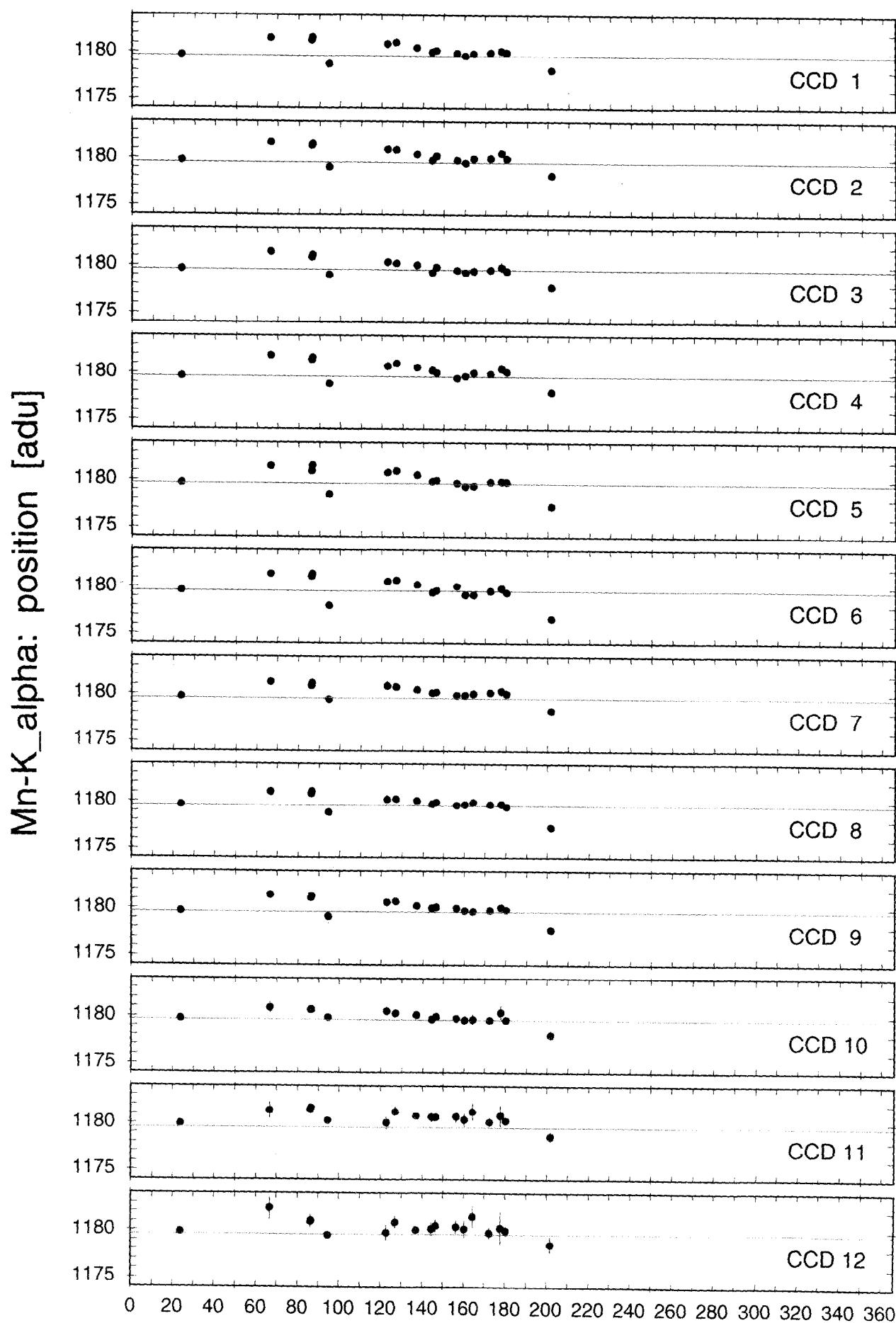
XMM / EPIC pn

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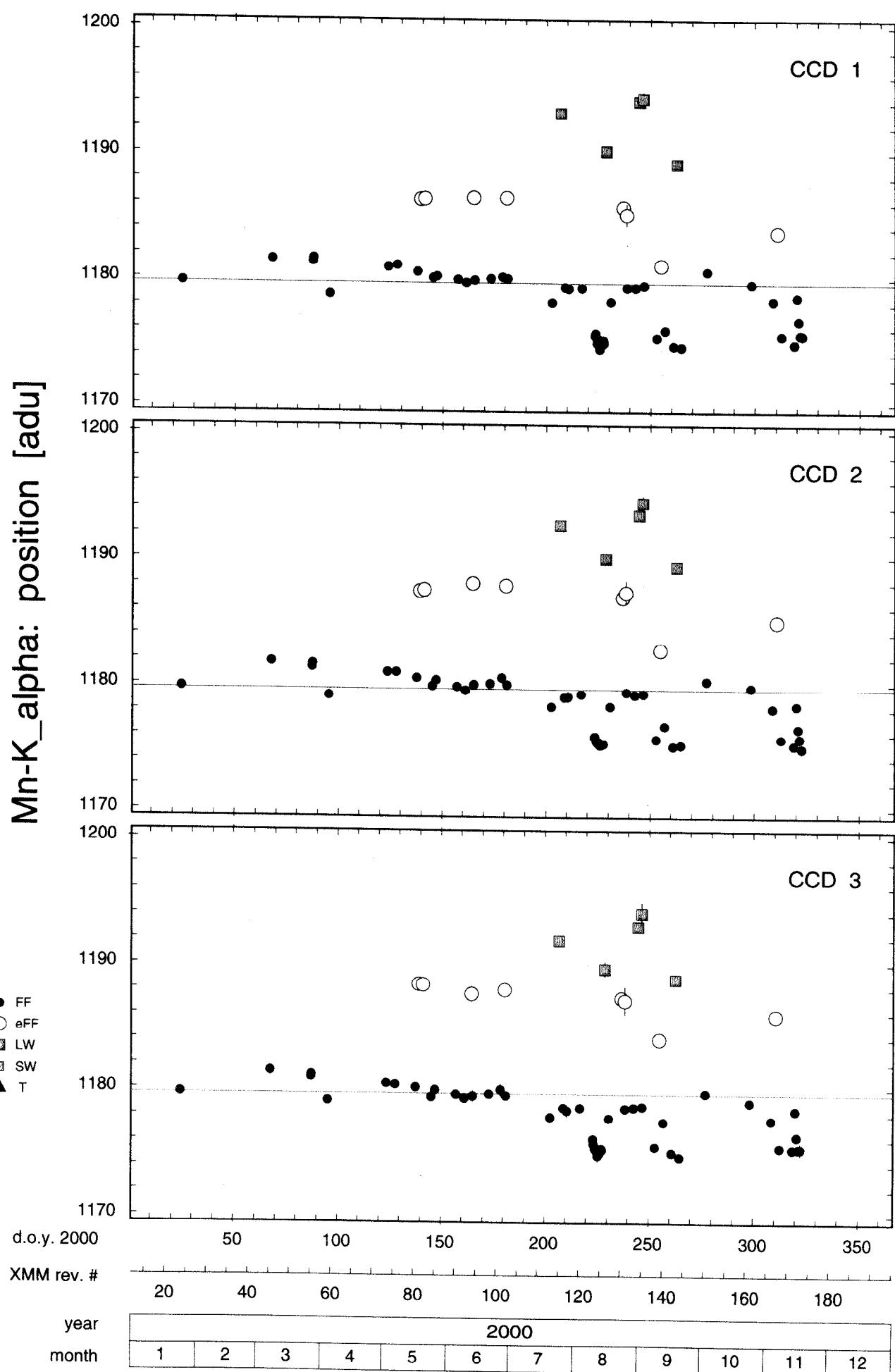
AI-K (1.25 - 1.75 keV, ph 250-350c)



