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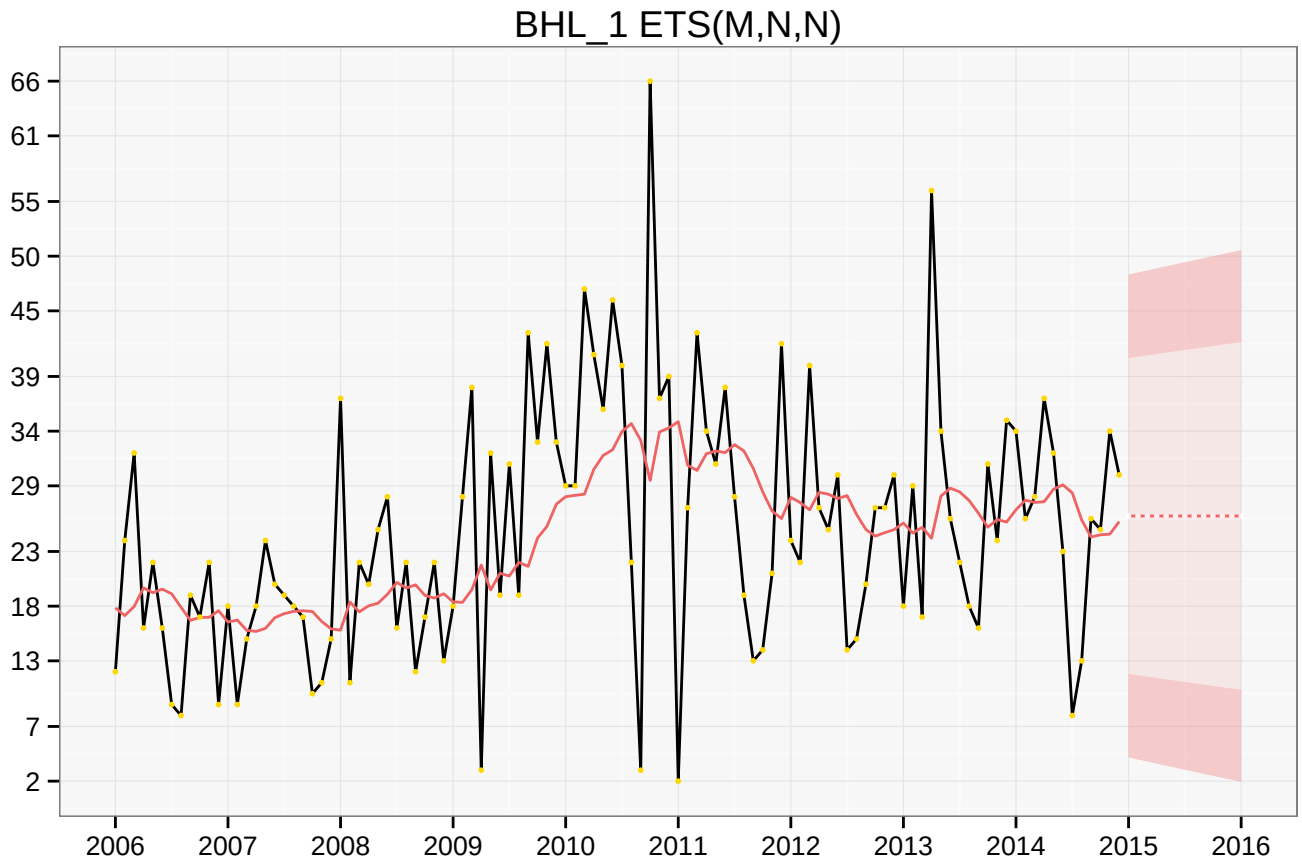
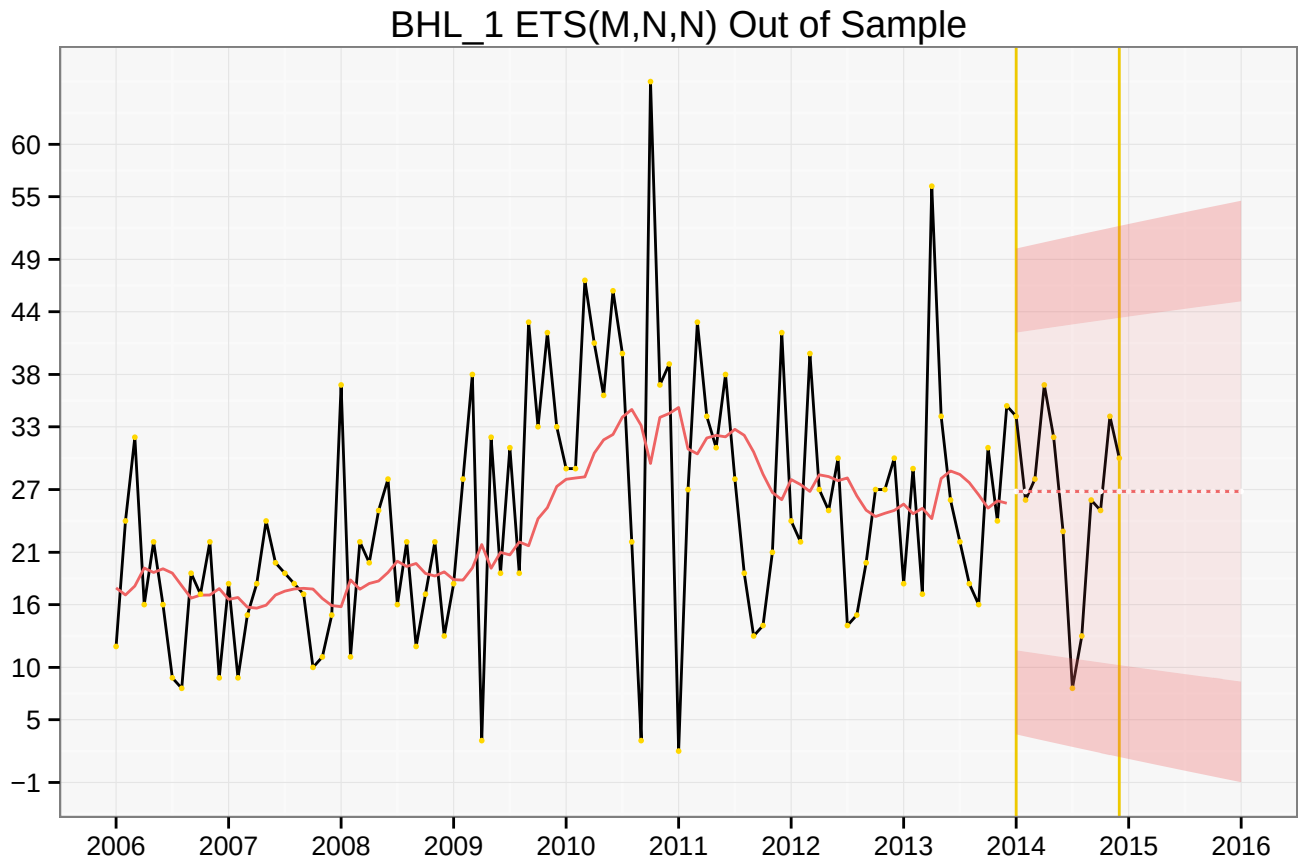
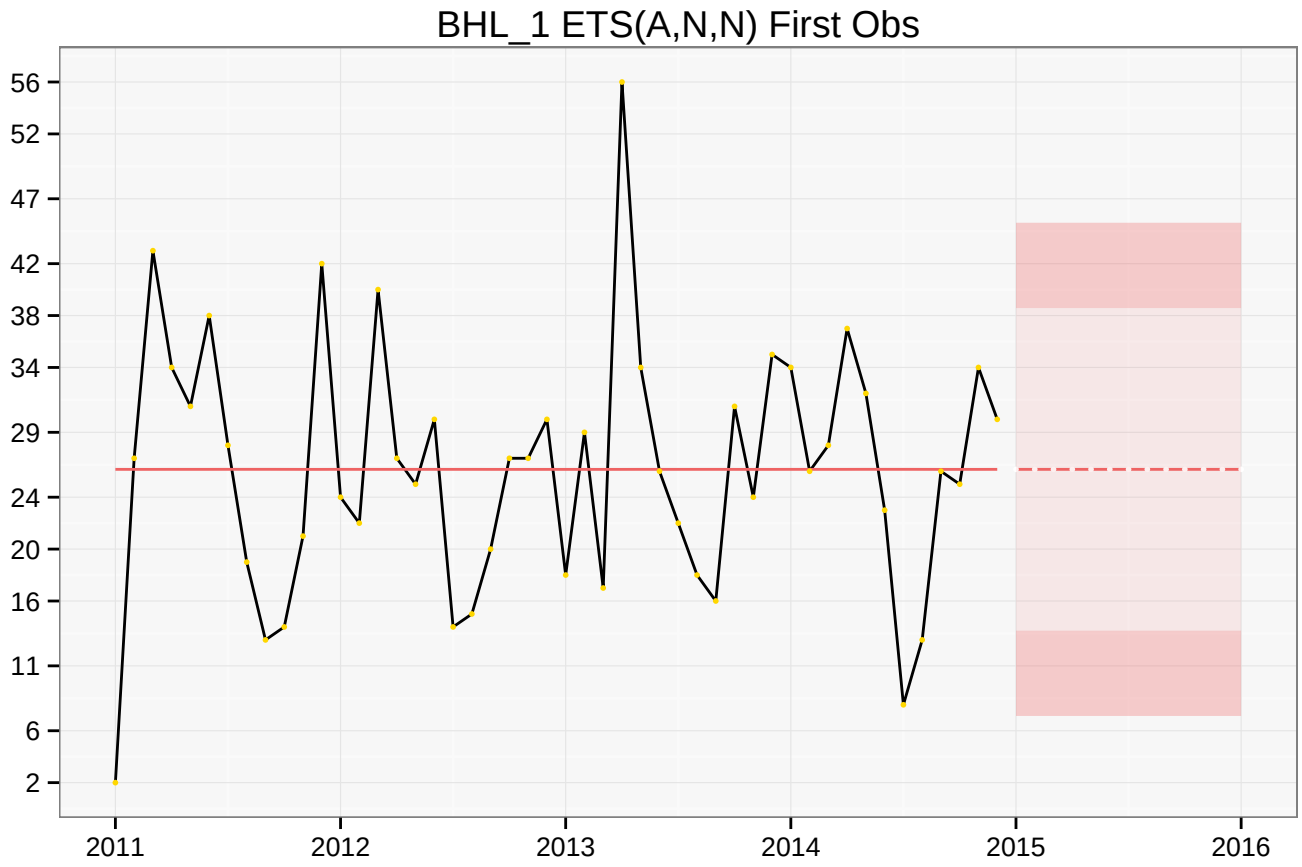
1 ets, nnetar, arimax on Cat products

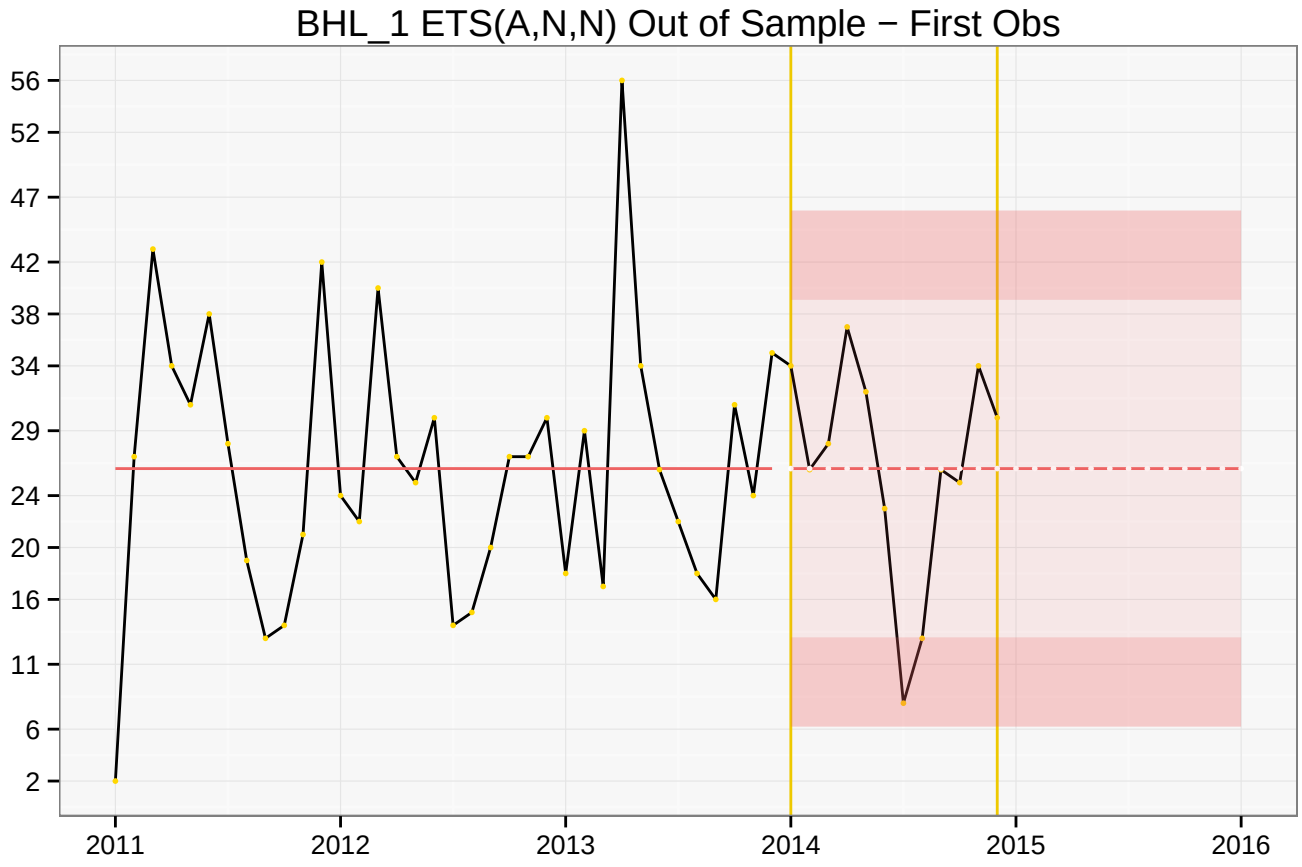
1.1 BHL_1

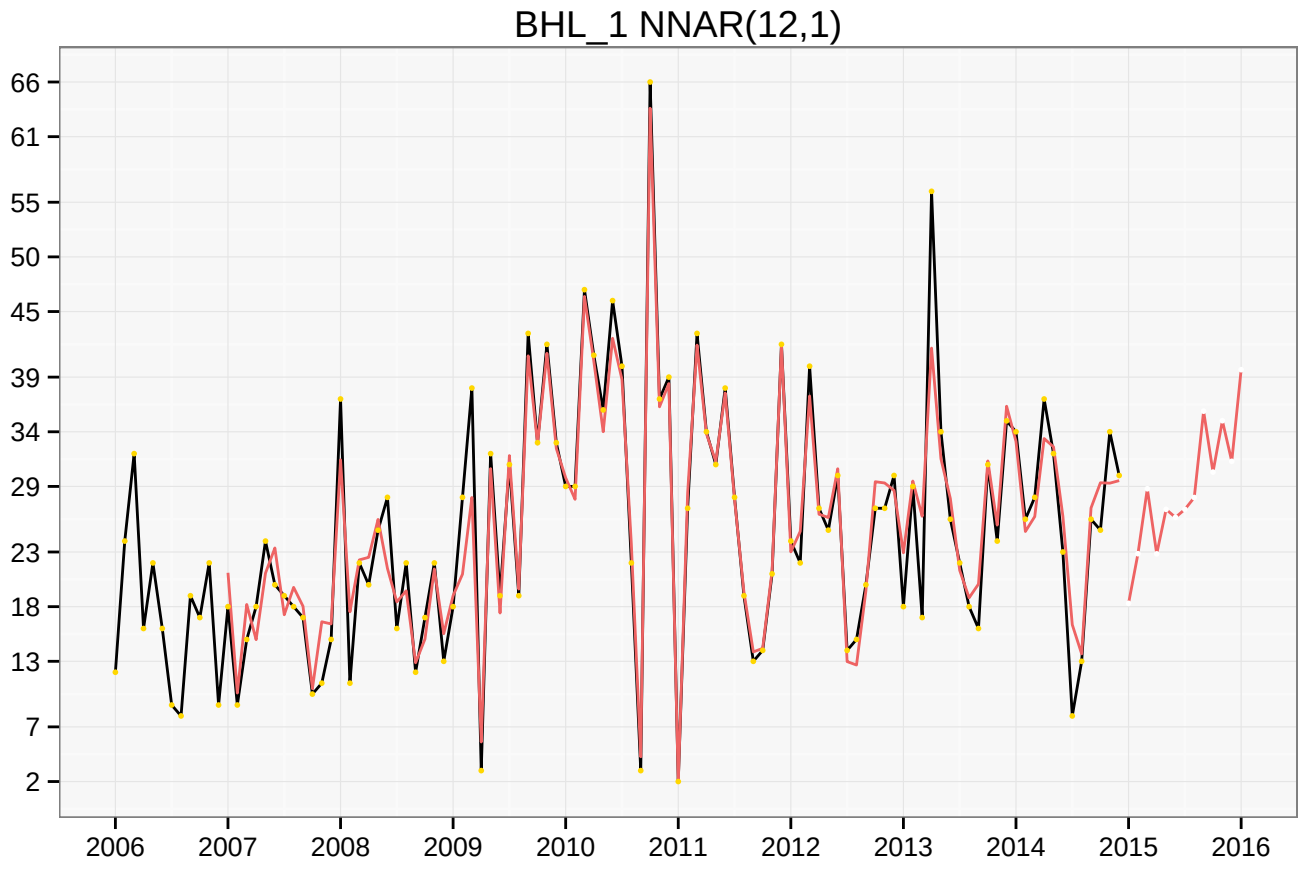
1.1.1 plots for BHL_1

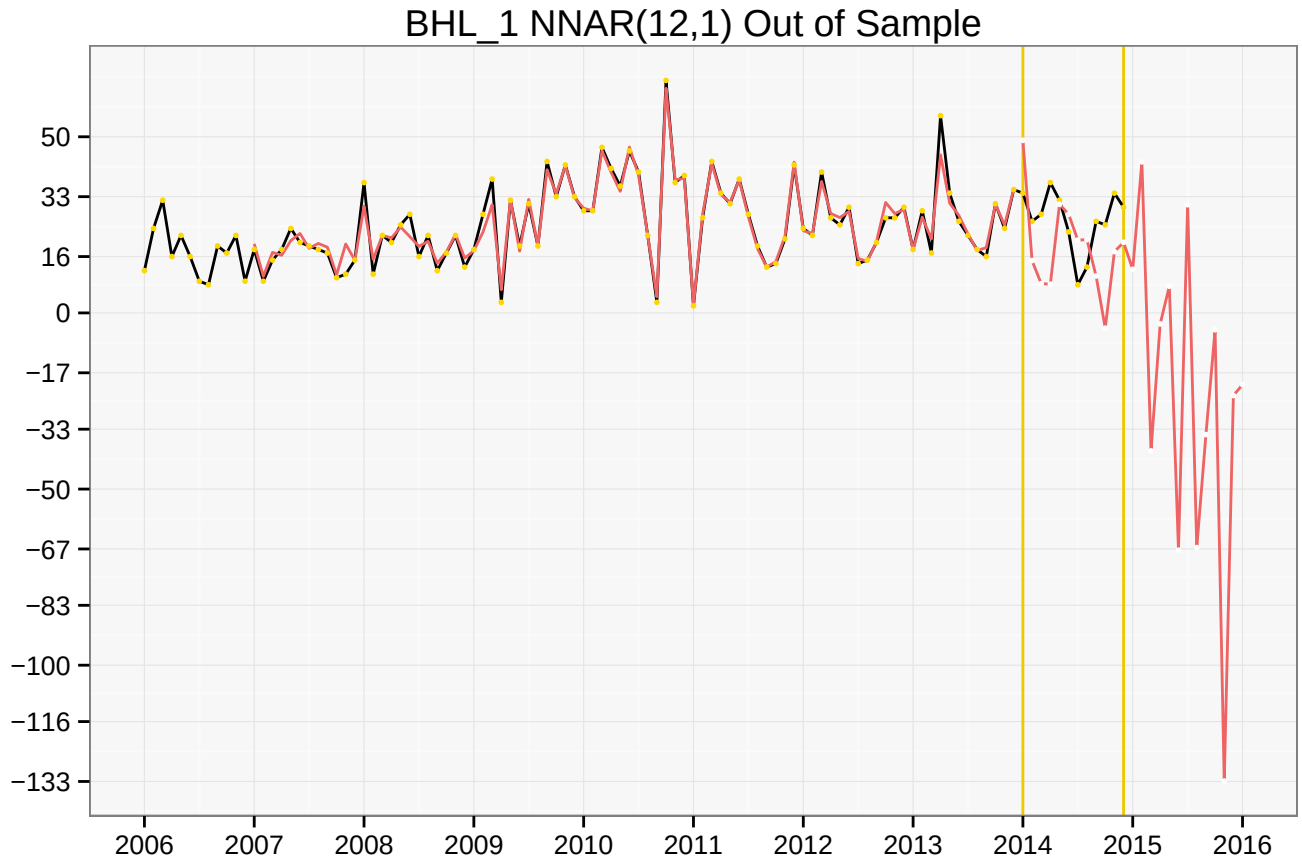


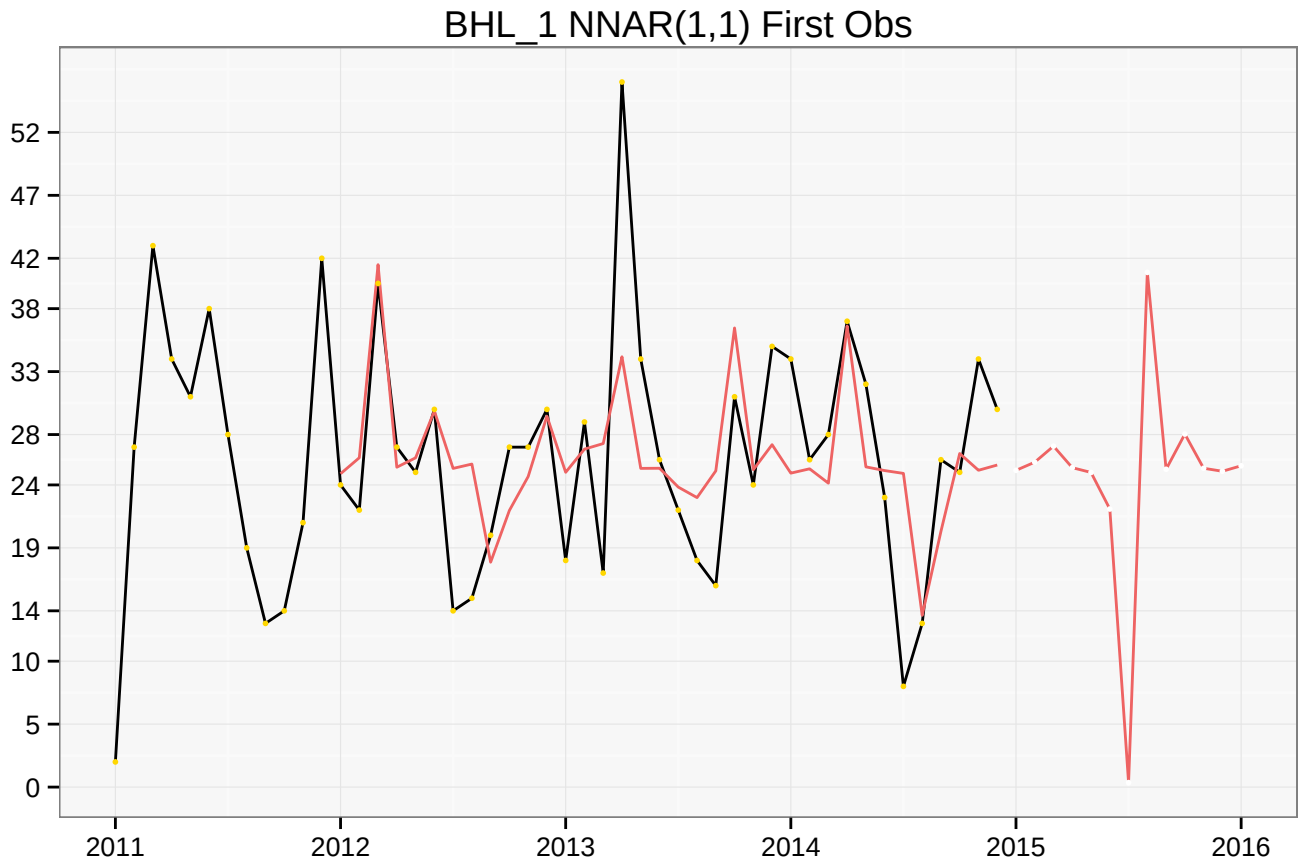


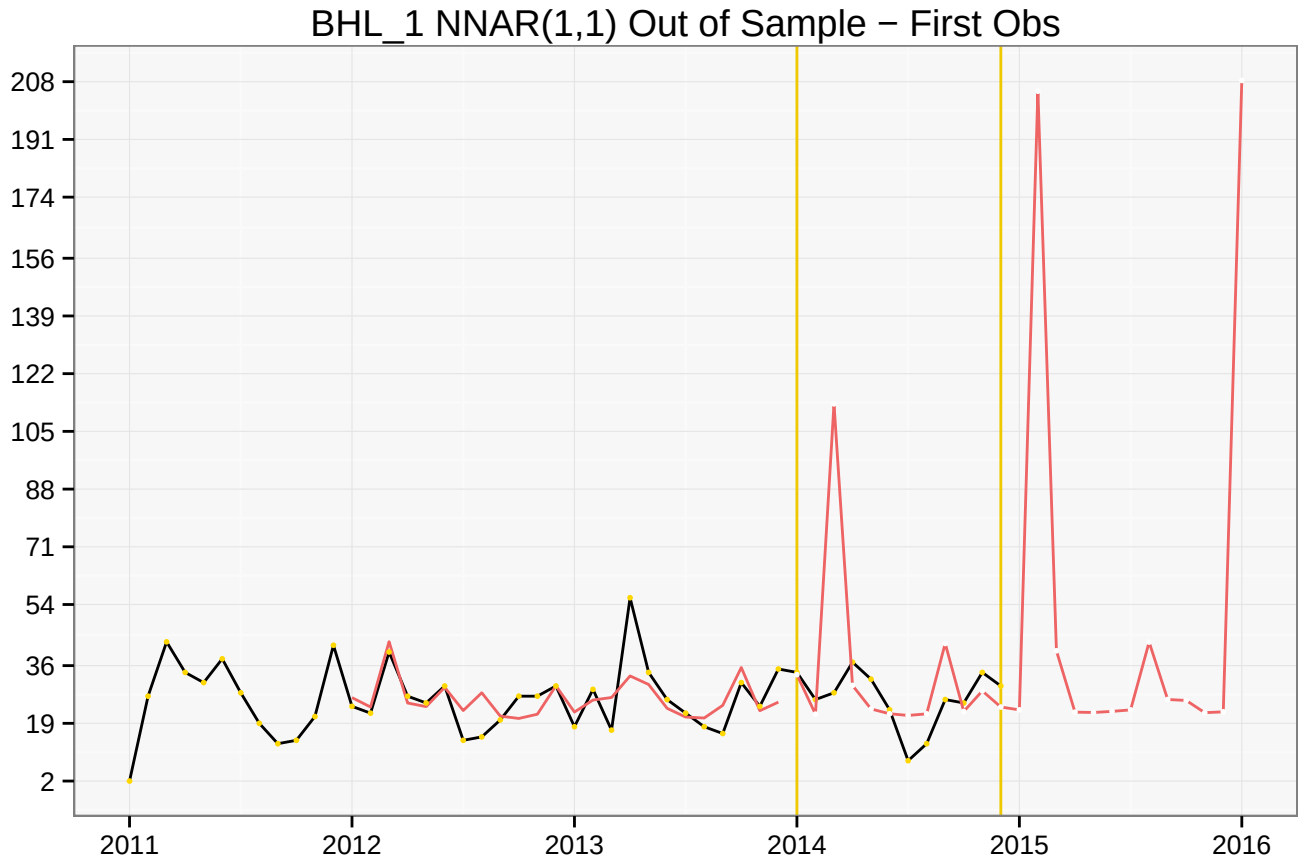

BHL_1 ETS(A,N,N) First Obs
56
52
47
42
38
34
29
24
20
16
11
6
2
2011
2012
2013
2014
2015
2016

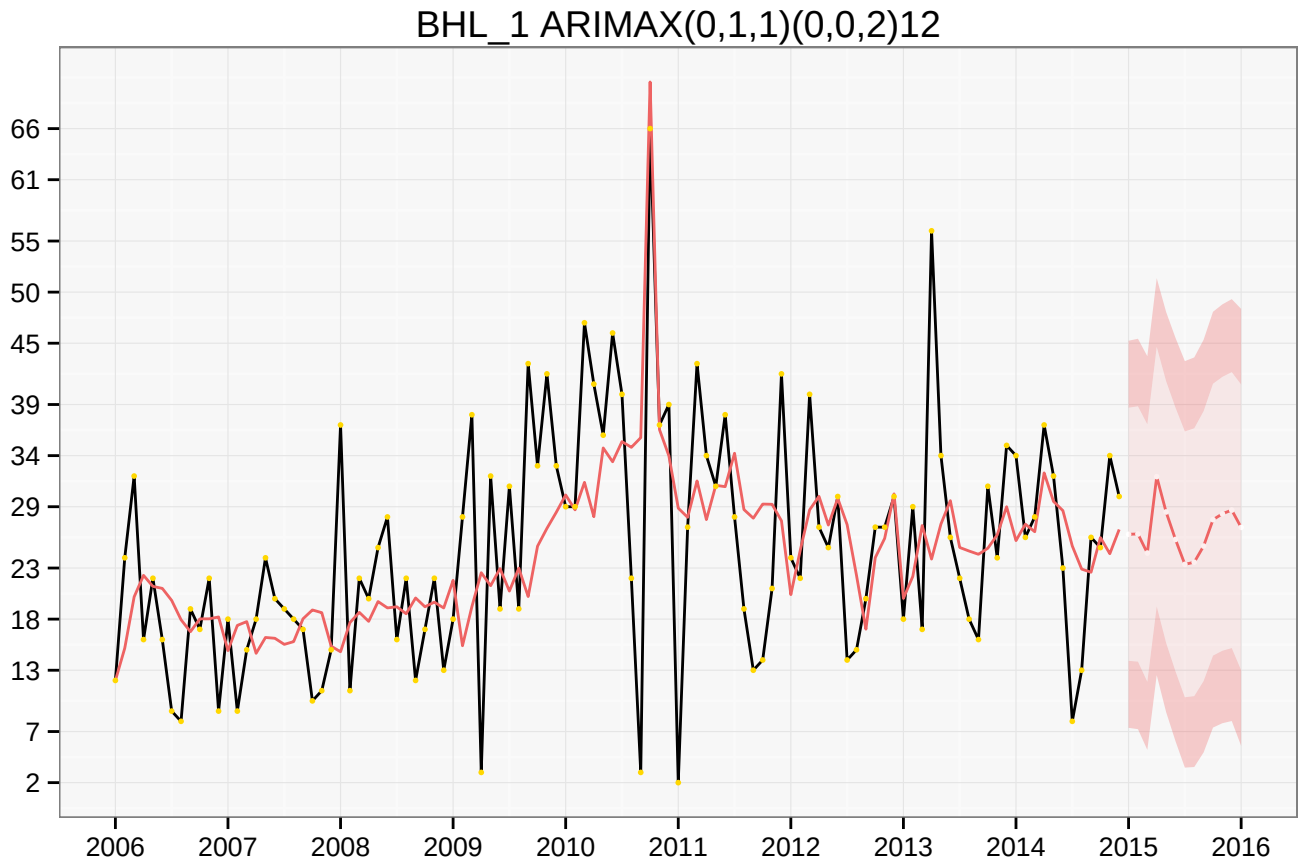

BHL_1 ETS(A,N,N) Out of Sample − First Obs
56
52
47
42
38
34
29
24
20
16
11
6
2
2011
2012
2013
2014
2015
2016

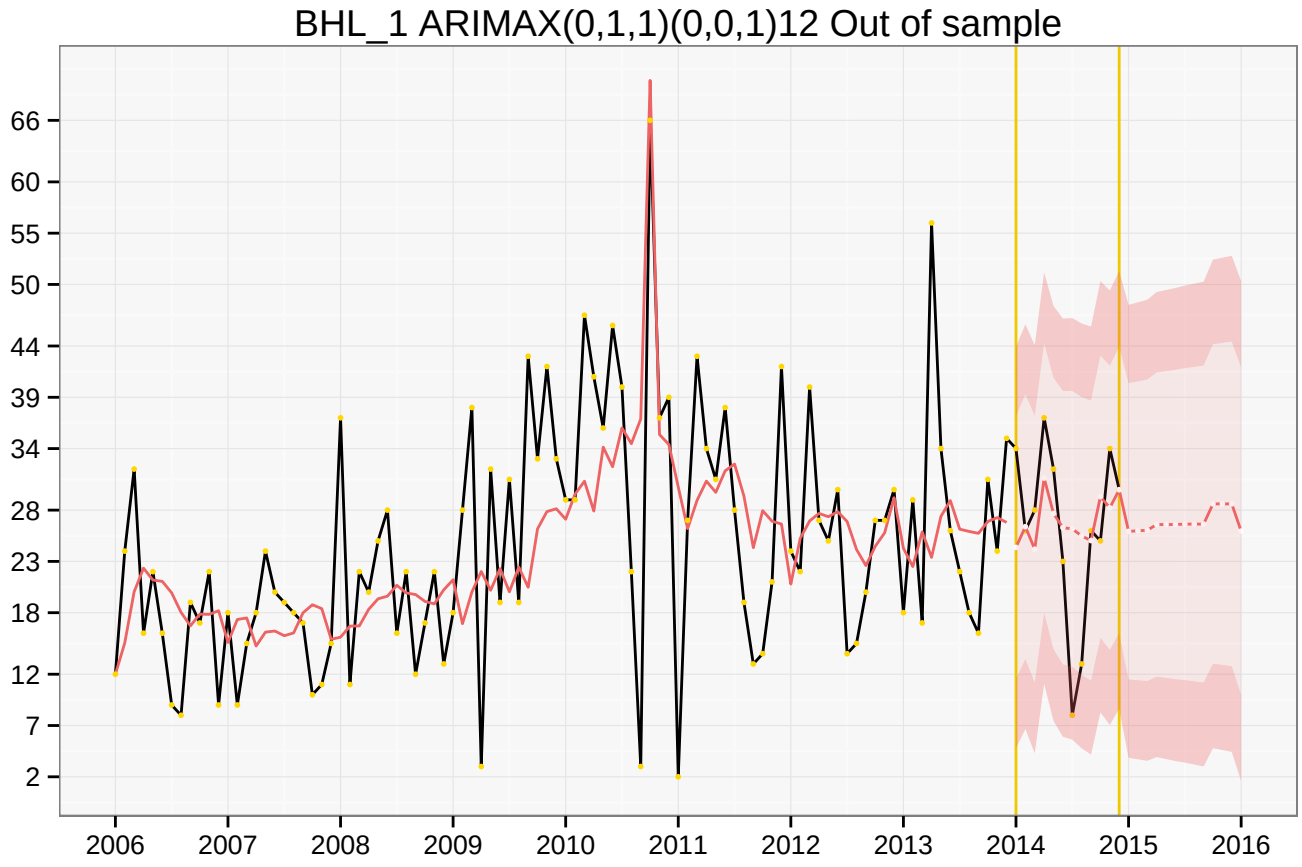

BHL_1 NNAR(12,1)
66
61
55
50
45
39
34
29
23
18
13
7
2
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

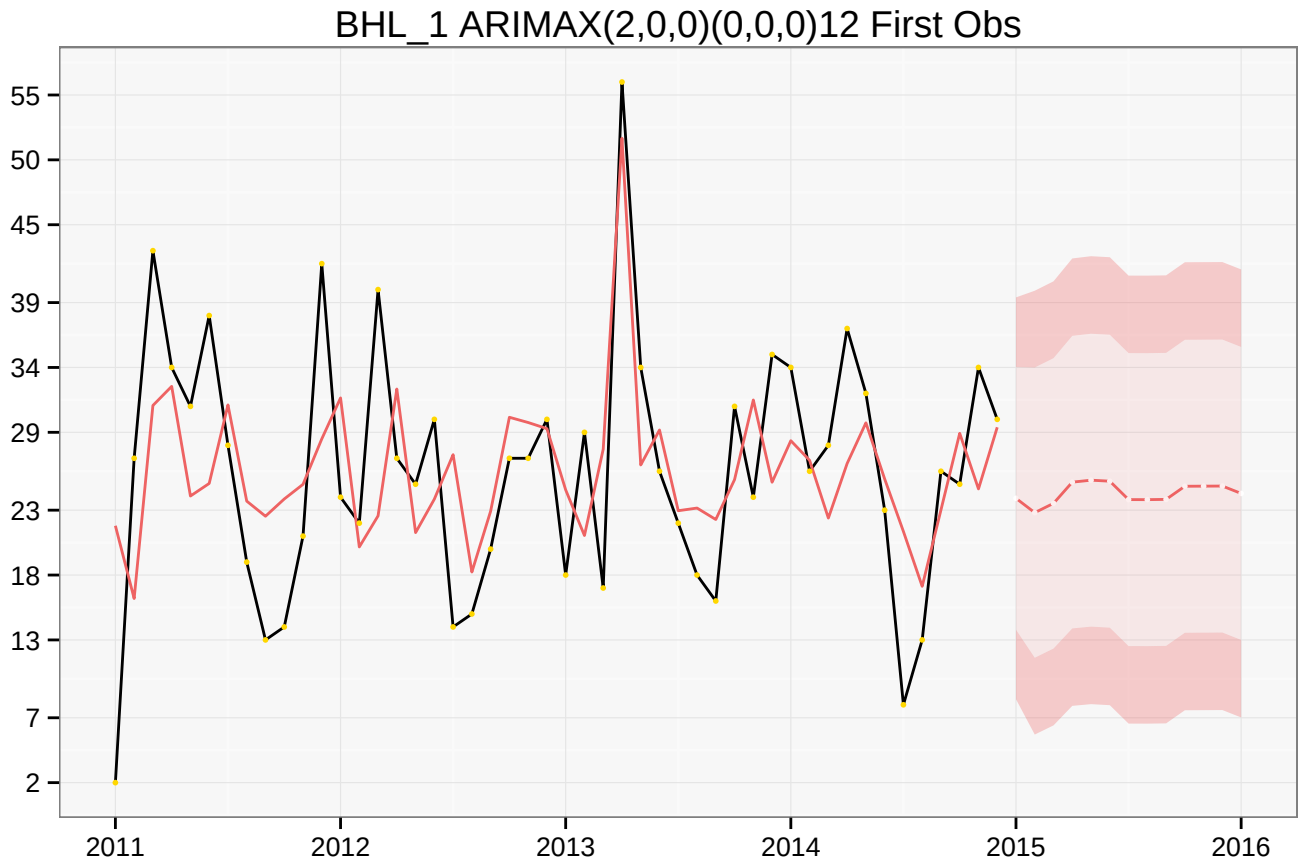

BHL_1 NNAR(12,1) Out of Sample
50
33
16
0
−17
−33
−50
−67
−83
−100
−116
−133
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

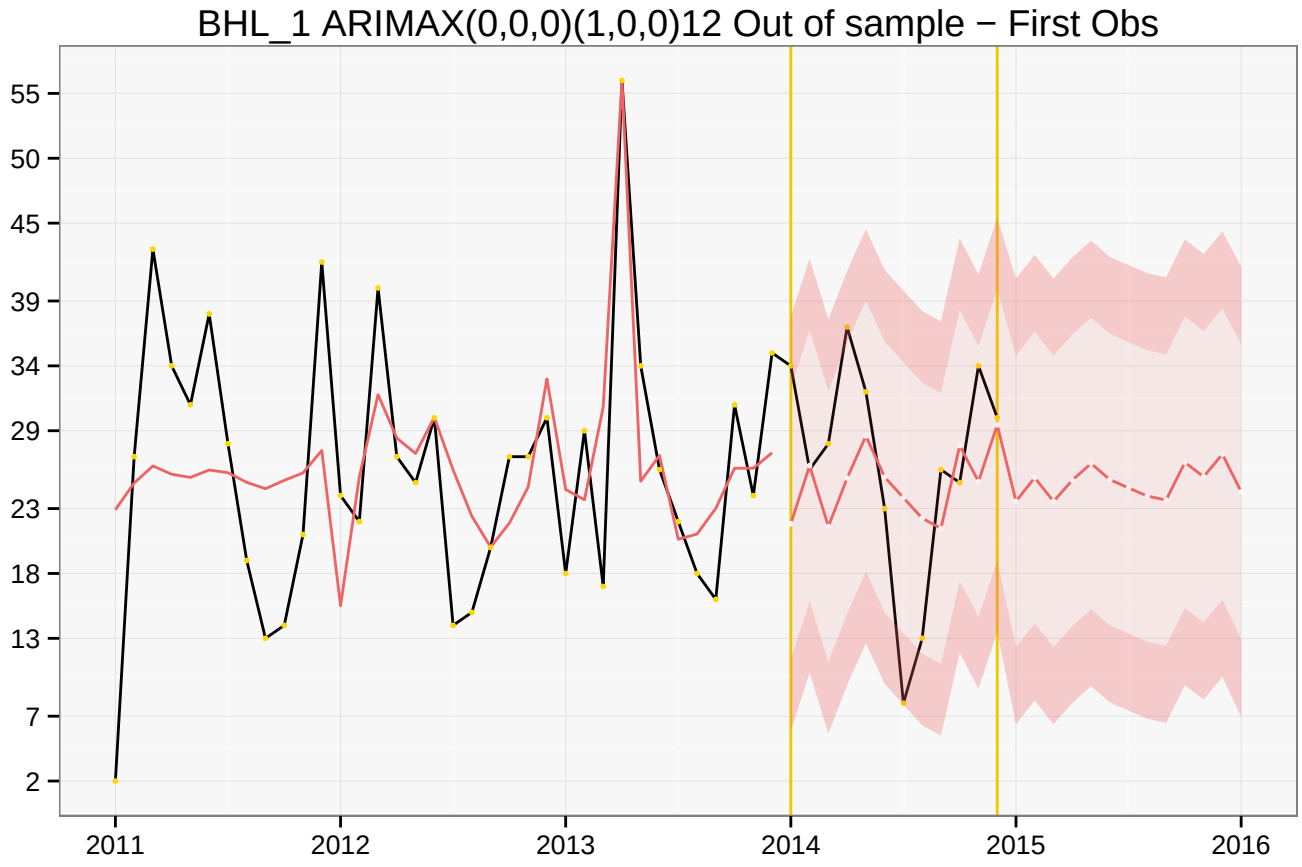

BHL_1 NNAR(1,1) First Obs
52
47
42
38
33
28
24
19
14
10
5
0
2011
2012
2013
2014
2015
2016


BHL_1 NNAR(1,1) Out of Sample − First Obs
208
191
174
156
139
122
105
88
71
54
36
19
2
2011
2012
2013
2014
2015
2016


BHL_1 ARIMAX(0,1,1)(0,0,2)12
66
61
55
50
45
39
34
29
23
18
13
7
2
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

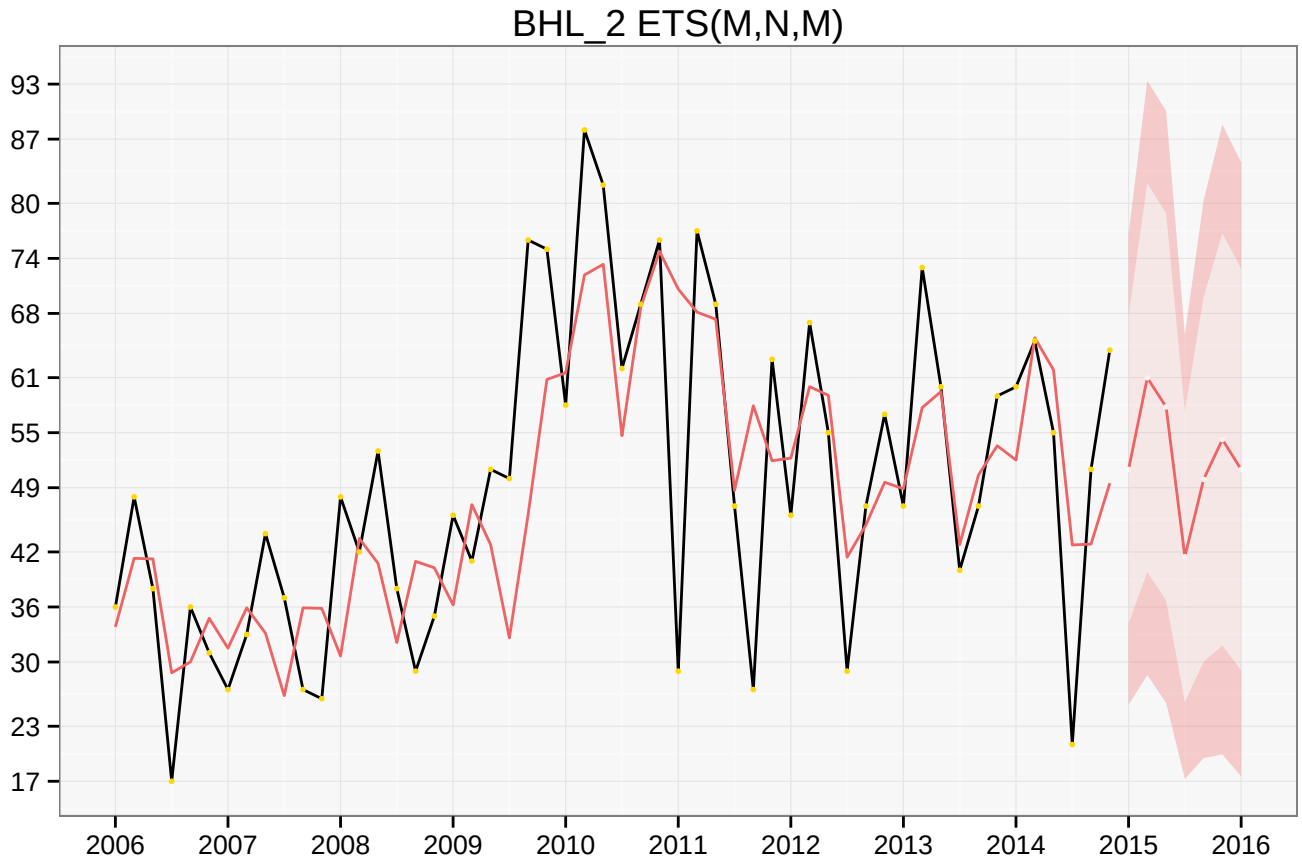

BHL_1 ARIMAX(0,1,1)(0,0,1)12 Out of sample
66
60
55
50
44
39
34
28
23
18
12
7
2
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

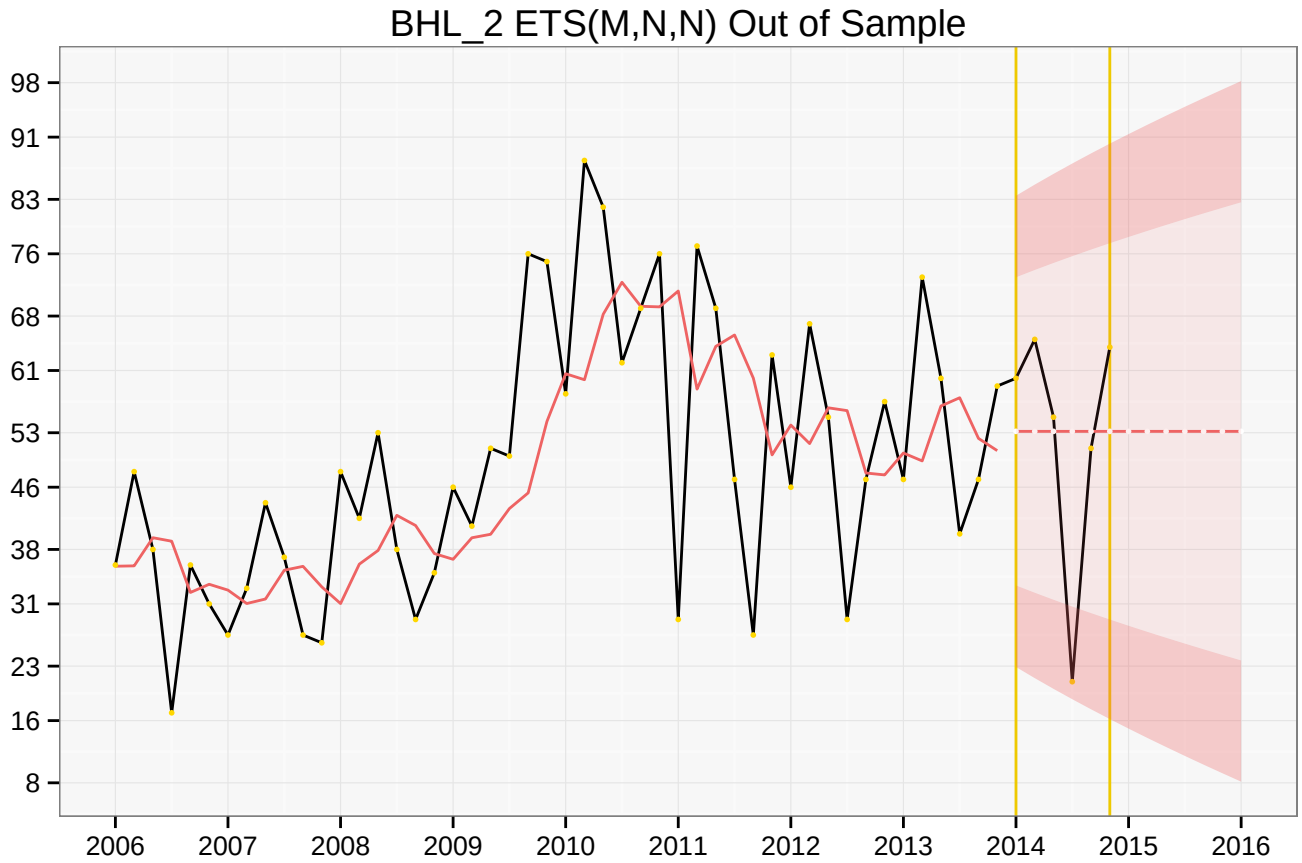

BHL_1 ARIMAX(2,0,0)(0,0,0)12 First Obs
55
50
45
39
34
29
23
18
13
7
2
2011
2012
2013
2014
2015
2016

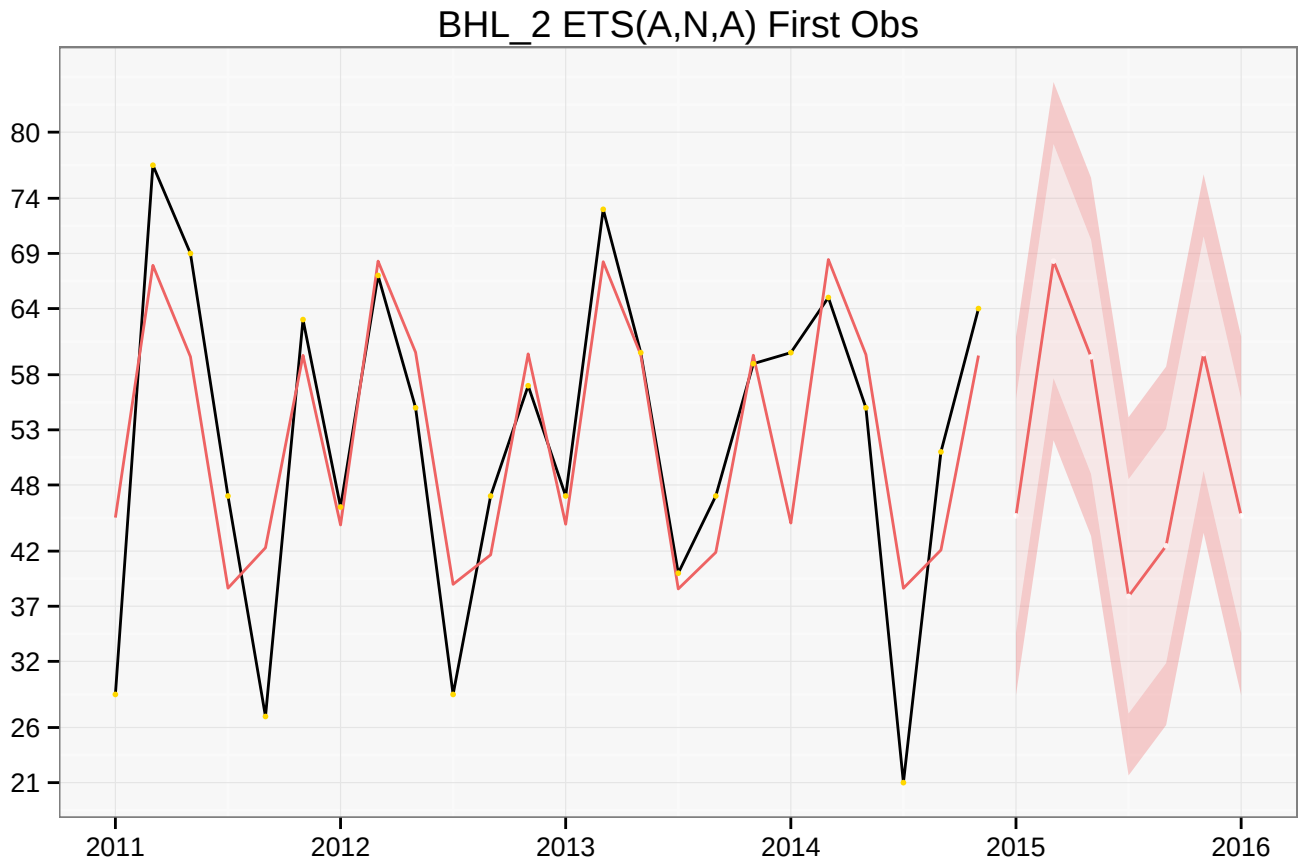

BHL_1 ARIMAX(0,0,0)(1,0,0)12 Out of sample − First Obs
55
50
45
39
34
29
23
18
13
7
2
2011
2012
2013
2014
2015
2016

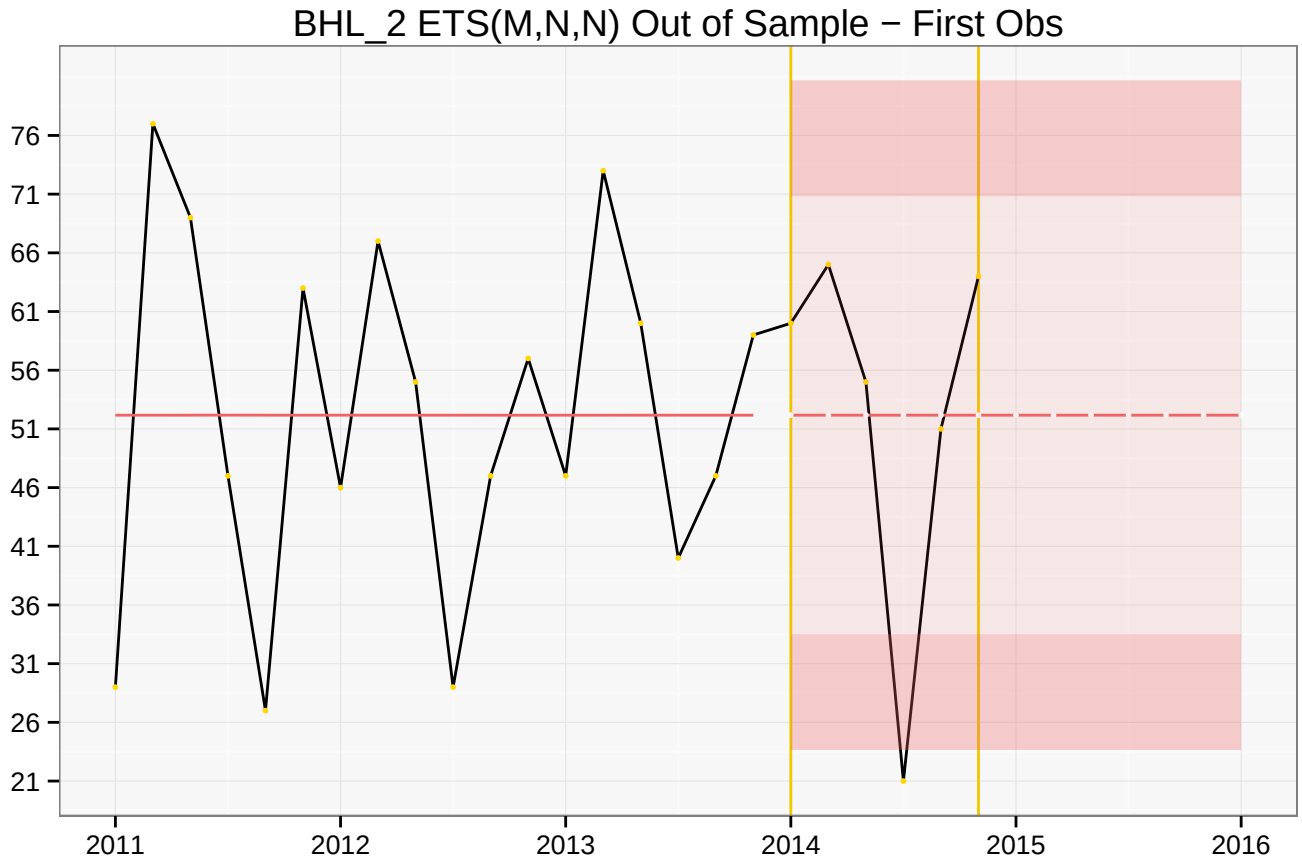
1.2 BHL_2

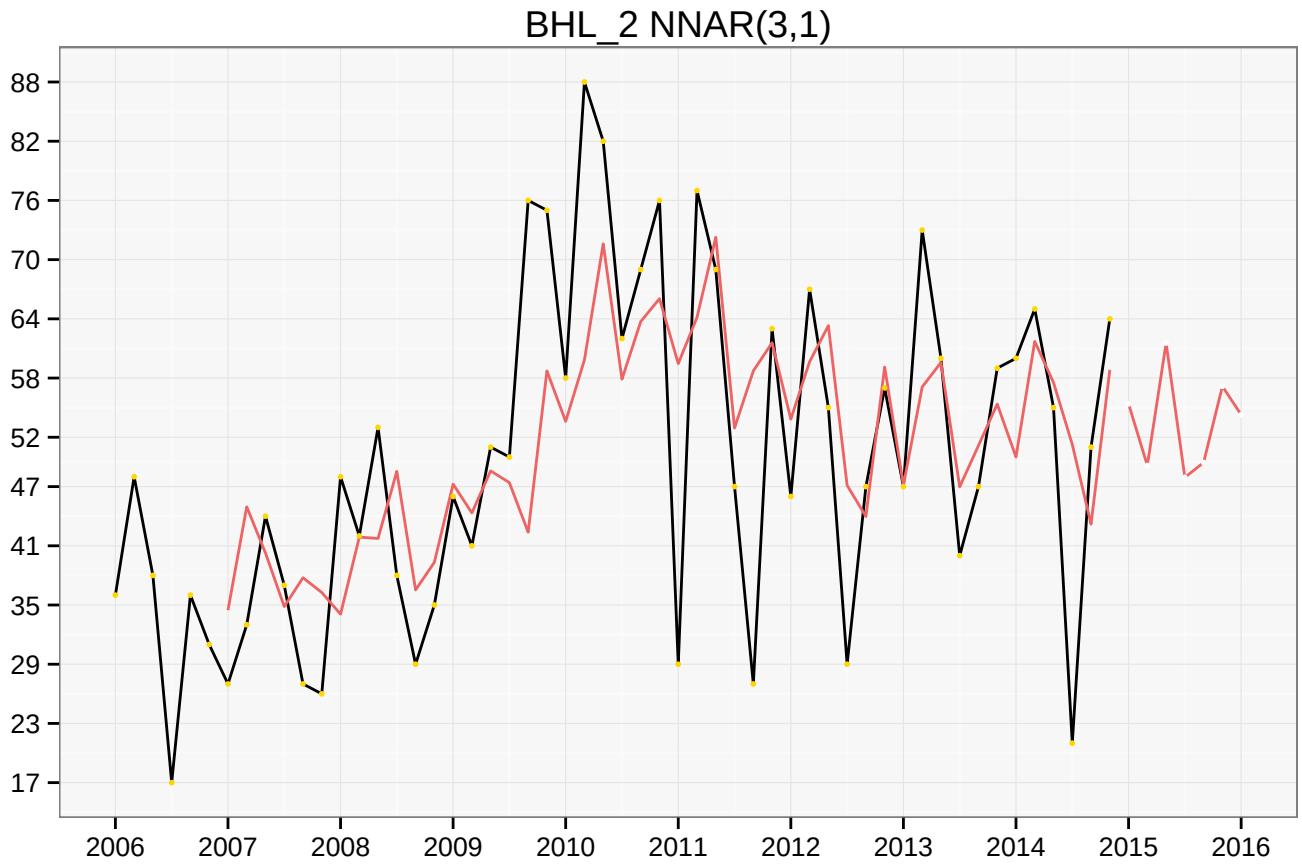
1.2.1 plots for BHL_2

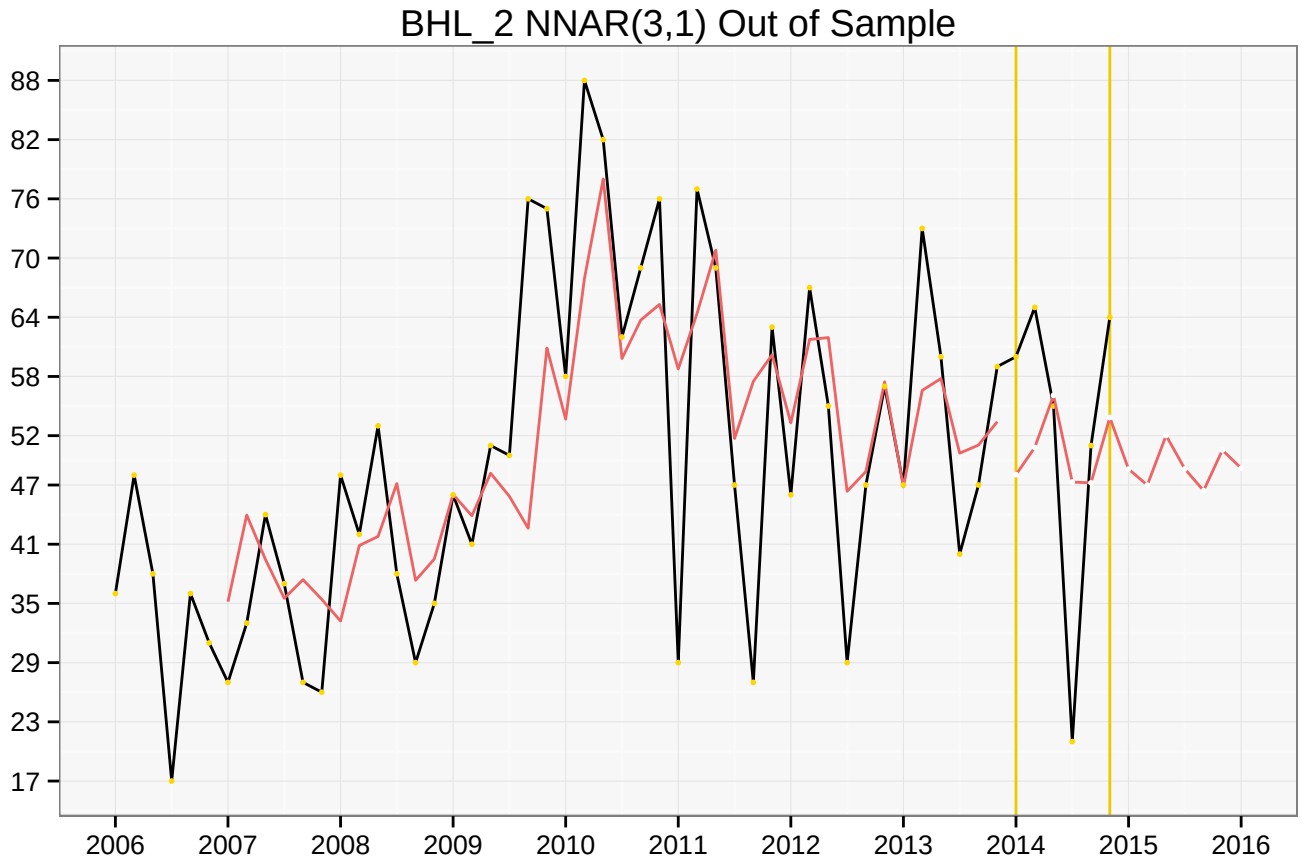


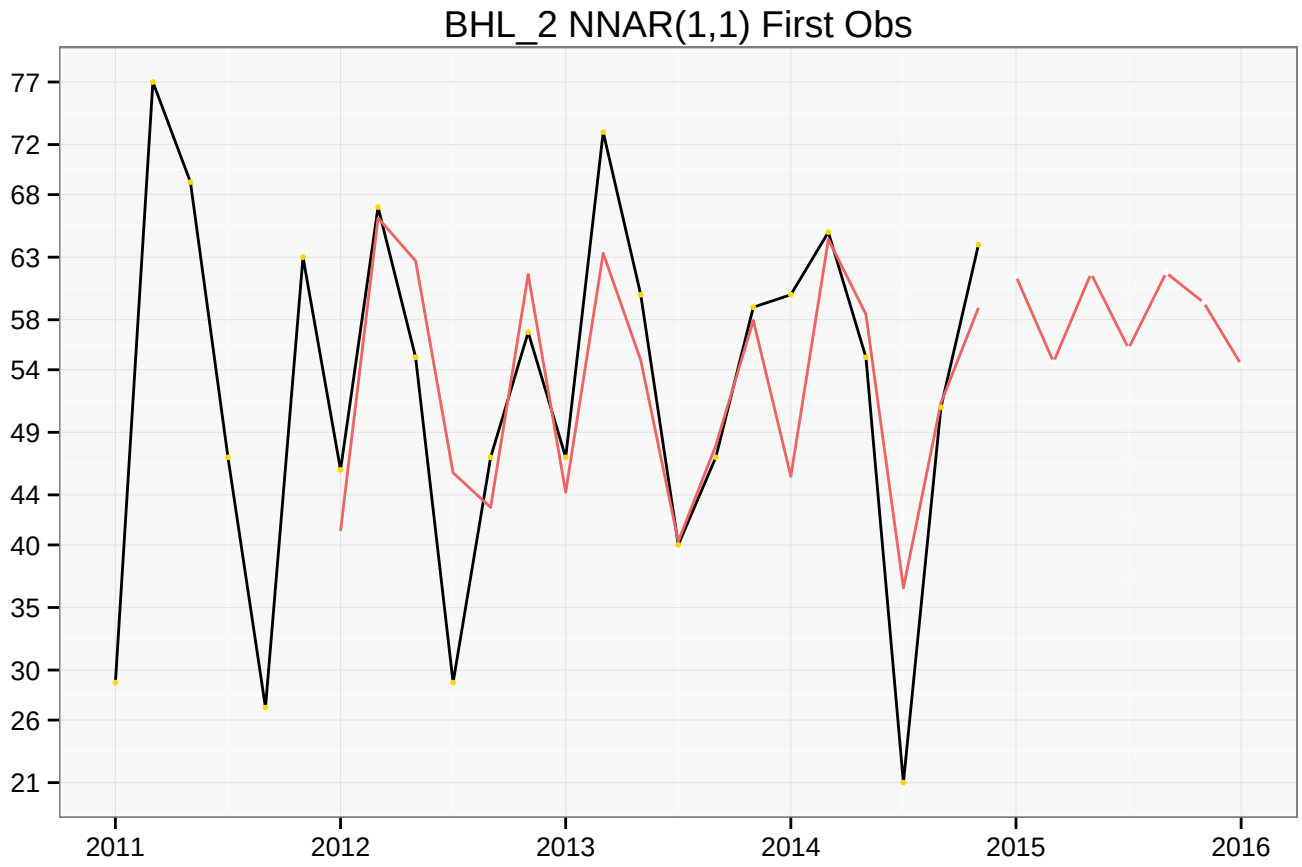


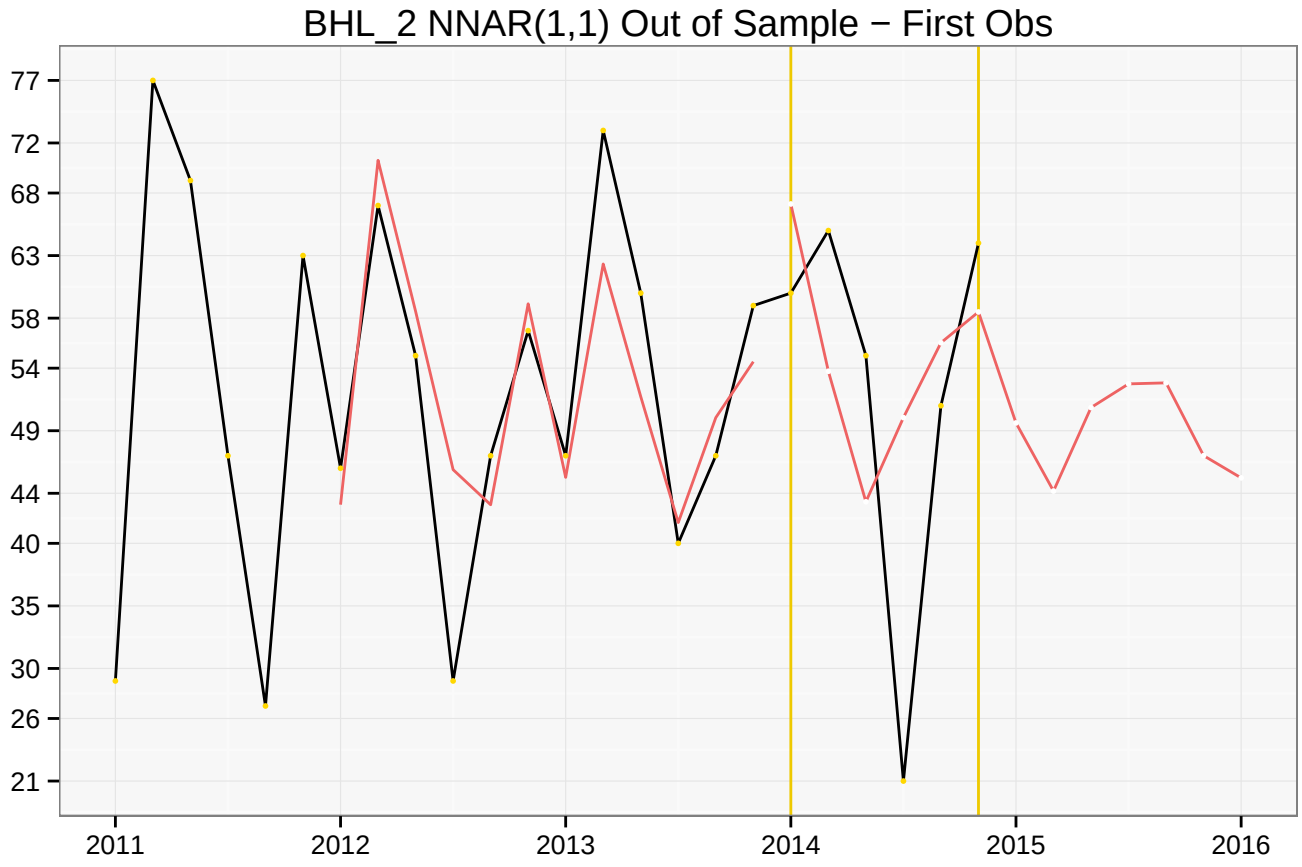

BHL_2 ETS(A,N,A) First Obs
80
74
69
64
58
53
48
42
37
32
26
21
2011
2012
2013
2014
2015
2016

