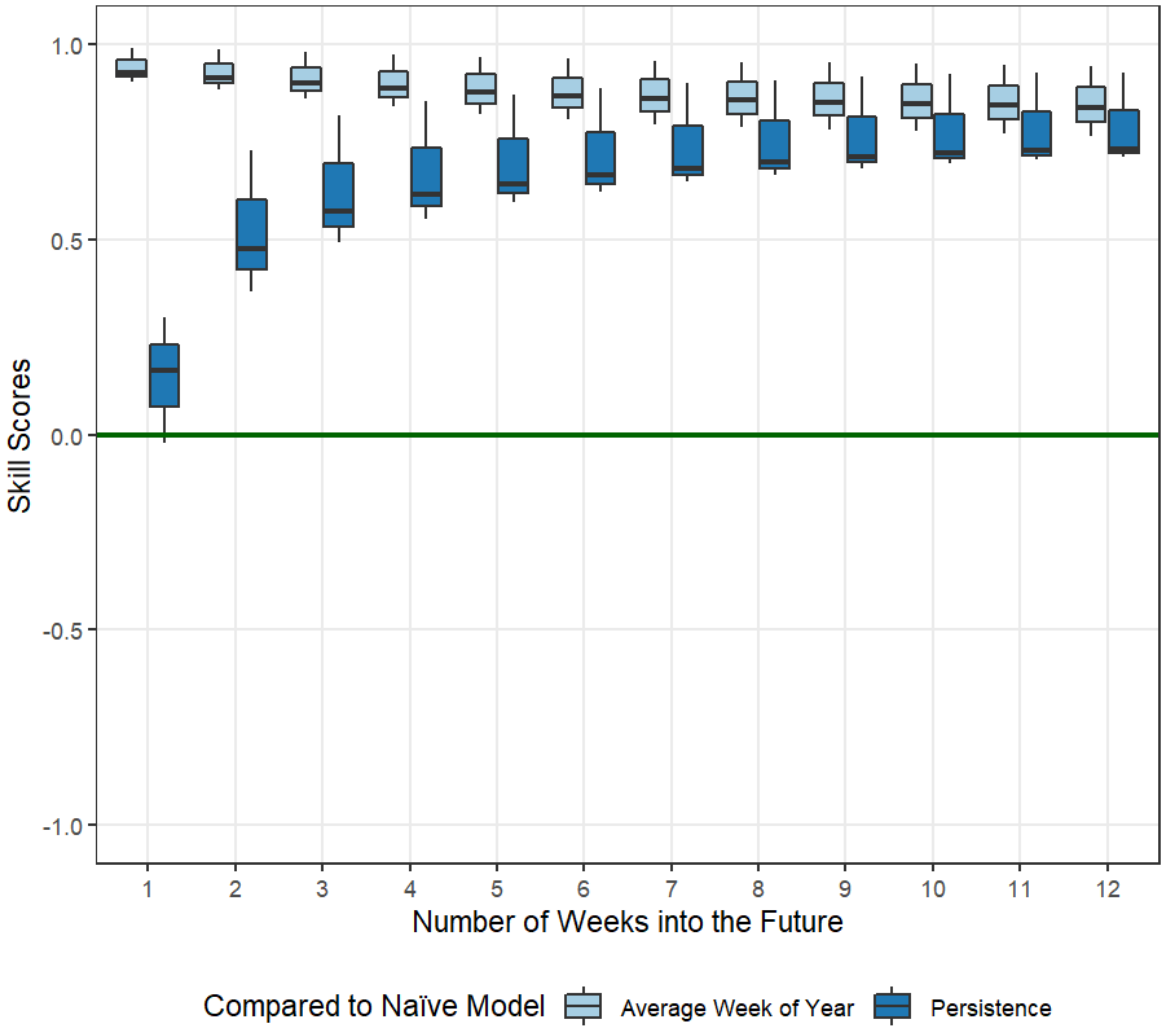
Demonstration Model Validation for Malaria Forecasting
Plasmodium falciparum and mixed species
07 January 2018 - 30 December 2018

EPIDEMIA Team

June 26, 2020

1 Skill Scores Summaries



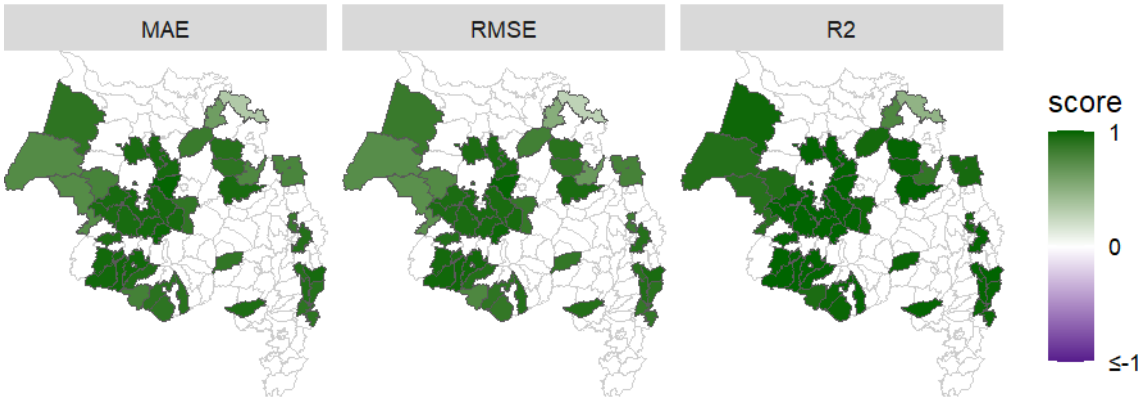
Skill scores show the improvement (with values greater than 0) of the forecast model (gaussian()) over simple naive models. There are three accuracy statistics used: Mean Absolute Error (MAE), Root Mean Squared Error (RMSE), an a R2 (variance explained). These statistics are compared against the naive models to give the skill scores. The boxplot shows the concordance of skill among the three statistics. Higher values (0 to 1) indicate the greater skill of the forecast models over the simple naive models.

The x-axis is the number of weeks being forecasted into the future. The validation was run with the assumption that there is a reporting lag of 0 weeks.