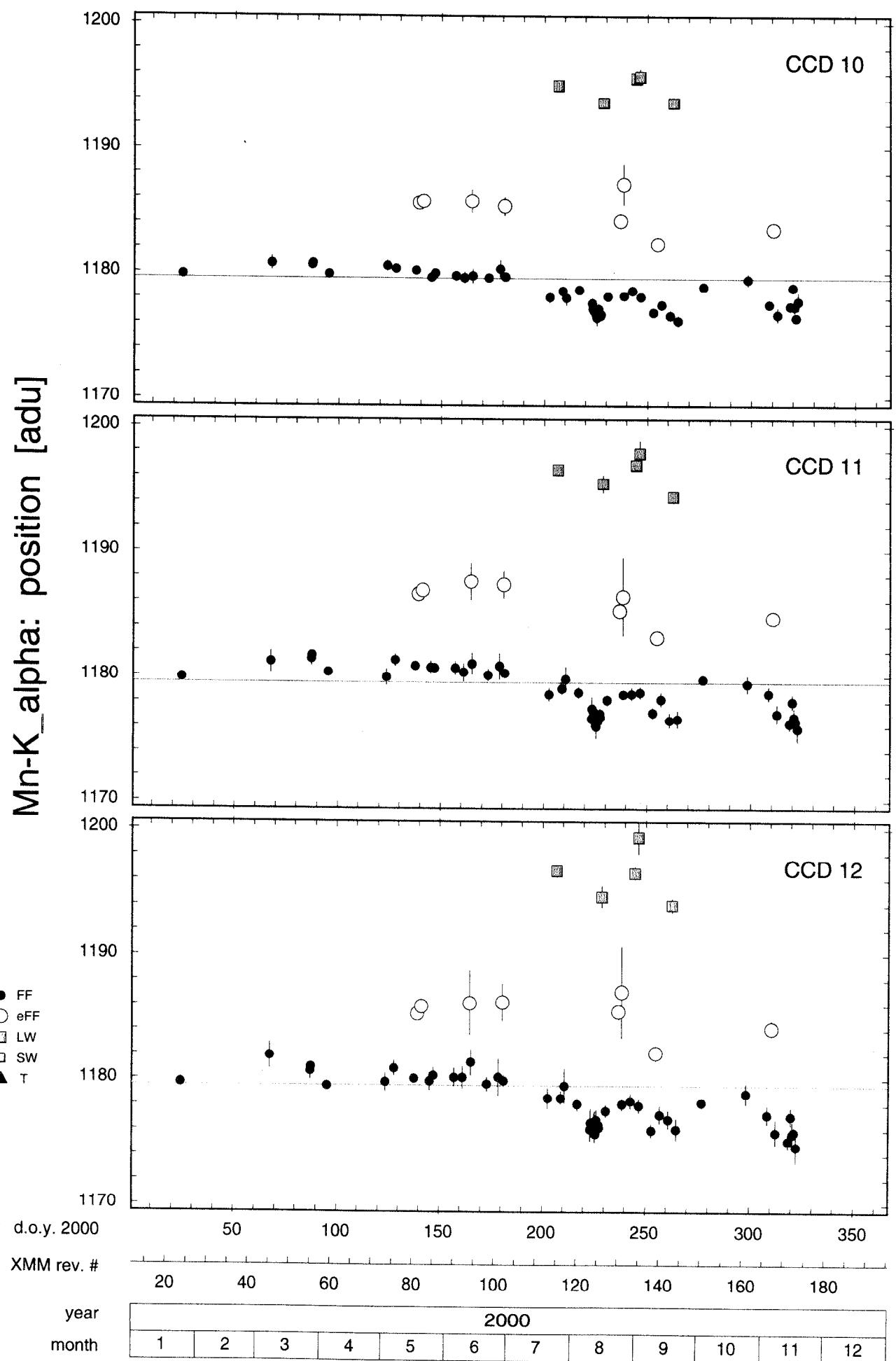
XMM - Newton / EPIC pn internal calibration source