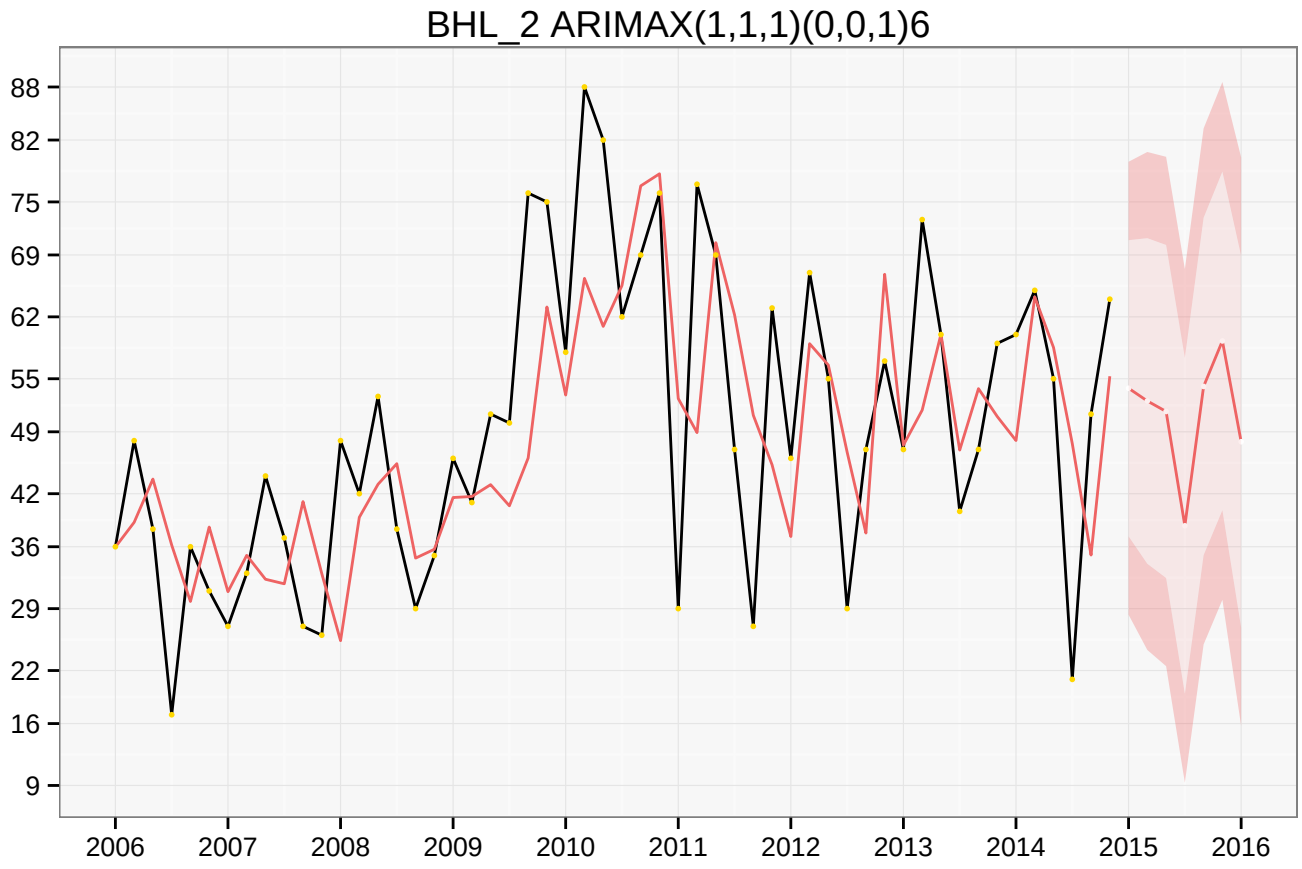

BHL_2 ETS(M,N,N) Out of Sample − First Obs
76
71
66
61
56
51
46
41
36
31
26
21
2011
2012
2013
2014
2015
2016

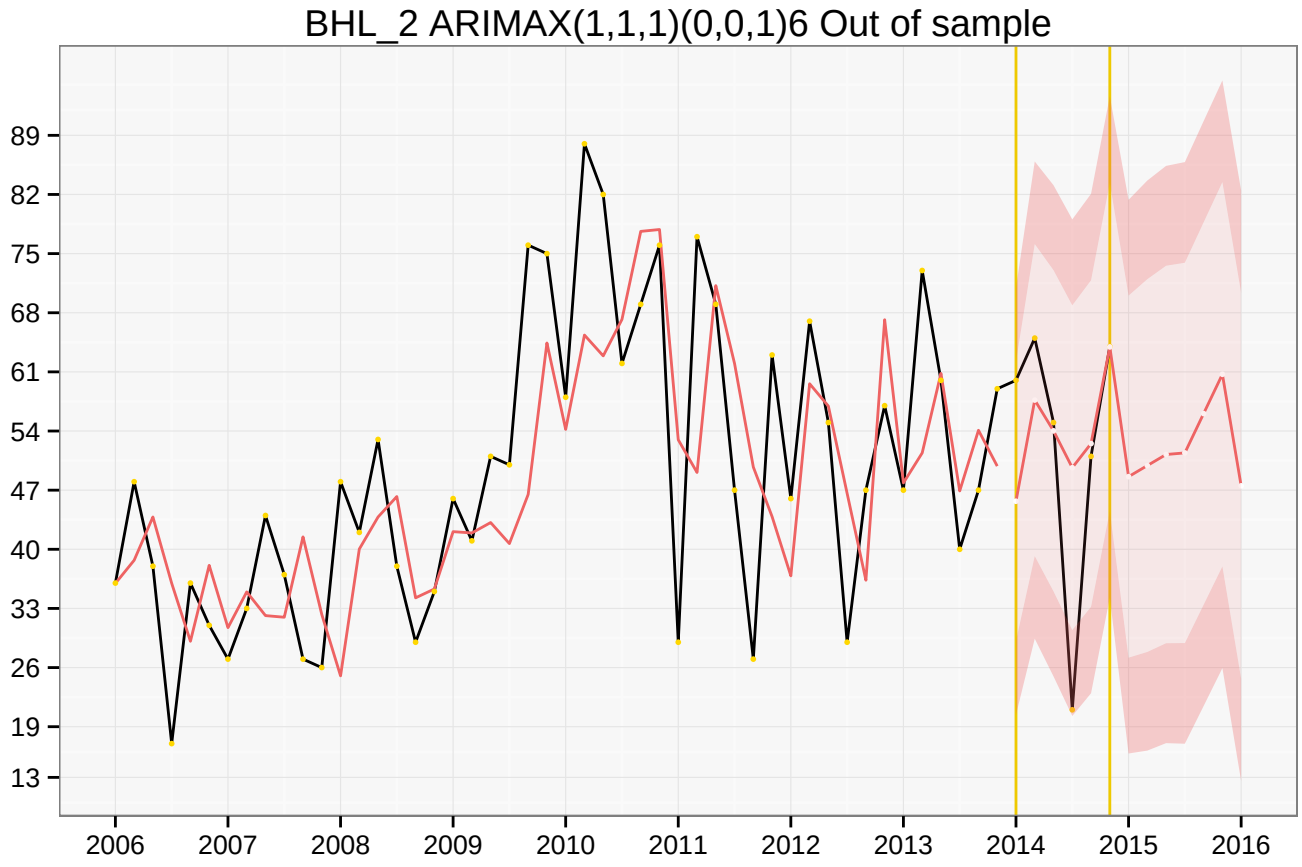

BHL_2 NNAR(3,1)
88
82
76
70
64
58
52
47
41
35
29
23
17
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

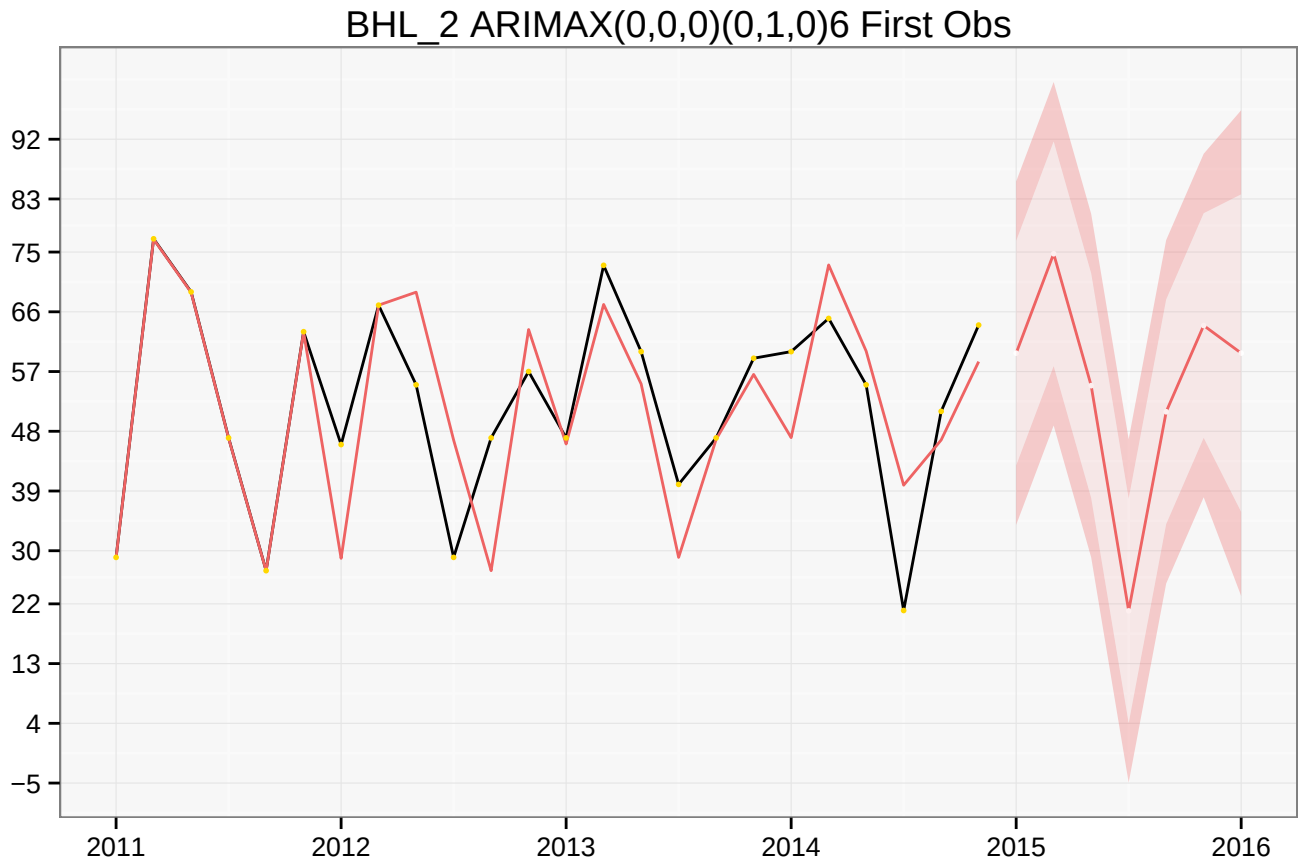

BHL_2 NNAR(3,1) Out of Sample
88
82
76
70
64
58
52
47
41
35
29
23
17
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

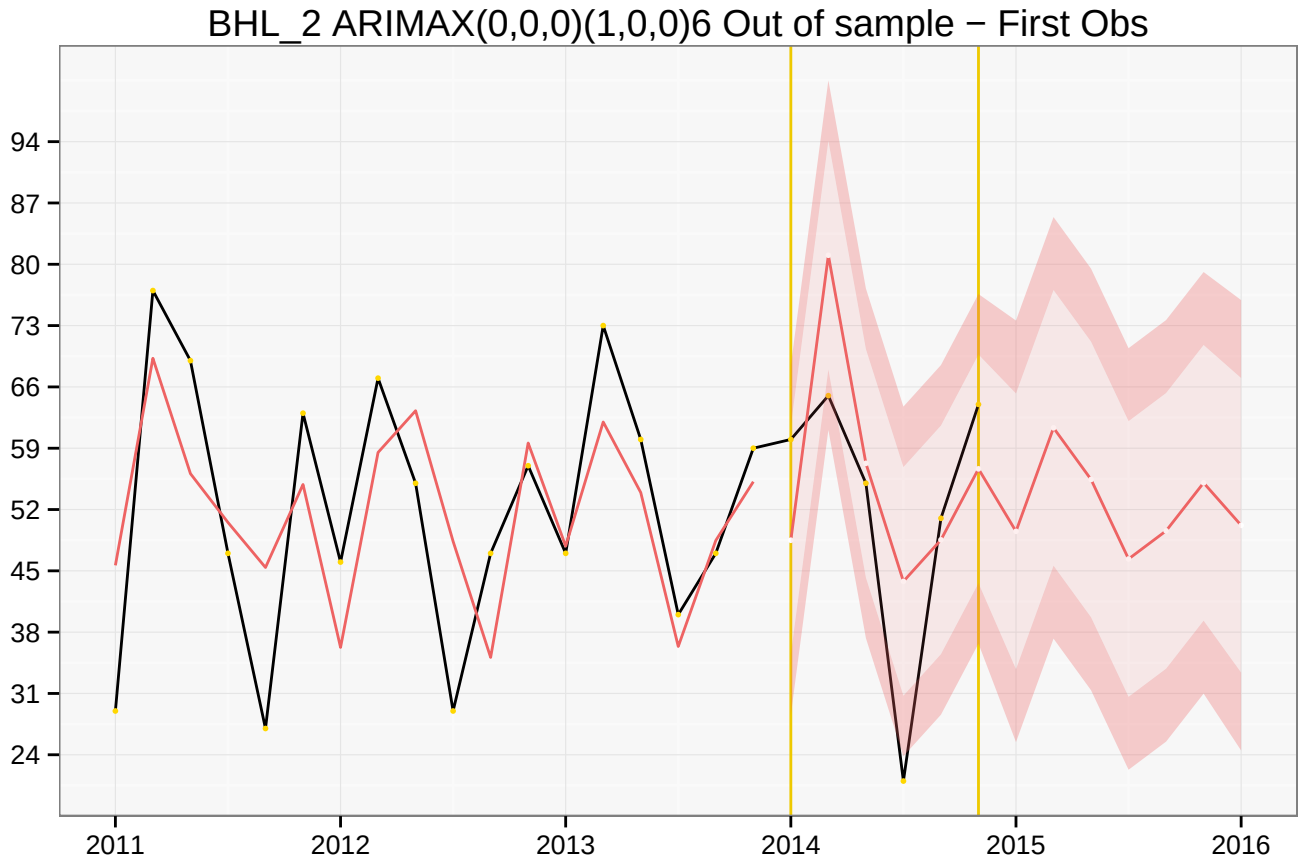

BHL_2 NNAR(1,1) First Obs
77
72
68
63
58
54
49
44
40
35
30
26
21
2011
2012
2013
2014
2015
2016


BHL_2 NNAR(1,1) Out of Sample − First Obs
77
72
68
63
58
54
49
44
40
35
30
26
21
2011
2012
2013
2014
2015
2016


BHL_2 ARIMAX(1,1,1)(0,0,1)6
88
82
75
69
62
55
49
42
36
29
22
16
9
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

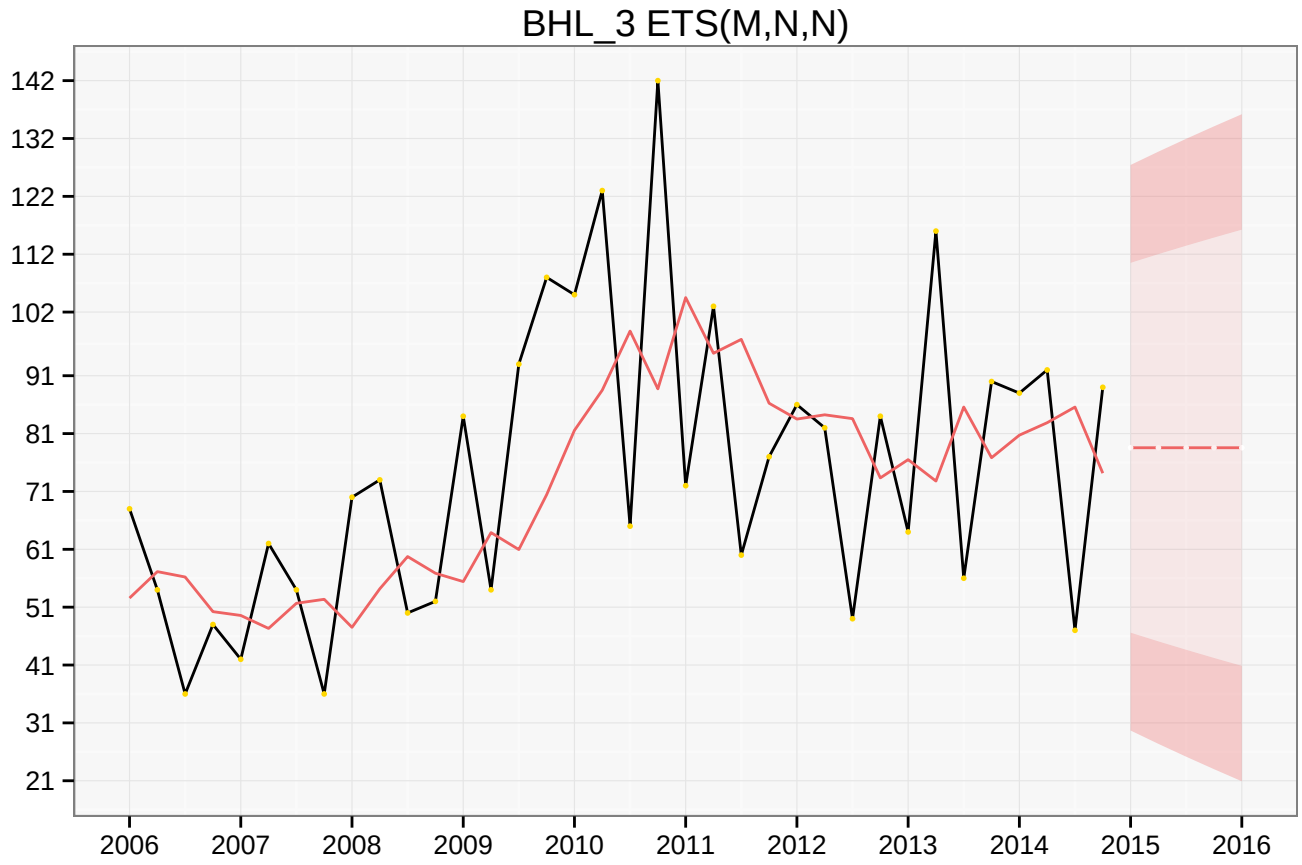

BHL_2 ARIMAX(1,1,1)(0,0,1)6 Out of sample
89
82
75
68
61
54
47
40
33
26
19
13
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

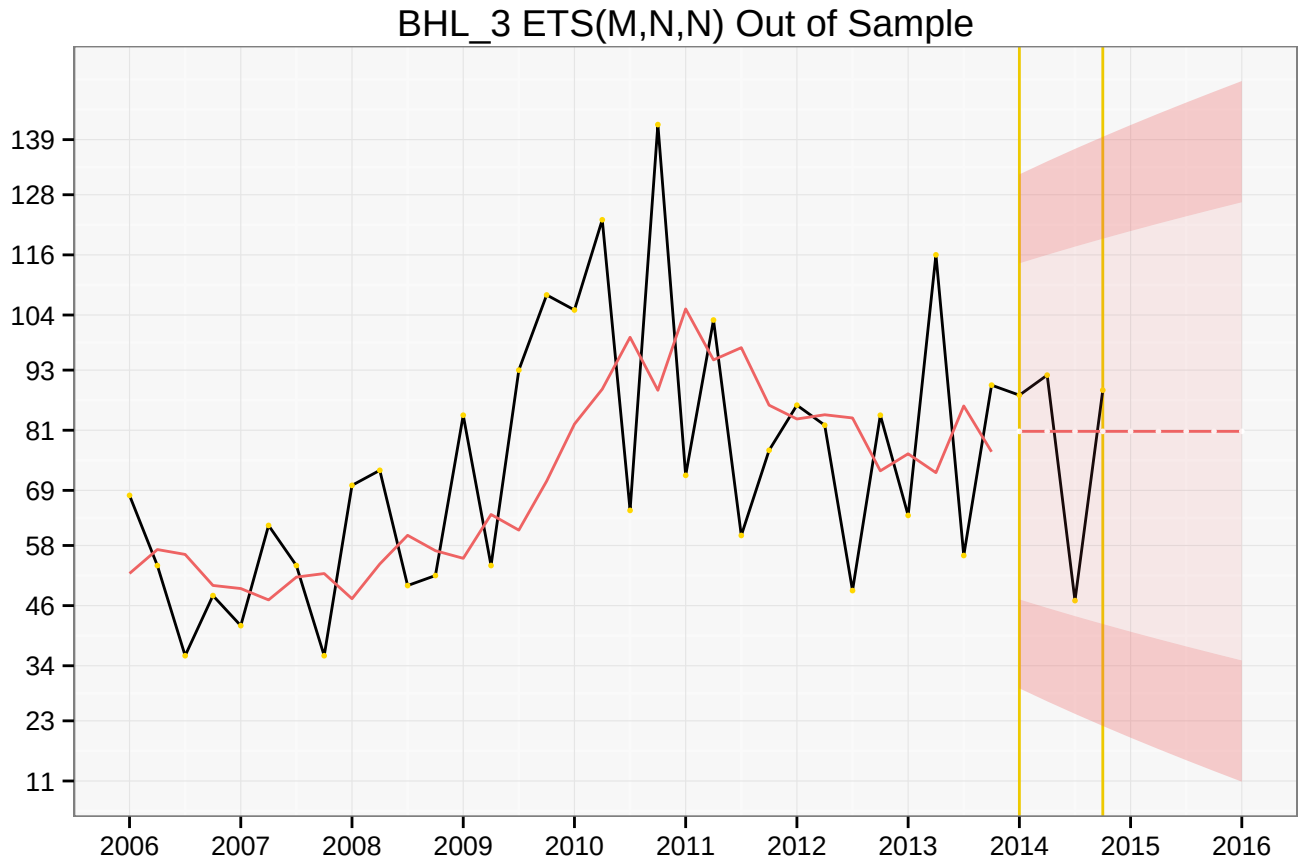

BHL_2 ARIMAX(0,0,0)(0,1,0)6 First Obs
92
83
75
66
57
48
39
30
22
13
4
−5
2011
2012
2013
2014
2015
2016

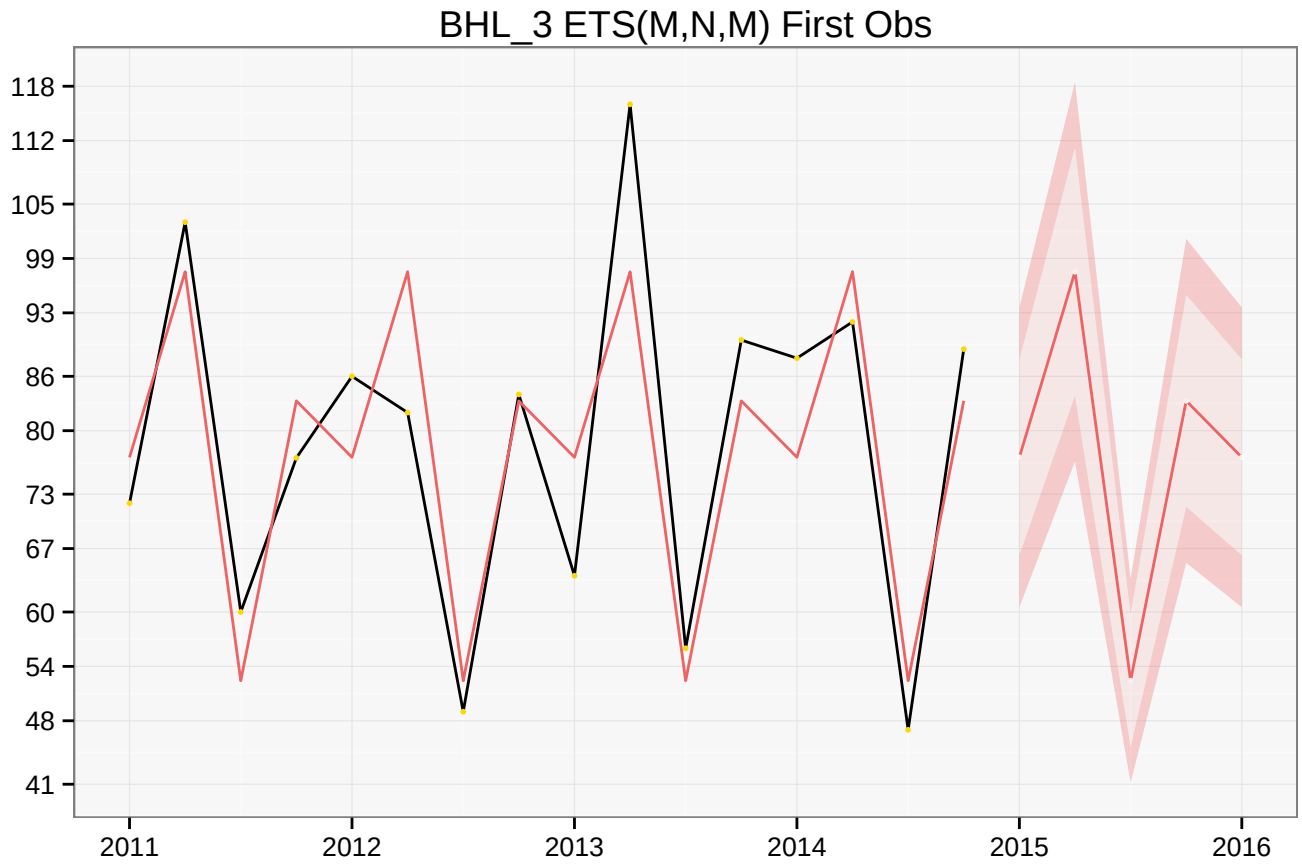

BHL_2 ARIMAX(0,0,0)(1,0,0)6 Out of sample − First Obs
94
87
80
73
66
59
52
45
38
31
24
2011
2012
2013
2014
2015
2016

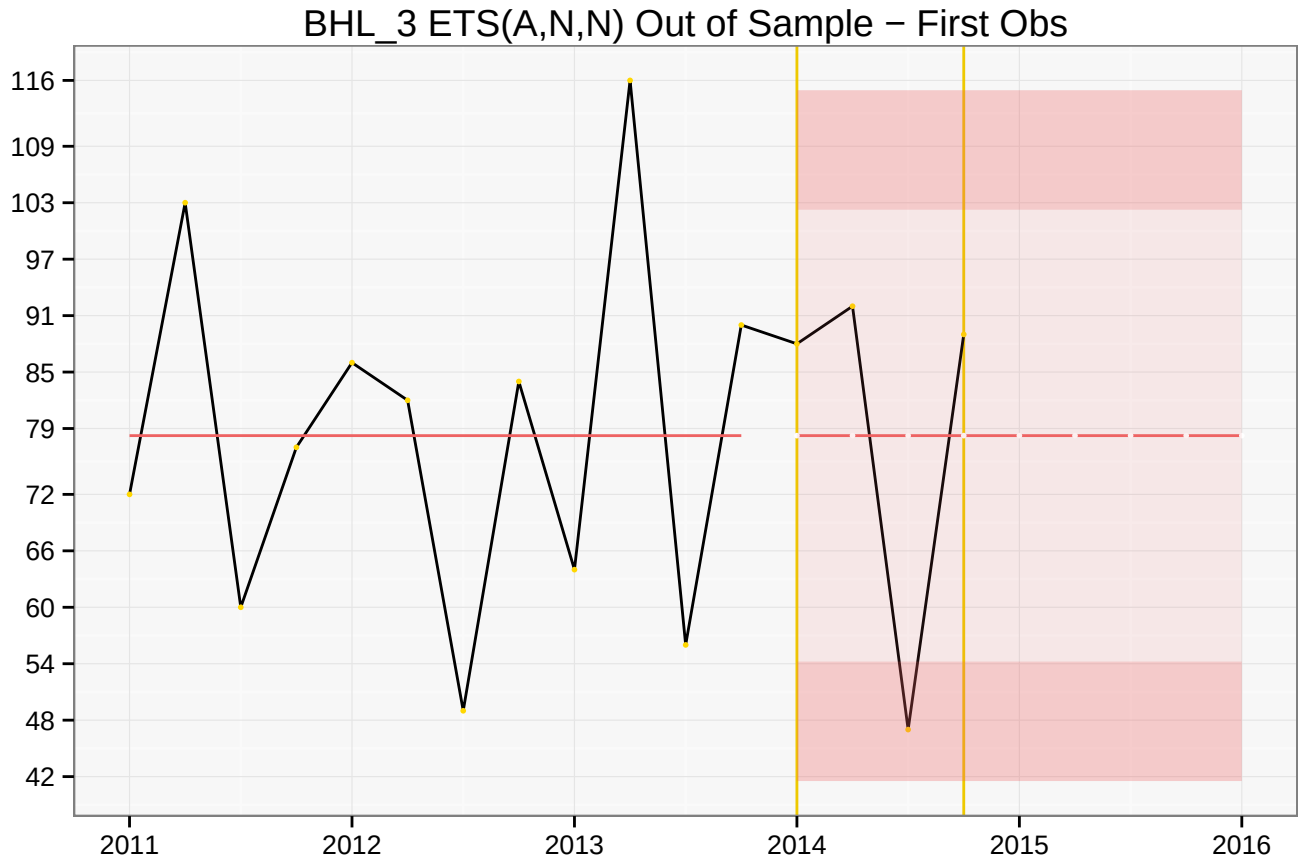
1.3 BHL_3

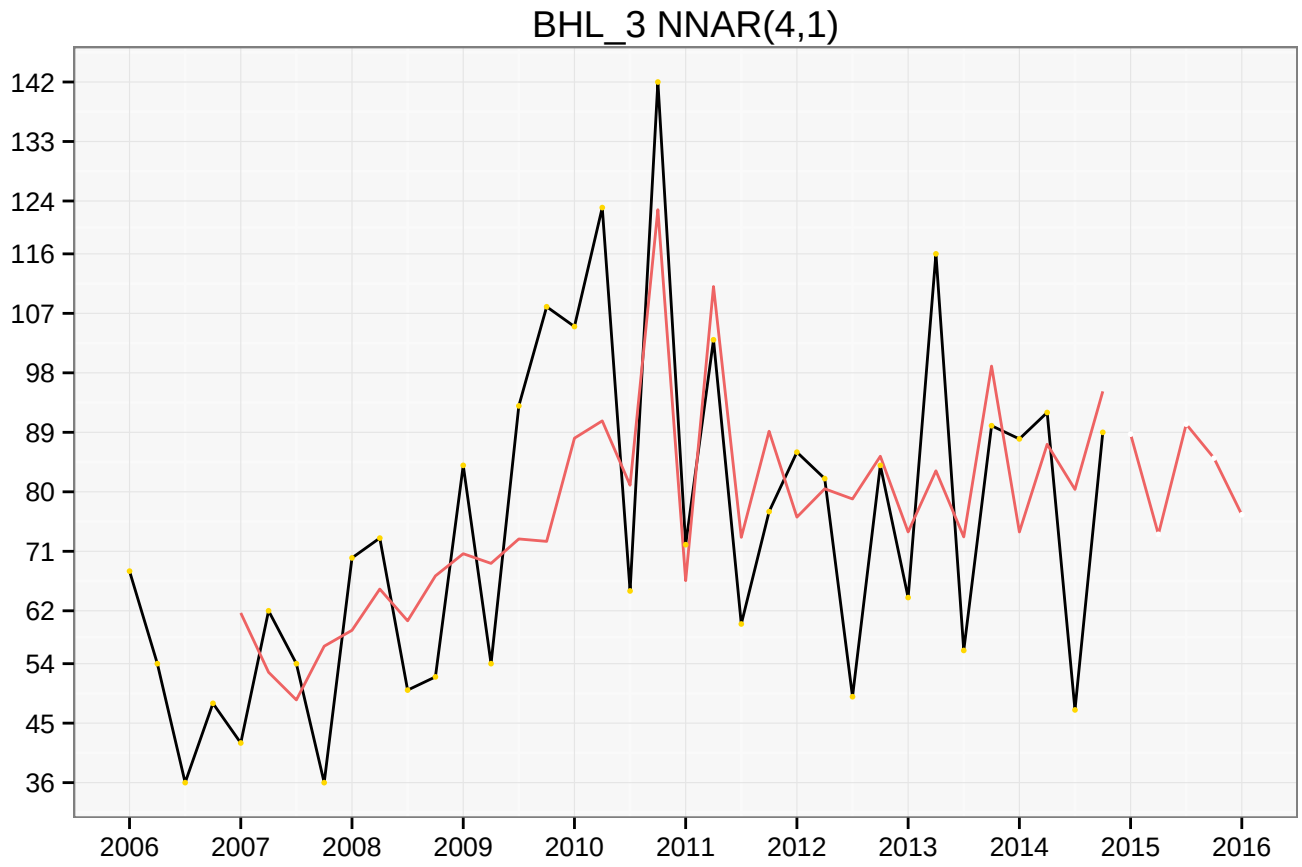
1.3.1 plots for BHL_3

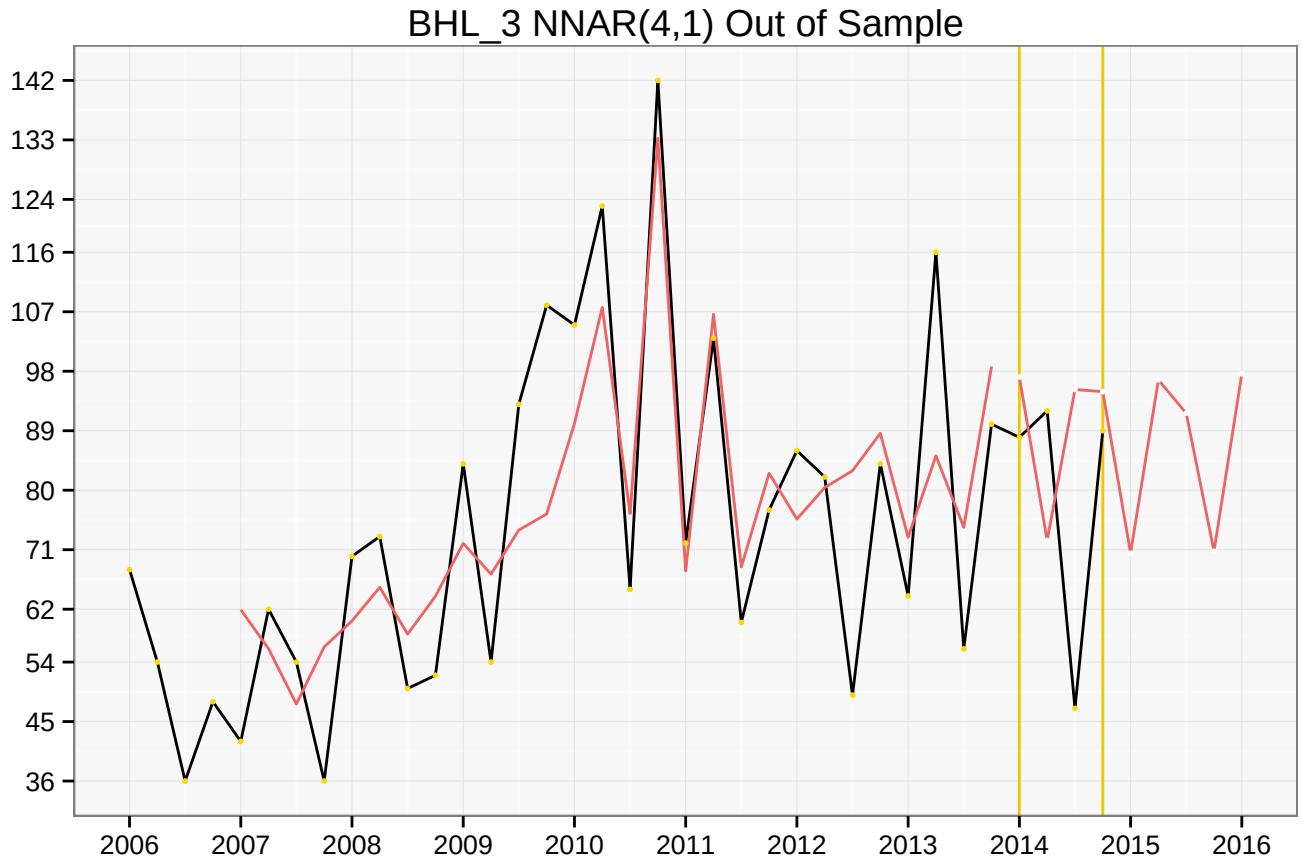


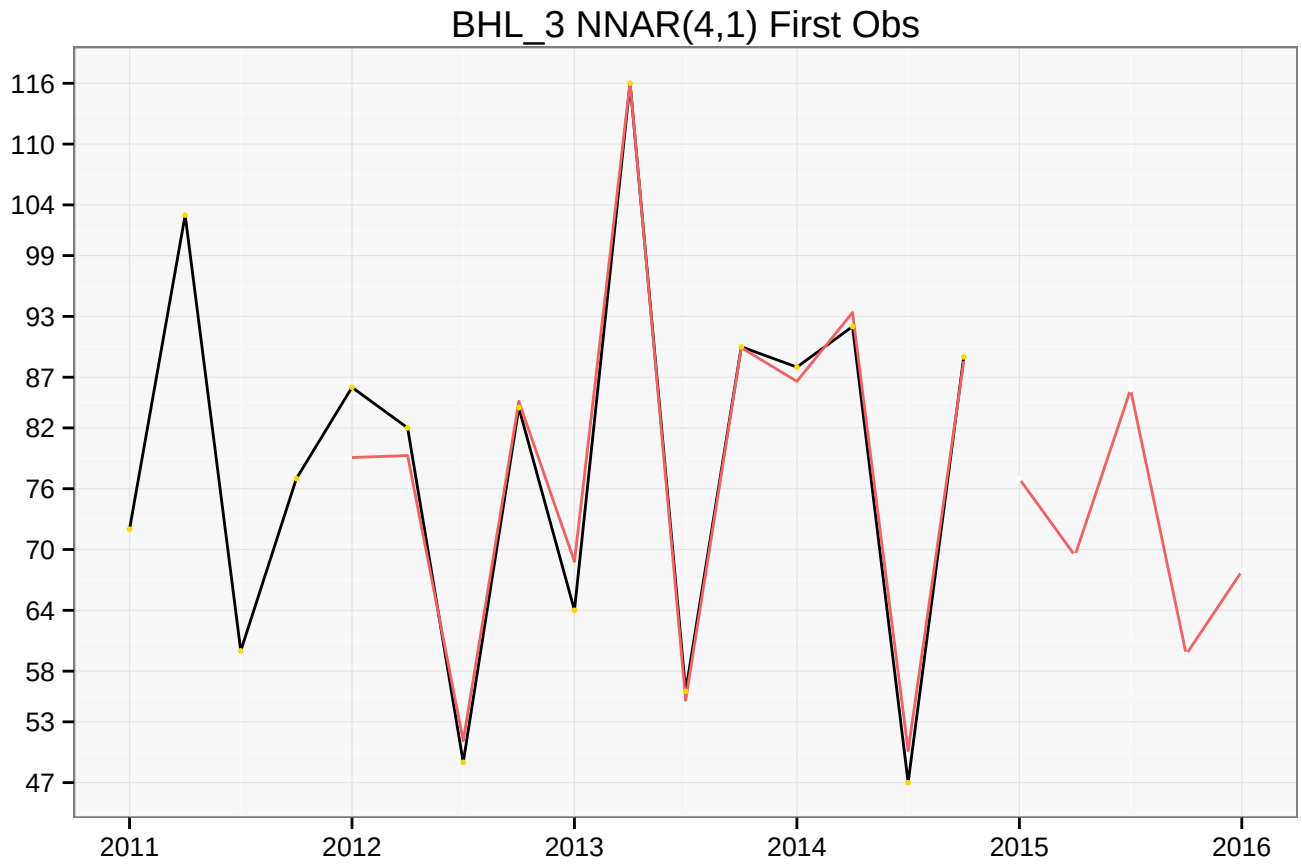


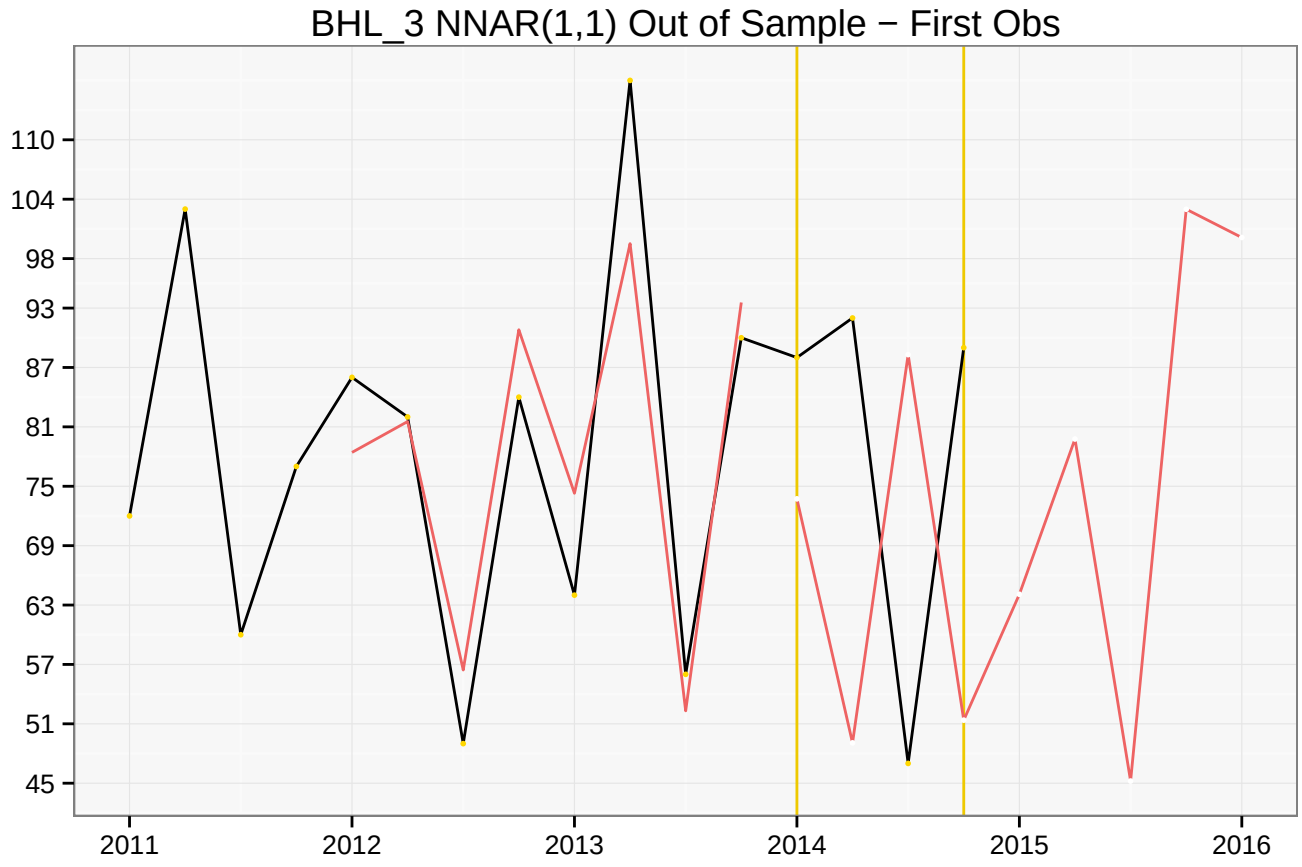

BHL_3 ETS(M,N,M) First Obs
118
112
105
99
93
86
80
73
67
60
54
48
41
2011
2012
2013
2014
2015
2016

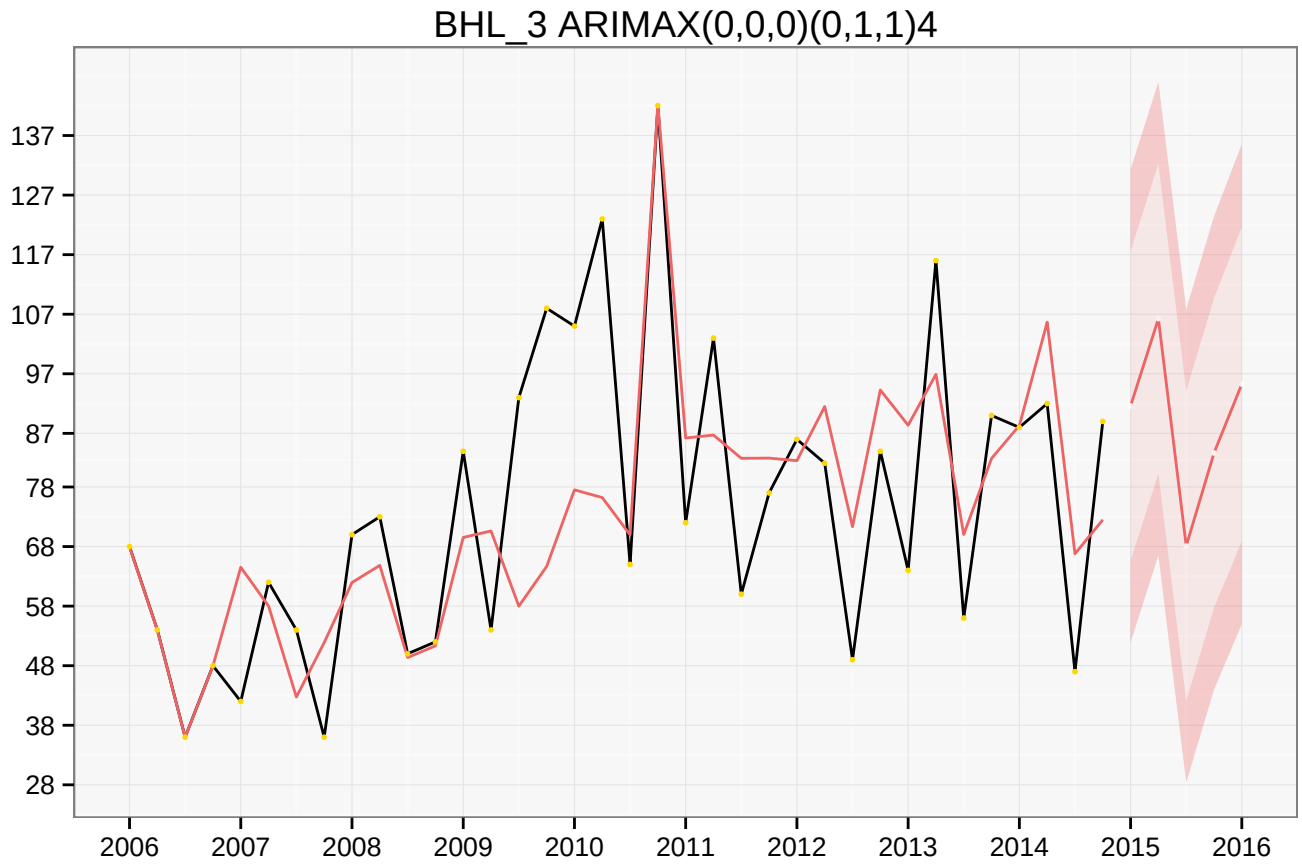

BHL_3 ETS(A,N,N) Out of Sample − First Obs
116
109
103
97
91
85
79
72
66
60
54
48
42
2011
2012
2013
2014
2015
2016

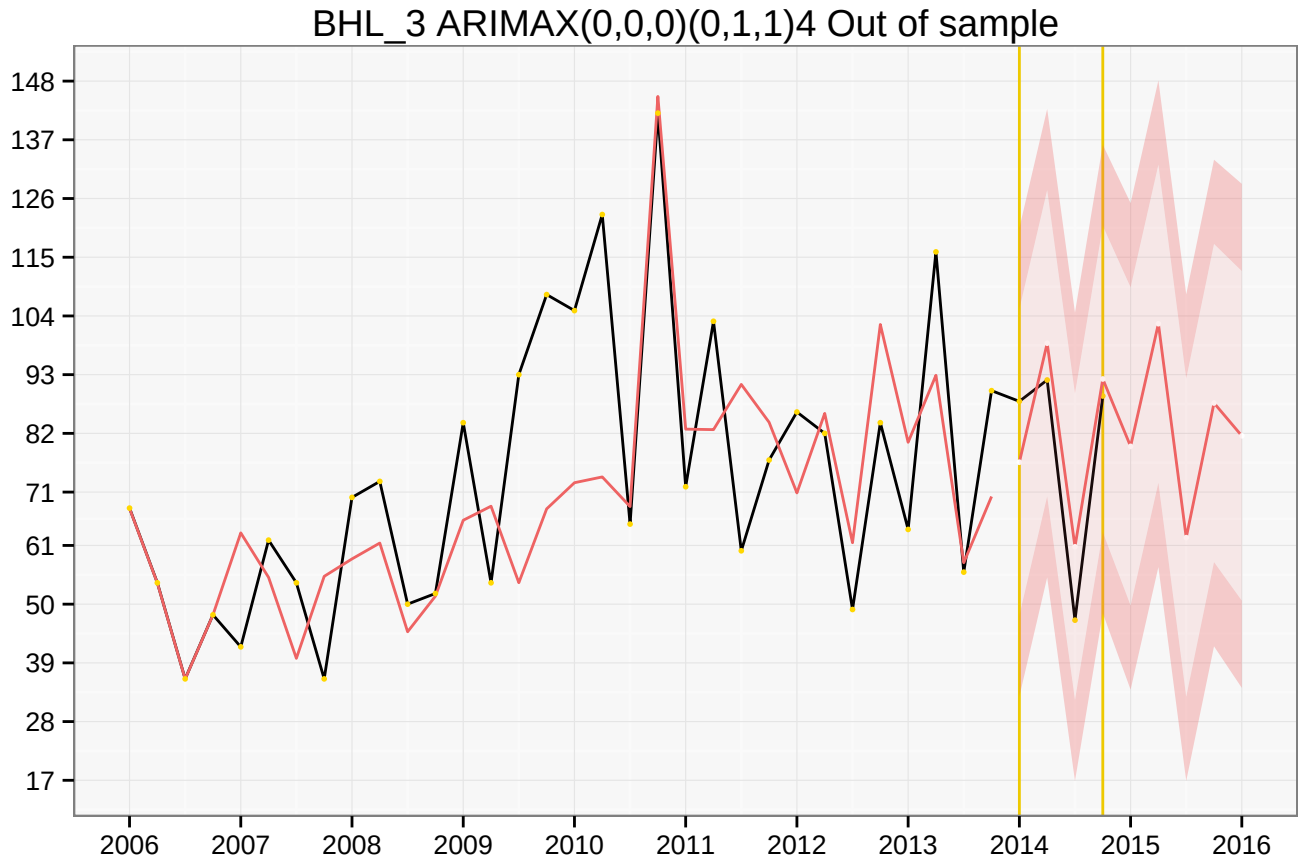

BHL_3 NNAR(4,1)
142
133
124
116
107
98
89
80
71
62
54
45
36
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

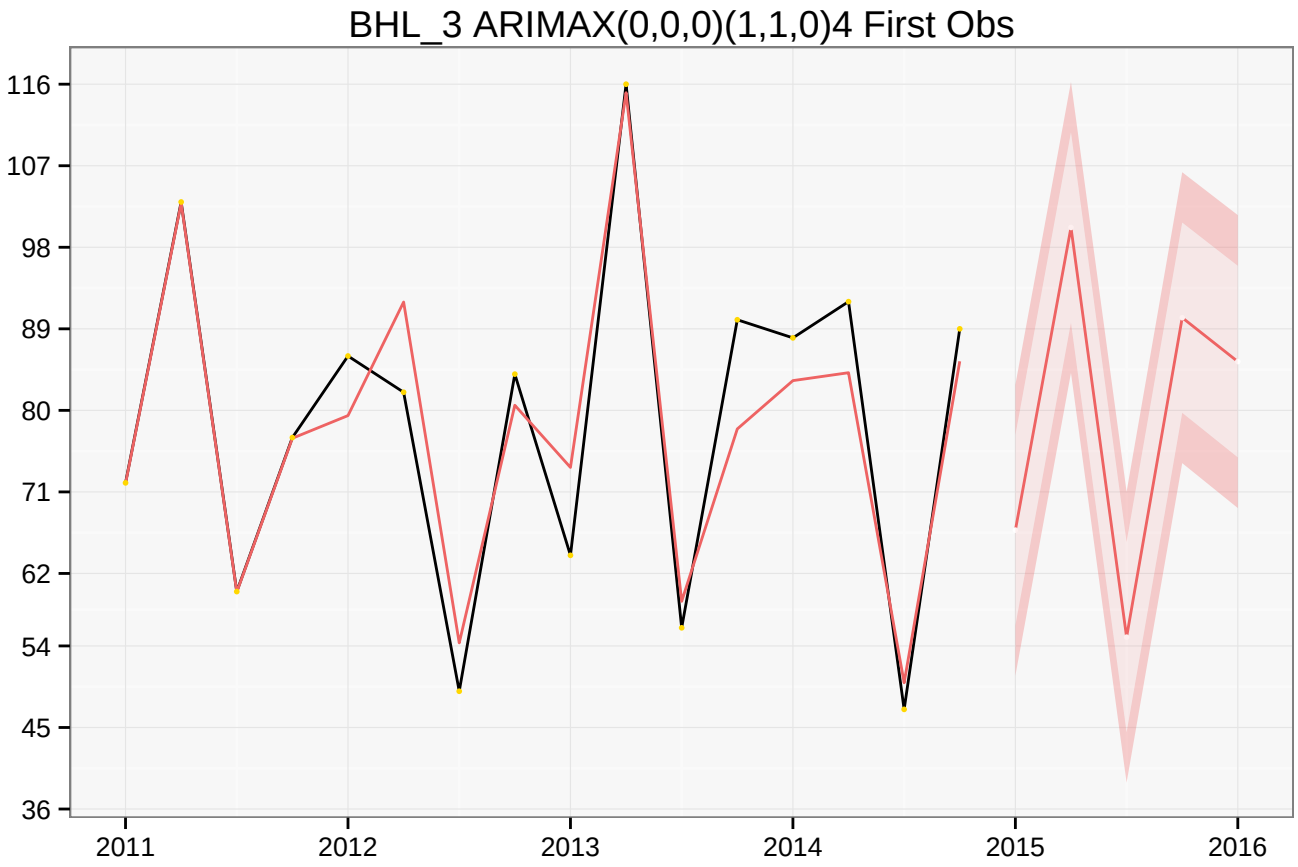

BHL_3 NNAR(4,1) Out of Sample
142
133
124
116
107
98
89
80
71
62
54
45
36
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

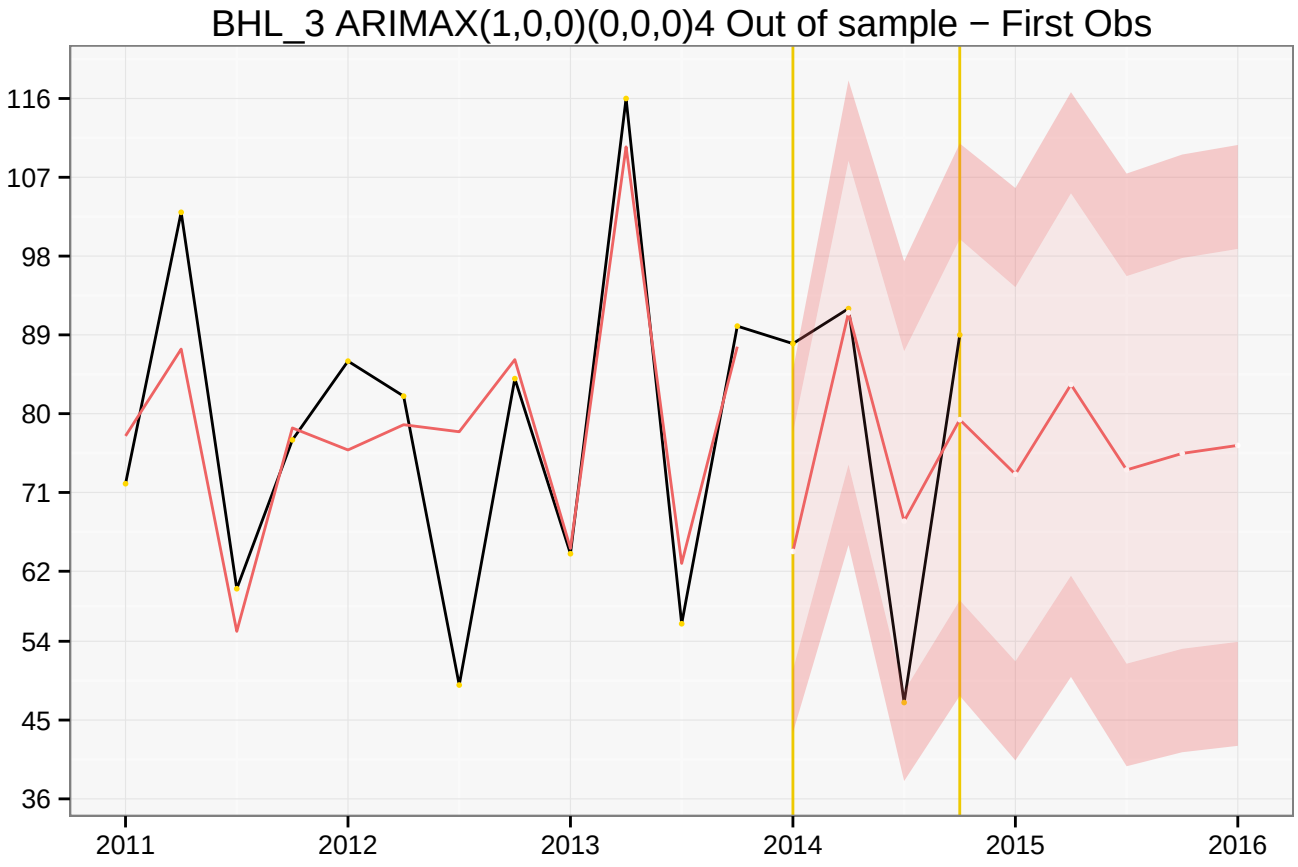

BHL_3 NNAR(4,1) First Obs
116
110
104
99
93
87
82
76
70
64
58
53
47
2011
2012
2013
2014
2015
2016


BHL_3 NNAR(1,1) Out of Sample − First Obs
110
104
98
93
87
81
75
69
63
57
51
45
2011
2012
2013
2014
2015
2016


BHL_3 ARIMAX(0,0,0)(0,1,1)4
137
127
117
107
97
87
78
68
58
48
38
28
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