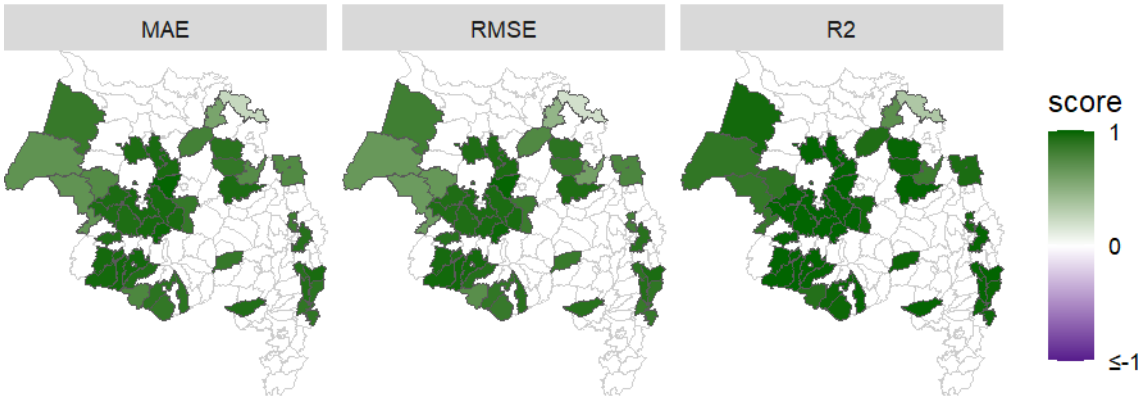
2 Maps of Skill Statistics

2.1 Average Week of Year

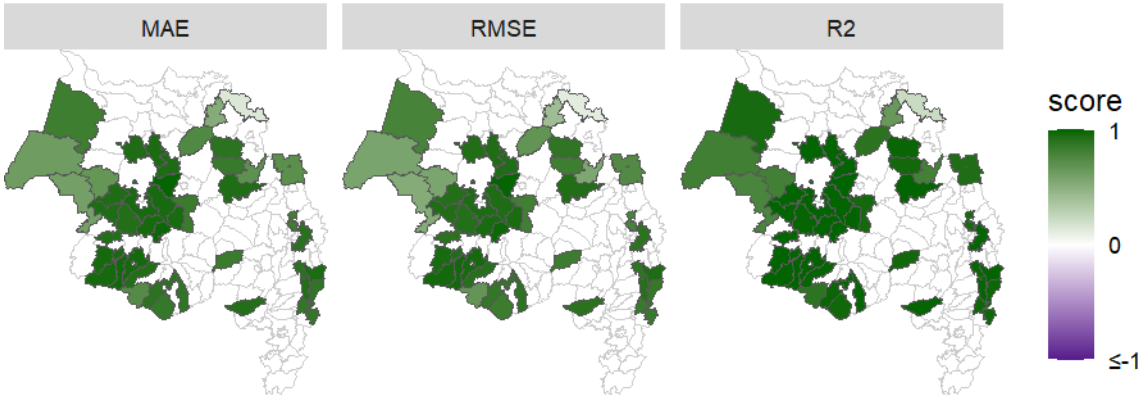
1 Weeks into the Future



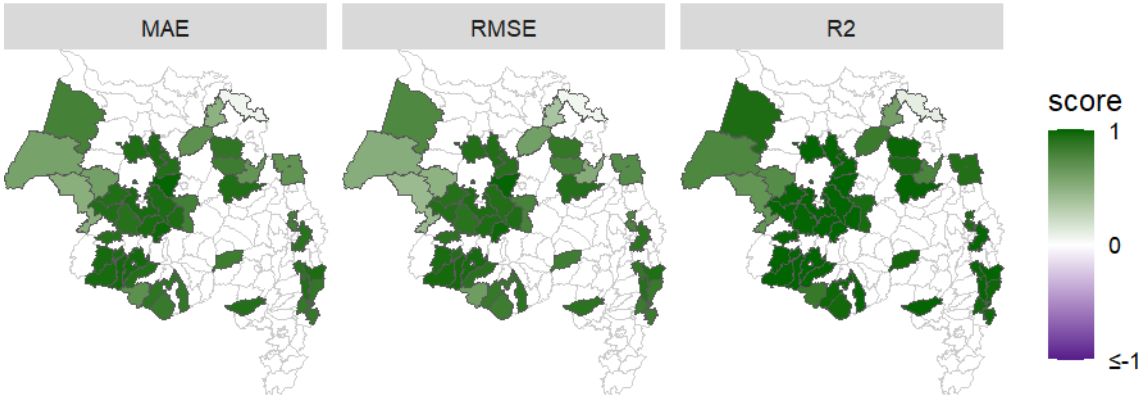
2 Weeks into the Future



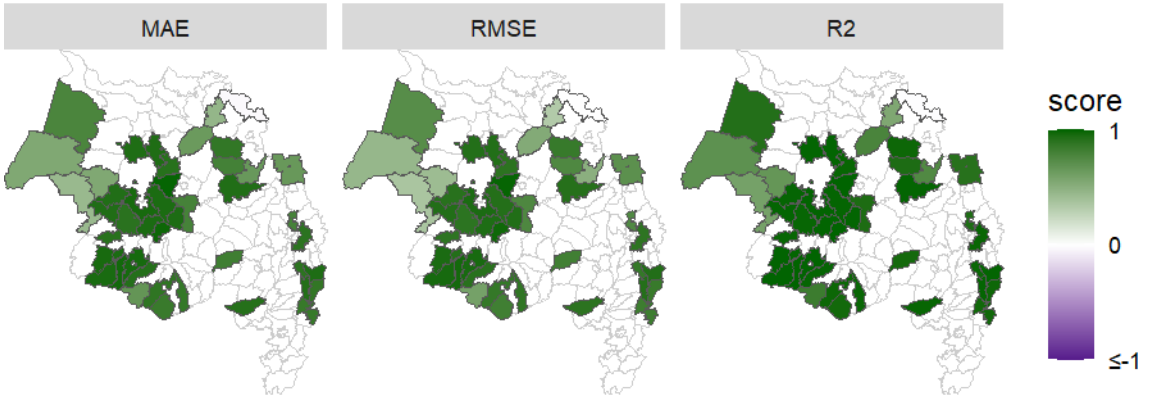
3 Weeks into the Future



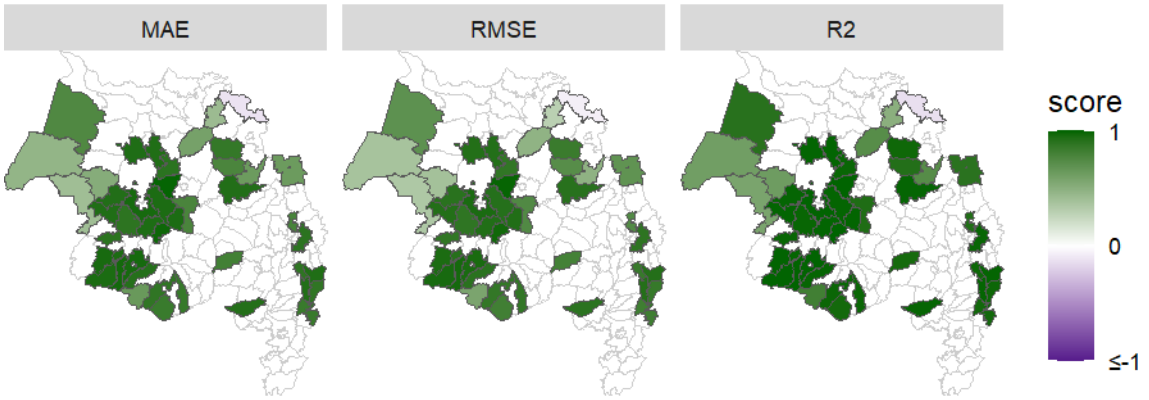
4 Weeks into the Future



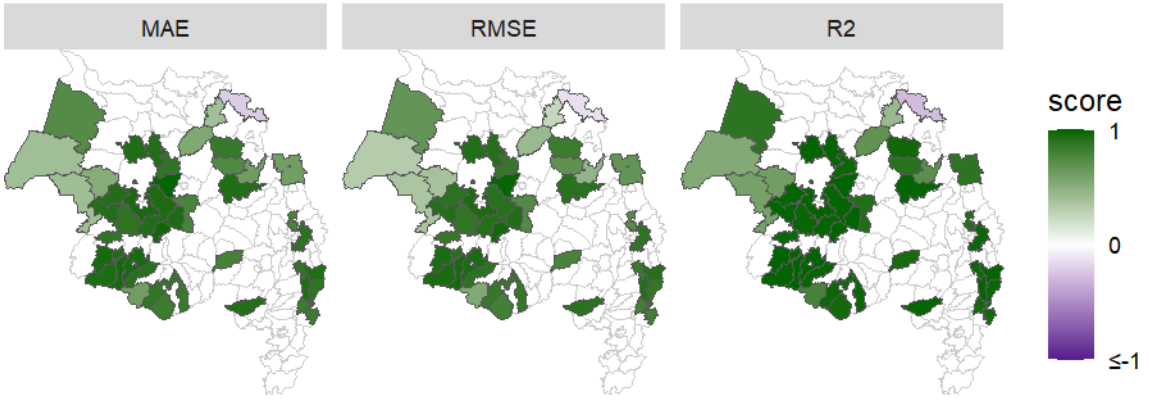
5 Weeks into the Future



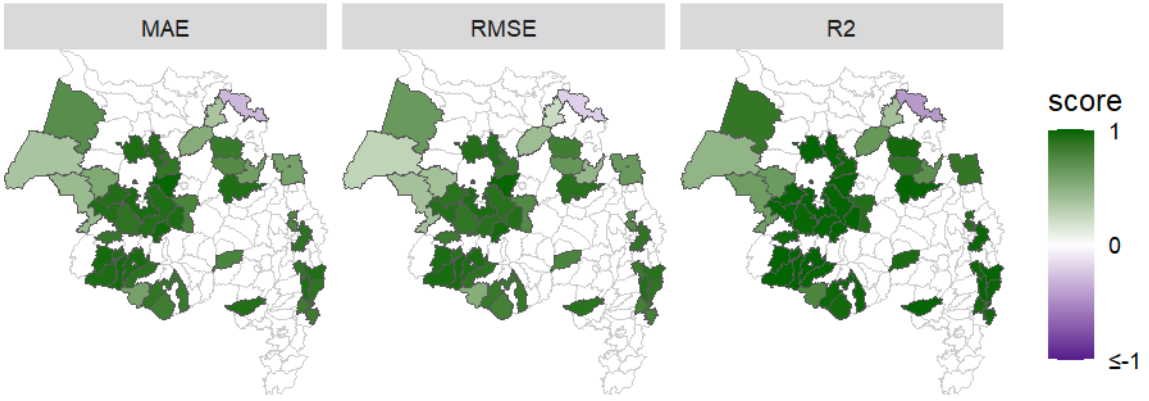
6 Weeks into the Future



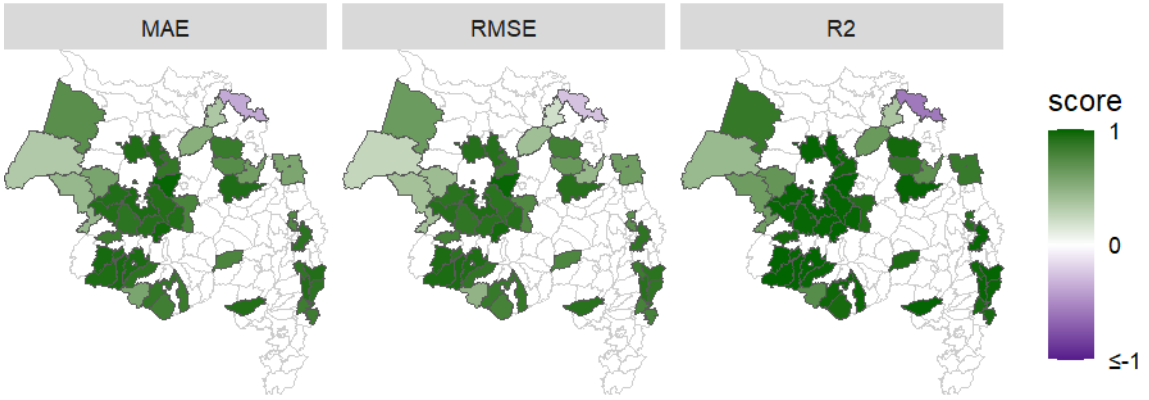
7 Weeks into the Future



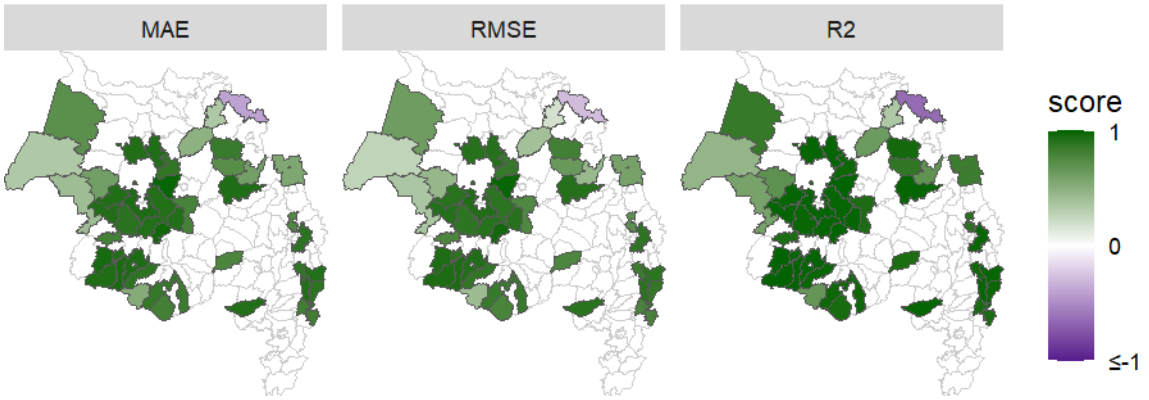
8 Weeks into the Future



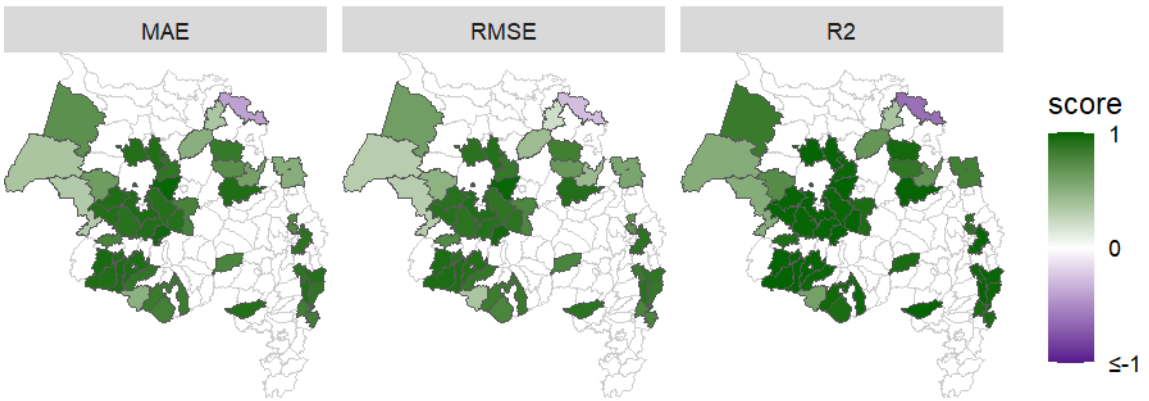
9 Weeks into the Future



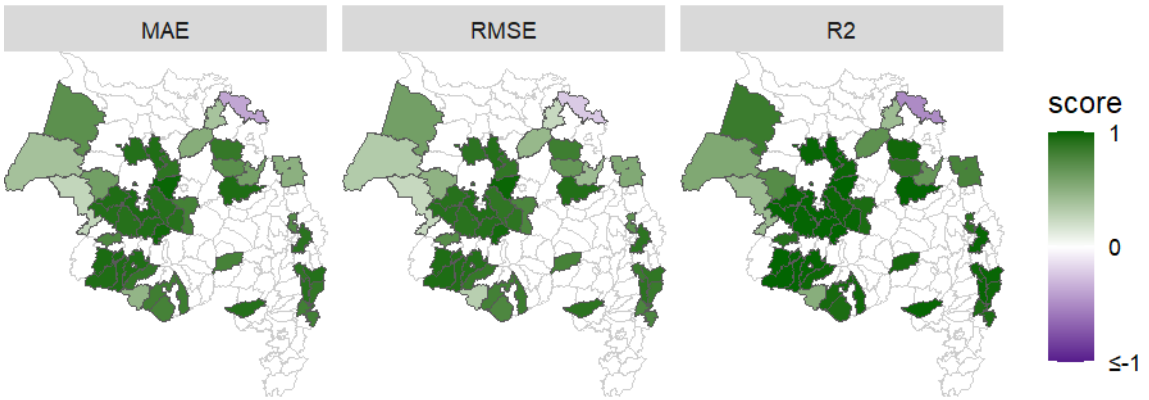
10 Weeks into the Future



11 Weeks into the Future

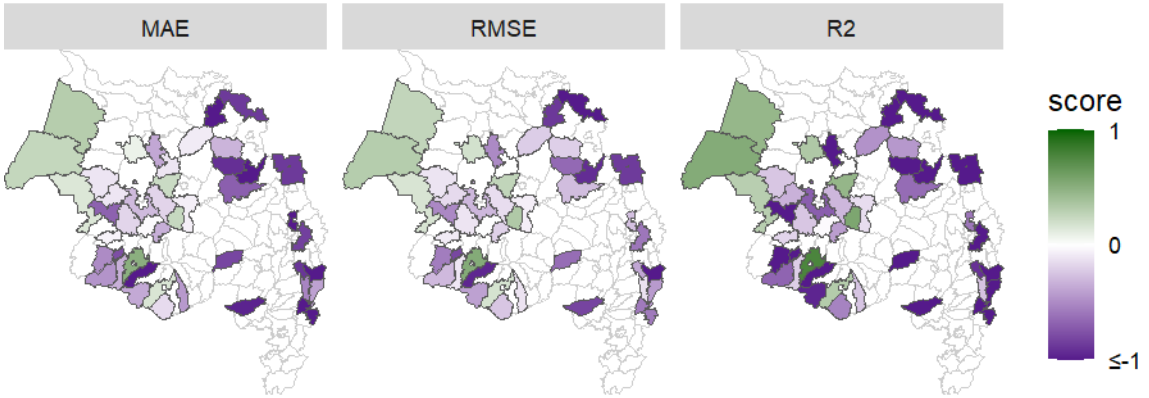


12 Weeks into the Future

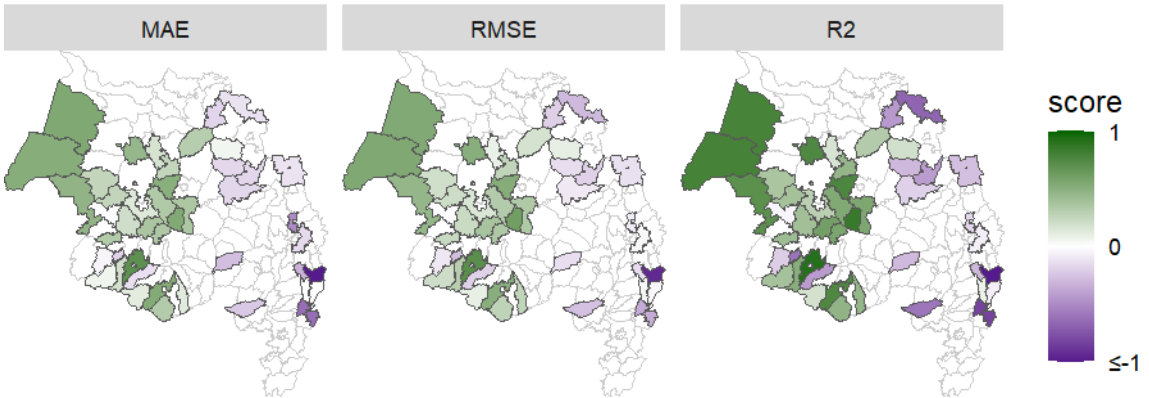


2.2 Persistence

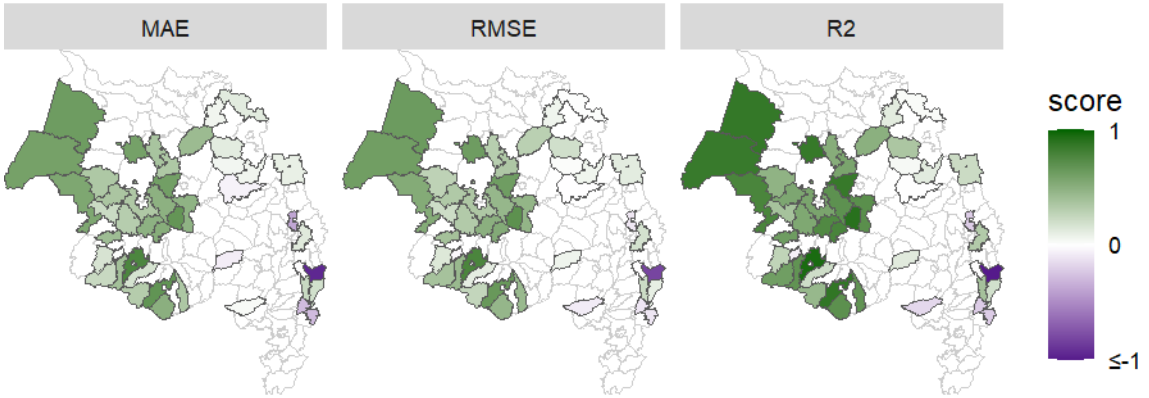
1 Weeks into the Future



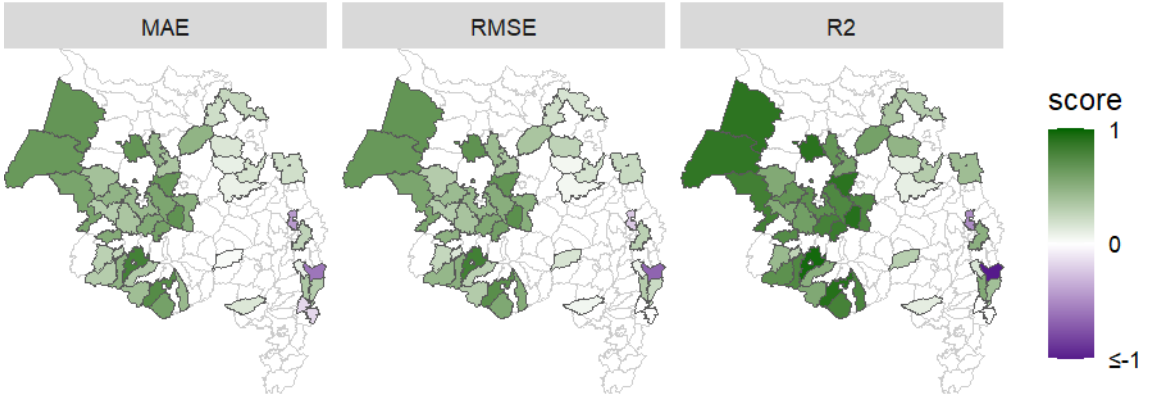
2 Weeks into the Future



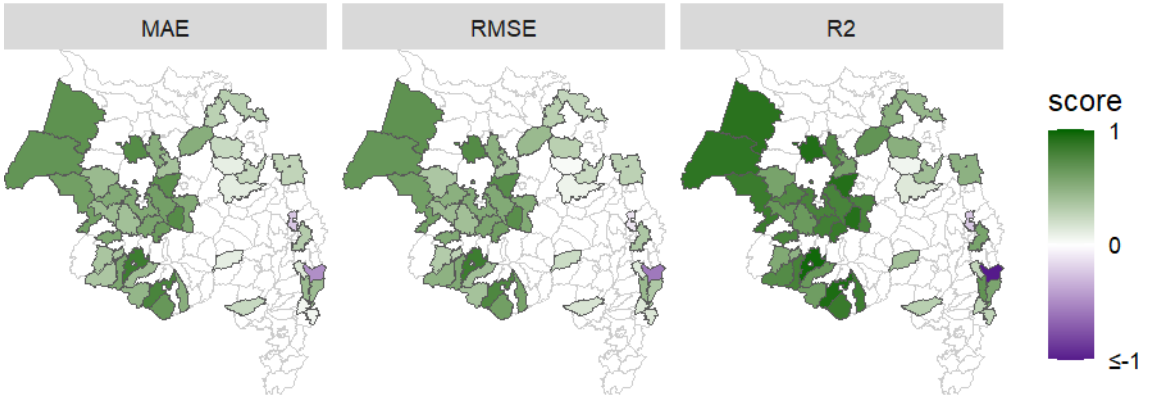
3 Weeks into the Future



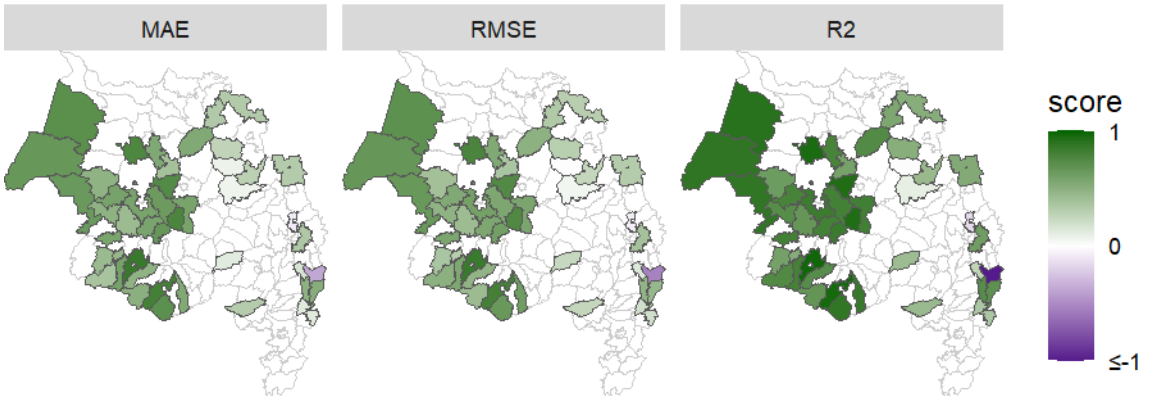
4 Weeks into the Future



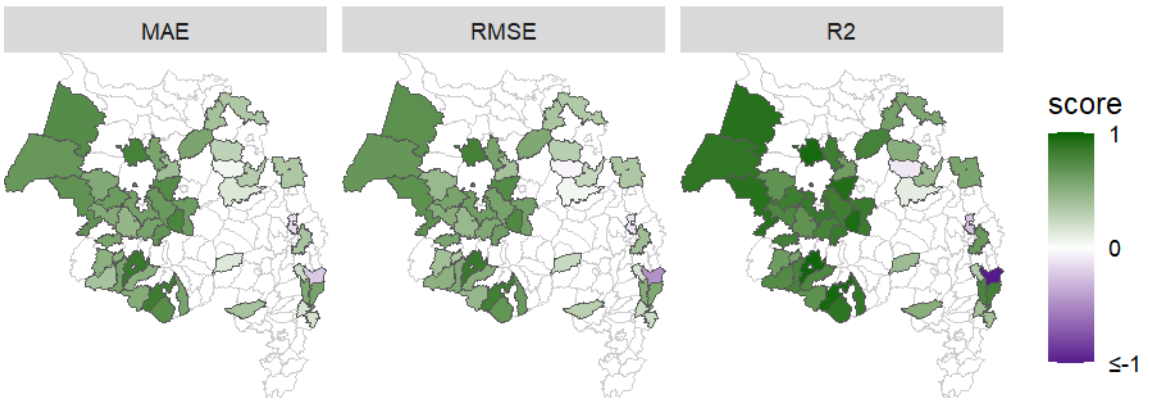
5 Weeks into the Future



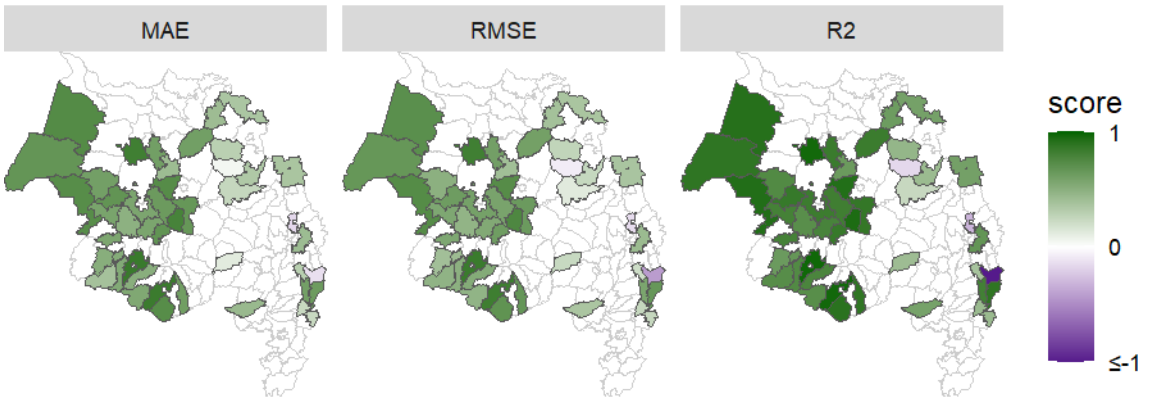
6 Weeks into the Future



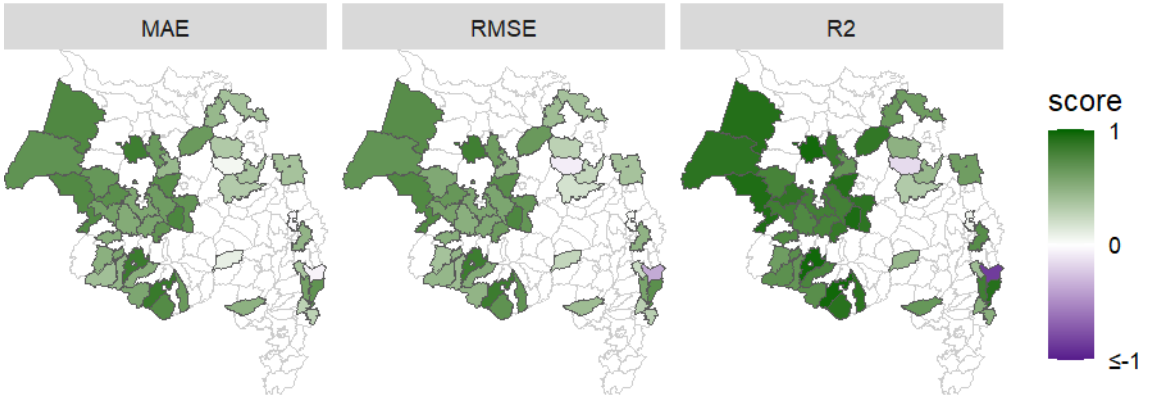
7 Weeks into the Future



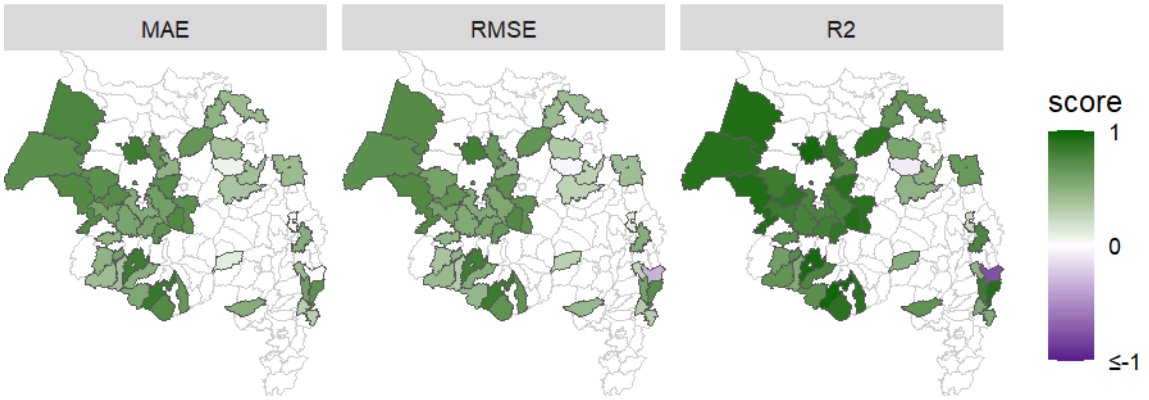
8 Weeks into the Future



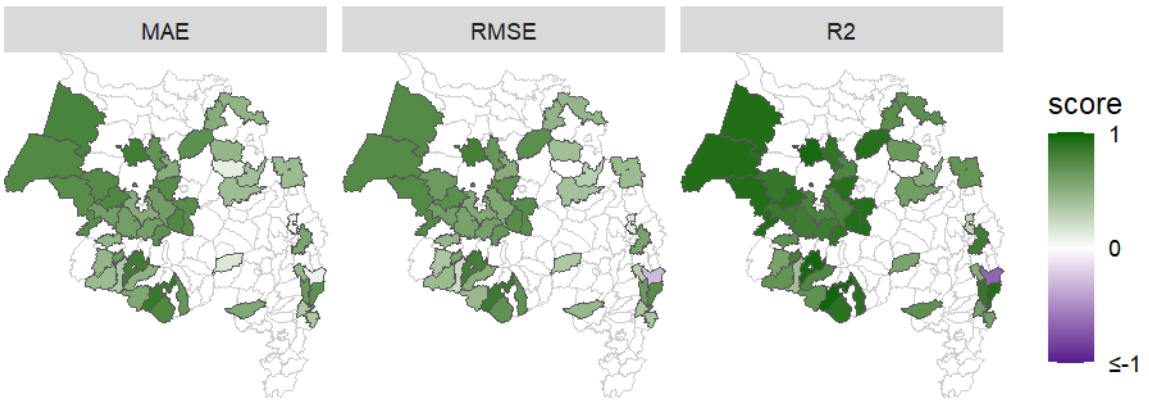
9 Weeks into the Future



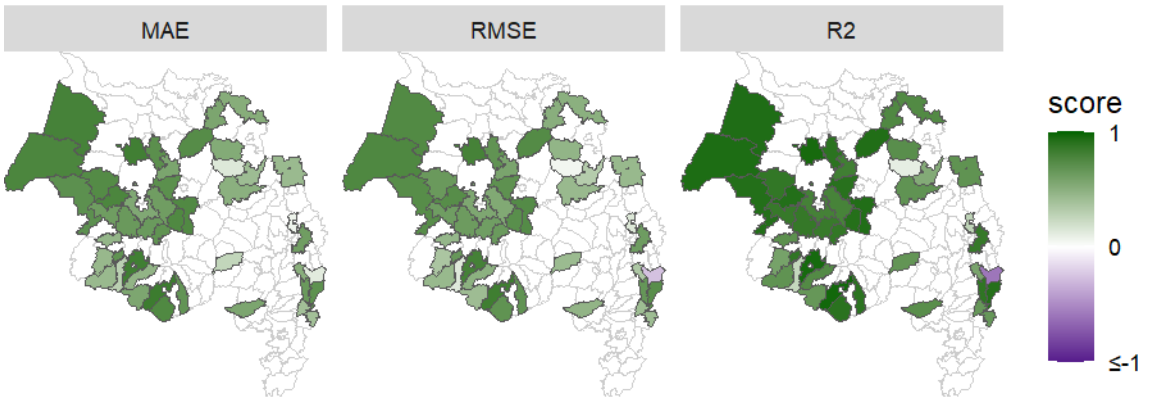
10 Weeks into the Future



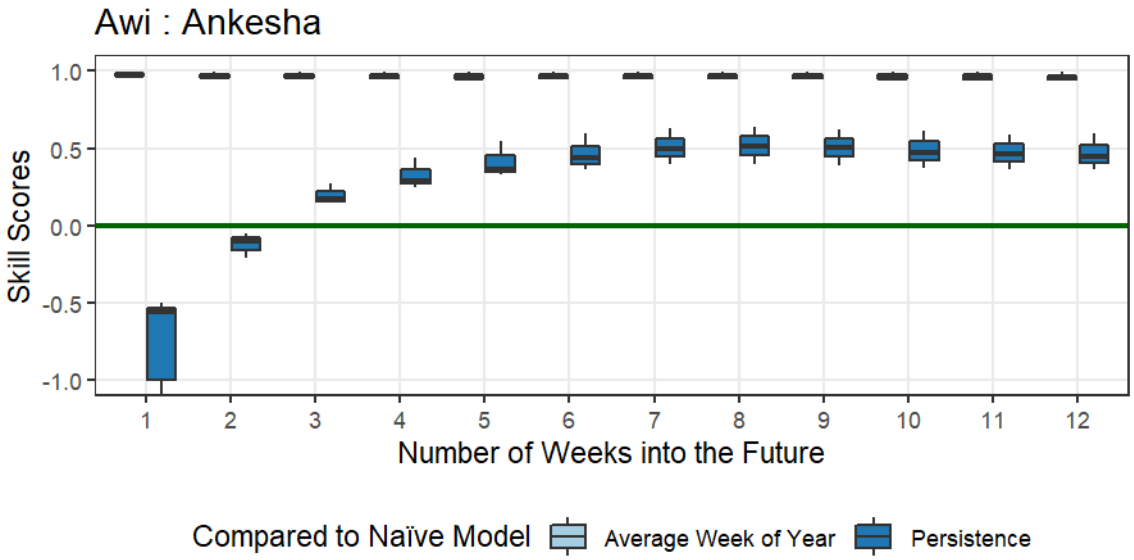
11 Weeks into the Future

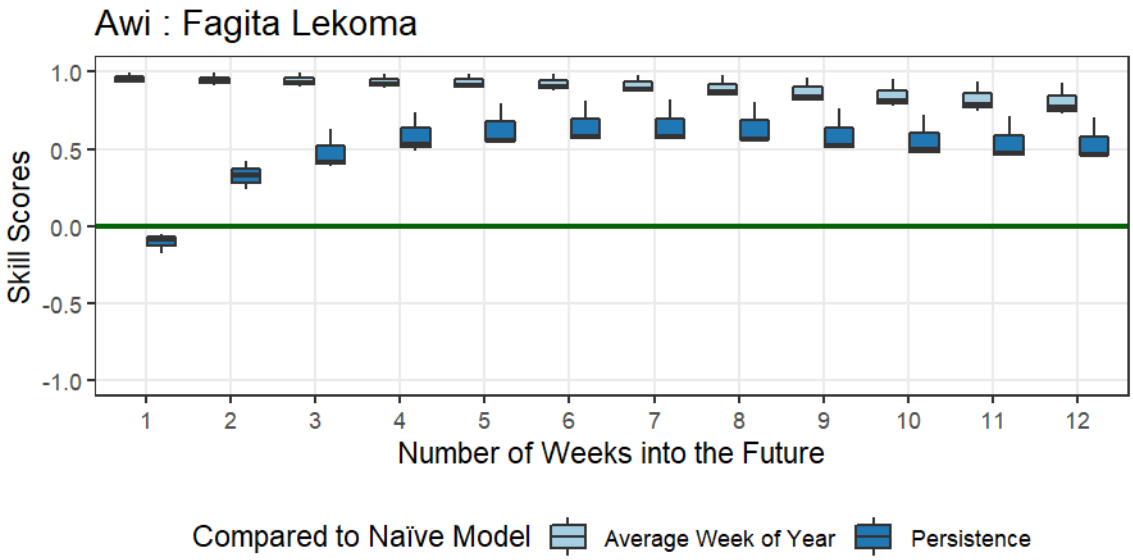


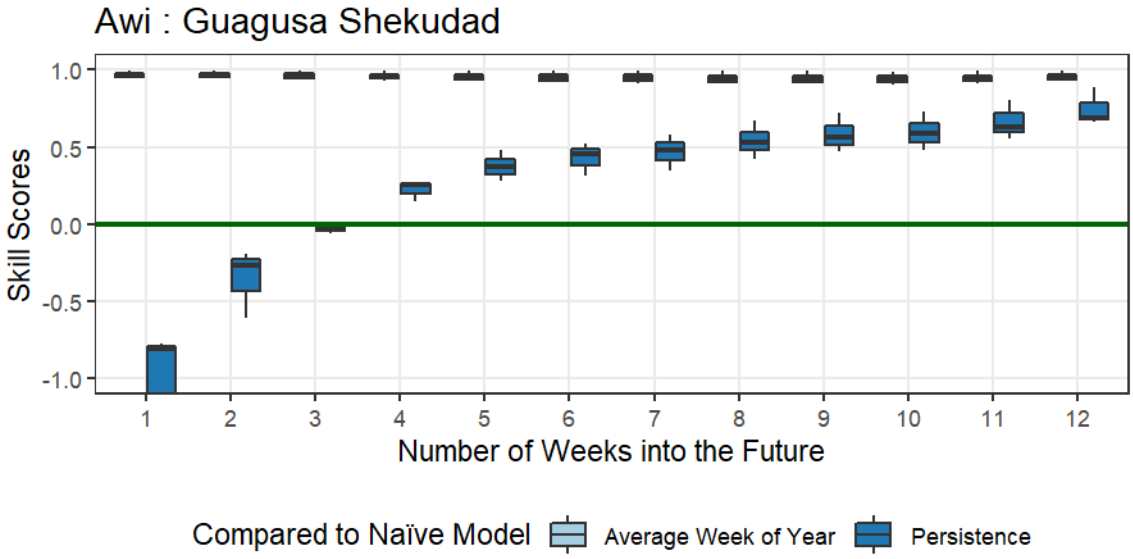
12 Weeks into the Future

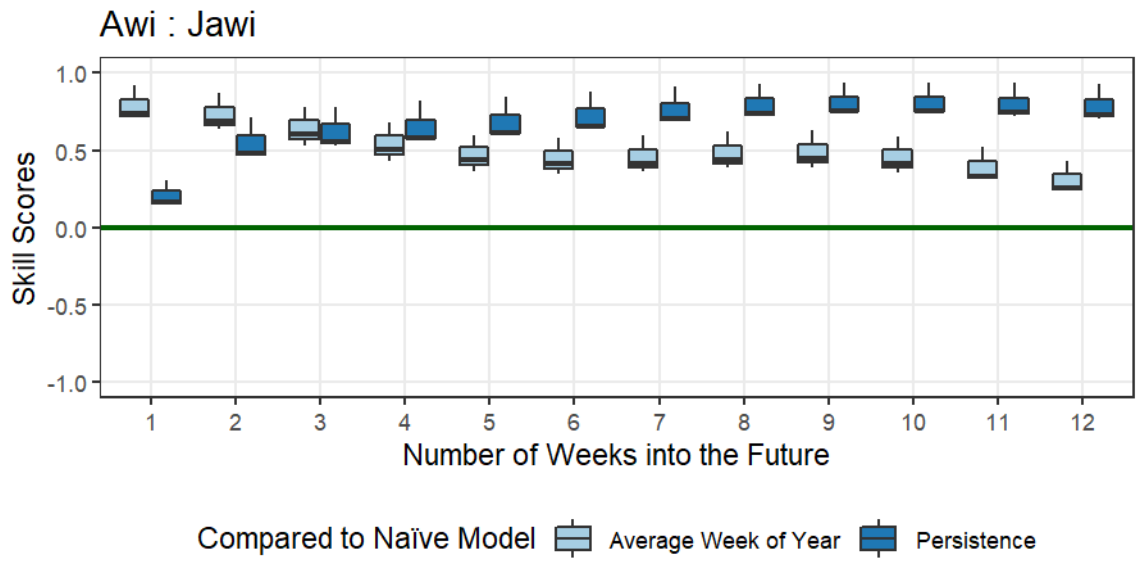


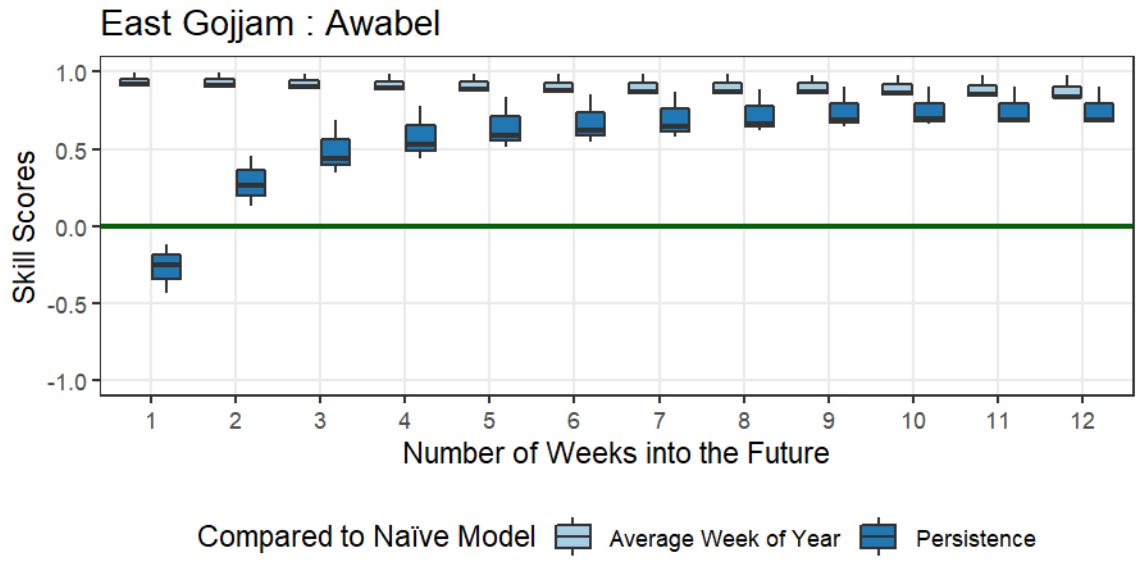
3 Skill per Woreda

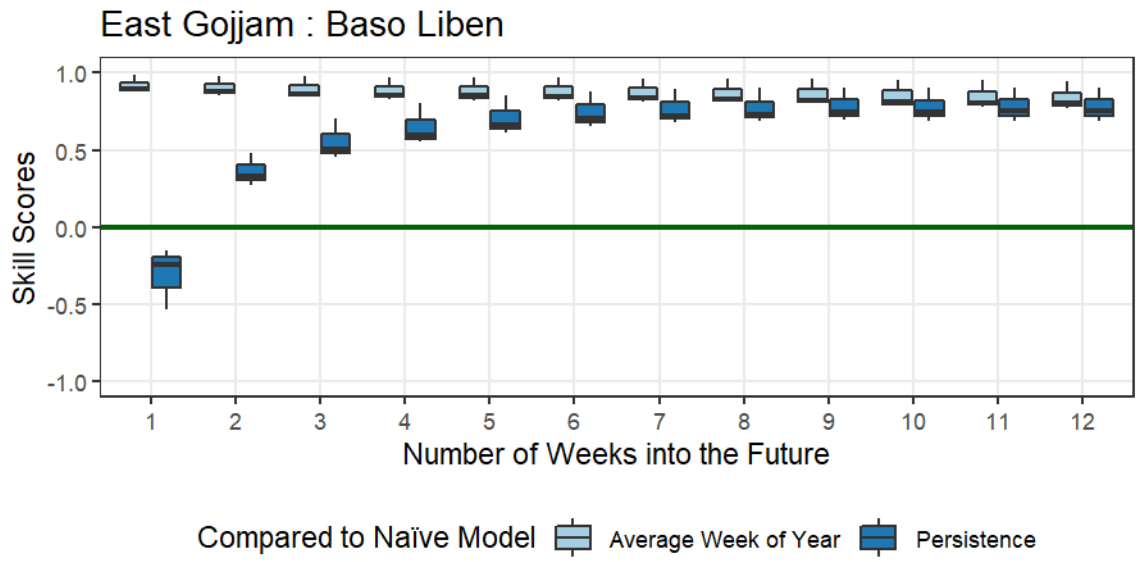


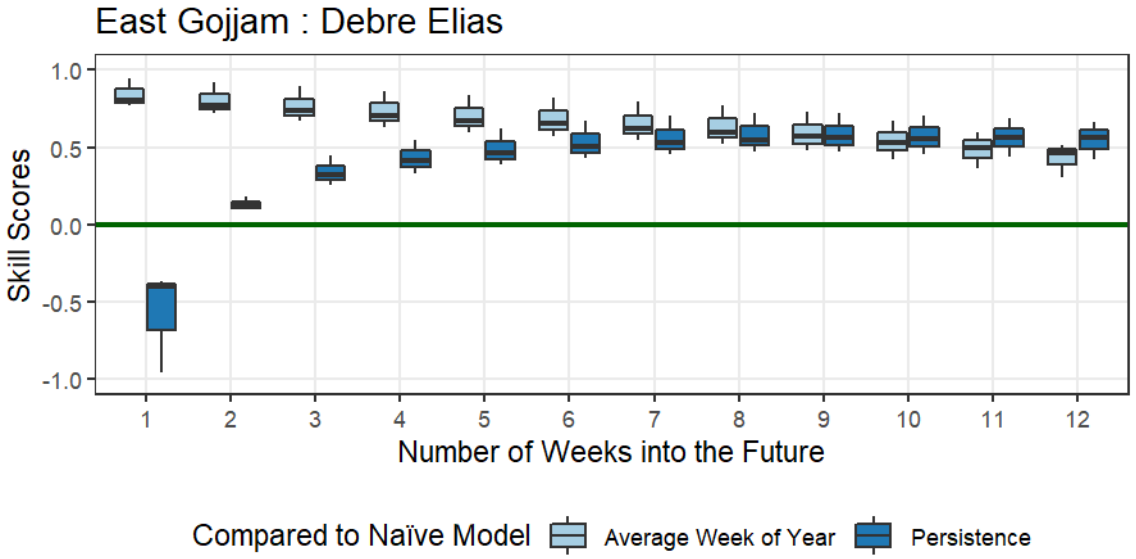





Awi : Jawi
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1 2 3 4 5 6 7 8 9 10 11 12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence


East Gojjam : Awabel
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1 2 3 4 5 6 7 8 9 10 11 12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence


East Gojjam : Baso Liben
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1 2 3 4 5 6 7 8 9 10 11 12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence


East Gojjam : Debre Elias
Skill Scores
1.0
0.5
0.0
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-1.0
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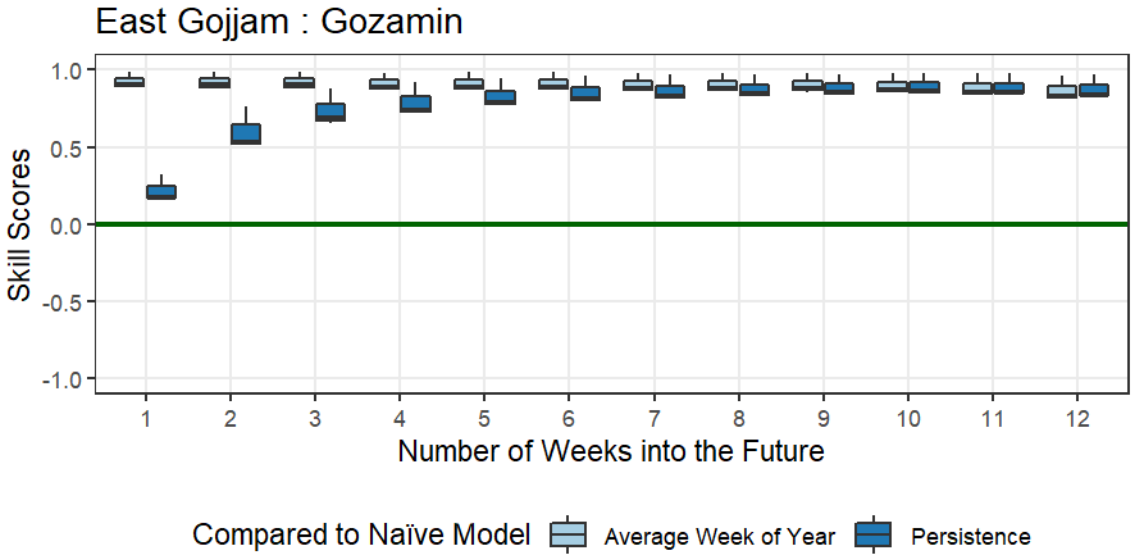
12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence


East Gojjam : Gozamin
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
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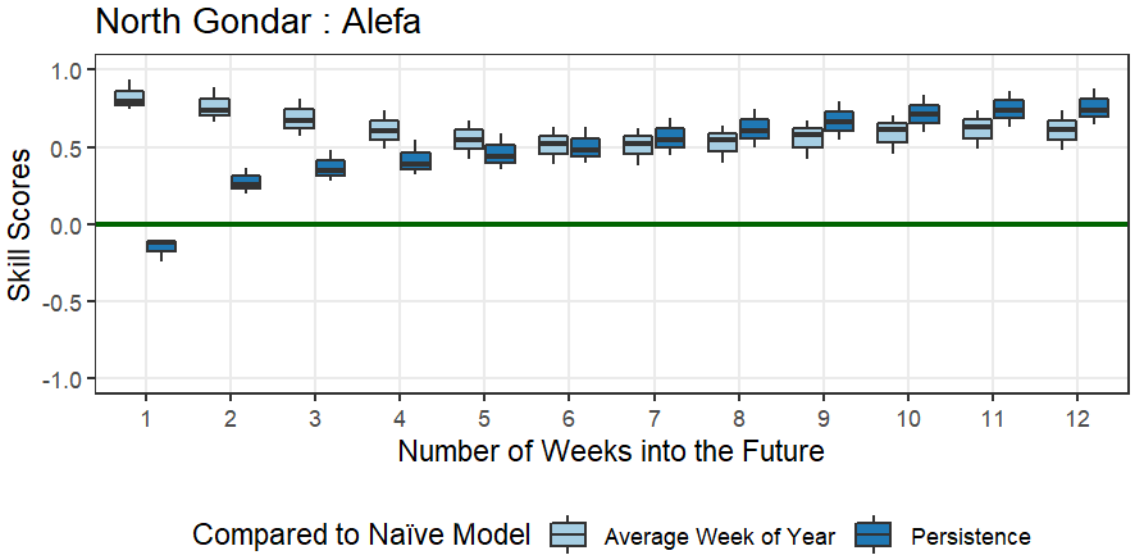
12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence


North Gondar : Alefa
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
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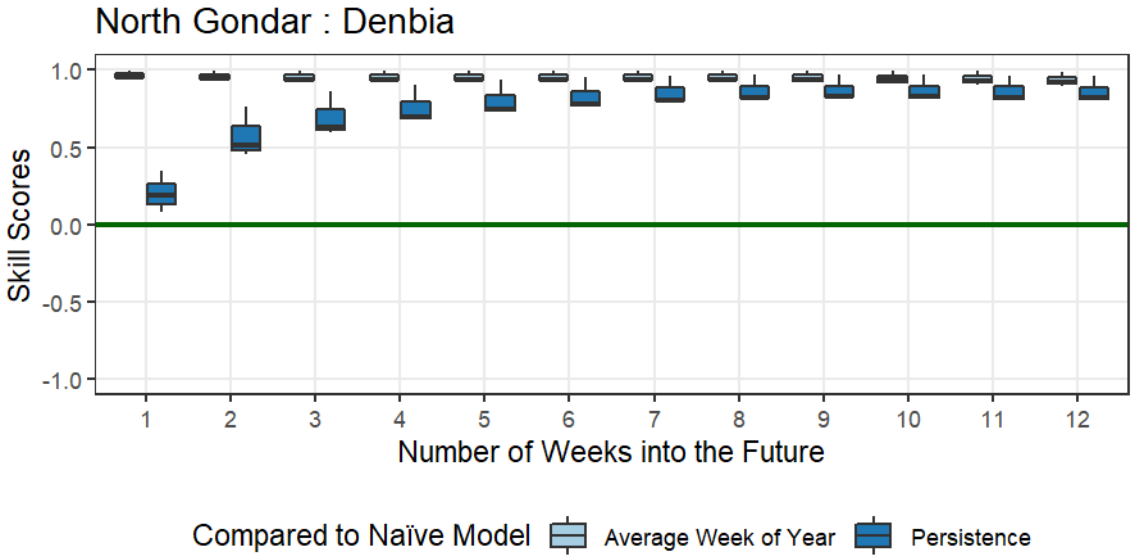
12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence


North Gondar : Denbia
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1
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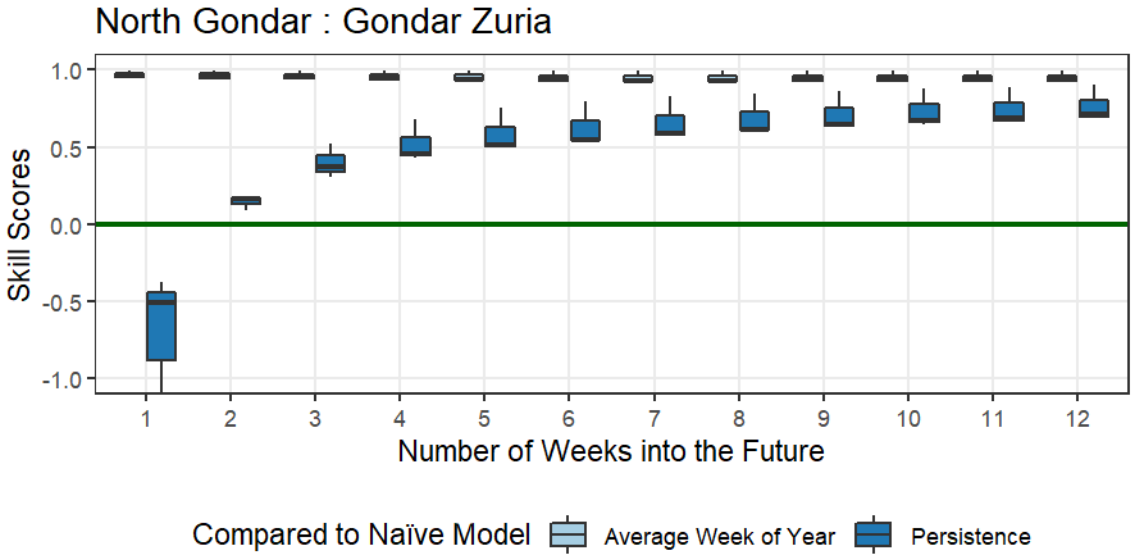
12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence


North Gondar : Gondar Zuria
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
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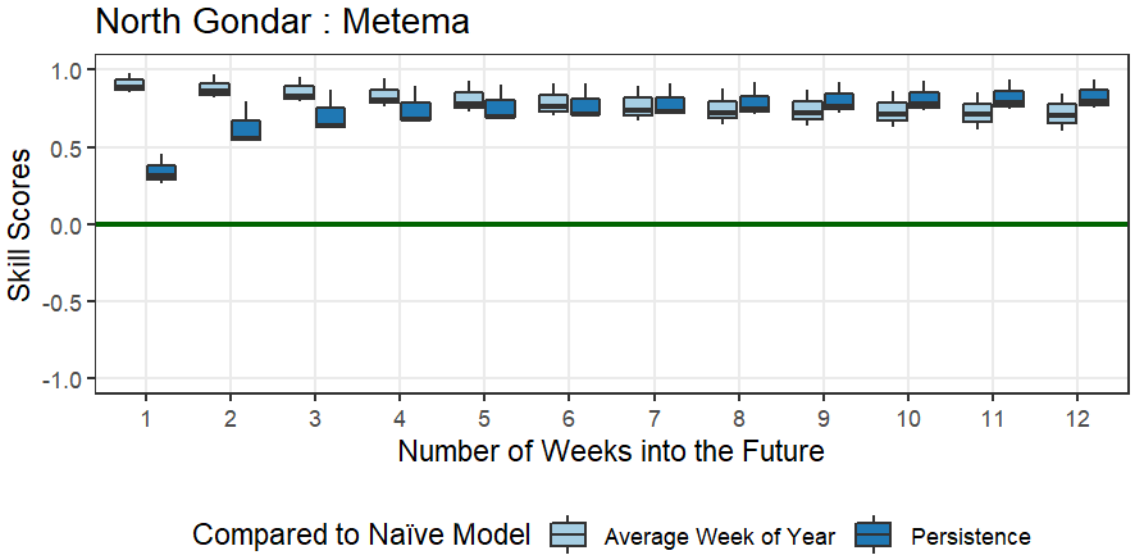
12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence


North Gondar : Metema
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1
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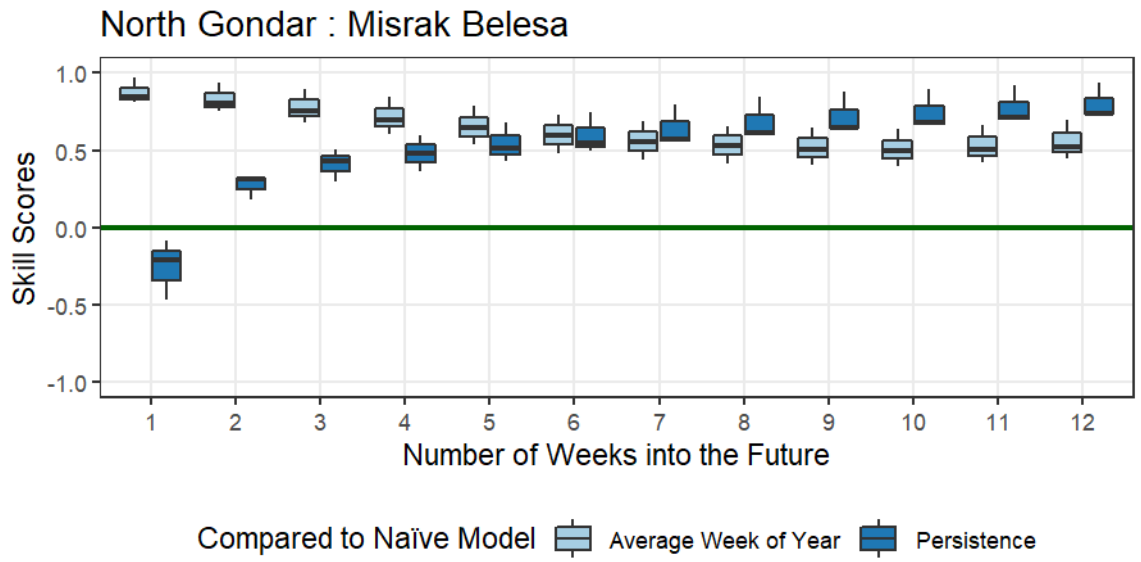
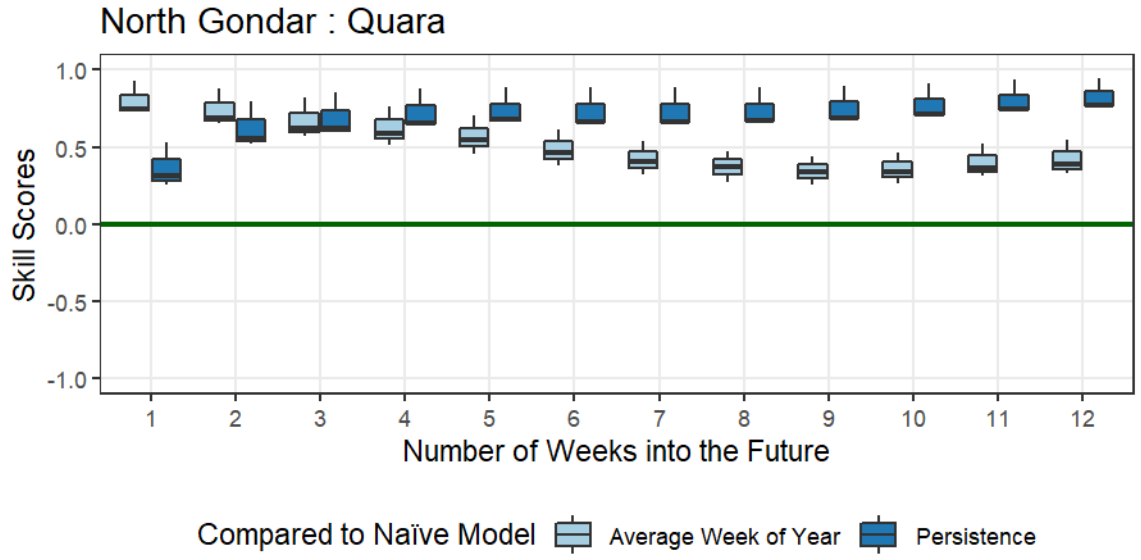
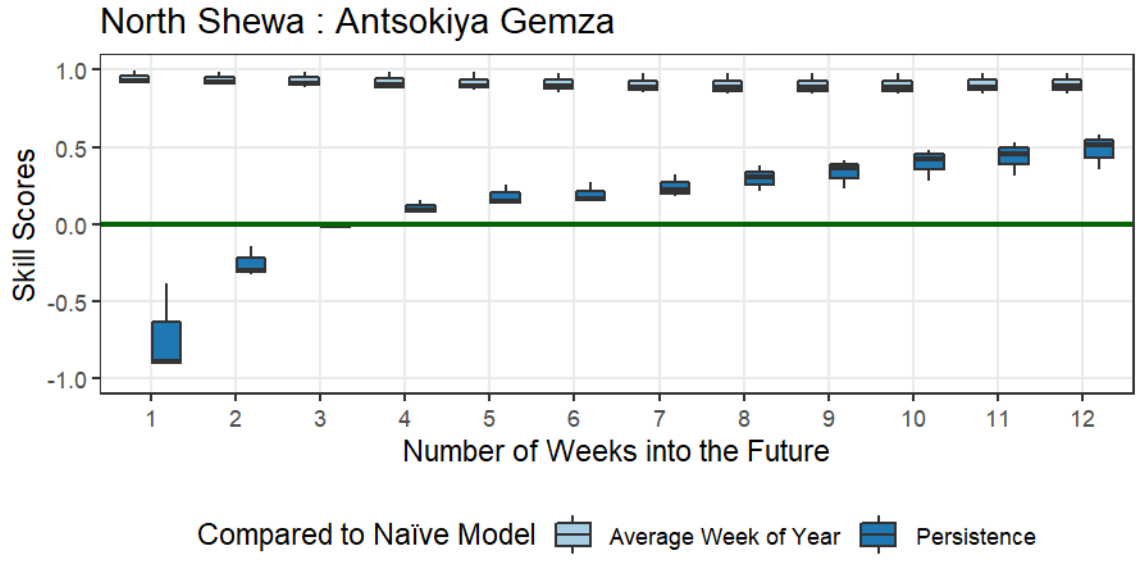
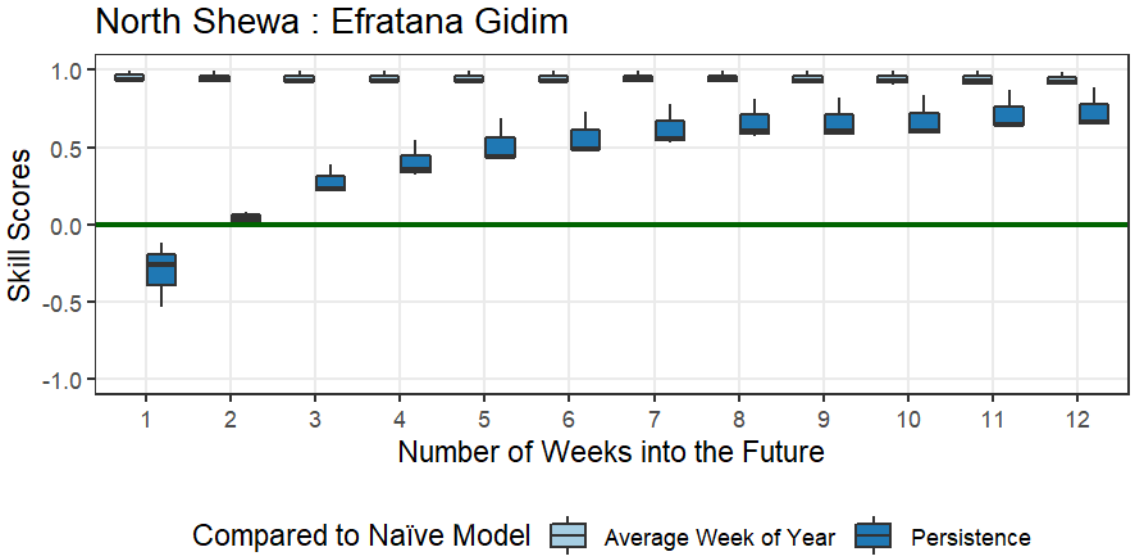
12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence


North Gondar : Misrak Belesa
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1 2 3 4 5 6 7 8 9 10 11 12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence


North Gondar : Quara
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1 2 3 4 5 6 7 8 9 10 11 12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence


North Shewa : Antsokiya Gemza
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1 2 3 4 5 6 7 8 9 10 11 12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence


North Shewa : Efratana Gidim
Skill Scores
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-0.5
-1.0
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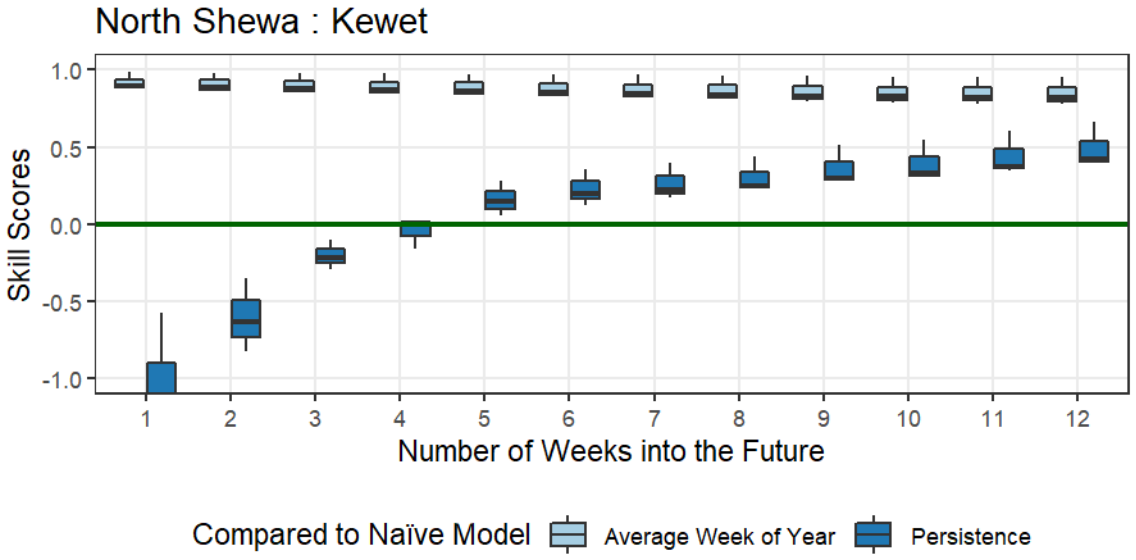
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence


North Shewa : Kewet
Skill Scores
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Number of Weeks into the Future
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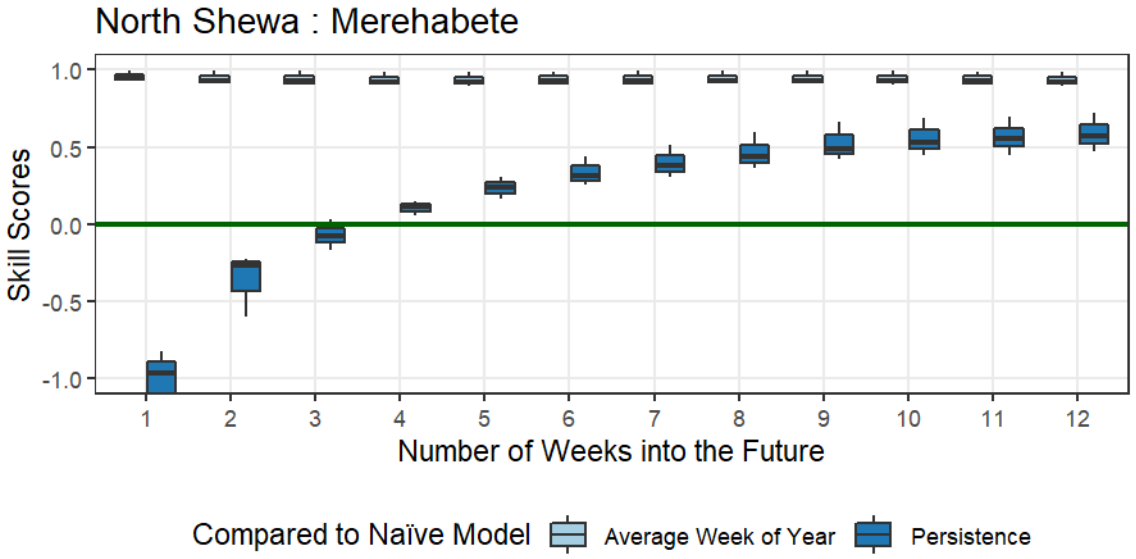
Average Week of Year
Persistence


North Shewa : Merehabete
Skill Scores
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0.0
-0.5
-1.0
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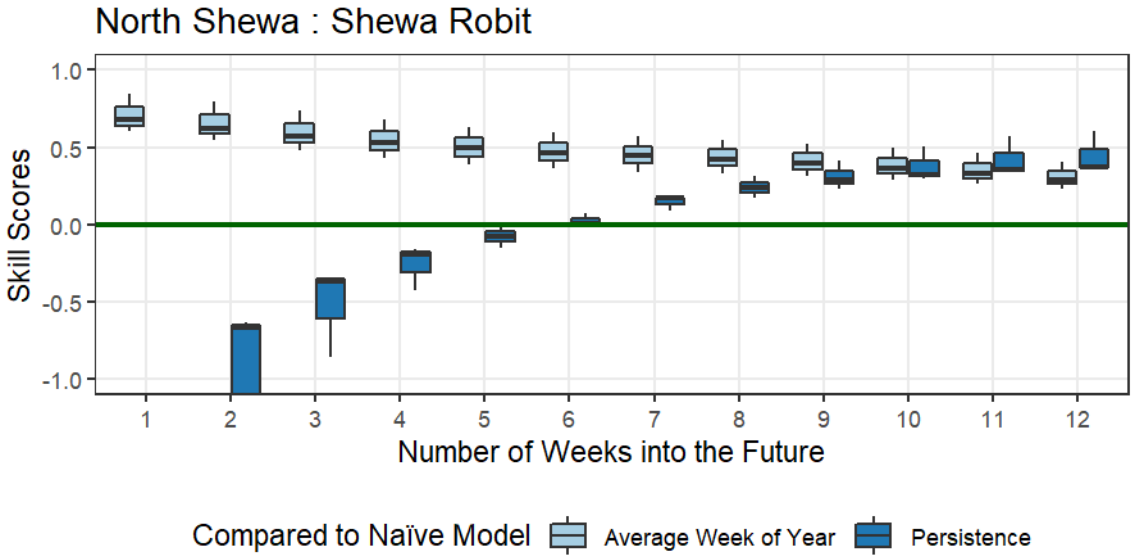
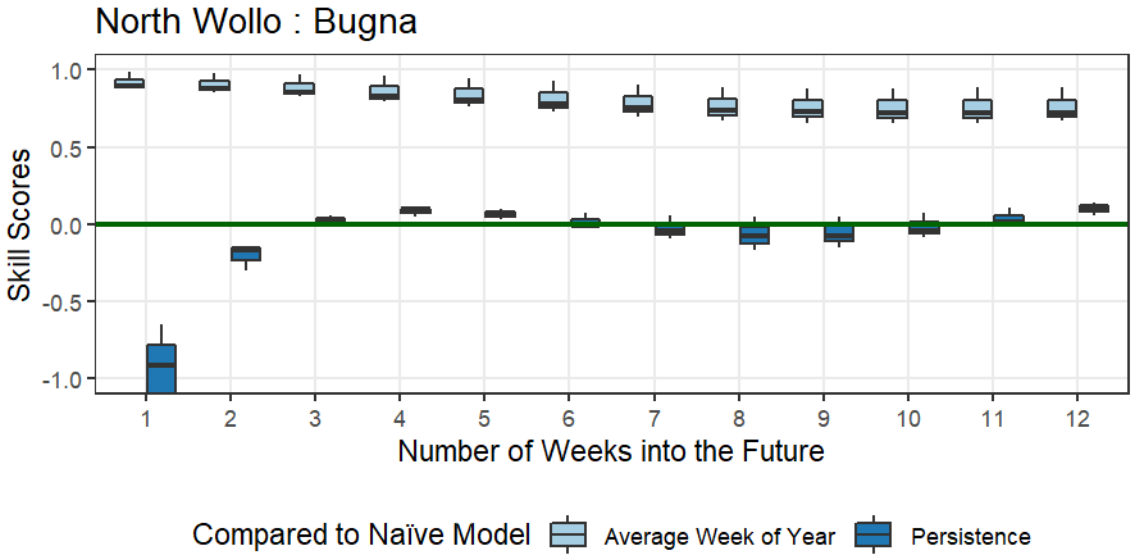
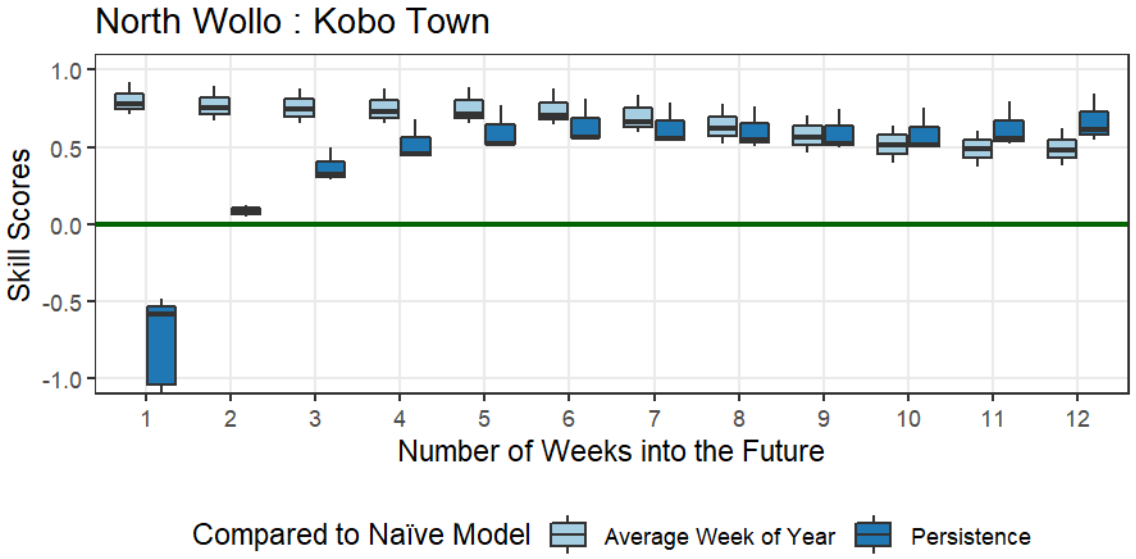
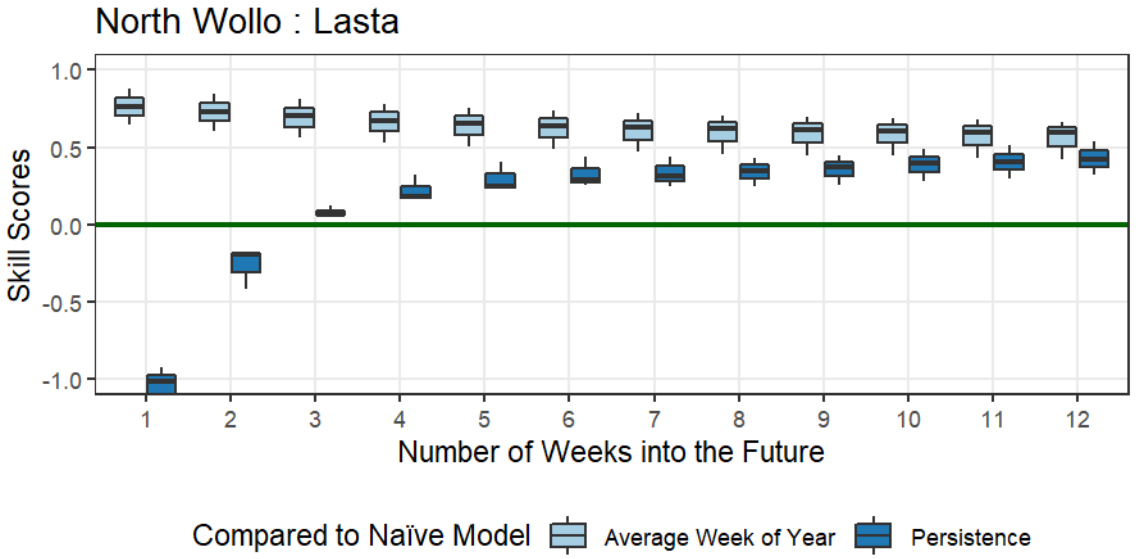
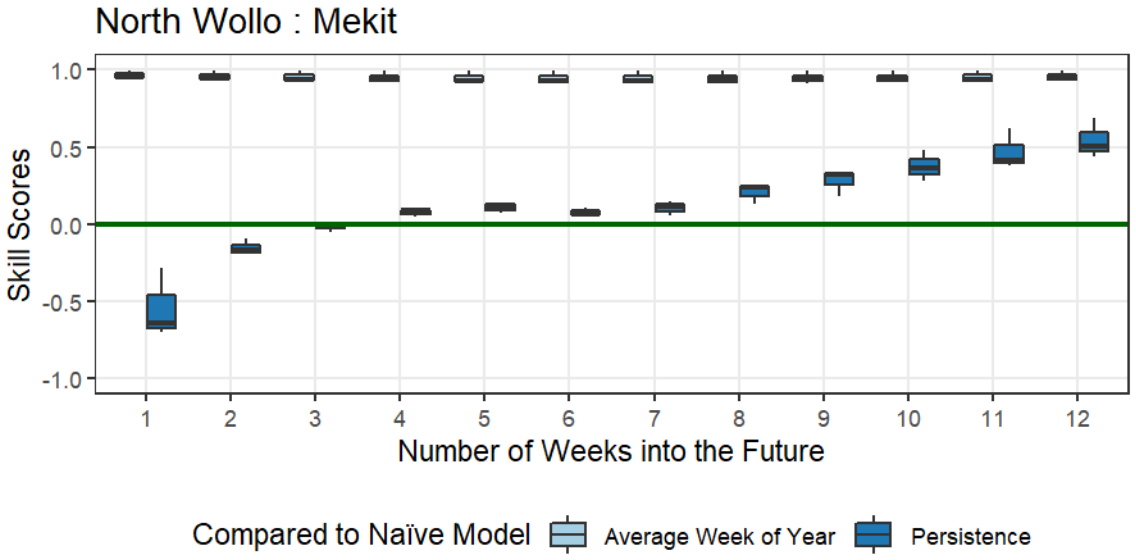
12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence

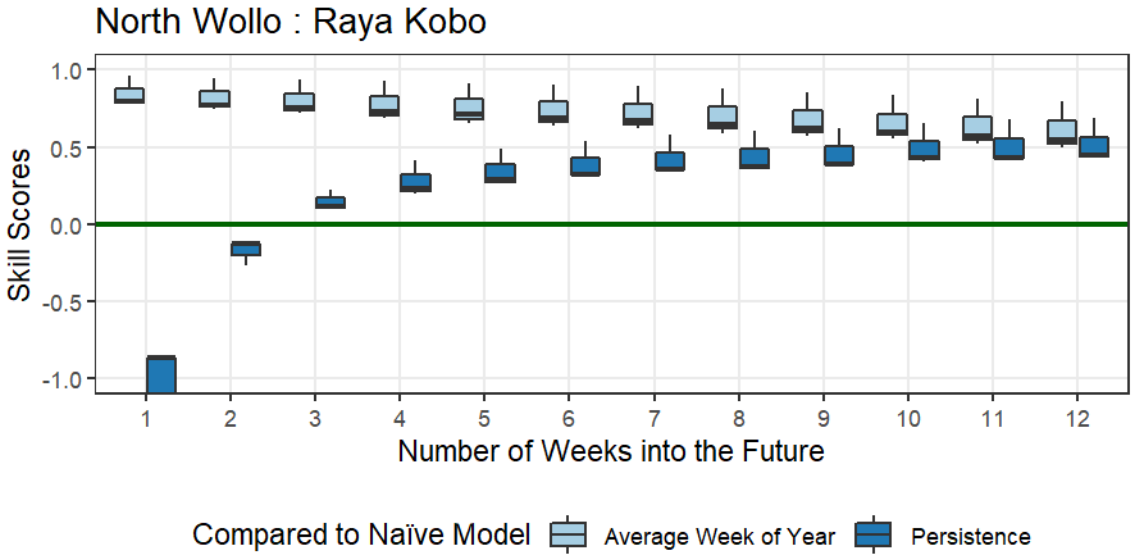

North Shewa : Shewa Robit
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1 2 3 4 5 6 7 8 9 10 11 12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence

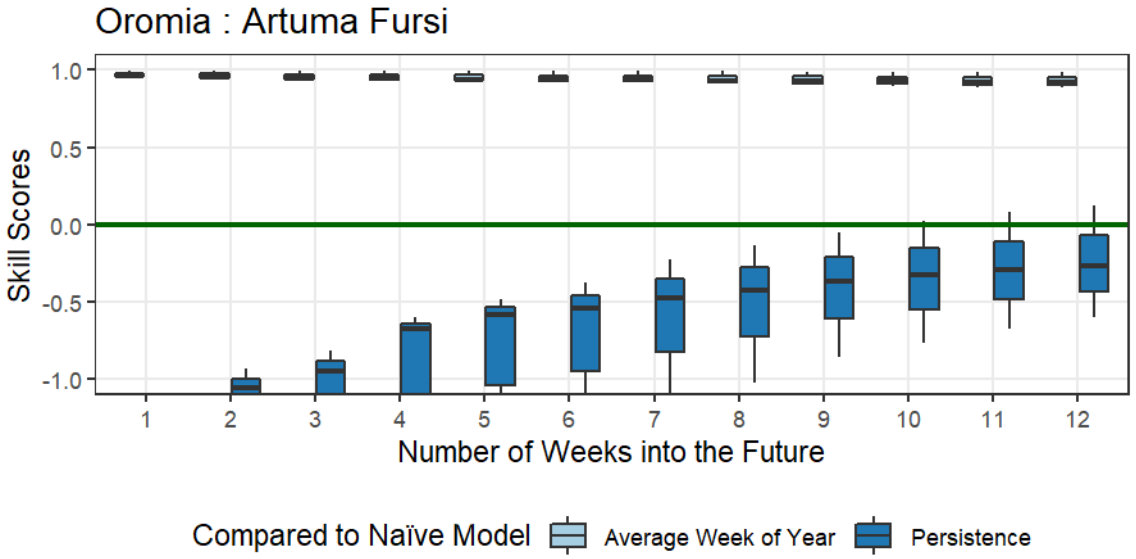

North Wollo : Bugna
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1 2 3 4 5 6 7 8 9 10 11 12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence

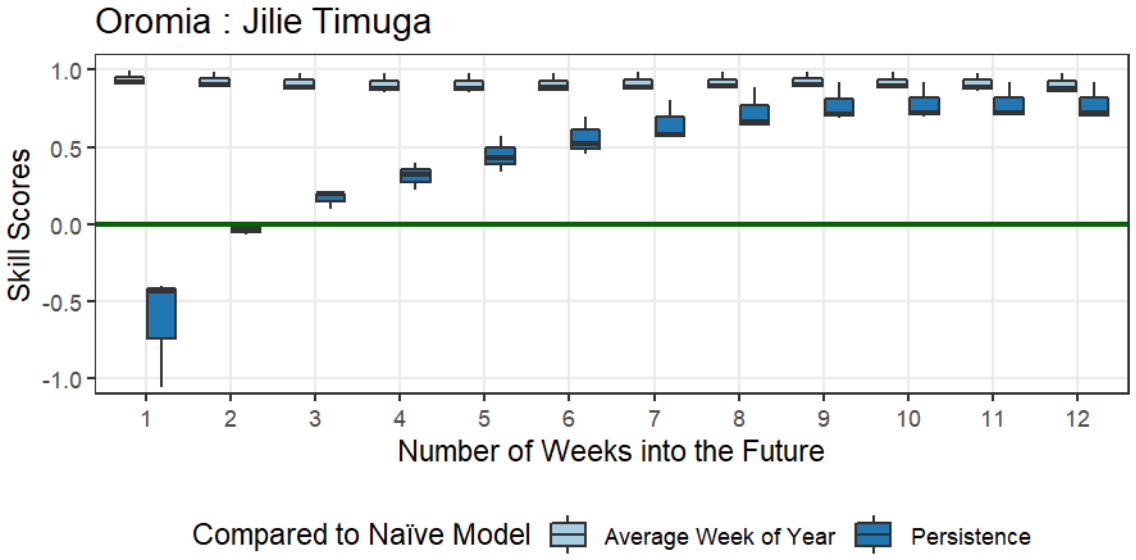

North Wollo : Kobo Town
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1 2 3 4 5 6 7 8 9 10 11 12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence

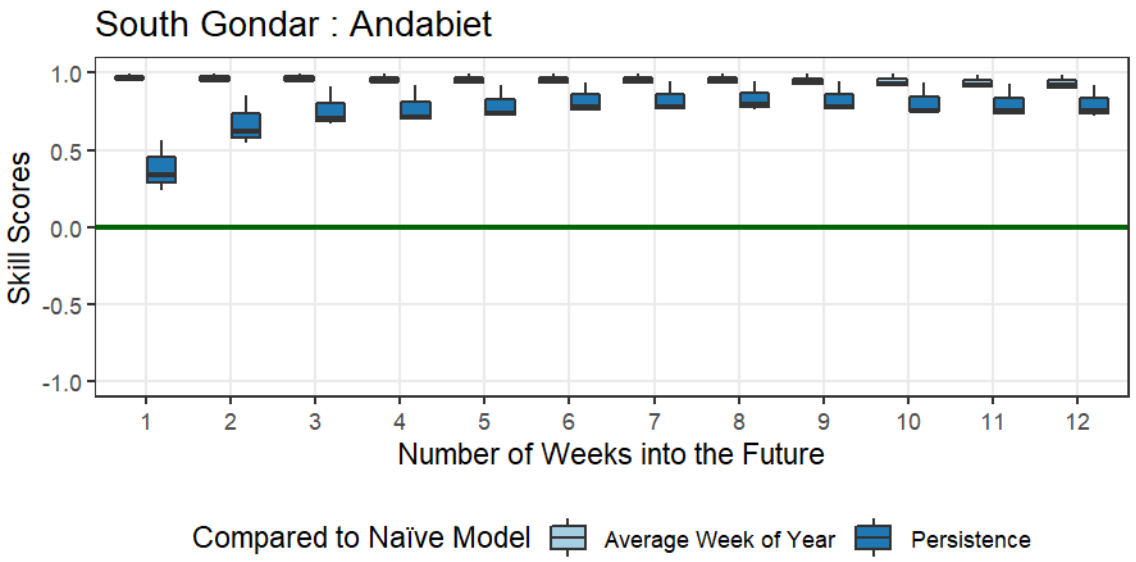

North Wollo : Lasta
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1
2
3
4
5
6
7
8
9
10
11
12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence

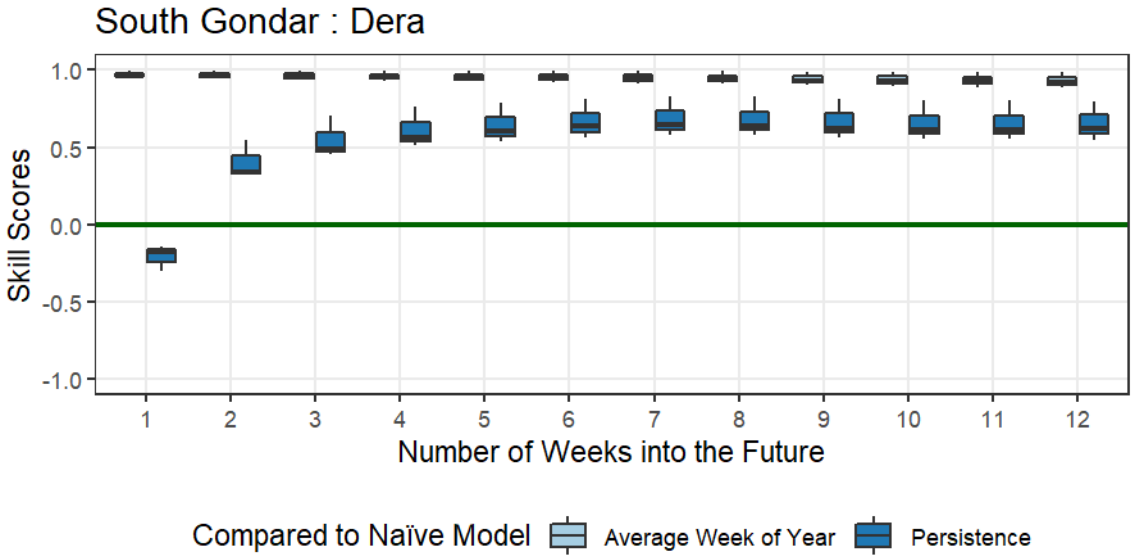

North Wollo : Mekit
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1
2
3
4
5
6
7
8
9
10
11
12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence

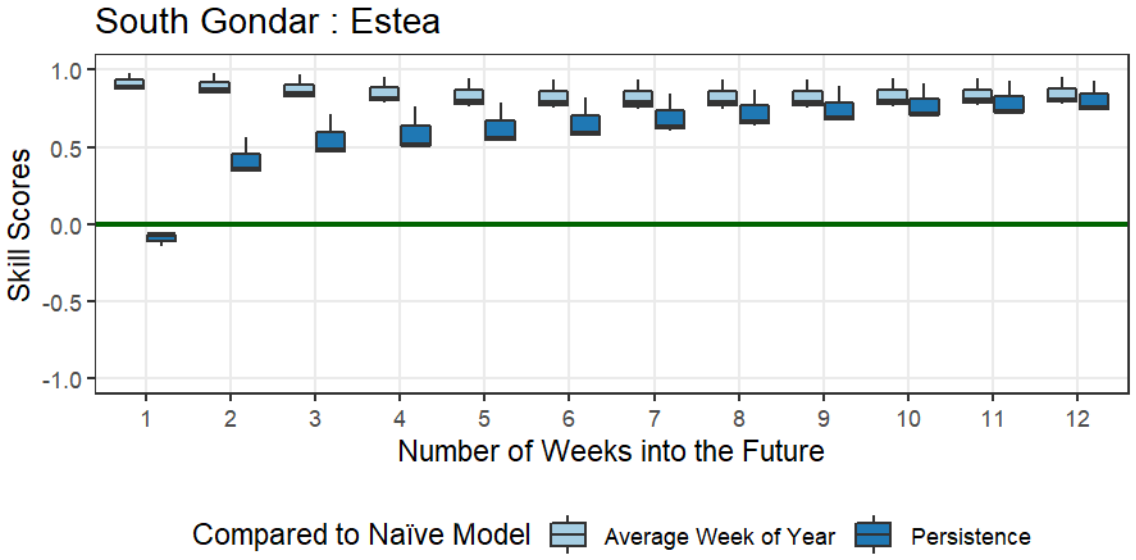

North Wollo : Raya Kobo
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1
2
3
4
5
6
7
8
9
10
11
12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence

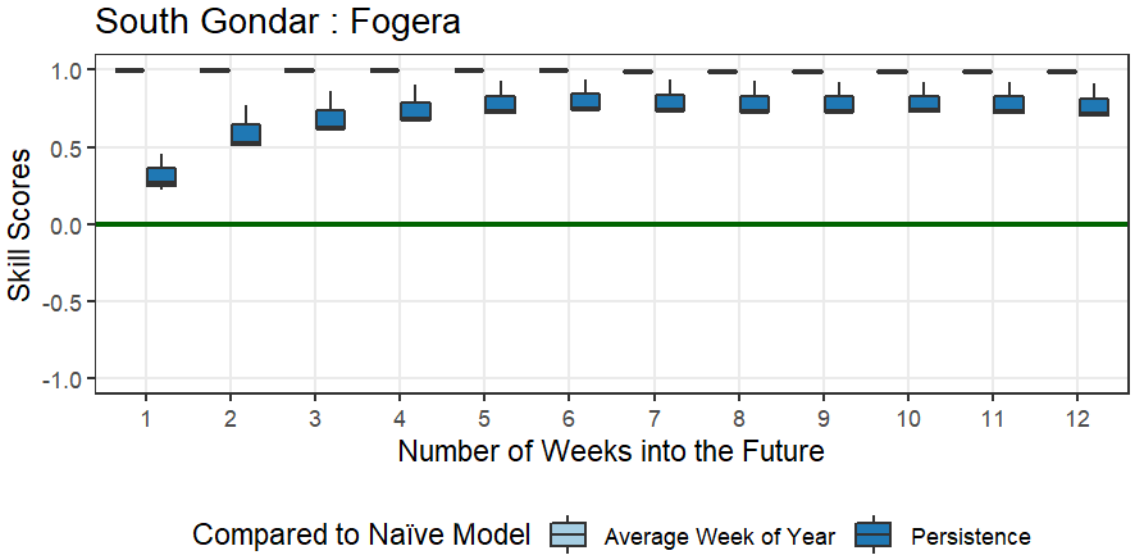

Oromia : Artuma Fursi
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1 2 3 4 5 6 7 8 9 10 11 12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence

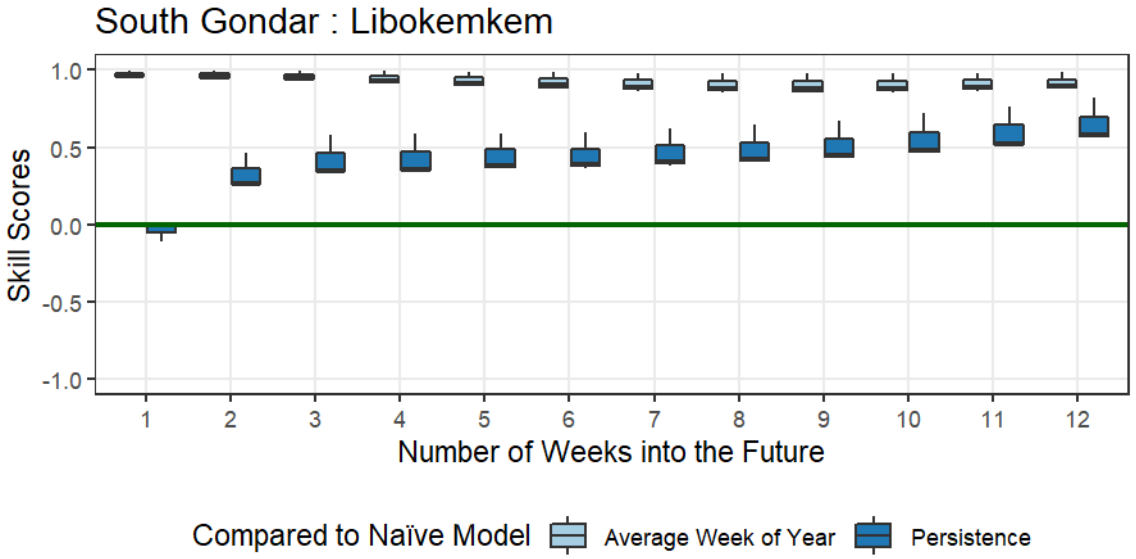

Oromia : Jilie Timuga
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1 2 3 4 5 6 7 8 9 10 11 12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence

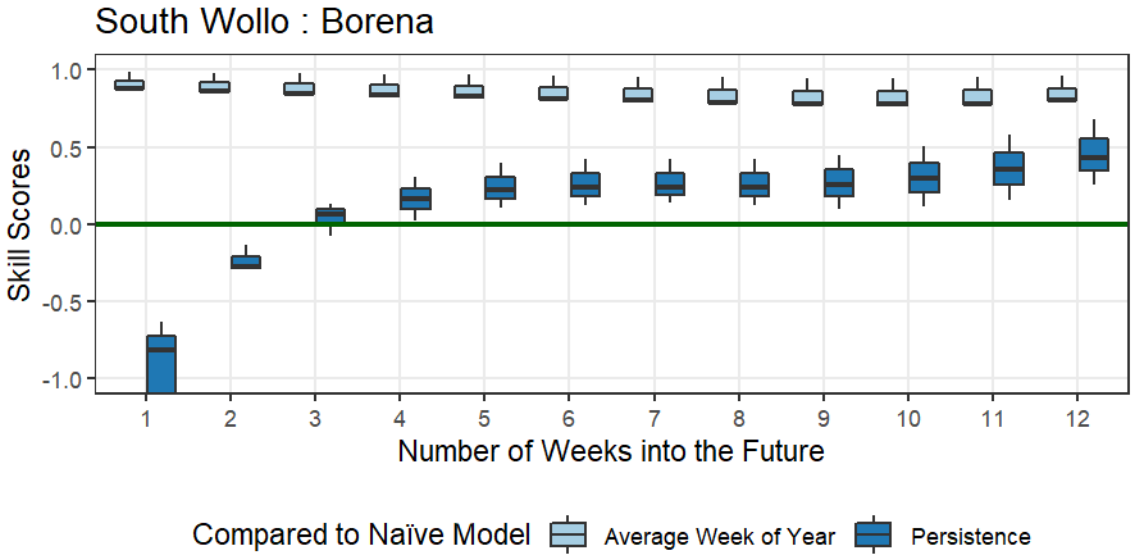

South Gondar : Andabiet
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1 2 3 4 5 6 7 8 9 10 11 12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence

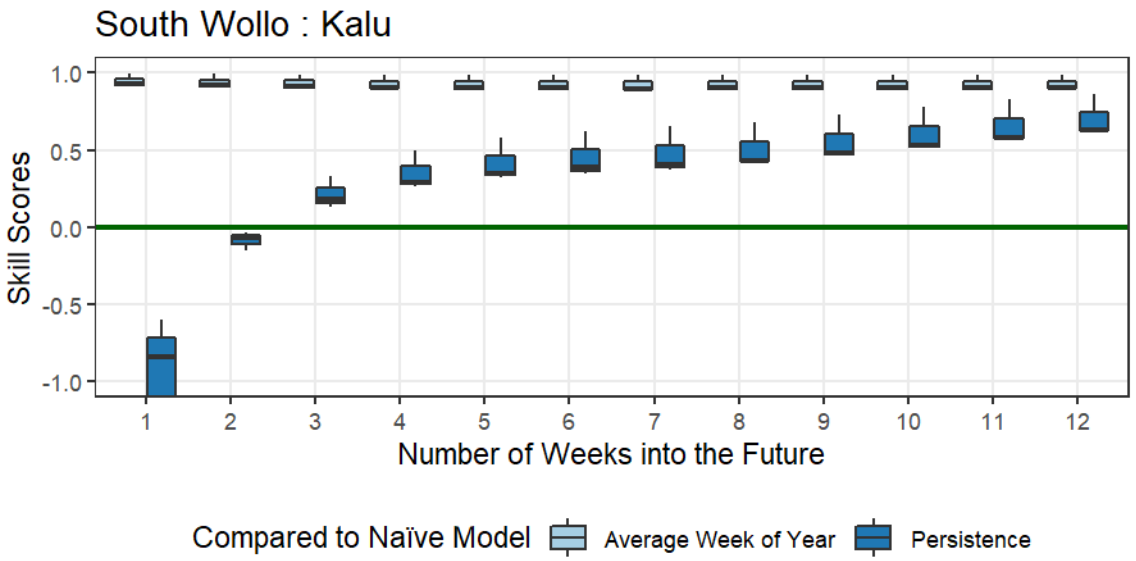

South Gondar : Dera
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1
2
3
4
5
6
7
8
9
10
11
12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence

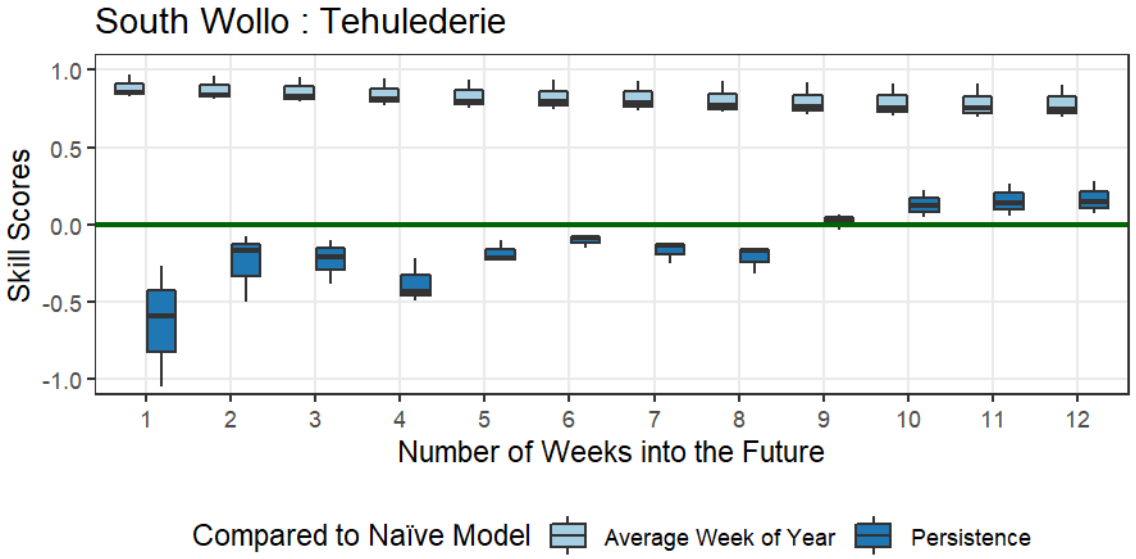

South Gondar : Estea
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1
2
3
4
5
6
7
8
9
10
11
12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence

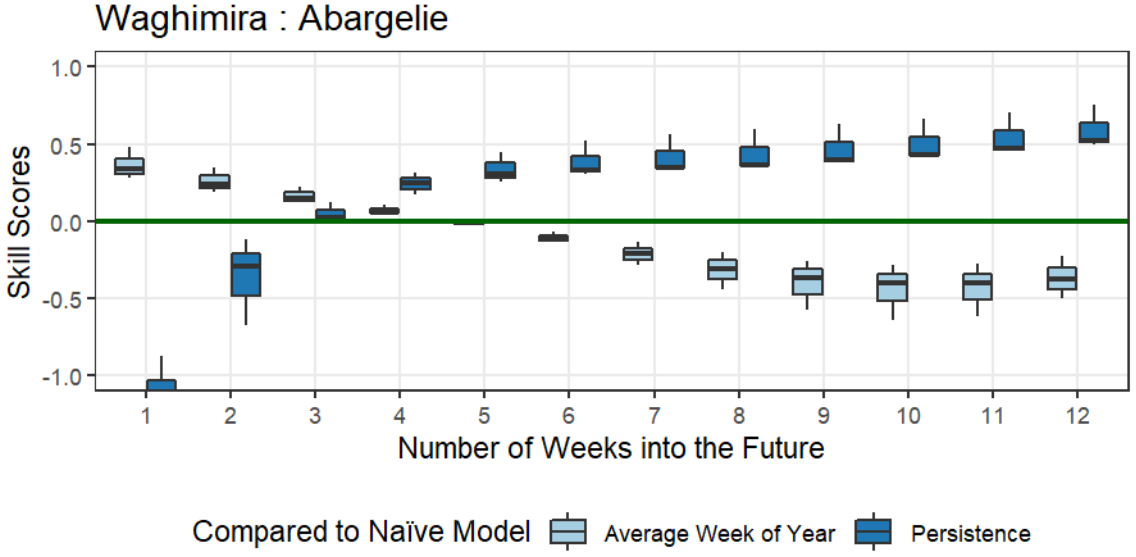

South Gondar : Fogera
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1
2
3
4
5
6
7
8
9
10
11
12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence

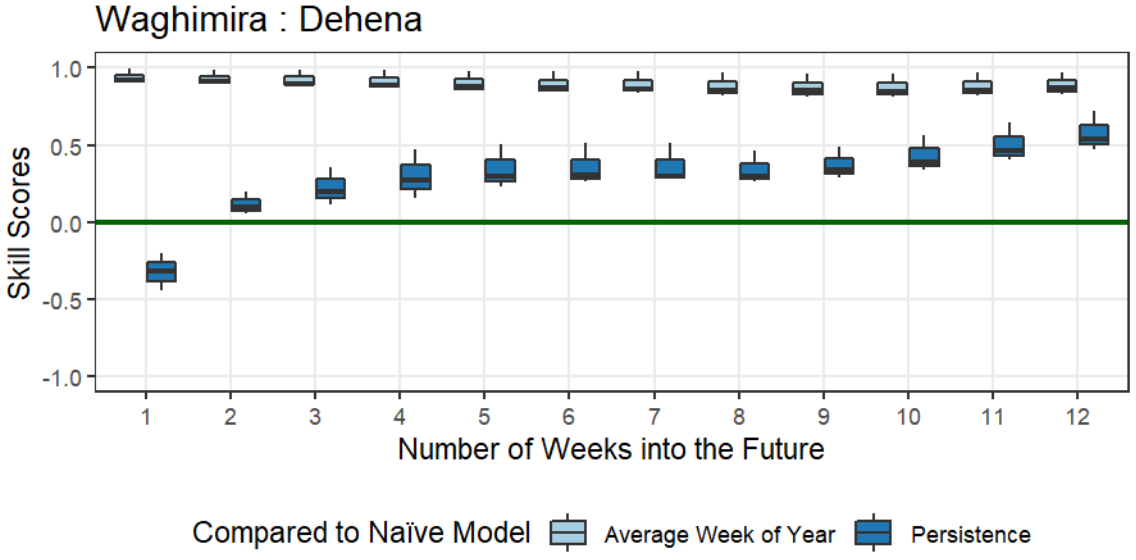

South Gondar : Libokemkem
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1
2
3
4
5
6
7
8
9
10
11
12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence

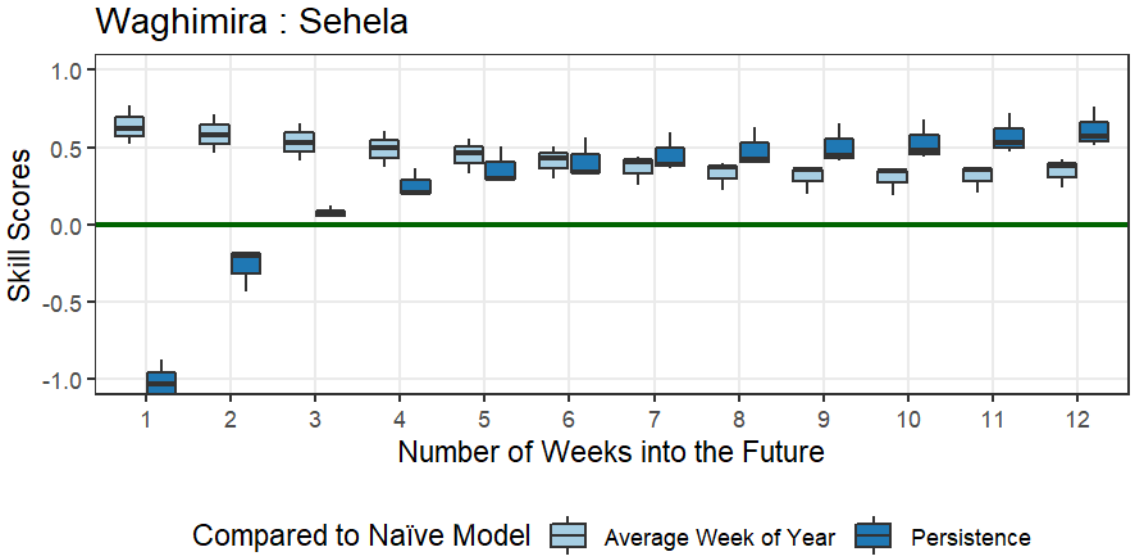

South Wollo : Borena
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1
2
3
4
5
6
7
8
9
10
11
12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence

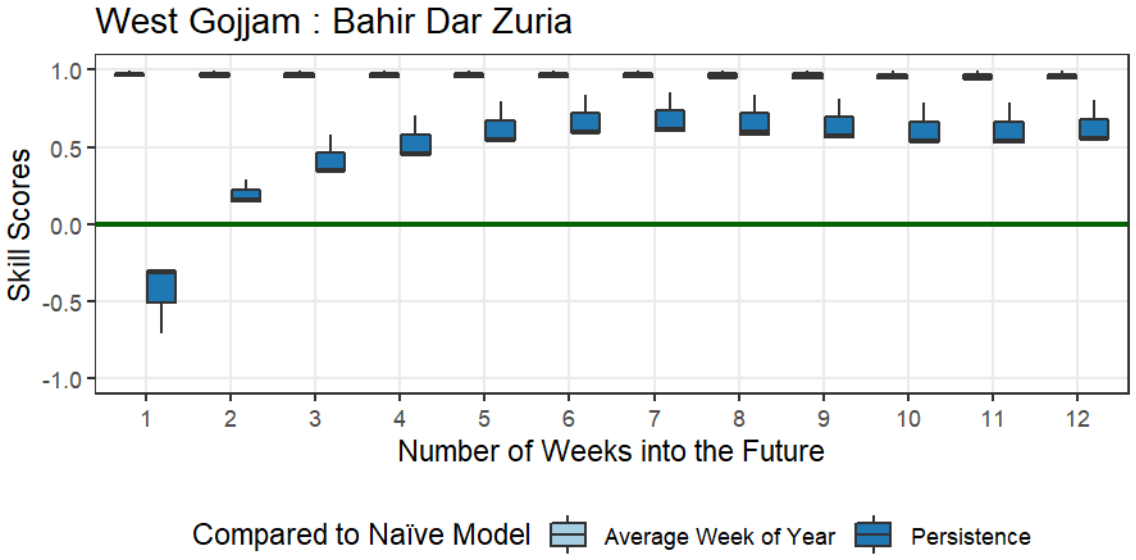

South Wollo : Kalu
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1
2
3
4
5
6
7
8
9
10
11
12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence

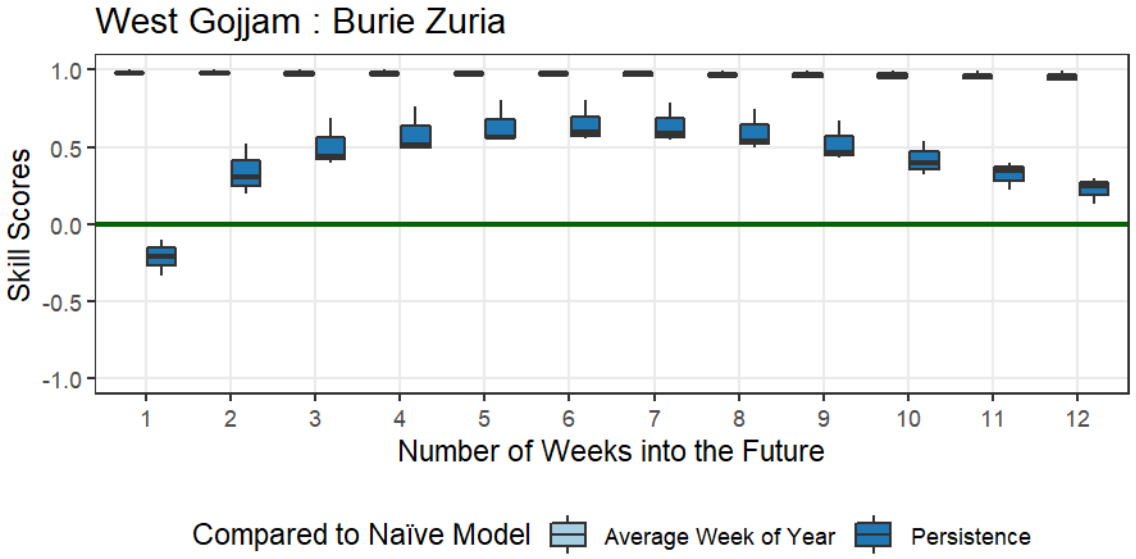

South Wollo : Tehulederie
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1 2 3 4 5 6 7 8 9 10 11 12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence

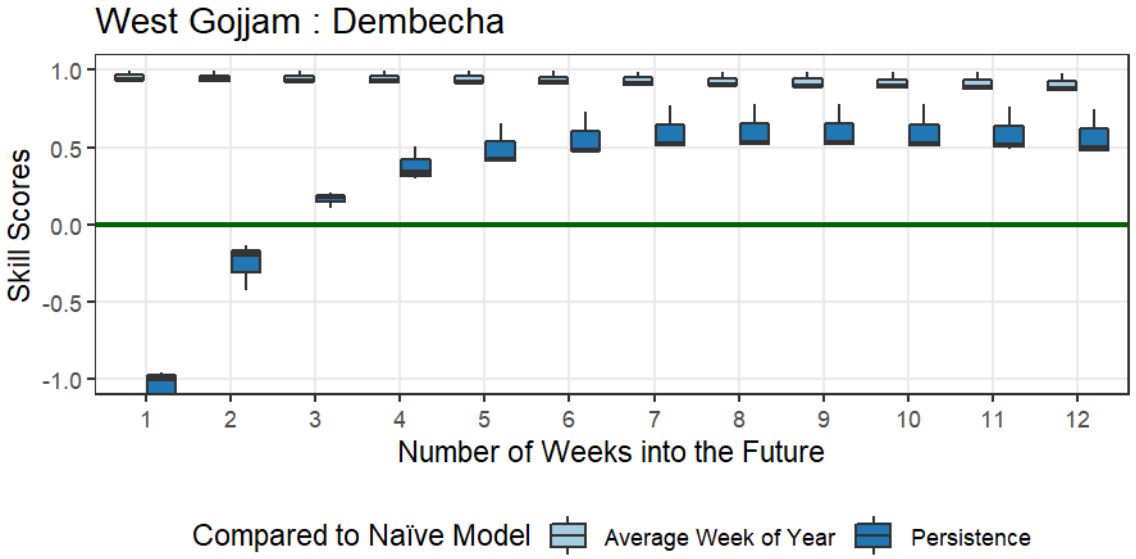

Waghimira : Abargelie
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1 2 3 4 5 6 7 8 9 10 11 12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence

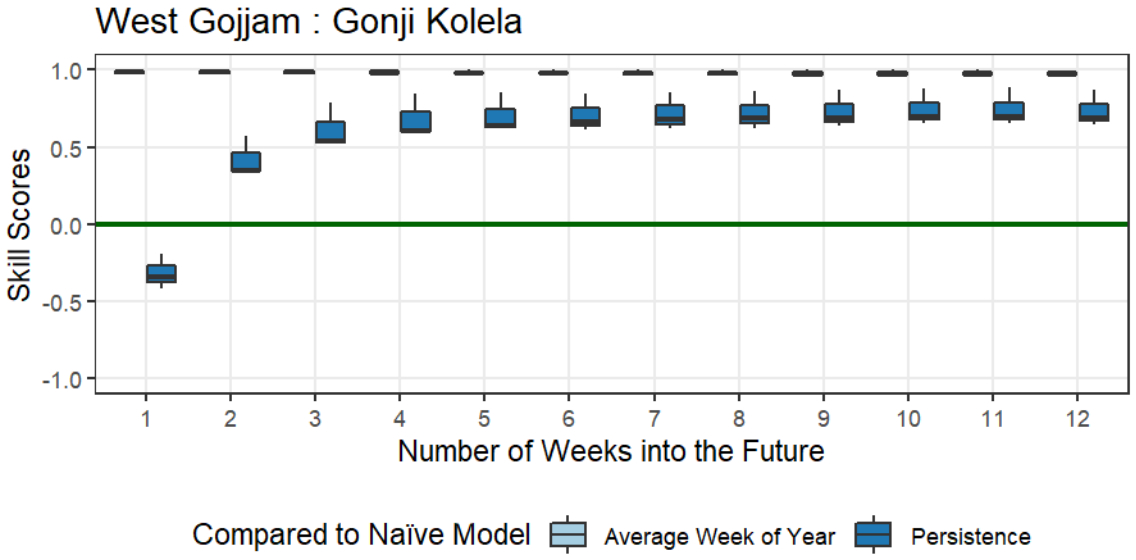

Waghimira : Dehena
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1 2 3 4 5 6 7 8 9 10 11 12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence

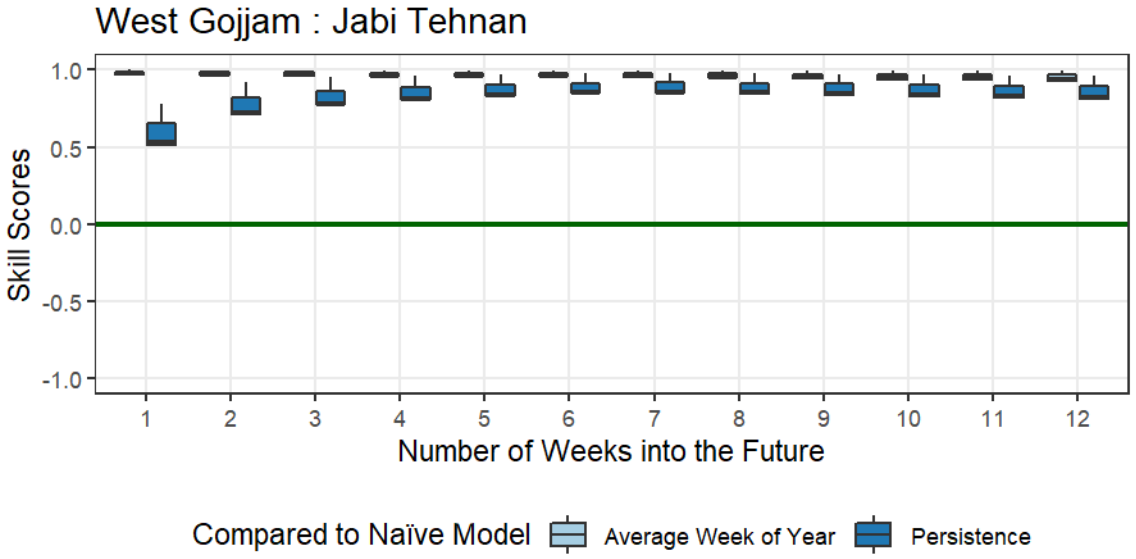

Waghimira : Sehela
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1
2
3
4
5
6
7
8
9
10
11
12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence

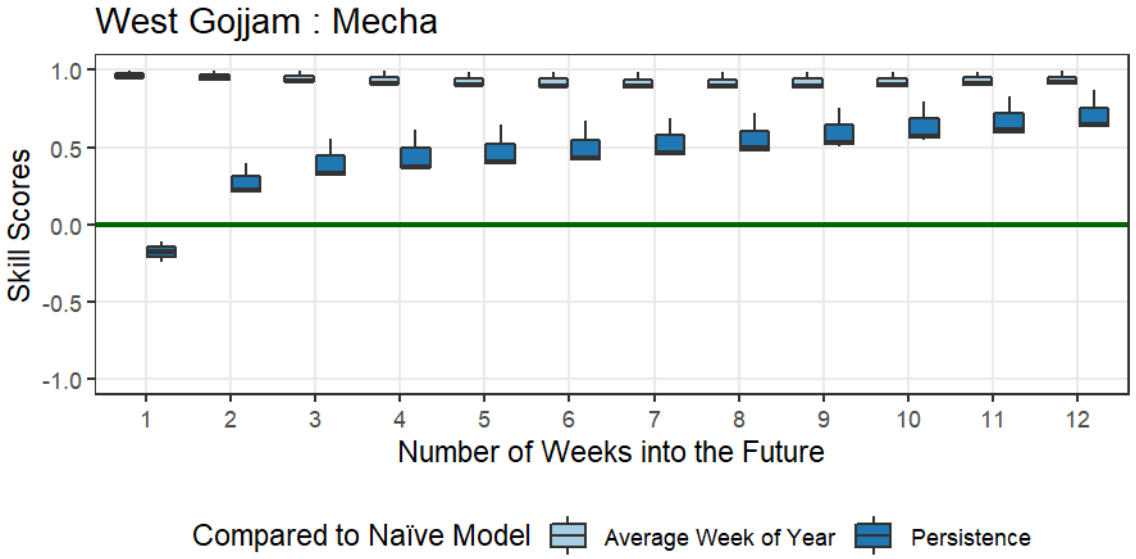

West Gojjam : Bahir Dar Zuria
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1
2
3
4
5
6
7
8
9
10
11
12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence

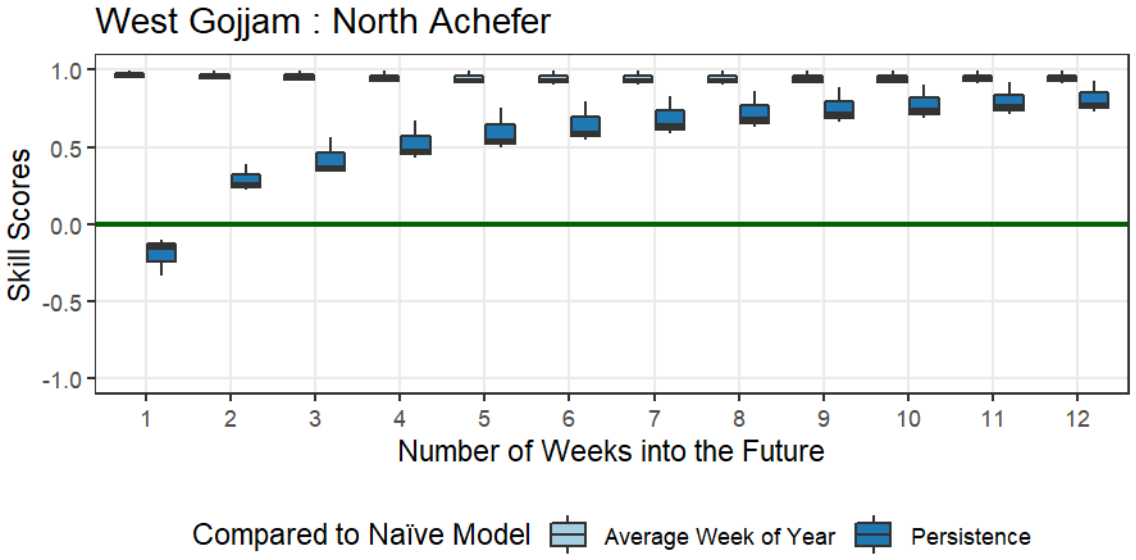

West Gojjam : Burie Zuria
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1
2
3
4
5
6
7
8
9
10
11
12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence

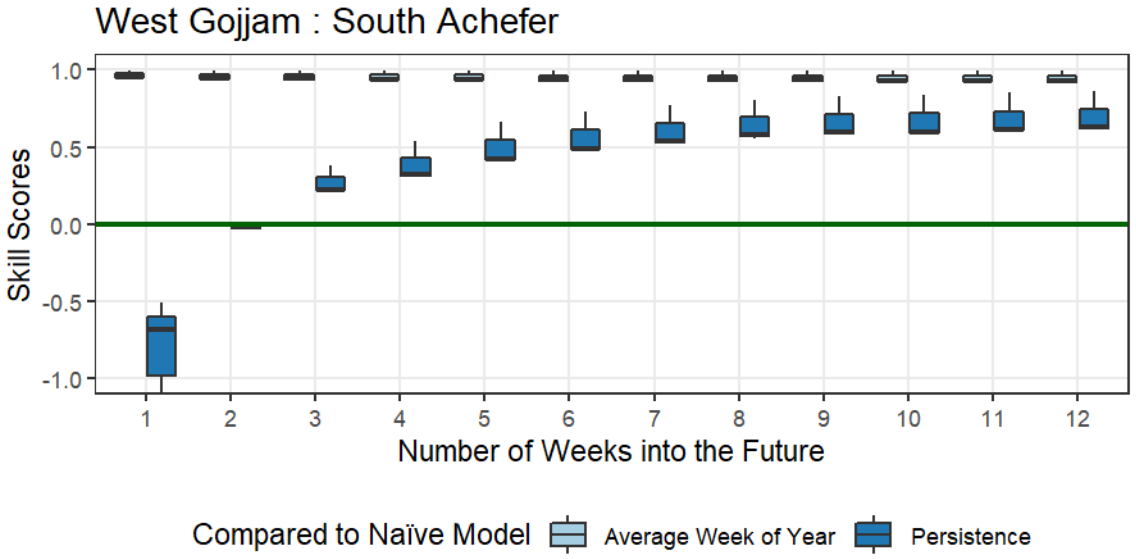

West Gojjam : Dembecha
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1
2
3
4
5
6
7
8
9
10
11
12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence

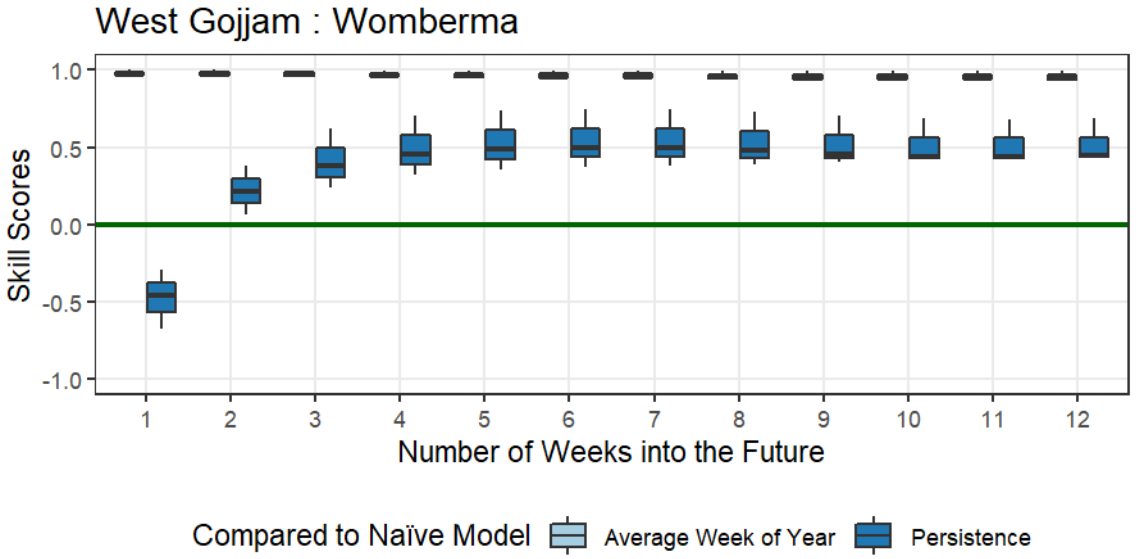

West Gojjam : Gonji Kolela
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1
2
3
4
5
6
7
8
9
10
11
12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence

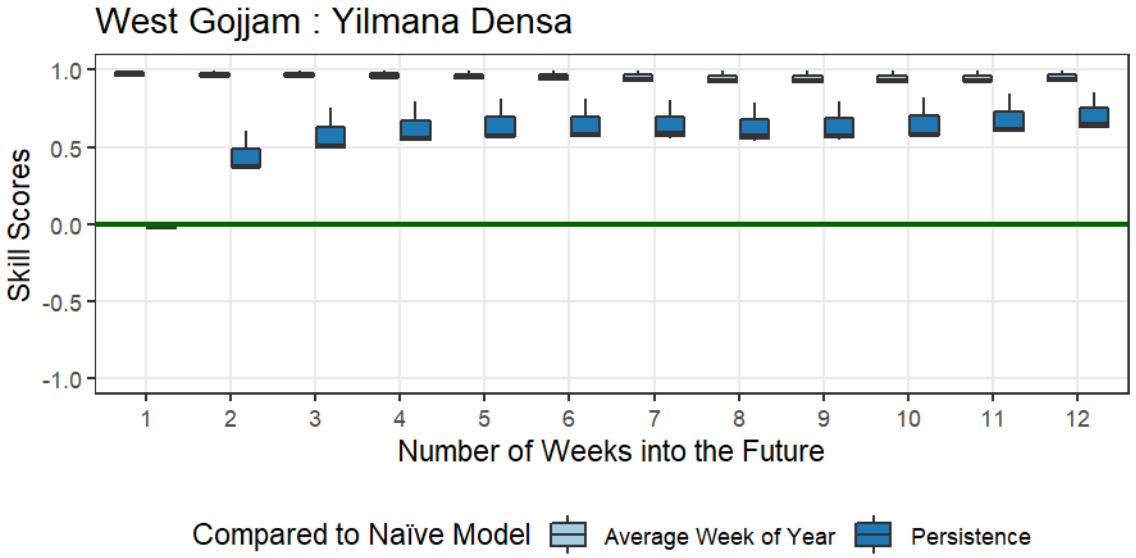

West Gojjam : Jabi Tehnan
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1
2
3
4
5
6
7
8
9
10
11
12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence


West Gojjam : Mecha
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1
2
3
4
5
6
7
8
9
10
11
12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence


West Gojjam : North Achefer
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1
2
3
4
5
6
7
8
9
10
11
12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence


West Gojjam : South Achefer
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1
2
3
4
5
6
7
8
9
10
11
12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence


West Gojjam : Womberma
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1
2
3
4
5
6
7
8
9
10
11
12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence


West Gojjam : Yilmana Densa
Skill Scores
1.0
0.5
0.0
-0.5
-1.0
1
2
3
4
5
6
7
8
9
10
11
12
Number of Weeks into the Future
Compared to Naïve Model
Average Week of Year
Persistence

4 Accuracy Statistics

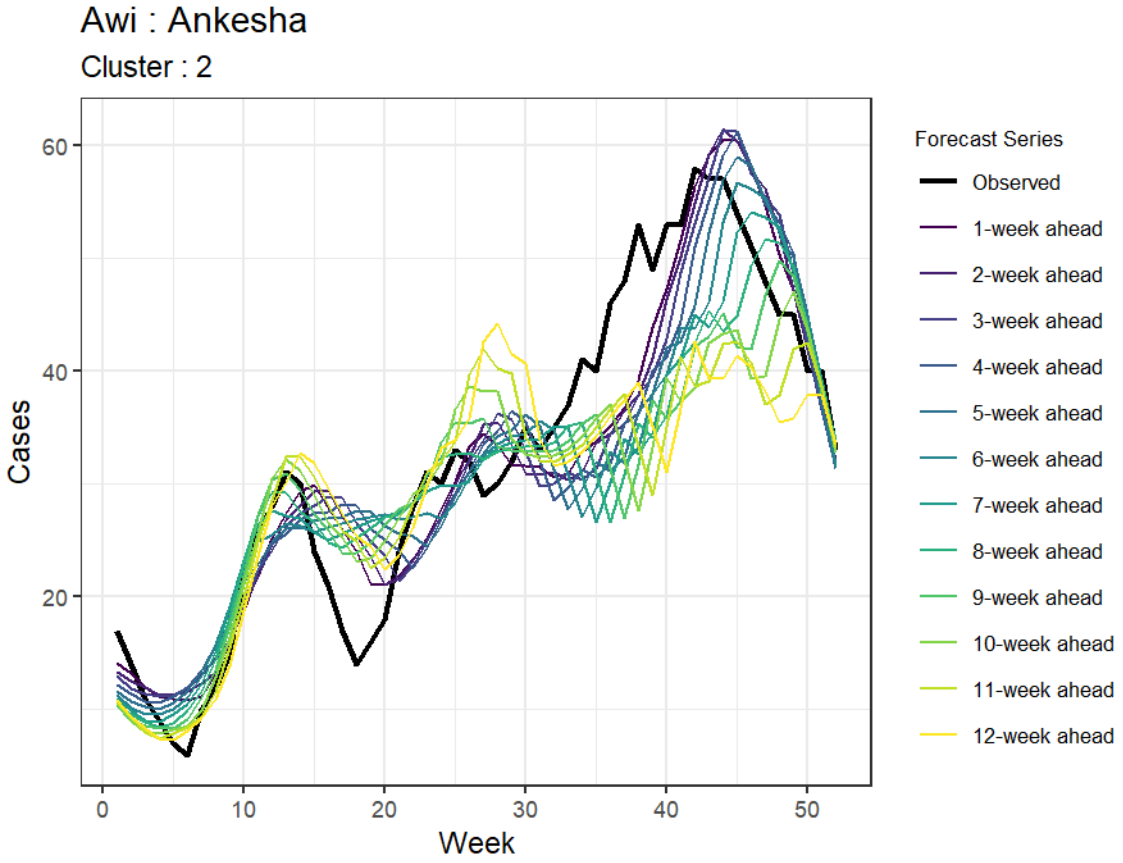
4.1 Overall Model

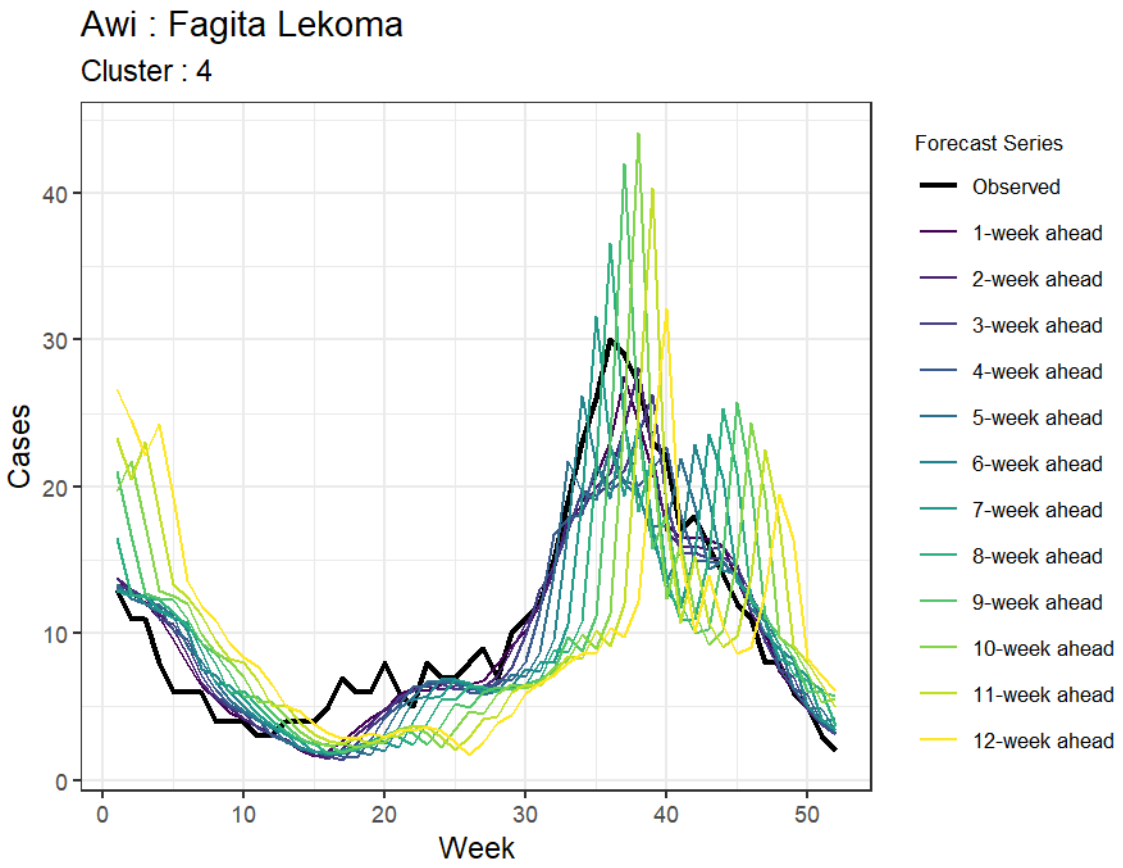
Week Ahead	MAE	RMSE	R2
1	4.4	9.6	0.99
2	5.2	11.6	0.99
3	6.0	13.8	0.98
4	6.8	16.0	0.98
5	7.5	17.9	0.97
6	8.0	19.3	0.97
7	8.4	20.4	0.96
8	8.7	21.2	0.96
9	9.0	21.8	0.96
10	9.3	22.3	0.95
11	9.6	22.9	0.95
12	9.8	23.6	0.95

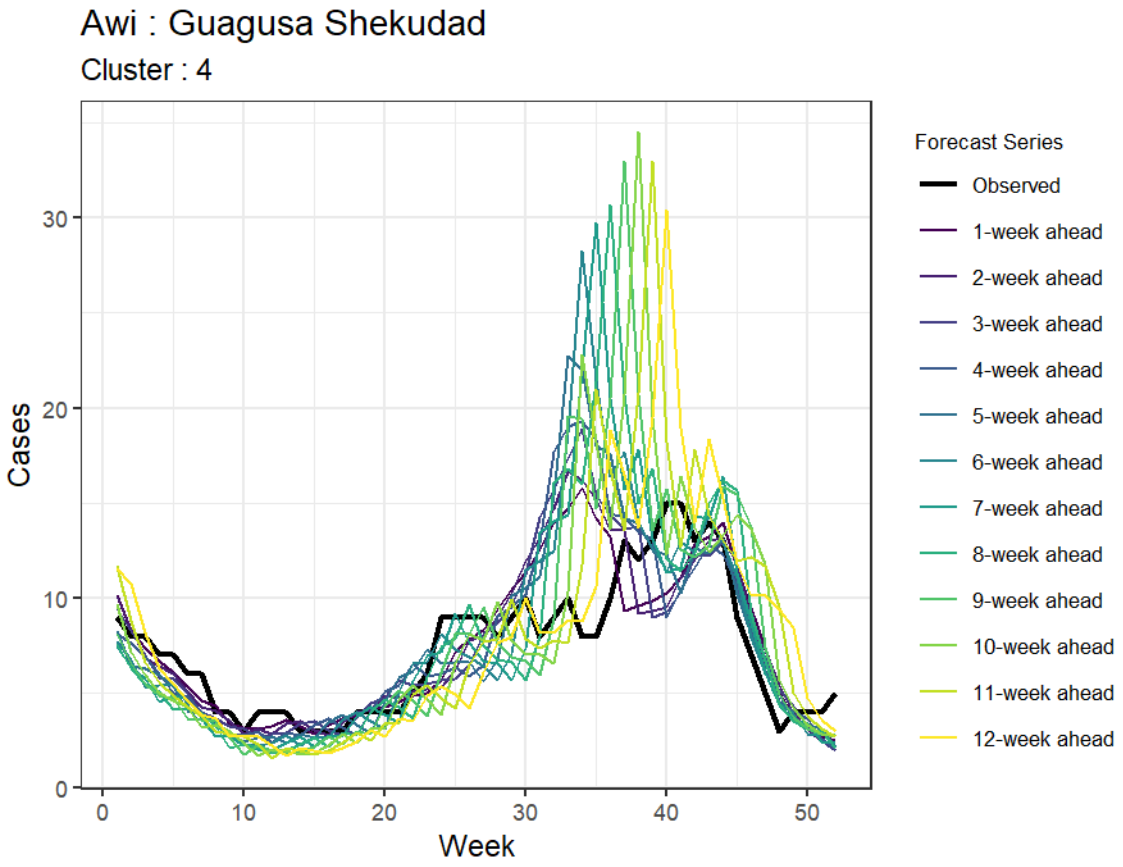
This table contains the raw accuracy statistic values for the forecast model overall for each week forecast into the future. There are three accuracy statistics used: Mean Absolute Error (MAE), Root Mean Squared Error (RMSE), an a R2 (variance explained). The validation was run with the assumption that there is a reporting lag of 0 weeks.