XMM - Newton / EPIC pn internal calibration source

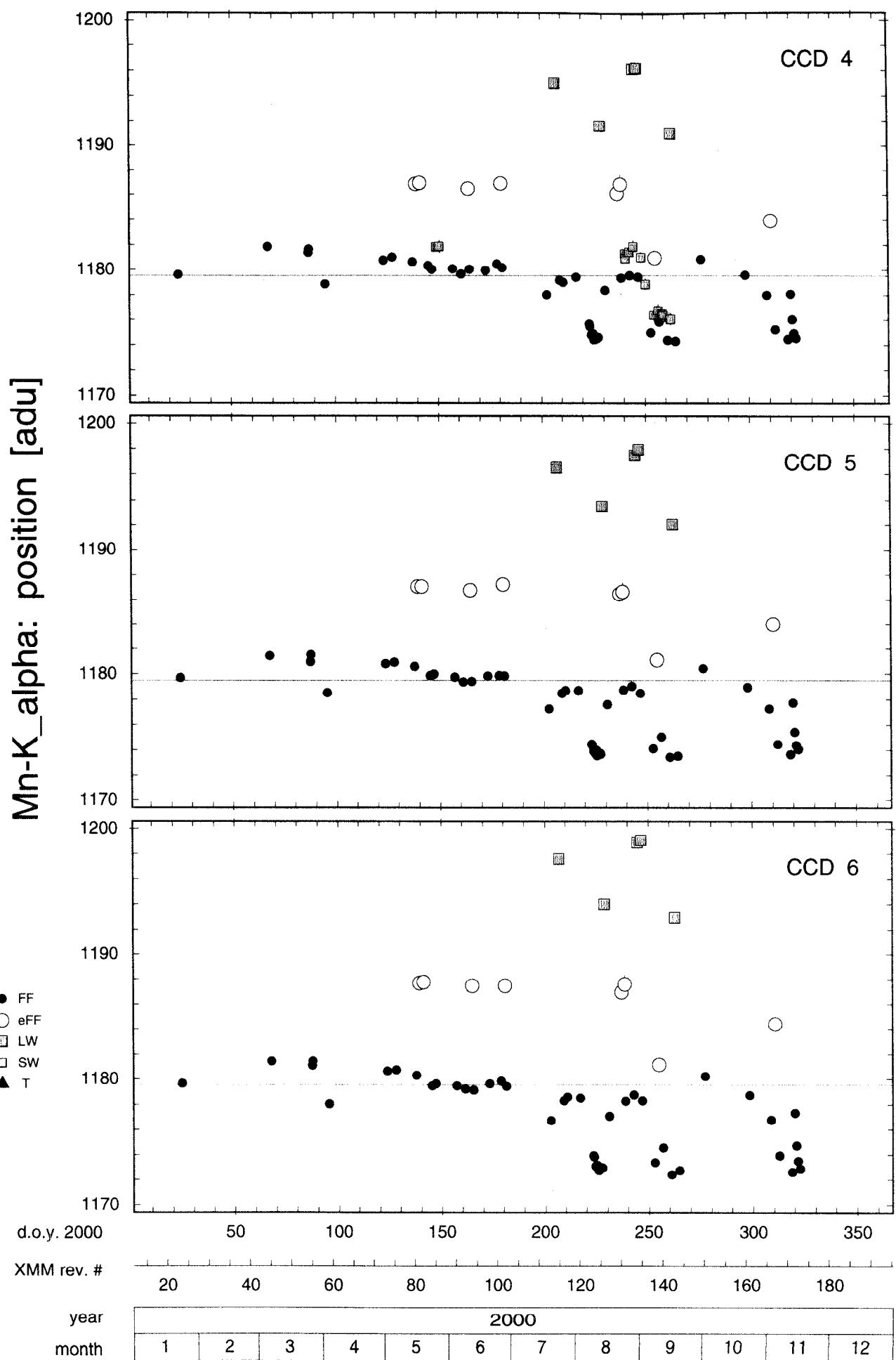


XMM - Newton / EPIC pn internal calibration source



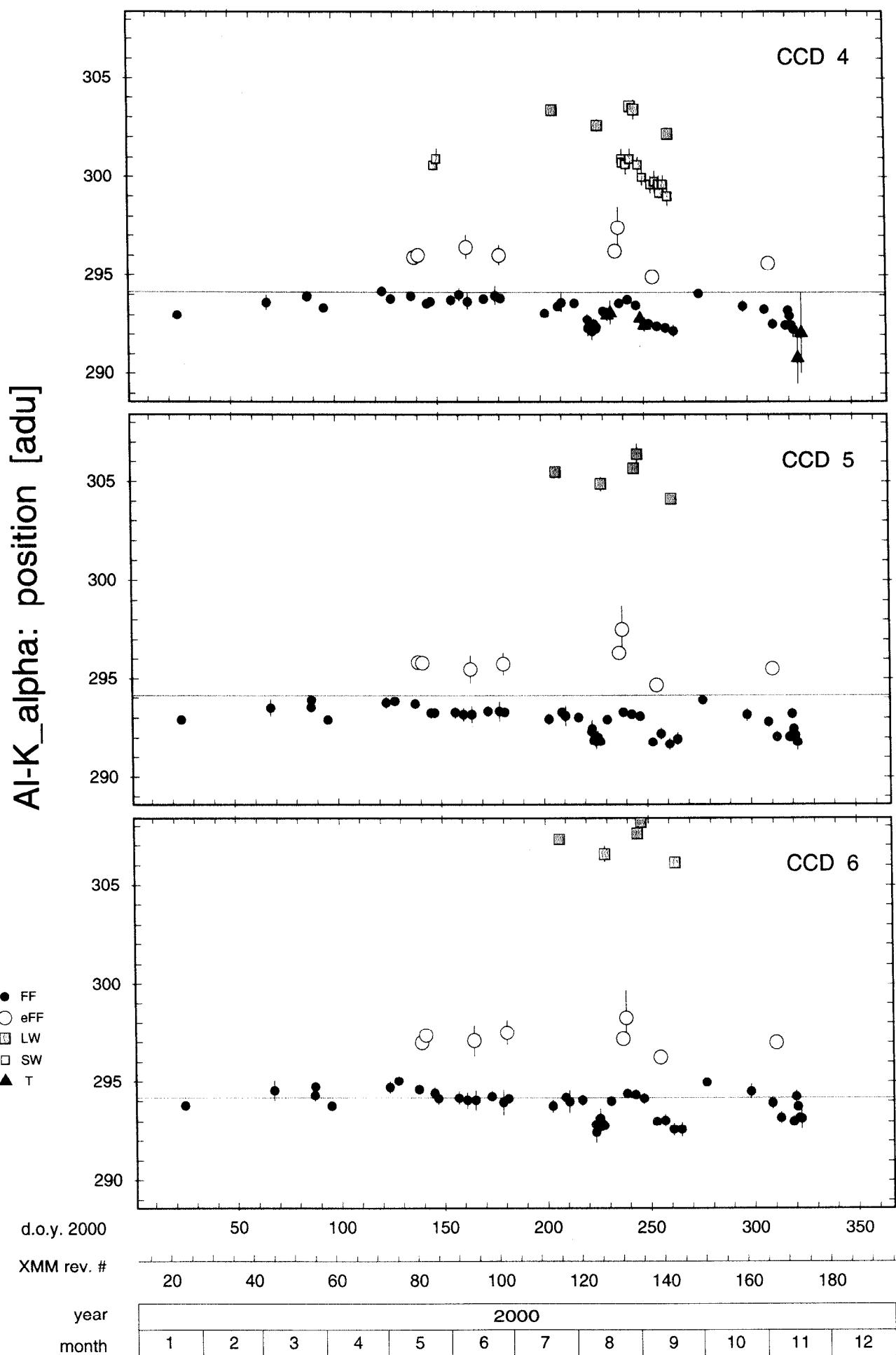
XMM - Newton / EPIC pn

internal calibration source



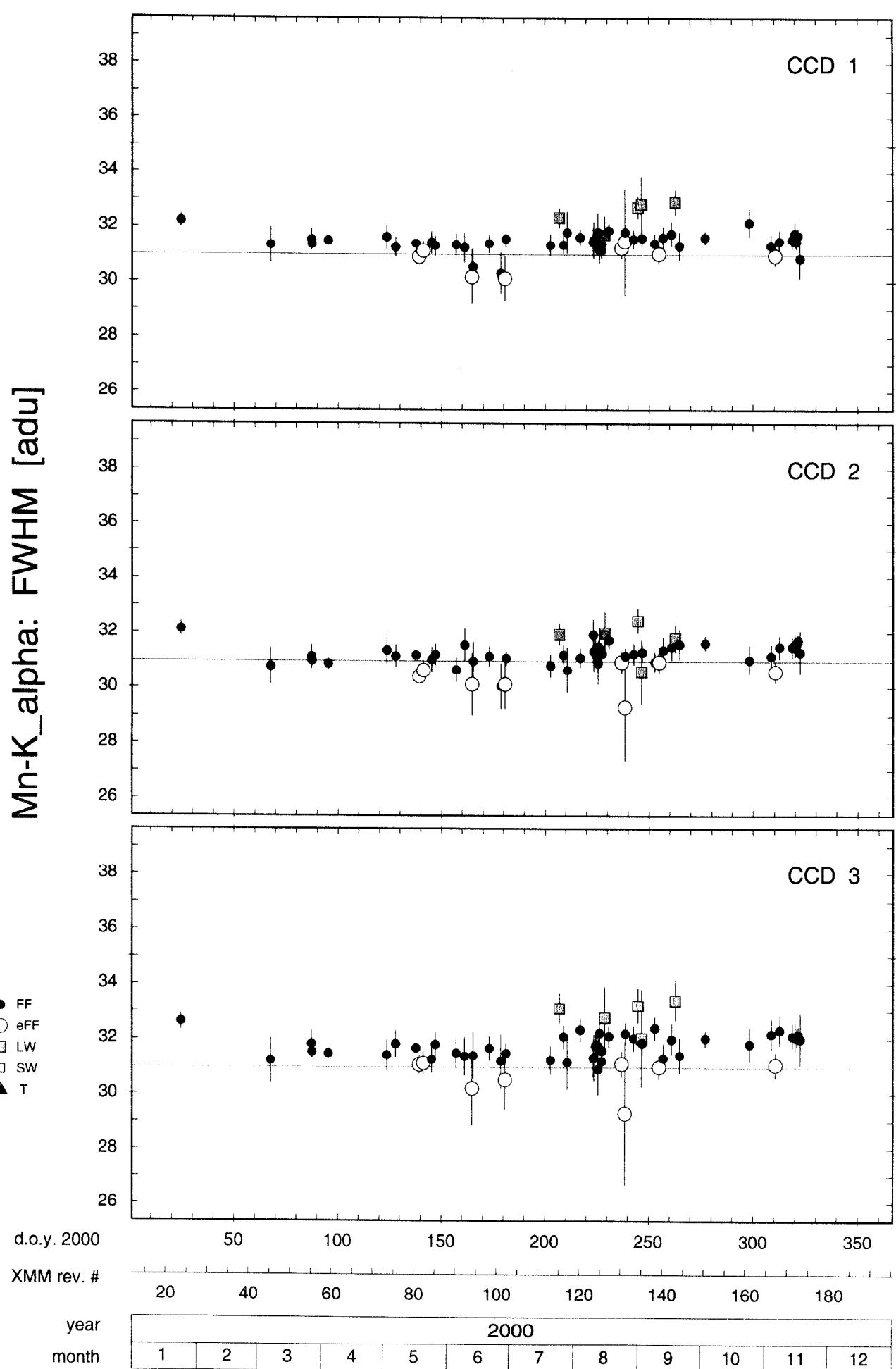
XMM - Newton / EPIC pn

internal calibration source



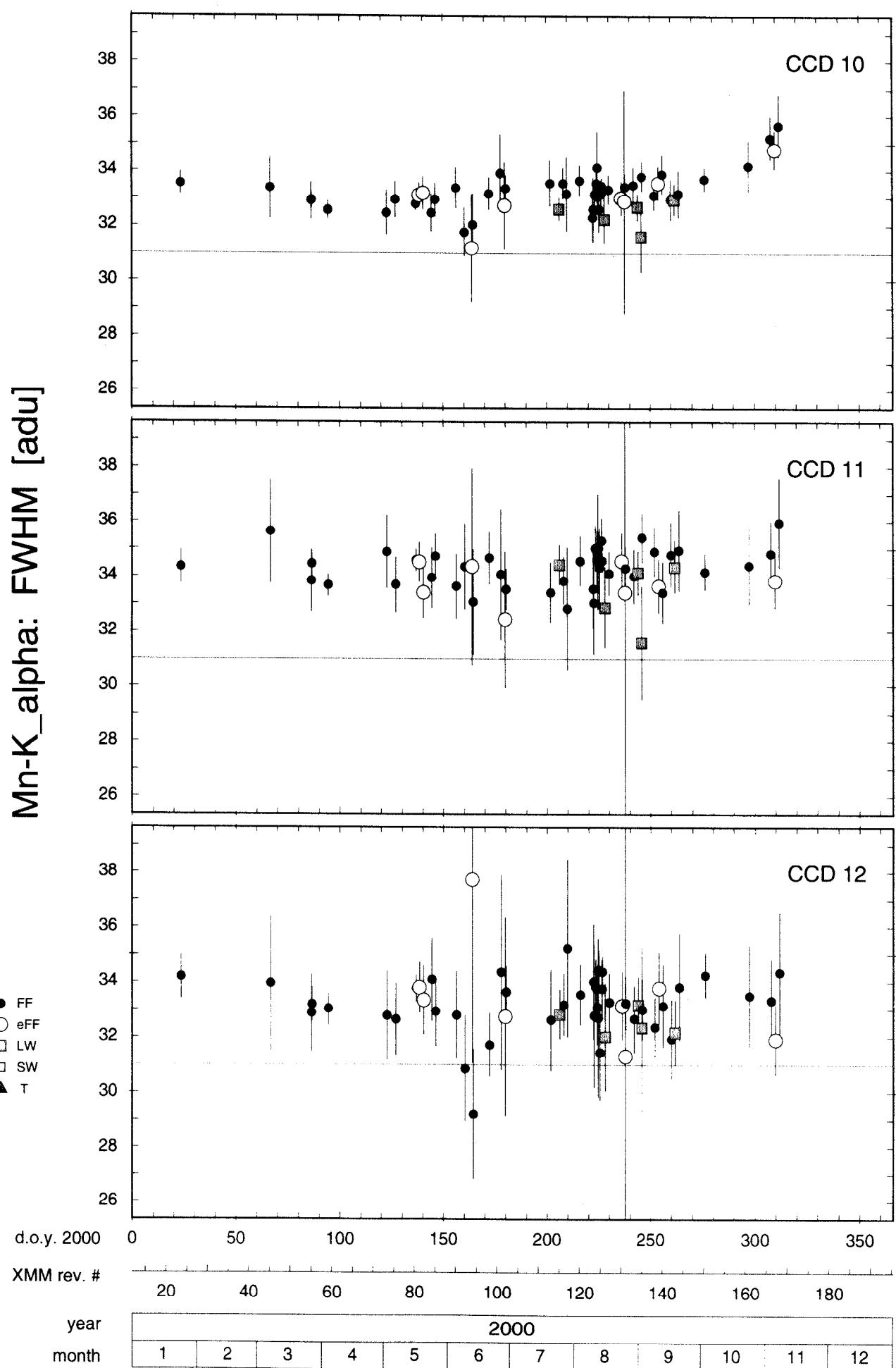