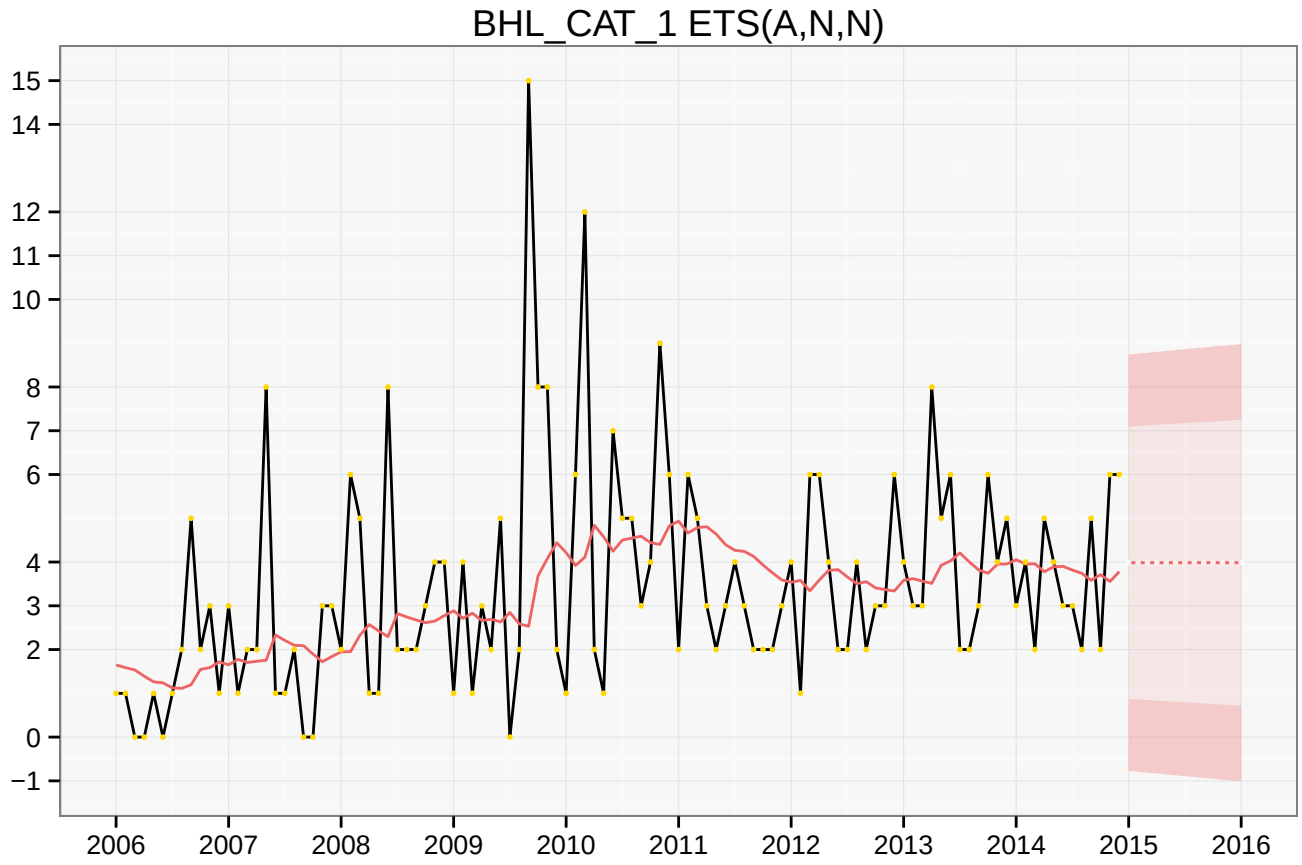

BHL_3 ARIMAX(0,0,0)(0,1,1)4 Out of sample
148
137
126
115
104
93
82
71
61
50
39
28
17
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

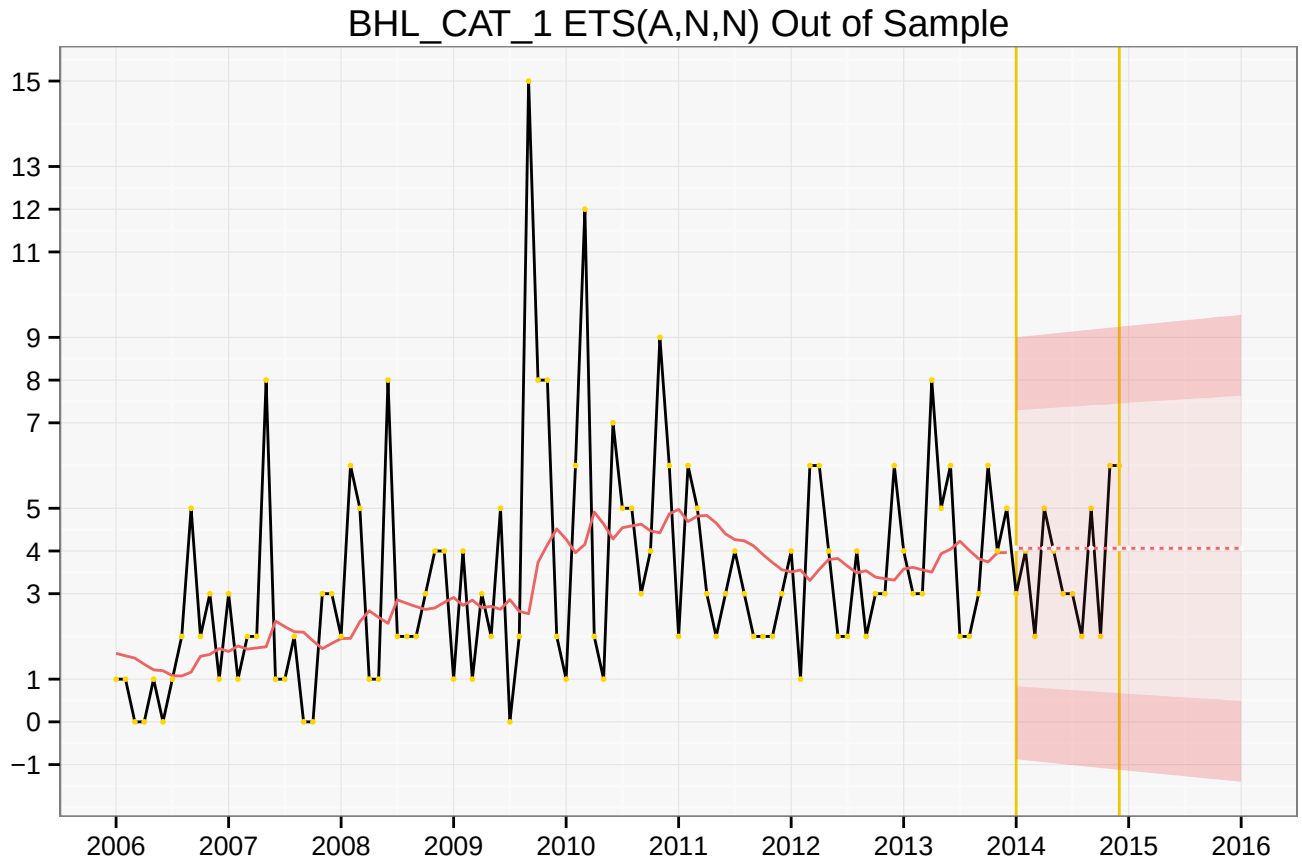

BHL_3 ARIMAX(0,0,0)(1,1,0)4 First Obs
116
107
98
89
80
71
62
54
45
36
2011
2012
2013
2014
2015
2016

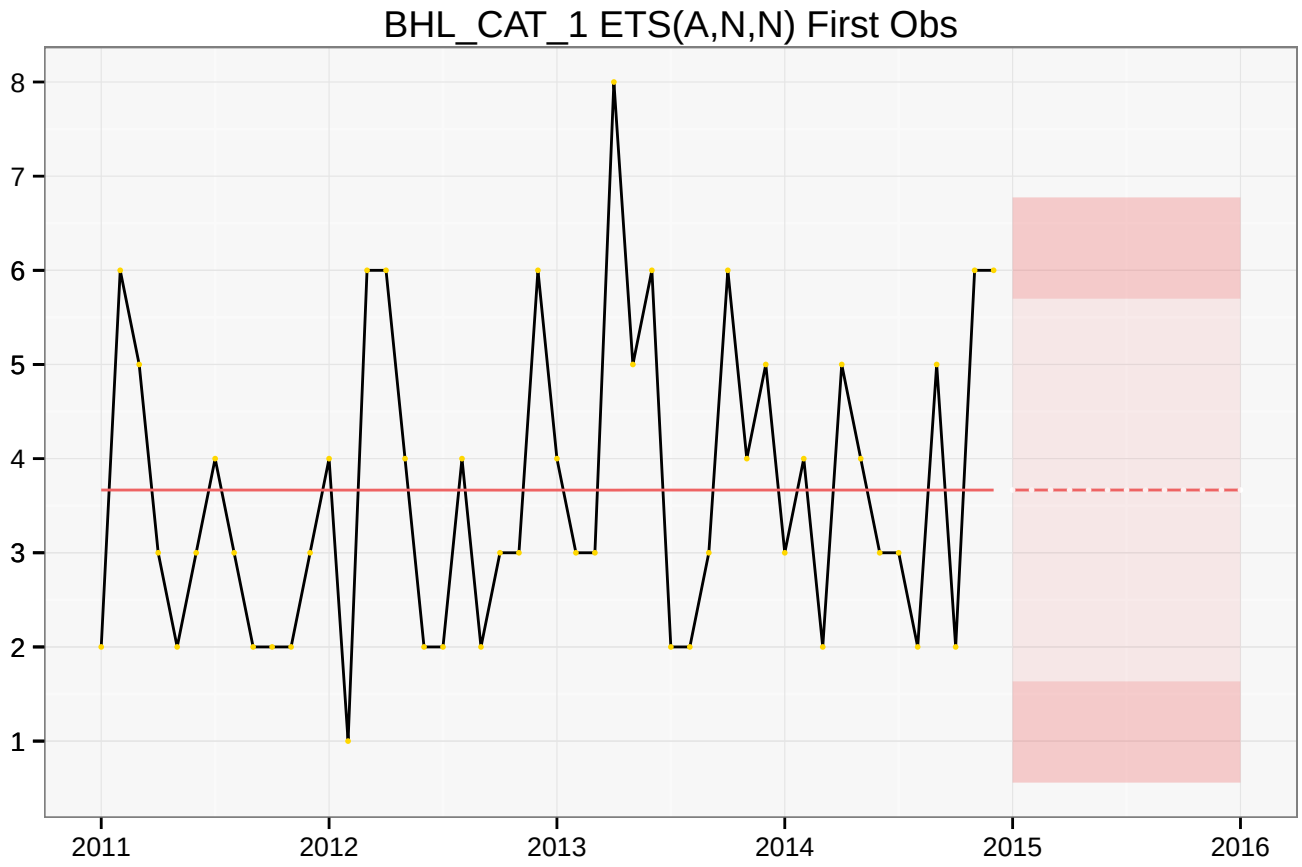

BHL_3 ARIMAX(1,0,0)(0,0,0)4 Out of sample − First Obs
116
107
98
89
80
71
62
54
45
36
2011
2012
2013
2014
2015
2016

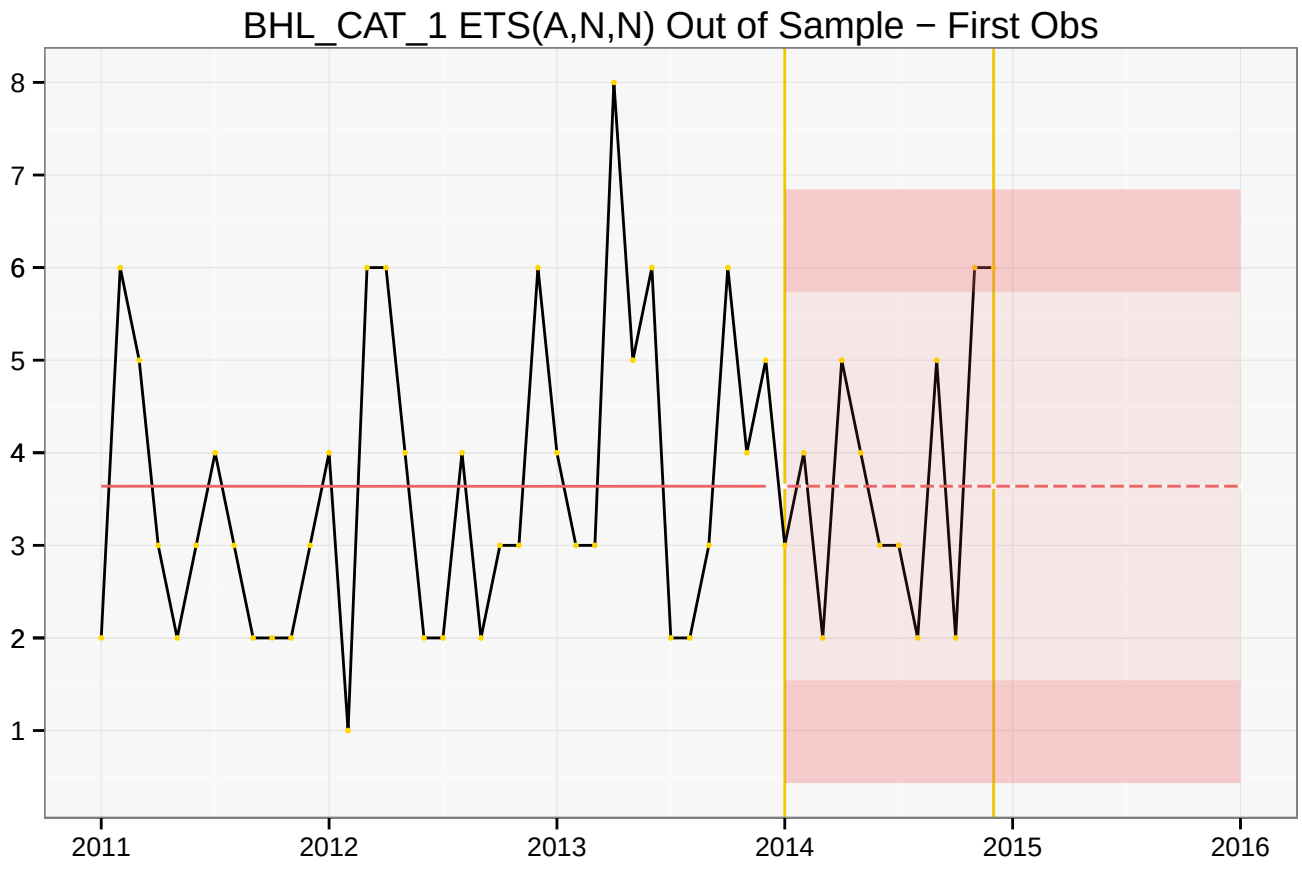
1.4 BHL_CAT_1

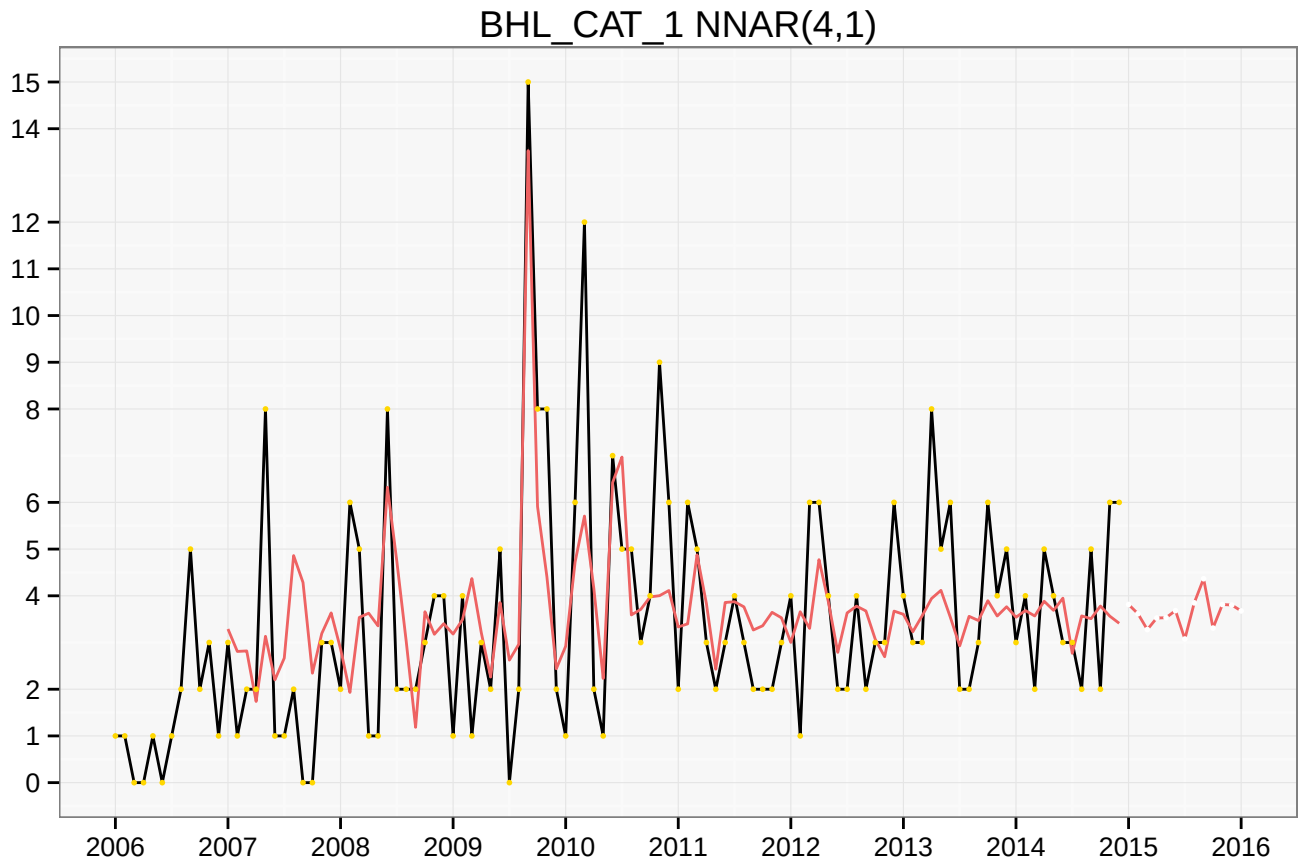
1.4.1 plots for BHL_CAT_1

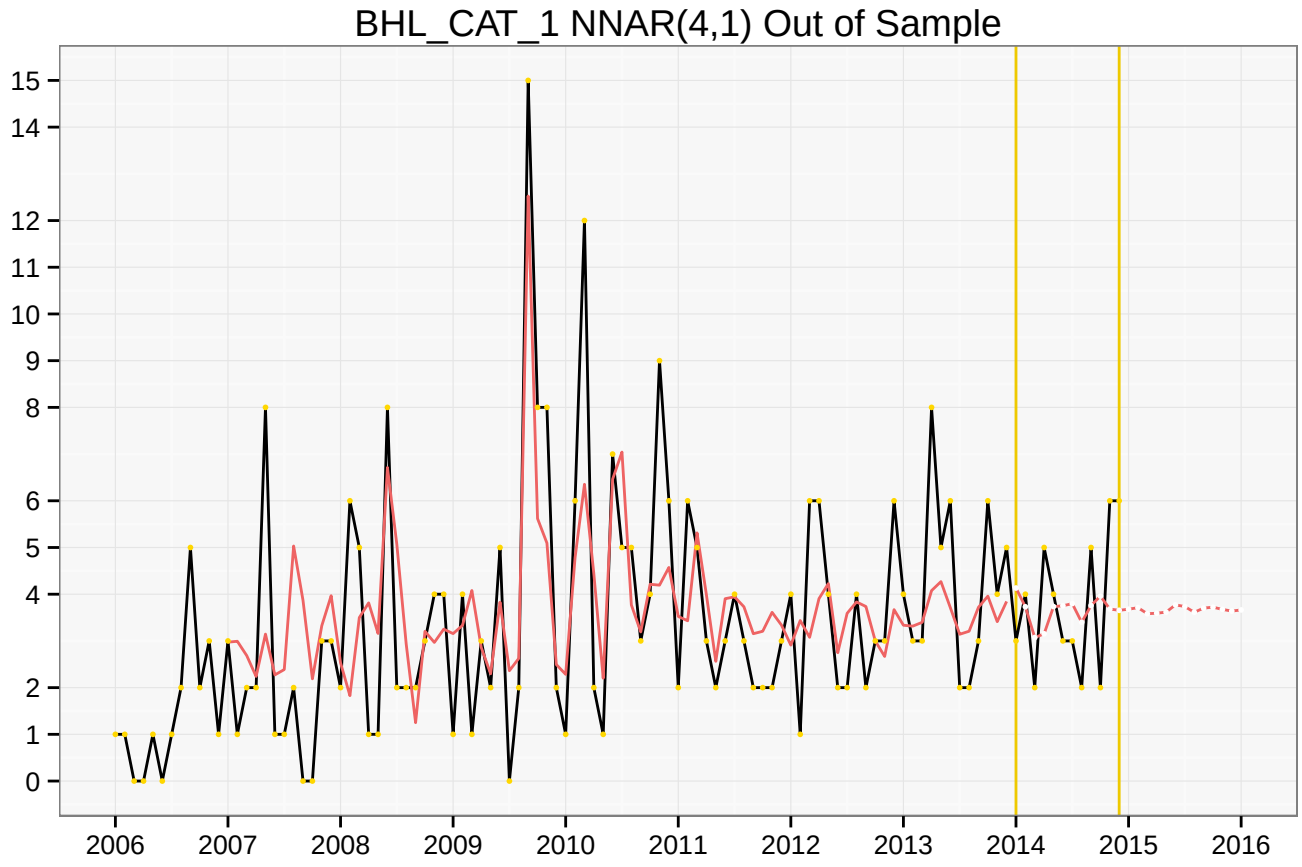


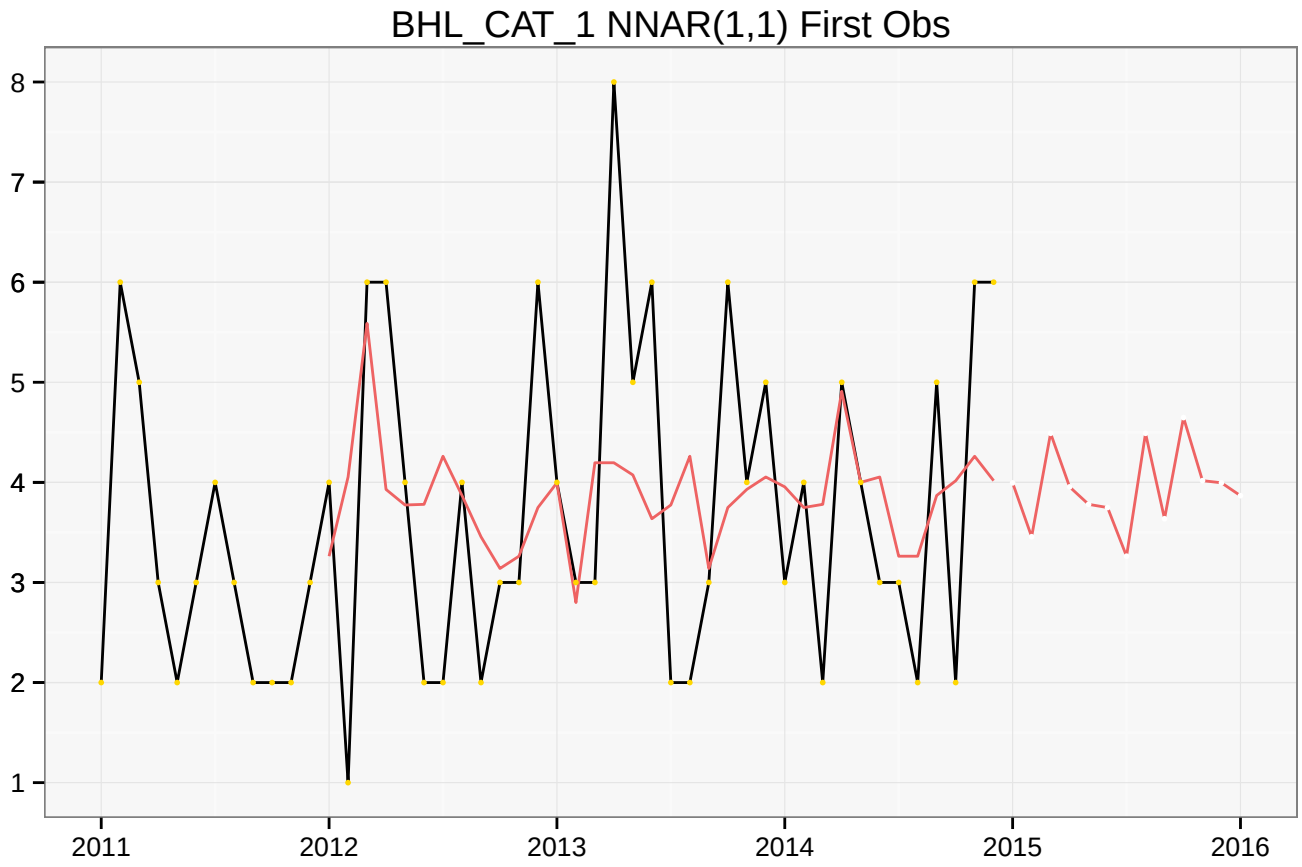


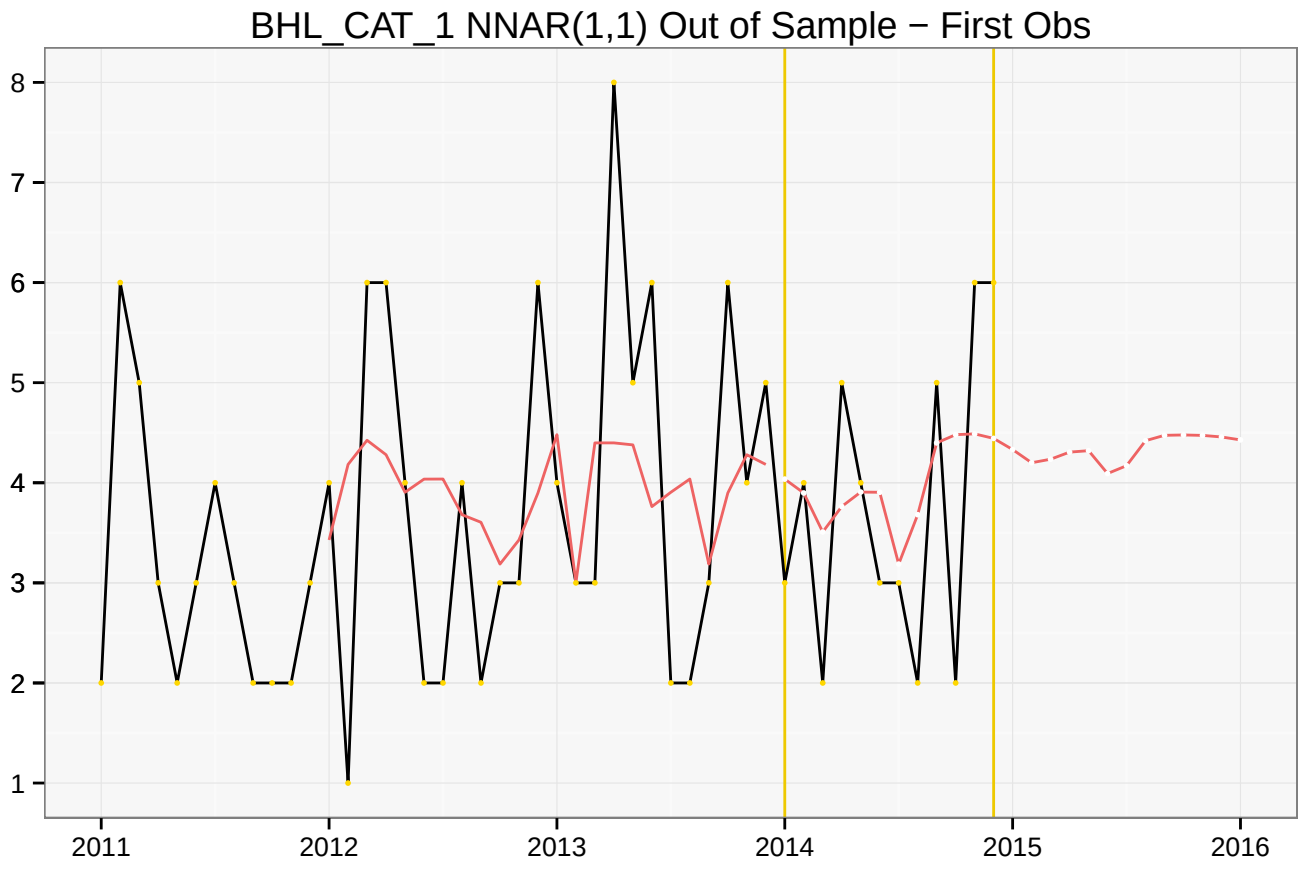

BHL_CAT_1 ETS(A,N,N) First Obs
8
7
6
5
4
3
2
1
2011
2012
2013
2014
2015
2016

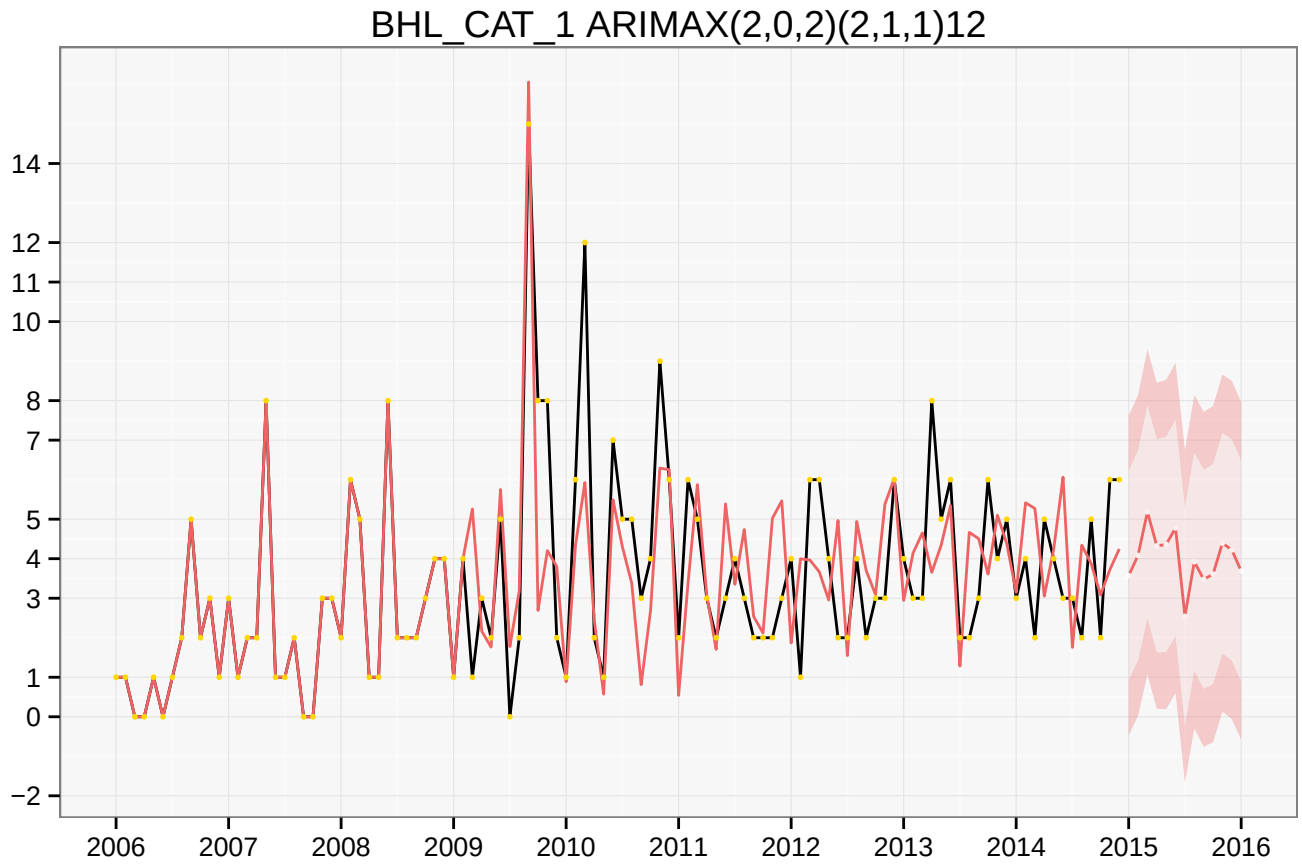

BHL_CAT_1 ETS(A,N,N) Out of Sample − First Obs
8
7
6
5
4
3
2
1
2011
2012
2013
2014
2015
2016

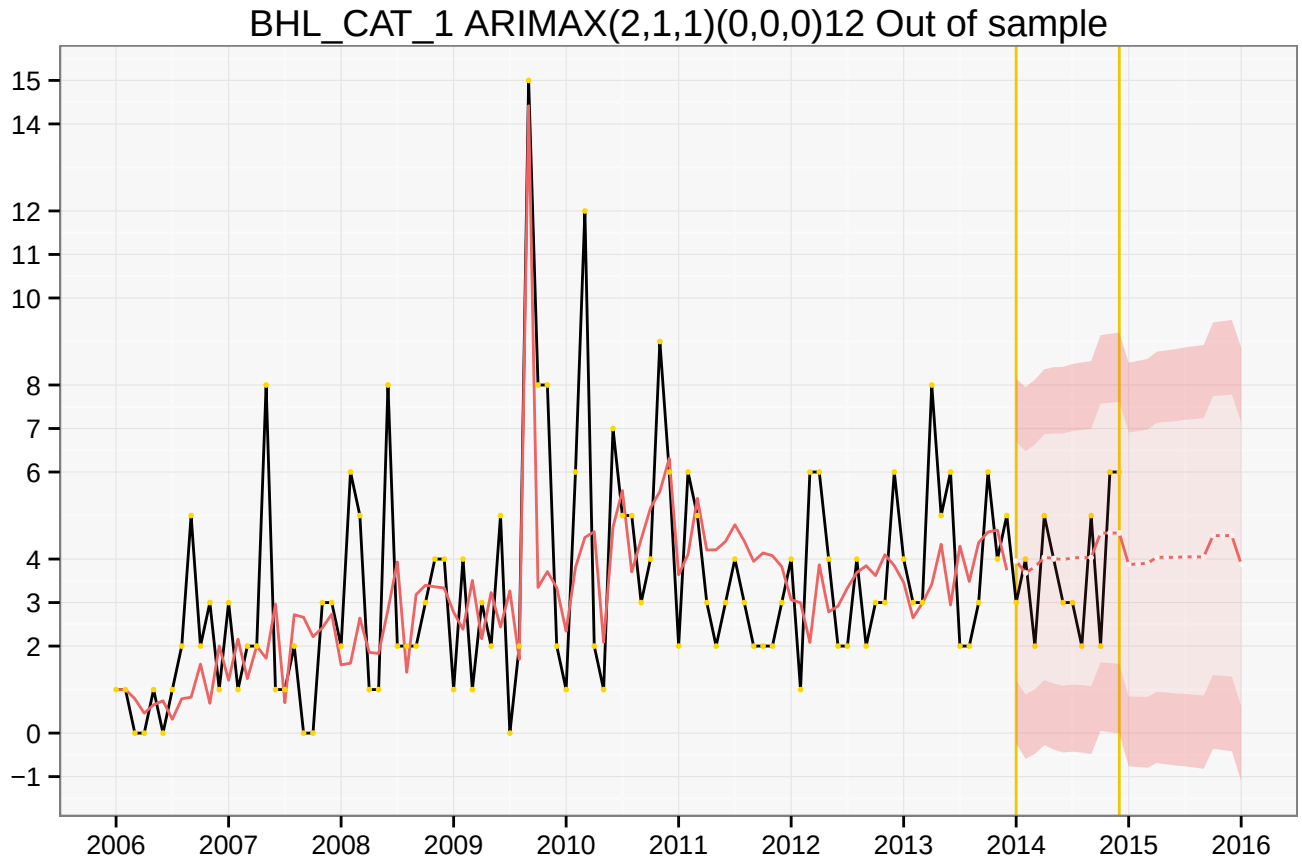

BHL_CAT_1 NNAR(4,1)
15
14
12
11
10
9
8
6
5
4
2
1
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

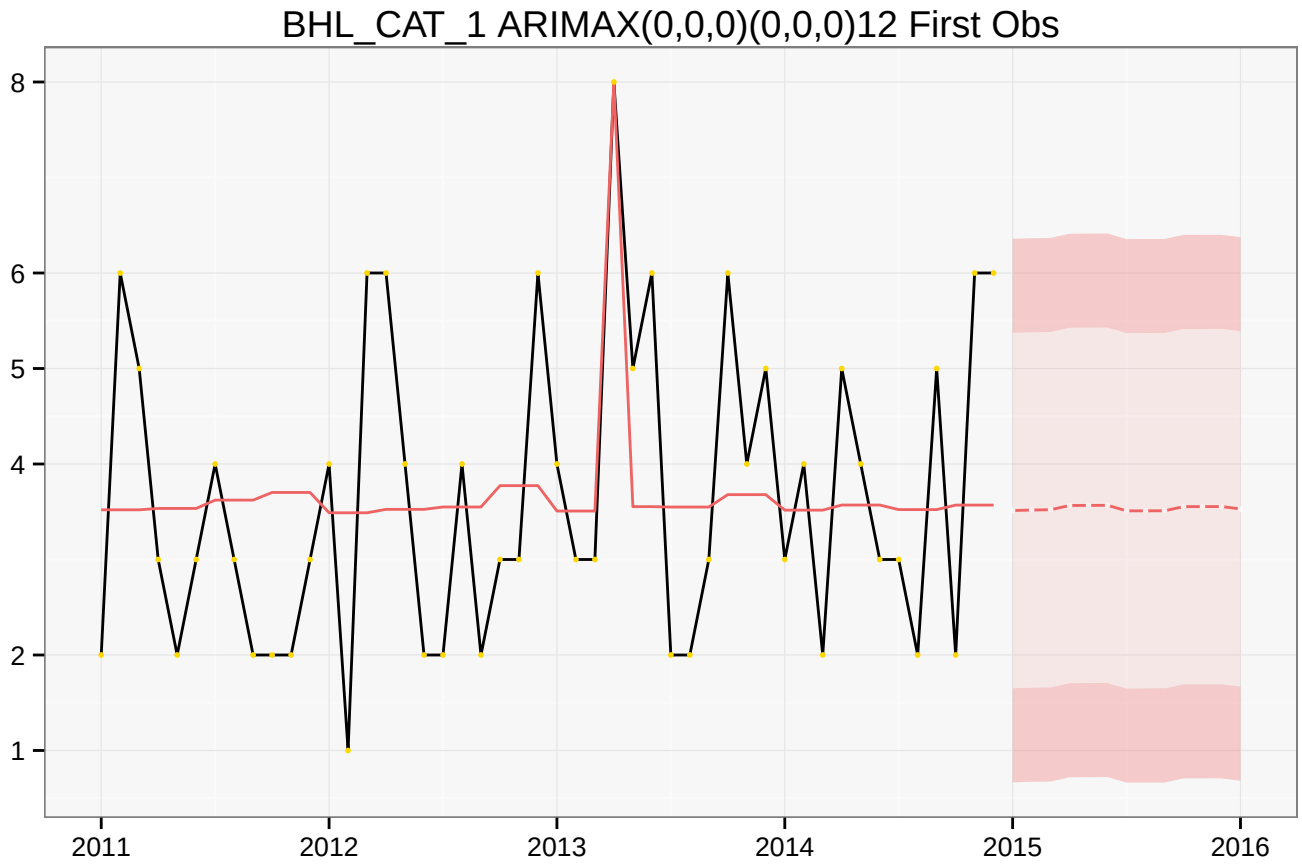

BHL_CAT_1 NNAR(4,1) Out of Sample
15
14
12
11
10
9
8
6
5
4
2
1
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

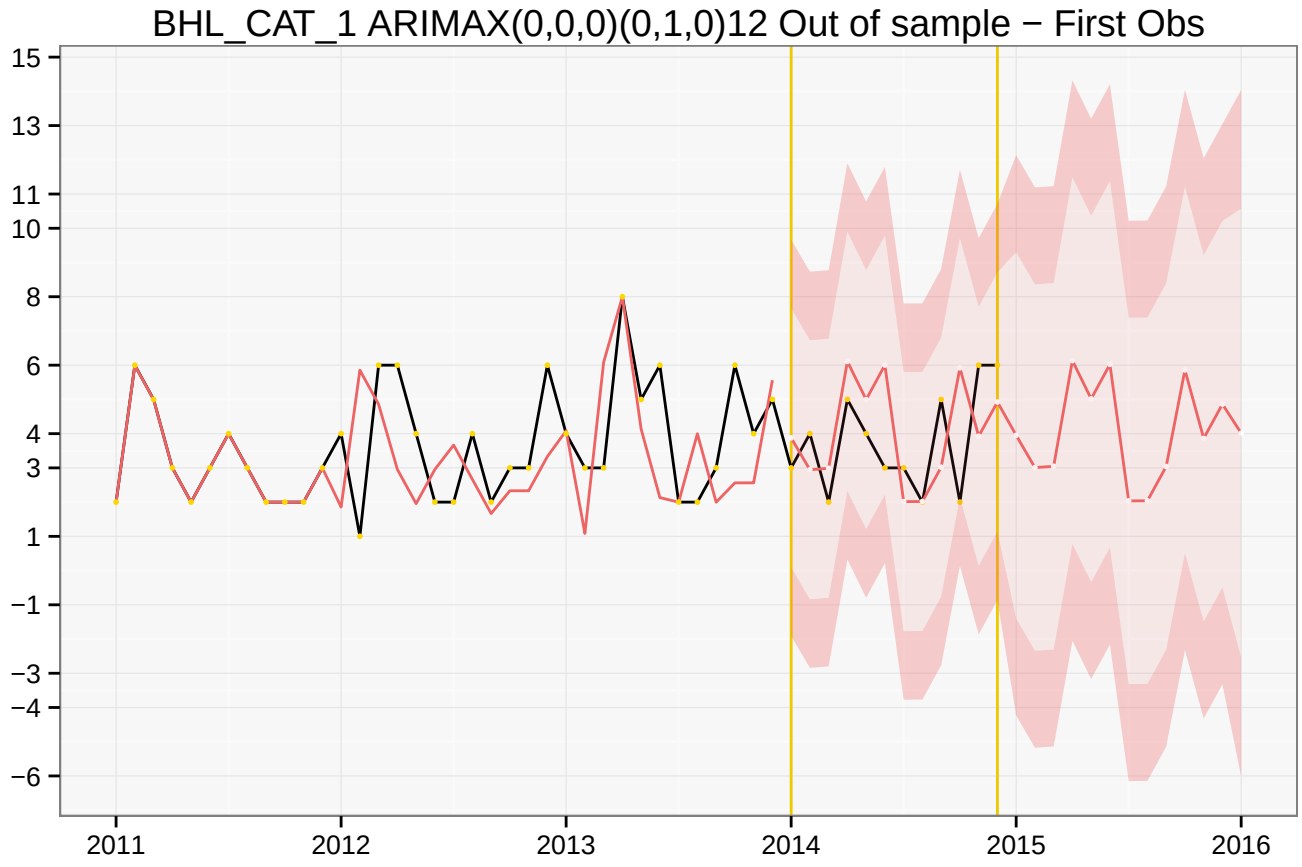

BHL_CAT_1 NNAR(1,1) First Obs
8
7
6
5
4
3
2
1
2011
2012
2013
2014
2015
2016


BHL_CAT_1 NNAR(1,1) Out of Sample − First Obs
8
7
6
5
4
3
2
1
2011
2012
2013
2014
2015
2016


BHL_CAT_1 ARIMAX(2,0,2)(2,1,1)12
14
12
11
10
8
7
5
4
3
1
0
−2
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

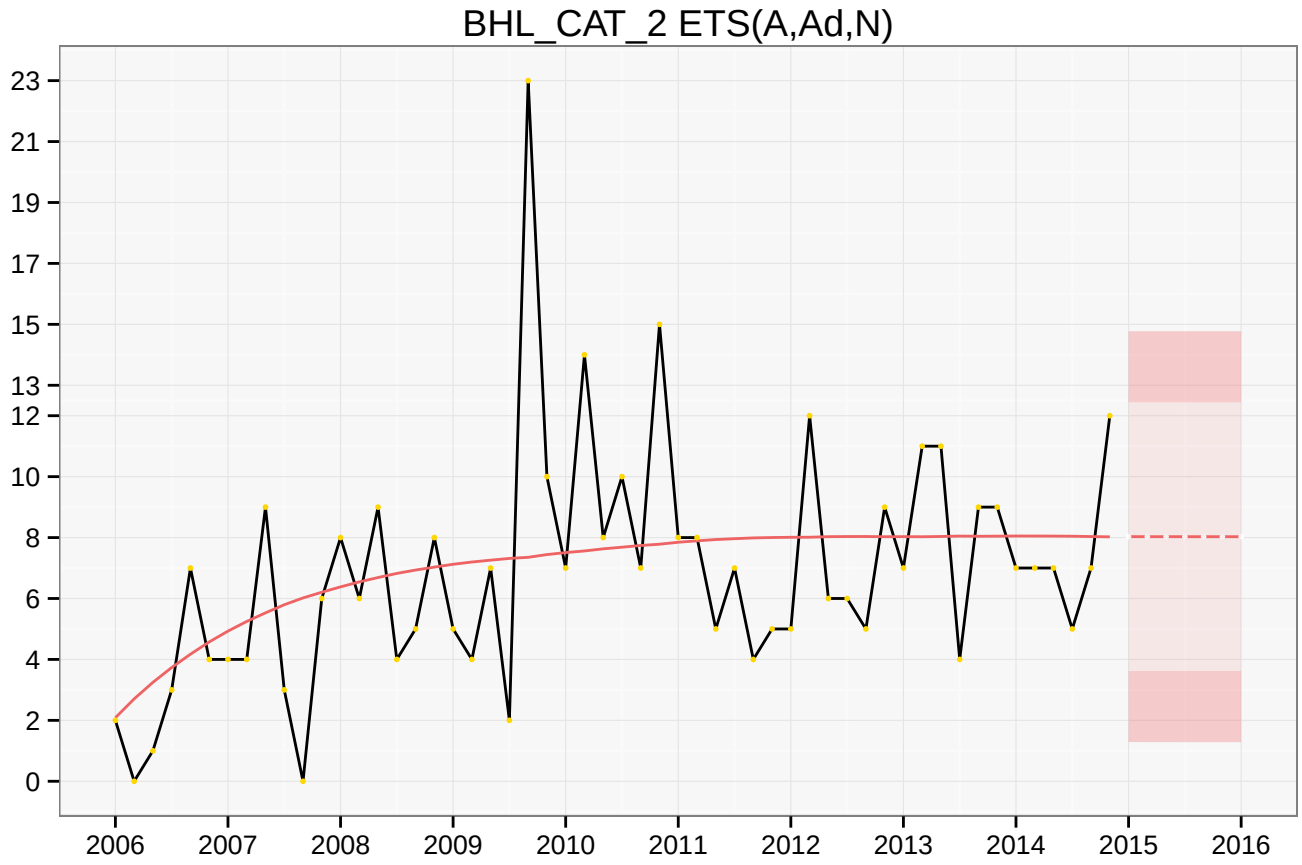

BHL_CAT_1 ARIMAX(2,1,1)(0,0,0)12 Out of sample
15
14
12
11
10
8
7
6
4
3
2
0
−1
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

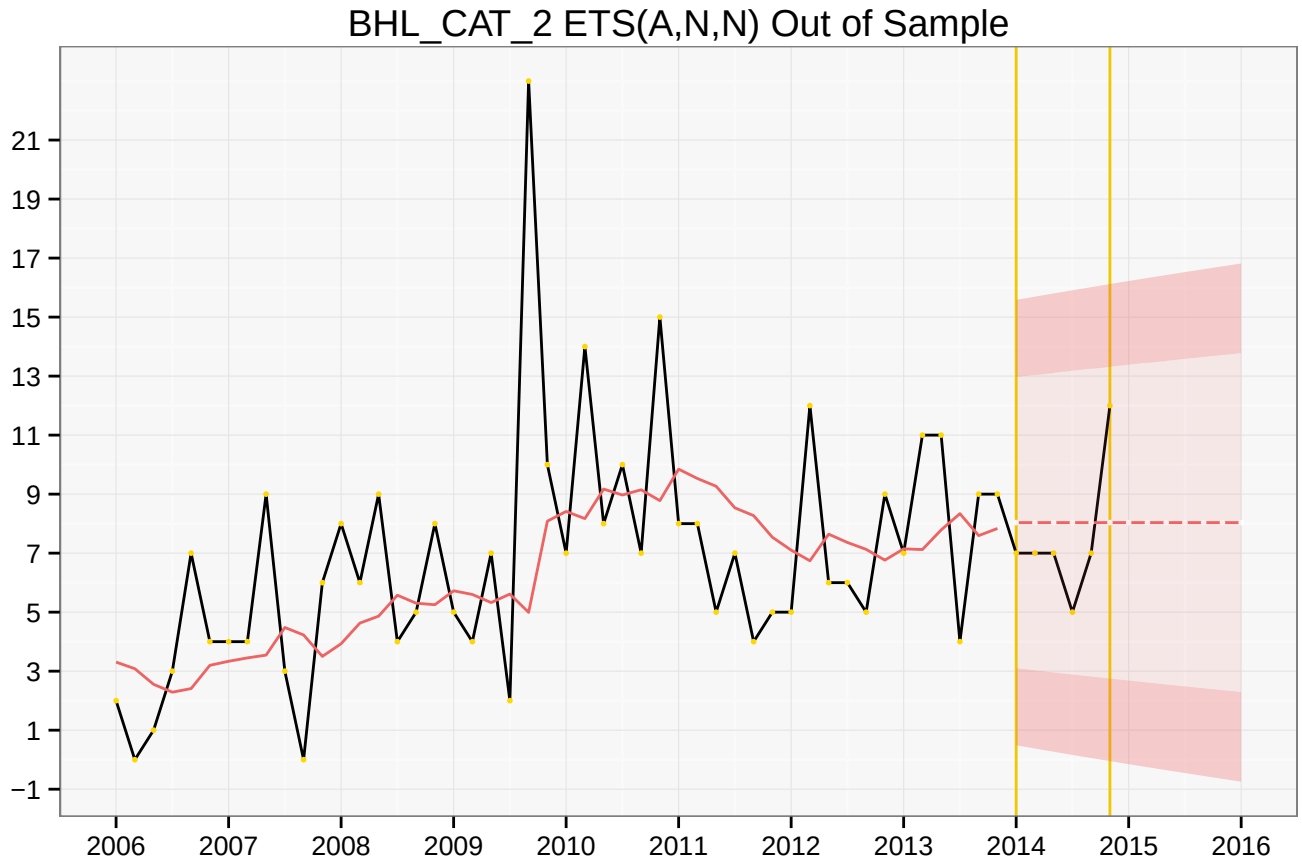

BHL_CAT_1 ARIMAX(0,0,0)(0,0,0)12 First Obs
8
6
5
4
2
1
2011
2012
2013
2014
2015
2016

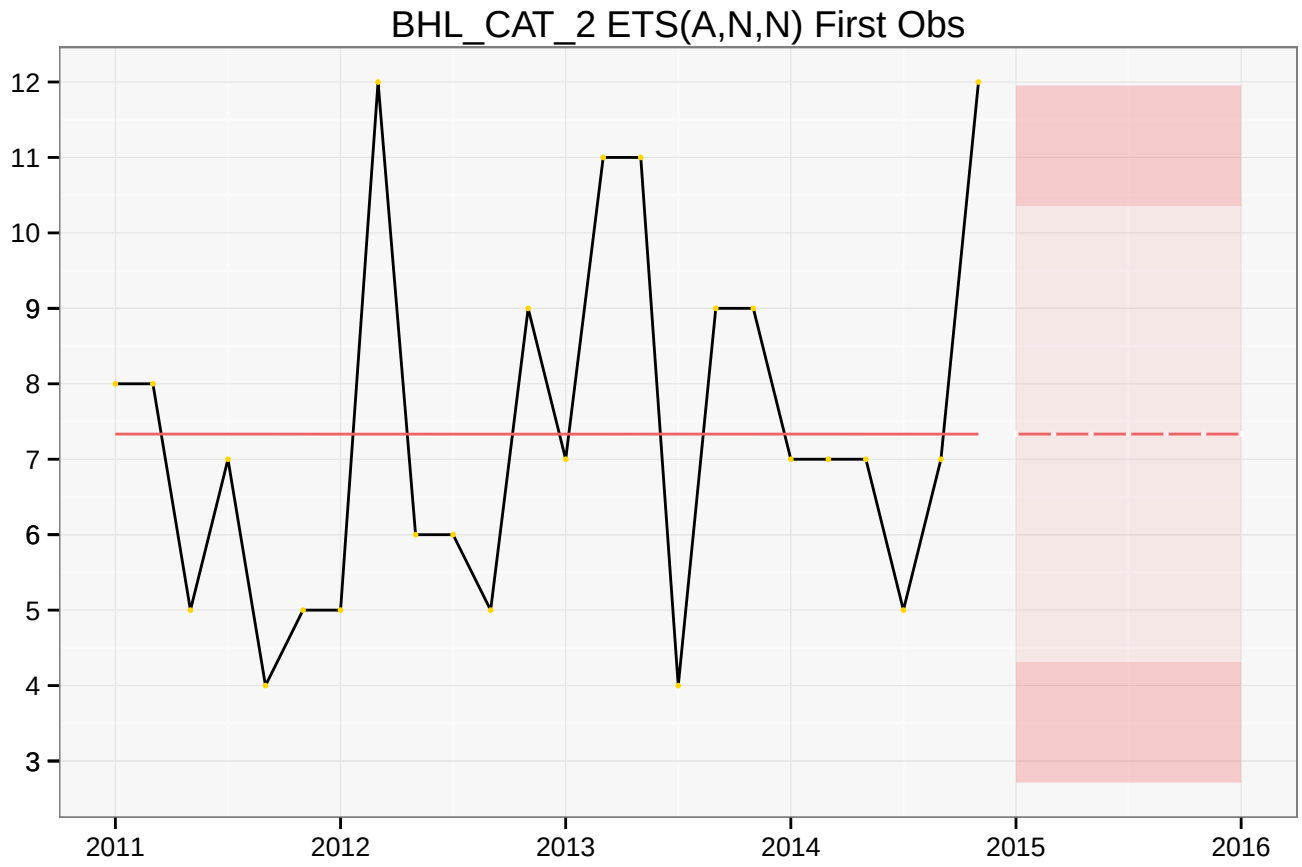

BHL_CAT_1 ARIMAX(0,0,0)(0,1,0)12 Out of sample − First Obs
15
13
11
10
8
6
4
3
1
−1
−3
−4
−6
2011
2012
2013
2014
2015
2016

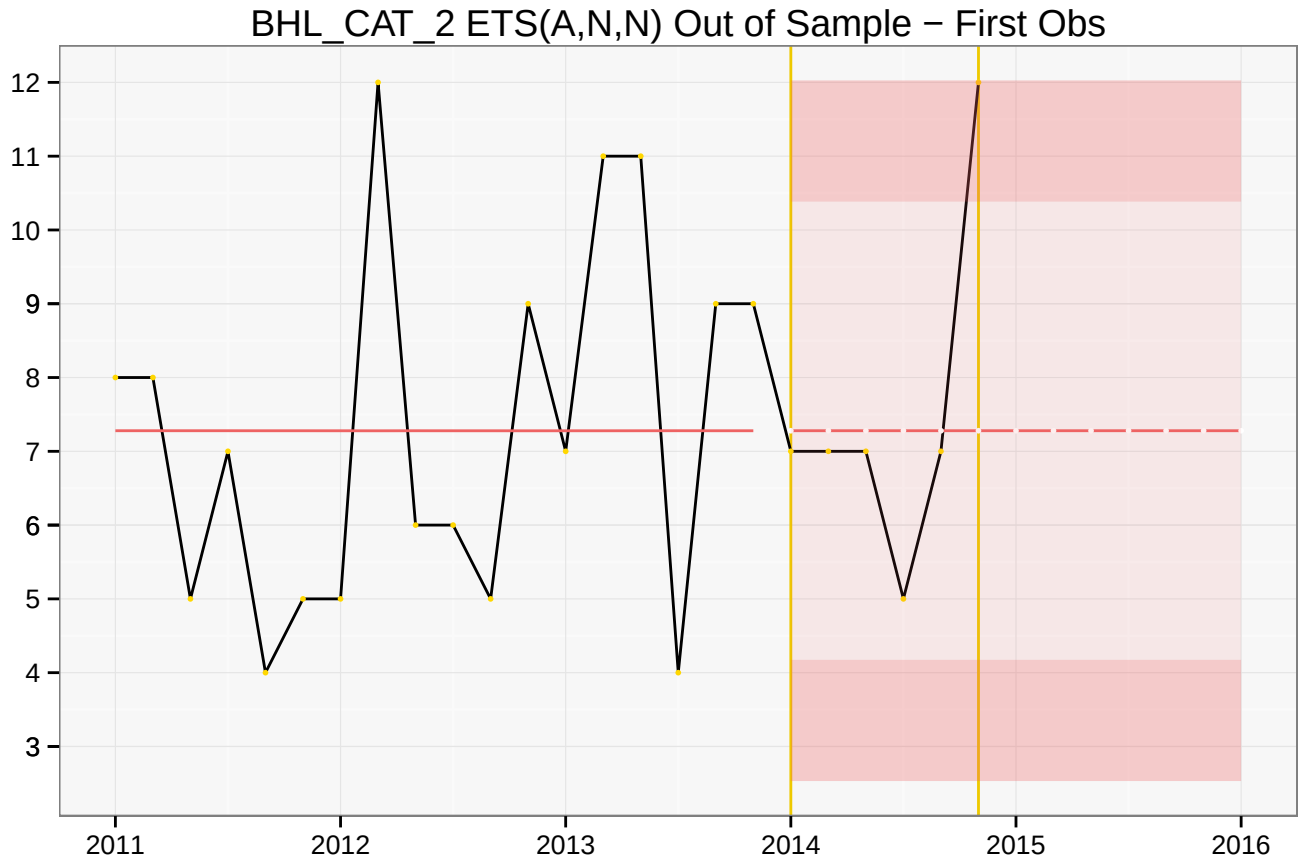
1.5 BHL_CAT_2

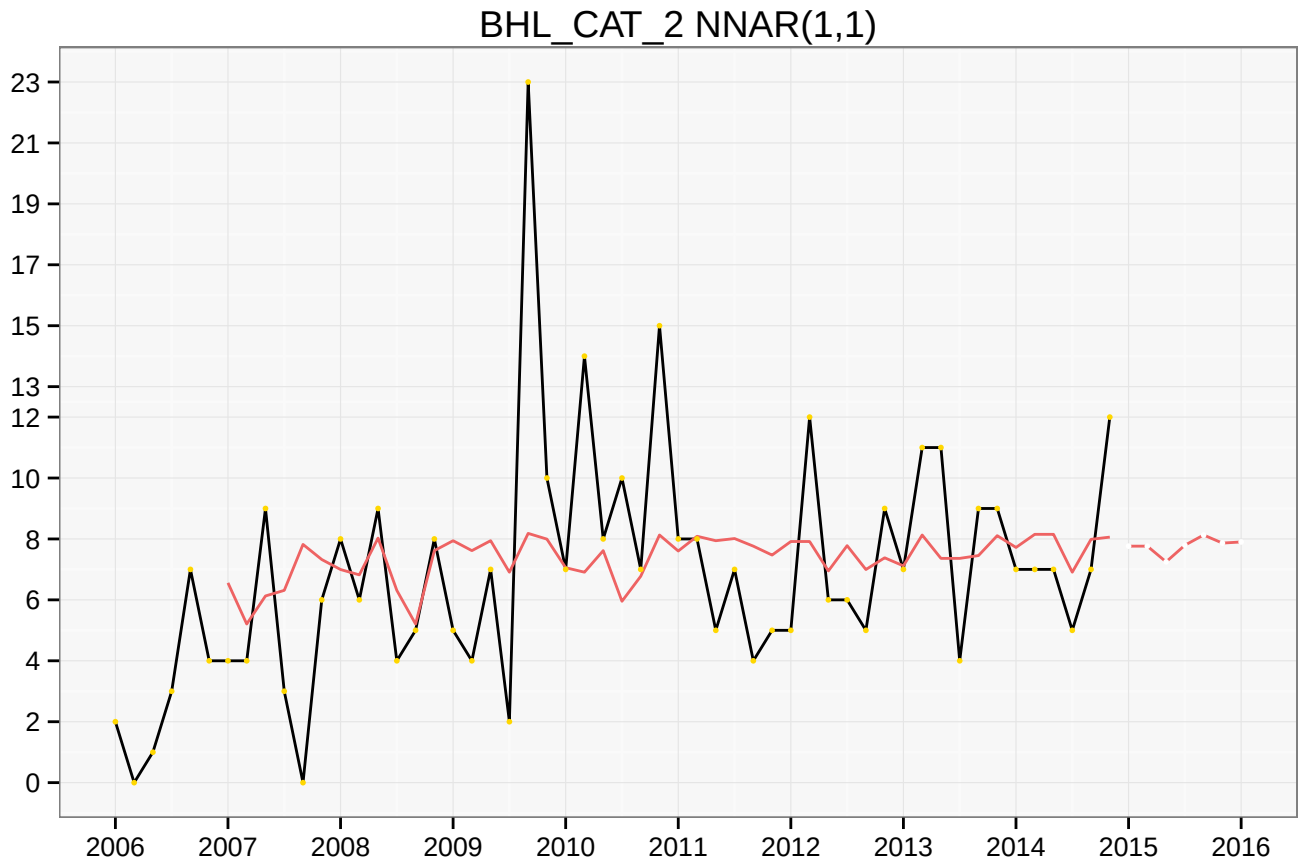
1.5.1 plots for BHL_CAT_2

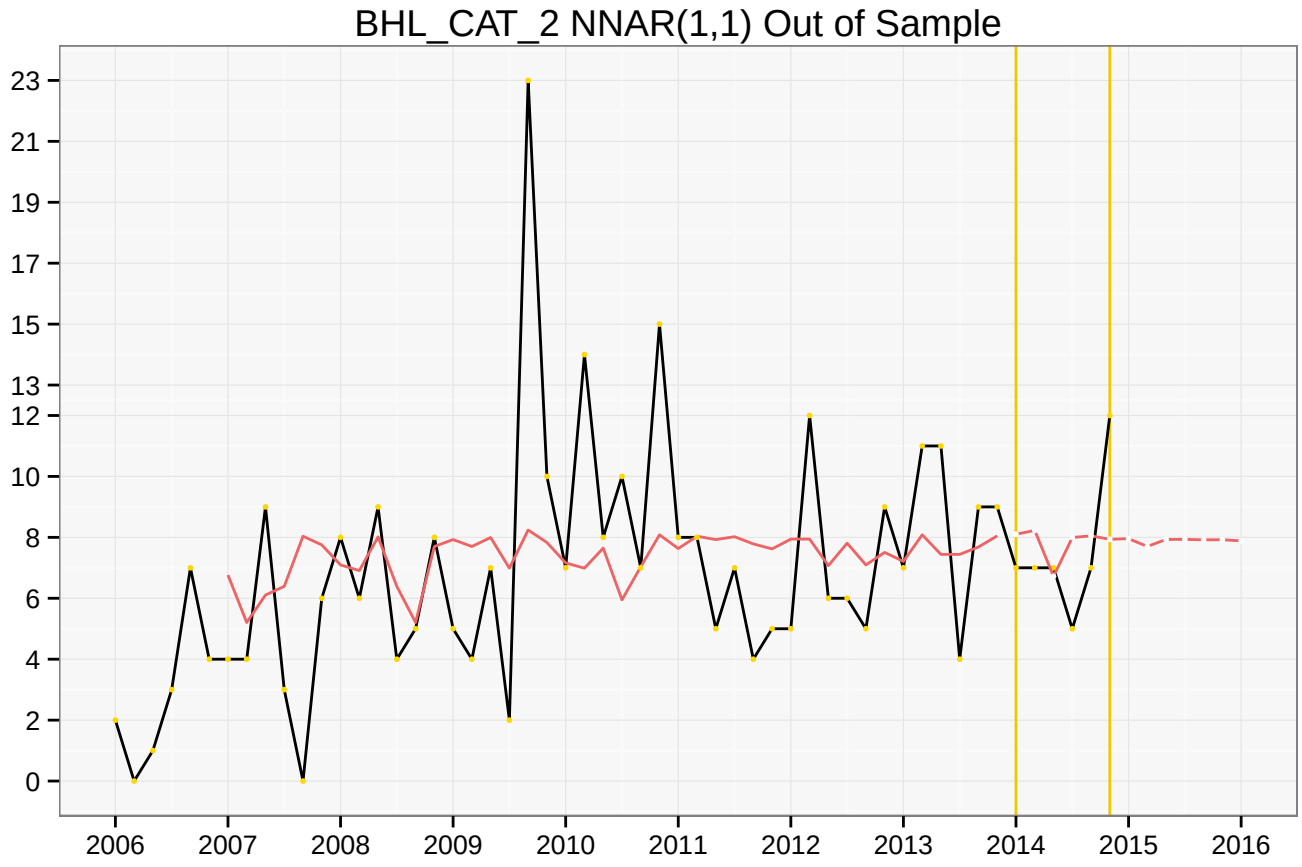


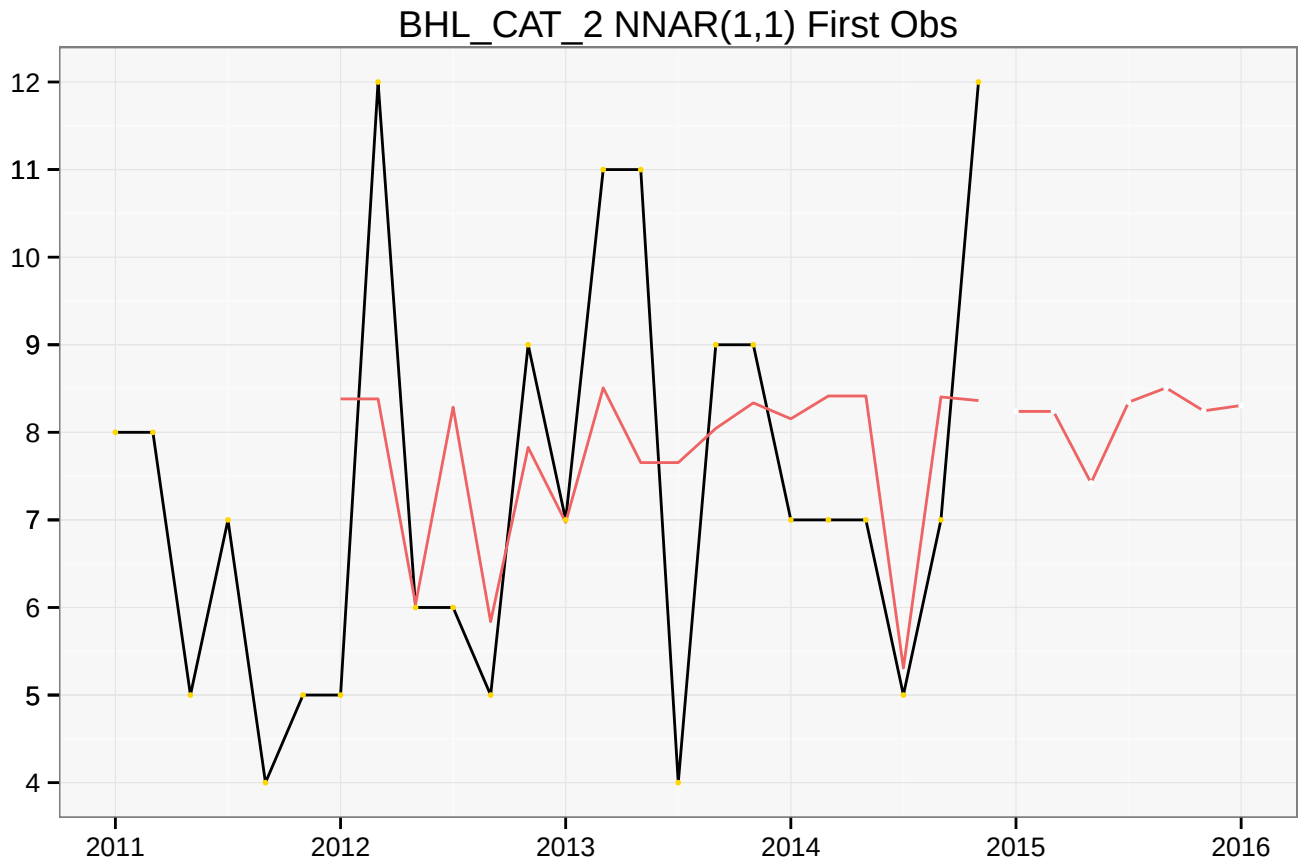


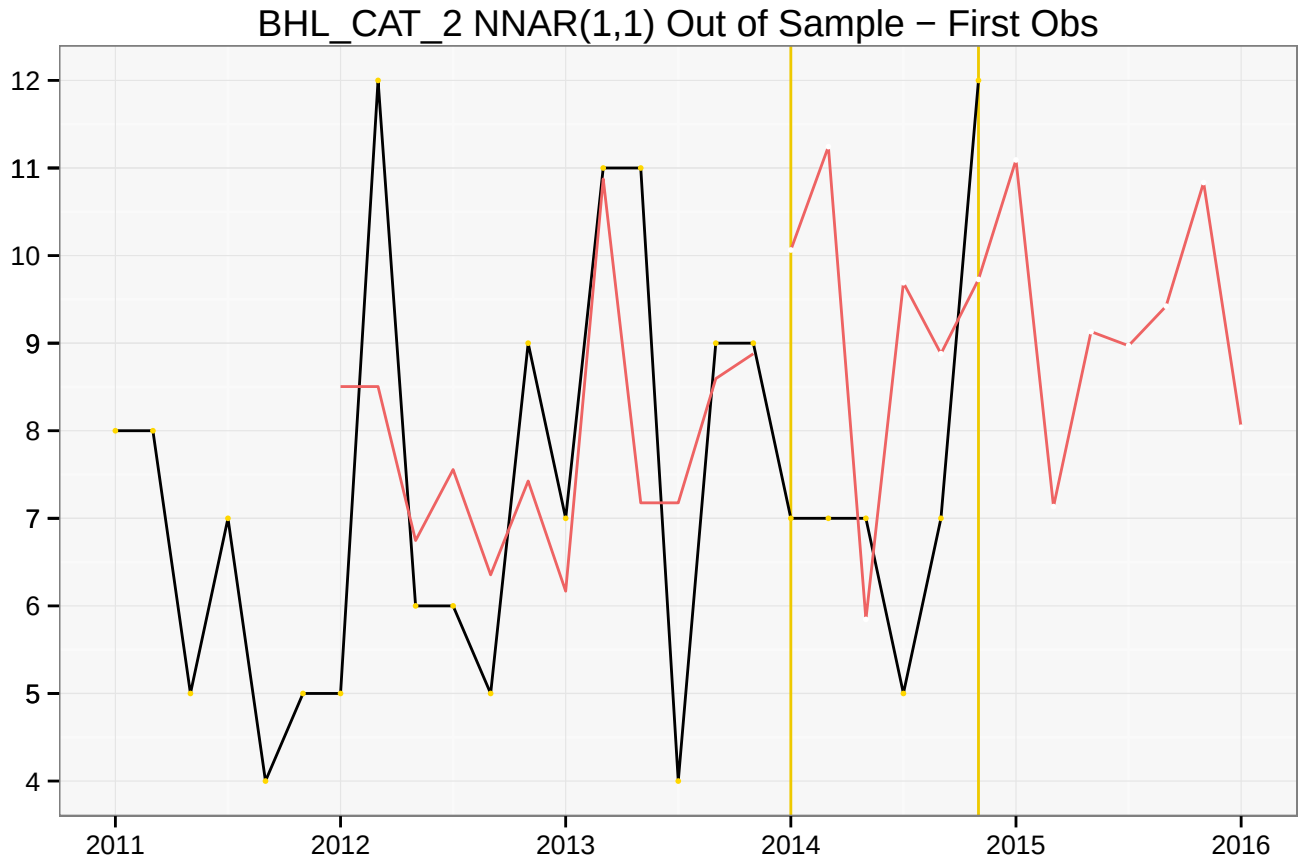

BHL_CAT_2 ETS(A,N,N) First Obs
12
11
10
9
8
7
6
5
4
3
2011
2012
2013
2014
2015
2016