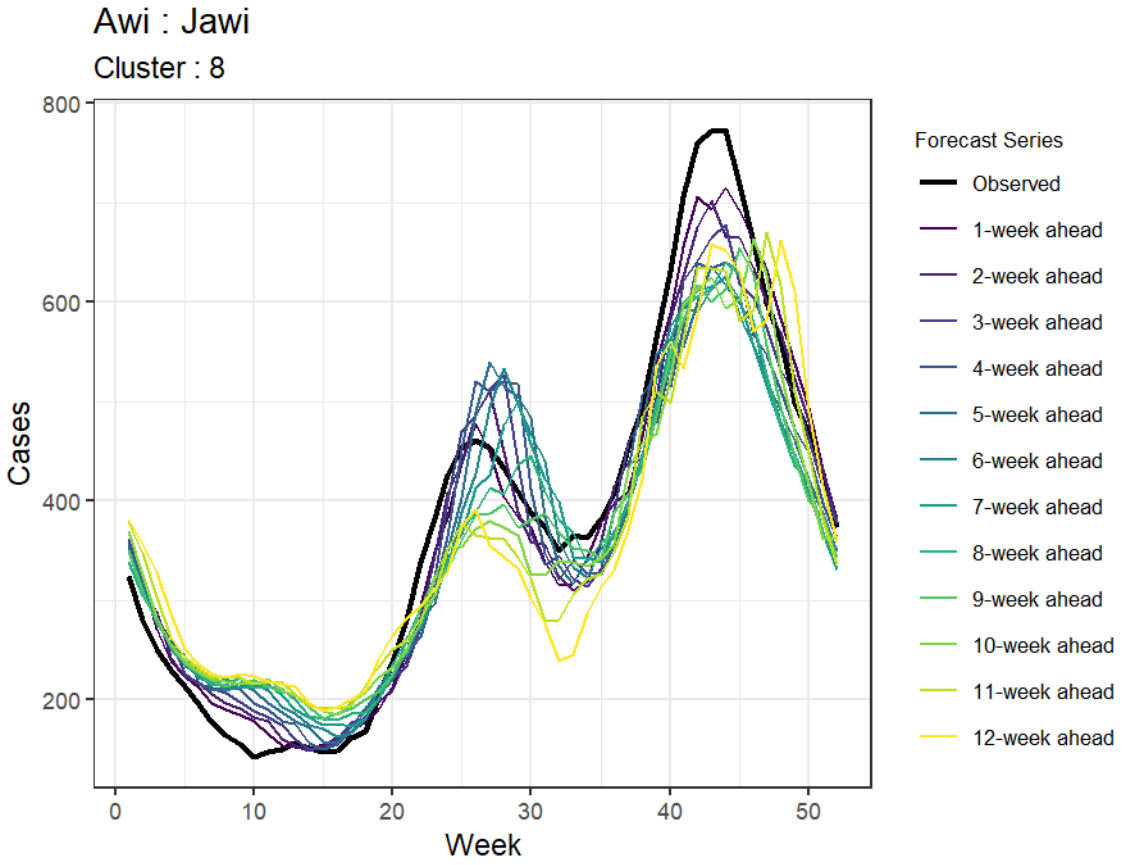
5 Week-ahead Graphs

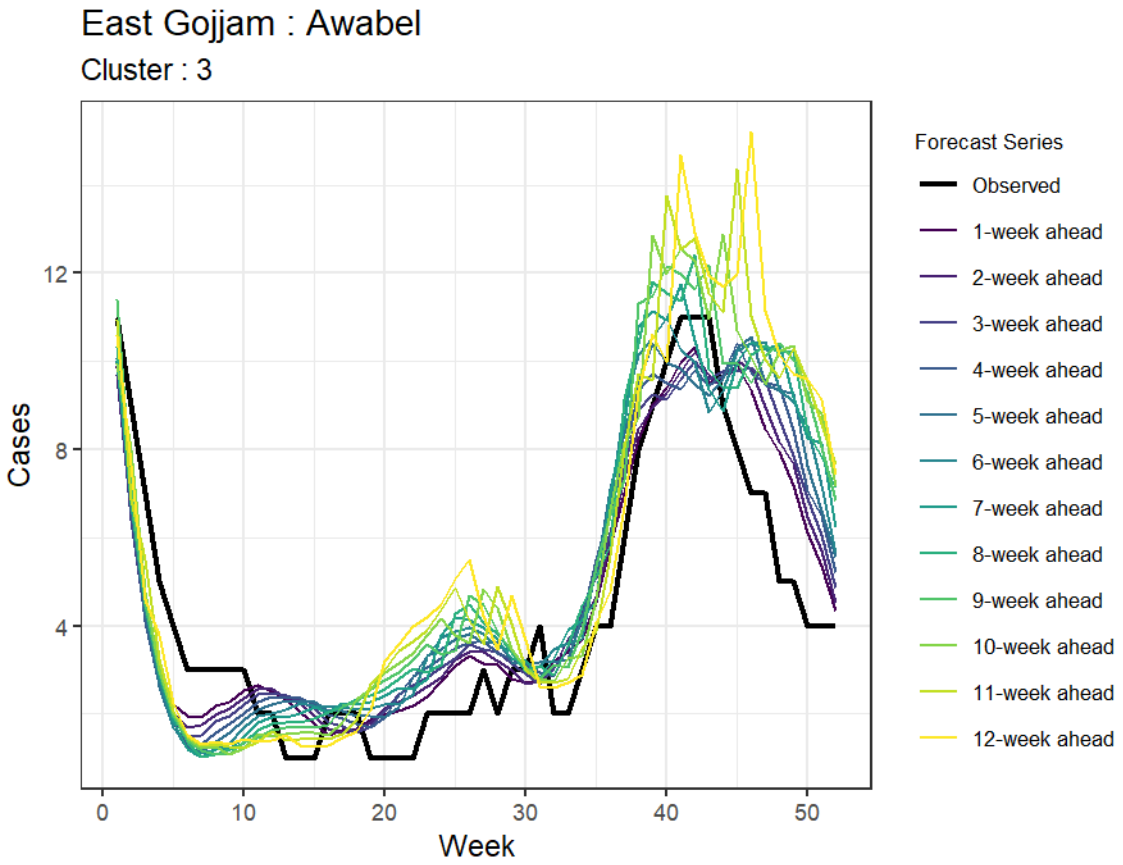
These graphs show the observed case counts and each of the week-ahead predictions as a series (i.e. all one-week ahead predictions are a series, all two-week, etc.) for the forecast model ((gaussian())). These graphs can be used to visualize how the predictions are behaving n-number of weeks ahead of the target forecast week.

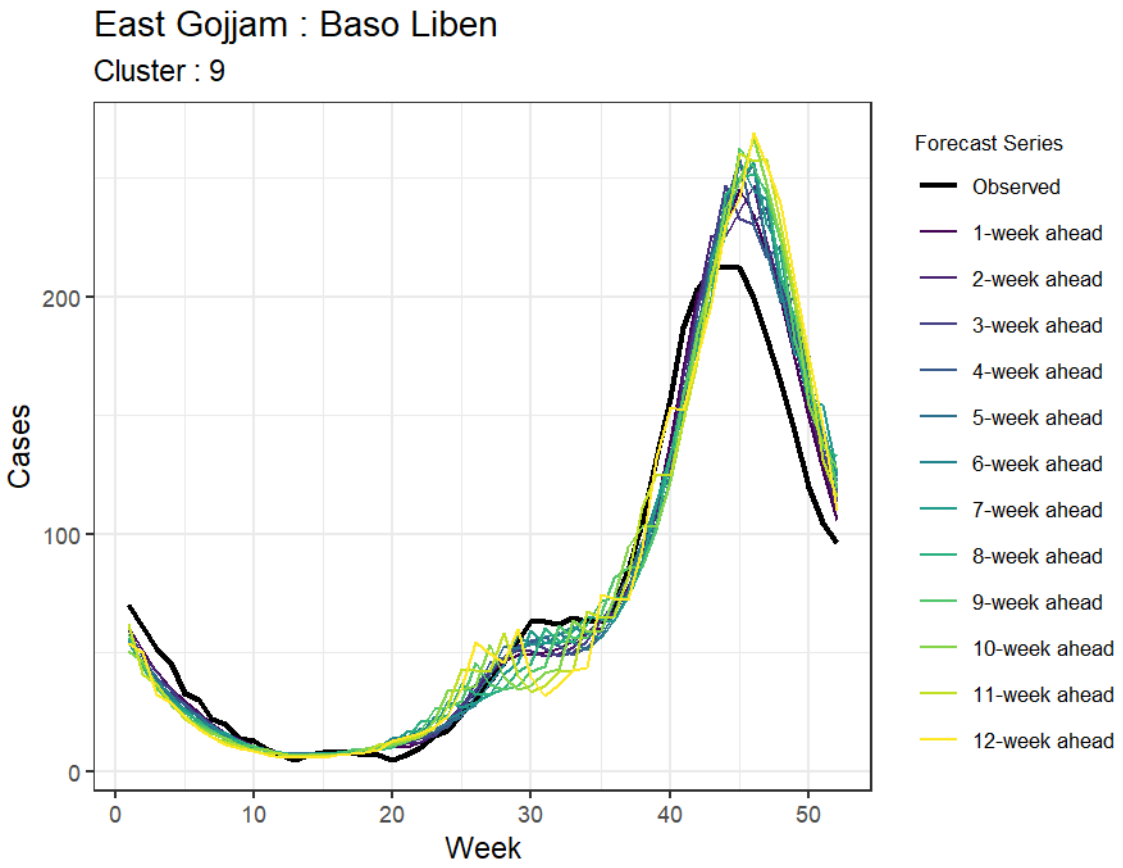


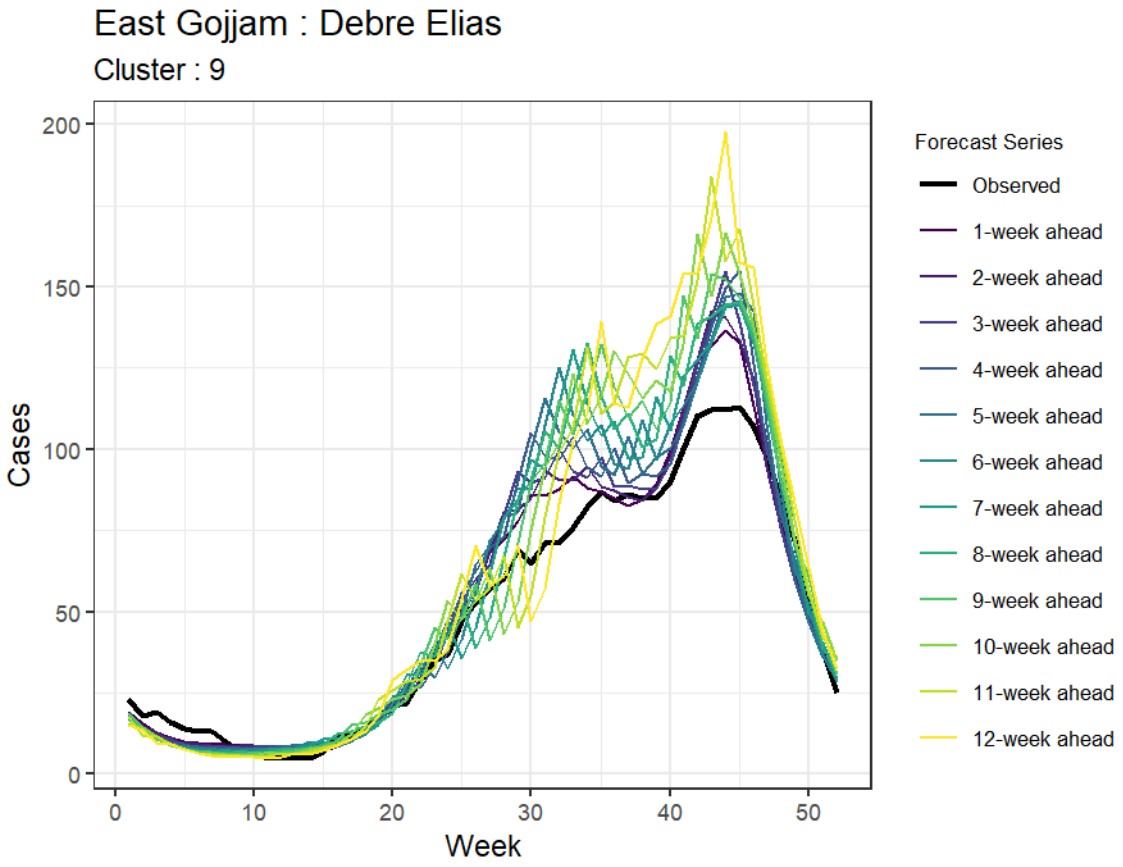

Awi : Fagita Lekoma
Cluster : 4
Cases
Week
0
10
20
30
40
50
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
10-week ahead
11-week ahead
12-week ahead


Awi : Guagusa Shekudad
Cluster : 4
Cases
Week
0
10
20
30
40
50
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
10-week ahead
11-week ahead
12-week ahead


Awi : Jawi
Cluster : 8
Cases
Week
800
600
400
200
0
10
20
30
40
50
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
10-week ahead
11-week ahead
12-week ahead


East Gojjam : Awabel
Cluster : 3
Cases
Week
12
8
4
0
10
20
30
40
50
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
10-week ahead
11-week ahead
12-week ahead


East Gojjam : Baso Liben
Cluster : 9
Cases
Week
0
100
200
0
10
20
30
40
50
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
10-week ahead
11-week ahead
12-week ahead


East Gojjam : Debre Elias
Cluster : 9
Cases
Week
0
50
100
150
200
0
10
20
30
40
50
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
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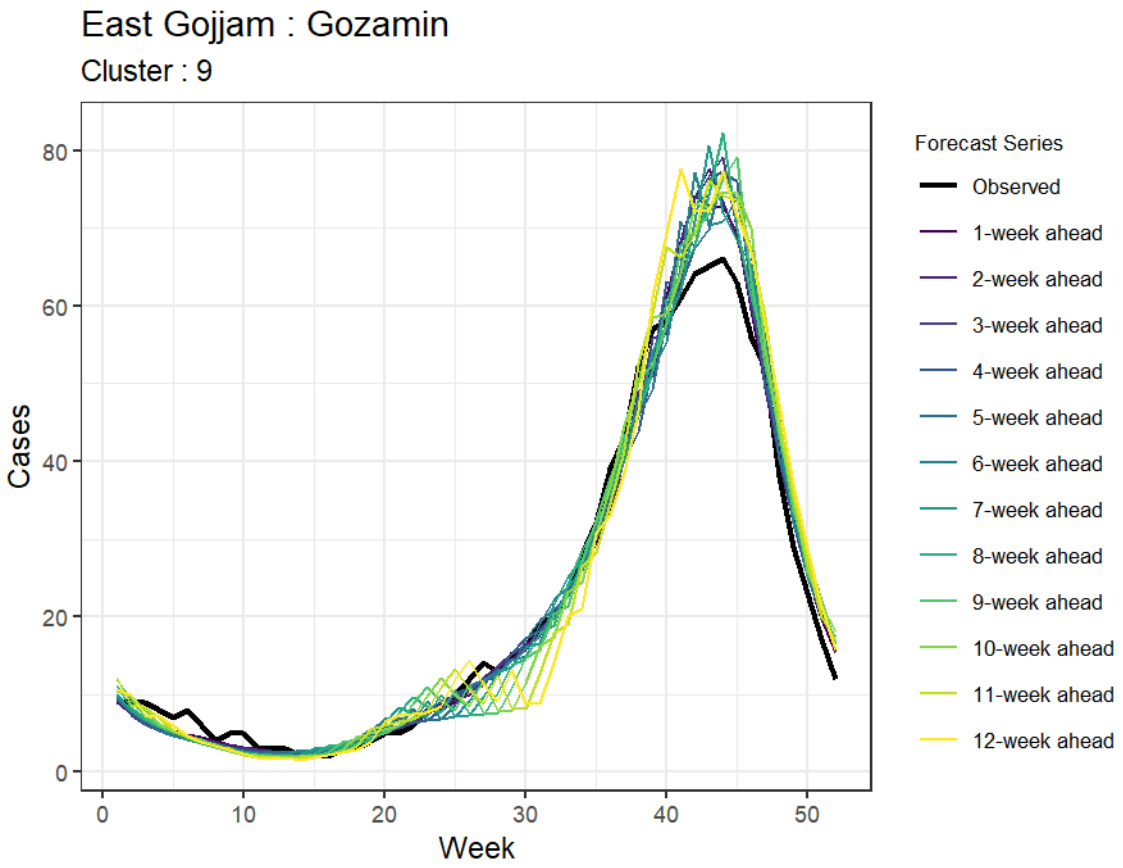
11-week ahead
12-week ahead


East Gojjam : Gozamin
Cluster : 9
Cases
Week
0
20
40
60
80
0
10
20
30
40
50
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
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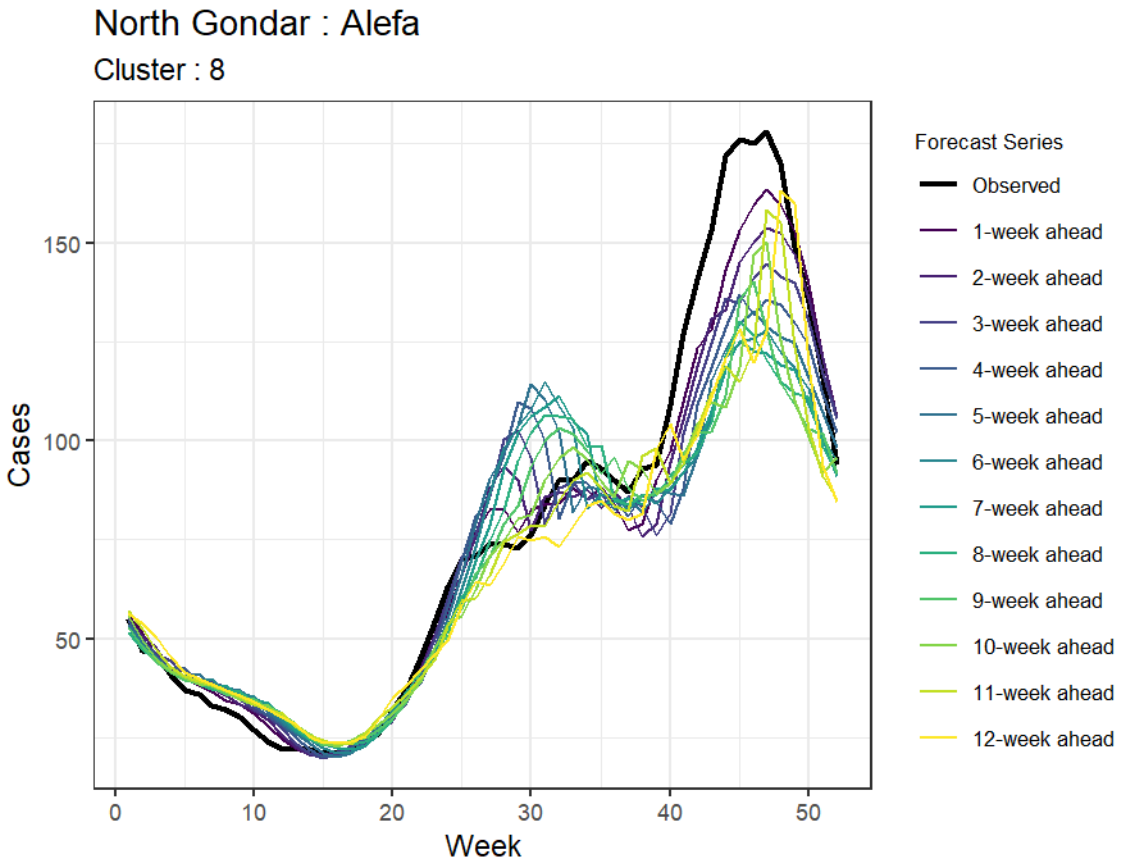
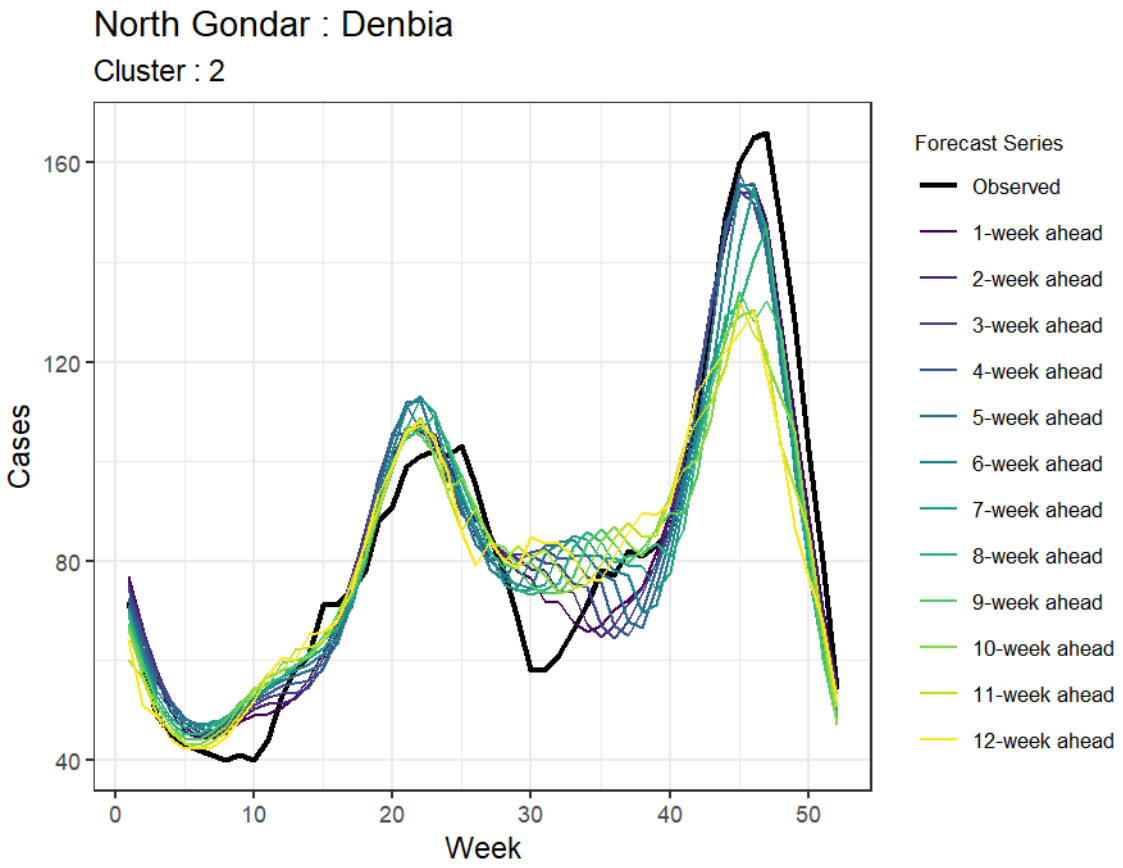
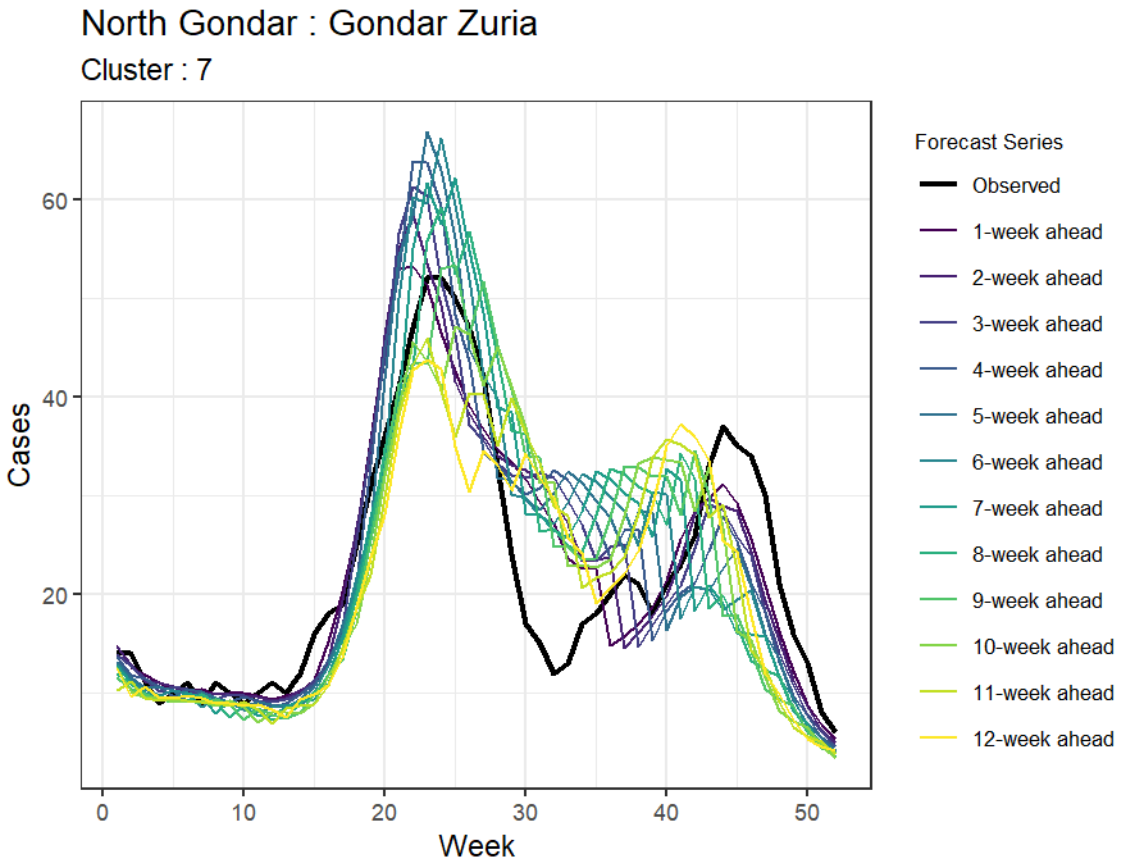
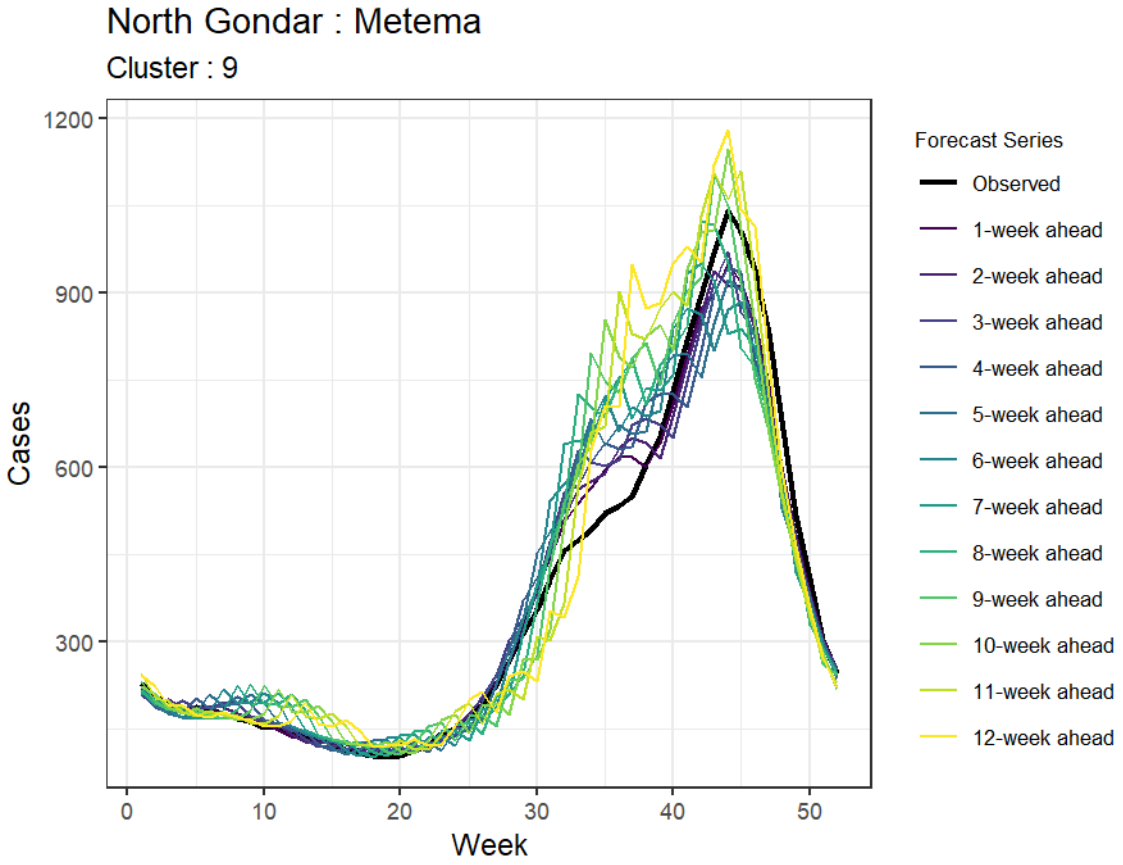
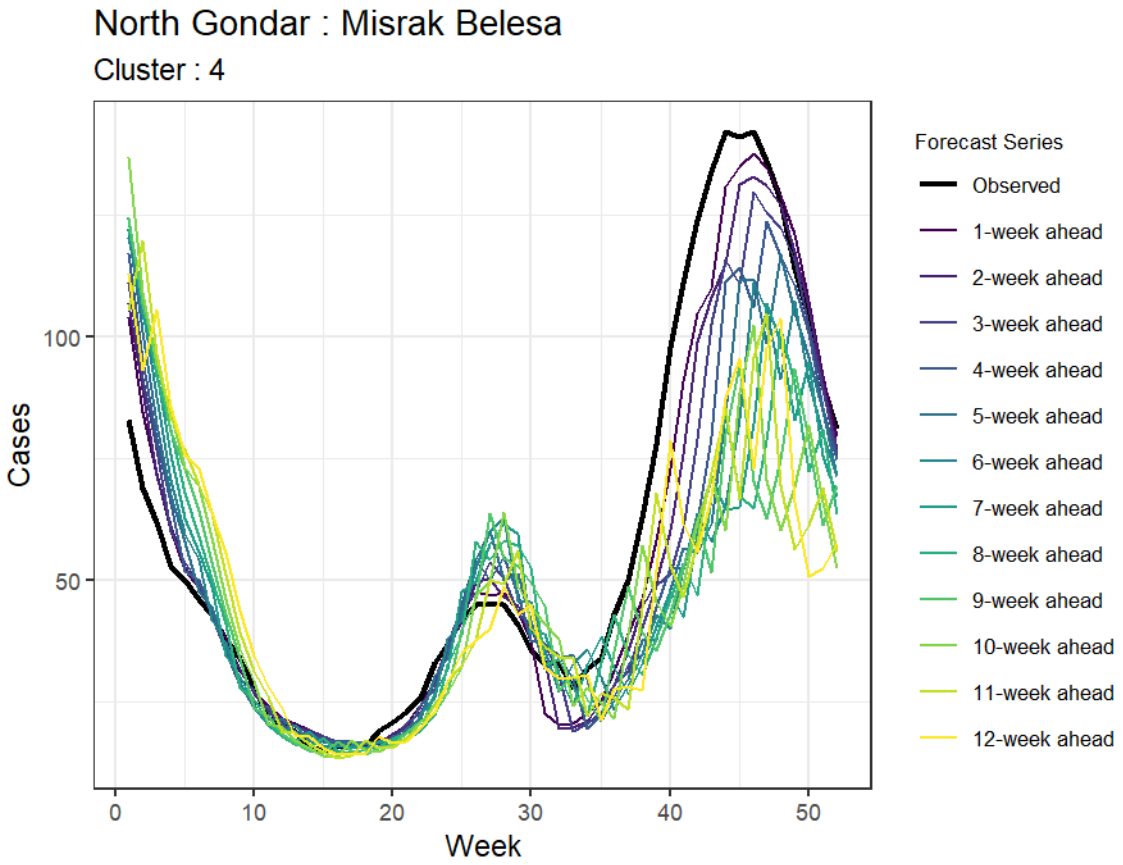
7-week ahead
8-week ahead
9-week ahead
10-week ahead
11-week ahead
12-week ahead