XMM - Newton / EPIC pn

internal calibration source



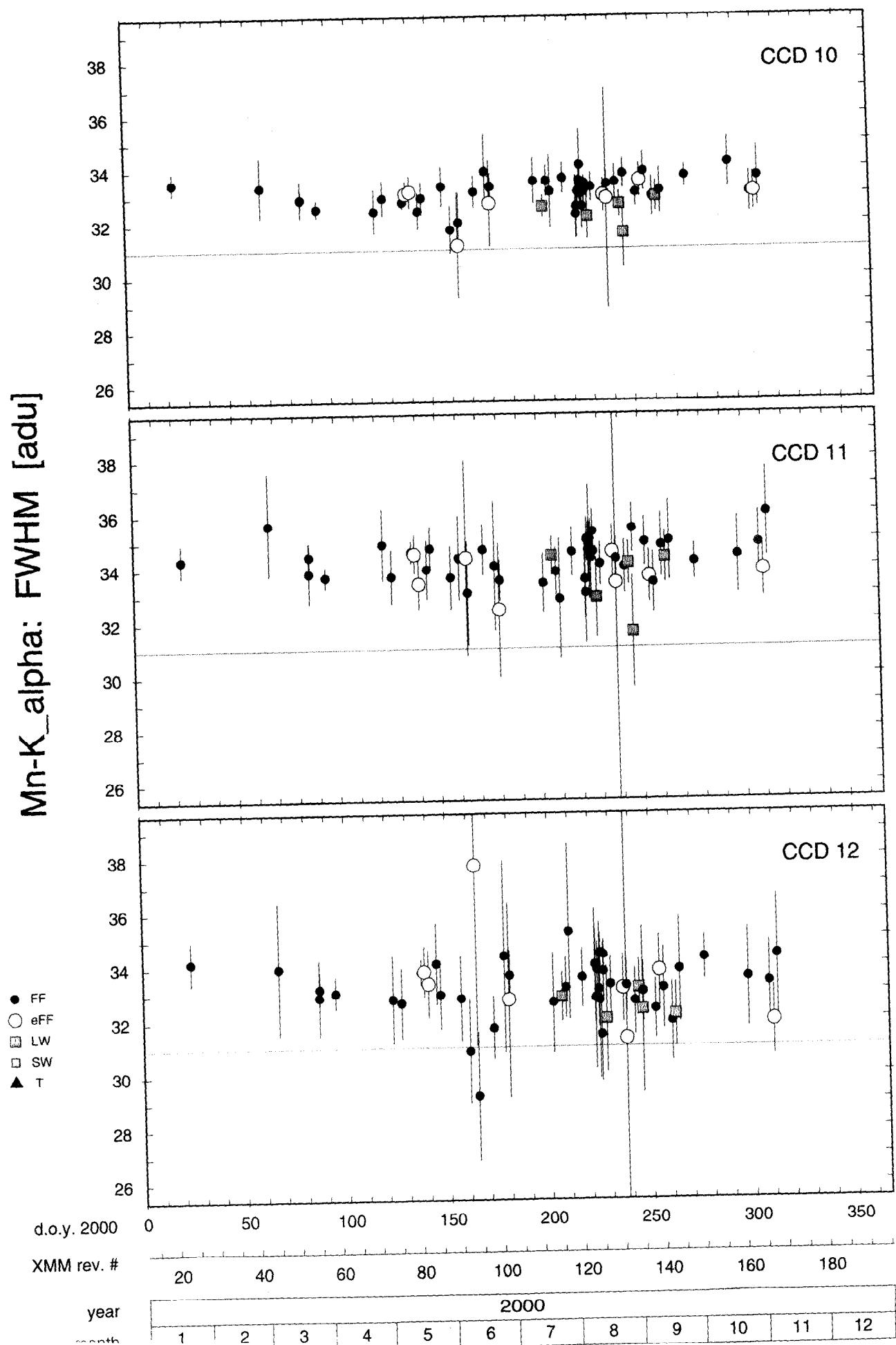
XMM - Newton / EPIC pn

internal calibration source



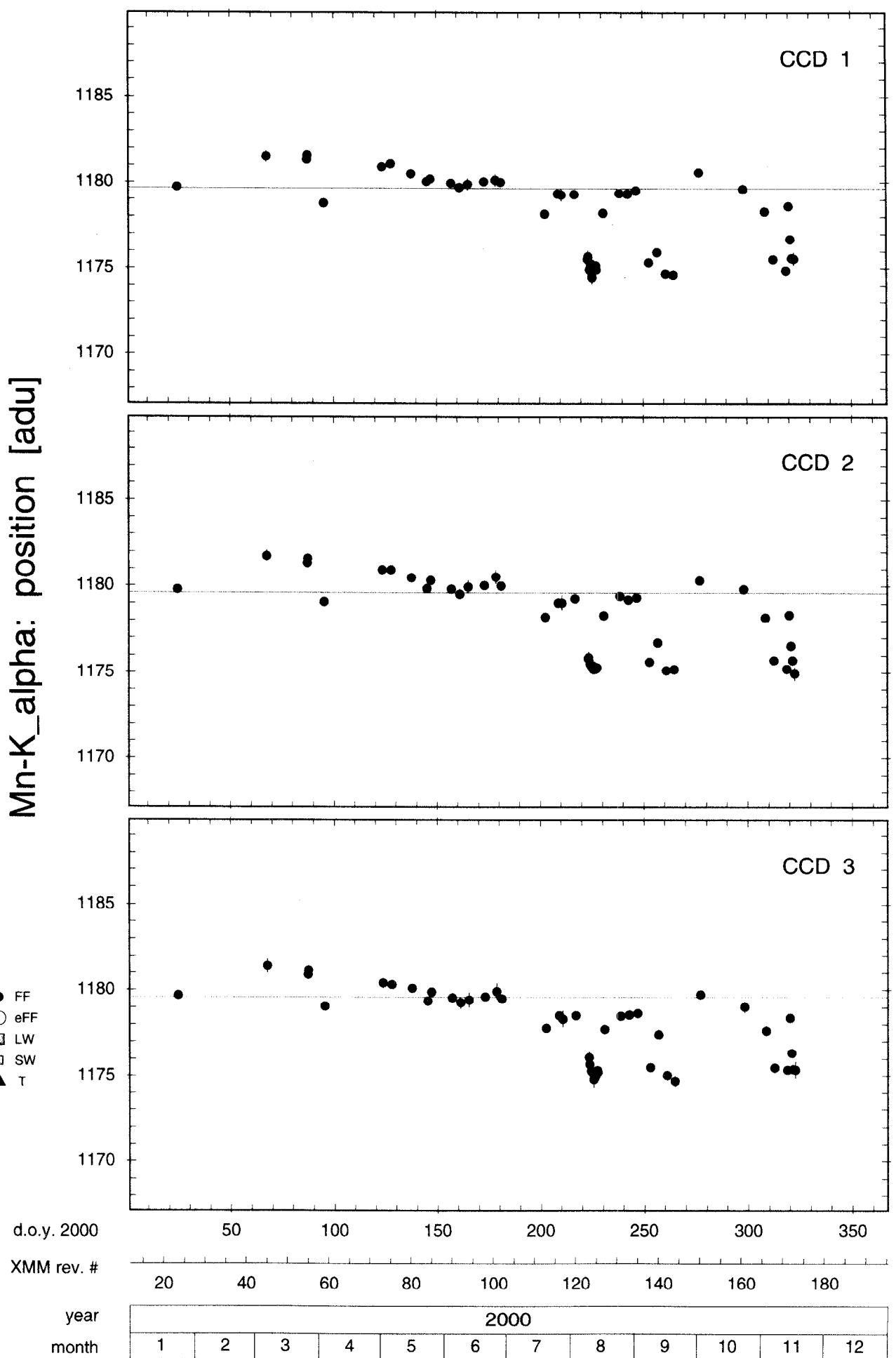
XMM - Newton / EPIC pn

internal calibration source

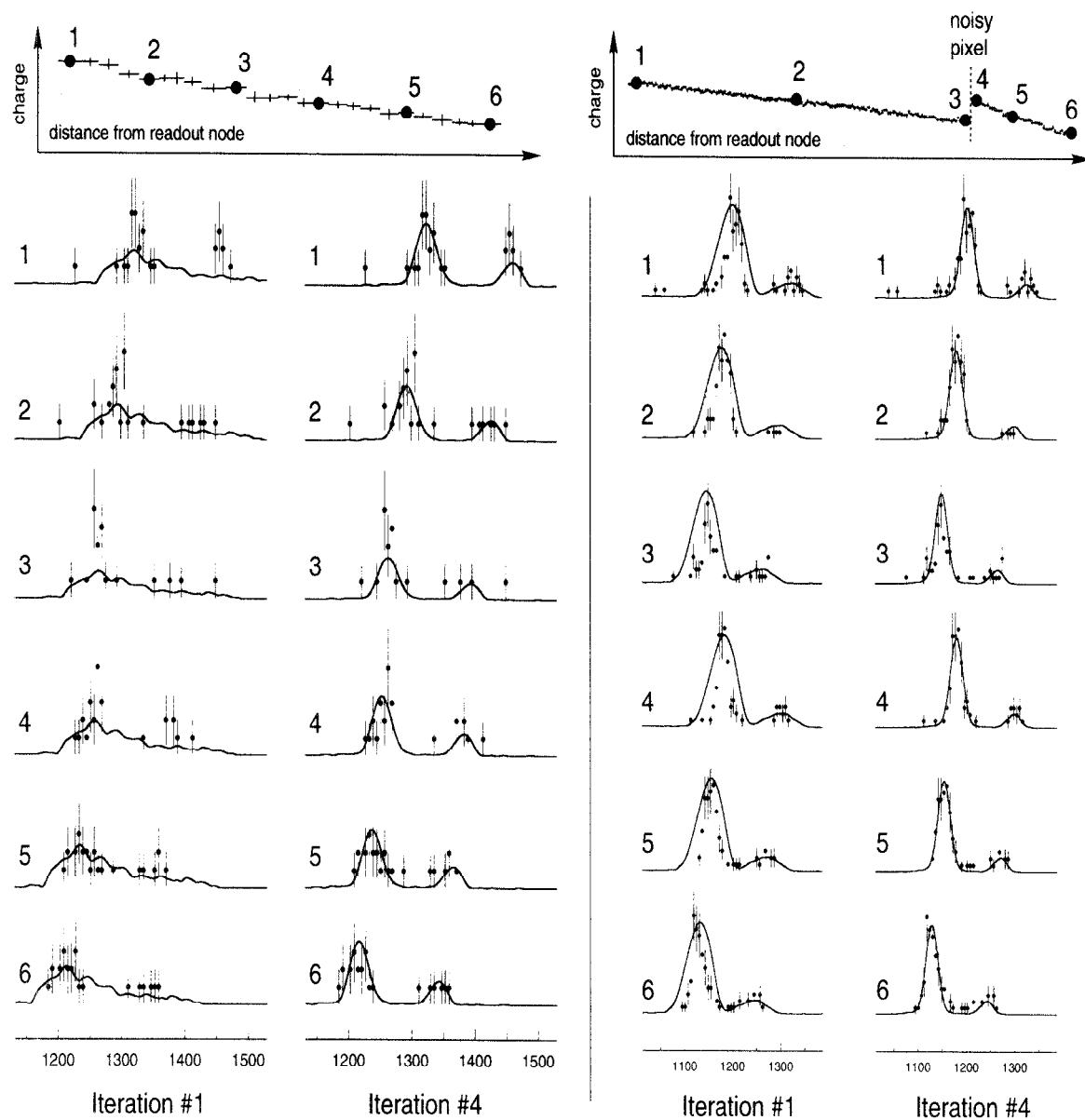


XMM - Newton / EPIC pn

internal calibration source



Charge loss determination with the template cross correlation method



pn023001_417_0_

64	60	_____
65	58	_____
66	59	_____
67	60	_____
68	56	_____
69	63	_____
70	61	_____
71	57	_____
72	55	_____
73	60	_____
74	57	_____
75	57	_____
76	52	_____
77	61	_____
78	65	_____
79	56	_____
80	56	_____
81	58	_____
82	63	_____
83	57	_____
84	53	_____
85	53	_____
86	62	_____
87	63	_____
88	55	_____
89	66	_____
90	61	_____
91	59	_____
92	60	_____