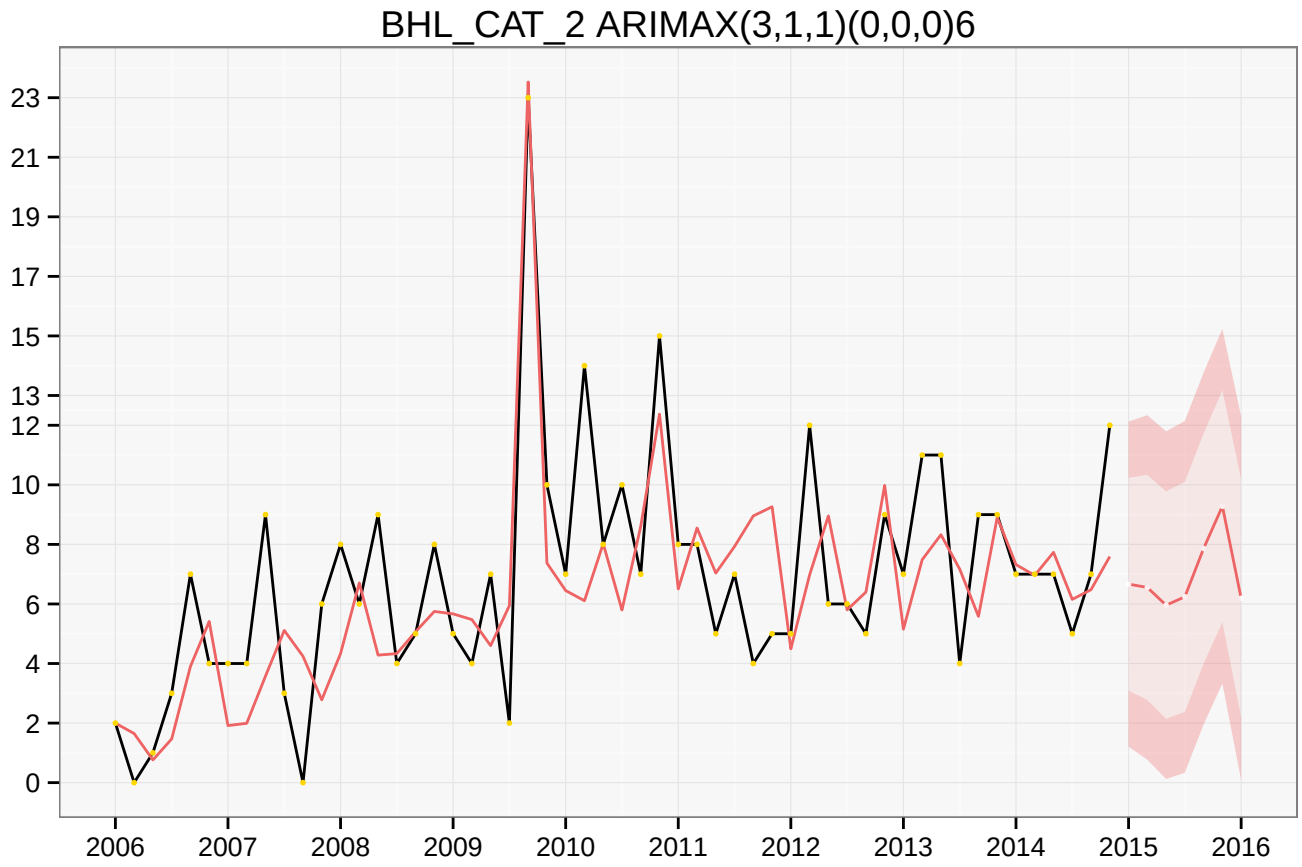

BHL_CAT_2 ETS(A,N,N) Out of Sample − First Obs
12
11
10
9
8
7
6
5
4
3
2011
2012
2013
2014
2015
2016

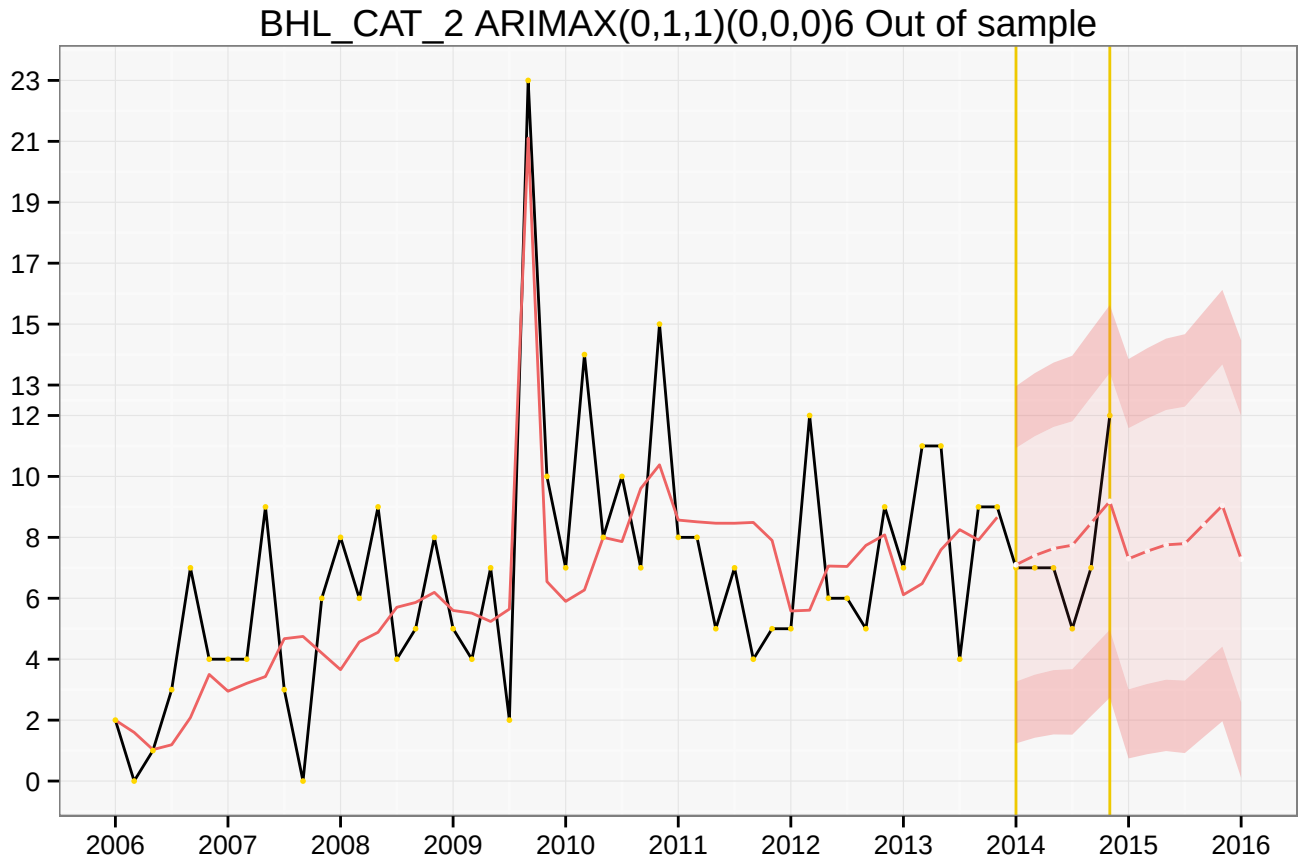

BHL_CAT_2 NNAR(1,1)
23
21
19
17
15
13
12
10
8
6
4
2
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

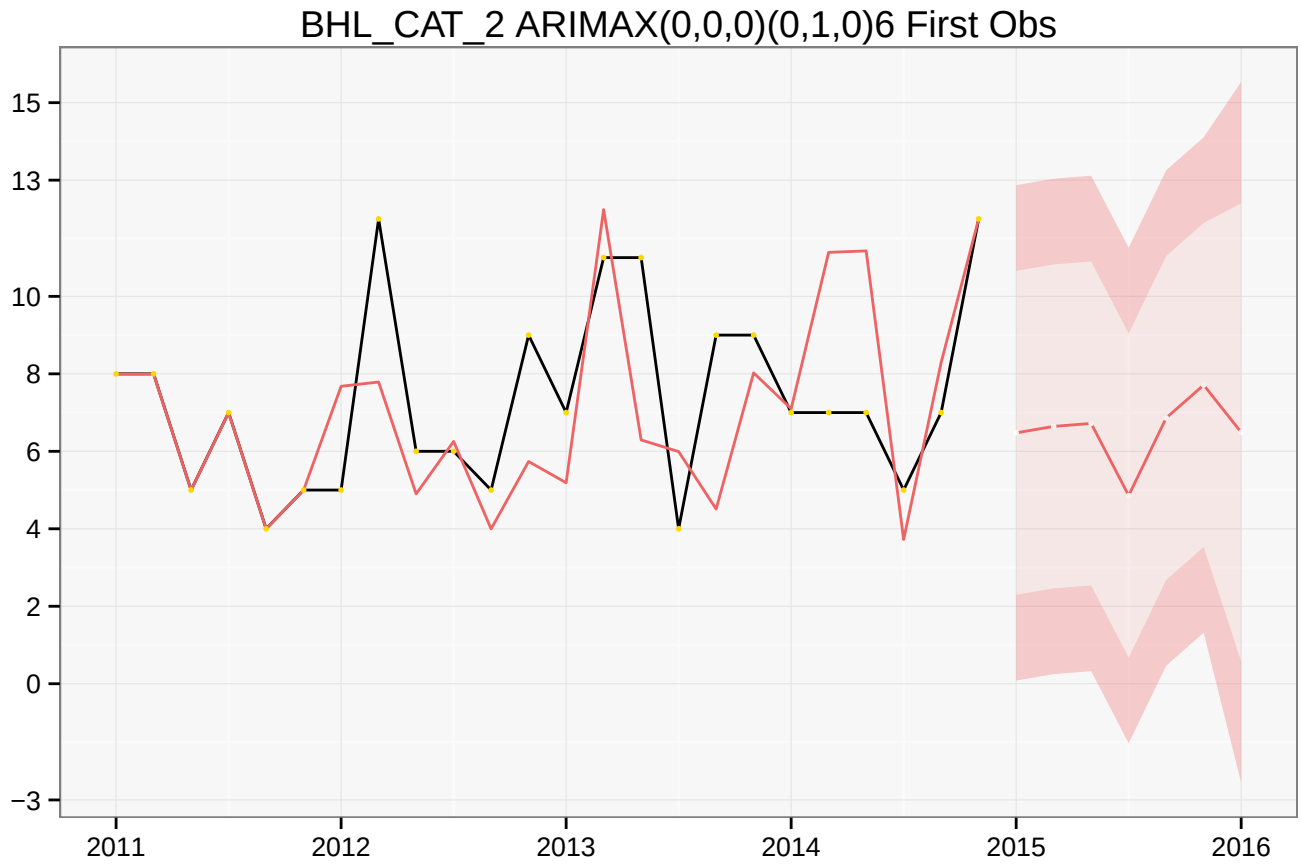

BHL_CAT_2 NNAR(1,1) Out of Sample
23
21
19
17
15
13
12
10
8
6
4
2
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

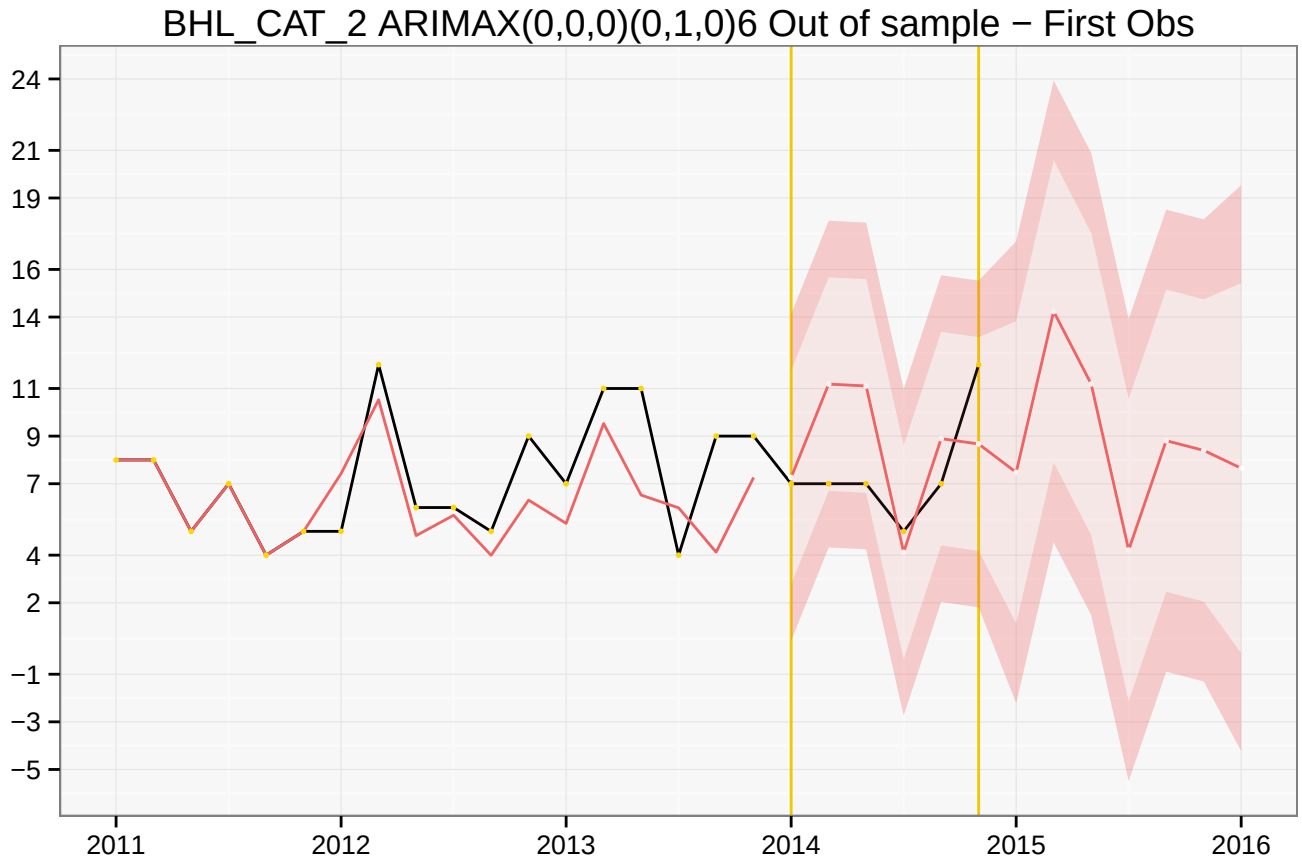

BHL_CAT_2 NNAR(1,1) First Obs
12
11
10
9
8
7
6
5
4
2011
2012
2013
2014
2015
2016


BHL_CAT_2 NNAR(1,1) Out of Sample − First Obs
12
11
10
9
8
7
6
5
4
2011
2012
2013
2014
2015
2016


BHL_CAT_2 ARIMAX(3,1,1)(0,0,0)6
23
21
19
17
15
13
12
10
8
6
4
2
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

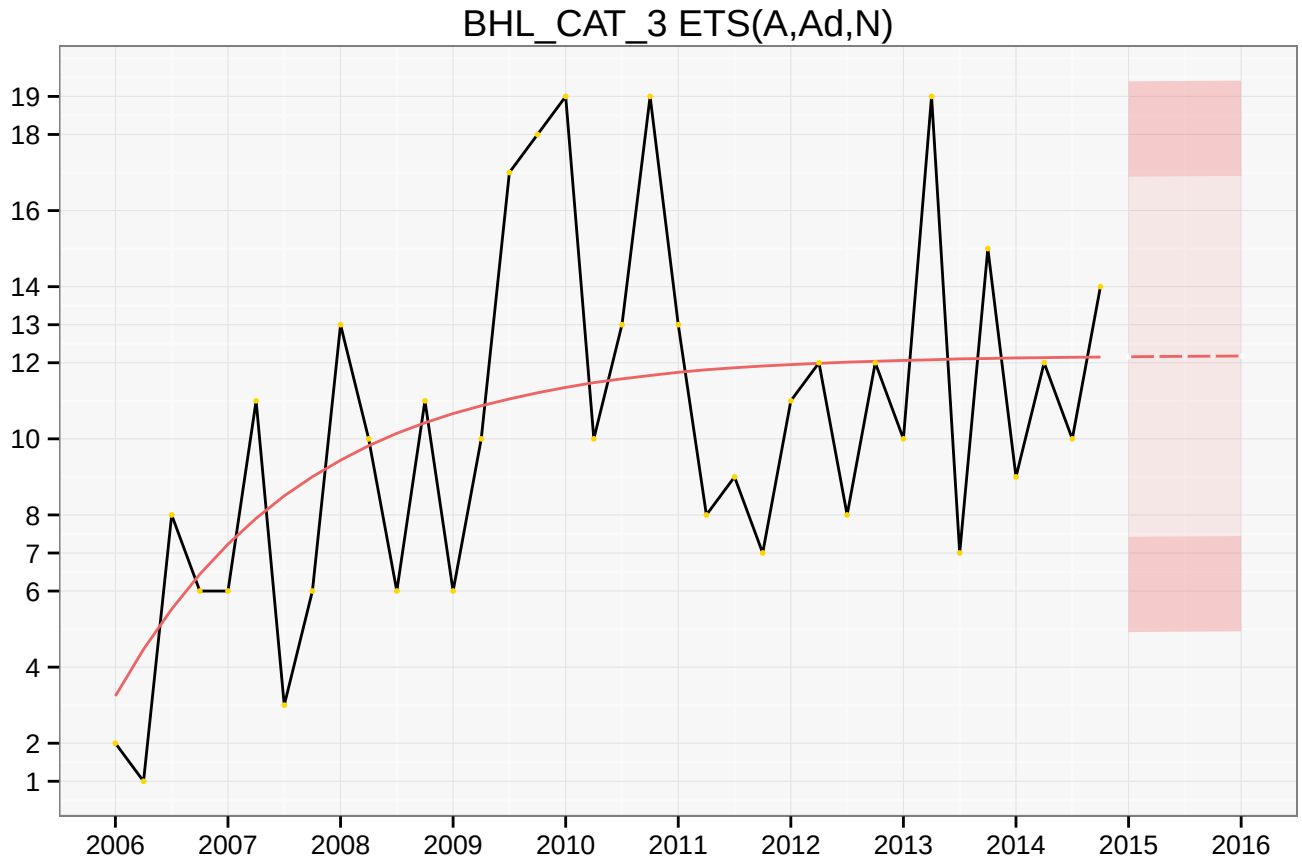

BHL_CAT_2 ARIMAX(0,1,1)(0,0,0)6 Out of sample
23
21
19
17
15
13
12
10
8
6
4
2
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

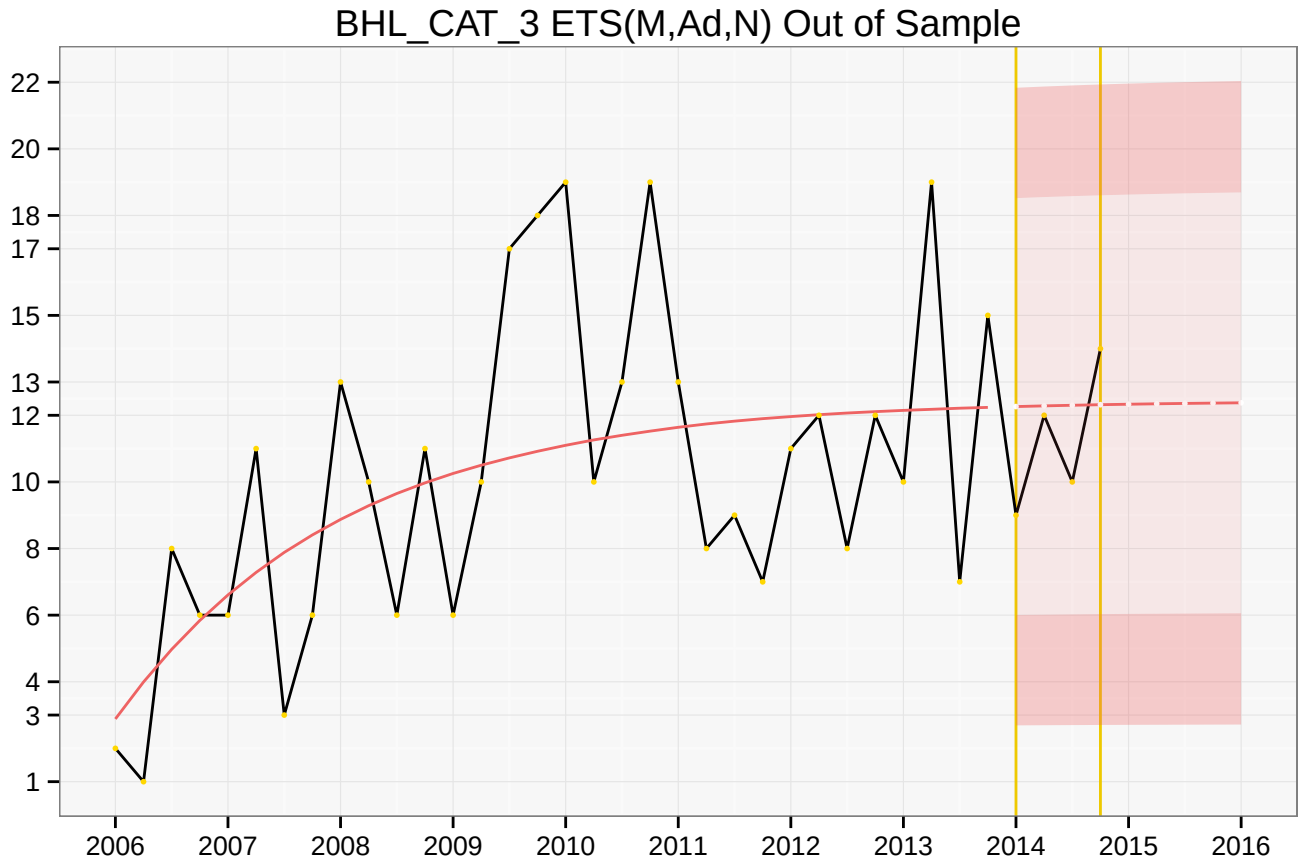

BHL_CAT_2 ARIMAX(0,0,0)(0,1,0)6 First Obs
15
13
10
8
6
4
2
0
−3
2011
2012
2013
2014
2015
2016

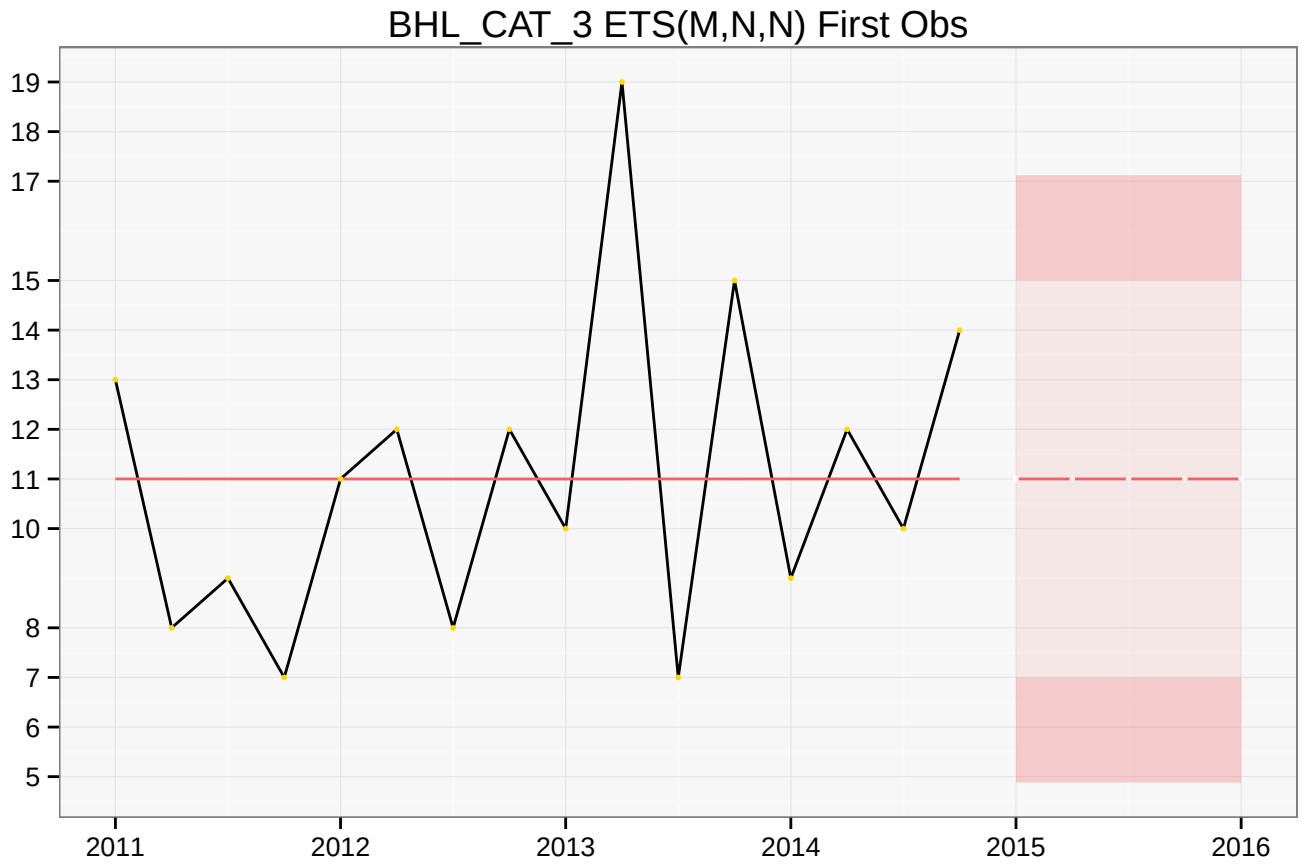

BHL_CAT_2 ARIMAX(0,0,0)(0,1,0)6 Out of sample − First Obs
24
21
19
16
14
11
9
7
4
2
−1
−3
−5
2011
2012
2013
2014
2015
2016

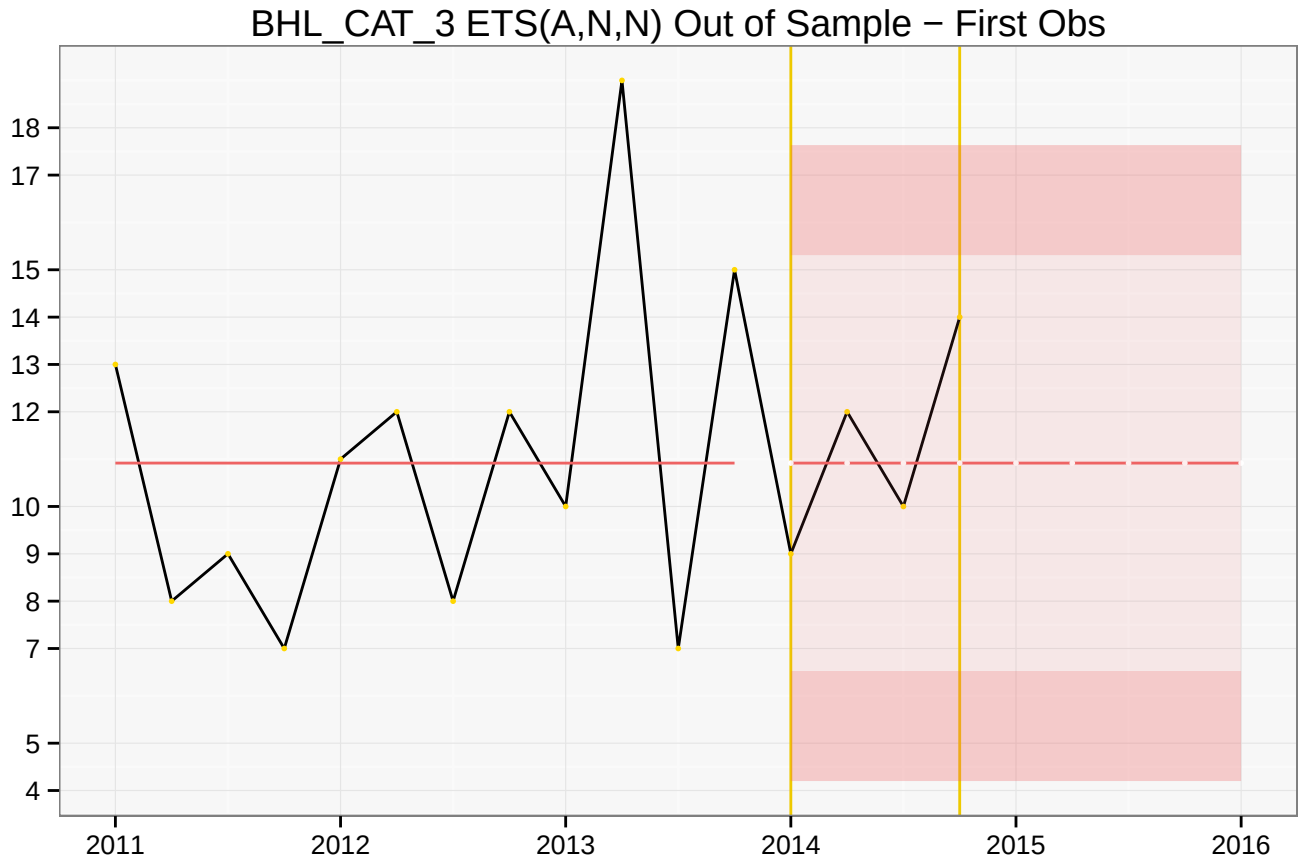
1.6 BHL_CAT_3

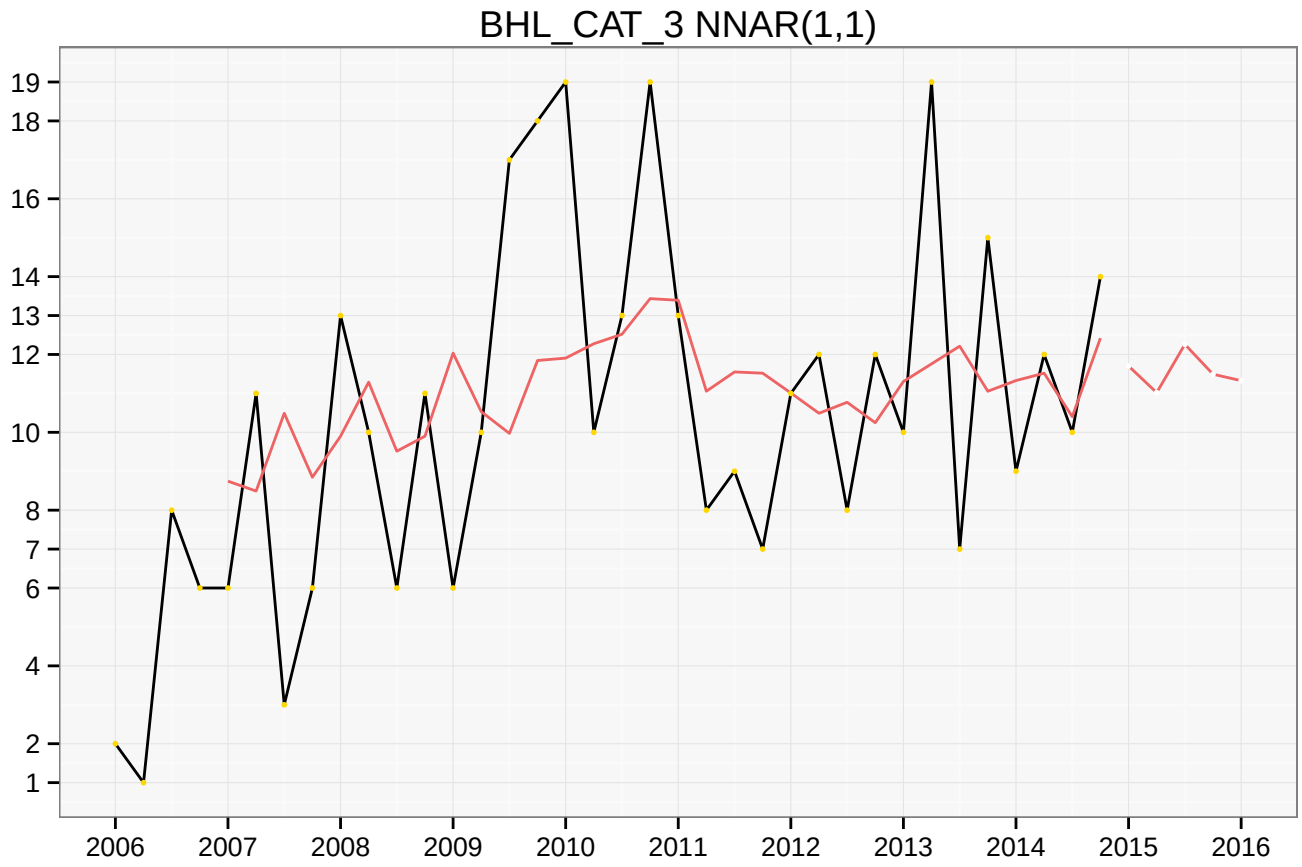
1.6.1 plots for BHL_CAT_3

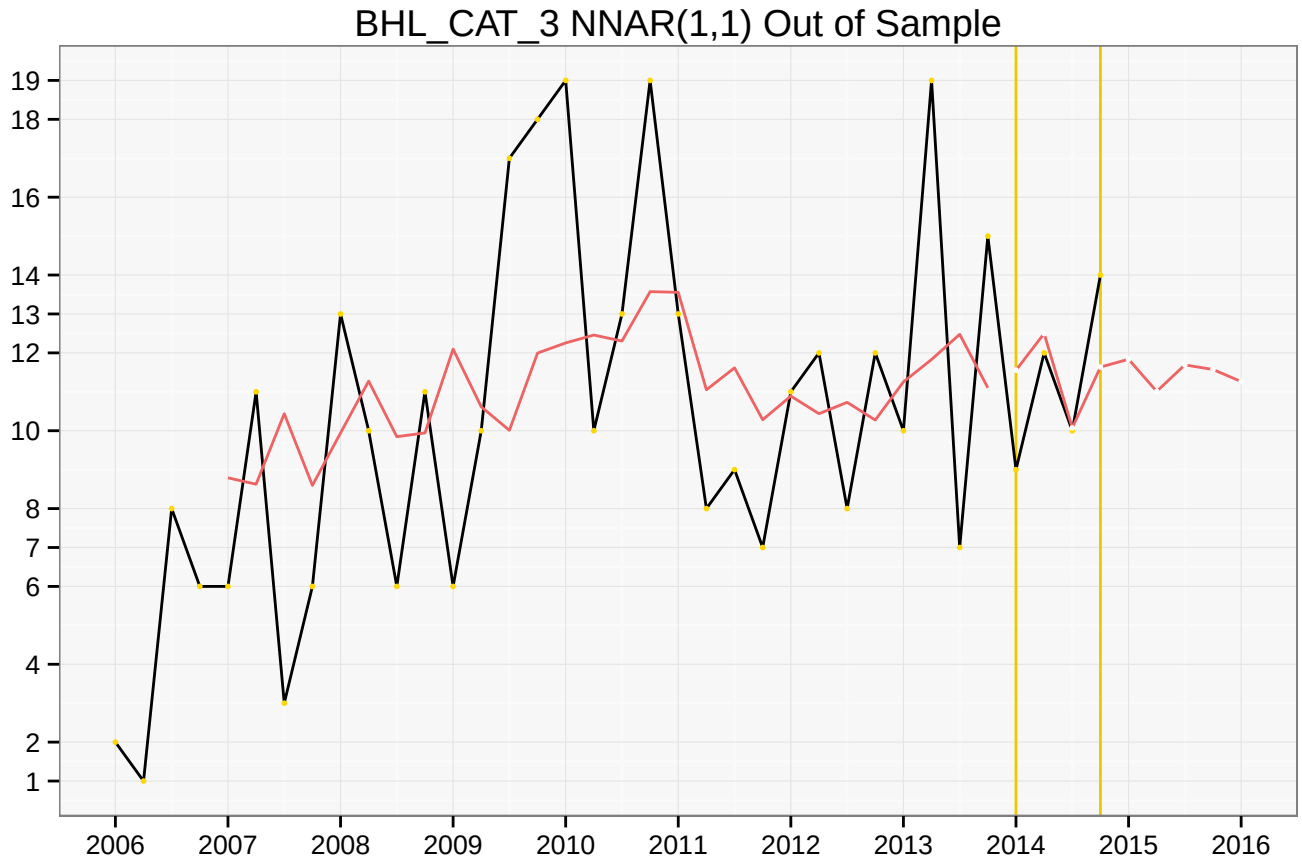


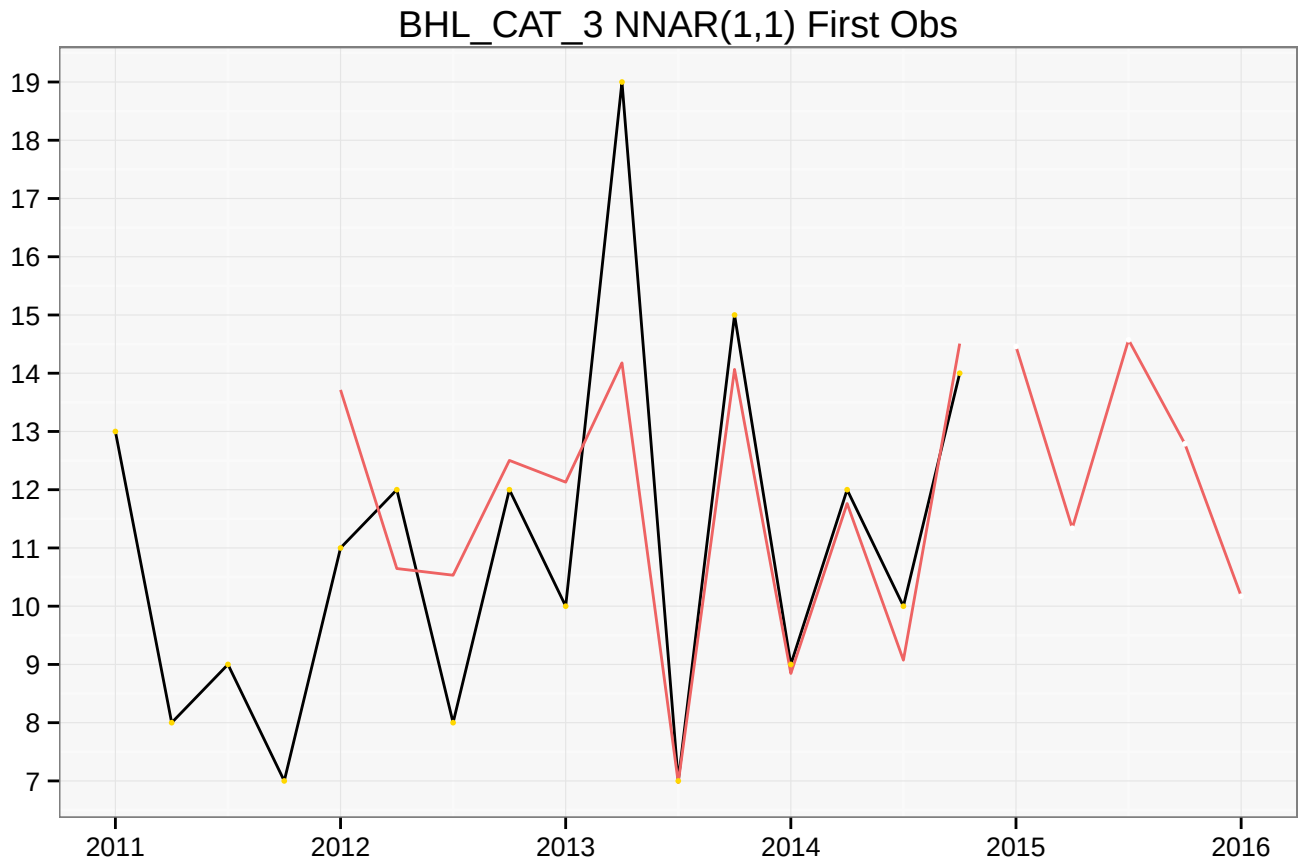


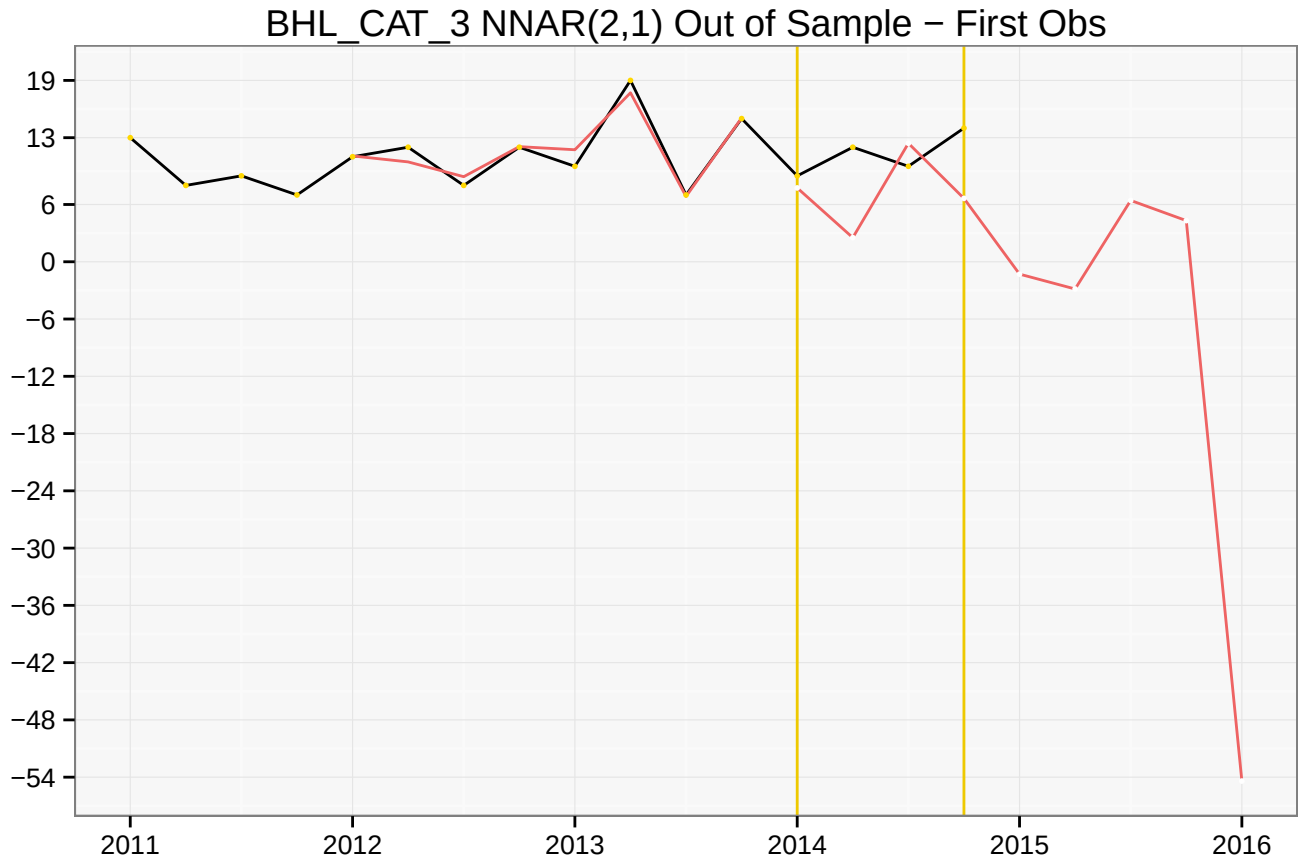

BHL_CAT_3 ETS(M,N,N) First Obs
19
18
17
15
14
13
12
11
10
8
7
6
5
2011
2012
2013
2014
2015
2016

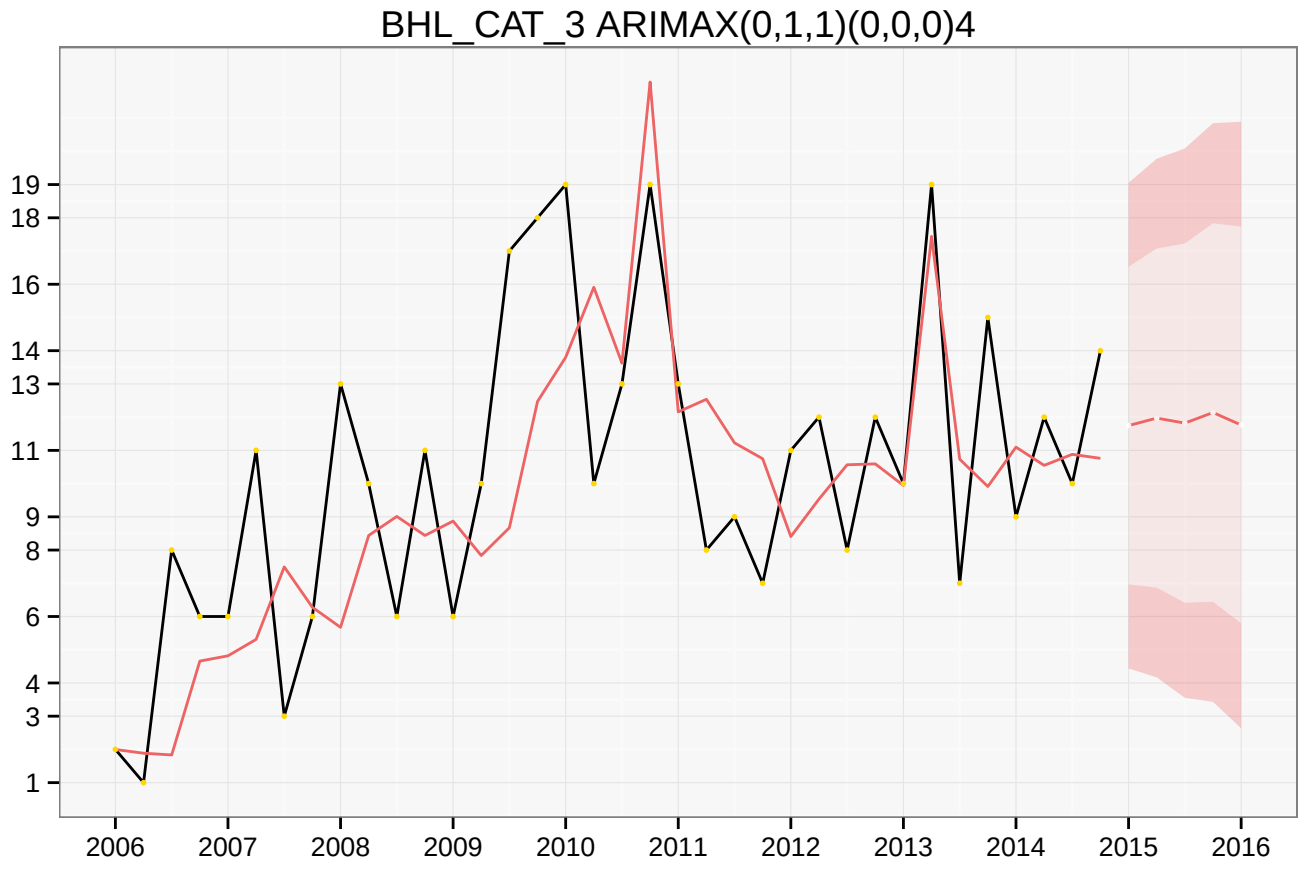

BHL_CAT_3 ETS(A,N,N) Out of Sample − First Obs
18
17
15
14
13
12
10
9
8
7
5
4
2011
2012
2013
2014
2015
2016

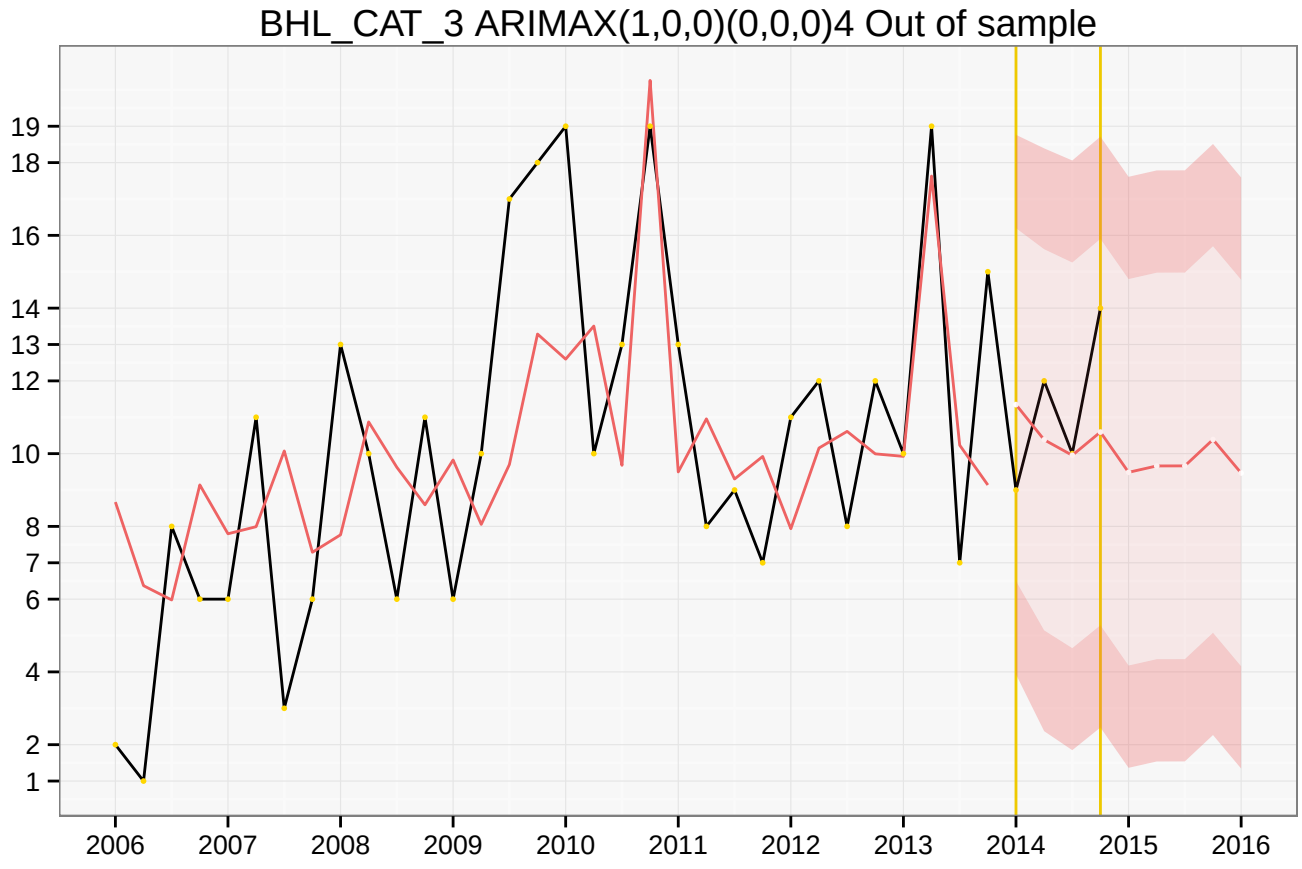

BHL_CAT_3 NNAR(1,1)
19
18
16
14
13
12
10
8
7
6
4
2
1
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

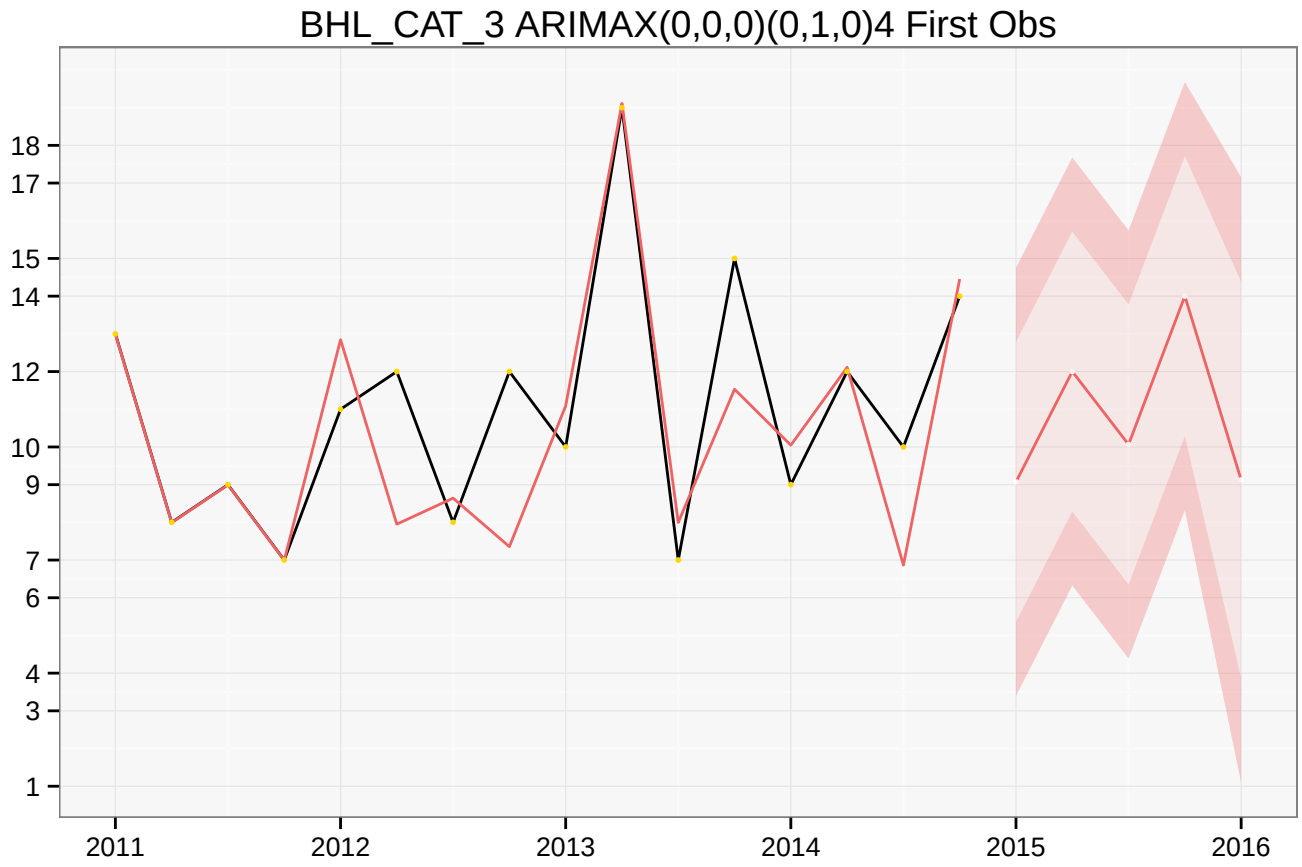

BHL_CAT_3 NNAR(1,1) Out of Sample
19
18
16
14
13
12
10
8
7
6
4
2
1
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

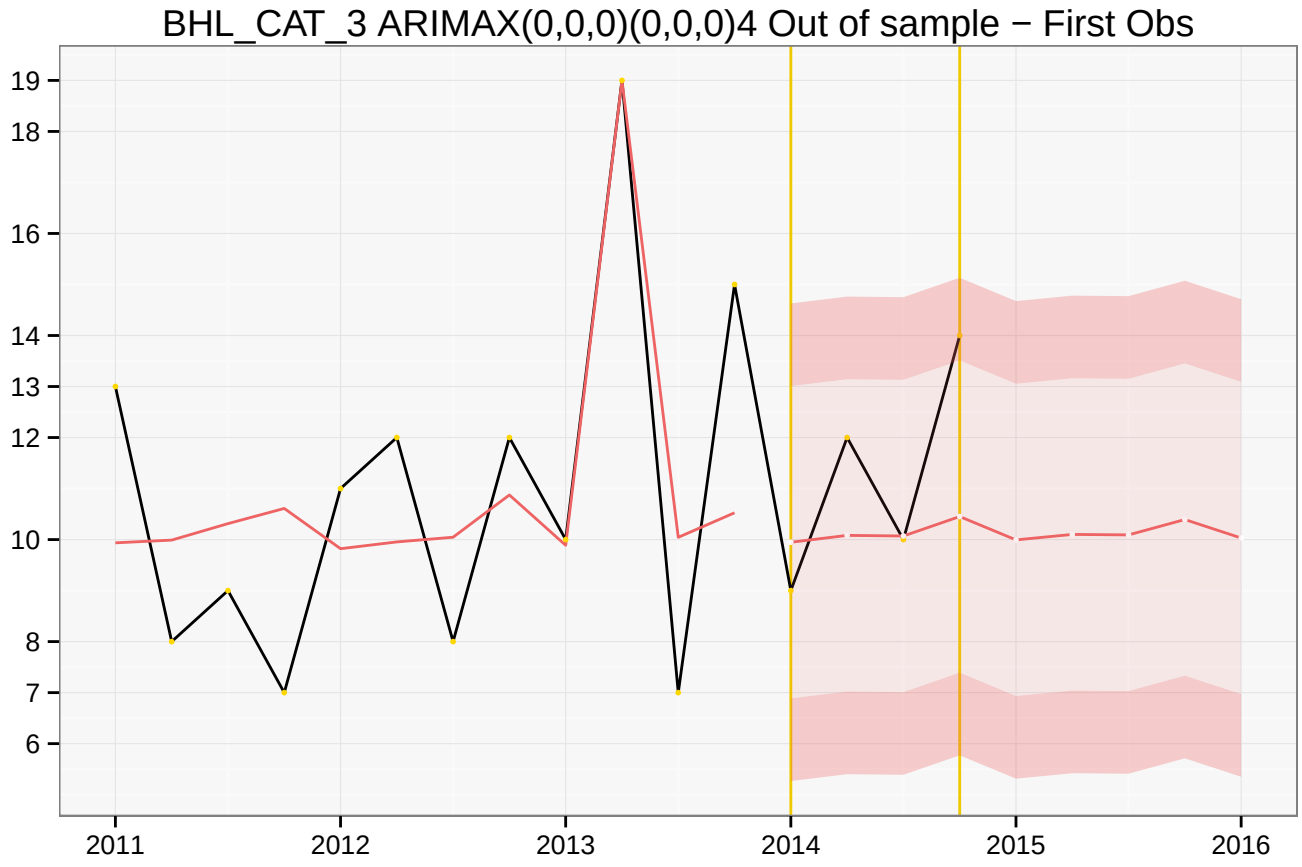

BHL_CAT_3 NNAR(1,1) First Obs
19
18
17
16
15
14
13
12
11
10
9
8
7
2011
2012
2013
2014
2015
2016


BHL_CAT_3 NNAR(2,1) Out of Sample − First Obs
19
13
6
0
−6
−12
−18
−24
−30
−36
−42
−48
−54
2011
2012
2013
2014
2015
2016


BHL_CAT_3 ARIMAX(0,1,1)(0,0,0)4
19
18
16
14
13
11
9
8
6
4
3
1
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