North Gondar : Alefa
Cluster : 8
Cases
Week
50
100
150
0
10
20
30
40
50
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
10-week ahead
11-week ahead
12-week ahead


North Gondar : Denbia
Cluster : 2
Cases
Week
160
120
80
40
0
10
20
30
40
50
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
10-week ahead
11-week ahead
12-week ahead


North Gondar : Gondar Zuria
Cluster : 7
Cases
Week
60
40
20
0
10
20
30
40
50
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
10-week ahead
11-week ahead
12-week ahead


North Gondar : Metema
Cluster : 9
Cases
1200
900
600
300
0
10
20
30
40
50
Week
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
10-week ahead
11-week ahead
12-week ahead


North Gondar : Misrak Belesa
Cluster : 4
Cases
100
50
0
10
20
30
40
50
Week
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
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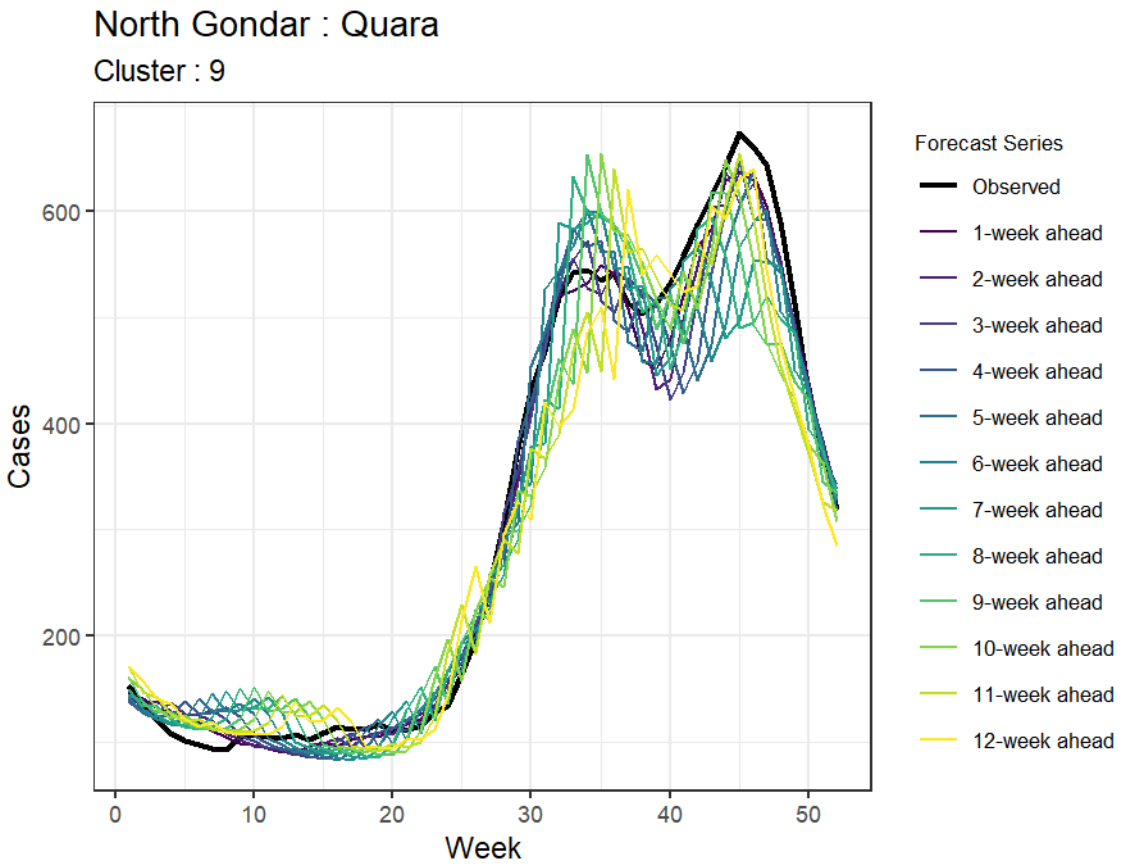
11-week ahead
12-week ahead


North Gondar : Quara
Cluster : 9
Cases
600
400
200
0
10
20
30
40
50
Week
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
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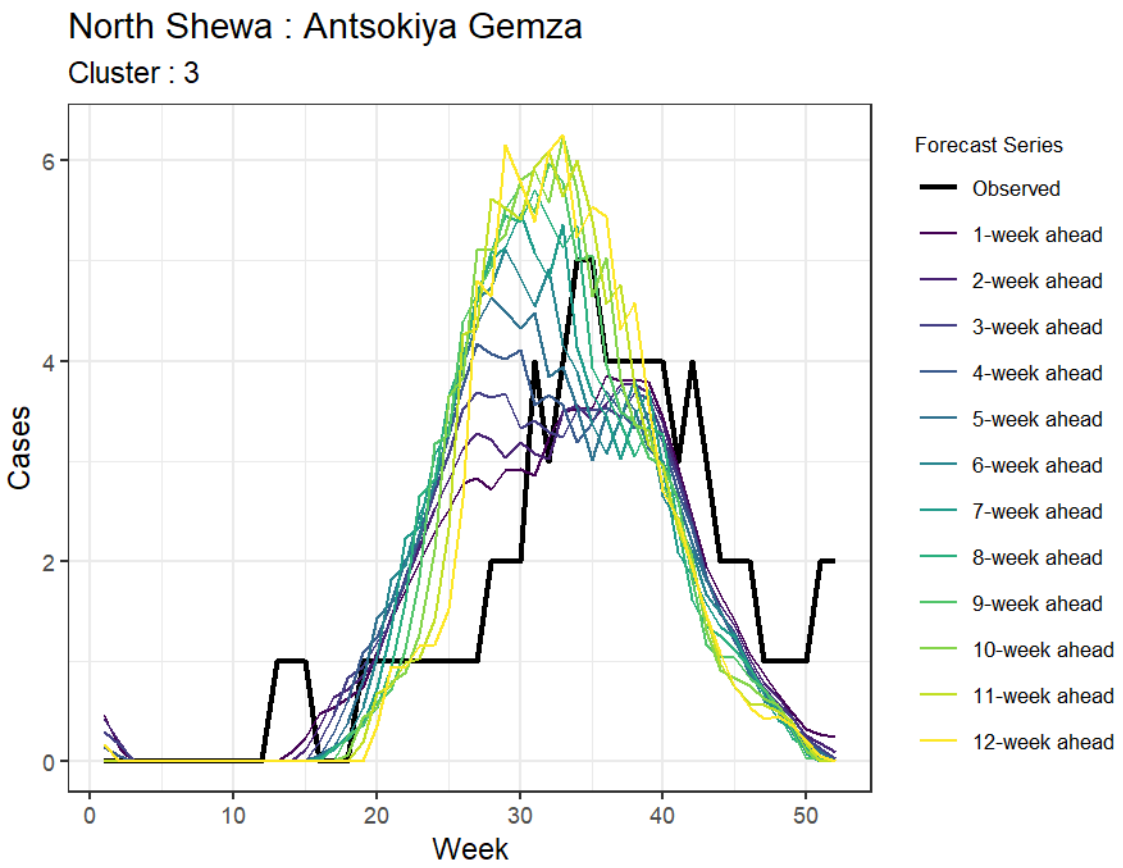
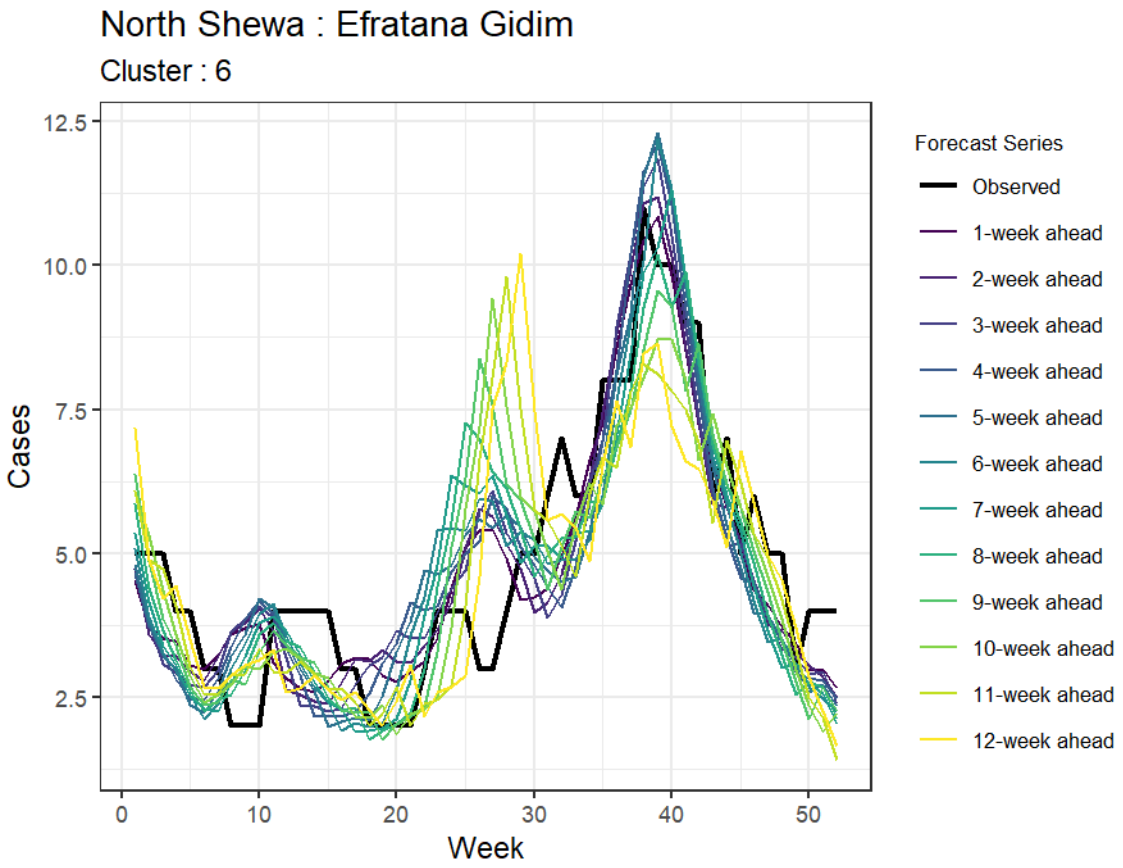
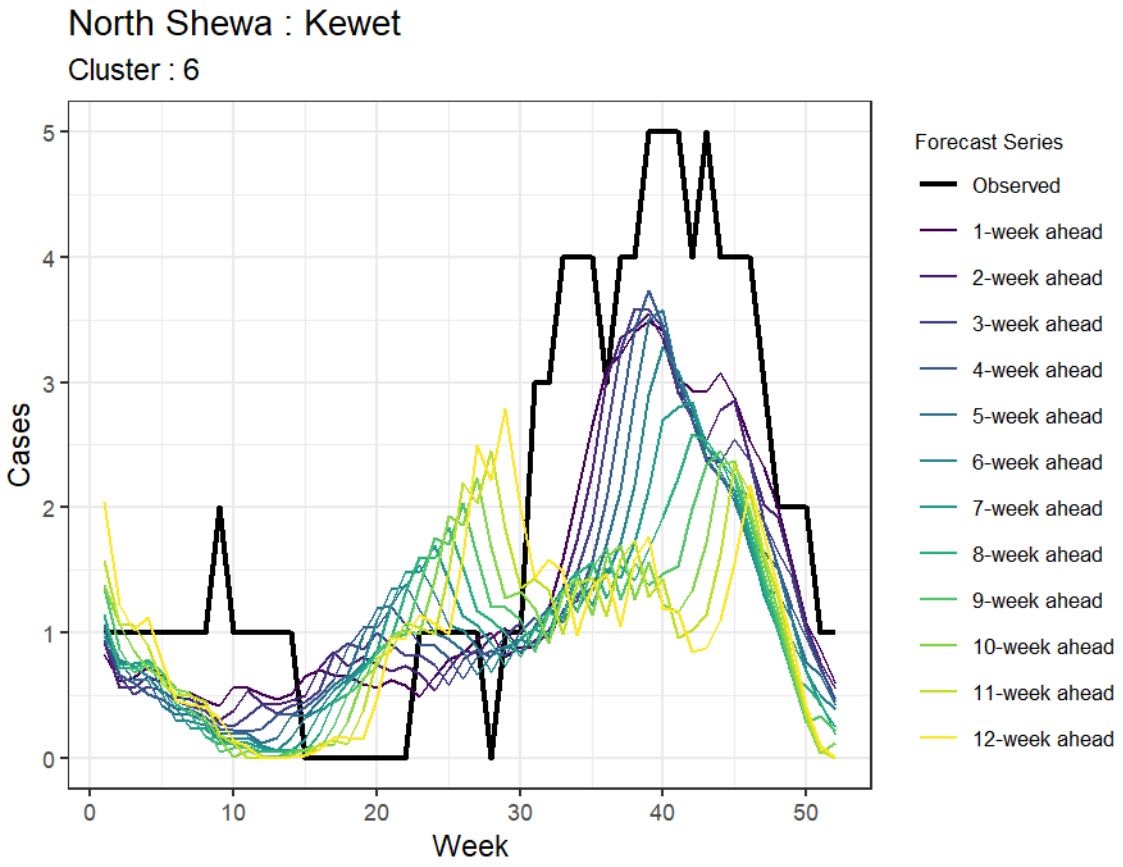
11-week ahead
12-week ahead


North Shewa : Antsokiya Gemza
Cluster : 3
Cases
6
4
2
0
10
20
30
40
50
Week
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
10-week ahead
11-week ahead
12-week ahead


North Shewa : Efratana Gidim
Cluster : 6
Cases
Week
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
10-week ahead
11-week ahead
12-week ahead


North Shewa : Kewet
Cluster : 6
Cases
Week
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
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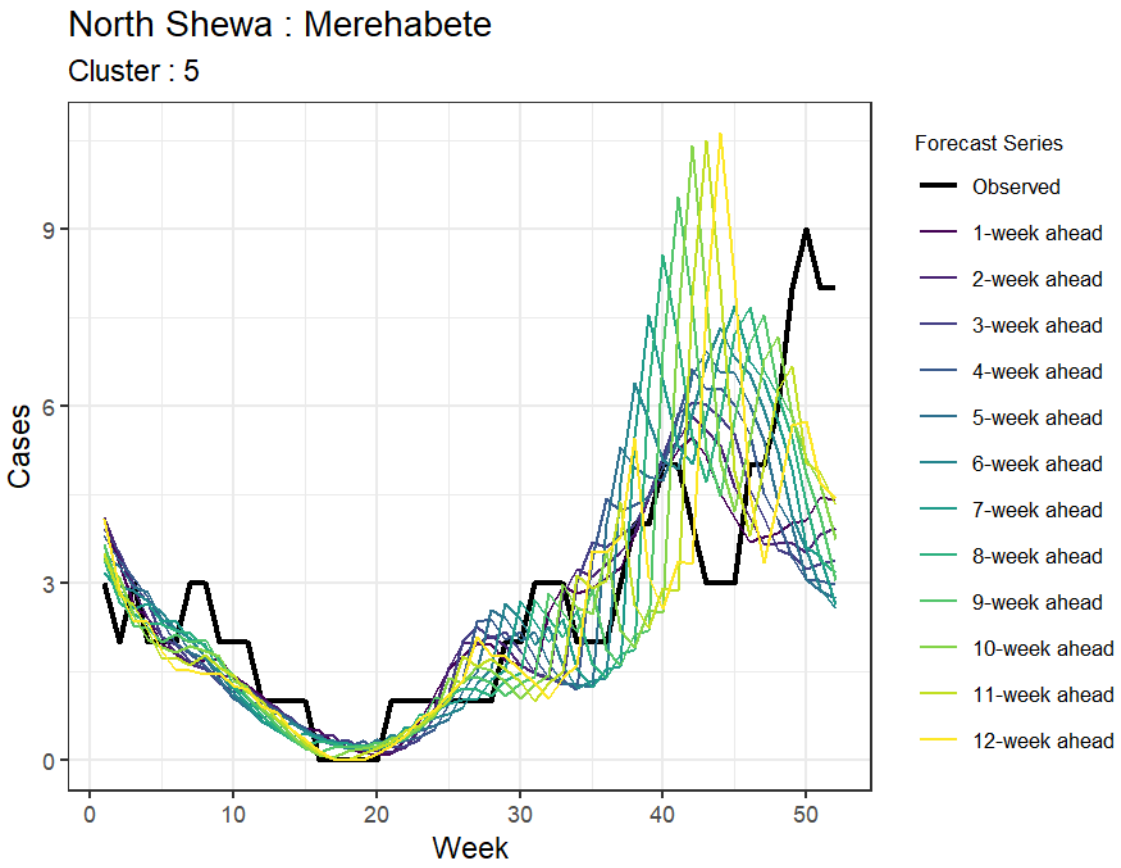
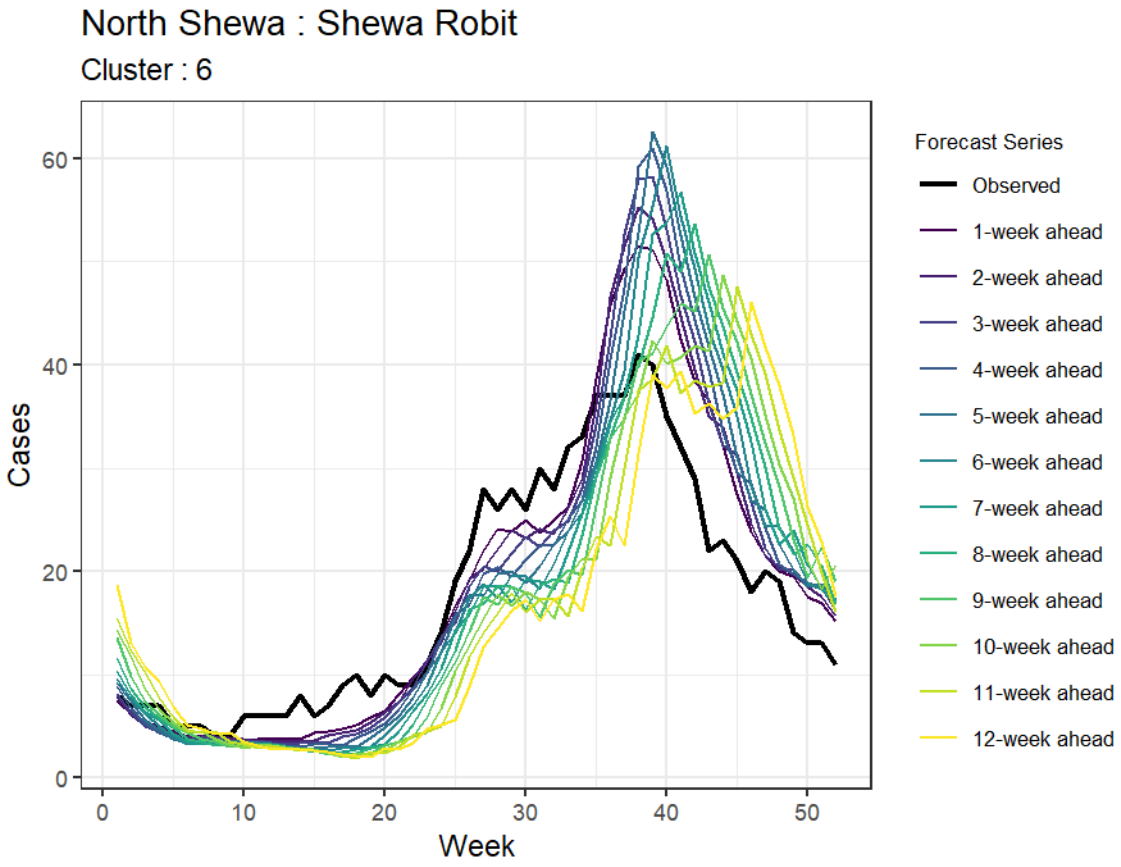
11-week ahead
12-week ahead


North Shewa : Merehabete
Cluster : 5
Cases
Week
0
3
6
9
0
10
20
30
40
50
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
10-week ahead
11-week ahead
12-week ahead


North Shewa : Shewa Robit
Cluster : 6
Cases
Week
0
20
40
60
0
10
20
30
40
50
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
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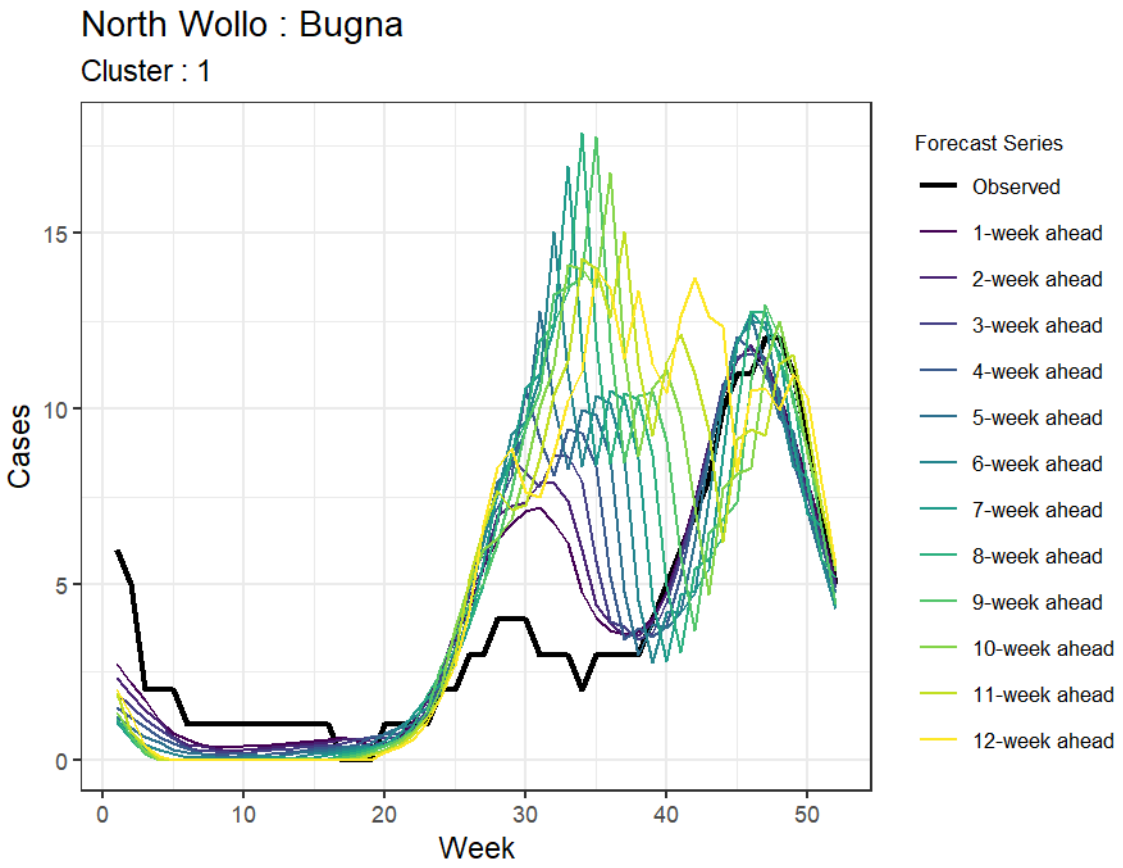
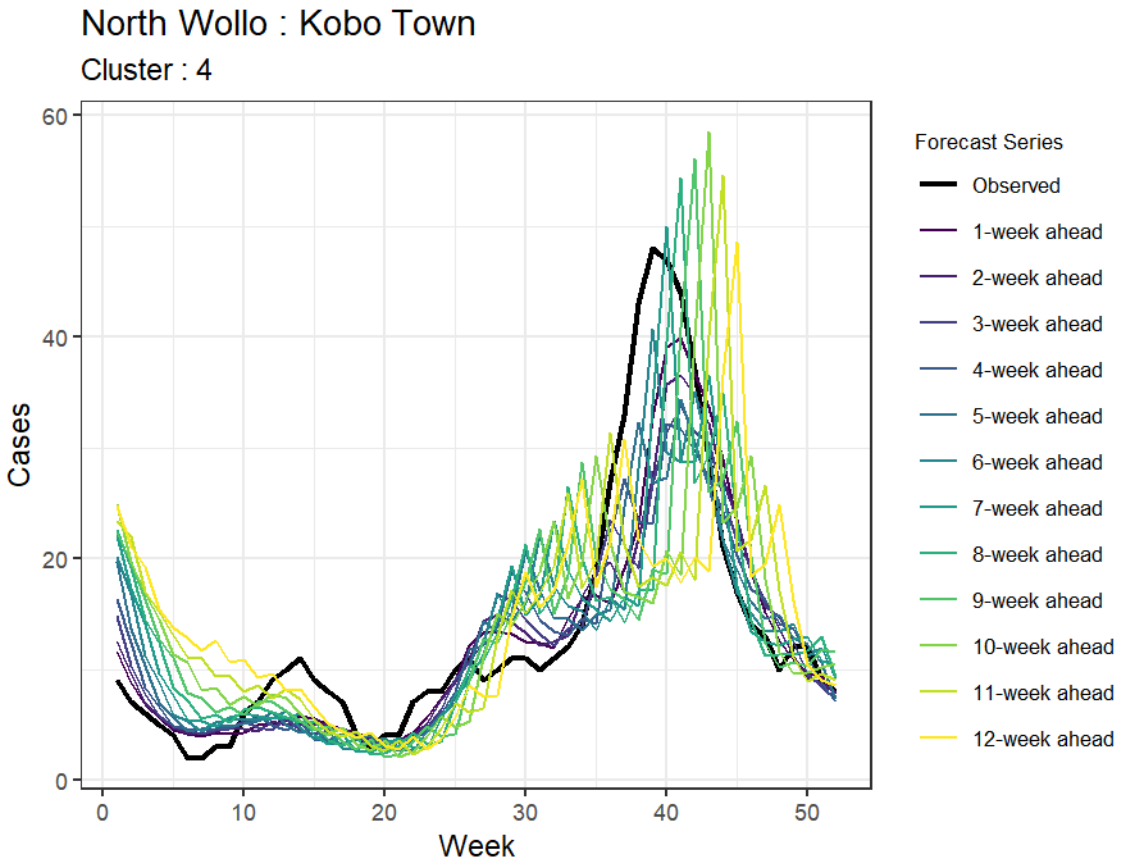
11-week ahead
12-week ahead


North Wollo : Bugna
Cluster : 1
Cases
Week
0
5
10
15
0
10
20
30
40
50
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
10-week ahead
11-week ahead
12-week ahead