_0_କୋରକେଡ଼ିଙ୍କ

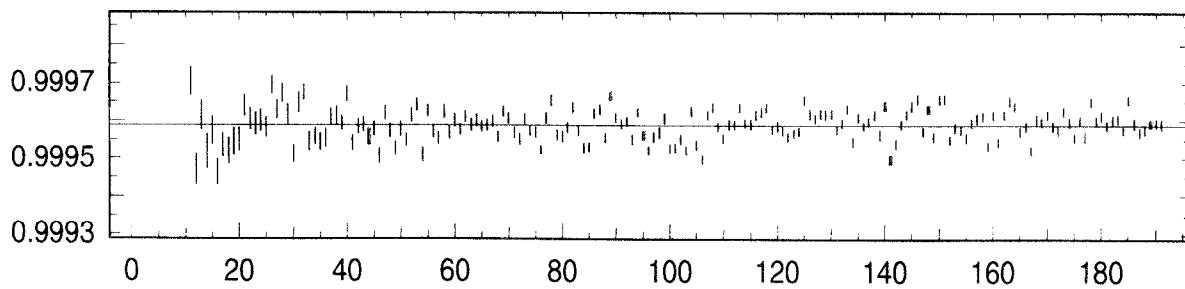
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୨୦	୬୬
୧୯	୬୬
୨୮	୮୬
୪୮	୮୬
୬୮	୧୮
୧୯	୦୮
୨୮	୧୮
୩୮	୨୮
୪୮	୩୮
୬୮	୪୮
୨୮	୫୮
୩୮	୬୮
୦୮	୭୮
୧୮	୮୮
୬୮	୯୮
୫୮	୦୮
୨୮	୧୮
୧୮	୨୮
୨୮	୩୮
୪୮	୪୮
୫୮	୫୮
୧୮	୬୮
୨୮	୭୮
୫୮	୮୮
୧୮	୯୮
୧୯	୦୯
୪୮	୧୯
୦୯	୨୯

XMM - EPIC

pn023001_417_0_FS

CTE

11 70		64 60		128 62	
12 47		65 58		129 62	
13 61		66 59		130 62	
14 52		67 60		131 58	
15 57		68 56		132 59	
16 46		69 63		133 63	
17 53		70 61		134 54	
18 52		71 57		135 61	
19 54		72 55		136 59	
20 55		73 60		137 60	
21 64		74 57		138 61	
22 60		75 57		139 56	
23 59		76 52		140 64	
24 60		77 61		141 50	
25 58		78 65		142 54	
26 69		79 56		143 59	
27 63		80 56		144 62	
28 67		81 58		145 64	
29 62		82 63		146 66	
30 51		83 57		147 57	
31 65		84 53		148 63	
32 68		85 53		149 56	
33 55		86 62		150 66	
34 56		87 63		151 66	
35 55		88 55		152 55	
36 55		89 66		153 58	
37 61		90 61		154 57	
38 61		91 59		155 55	
39 59		92 60		156 59	
40 67		93 55		157 61	
41 54		94 62		158 61	
42 59		95 56		159 53	
43 59		96 52		160 61	
44 56		97 56		161 54	
45 58		98 57		162 62	
46 51		99 61		163 65	
47 62		100 53		164 64	
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55 63		108 63		172 57	
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57 55		110 55		174 59	
58 62		111 59		175 55	
59 57		112 59		176 60	
60 60		113 63		177 56	
61 58		114 59		178 65	
62 61		115 59		179 60	
63 59		116 61		180 61	
		117 62		181 59	
		118 63		182 60	
		119 58		183 60	
		120 59		184 58	
		121 57		185 65	
		122 56		186 59	
		123 57		187 57	
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		125 65		189 59	
		126 62		190 59	
		127 61		191 59	



XMM - EPIC

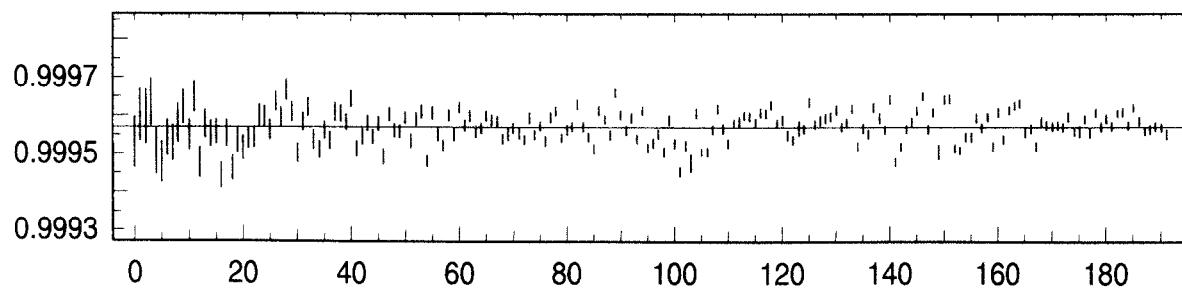
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1 60
2 60
3 64
4 51
5 48
6 54
7 53
8 58
9 62
10 55
11 65
12 48
13 58
14 55
15 56
16 44
17 55
18 46
19 53
20 52
21 54
22 54
23 60
24 60
25 56
26 64
27 60
28 67
29 61
30 50
31 58
32 62
33 54
34 51
35 56
36 54
37 61
38 61
39 58
40 64
41 51
42 55
43 58
44 55
45 58
46 49
47 60
48 56
49 56
50 59
51 53
52 59
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54 48
55 61
56 55
57 52
58 60
59 55
60 62
61 57
62 60
63 56