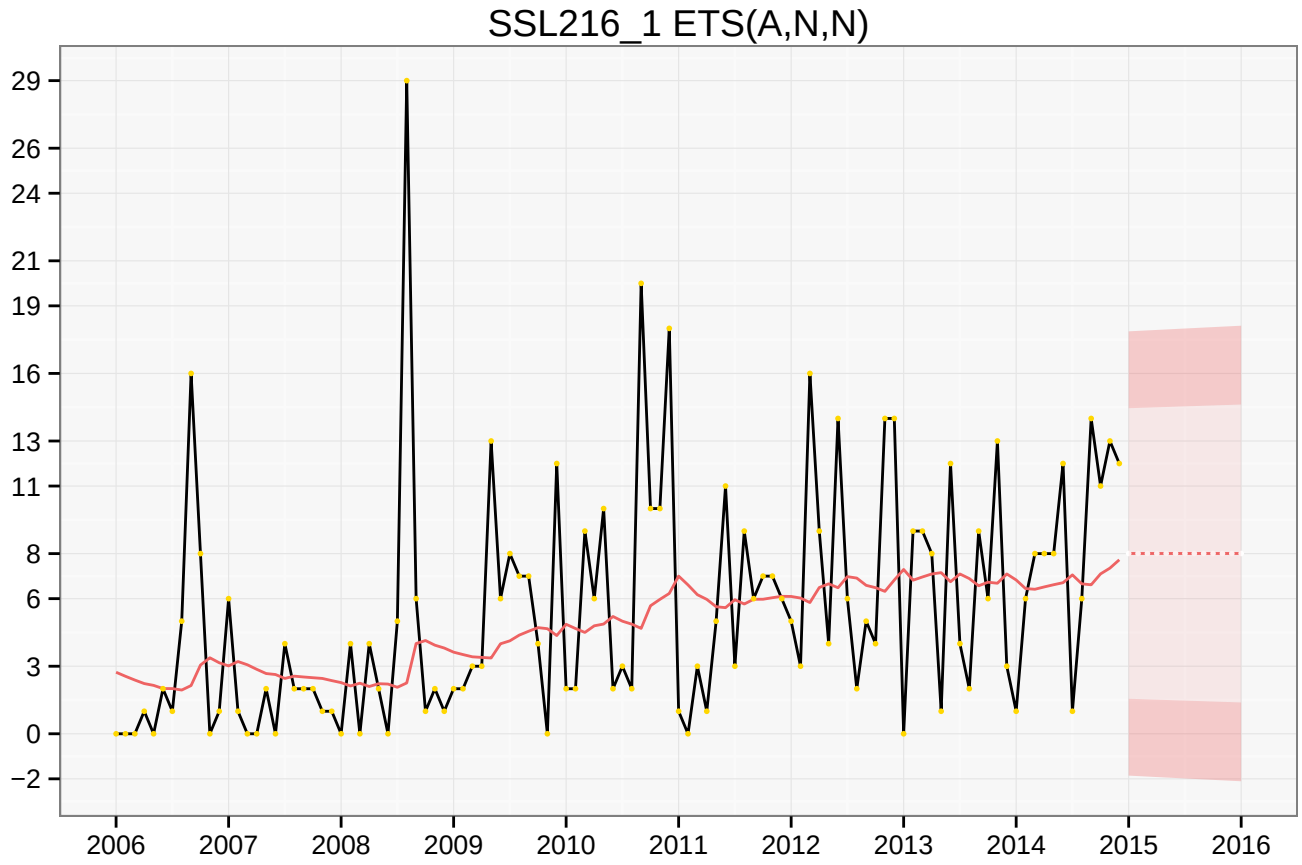

BHL_CAT_3 ARIMAX(1,0,0)(0,0,0)4 Out of sample
19
18
16
14
13
12
10
8
7
6
4
2
1
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

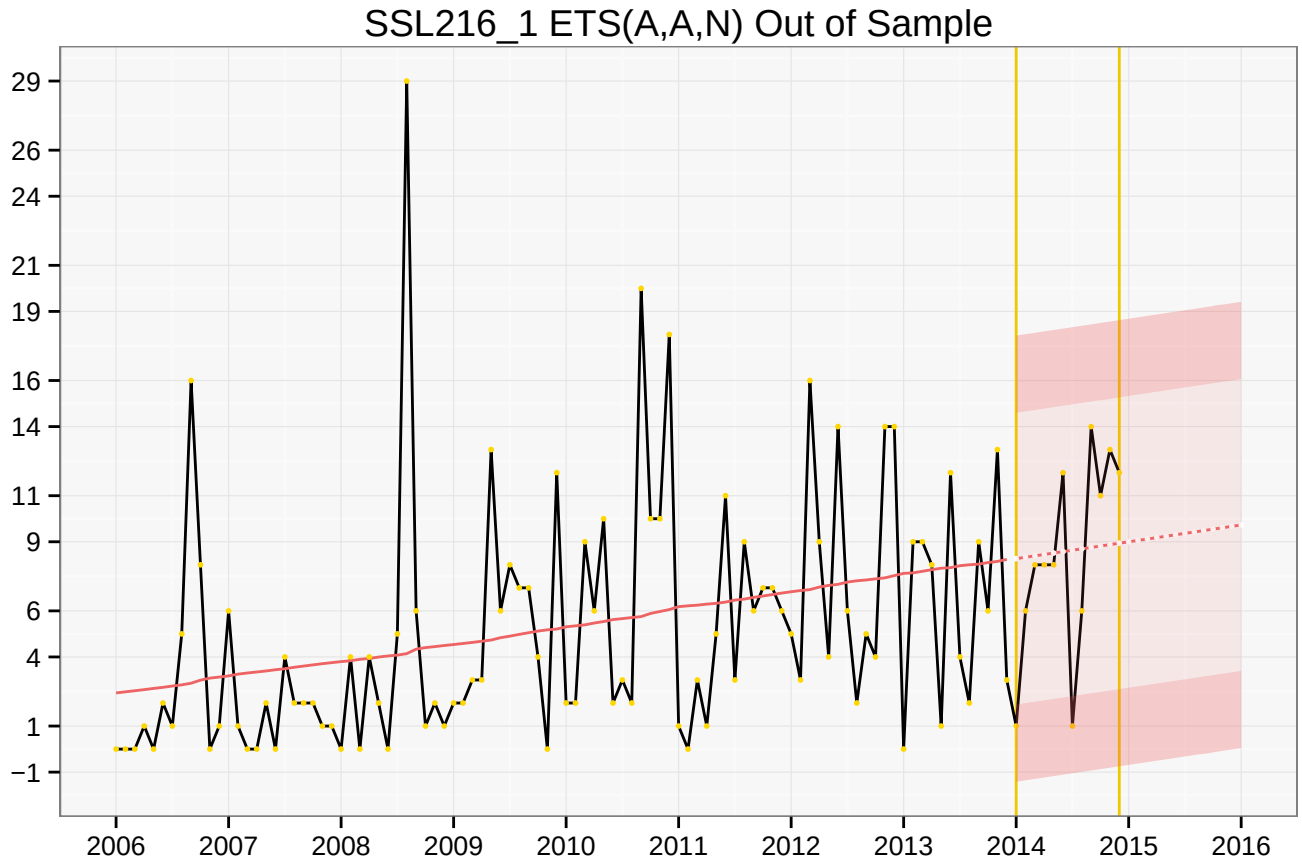

BHL_CAT_3 ARIMAX(0,0,0)(0,1,0)4 First Obs
18
17
15
14
12
10
9
7
6
4
3
1
2011
2012
2013
2014
2015
2016

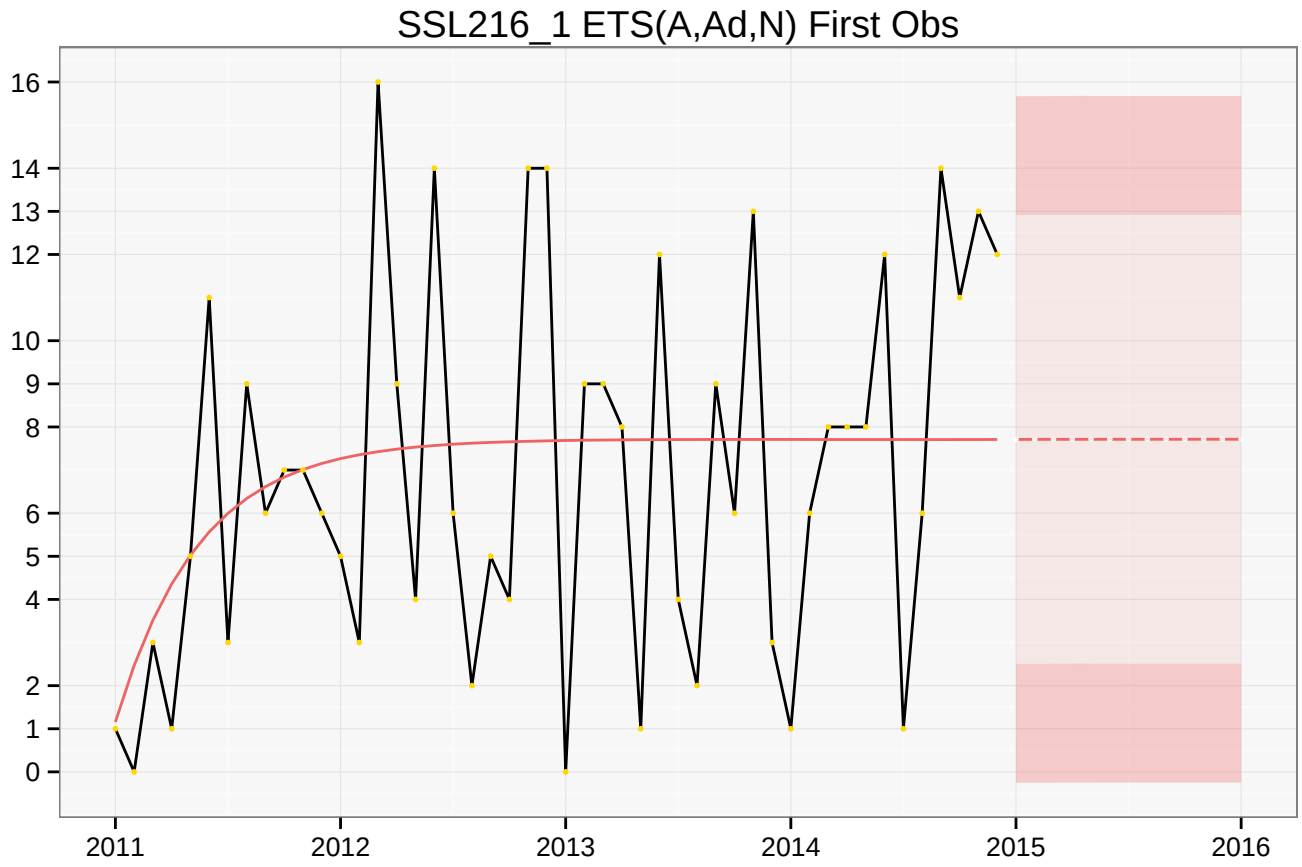

BHL_CAT_3 ARIMAX(0,0,0)(0,0,0)4 Out of sample − First Obs
19
18
16
14
13
12
10
8
7
6
2011
2012
2013
2014
2015
2016

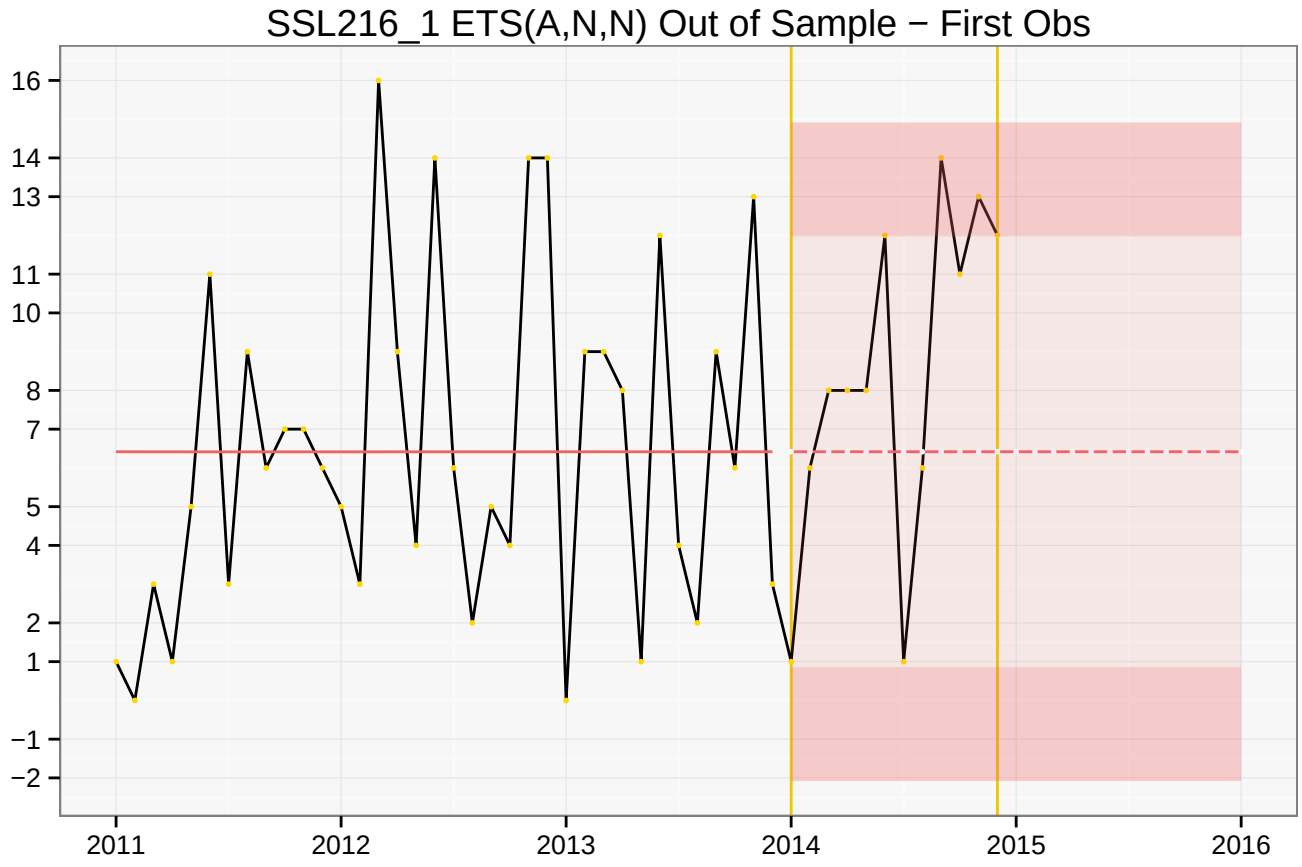
1.7 SSL216_1

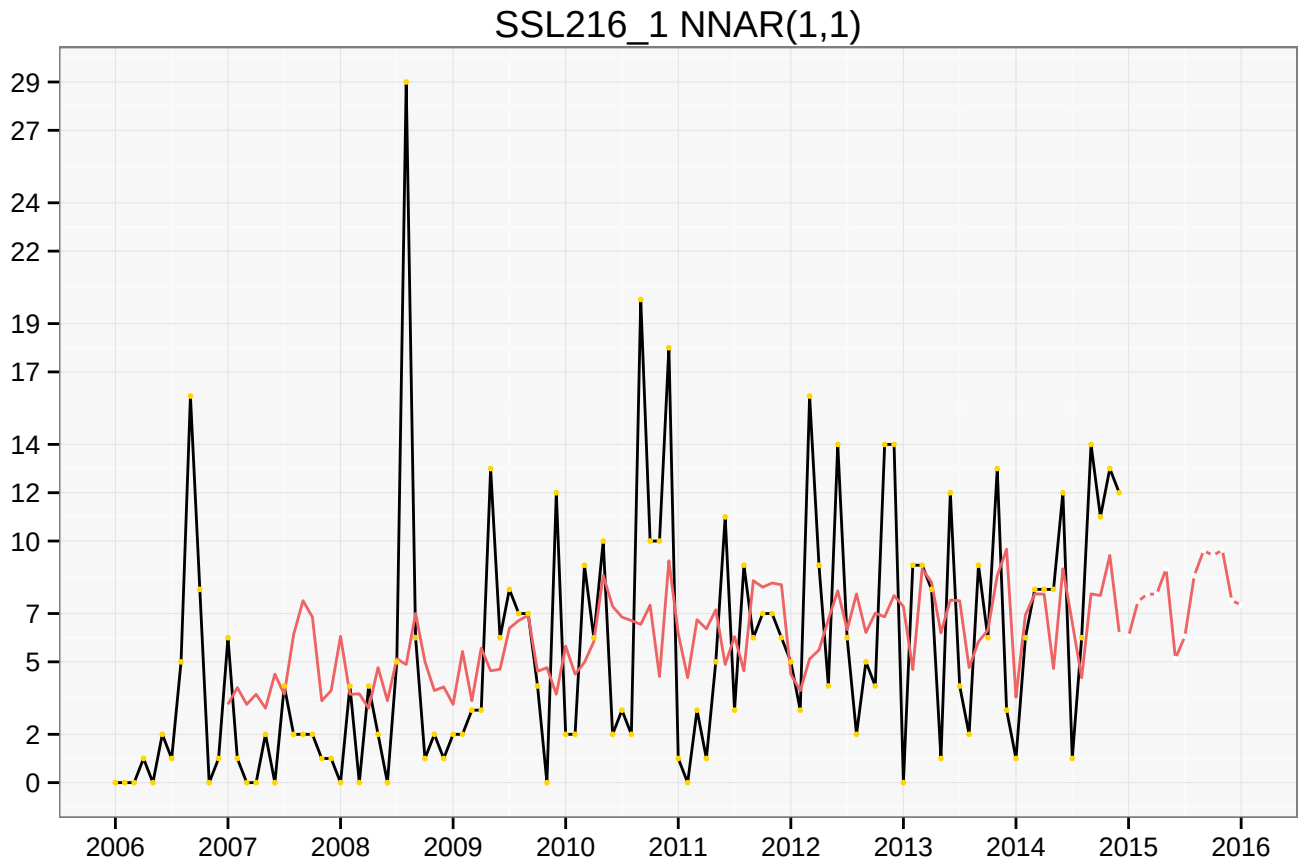
1.7.1 plots for SSL216_1

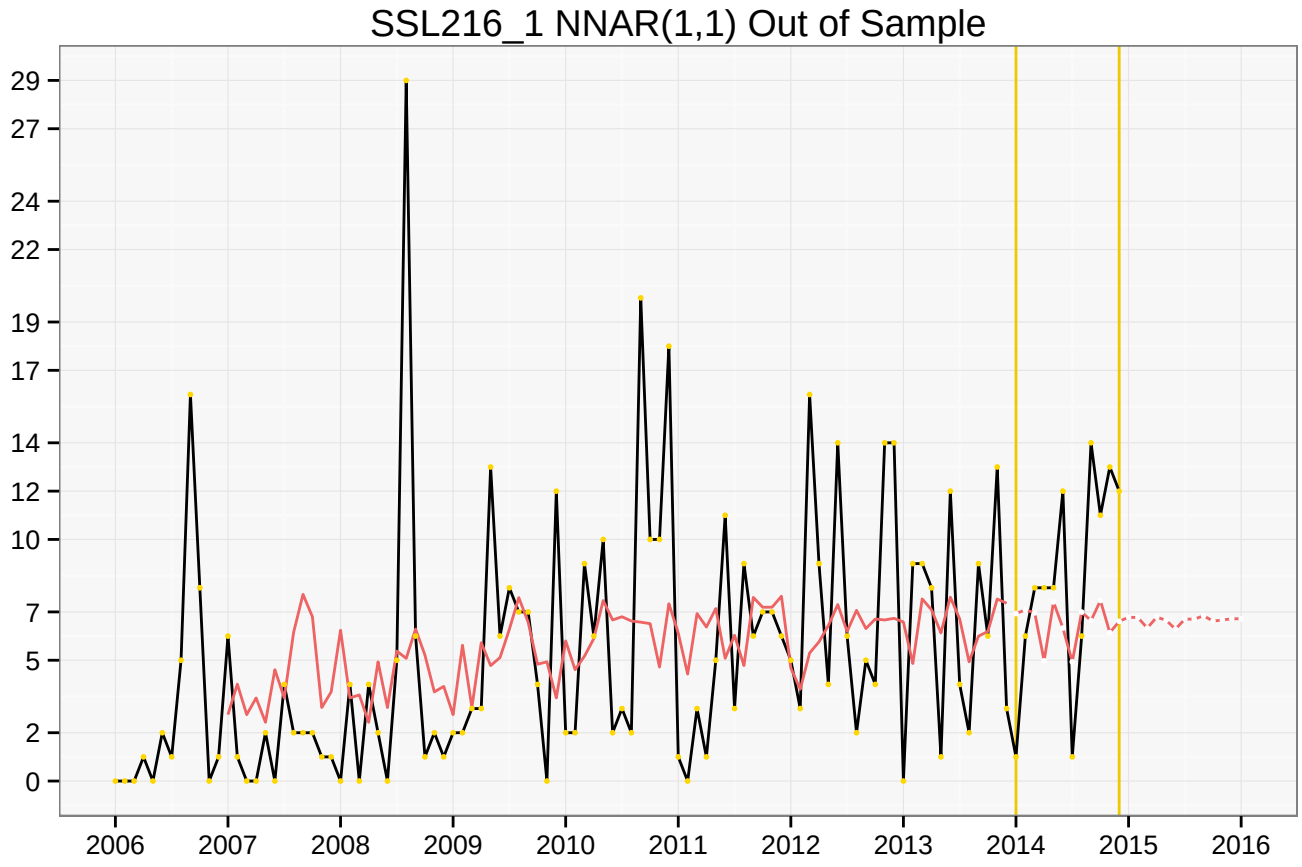


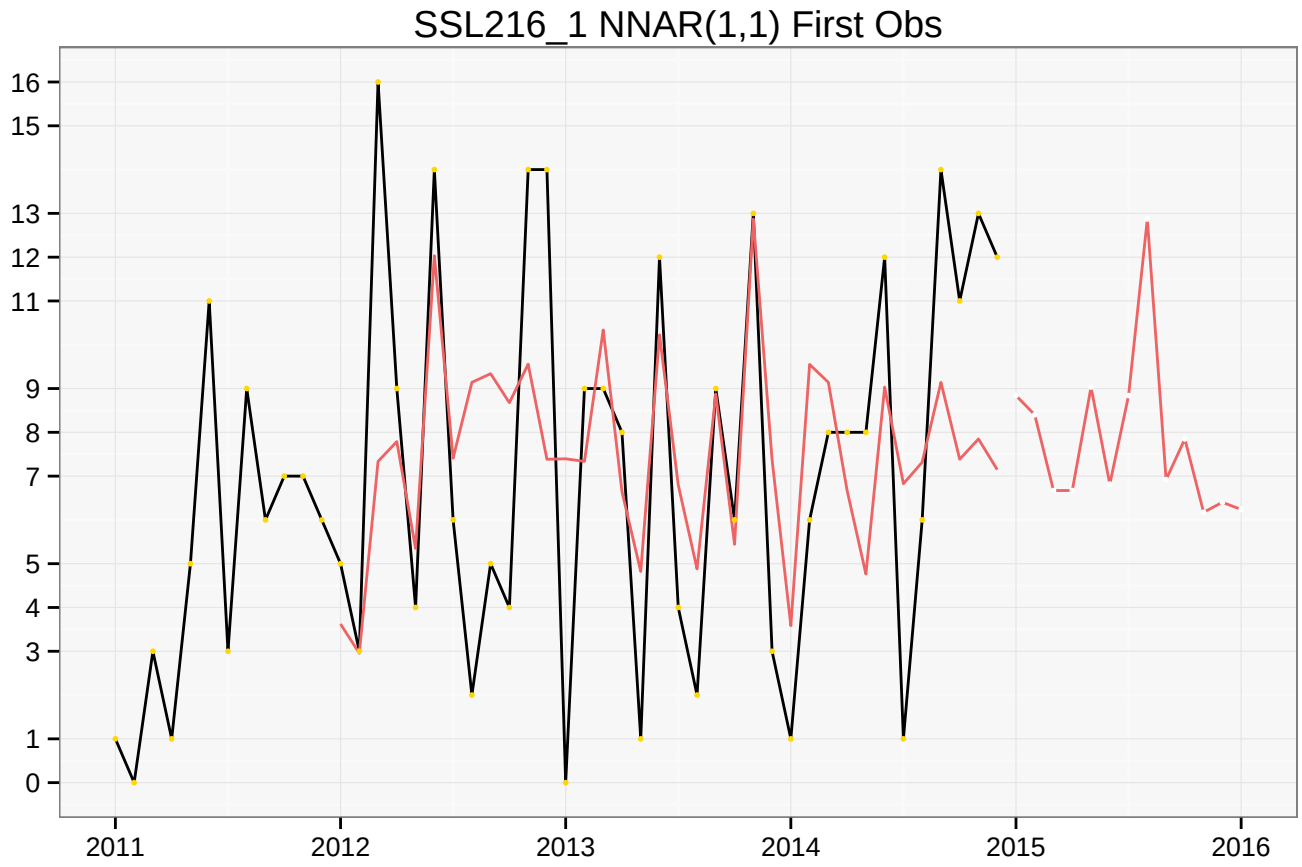


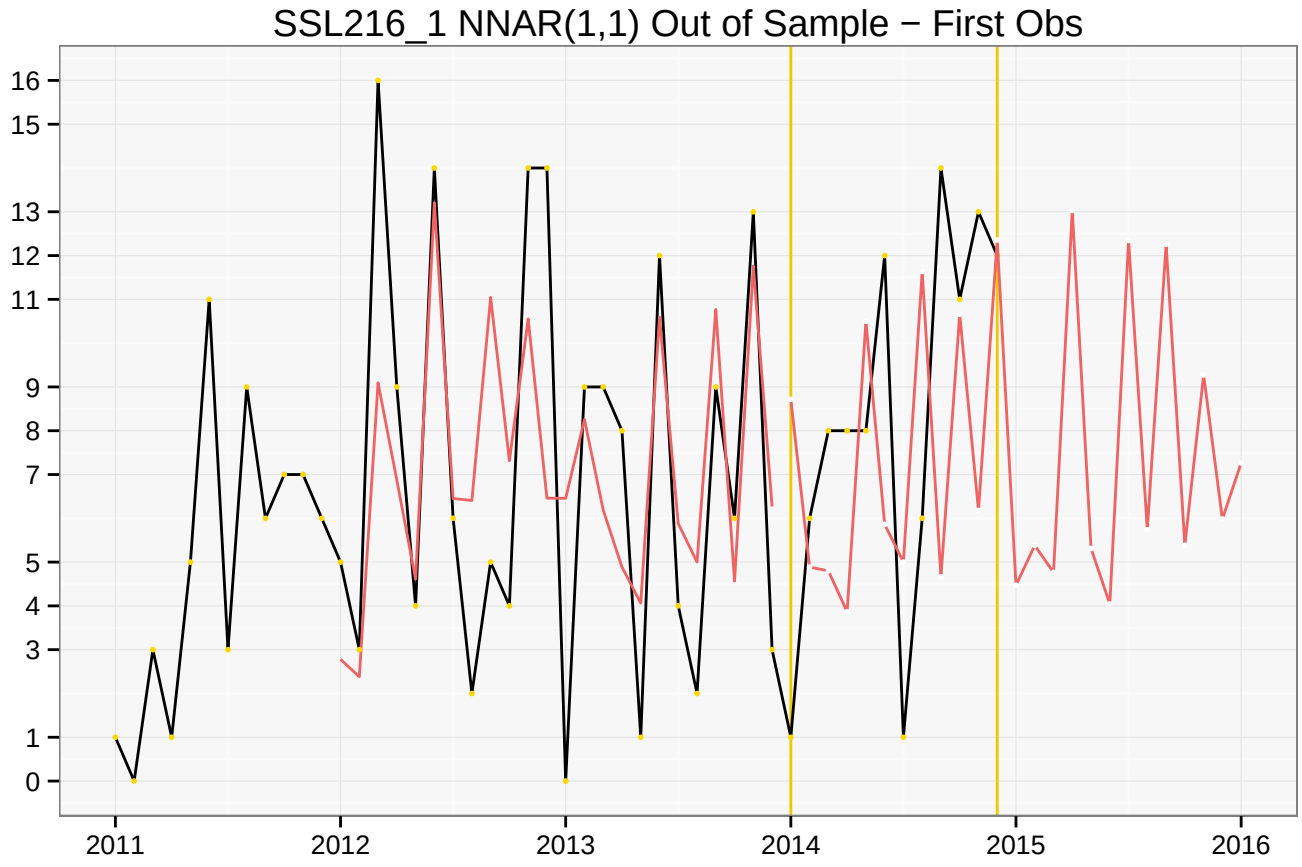

SSL216_1 ETS(A,Ad,N) First Obs
16
14
13
12
10
9
8
6
5
4
2
1
0
2011
2012
2013
2014
2015
2016

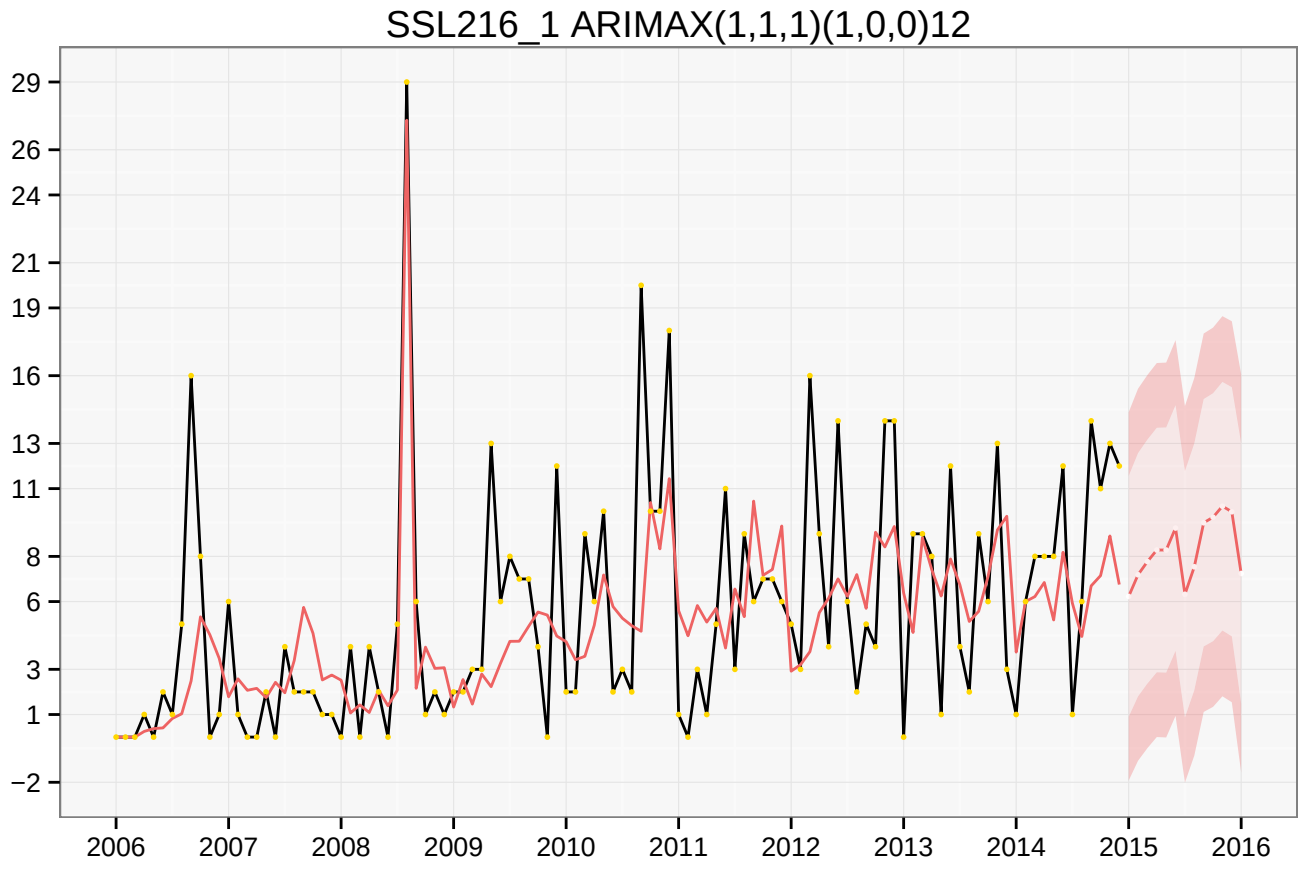

SSL216_1 ETS(A,N,N) Out of Sample − First Obs
16
14
13
11
10
8
7
5
4
2
1
−1
−2
2011
2012
2013
2014
2015
2016

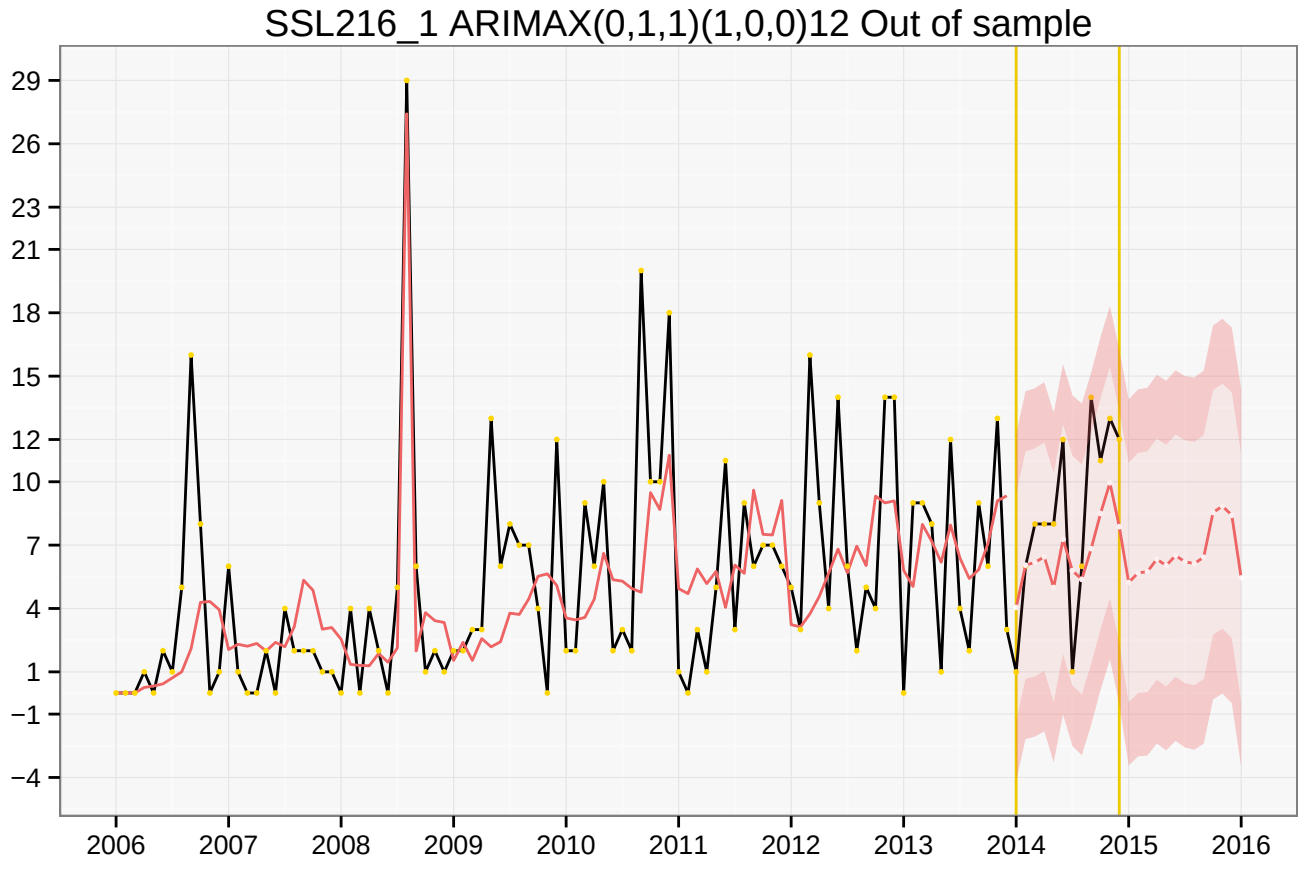

SSL216_1 NNAR(1,1)
29
27
24
22
19
17
14
12
10
7
5
2
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

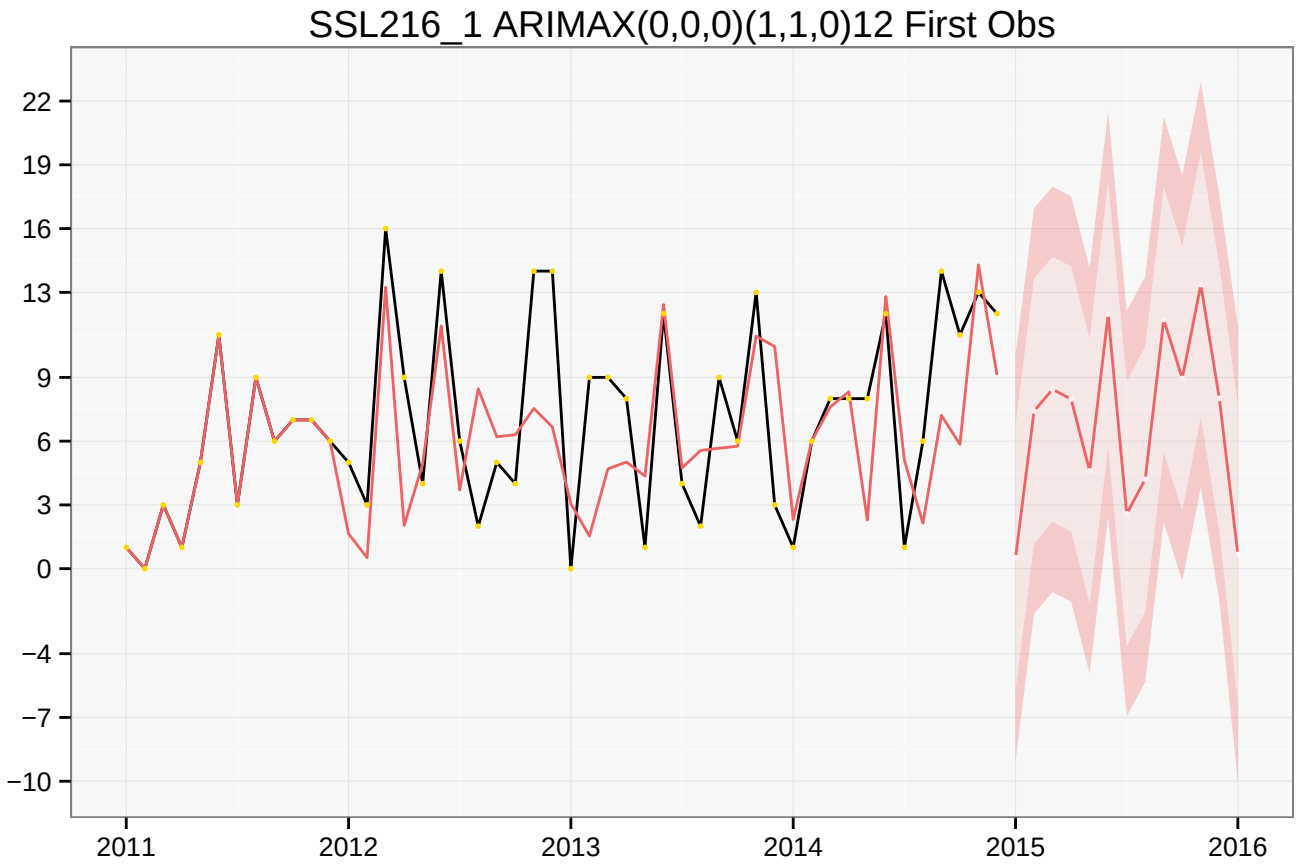

SSL216_1 NNAR(1,1) Out of Sample
29
27
24
22
19
17
14
12
10
7
5
2
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

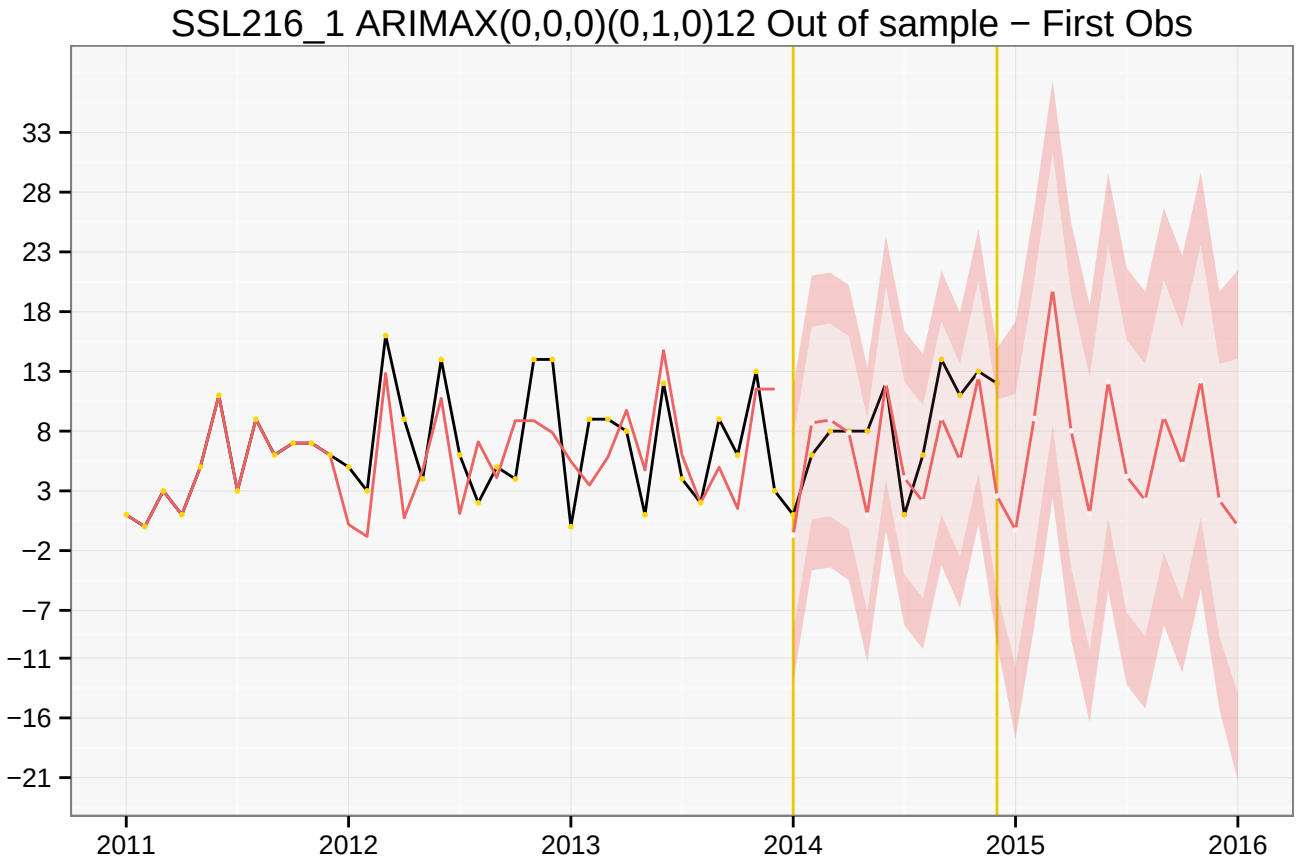

SSL216_1 NNAR(1,1) First Obs
16
15
13
12
11
9
8
7
5
4
3
1
0
2011
2012
2013
2014
2015
2016


SSL216_1 NNAR(1,1) Out of Sample − First Obs
16
15
13
12
11
9
8
7
5
4
3
1
0
2011
2012
2013
2014
2015
2016


SSL216_1 ARIMAX(1,1,1)(1,0,0)12
29
26
24
21
19
16
13
11
8
6
3
1
−2
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

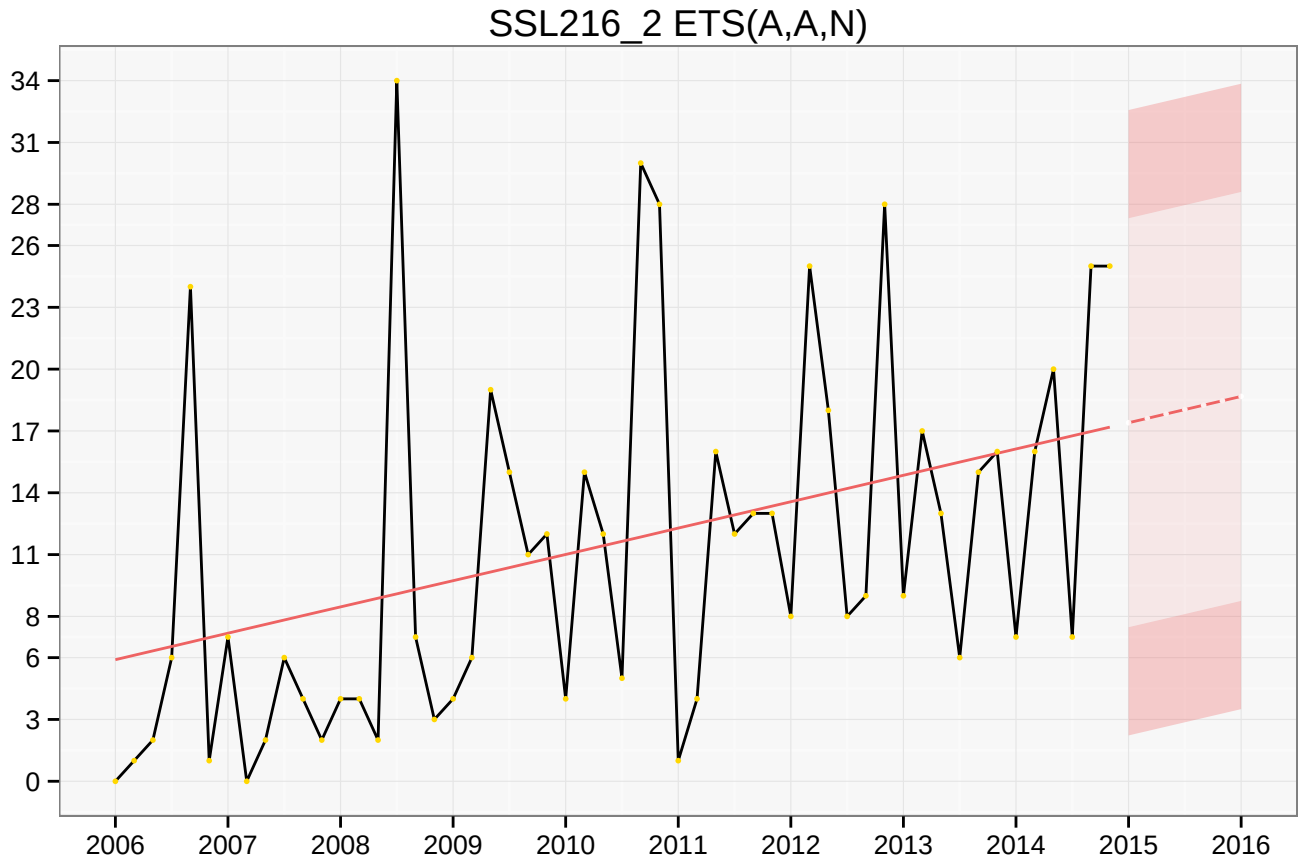

SSL216_1 ARIMAX(0,1,1)(1,0,0)12 Out of sample
29
26
23
21
18
15
12
10
7
4
1
−1
−4
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

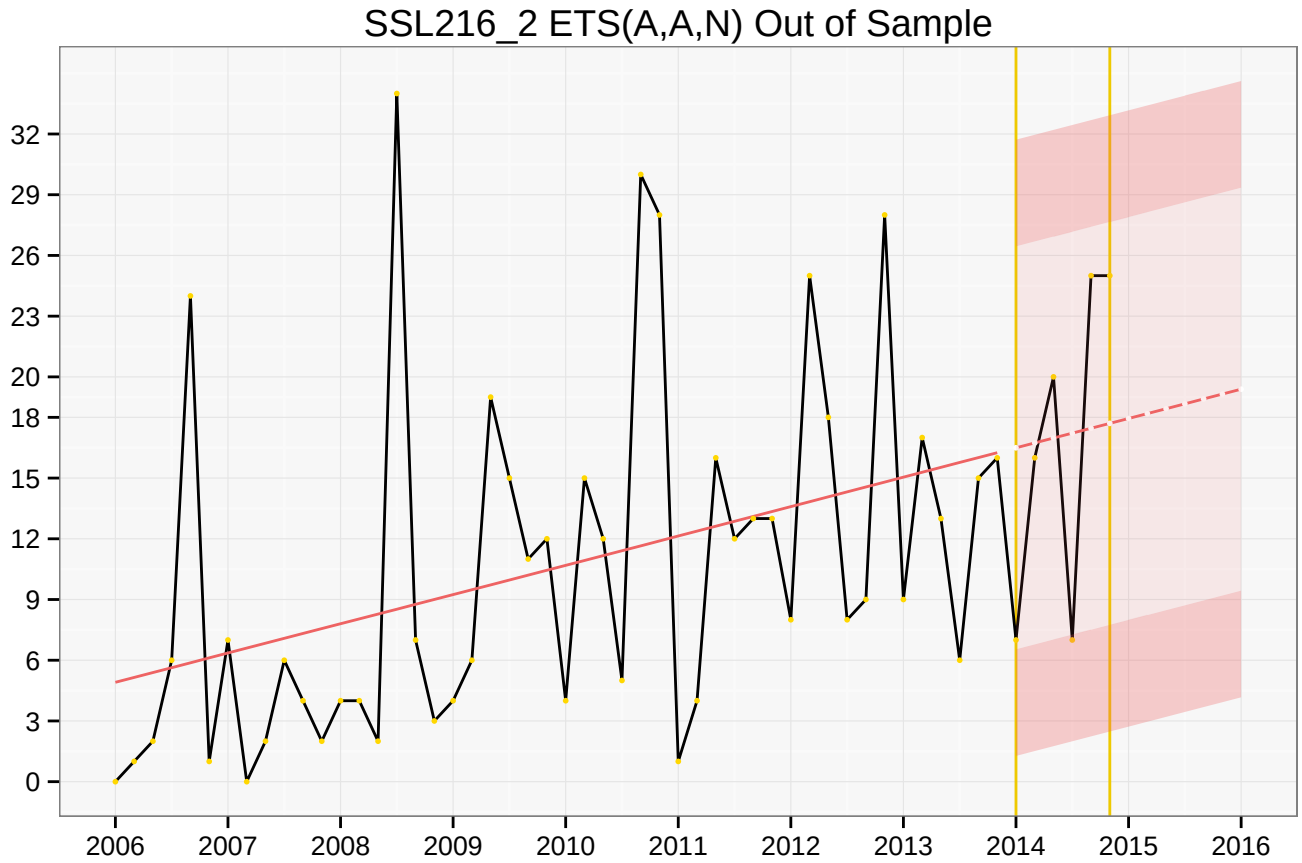

SSL216_1 ARIMAX(0,0,0)(1,1,0)12 First Obs
22
19
16
13
9
6
3
0
−4
−7
−10
2011
2012
2013
2014
2015
2016

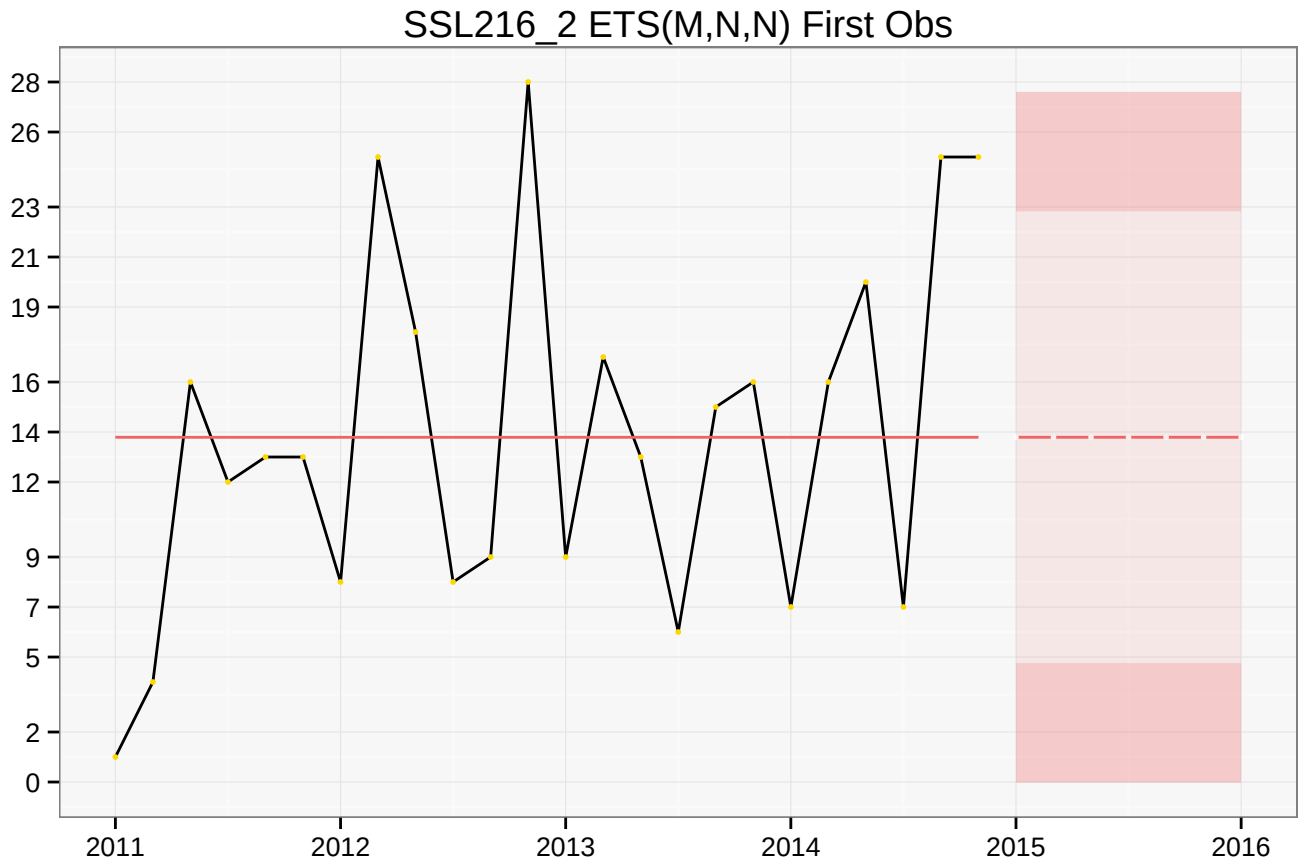

SSL216_1 ARIMAX(0,0,0)(0,1,0)12 Out of sample − First Obs
33
28
23
18
13
8
3
−2
−7
−11
−16
−21
2011
2012
2013
2014
2015
2016

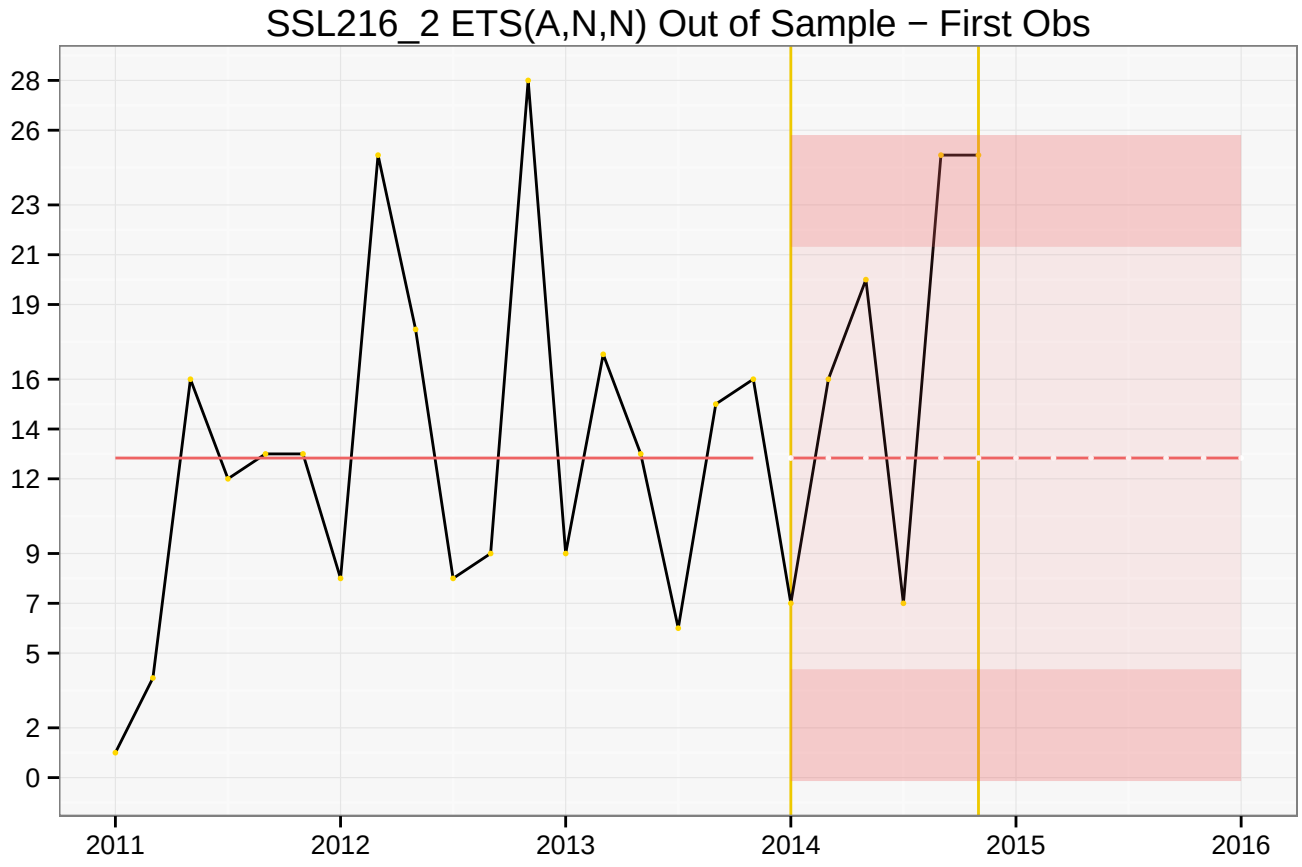
1.8 SSL216_2

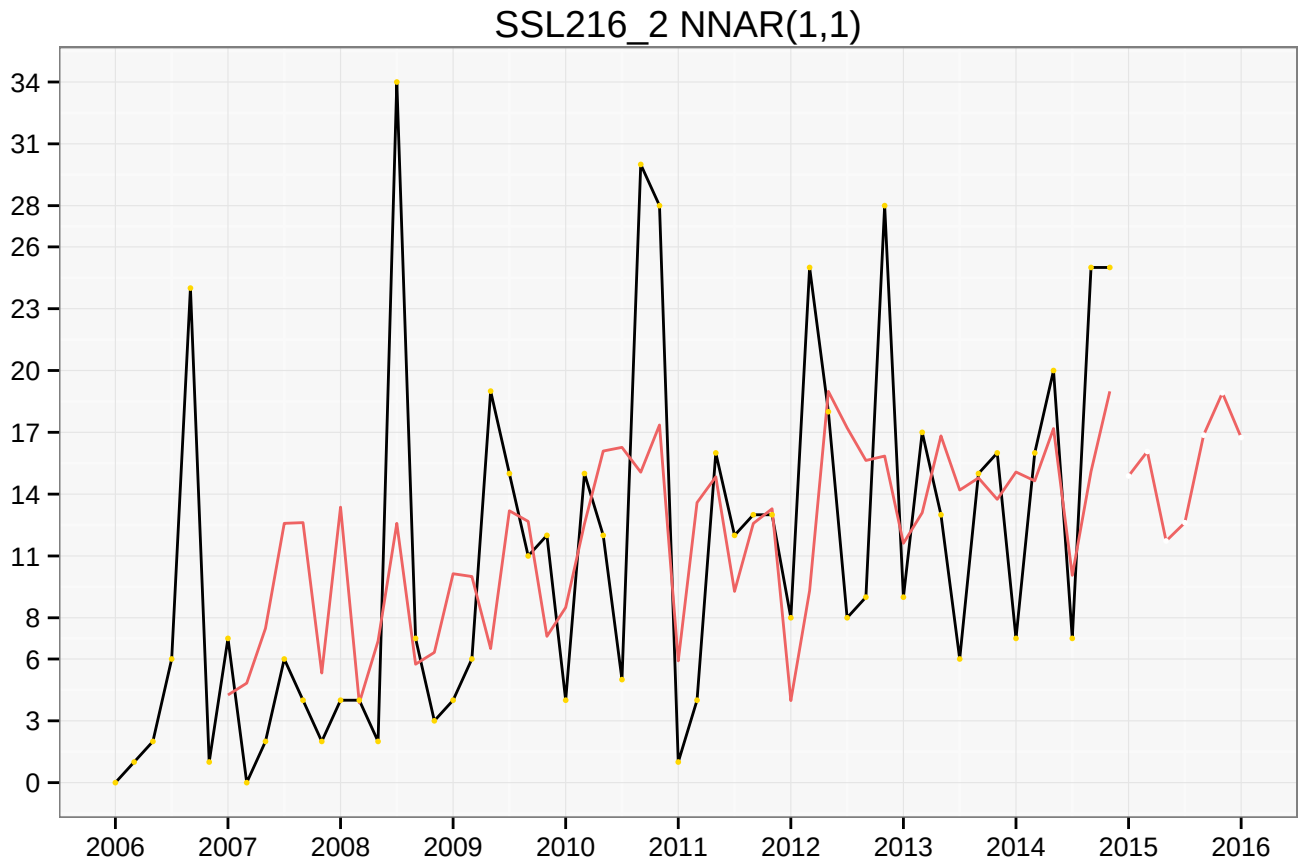
1.8.1 plots for SSL216_2

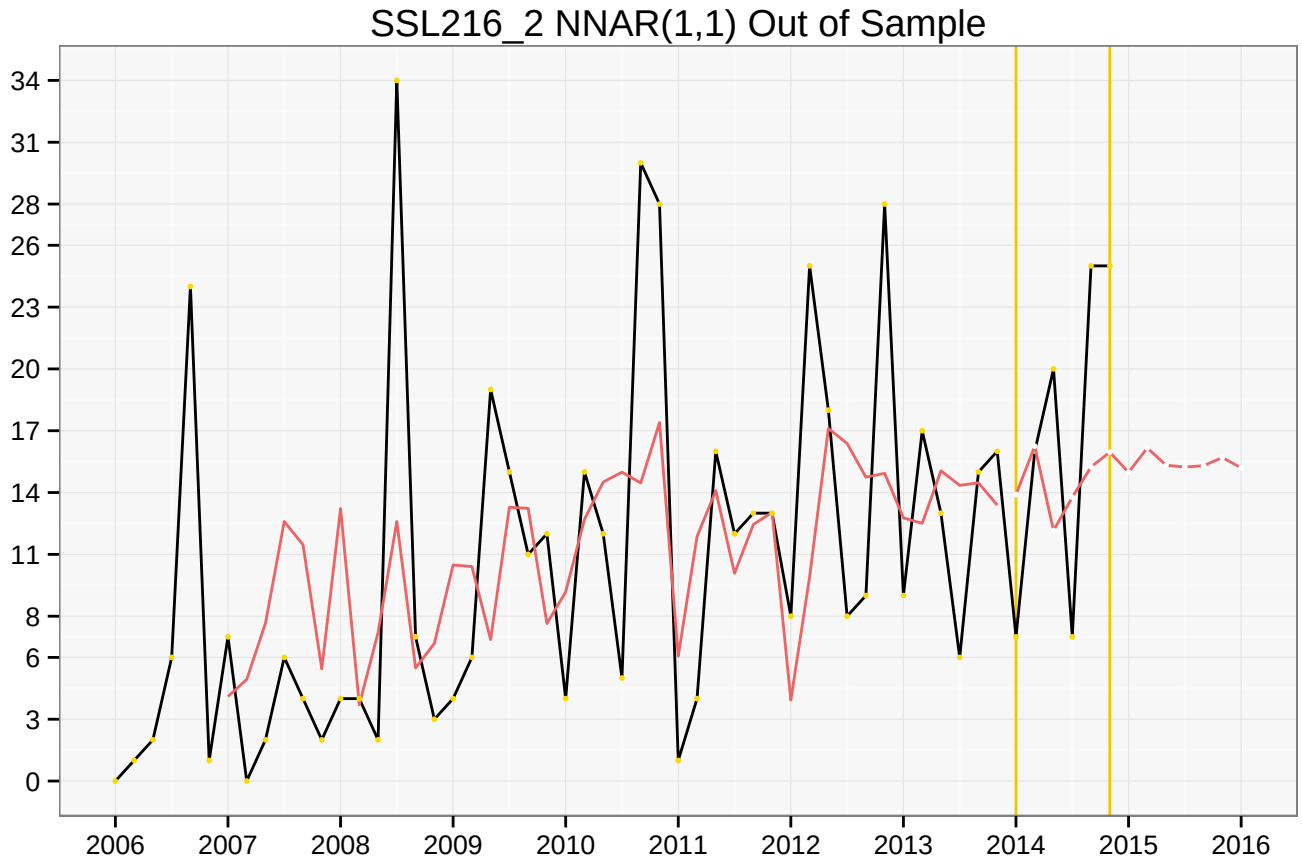


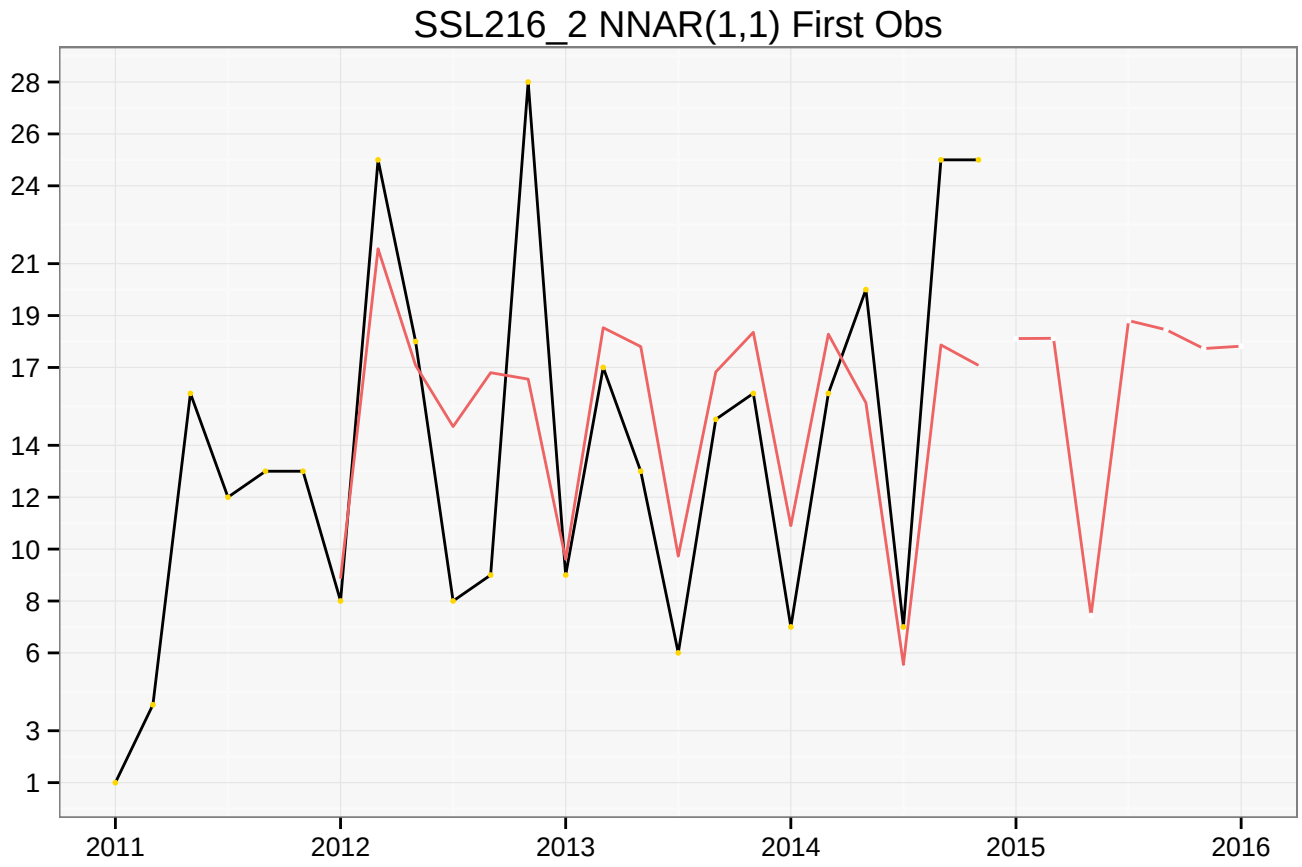


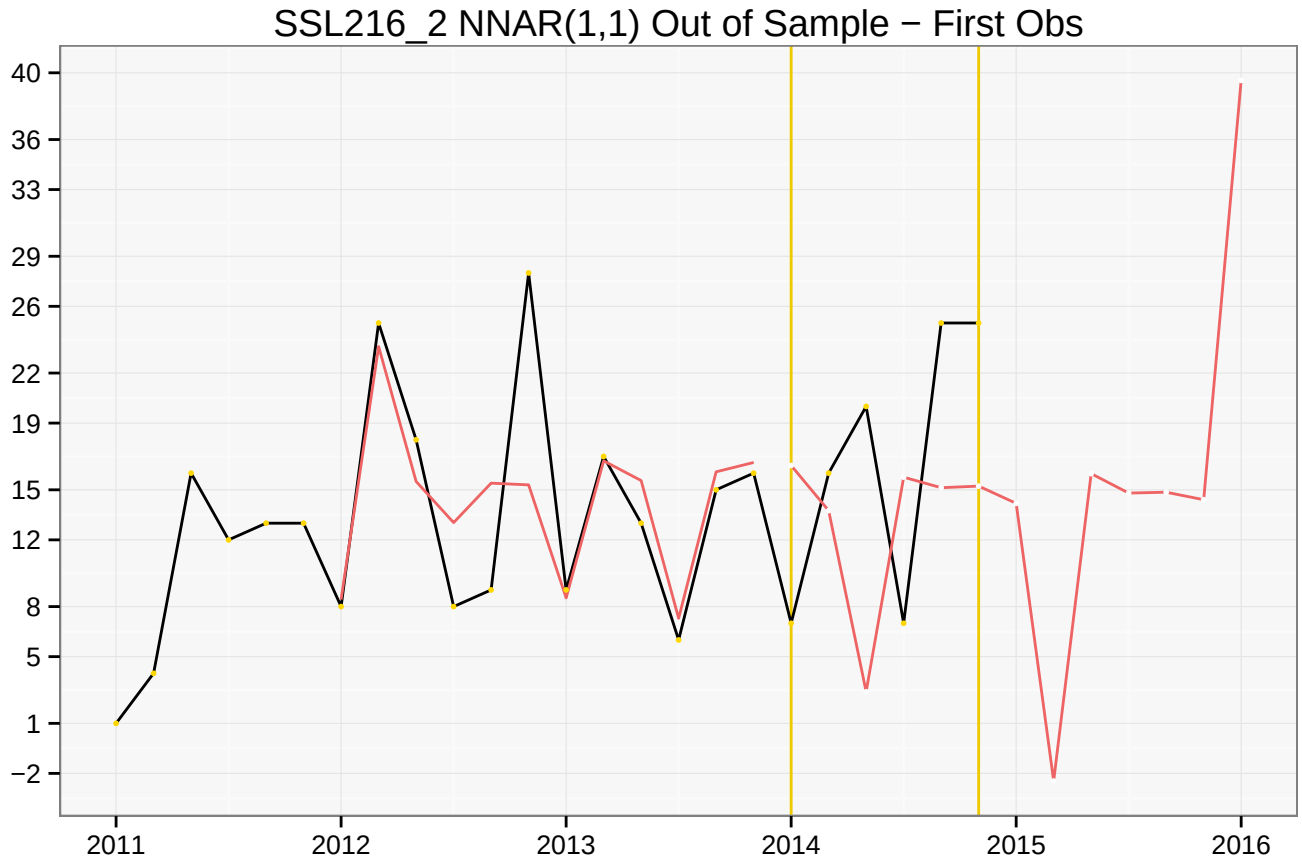

SSL216_2 ETS(M,N,N) First Obs
28
26
23
21
19
16
14
12
9
7
5
2
0
2011
2012
2013
2014
2015
2016

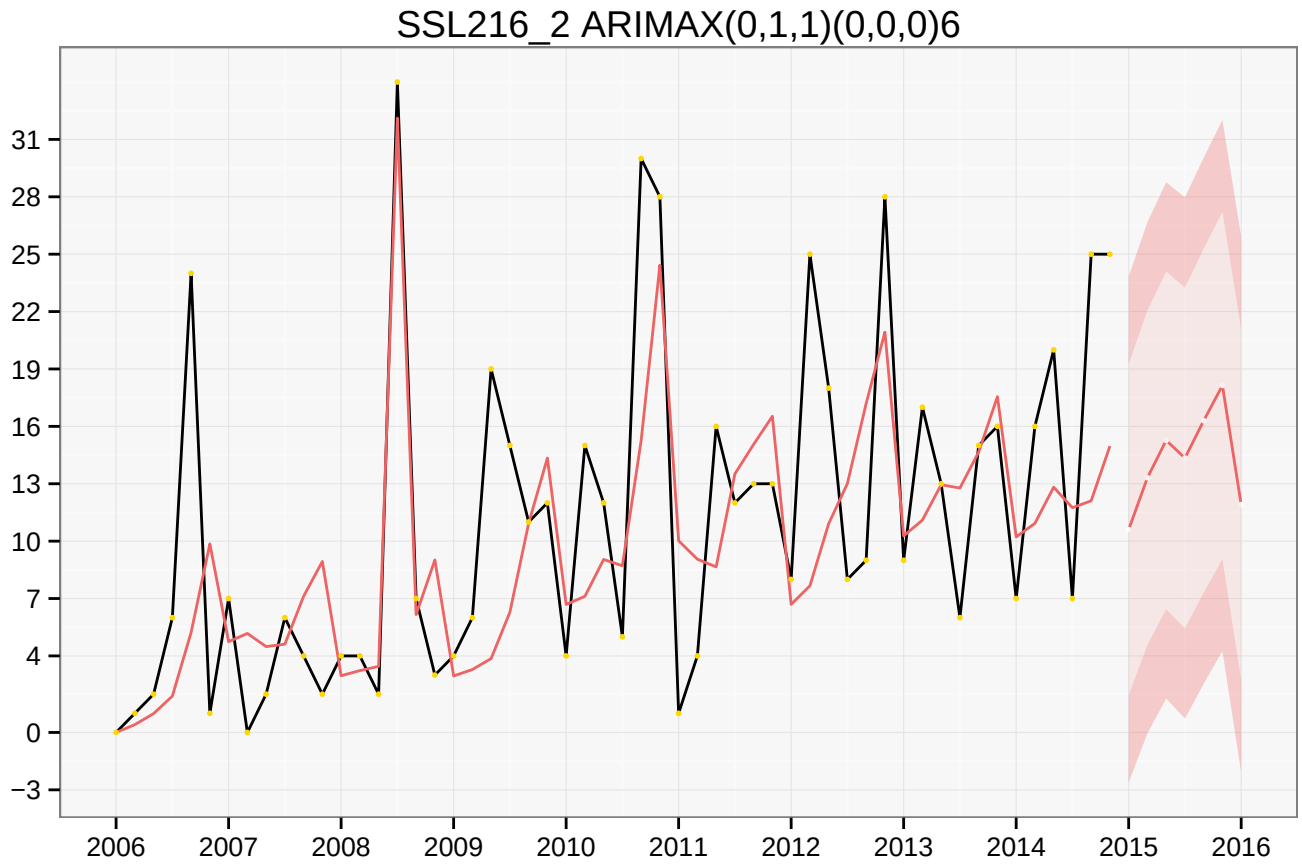

SSL216_2 ETS(A,N,N) Out of Sample − First Obs
28
26
23
21
19
16
14
12
9
7
5
2
0
2011
2012
2013
2014
2015
2016

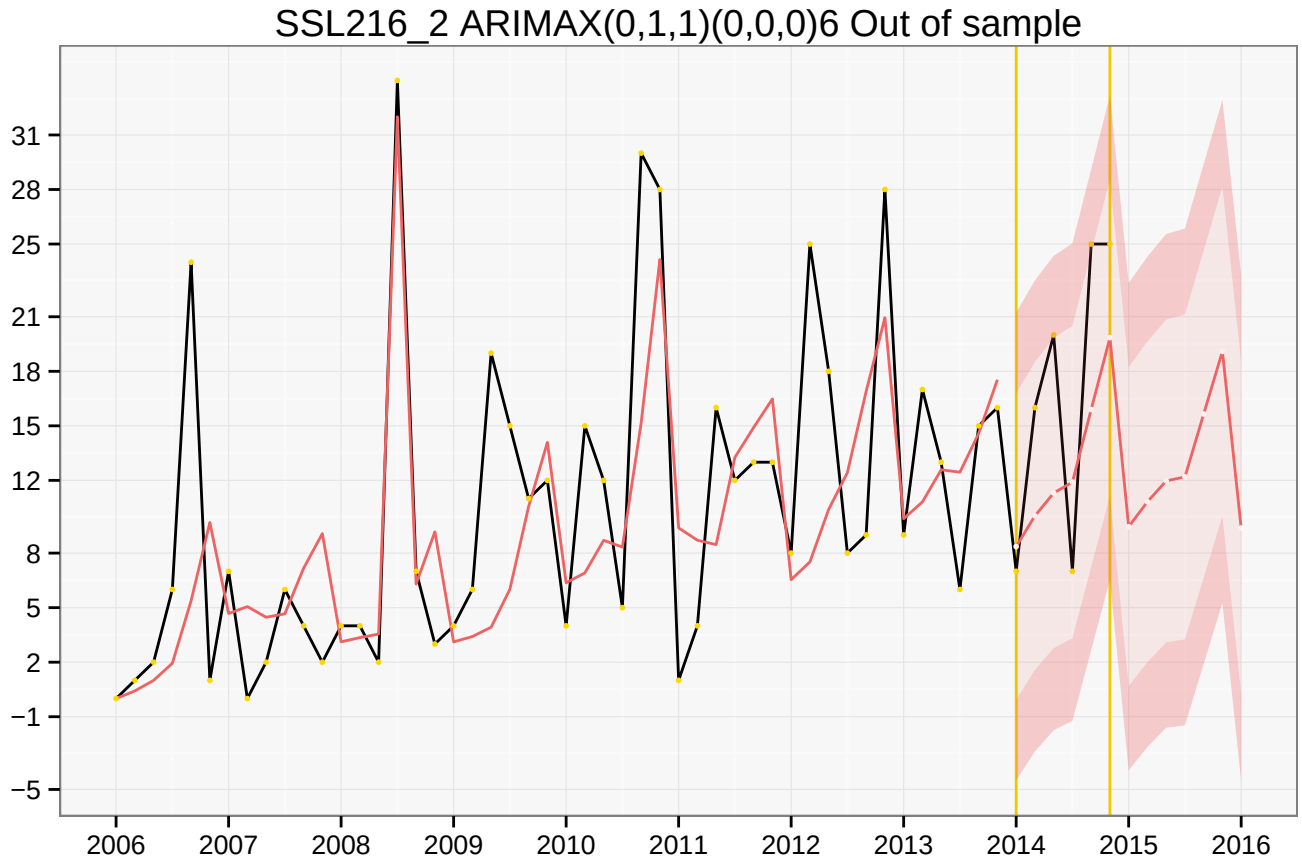

SSL216_2 NNAR(1,1)
34
31
28
26
23
20
17
14
11
8
6
3
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

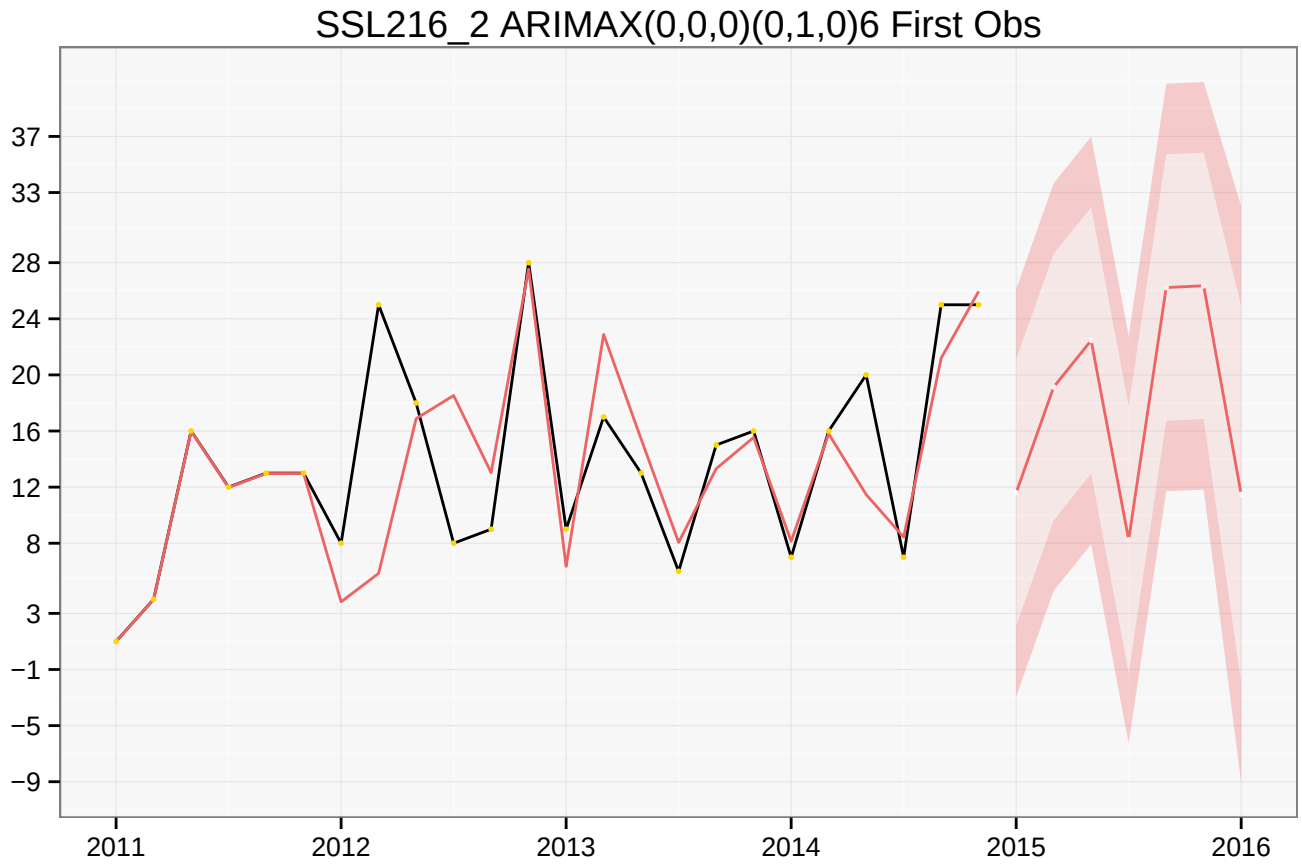

SSL216_2 NNAR(1,1) Out of Sample
34
31
28
26
23
20
17
14
11
8
6
3
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

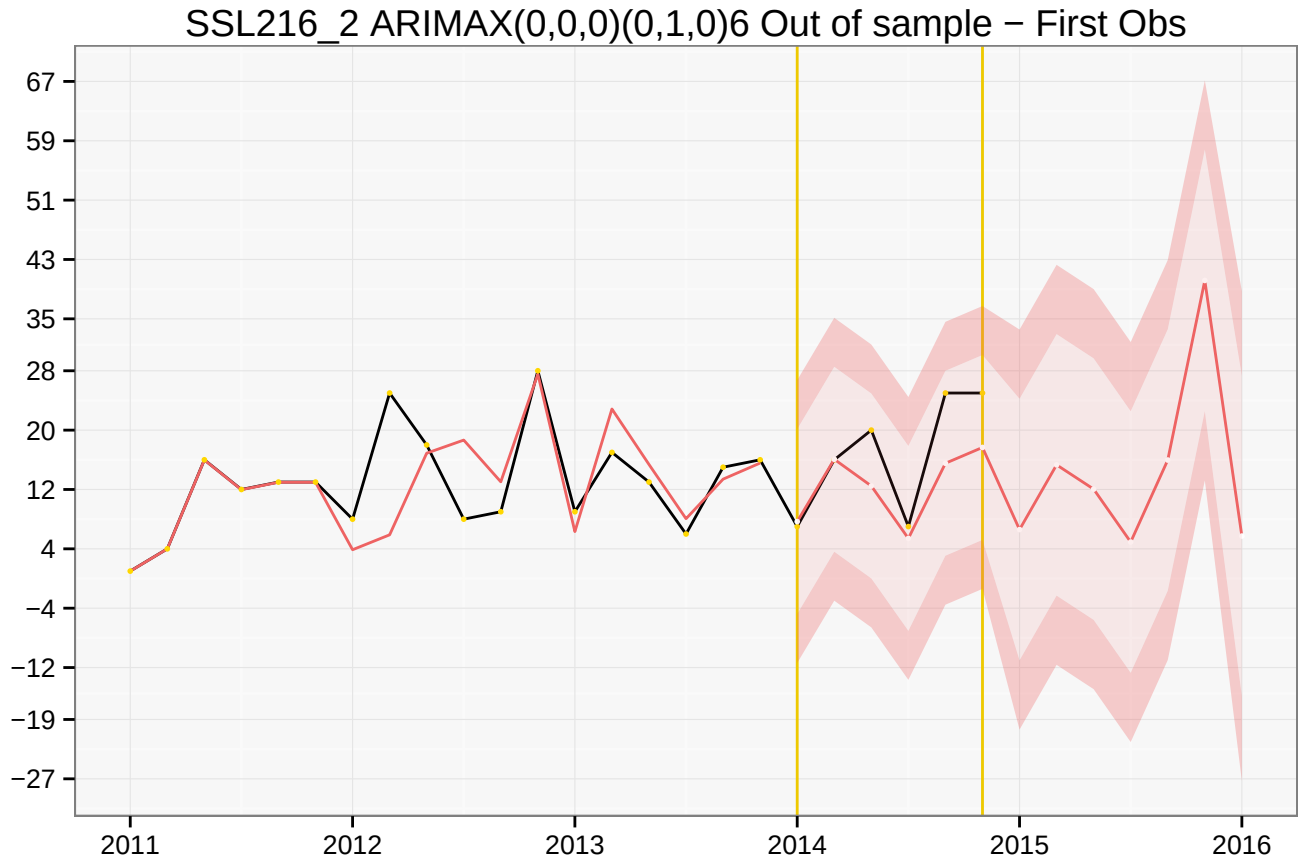

SSL216_2 NNAR(1,1) First Obs
28
26
24
21
19
17
14
12
10
8
6
3
1
2011
2012
2013
2014
2015
2016


SSL216_2 NNAR(1,1) Out of Sample − First Obs
40
36
33
29
26
22
19
15
12
8
5
1
−2
2011
2012
2013
2014
2015
2016


SSL216_2 ARIMAX(0,1,1)(0,0,0)6
31
28
25
22
19
16
13
10
7
4
0
−3
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

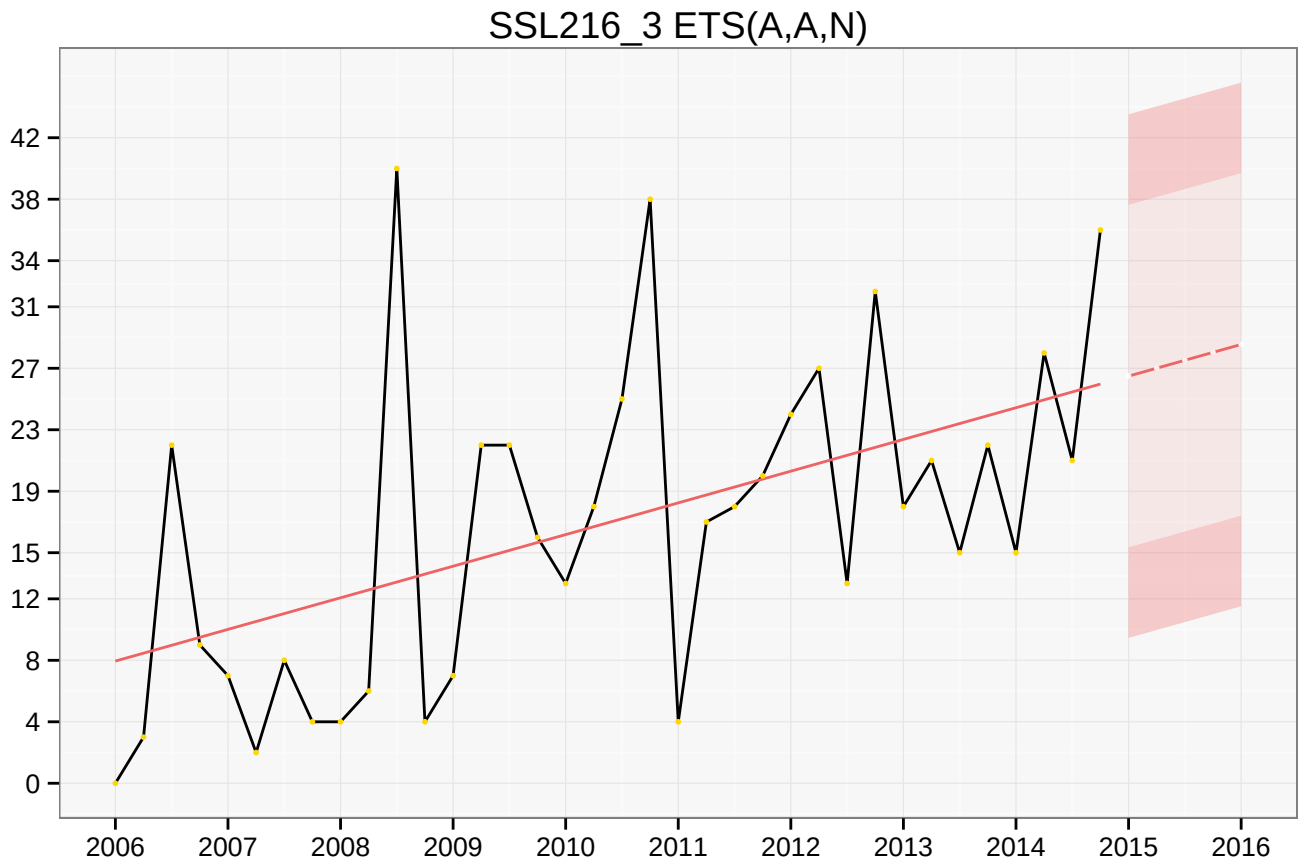

SSL216_2 ARIMAX(0,1,1)(0,0,0)6 Out of sample
31
28
25
21
18
15
12
8
5
2
−1
−5
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

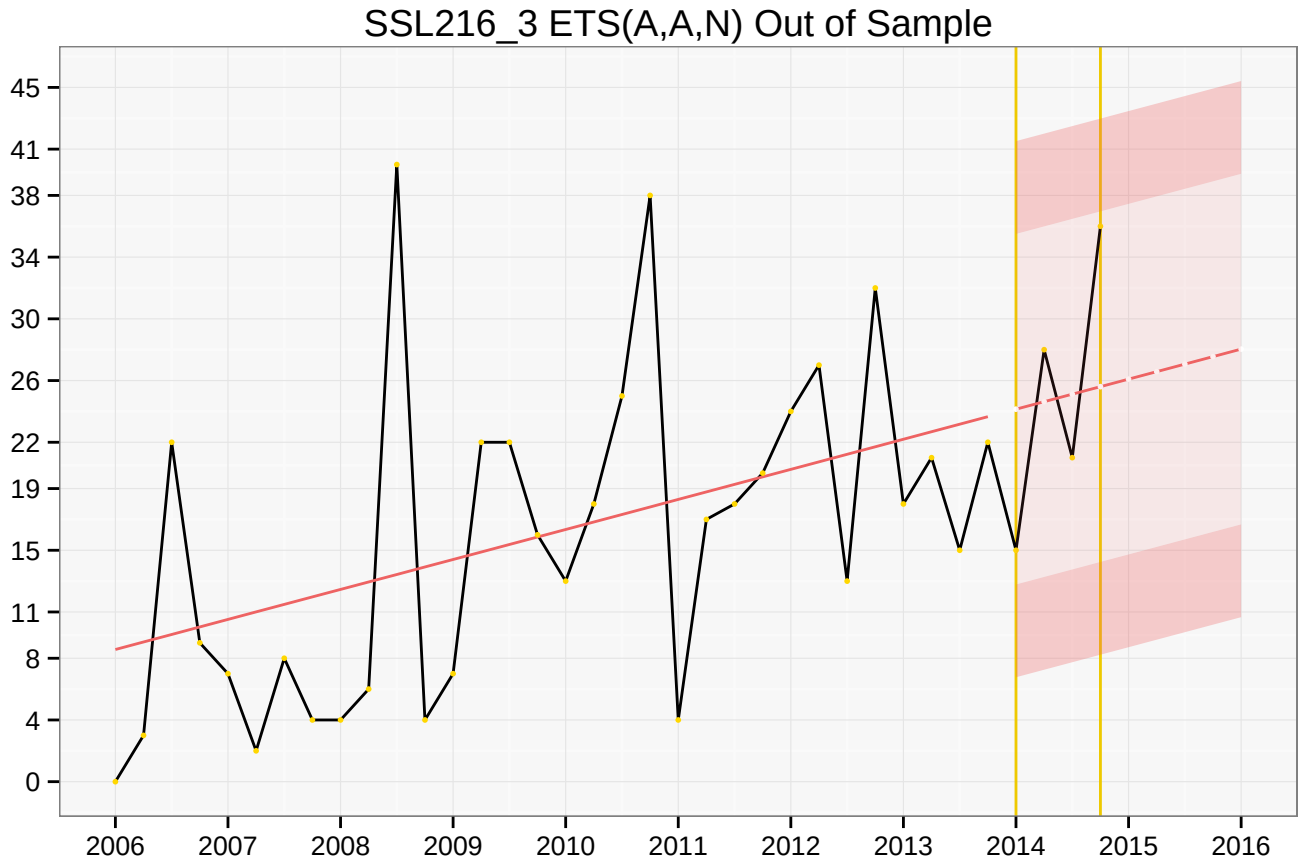

SSL216_2 ARIMAX(0,0,0)(0,1,0)6 First Obs
37
33
28
24
20
16
12
8
3
−1
−5
−9
2011
2012
2013
2014
2015
2016

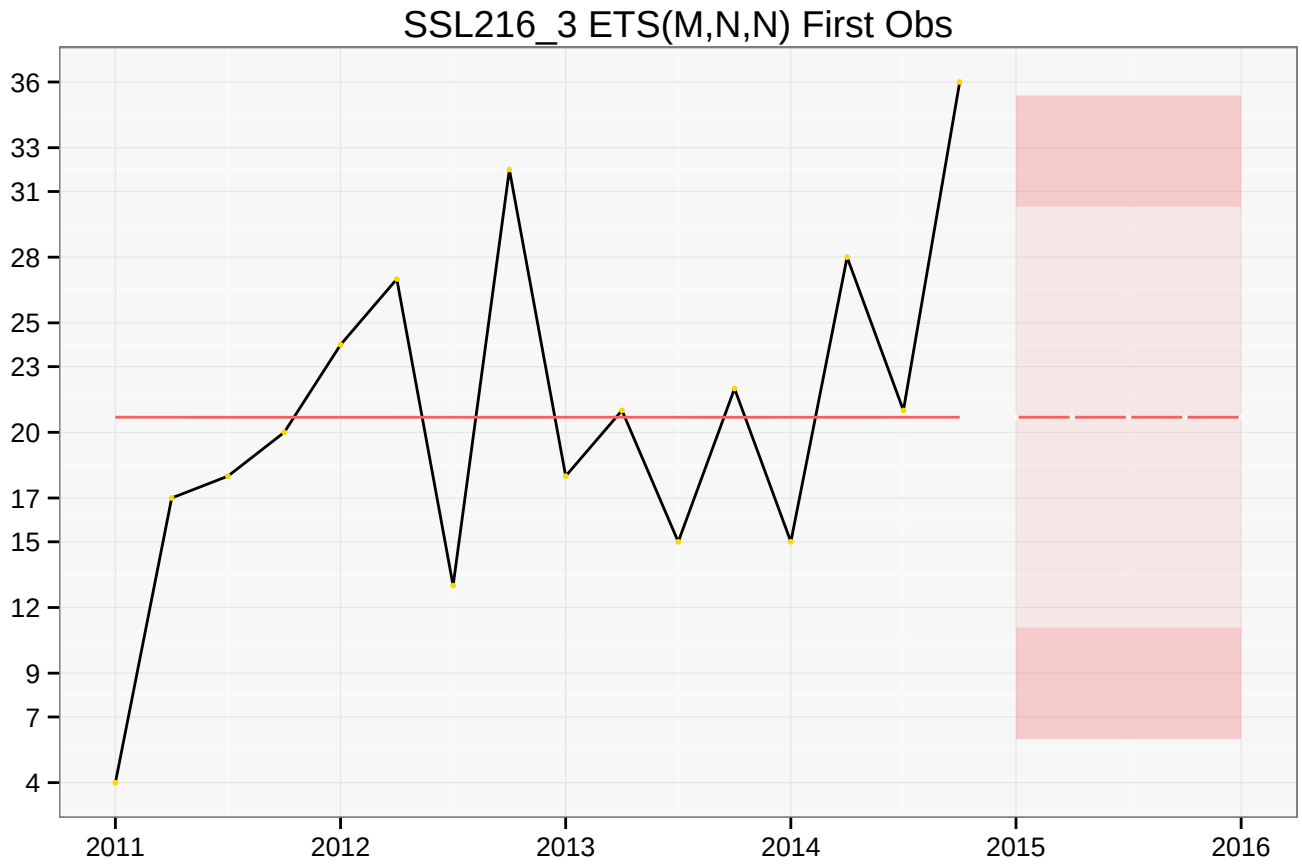

SSL216_2 ARIMAX(0,0,0)(0,1,0)6 Out of sample − First Obs
67
59
51
43
35
28
20
12
4
−4
−12
−19
−27
2011
2012
2013
2014
2015
2016

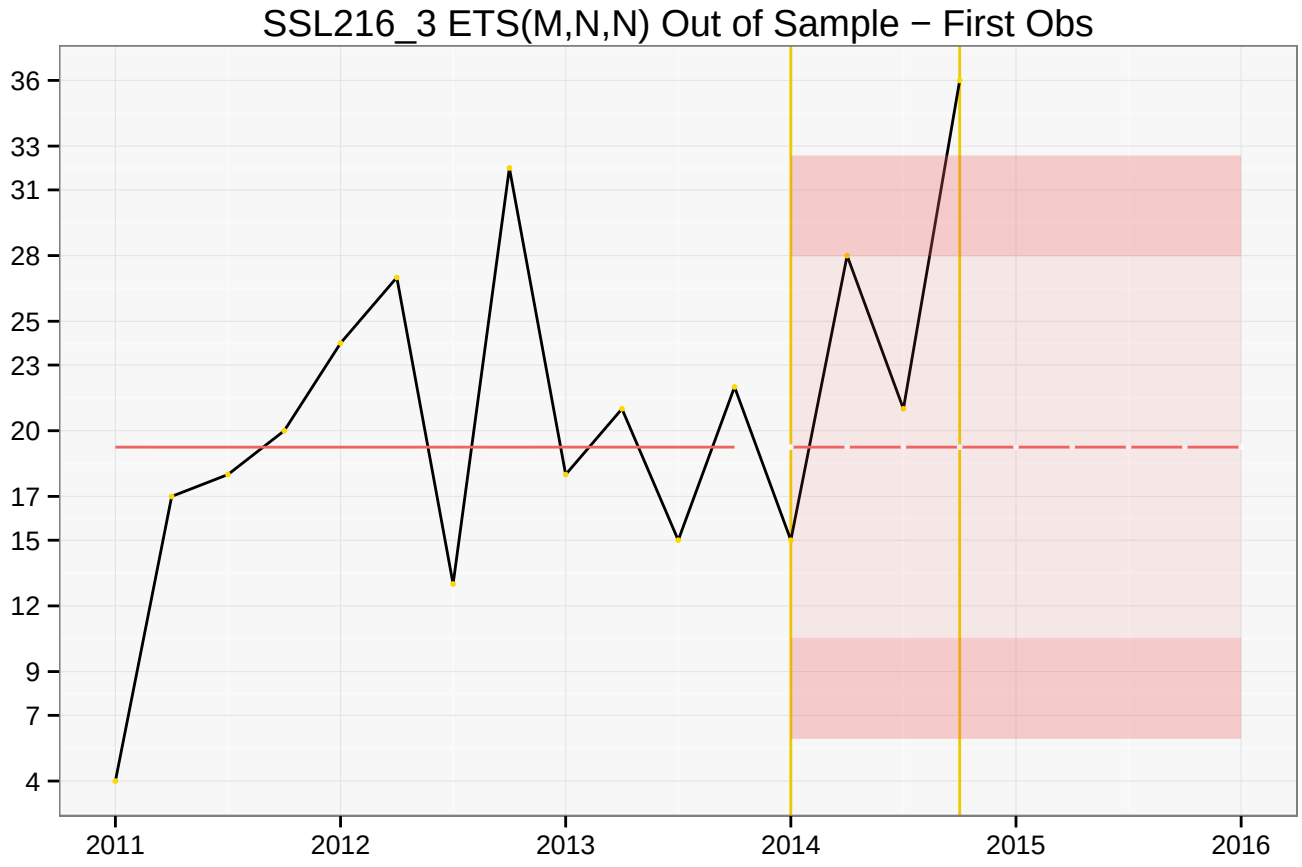
1.9 SSL216_3

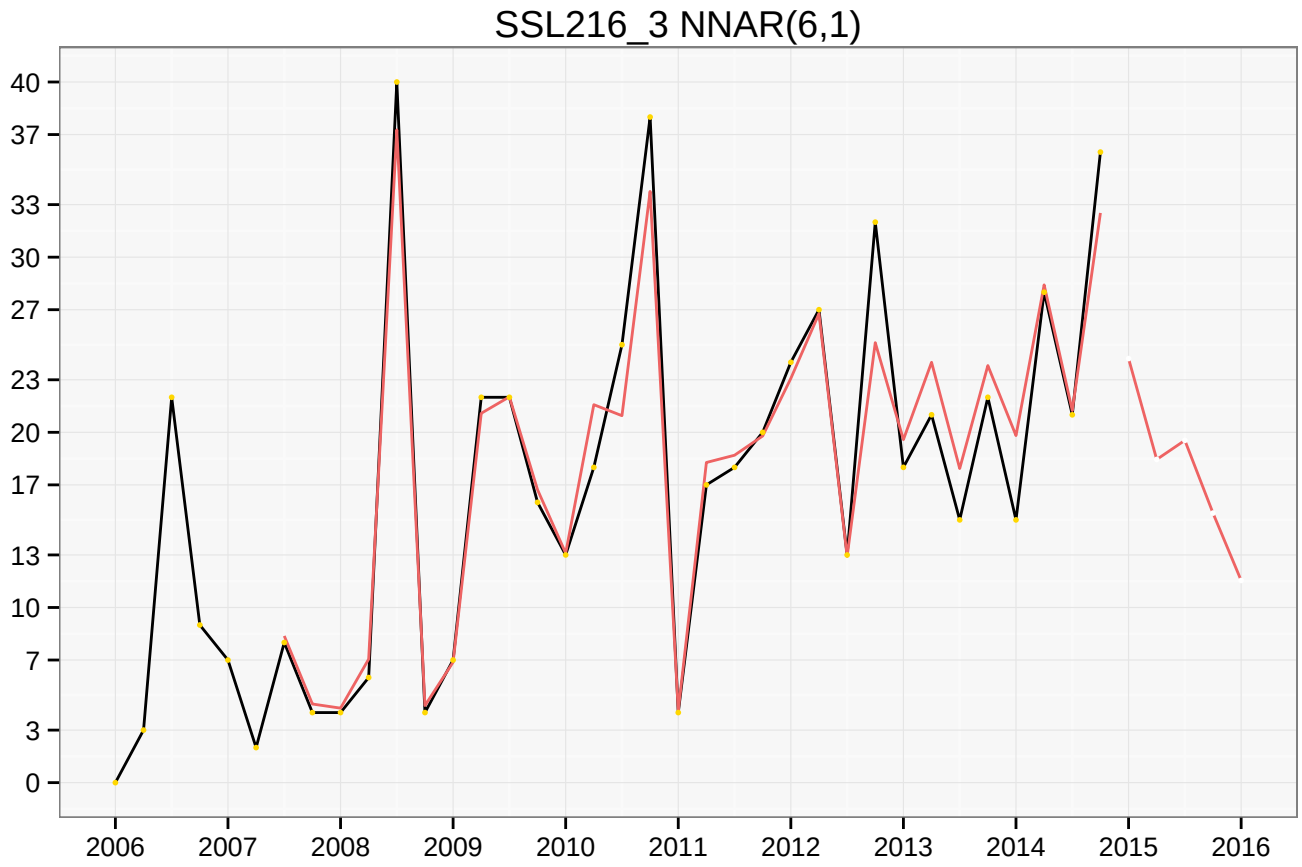
1.9.1 plots for SSL216_3

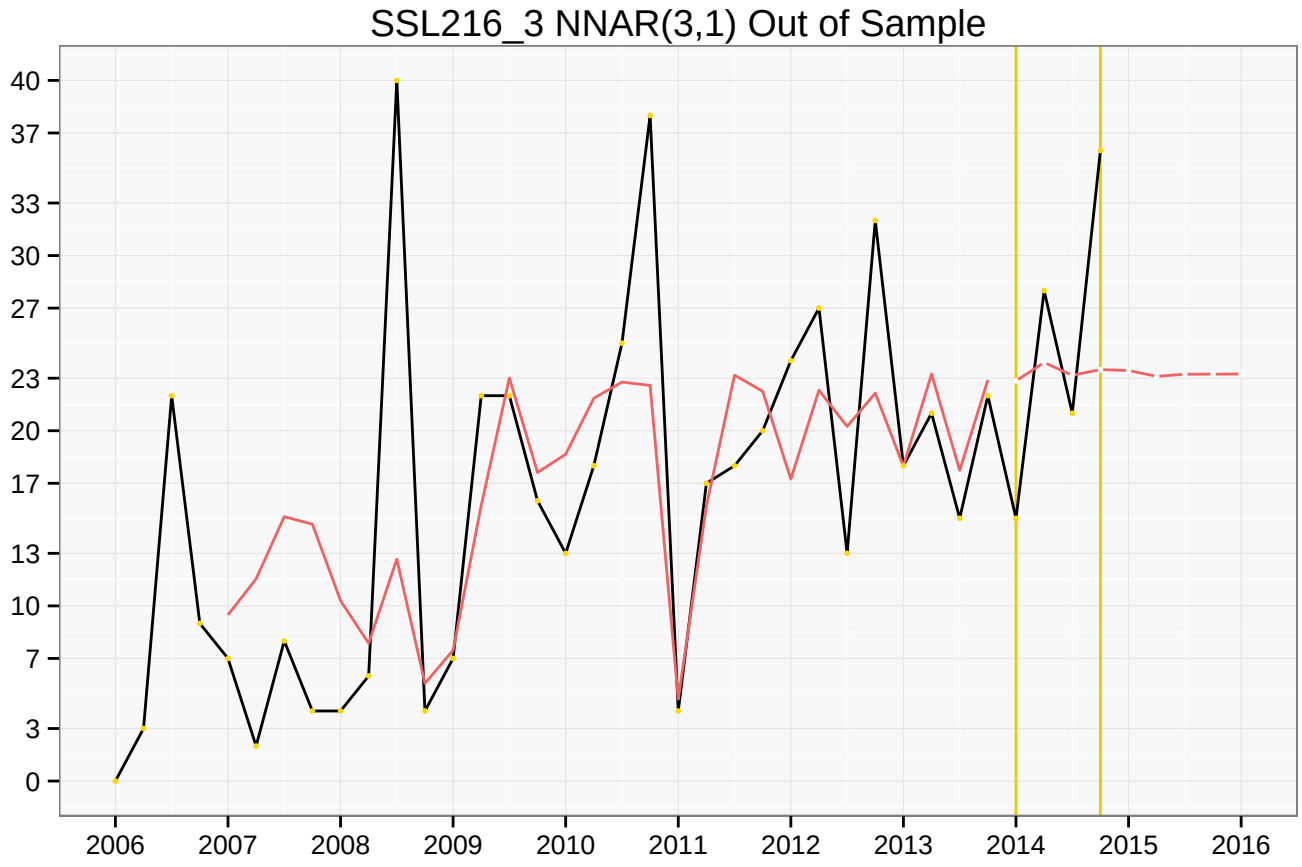


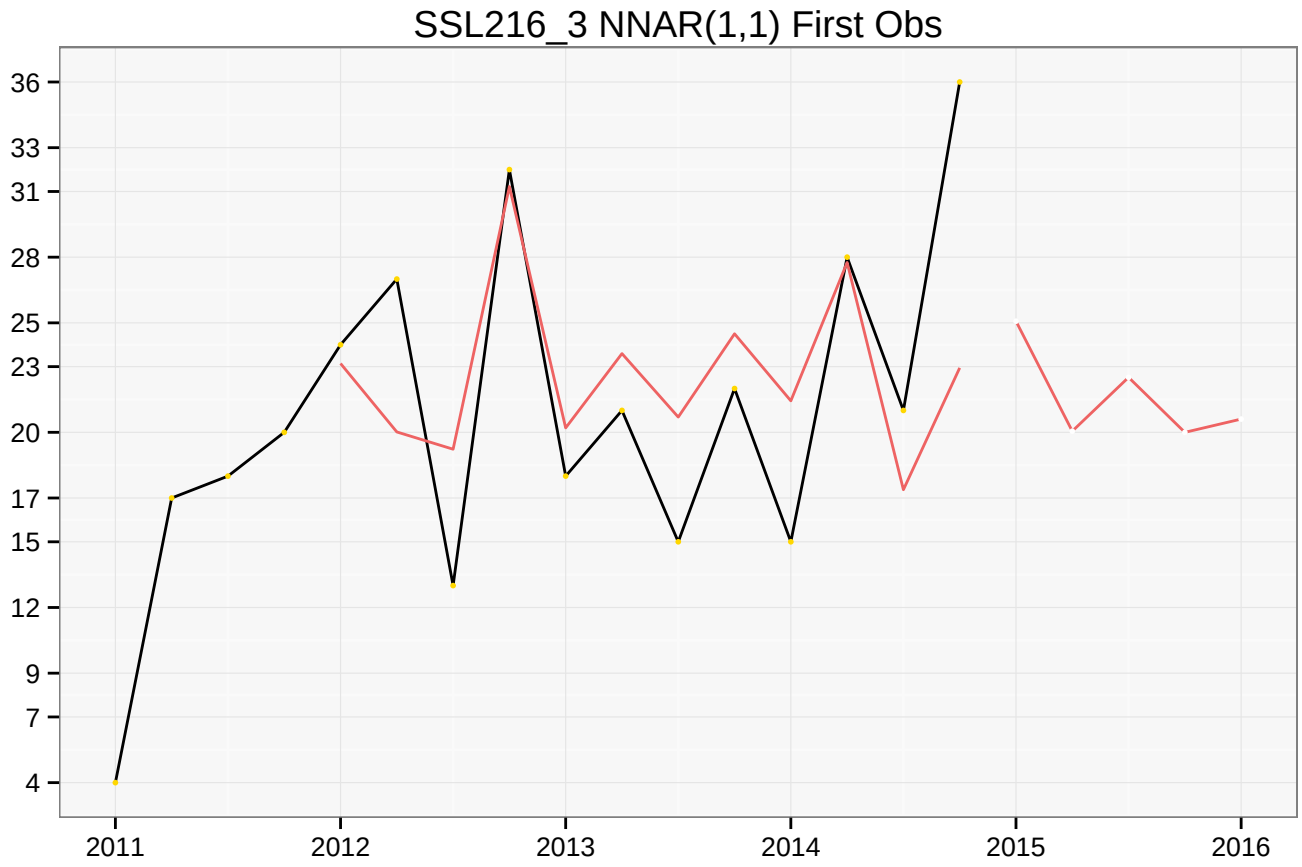


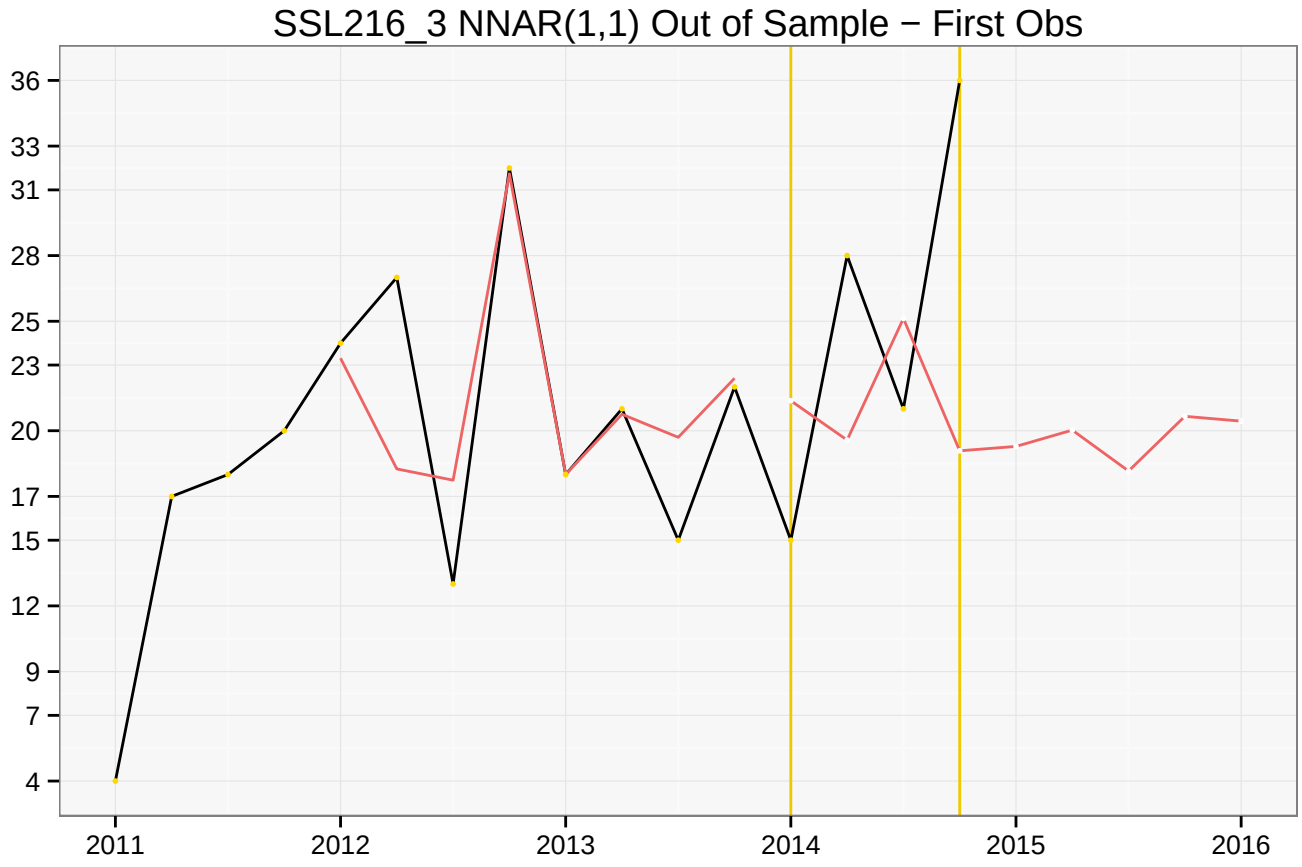

SSL216_3 ETS(M,N,N) First Obs
36
33
31
28
25
23
20
17
15
12
9
7
4
2011
2012
2013
2014
2015
2016

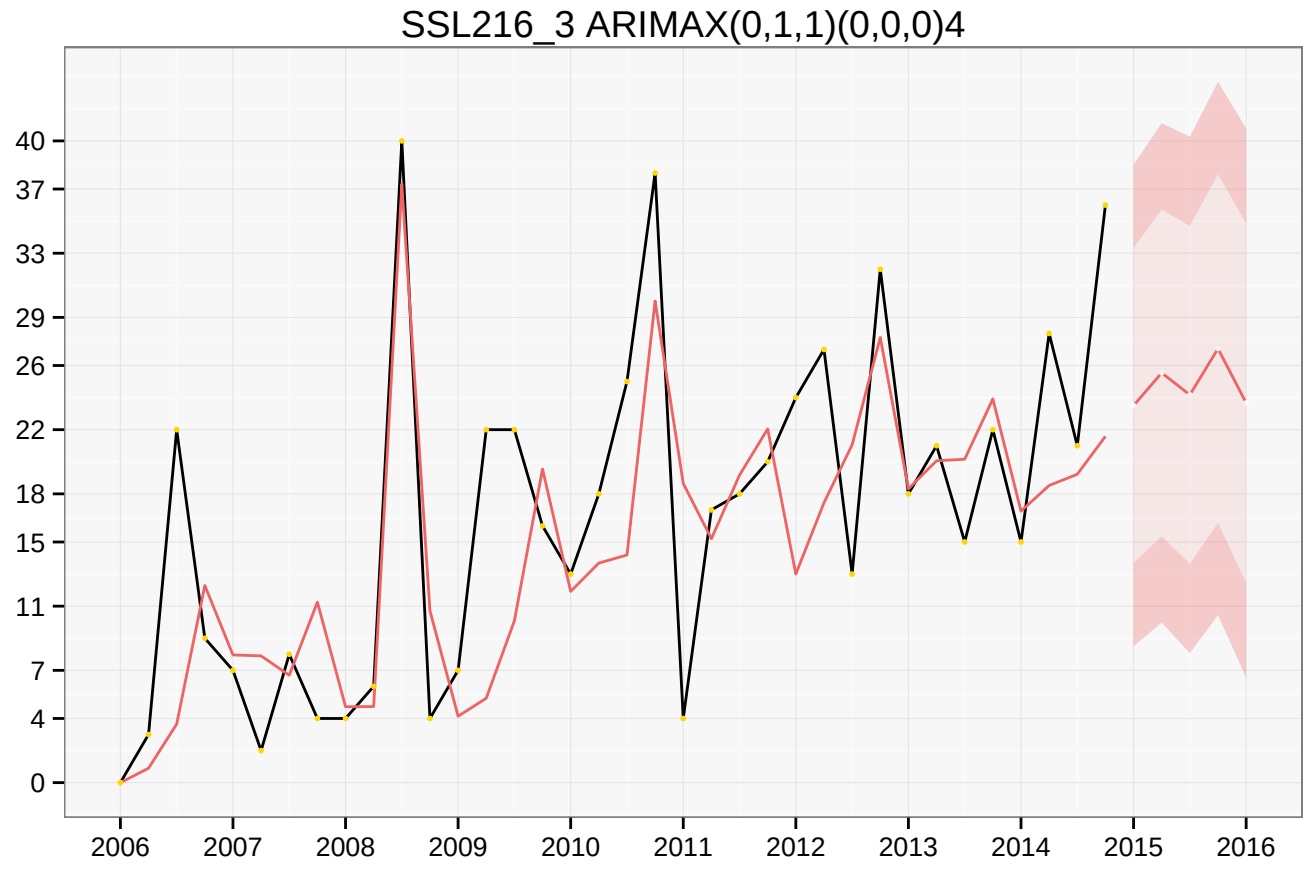

SSL216_3 ETS(M,N,N) Out of Sample − First Obs
36
33
31
28
25
23
20
17
15
12
9
7
4
2011
2012
2013
2014
2015
2016

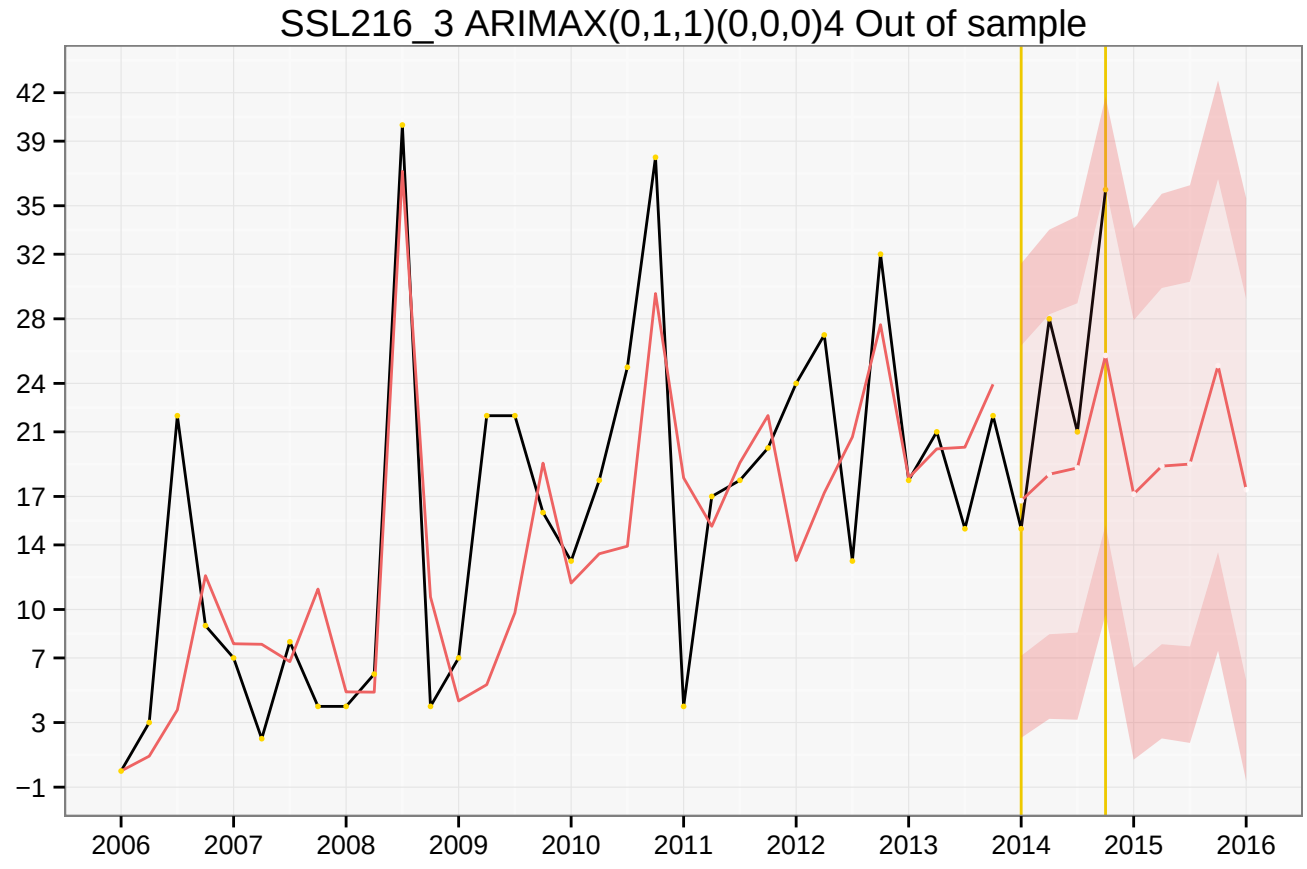

SSL216_3 NNAR(6,1)
40
37
33
30
27
23
20
17
13
10
7
3
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

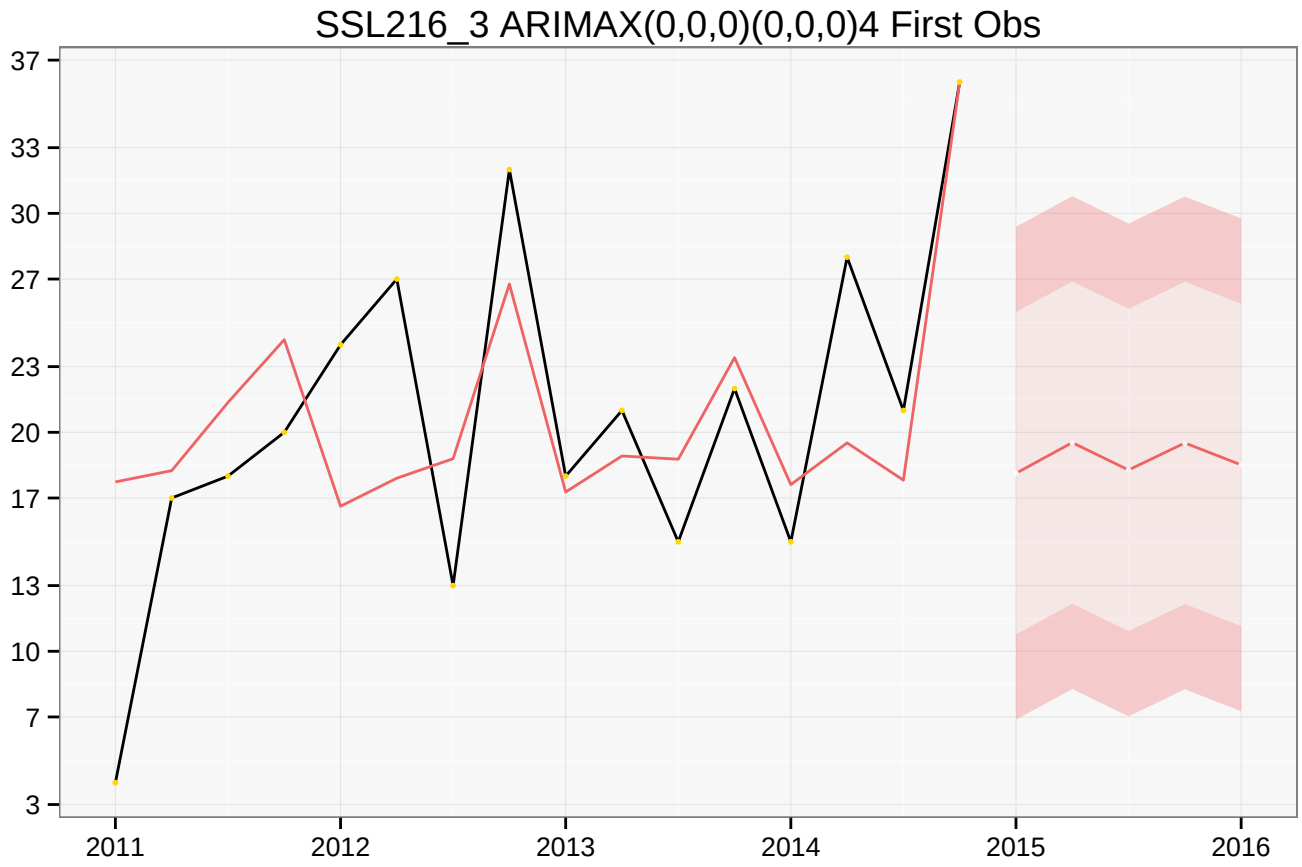

SSL216_3 NNAR(3,1) Out of Sample
40
37
33
30
27
23
20
17
13
10
7
3
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

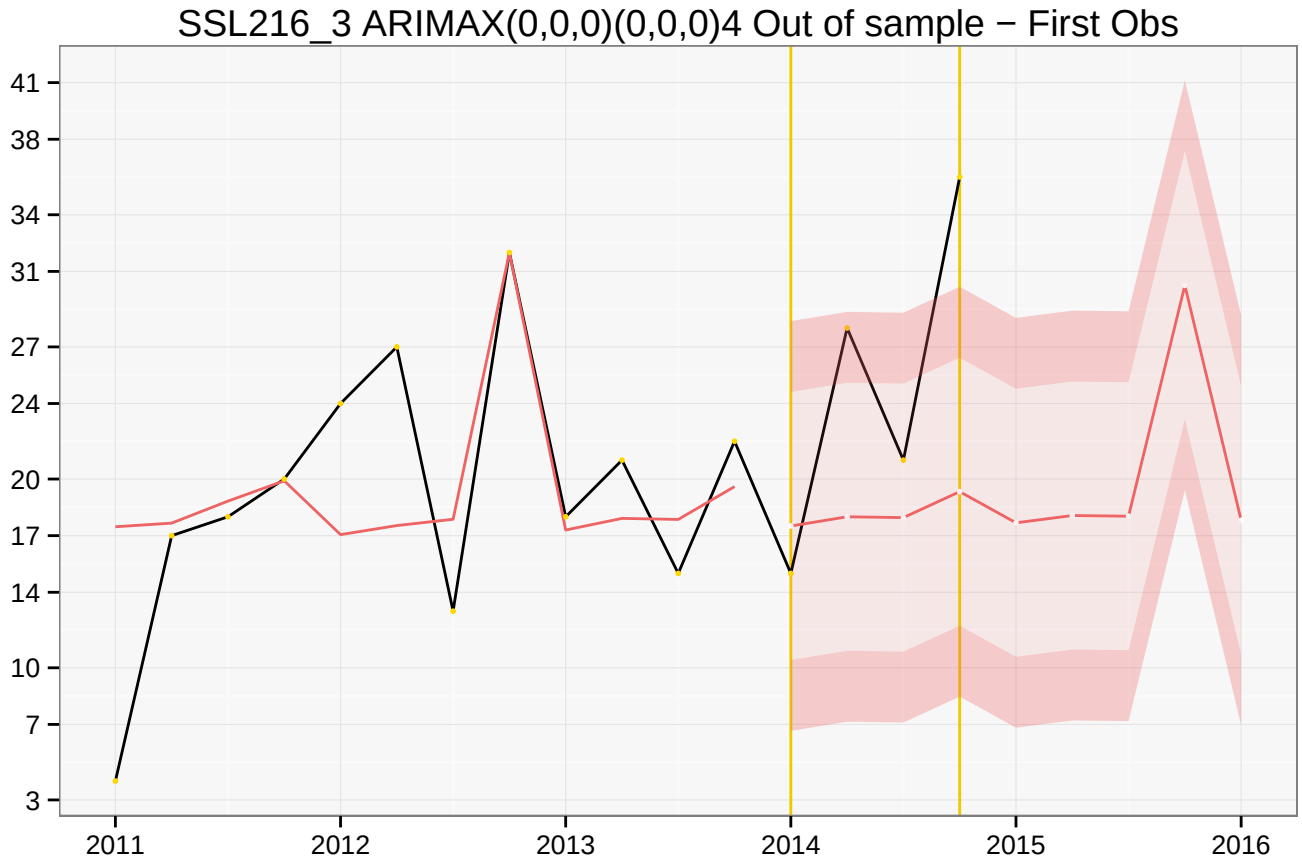

SSL216_3 NNAR(1,1) First Obs
36
33
31
28
25
23
20
17
15
12
9
7
4
2011
2012
2013
2014
2015
2016


SSL216_3 NNAR(1,1) Out of Sample − First Obs
36
33
31
28
25
23
20
17
15
12
9
7
4
2011
2012
2013
2014
2015
2016


SSL216_3 ARIMAX(0,1,1)(0,0,0)4
40
37
33
29
26
22
18
15
11
7
4
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