pn172301_sum_0_FS

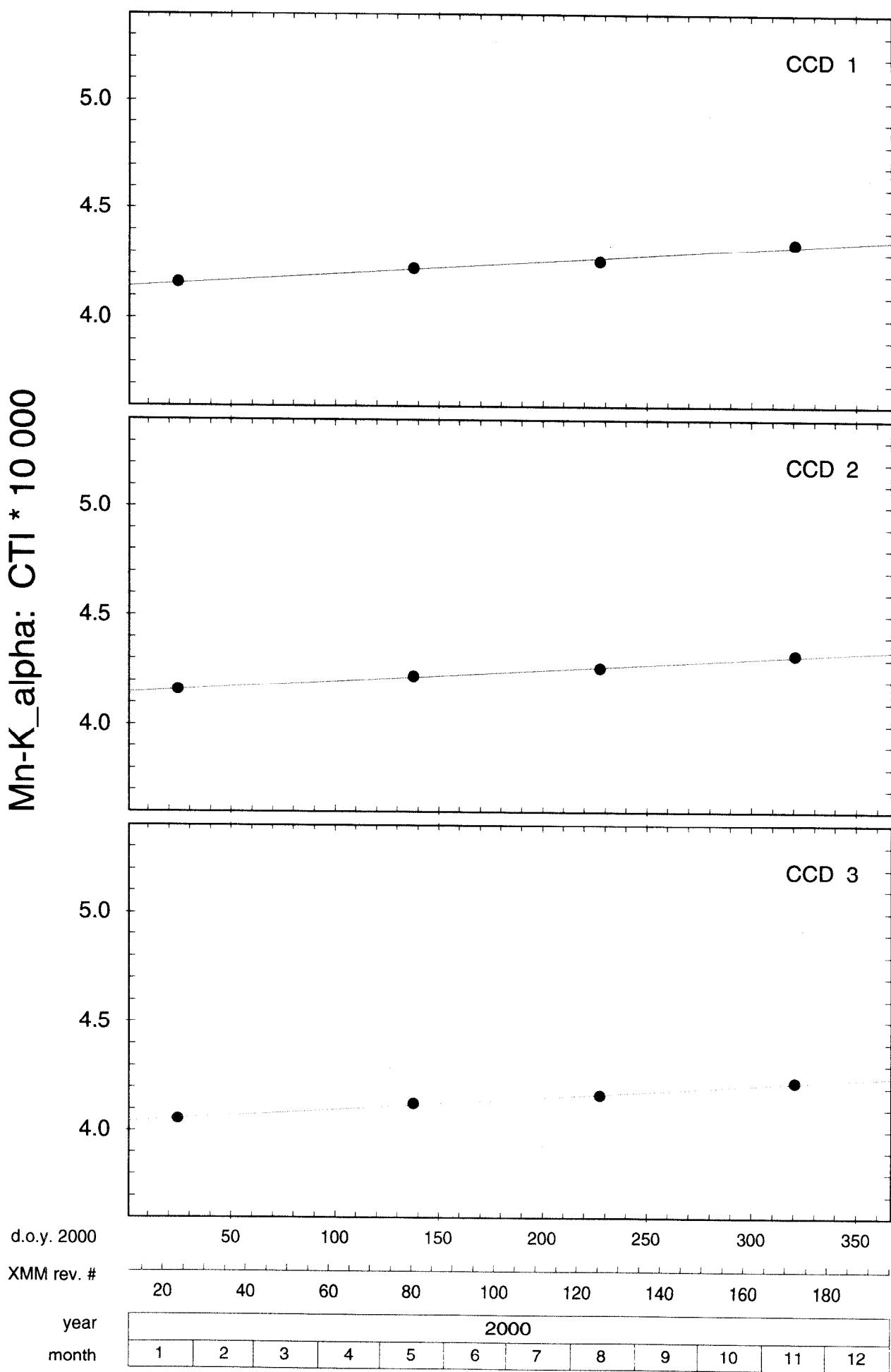
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70 57
71 55
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73 59
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76 53
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80 56
81 57
82 63
83 57
84 54
85 51
86 61
87 59
88 55
89 66
90 60
91 56
92 60
93 54
94 61
95 52
96 53
97 55
98 50
99 59
100 53
101 45
102 52
103 48
104 61
105 51
106 51
107 56
108 62
109 57
110 53
111 58
112 58
113 60
114 60
115 58
116 61
117 61
118 63
119 58
120 59
121 55
122 54
123 57
124 57
125 63
126 58
127 59

CTE

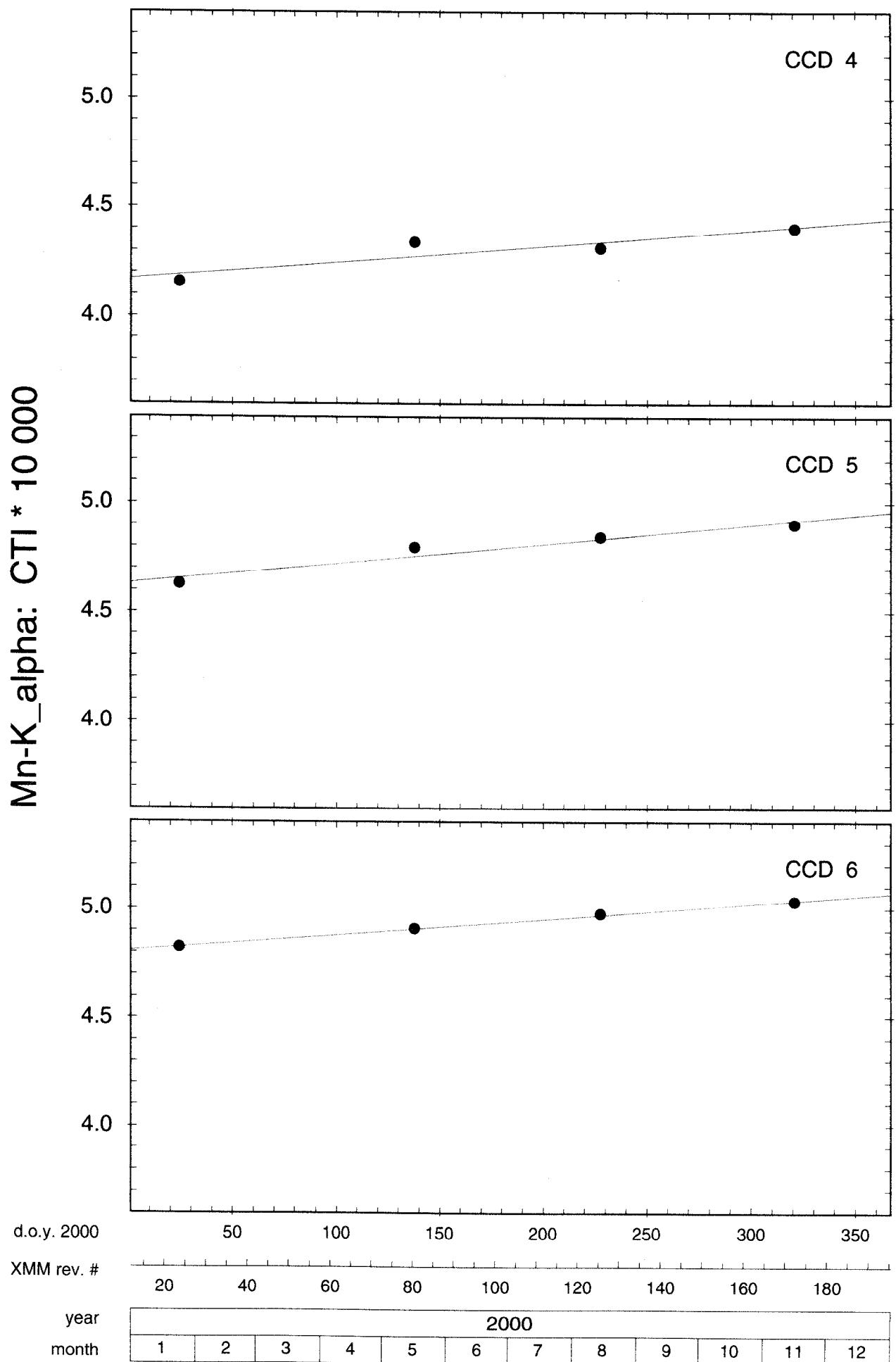
128 59
129 60
130 62
131 57
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134 52
135 57
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137 62
138 59
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140 64
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144 58
145 61
146 65
147 56
148 61
149 50
150 64
151 64
152 51
153 51
154 54
155 54
156 59
157 57
158 60
159 52
160 61
161 54
162 62
163 63
164 63
165 56
166 57
167 52
168 59
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173 60
174 56
175 56
176 59
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189 57
190 57
191 55