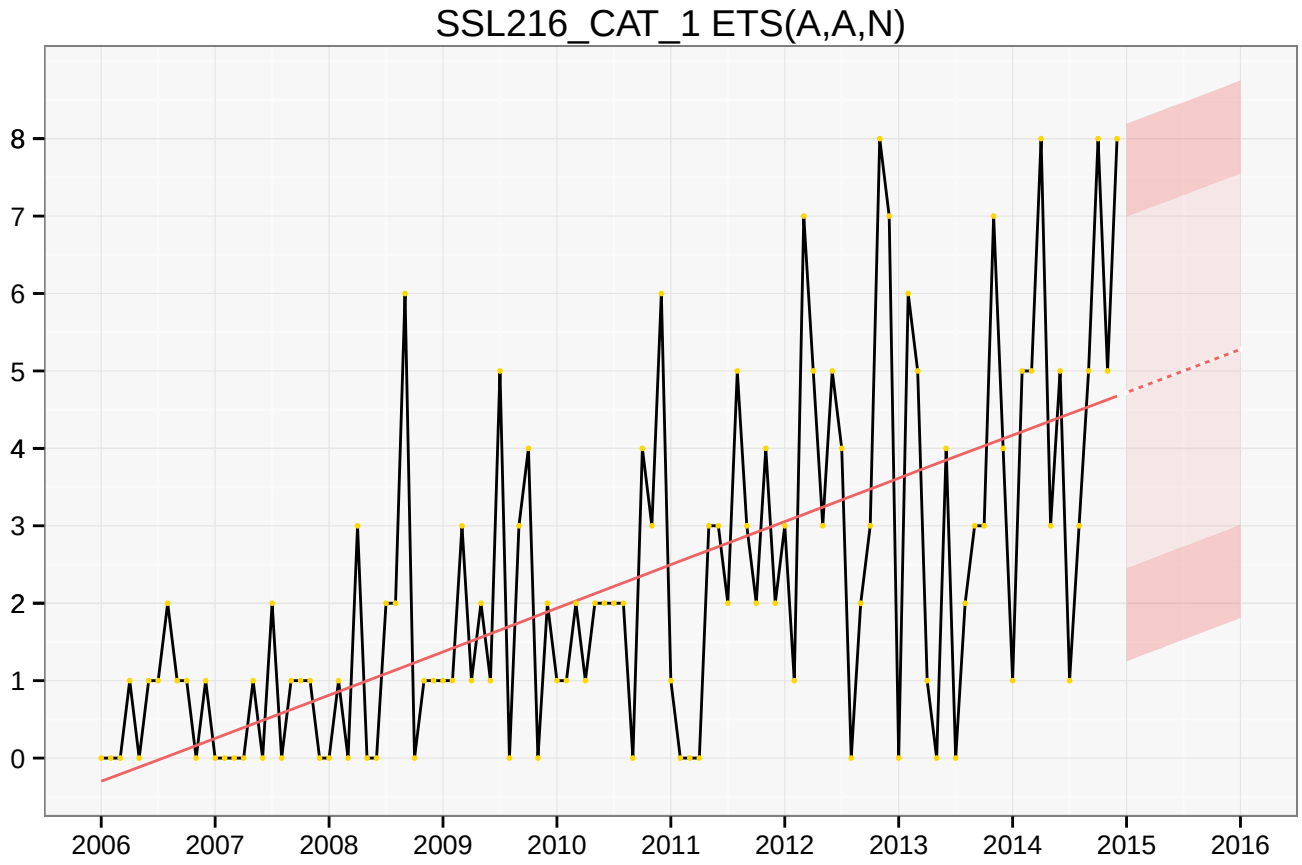

SSL216_3 ARIMAX(0,1,1)(0,0,0)4 Out of sample
42
39
35
32
28
24
21
17
14
10
7
3
−1
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

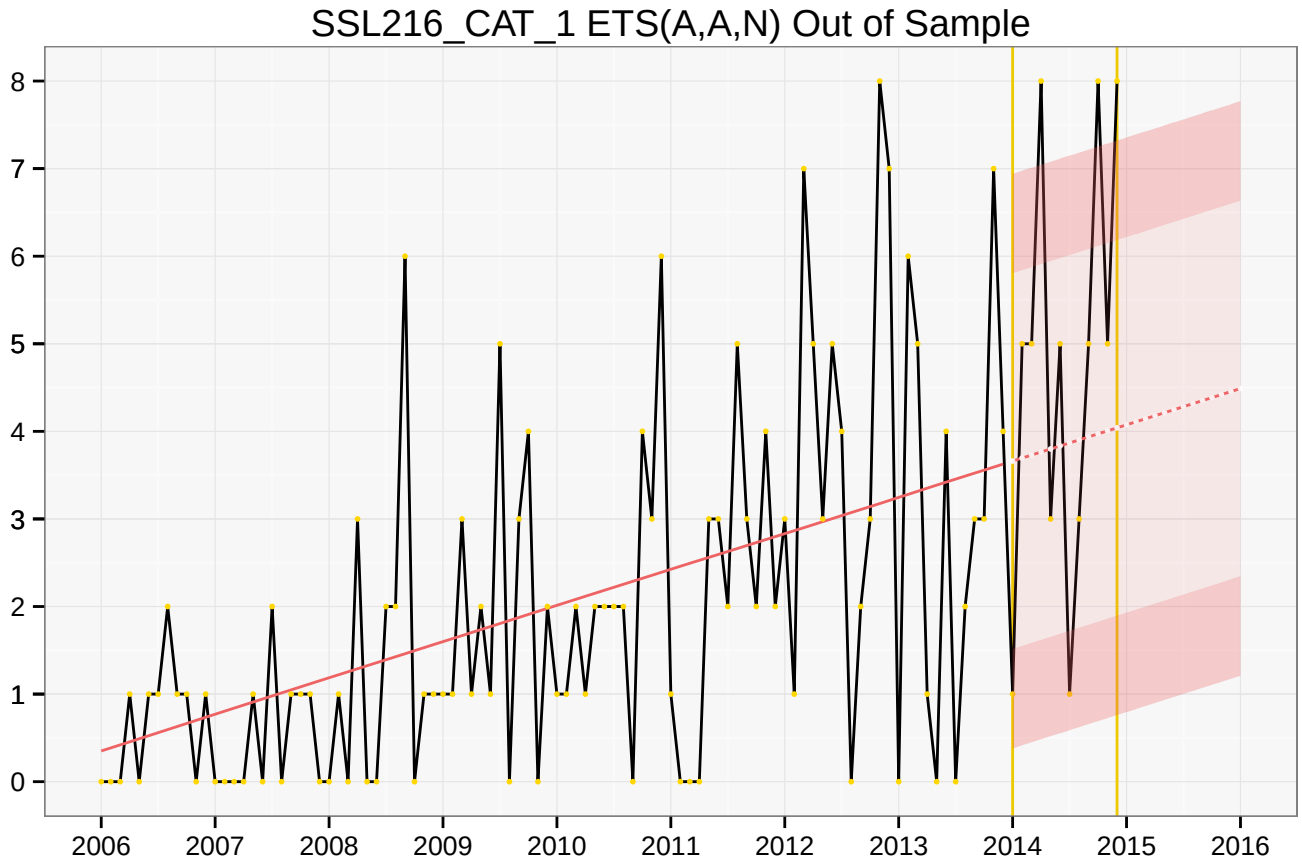

SSL216_3 ARIMAX(0,0,0)(0,0,0)4 First Obs
37
33
30
27
23
20
17
13
10
7
3
2011
2012
2013
2014
2015
2016

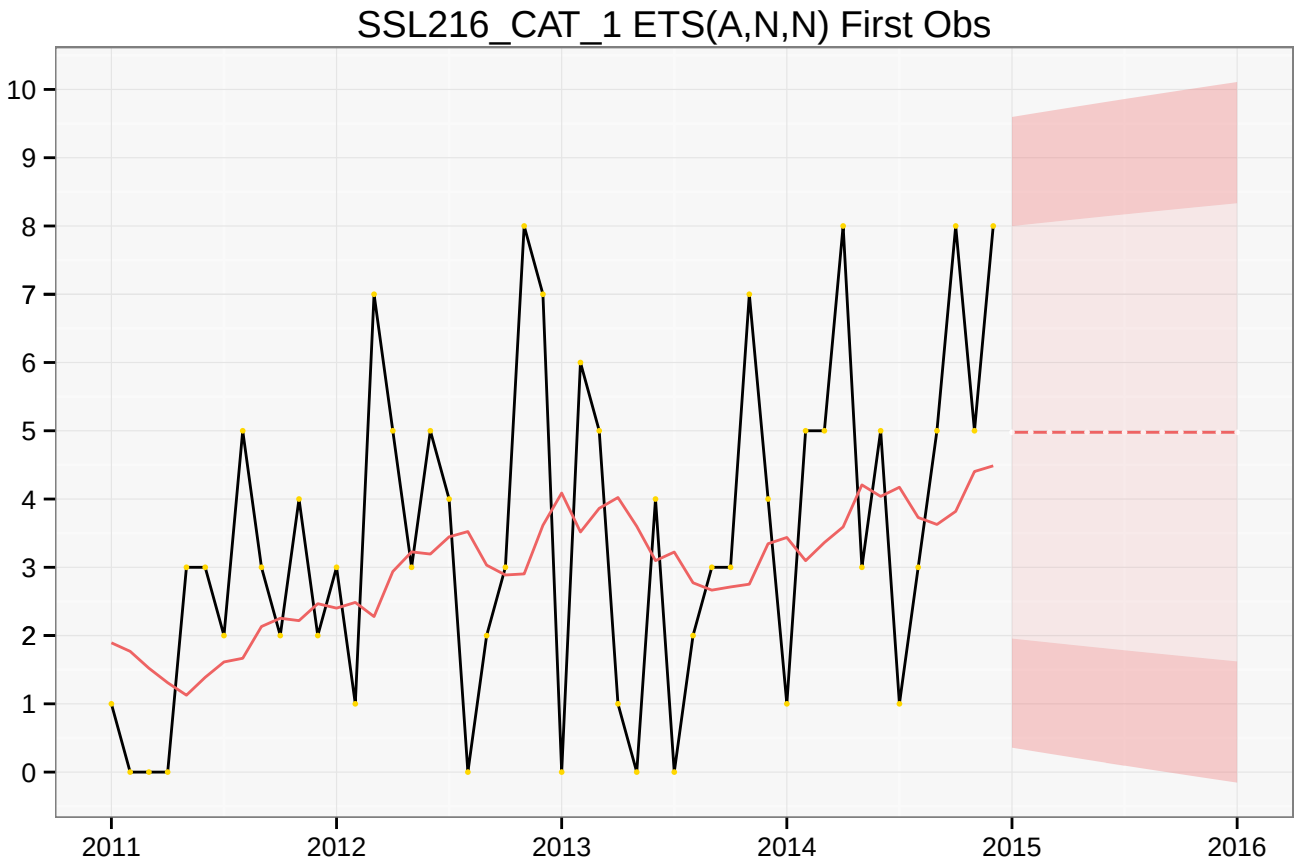

SSL216_3 ARIMAX(0,0,0)(0,0,0)4 Out of sample − First Obs
41
38
34
31
27
24
20
17
14
10
7
3
2011
2012
2013
2014
2015
2016

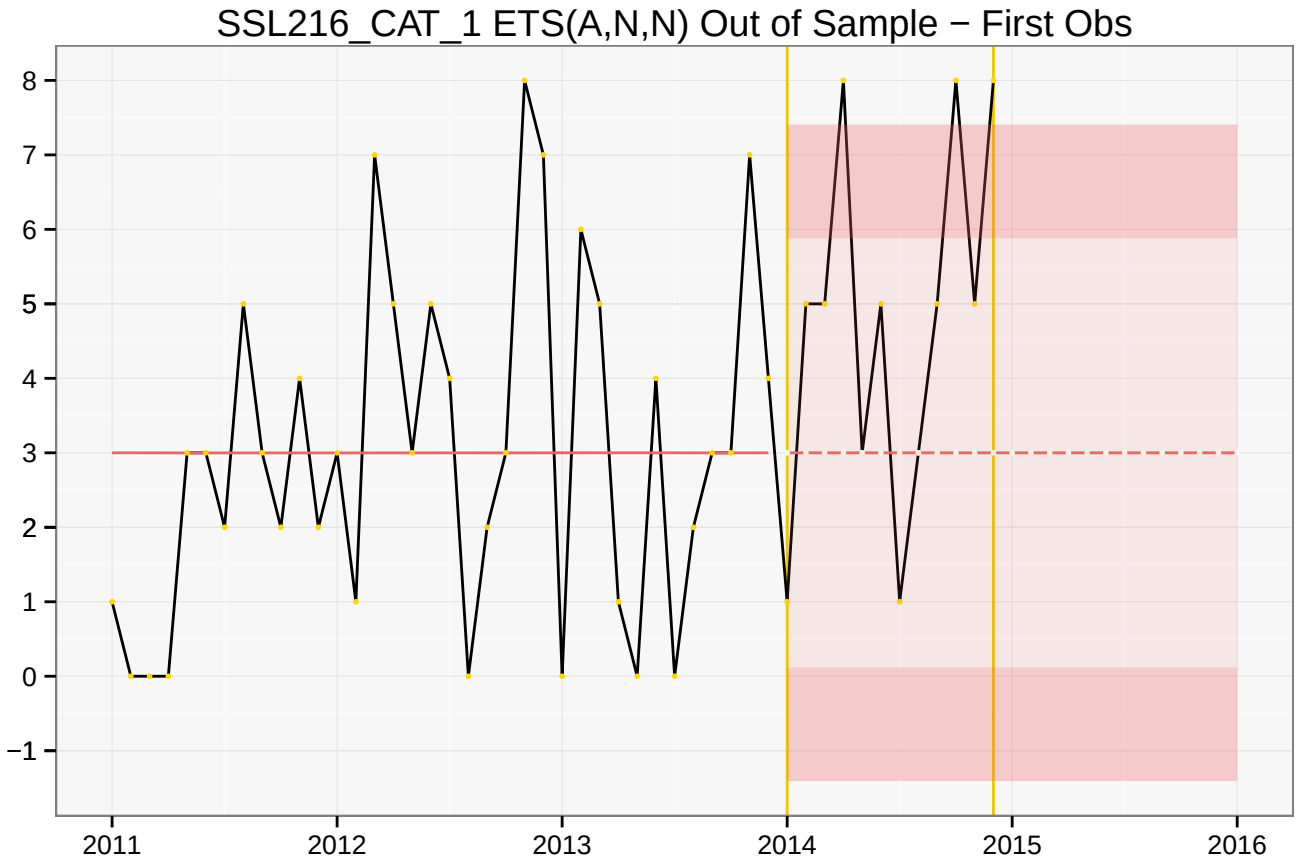
1.10 SSL216_CAT_1

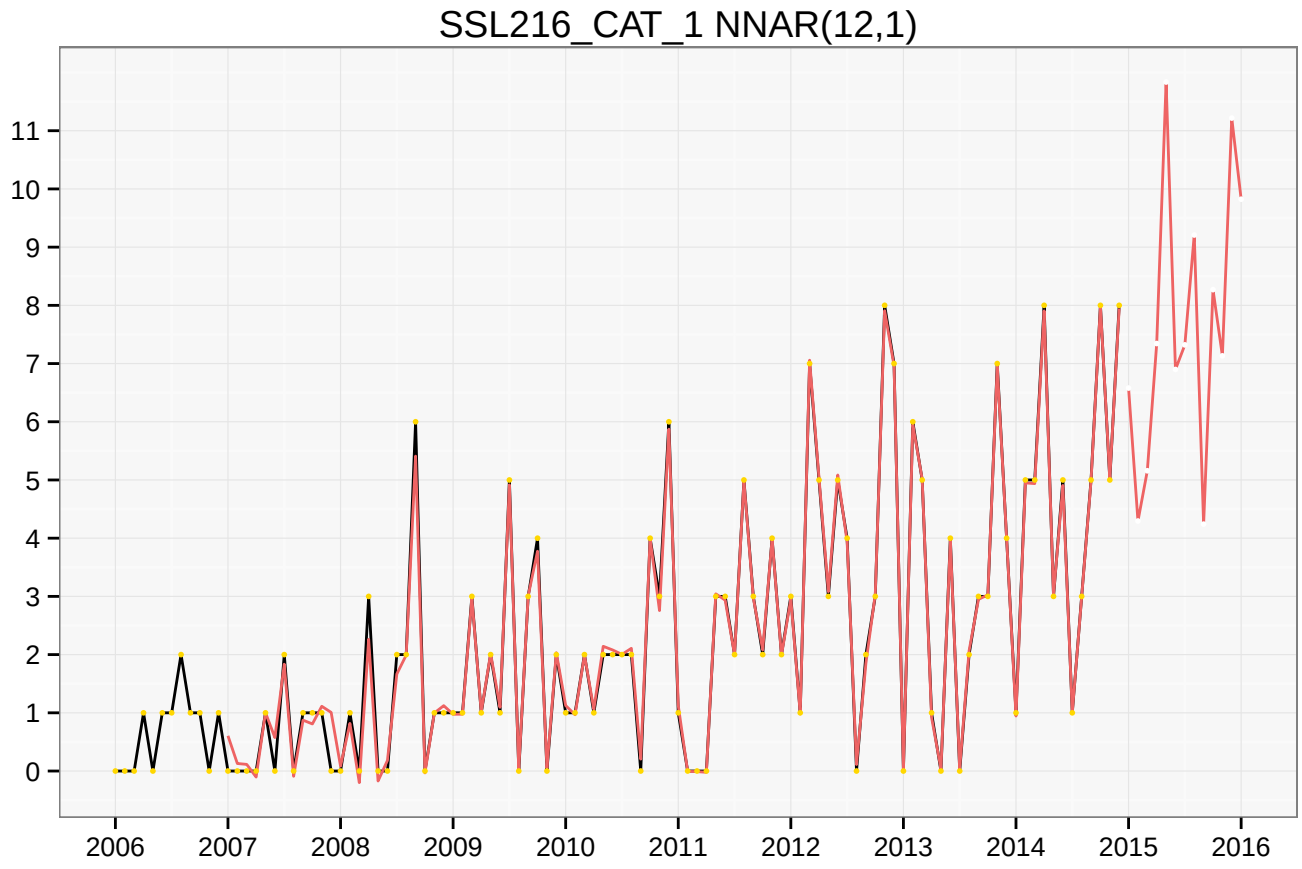
1.10.1 plots for SSL216_CAT_1

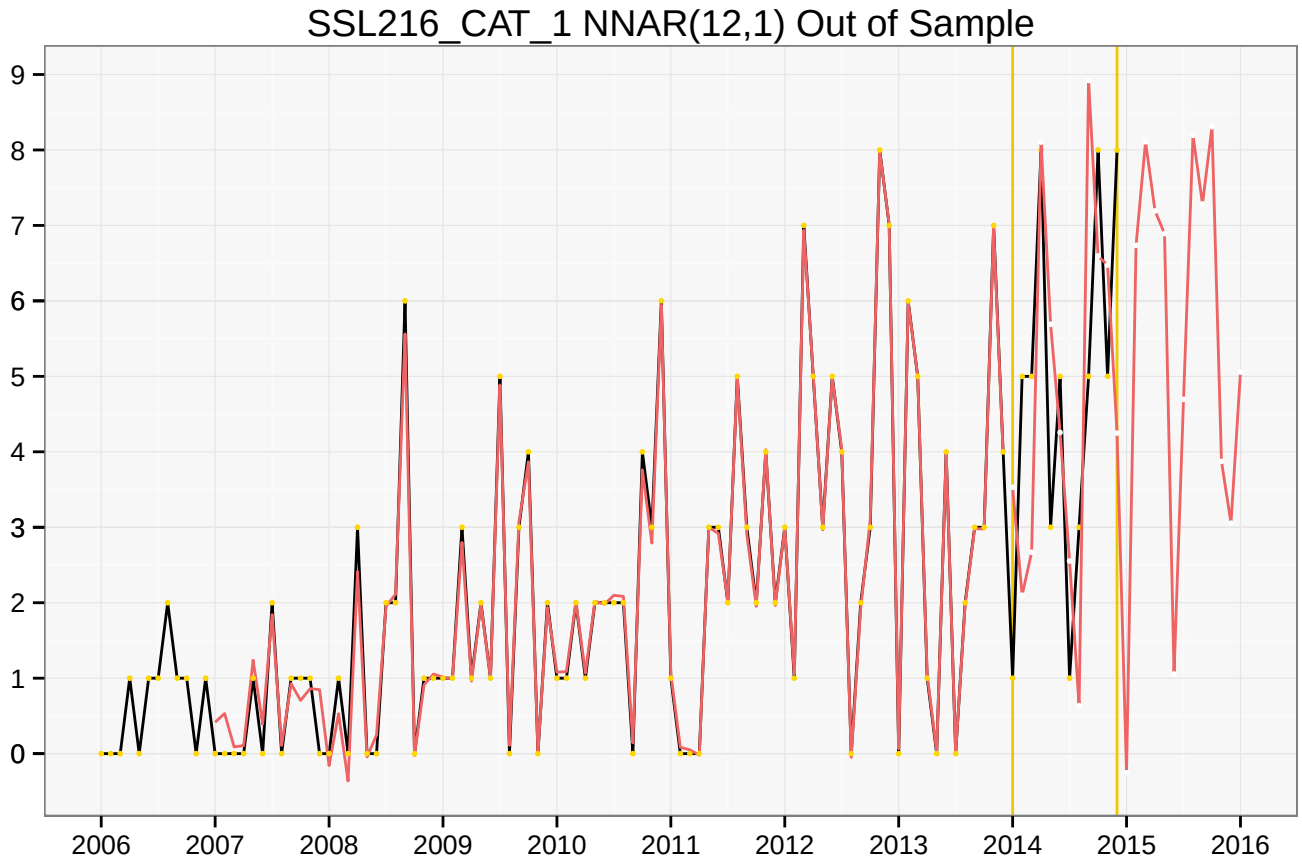


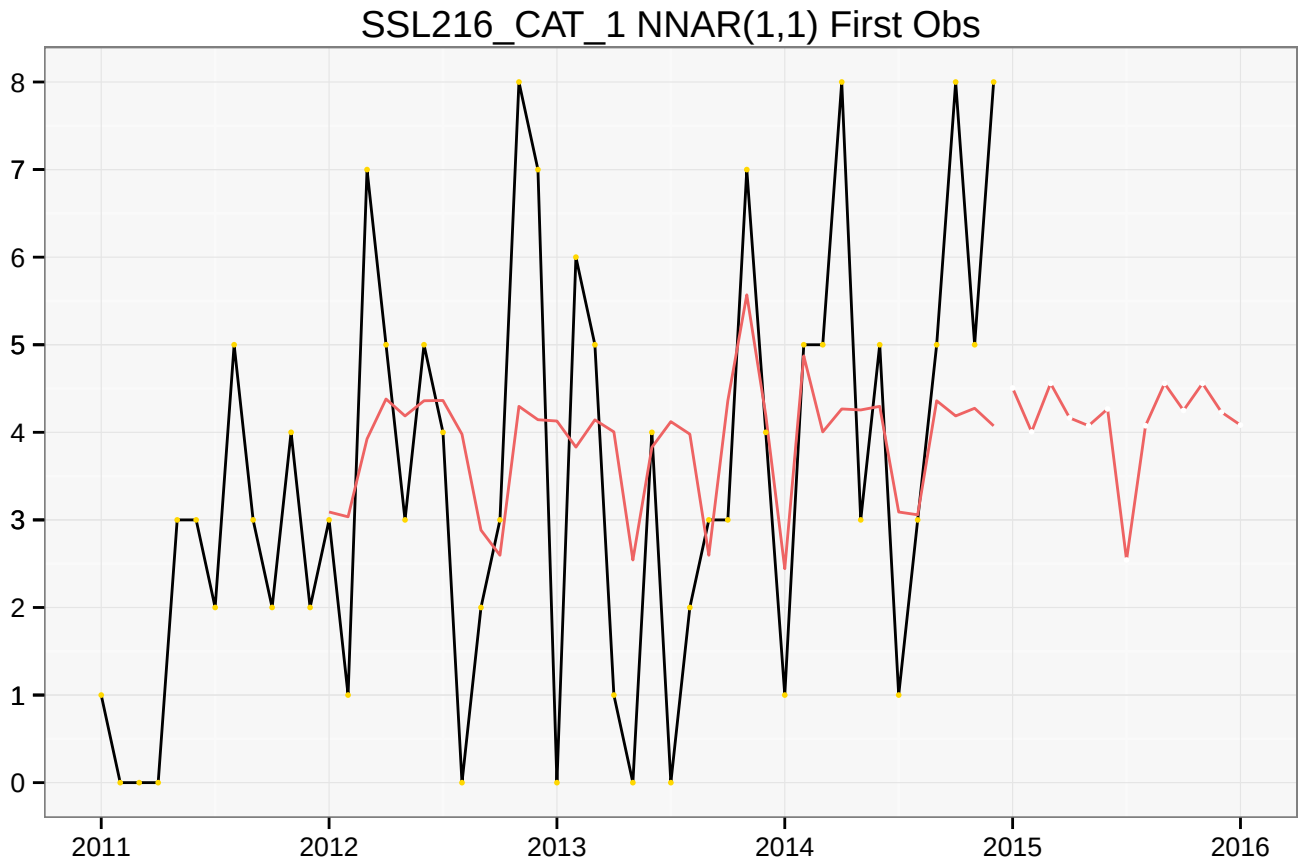


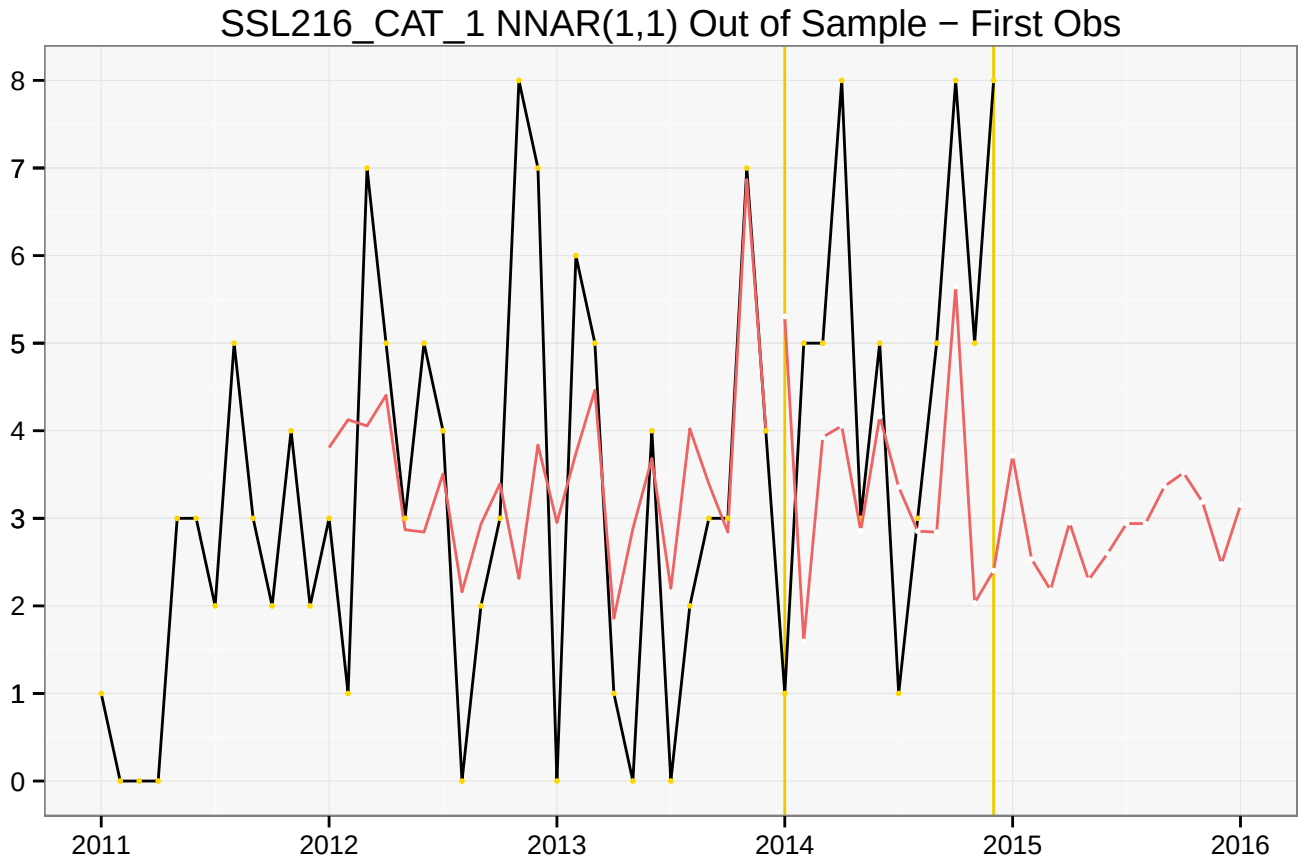

SSL216_CAT_1 ETS(A,N,N) First Obs
10
9
8
7
6
5
4
3
2
1
0
2011
2012
2013
2014
2015
2016

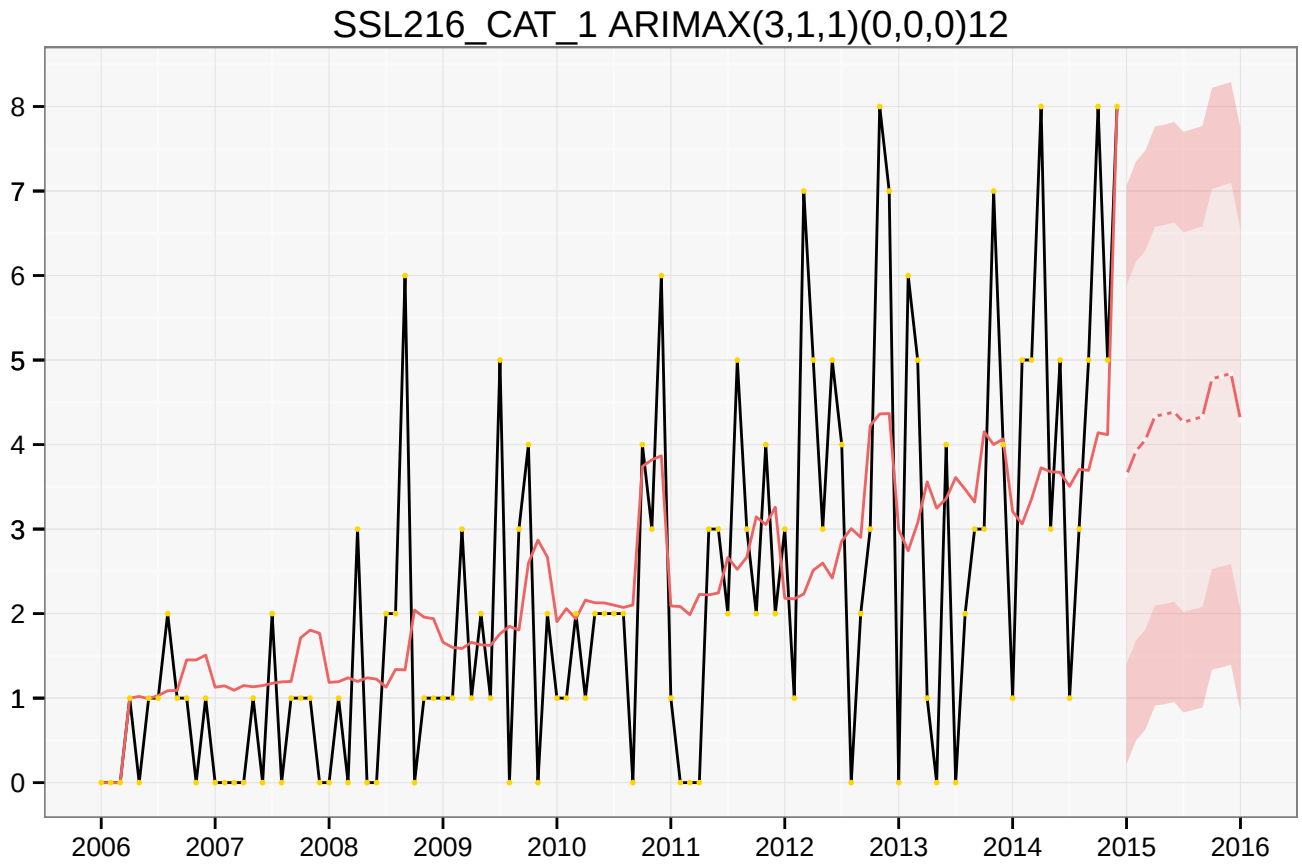

SSL216_CAT_1 ETS(A,N,N) Out of Sample − First Obs
8
7
6
5
4
3
2
1
0
−1
2011
2012
2013
2014
2015
2016

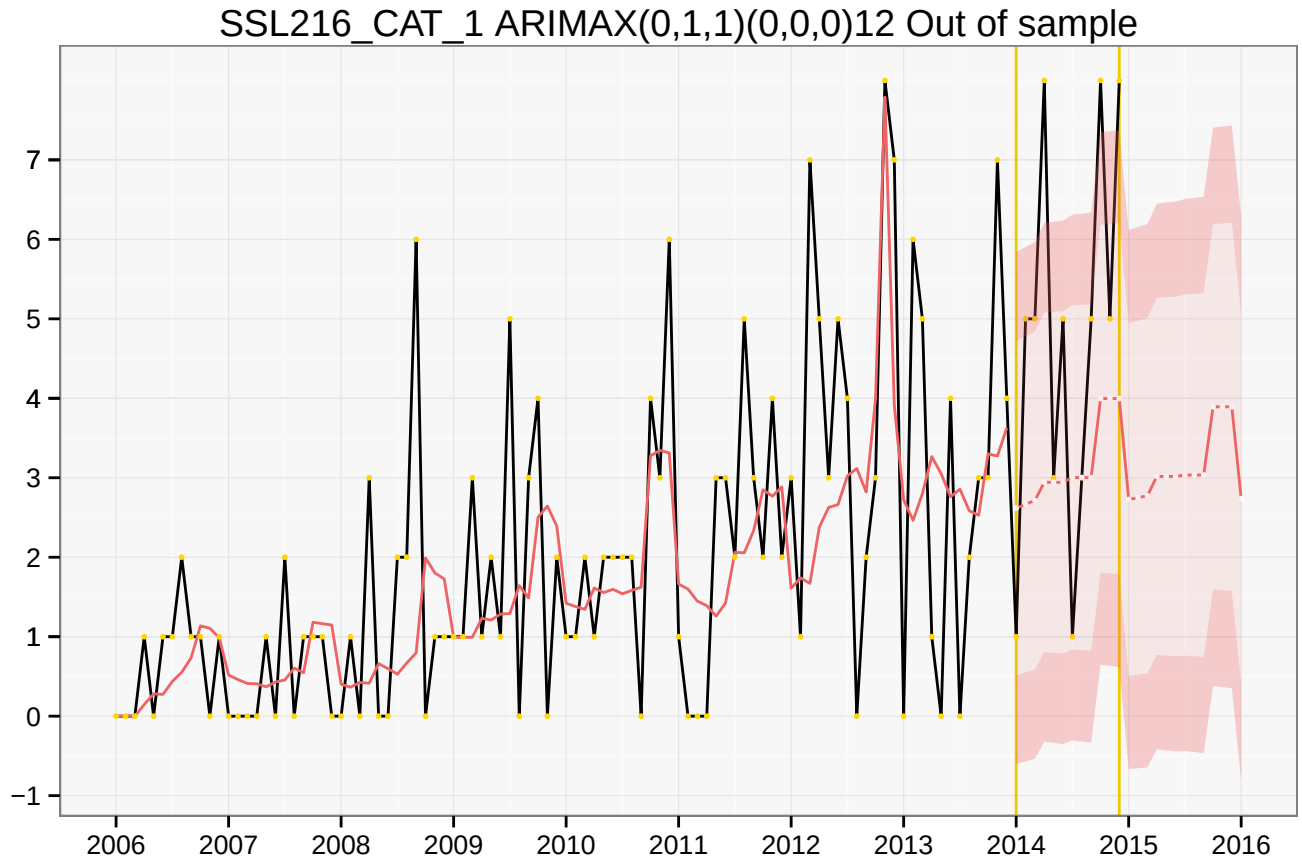

SSL216_CAT_1 NNAR(12,1)
11
10
9
8
7
6
5
4
3
2
1
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

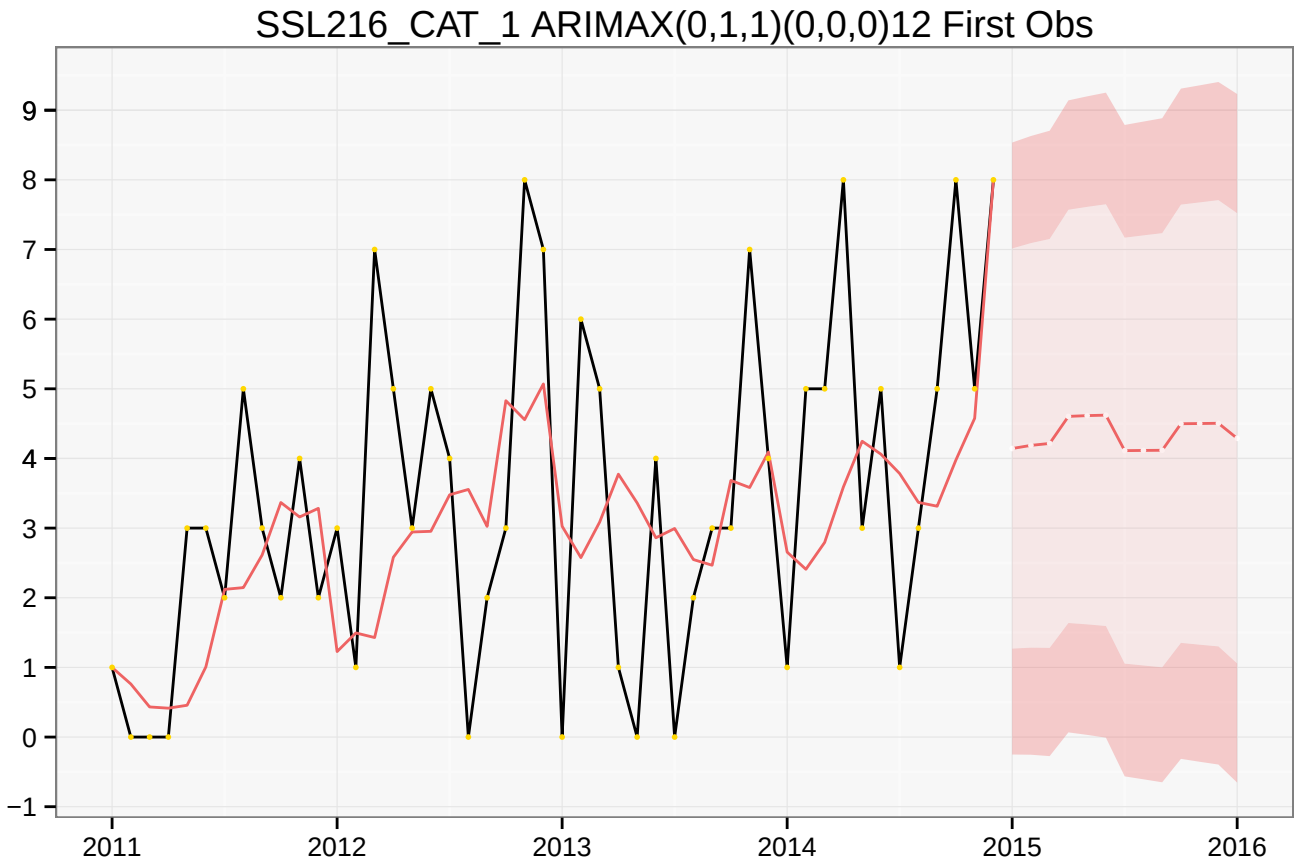

SSL216_CAT_1 NNAR(12,1) Out of Sample
9
8
7
6
5
4
3
2
1
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

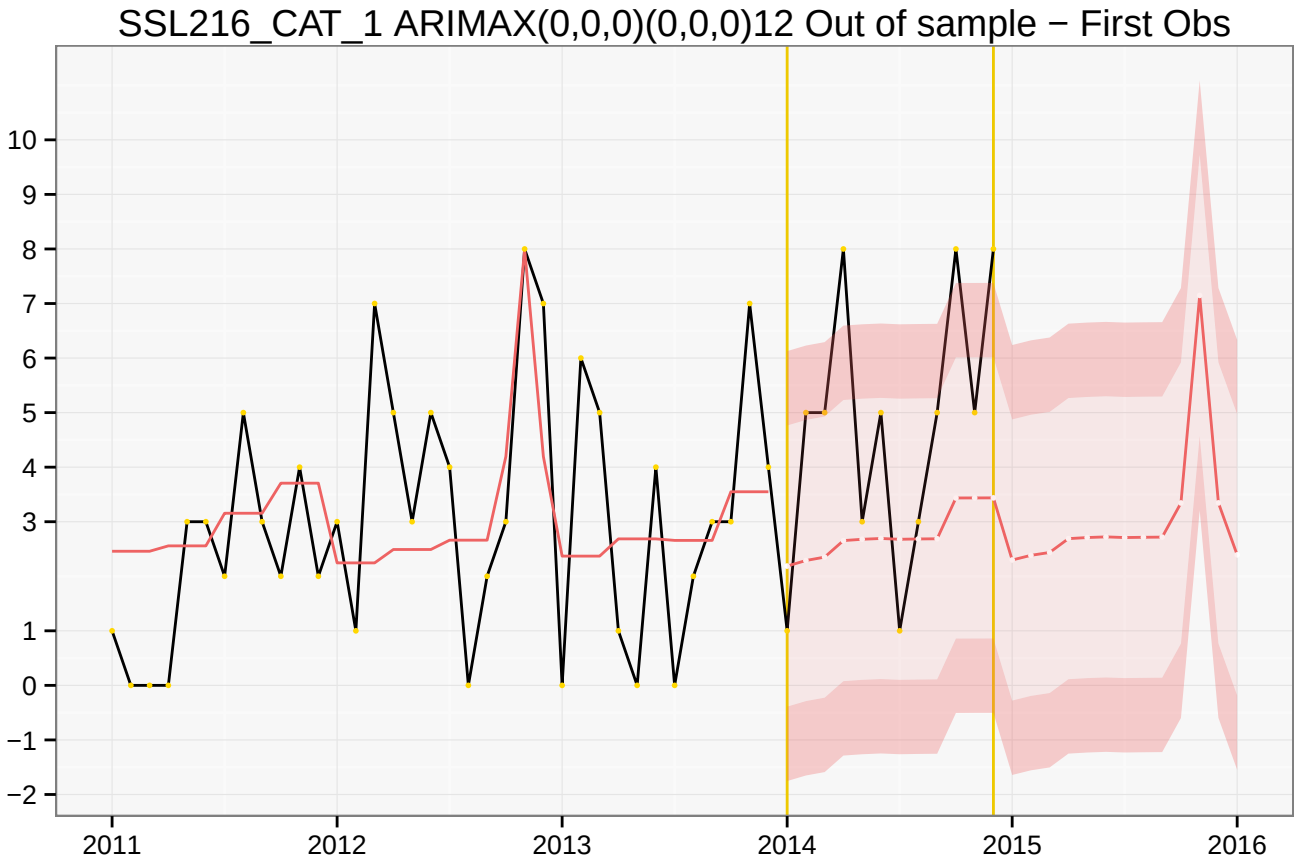

SSL216_CAT_1 NNAR(1,1) First Obs
0
1
2
3
4
5
6
7
8
2011
2012
2013
2014
2015
2016


SSL216_CAT_1 NNAR(1,1) Out of Sample − First Obs
0
1
2
3
4
5
6
7
8
2011
2012
2013
2014
2015
2016


SSL216_CAT_1 ARIMAX(3,1,1)(0,0,0)12
8
7
6
5
4
3
2
1
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

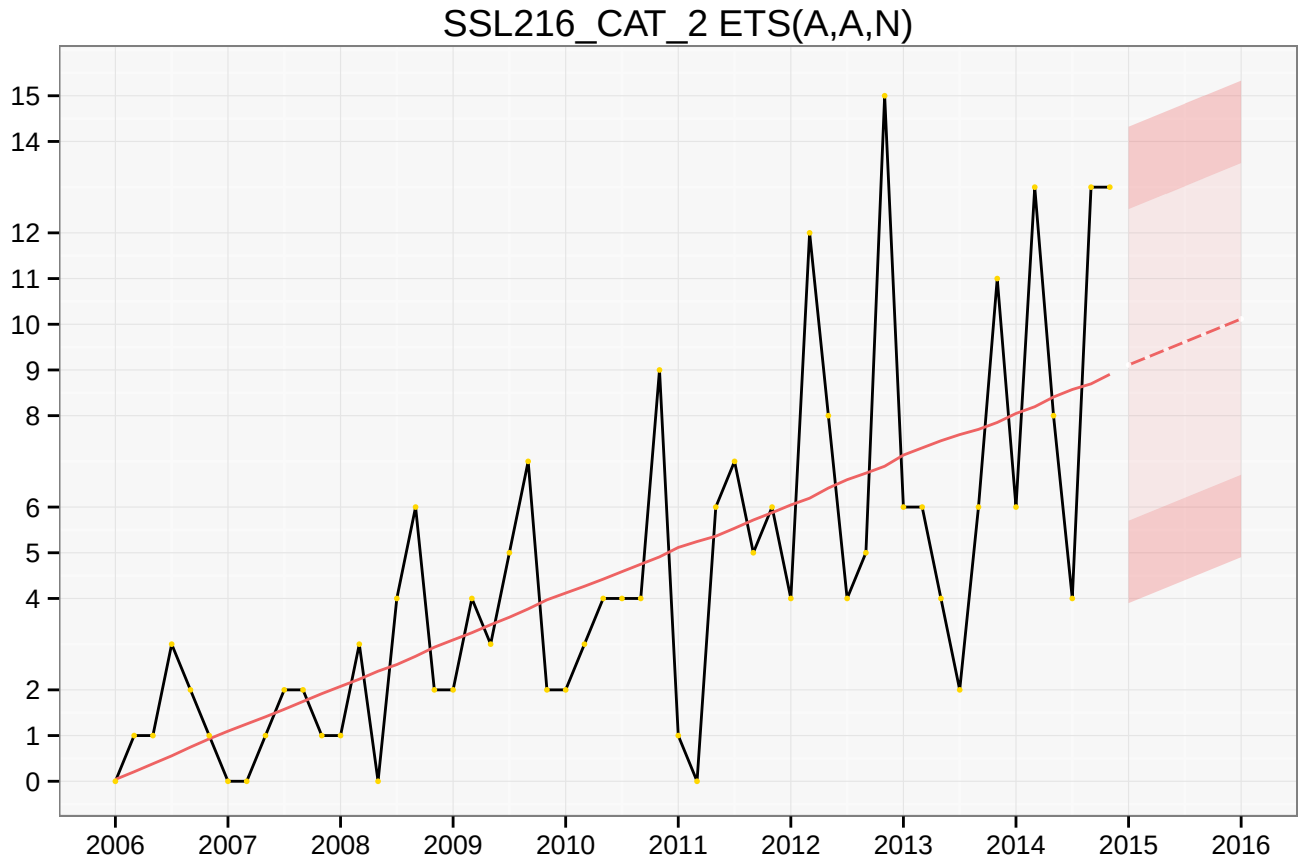

SSL216_CAT_1 ARIMAX(0,1,1)(0,0,0)12 Out of sample
7
6
5
4
3
2
1
0
−1
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

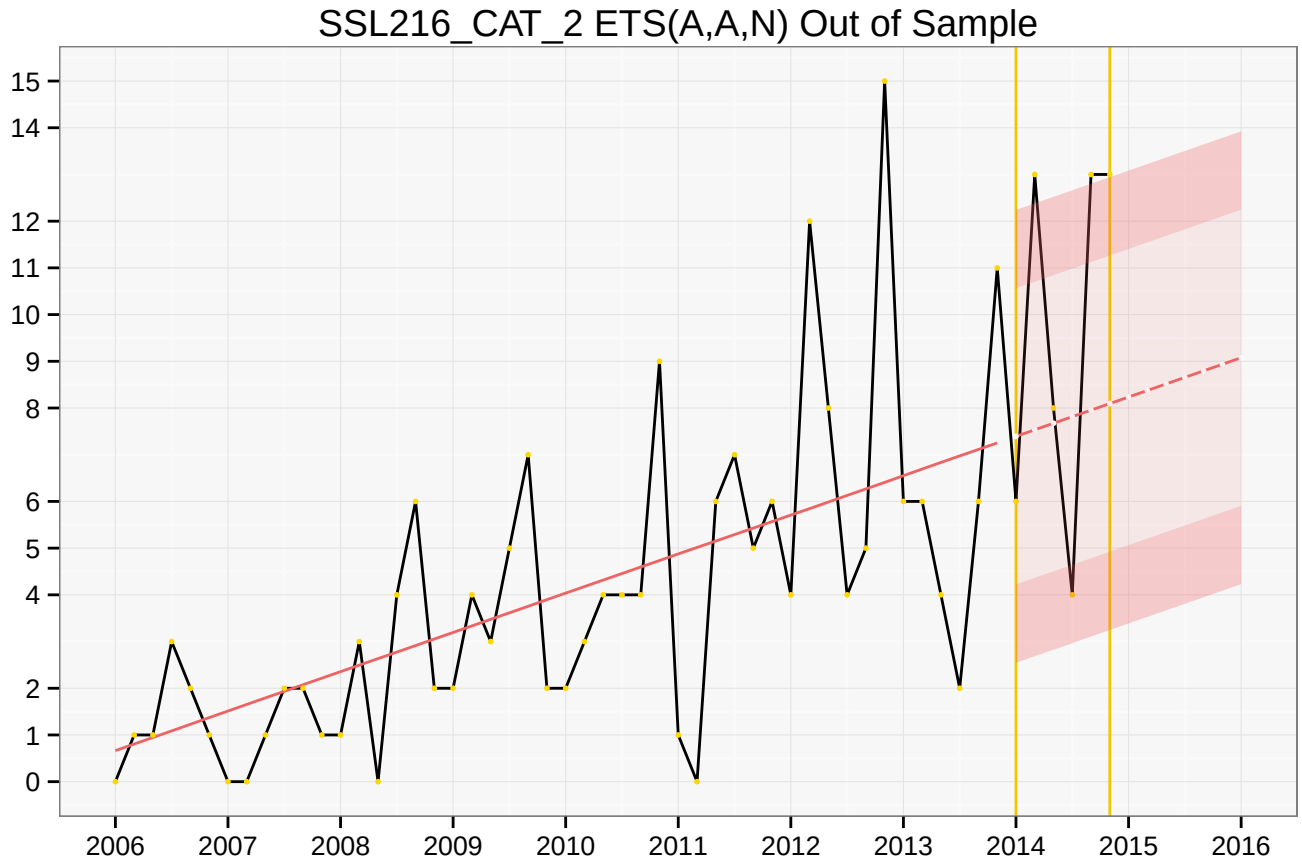

SSL216_CAT_1 ARIMAX(0,1,1)(0,0,0)12 First Obs
9
8
7
6
5
4
3
2
1
0
−1
2011
2012
2013
2014
2015
2016

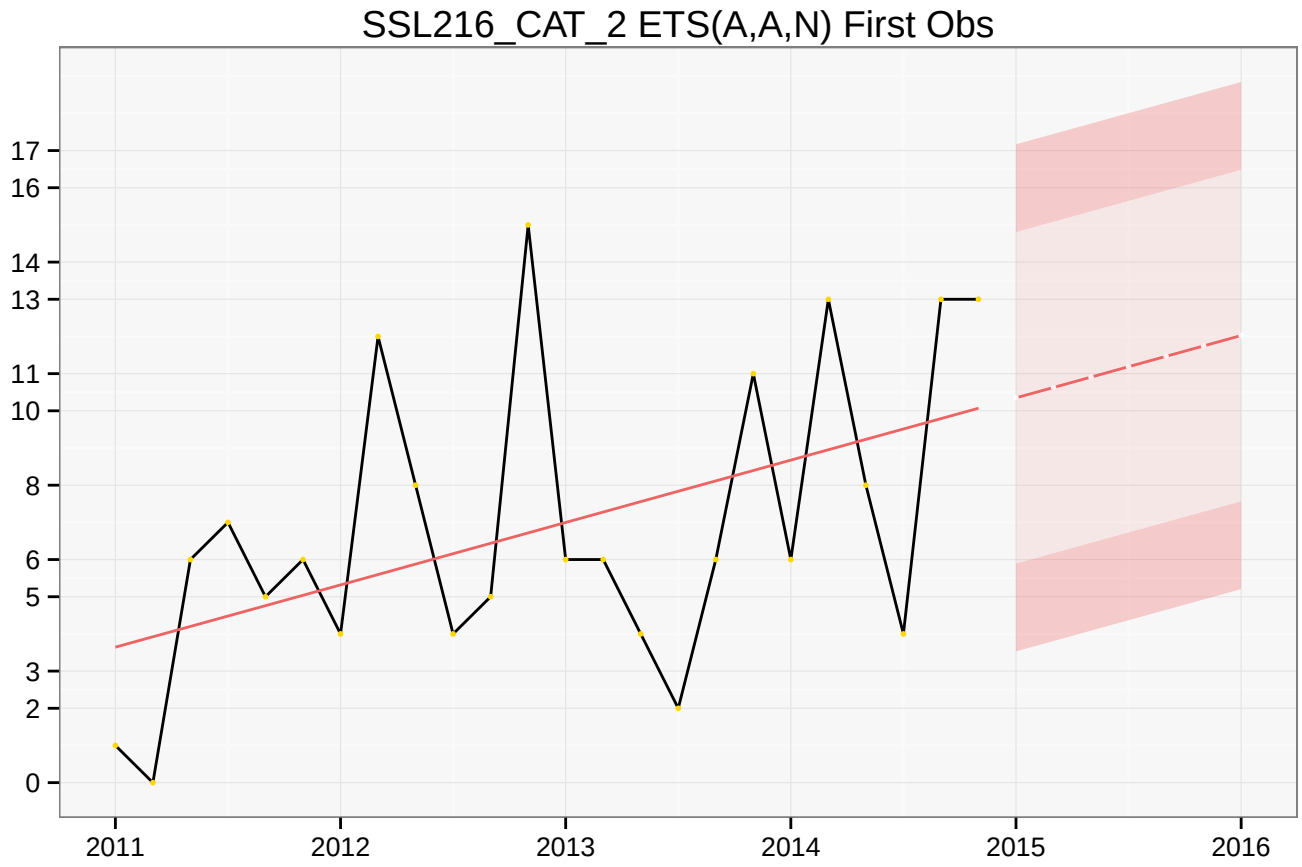

SSL216_CAT_1 ARIMAX(0,0,0)(0,0,0)12 Out of sample − First Obs
10
9
8
7
6
5
4
3
1
0
−1
−2
2011
2012
2013
2014
2015
2016

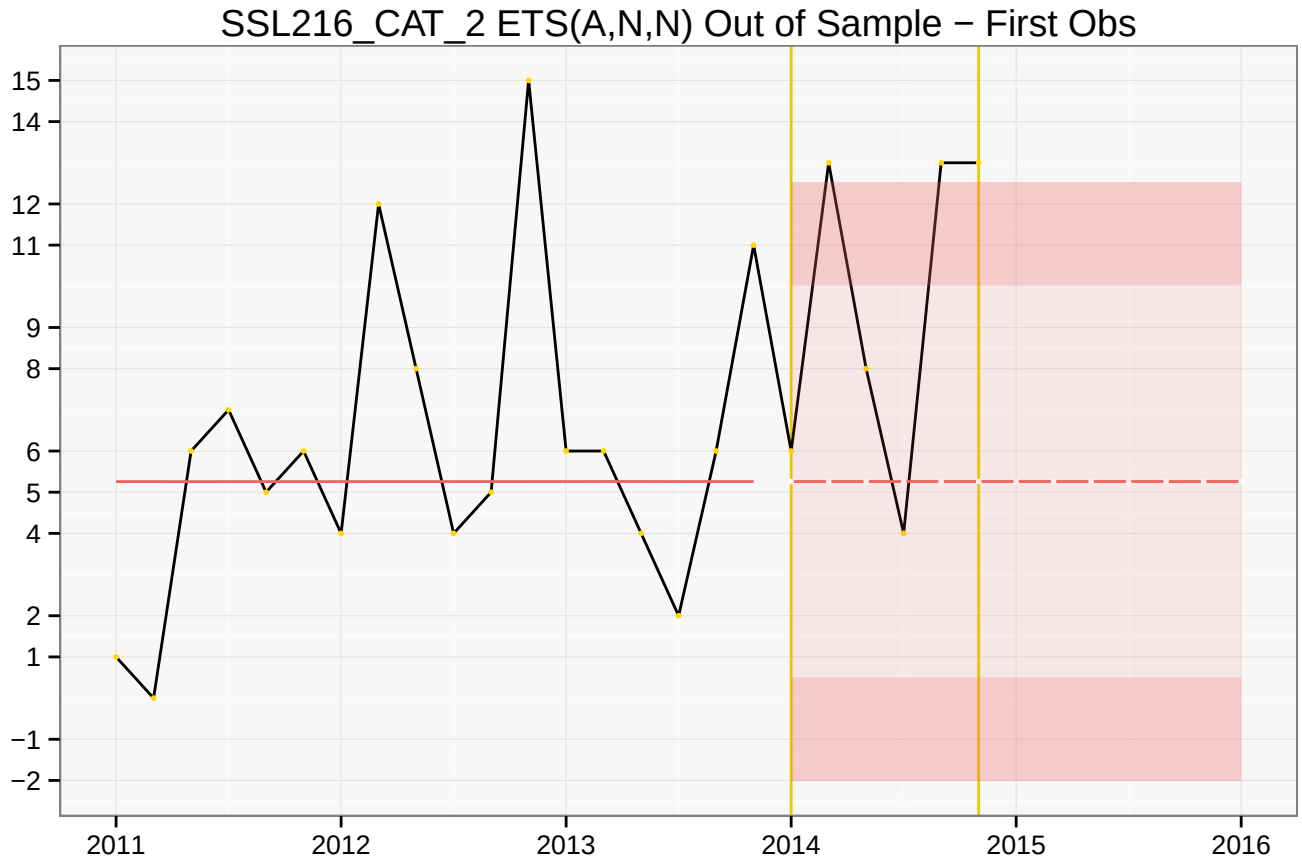
1.11 SSL216_CAT_2

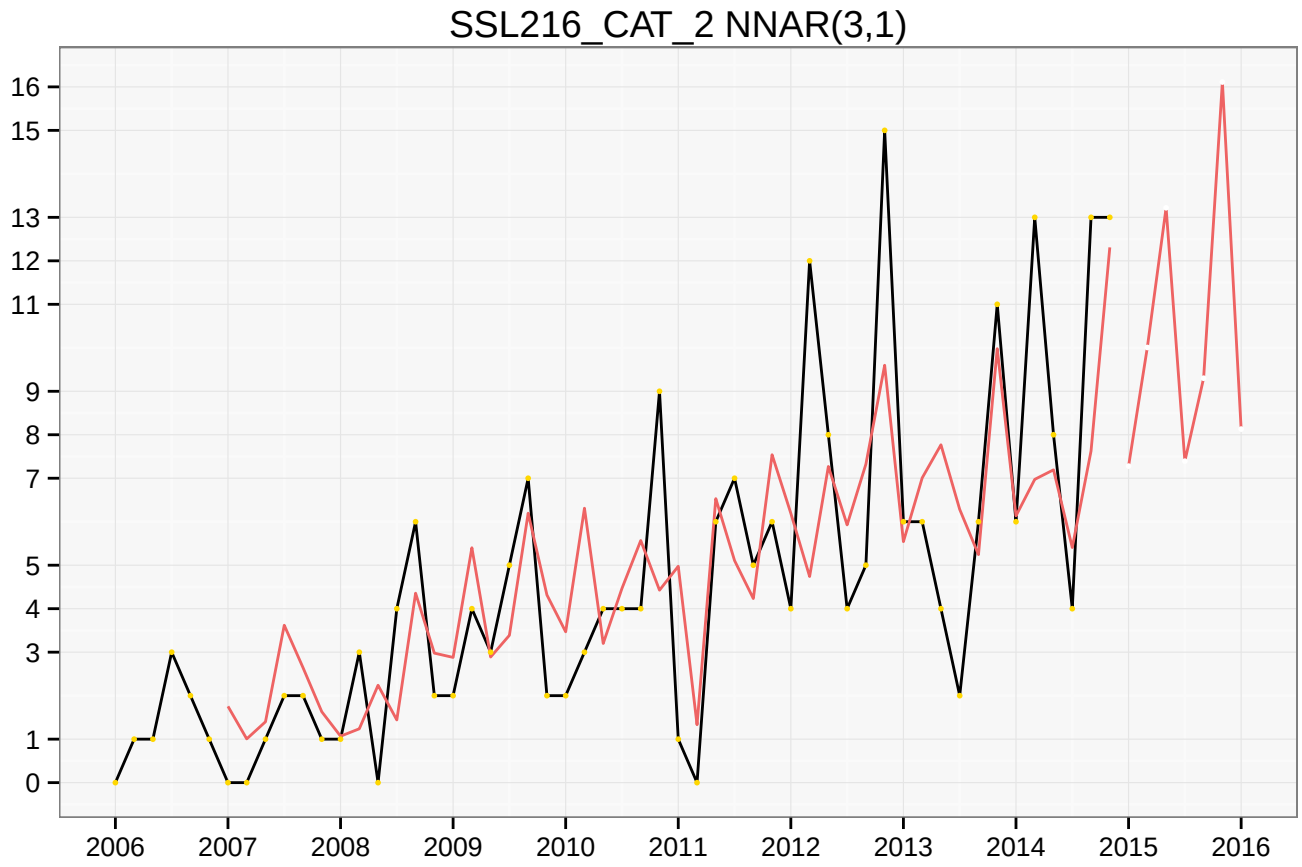
1.11.1 plots for SSL216_CAT_2

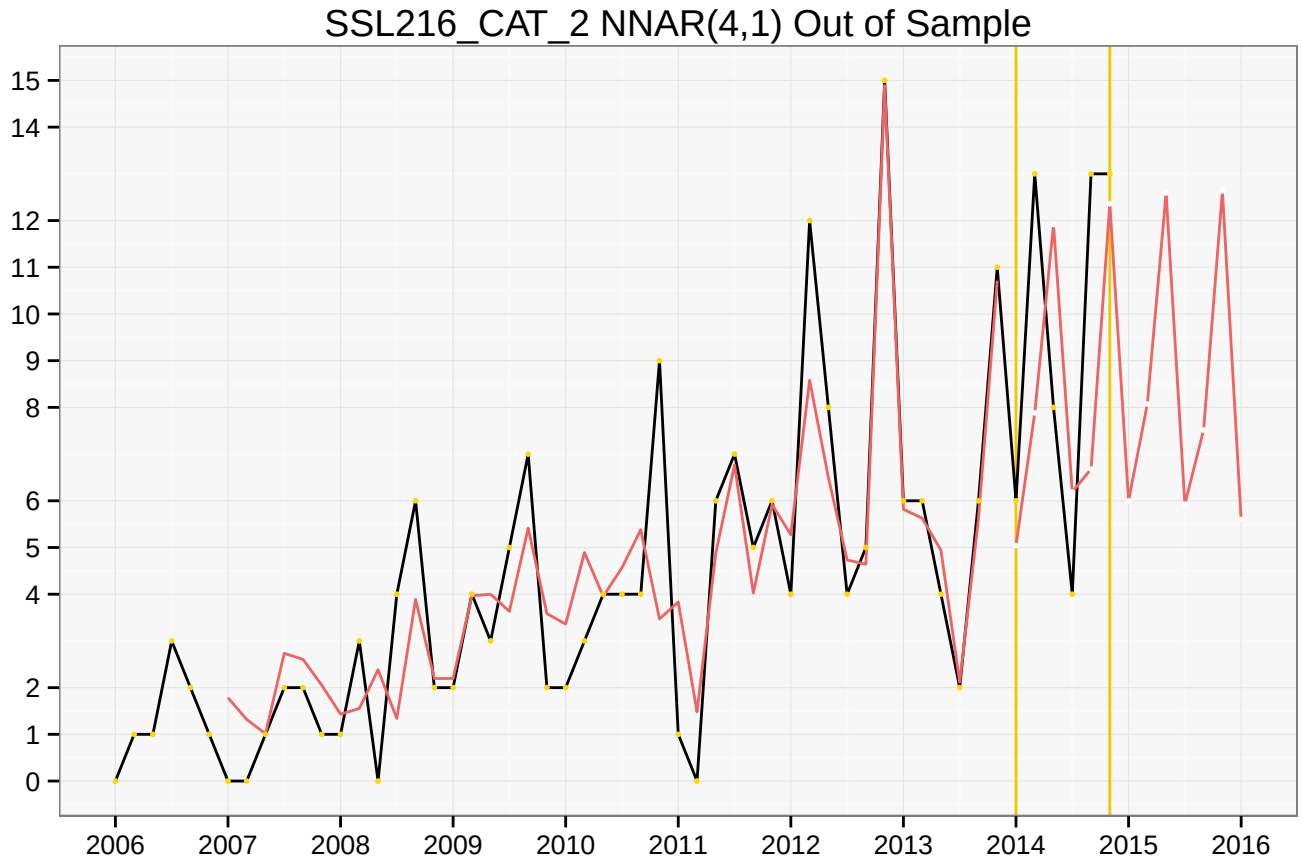


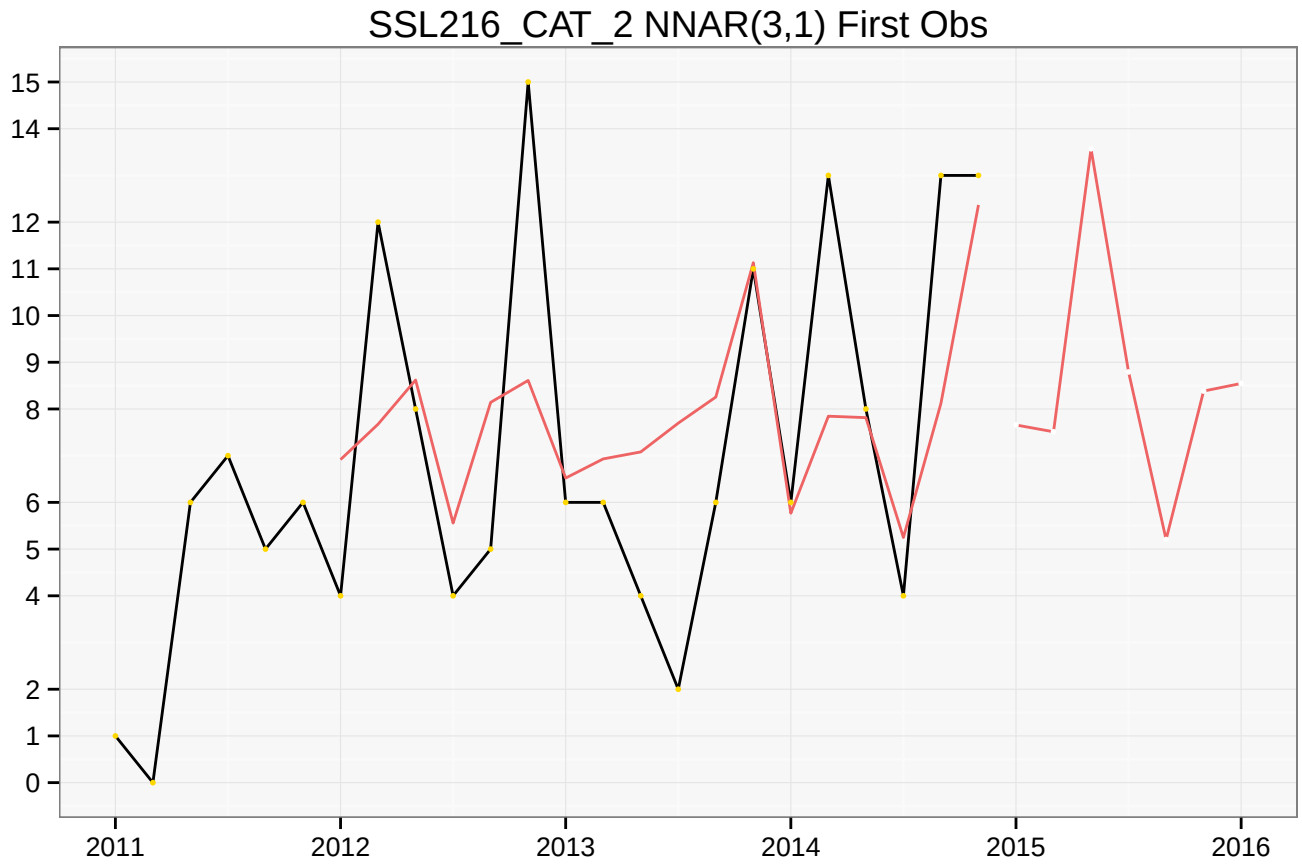


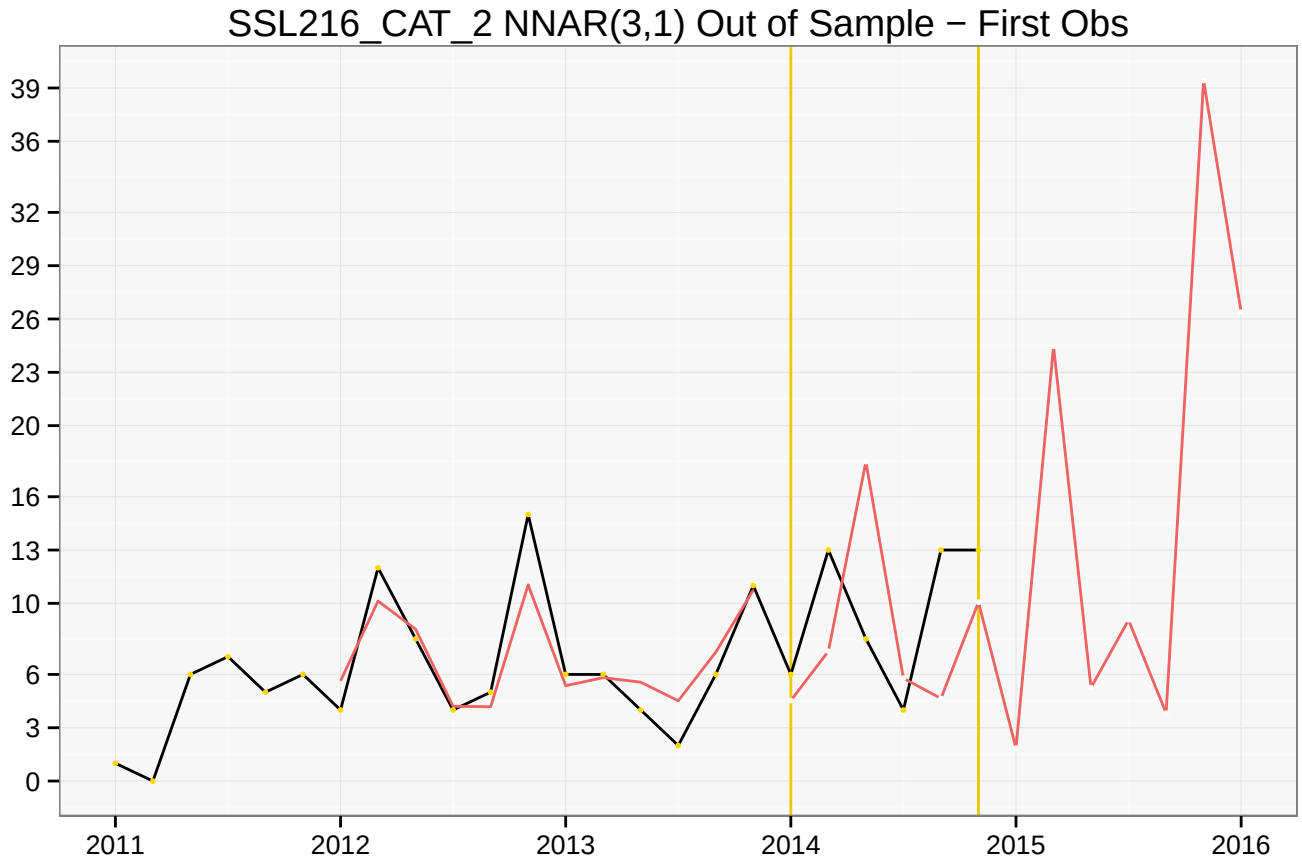

SSL216_CAT_2 ETS(A,A,N) First Obs
17
16
14
13
11
10
8
6
5
3
2
0
2011
2012
2013
2014
2015
2016

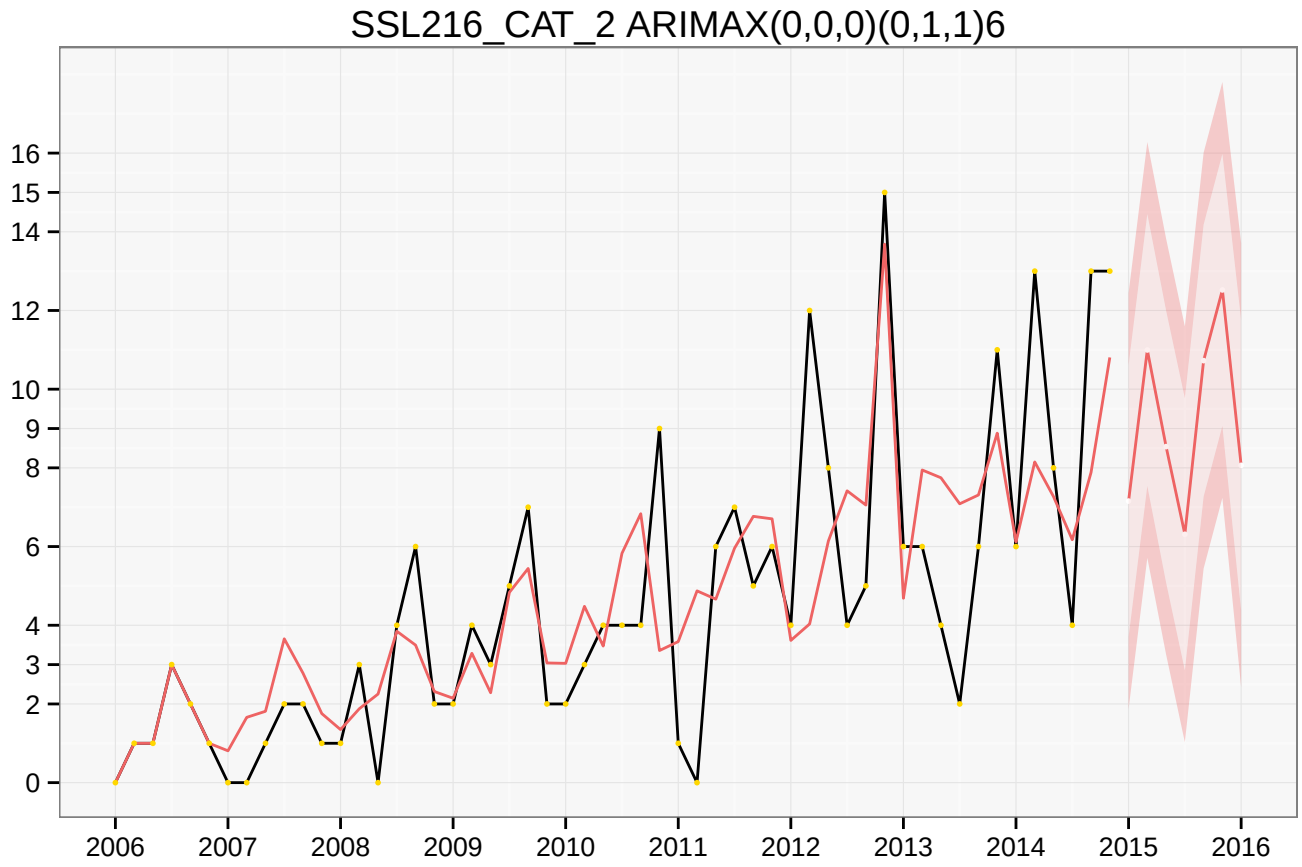

SSL216_CAT_2 ETS(A,N,N) Out of Sample − First Obs
15
14
12
11
9
8
6
5
4
2
1
−1
−2
2011
2012
2013
2014
2015
2016

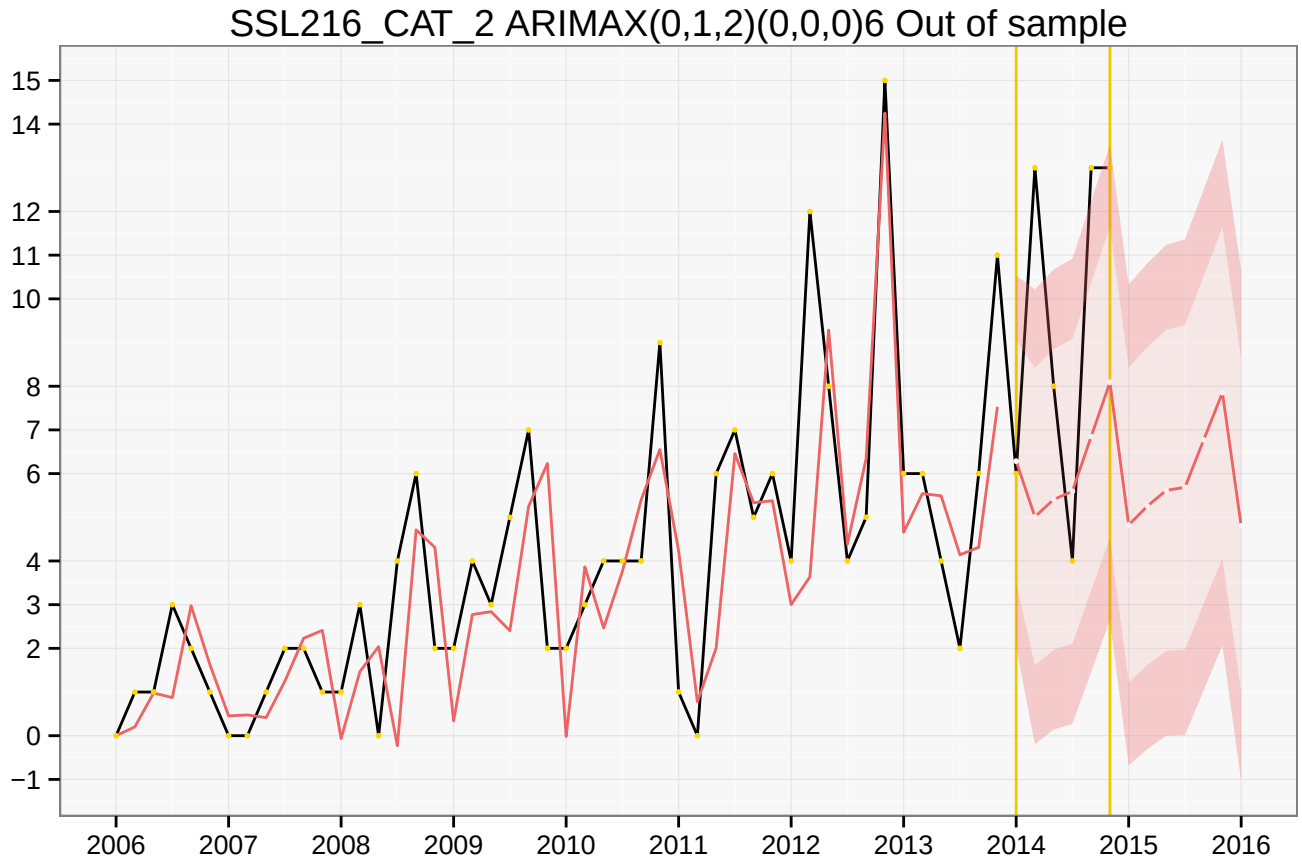

SSL216_CAT_2 NNAR(3,1)
16
15
13
12
11
9
8
7
5
4
3
1
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

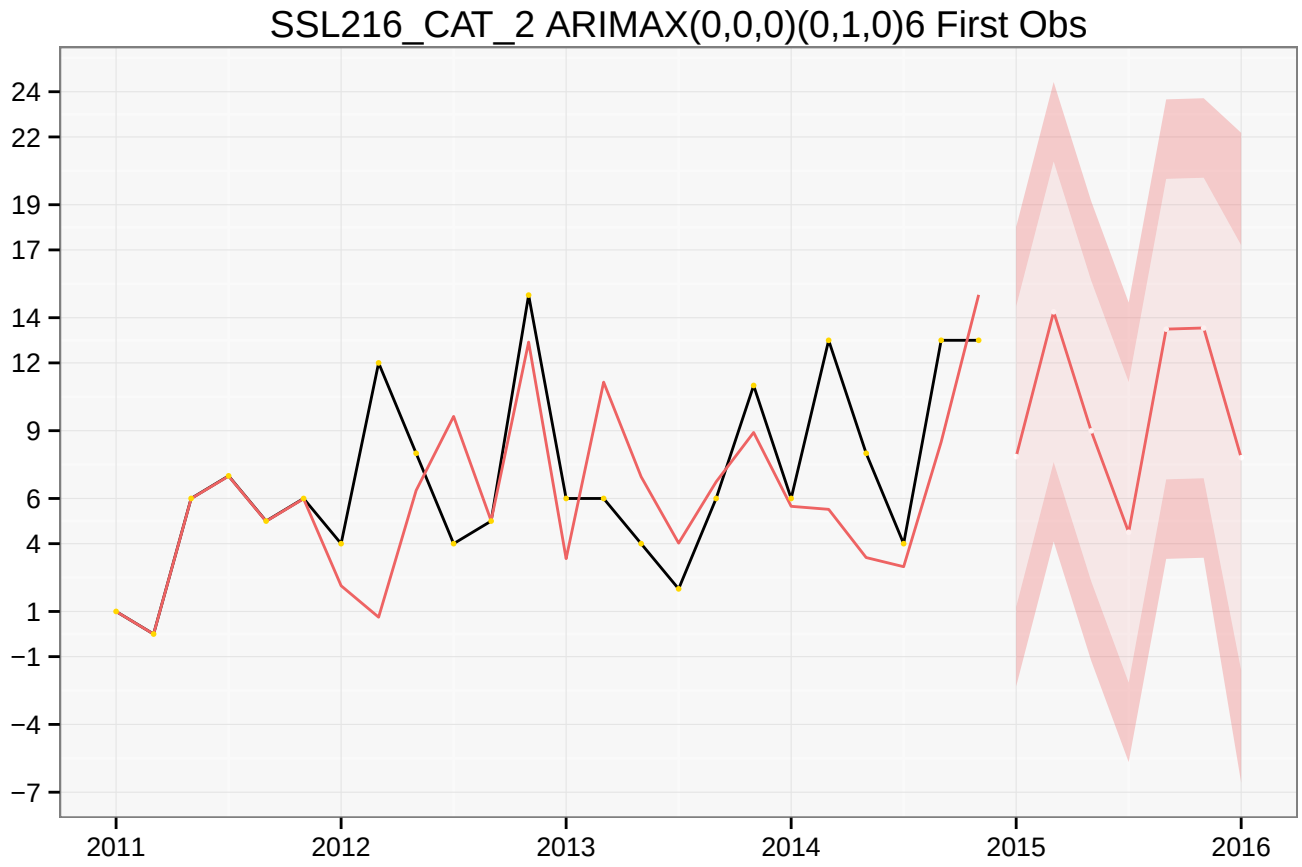

SSL216_CAT_2 NNAR(4,1) Out of Sample
15
14
12
11
10
9
8
6
5
4
2
1
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

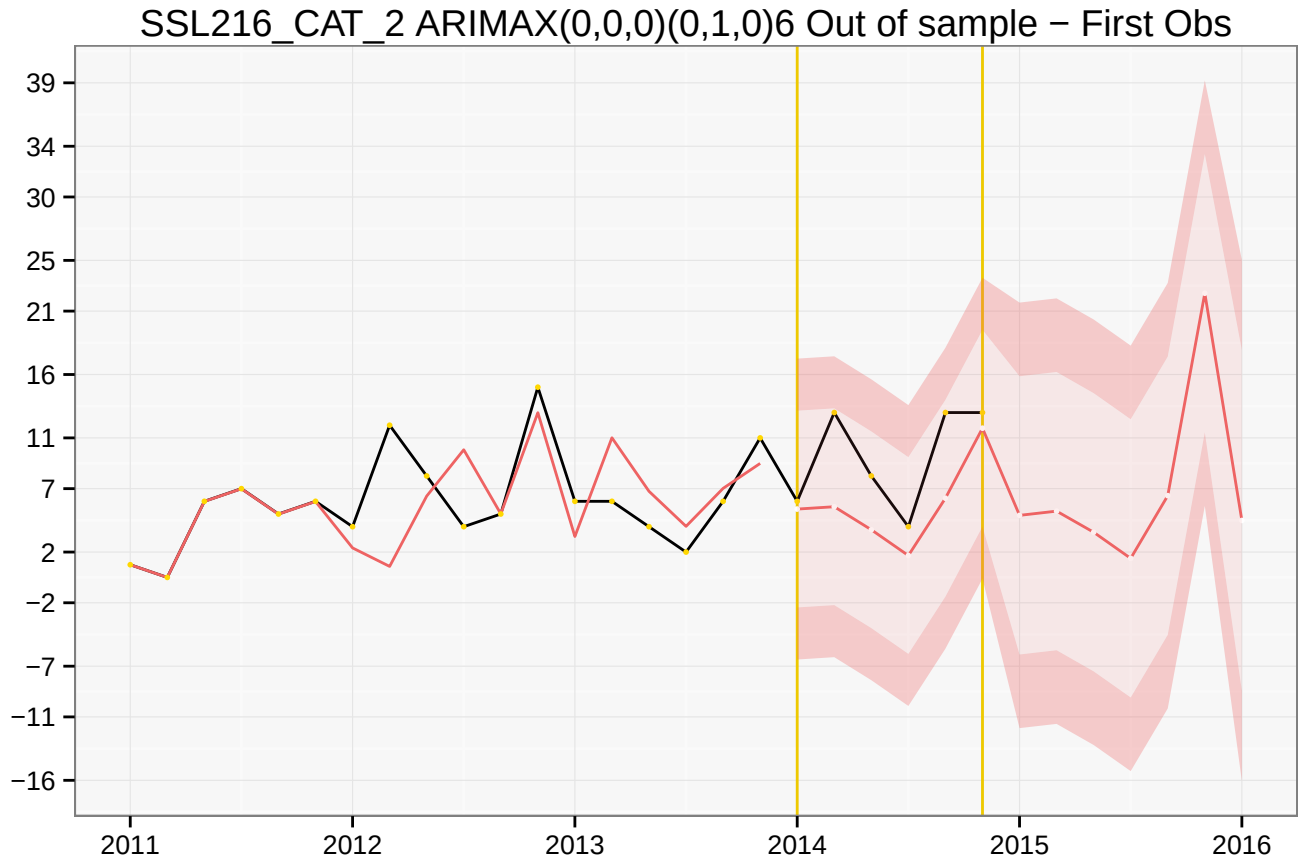

SSL216_CAT_2 NNAR(3,1) First Obs
15
14
12
11
10
9
8
6
5
4
2
1
0
2011
2012
2013
2014
2015
2016


SSL216_CAT_2 NNAR(3,1) Out of Sample − First Obs
39
36
32
29
26
23
20
16
13
10
6
3
0
2011
2012
2013
2014
2015
2016


SSL216_CAT_2 ARIMAX(0,0,0)(0,1,1)6
16
15
14
12
10
9
8
6
4
3
2
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

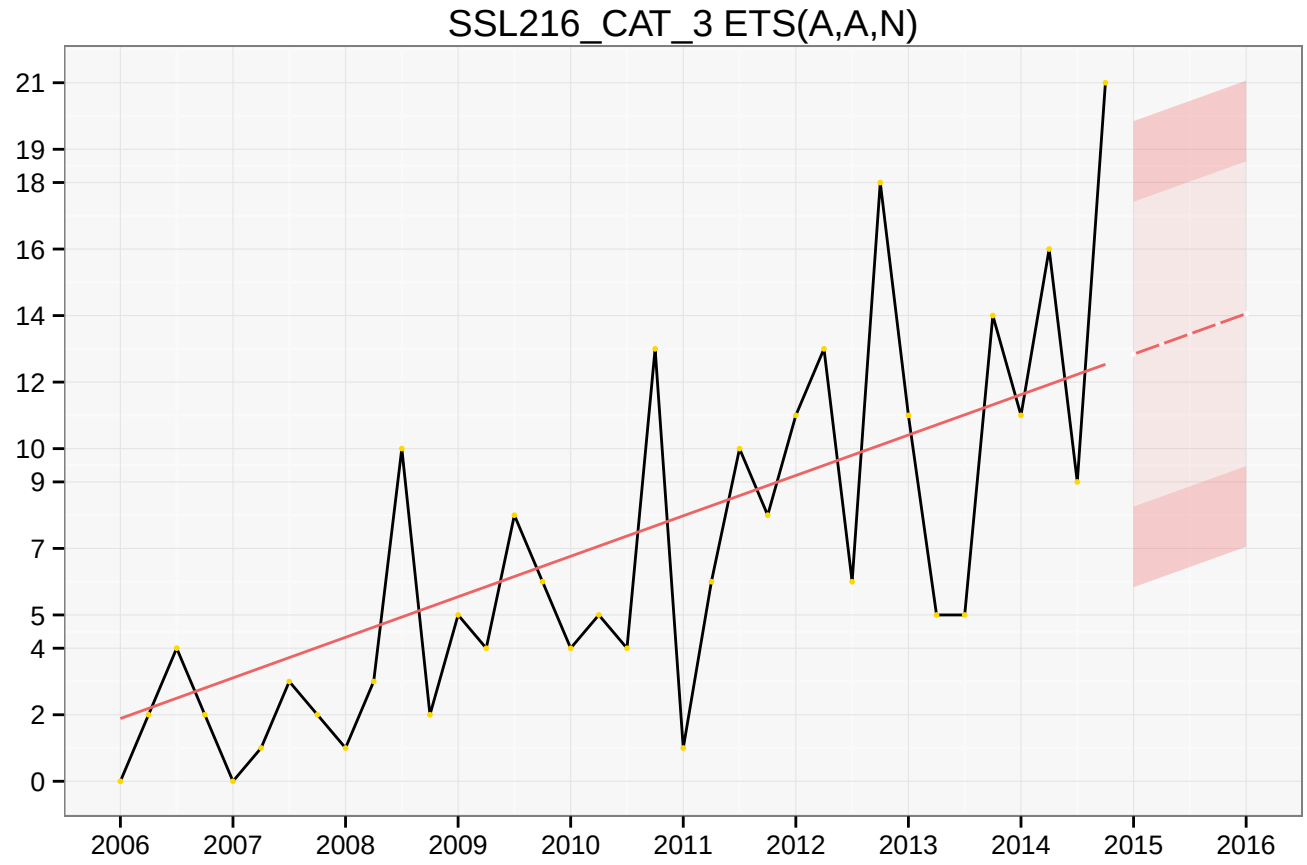

SSL216_CAT_2 ARIMAX(0,1,2)(0,0,0)6 Out of sample
15
14
12
11
10
8
7
6
4
3
2
0
−1
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

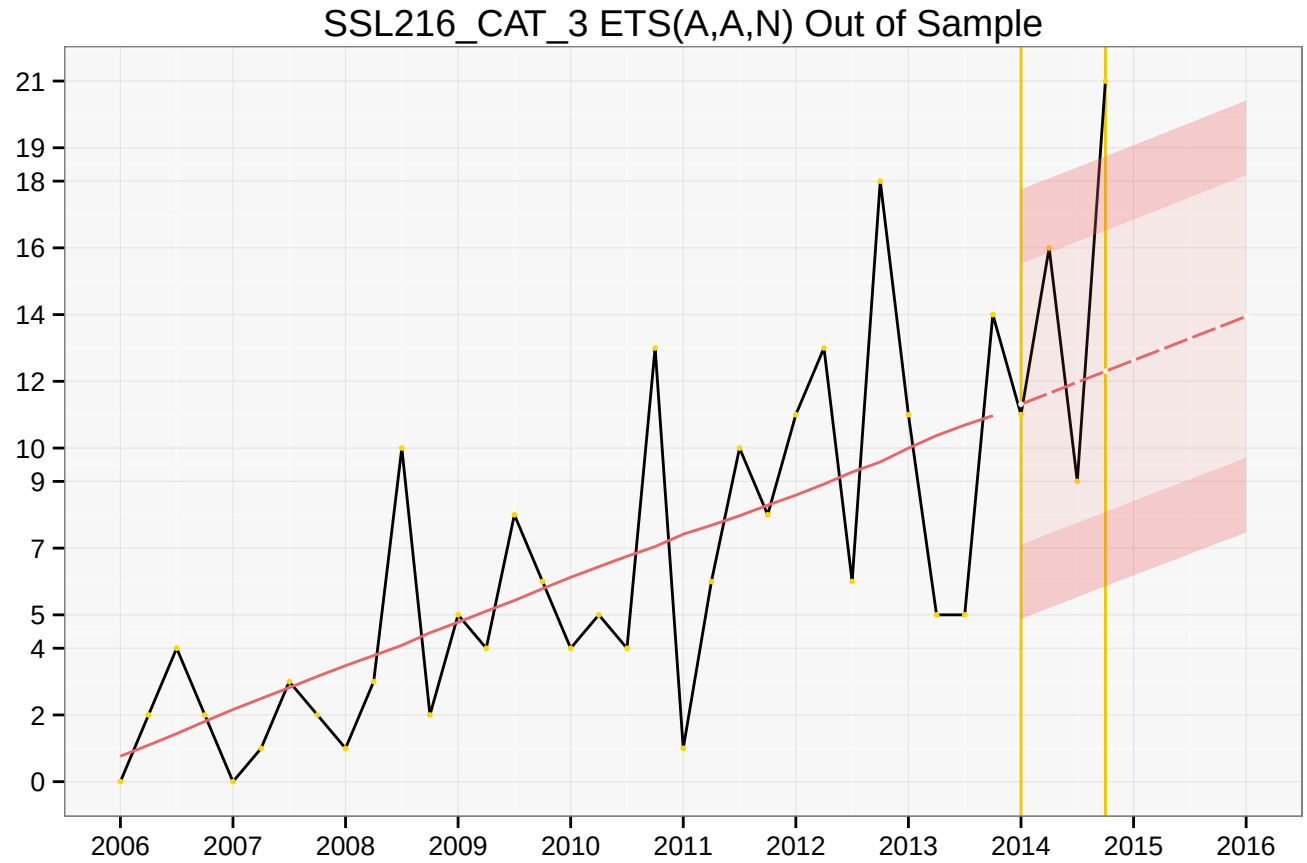

SSL216_CAT_2 ARIMAX(0,0,0)(0,1,0)6 First Obs
24
22
19
17
14
12
9
6
4
1
−1
−4
−7
2011
2012
2013
2014
2015
2016

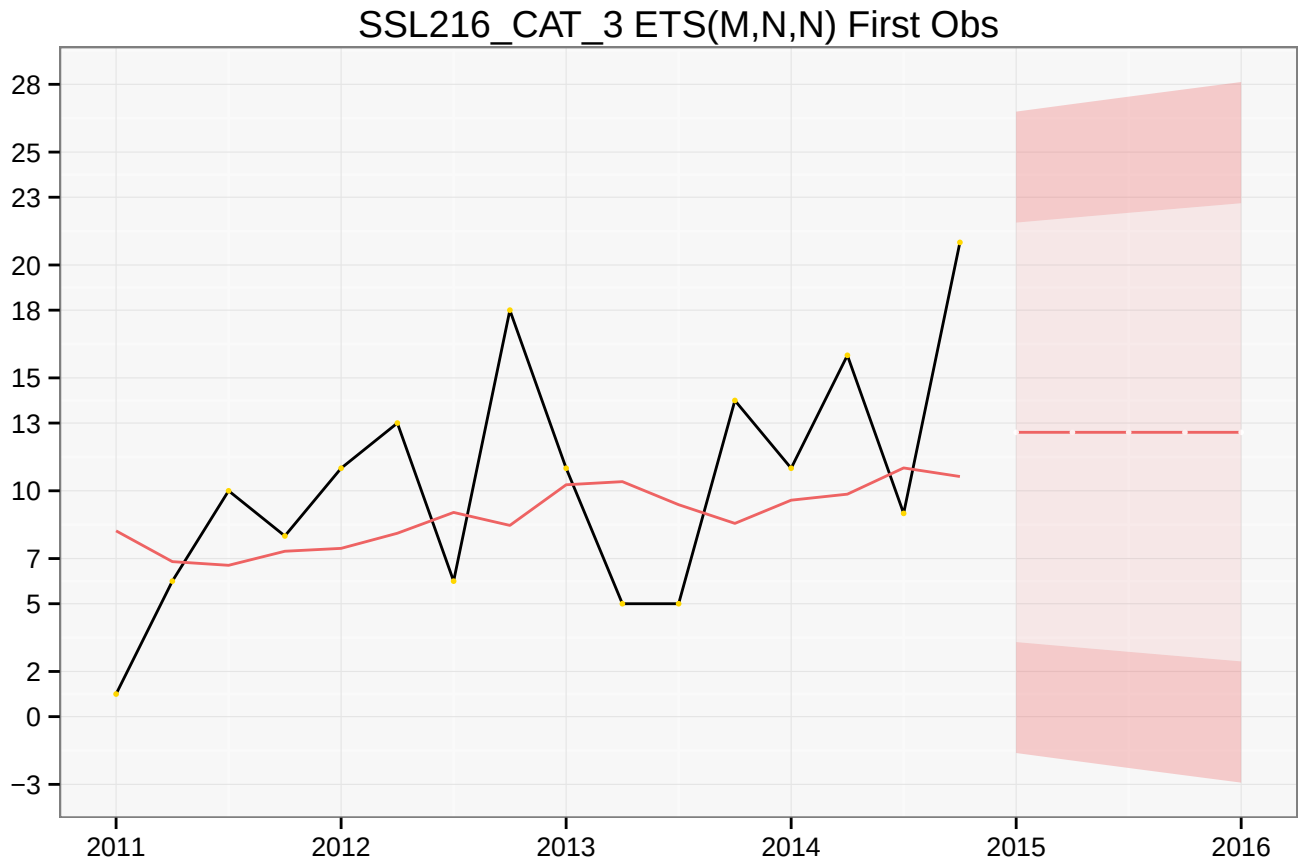

SSL216_CAT_2 ARIMAX(0,0,0)(0,1,0)6 Out of sample − First Obs
39
34
30
25
21
16
11
7
2
−2
−7
−11
−16
2011
2012
2013
2014
2015
2016

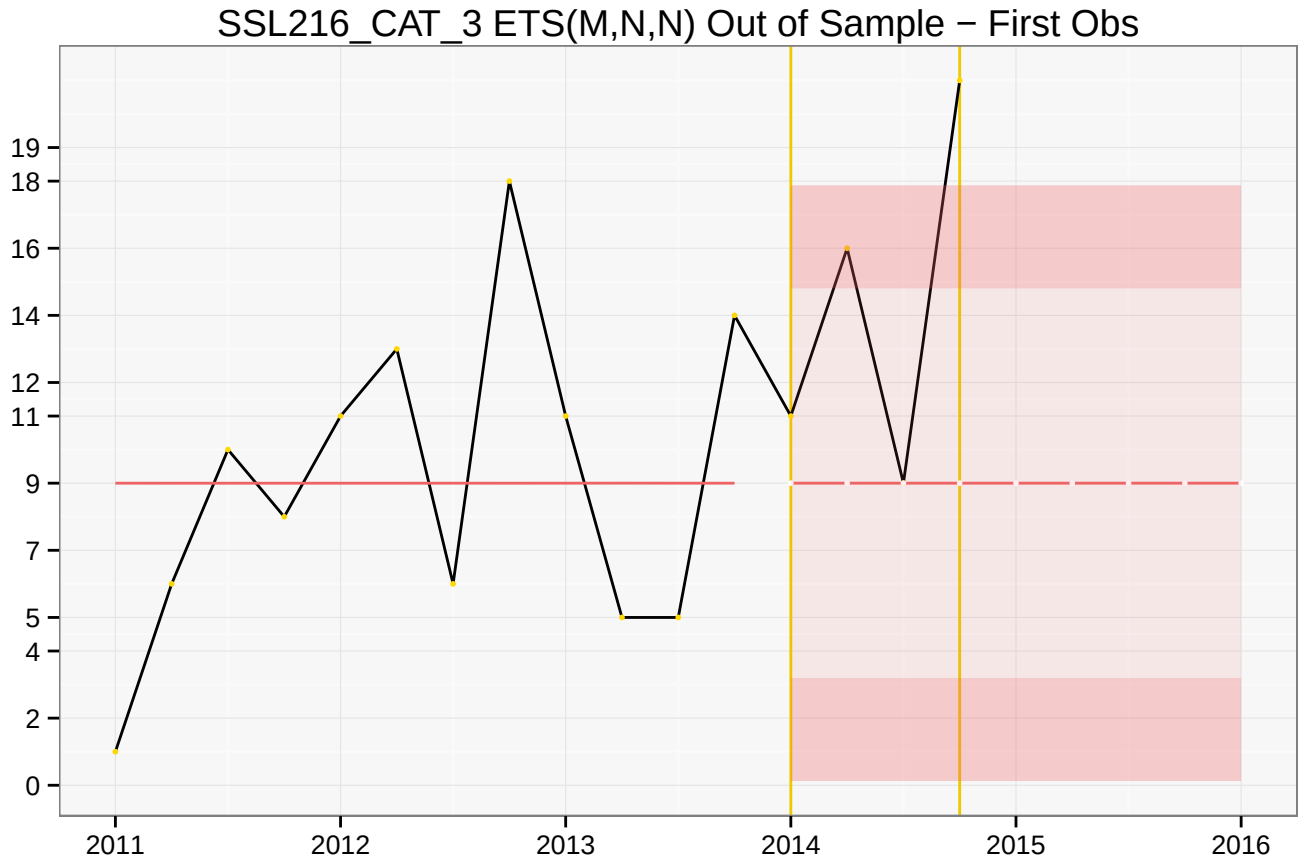
1.12 SSL216_CAT_3

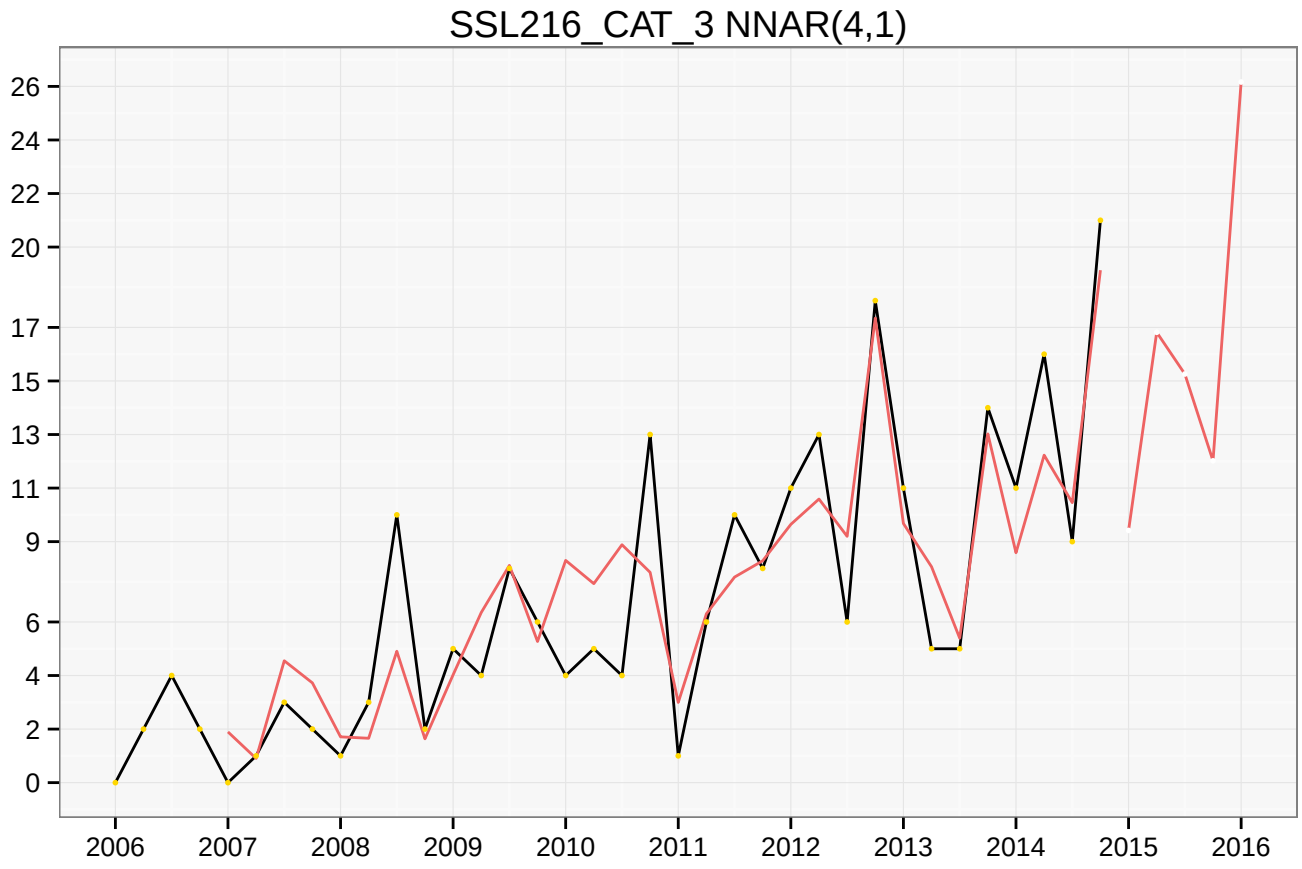
1.12.1 plots for SSL216_CAT_3

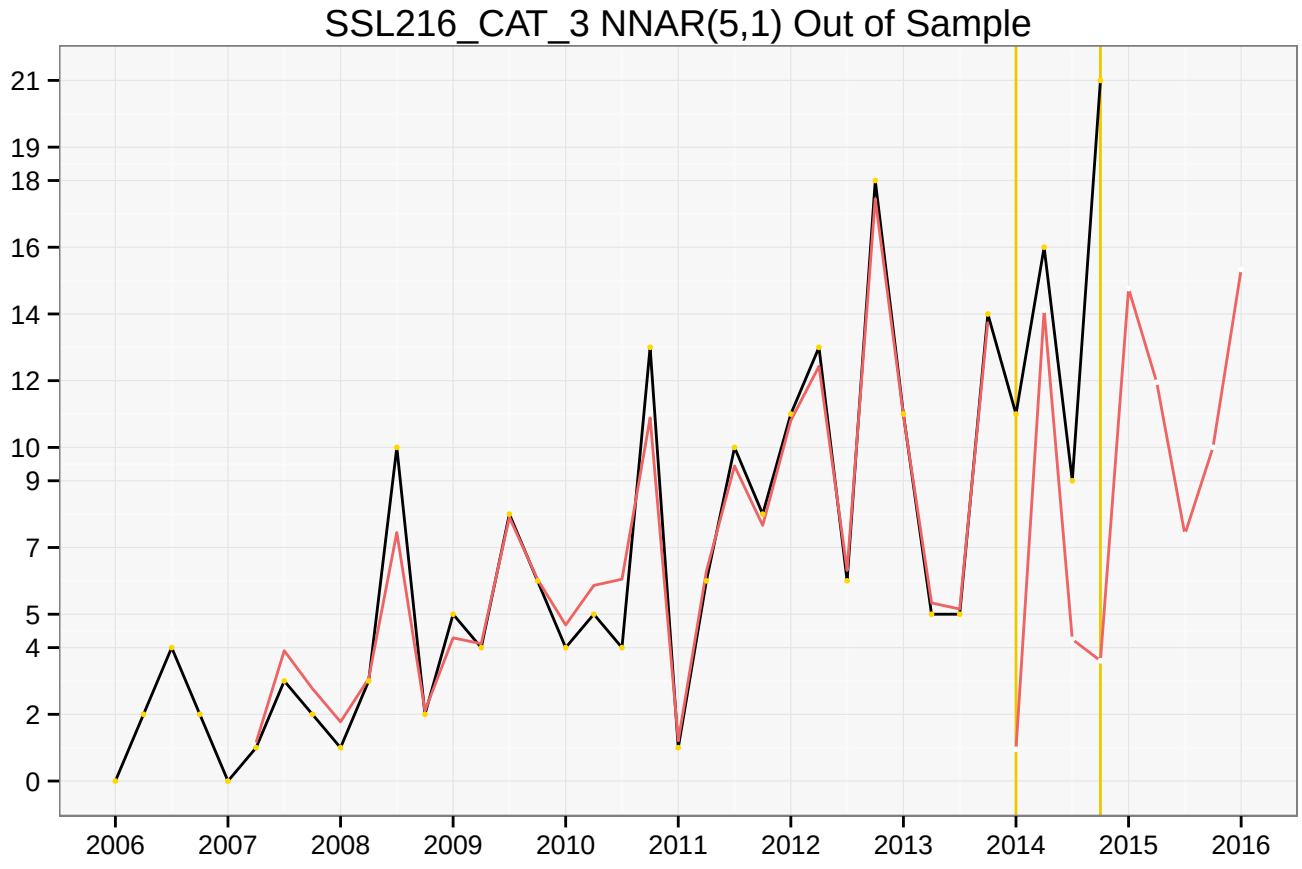


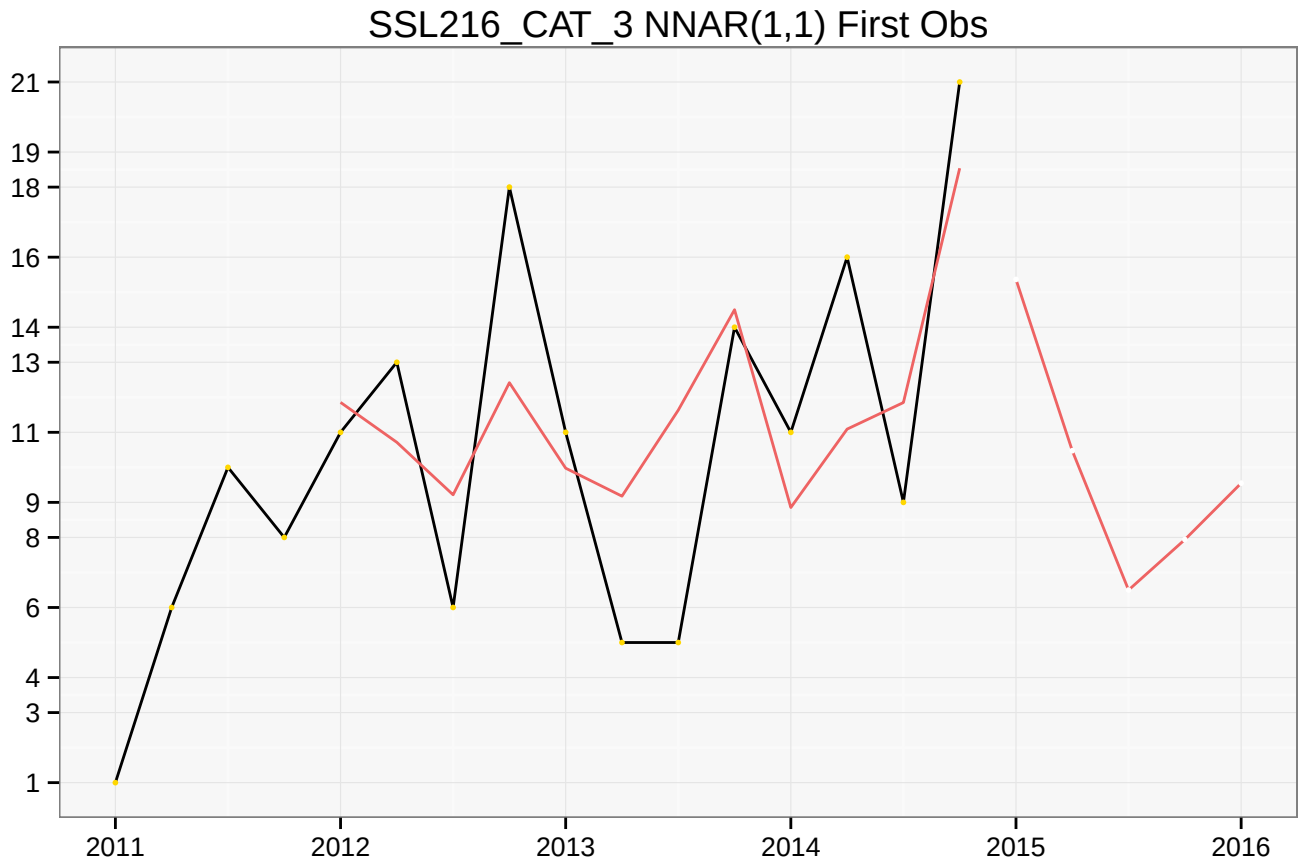


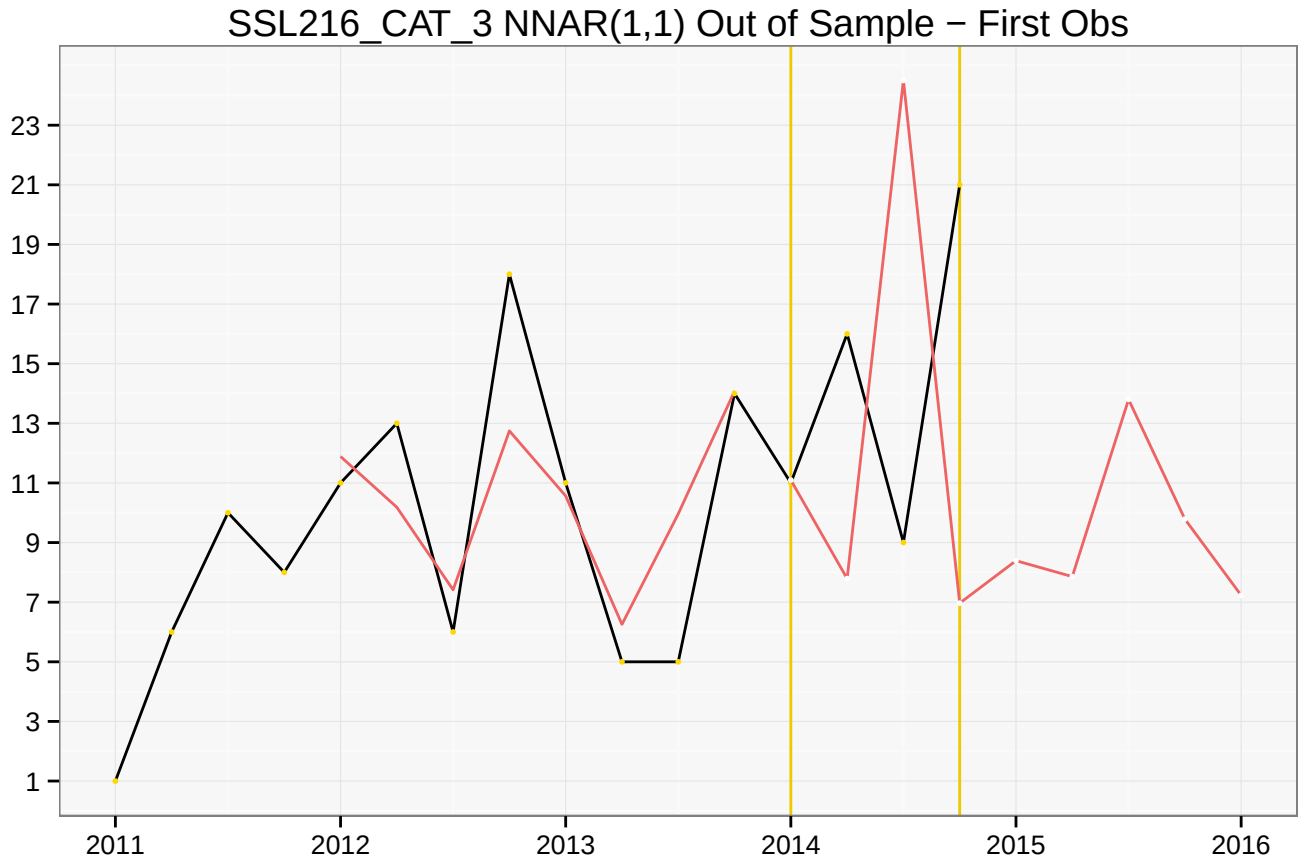

SSL216_CAT_3 ETS(M,N,N) First Obs
28
25
23
20
18
15
13
10
7
5
2
0
−3
2011
2012
2013
2014
2015
2016

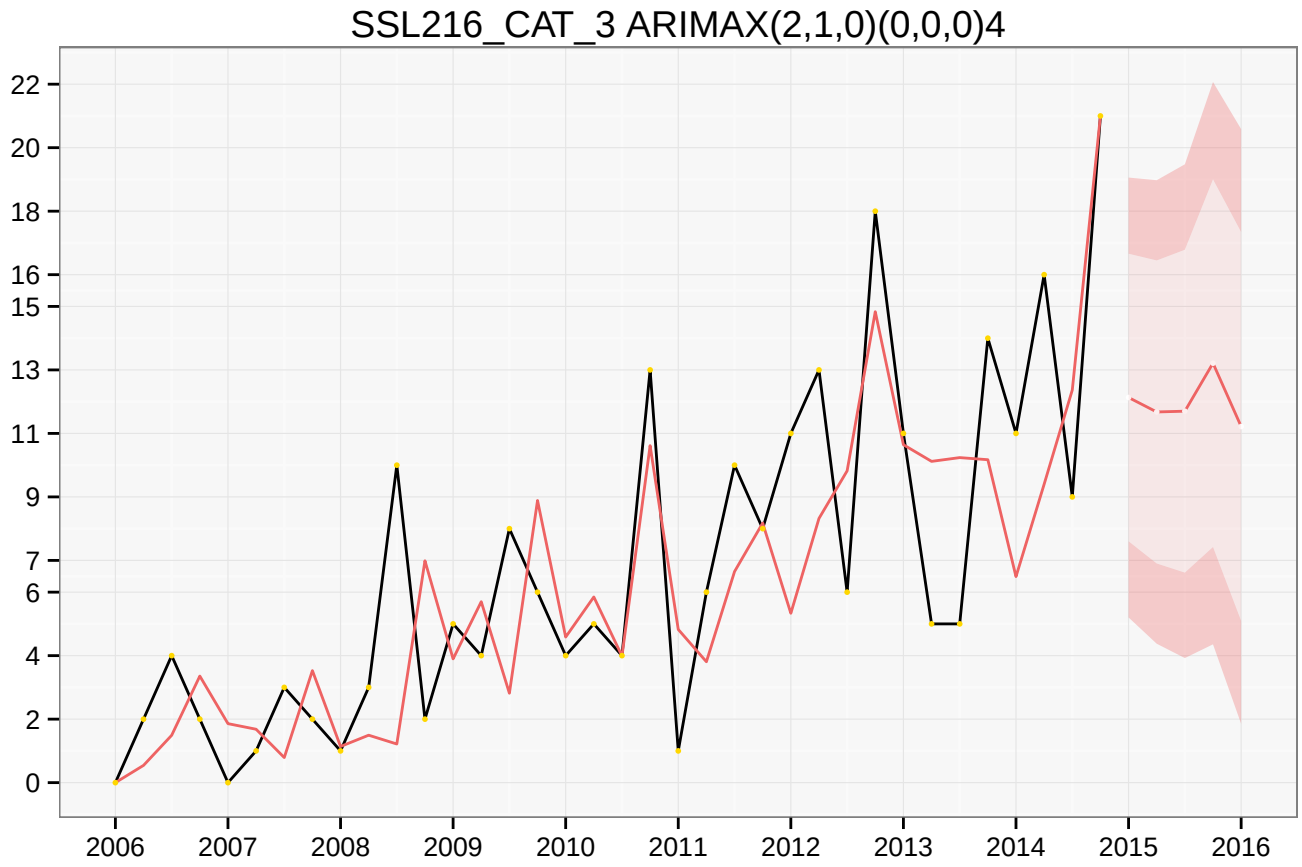

SSL216_CAT_3 ETS(M,N,N) Out of Sample − First Obs
19
18
16
14
12
11
9
7
5
4
2
0
2011
2012
2013
2014
2015
2016

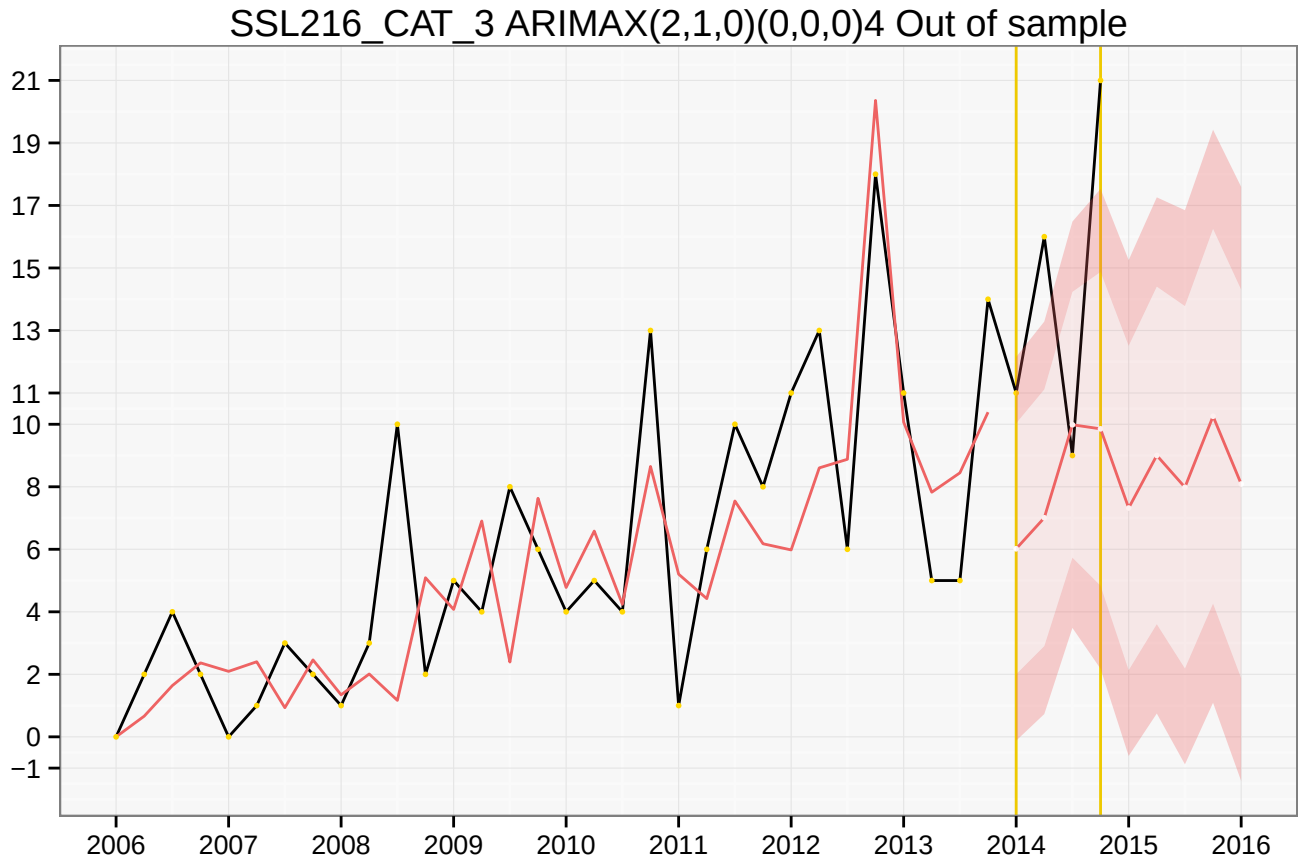

SSL216_CAT_3 NNAR(4,1)
26
24
22
20
17
15
13
11
9
6
4
2
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

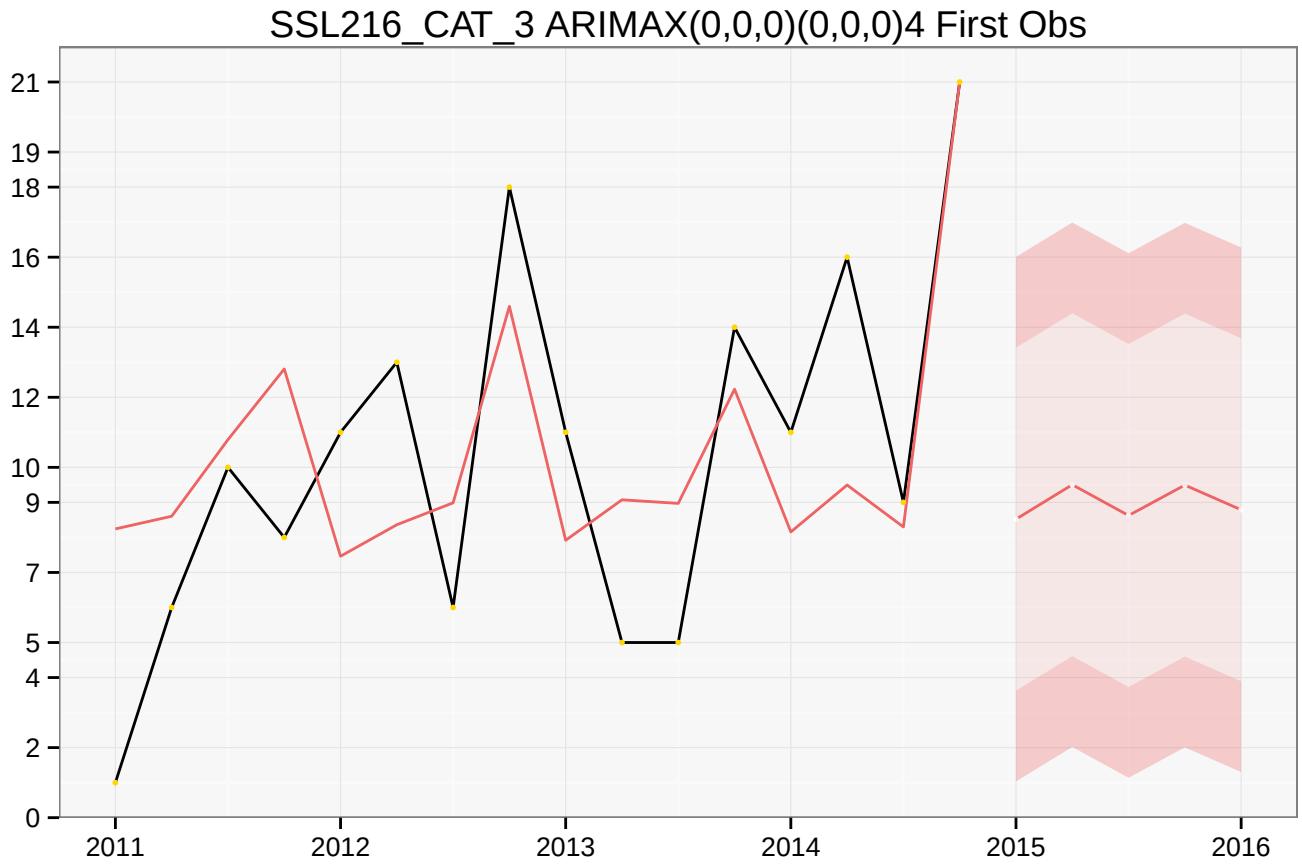

SSL216_CAT_3 NNAR(5,1) Out of Sample
21
19
18
16
14
12
10
9
7
5
4
2
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

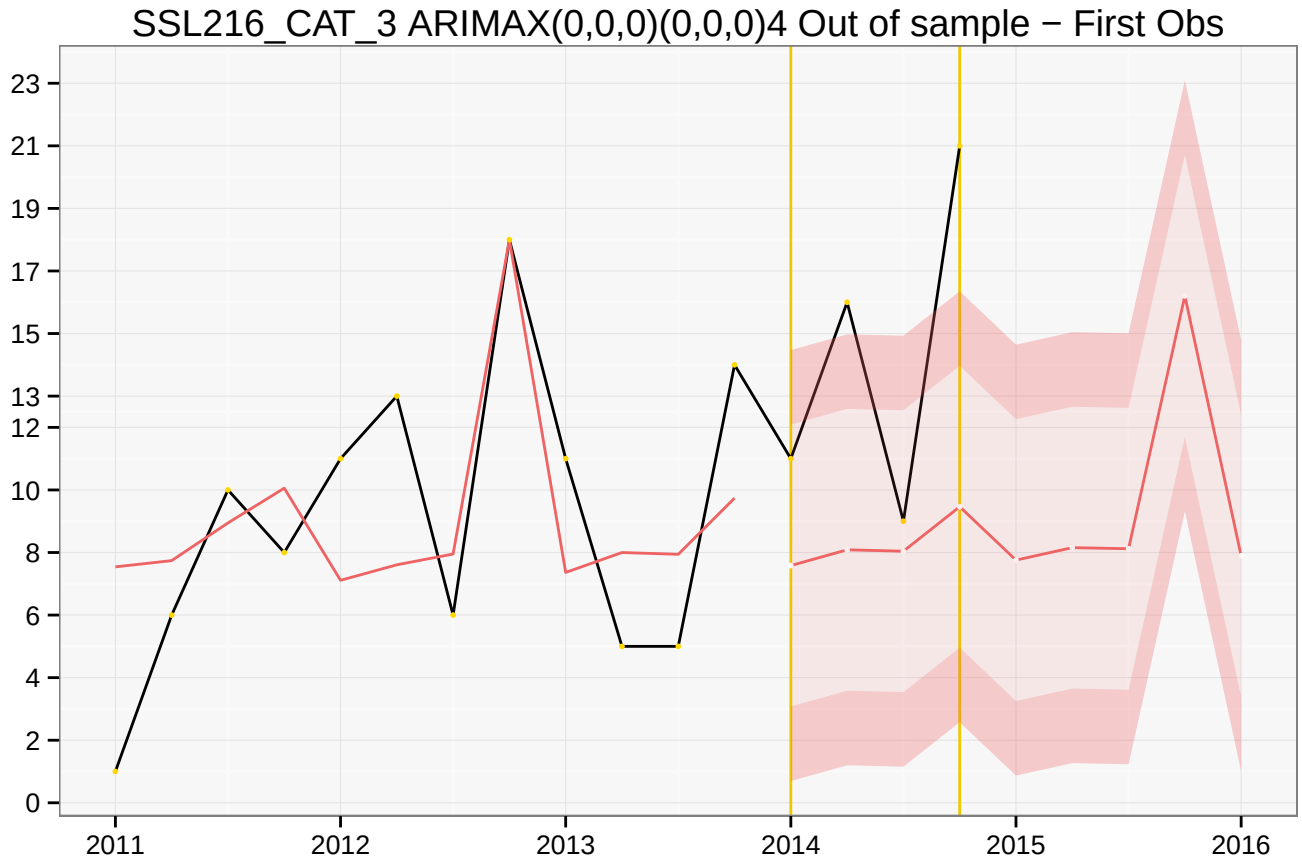

SSL216_CAT_3 NNAR(1,1) First Obs
21
19
18
16
14
13
11
9
8
6
4
3
1
2011
2012
2013
2014
2015
2016


SSL216_CAT_3 NNAR(1,1) Out of Sample − First Obs
23
21
19
17
15
13
11
9
7
5
3
1
2011
2012
2013
2014
2015
2016


SSL216_CAT_3 ARIMAX(2,1,0)(0,0,0)4
22
20
18
16
15
13
11
9
7
6
4
2
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016


SSL216_CAT_3 ARIMAX(2,1,0)(0,0,0)4 Out of sample
21
19
17
15
13
11
10
8
6
4
2
0
−1
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016


SSL216_CAT_3 ARIMAX(0,0,0)(0,0,0)4 First Obs
21
19
18
16
14
12
10
9
7
5
4
2
0
2011
2012
2013
2014
2015
2016


SSL216_CAT_3 ARIMAX(0,0,0)(0,0,0)4 Out of sample − First Obs
23
21
19
17
15
13
12
10
8
6
4
2
0
2011
2012
2013
2014
2015
2016