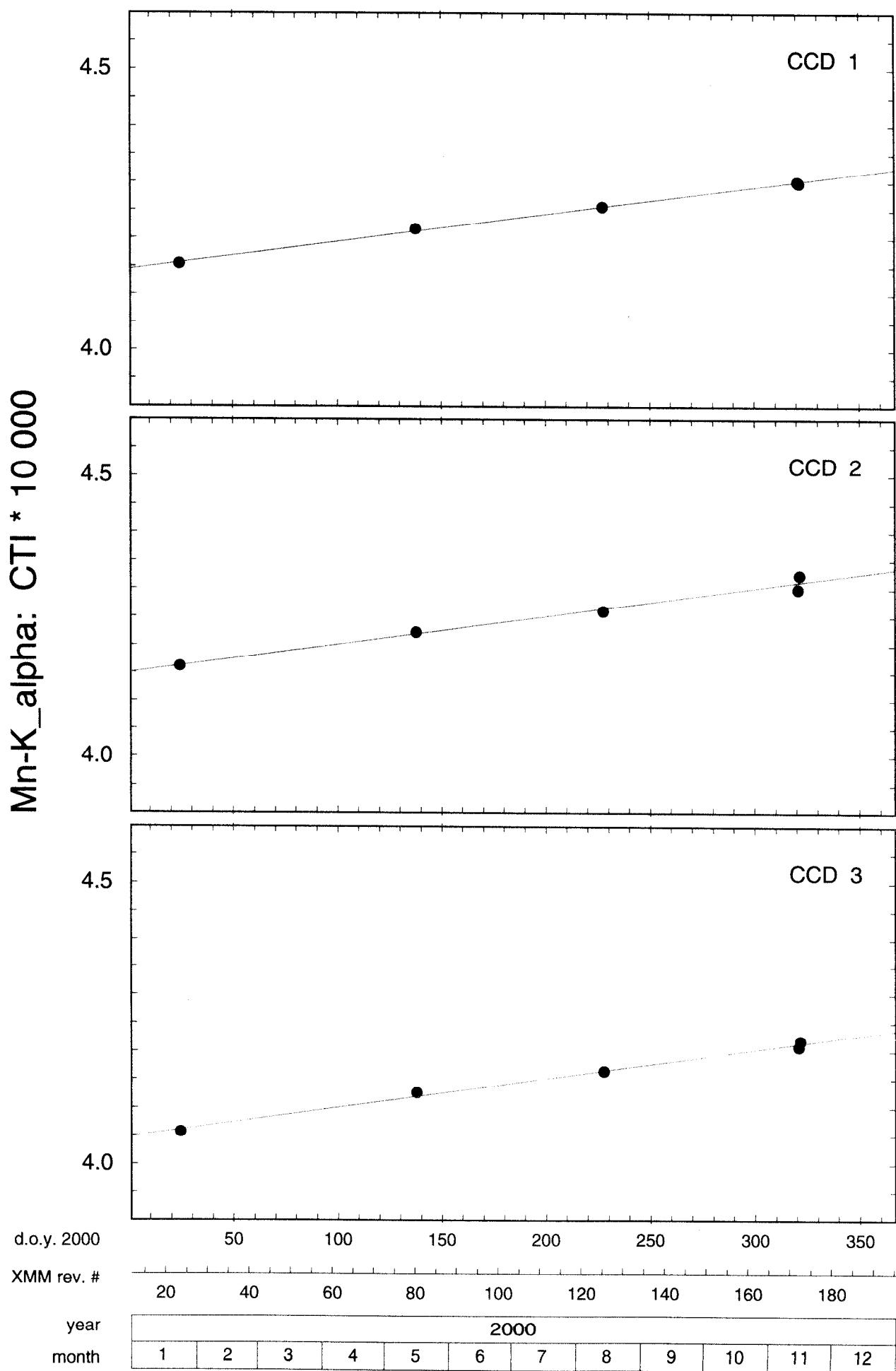
mean
CTE:
0.99957
+/- 0.00004

XMM - Newton / EPIC pn internal calibration source

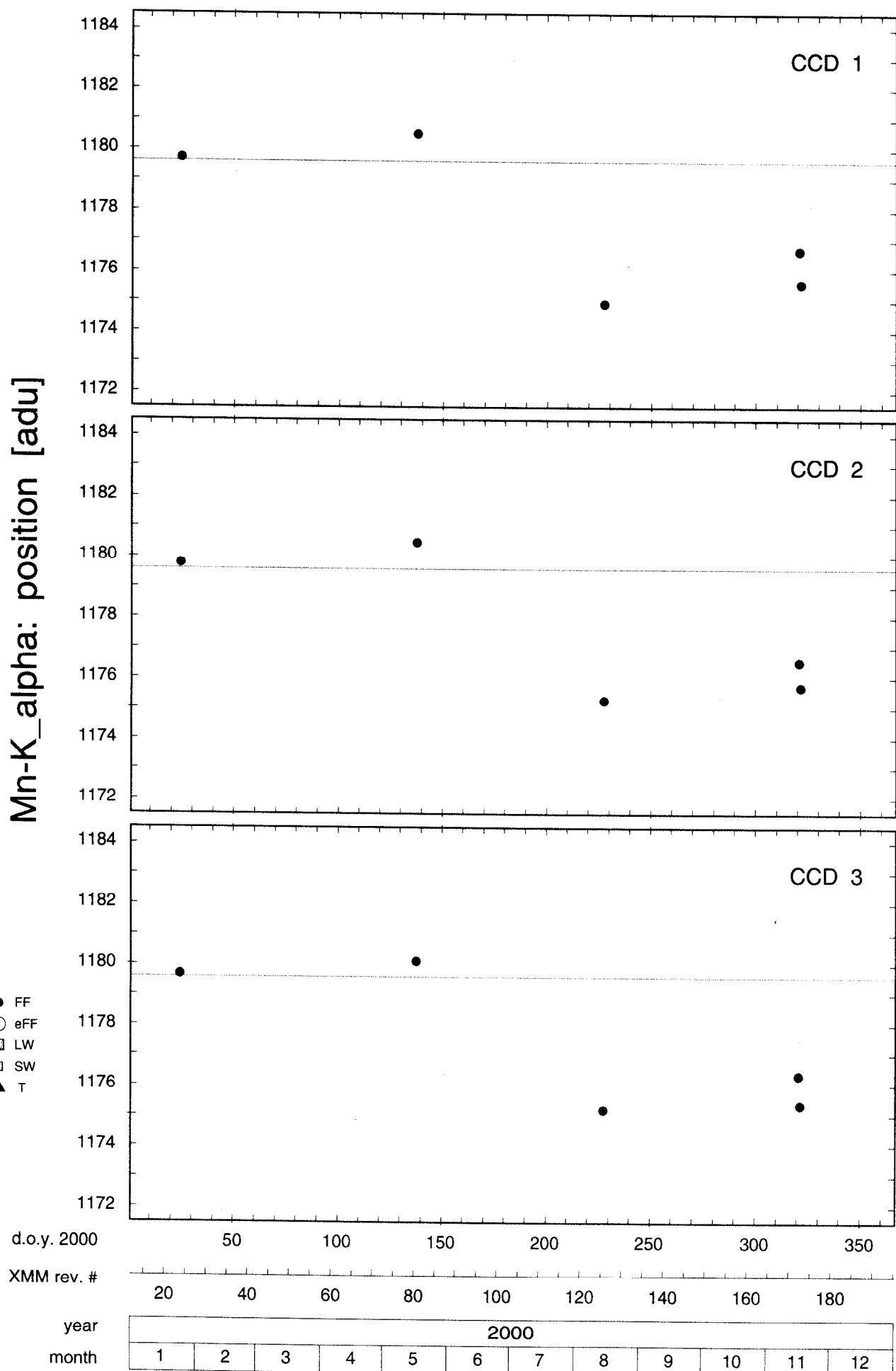
XMM - Newton / EPIC pn internal calibration source



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