North Wollo : Kobo Town
Cluster : 4
Cases
Week
0
20
40
60
0
10
20
30
40
50
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
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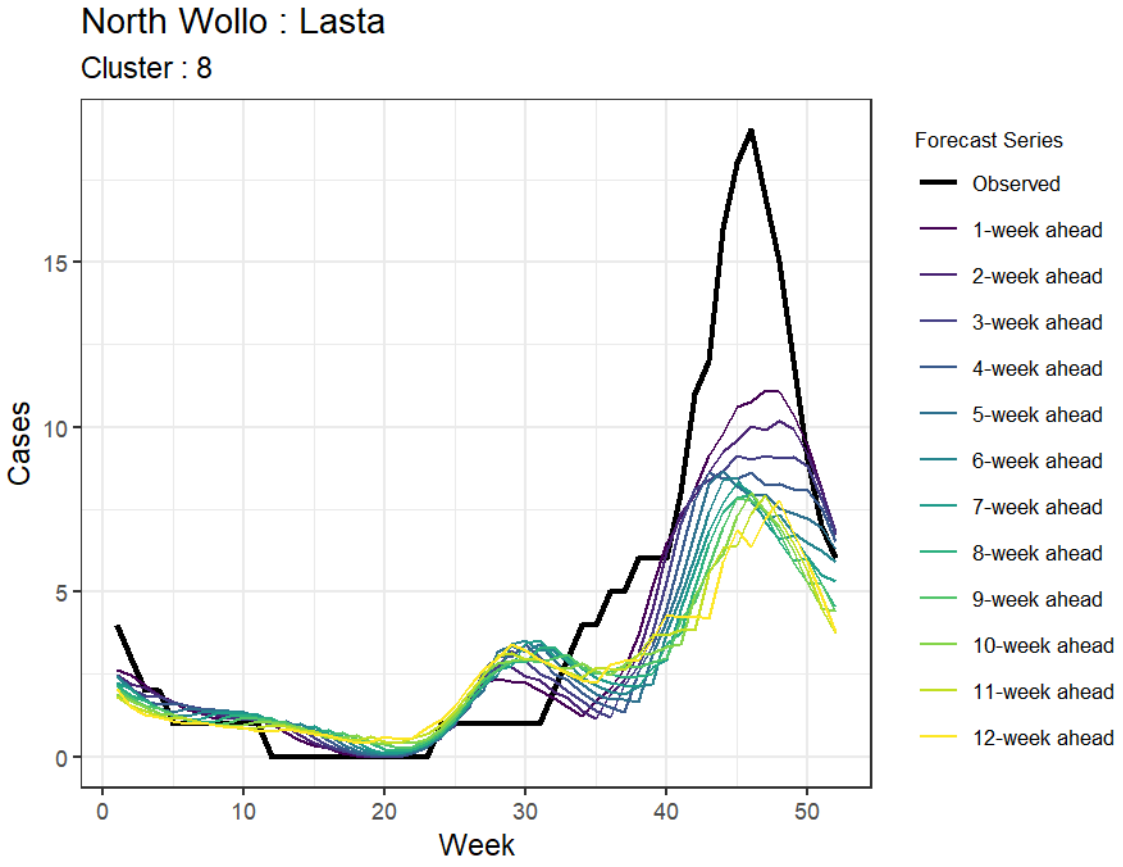
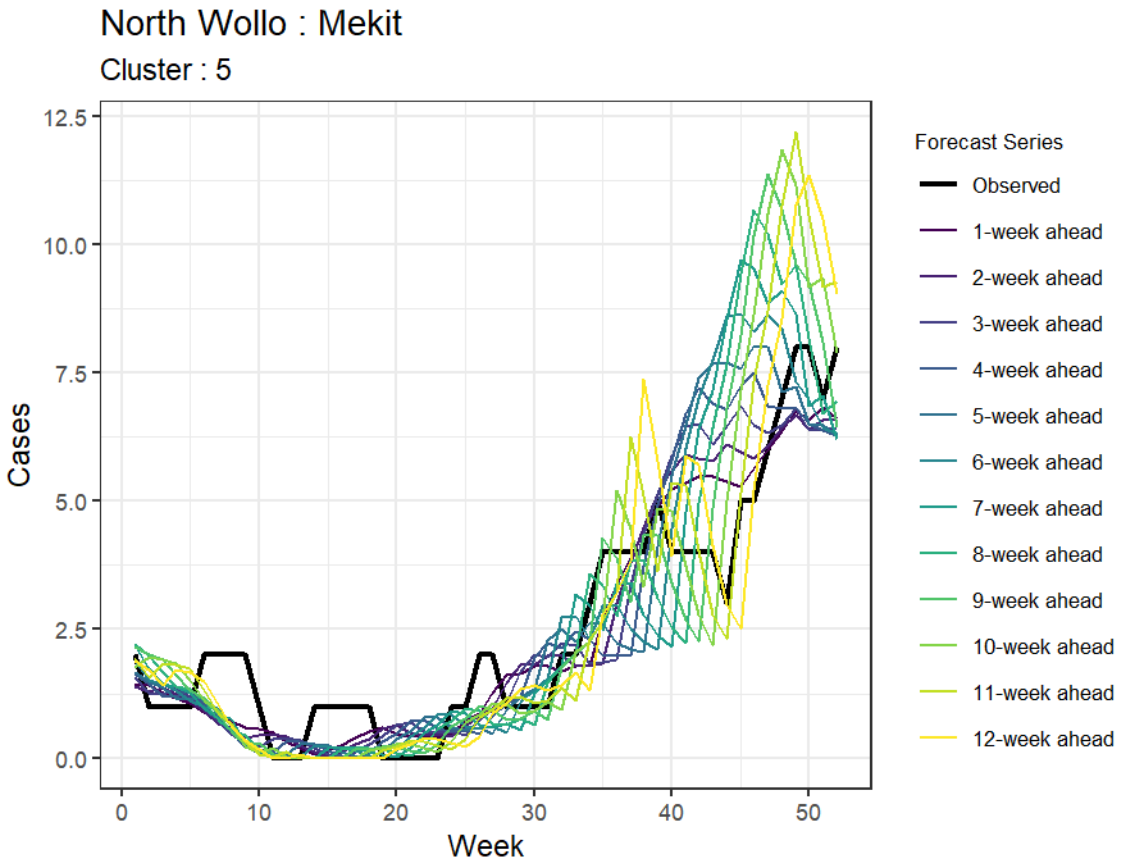
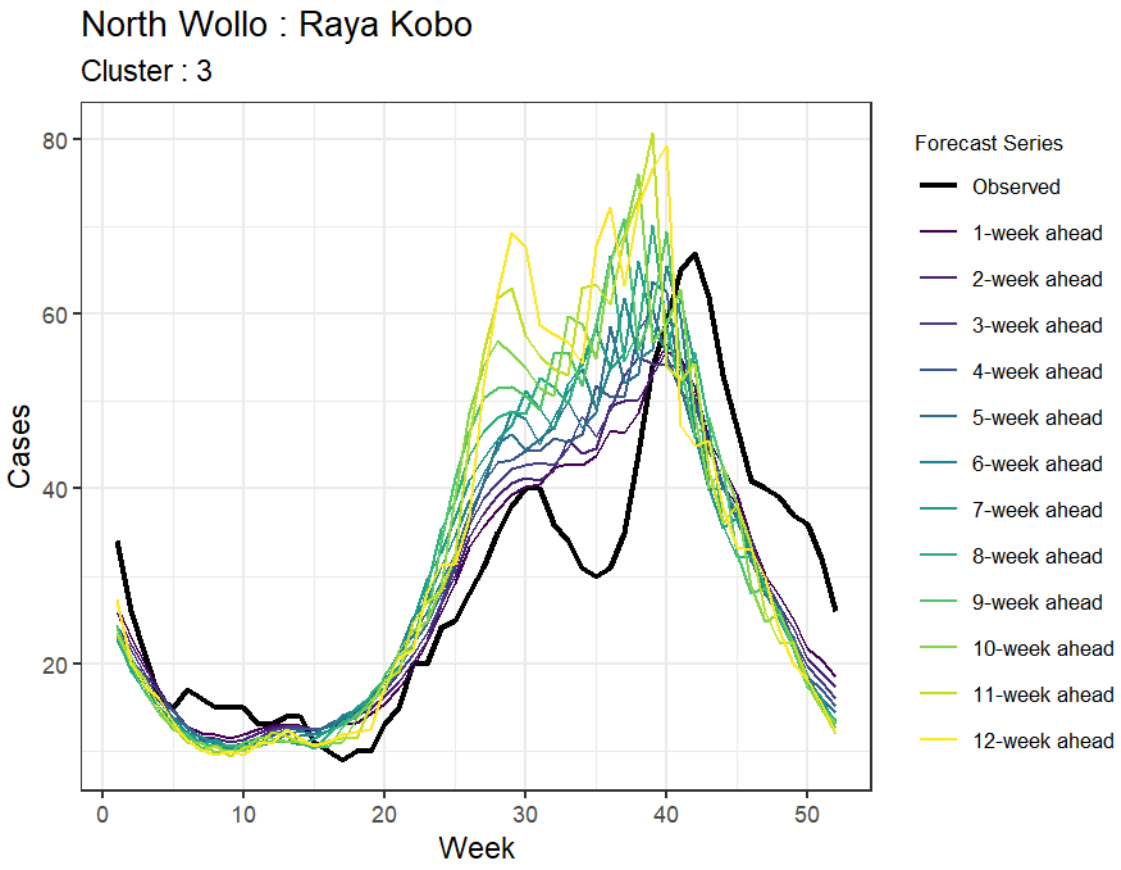
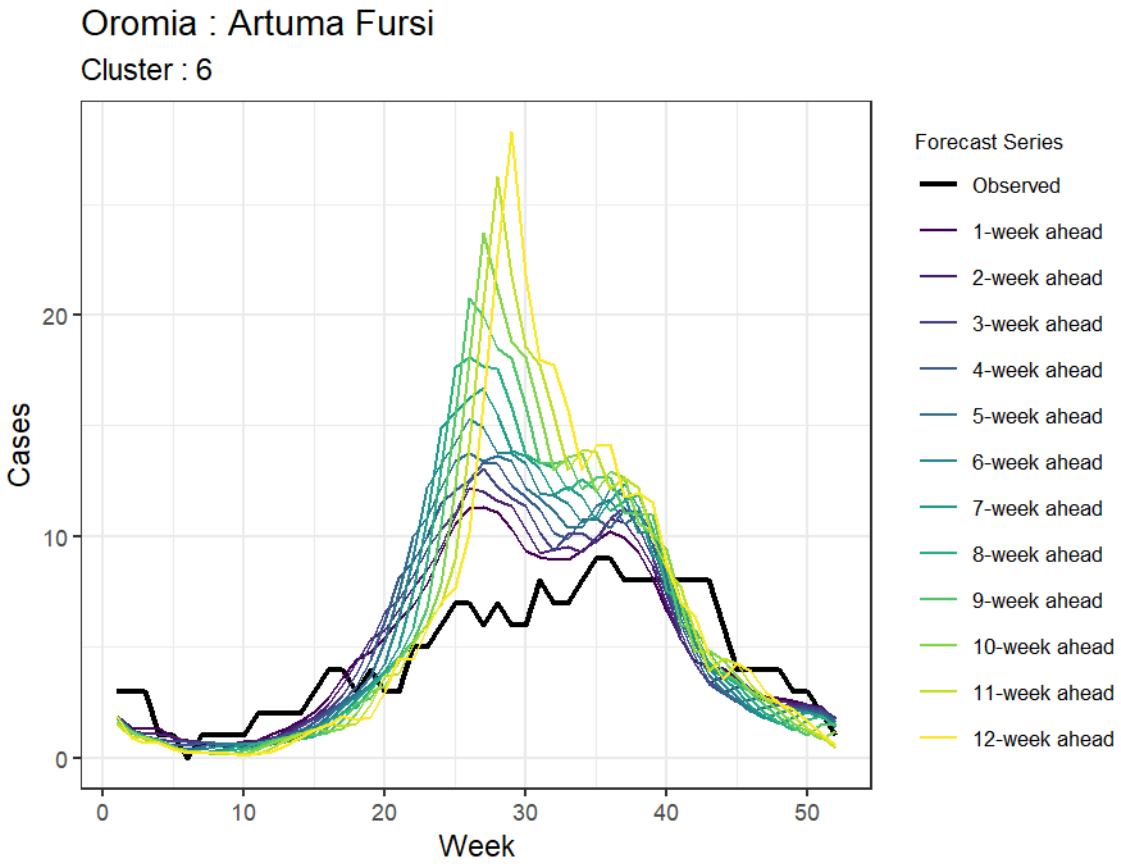
8-week ahead
9-week ahead
10-week ahead
11-week ahead
12-week ahead


North Wollo : Lasta
Cluster : 8
Cases
Week
0
5
10
15
0
10
20
30
40
50
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
10-week ahead
11-week ahead
12-week ahead


North Wollo : Mekit
Cluster : 5
Cases
Week
0.0
2.5
5.0
7.5
10.0
12.5
0
10
20
30
40
50
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
10-week ahead
11-week ahead
12-week ahead


North Wollo : Raya Kobo
Cluster : 3
Cases
Week
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
10-week ahead
11-week ahead
12-week ahead


Oromia : Artuma Fursi
Cluster : 6
Cases
Week
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
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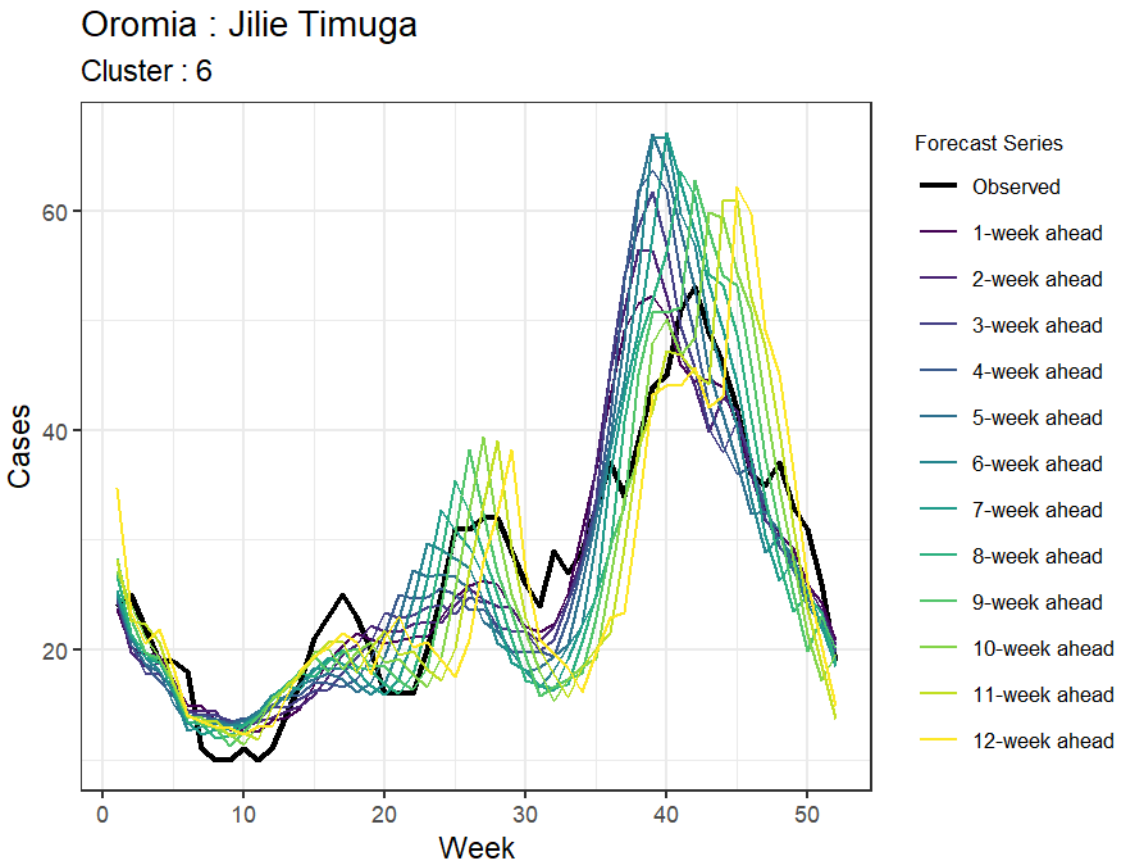
11-week ahead
12-week ahead


Oromia : Jilie Timuga
Cluster : 6
Cases
Week
0
10
20
30
40
50
20
40
60
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
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9-week ahead
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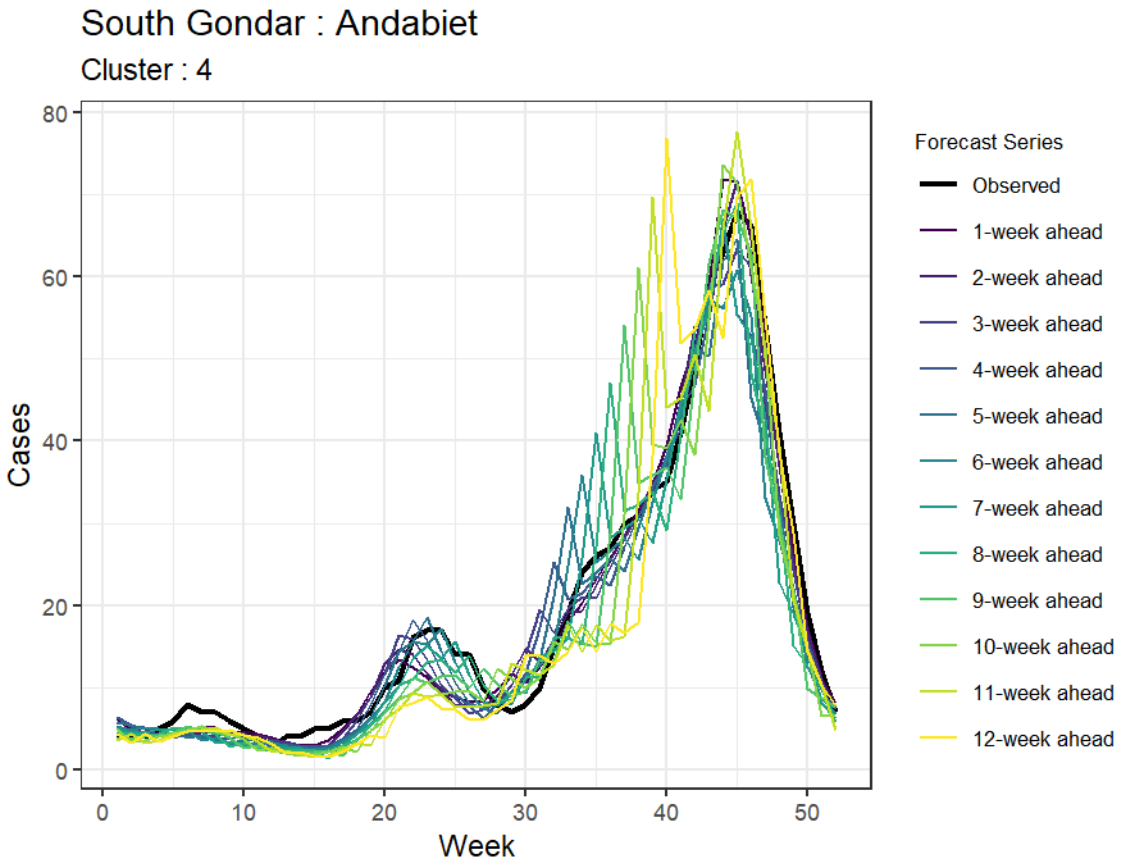
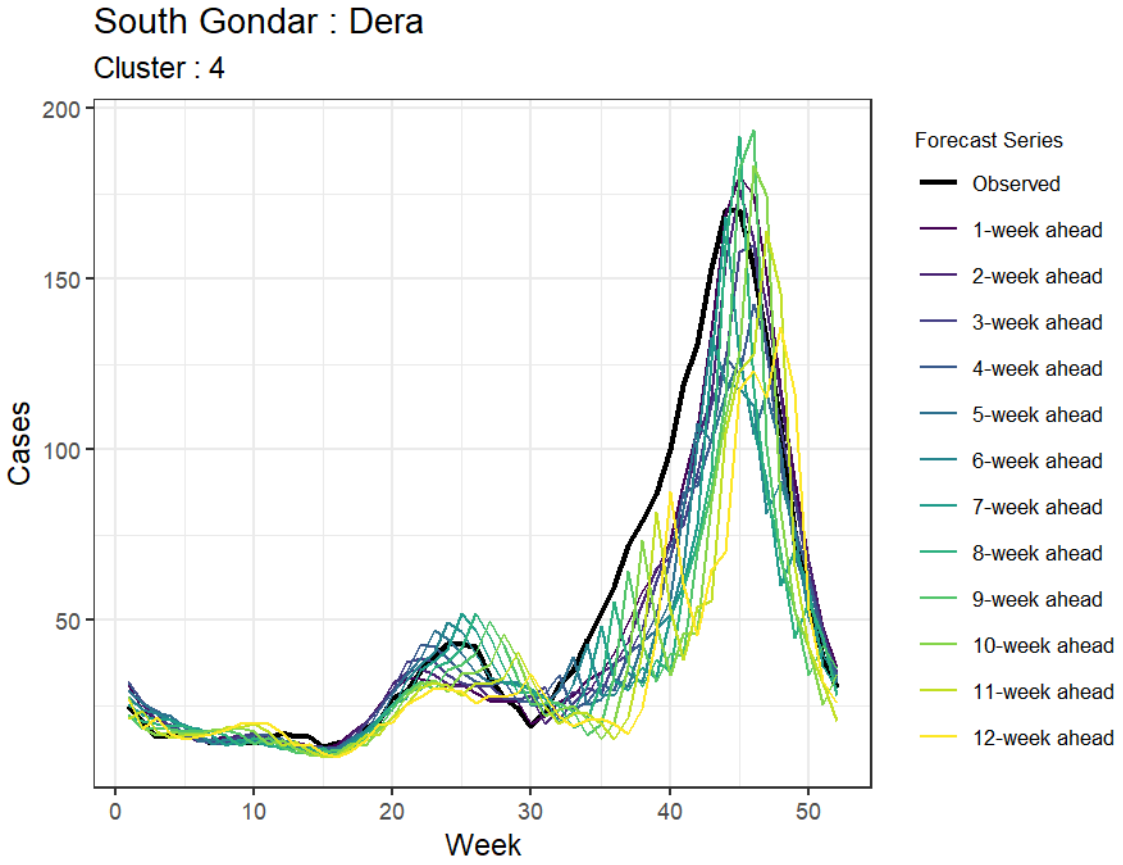
11-week ahead
12-week ahead


South Gondar : Andabiet
Cluster : 4
Cases
Week
0
10
20
30
40
50
0
20
40
60
80
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
10-week ahead
11-week ahead
12-week ahead


South Gondar : Dera
Cluster : 4
Cases
Week
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
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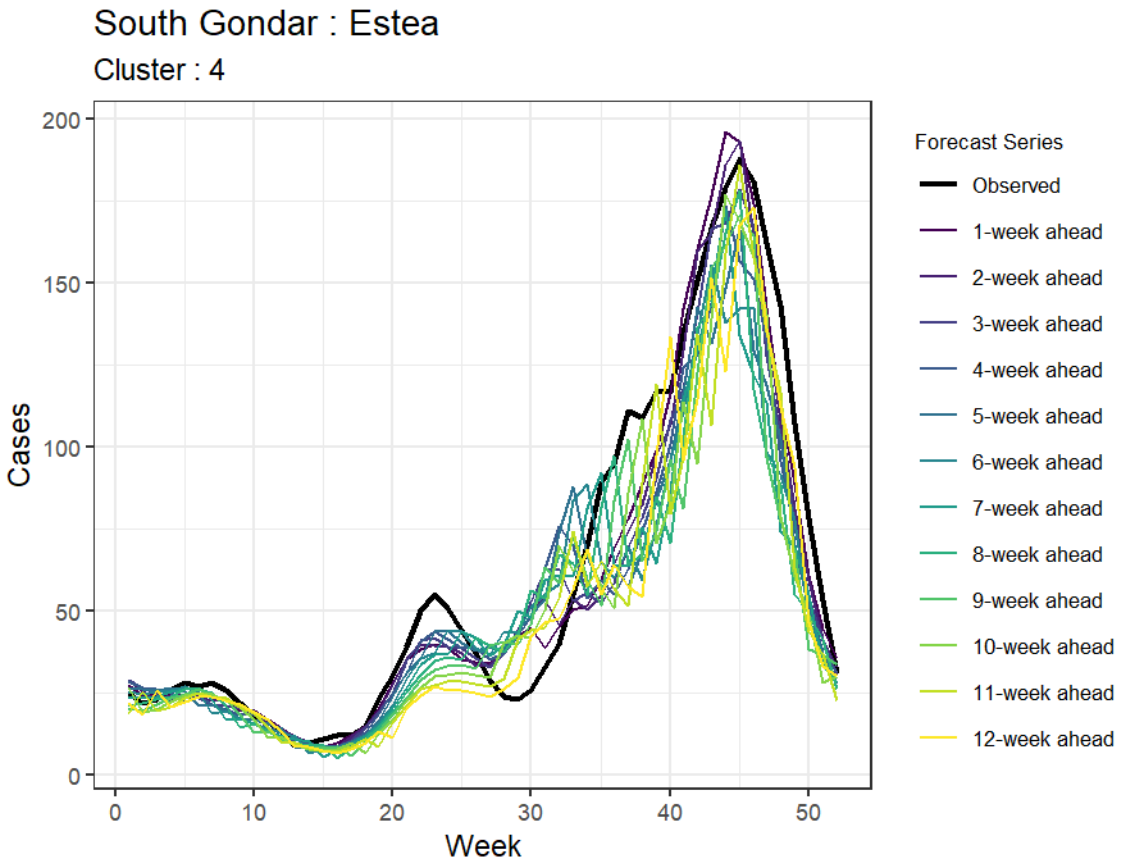
11-week ahead
12-week ahead


South Gondar : Estea
Cluster : 4
Cases
Week
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
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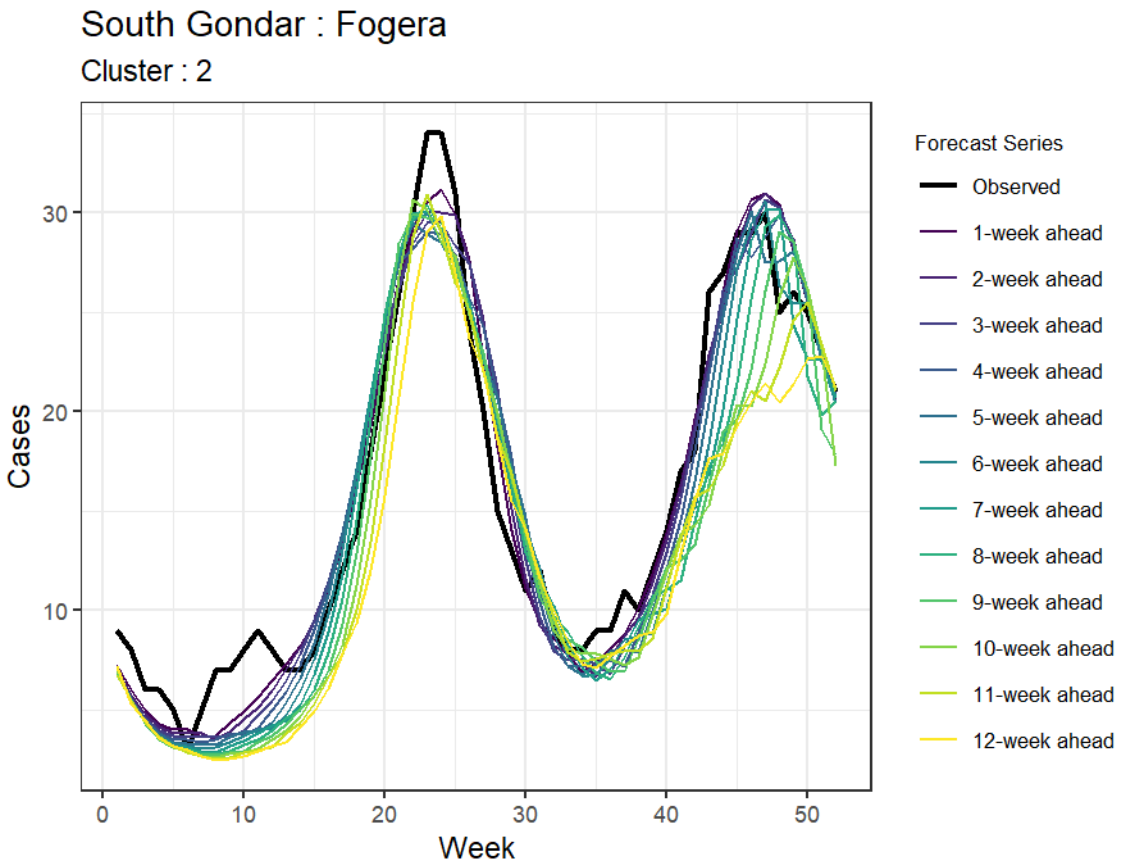
11-week ahead
12-week ahead


South Gondar : Fogera
Cluster : 2
Cases
Week
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
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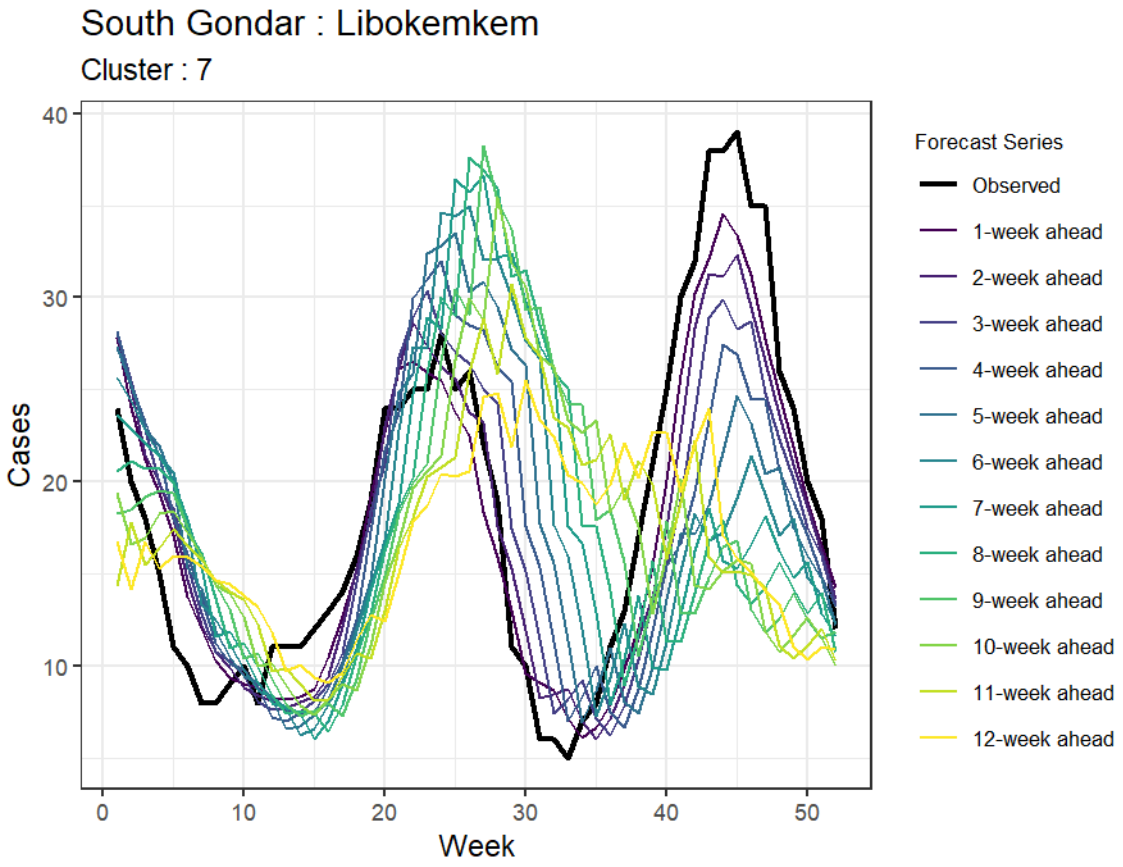
11-week ahead
12-week ahead


South Gondar : Libokemkem
Cluster : 7
Cases
Week
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
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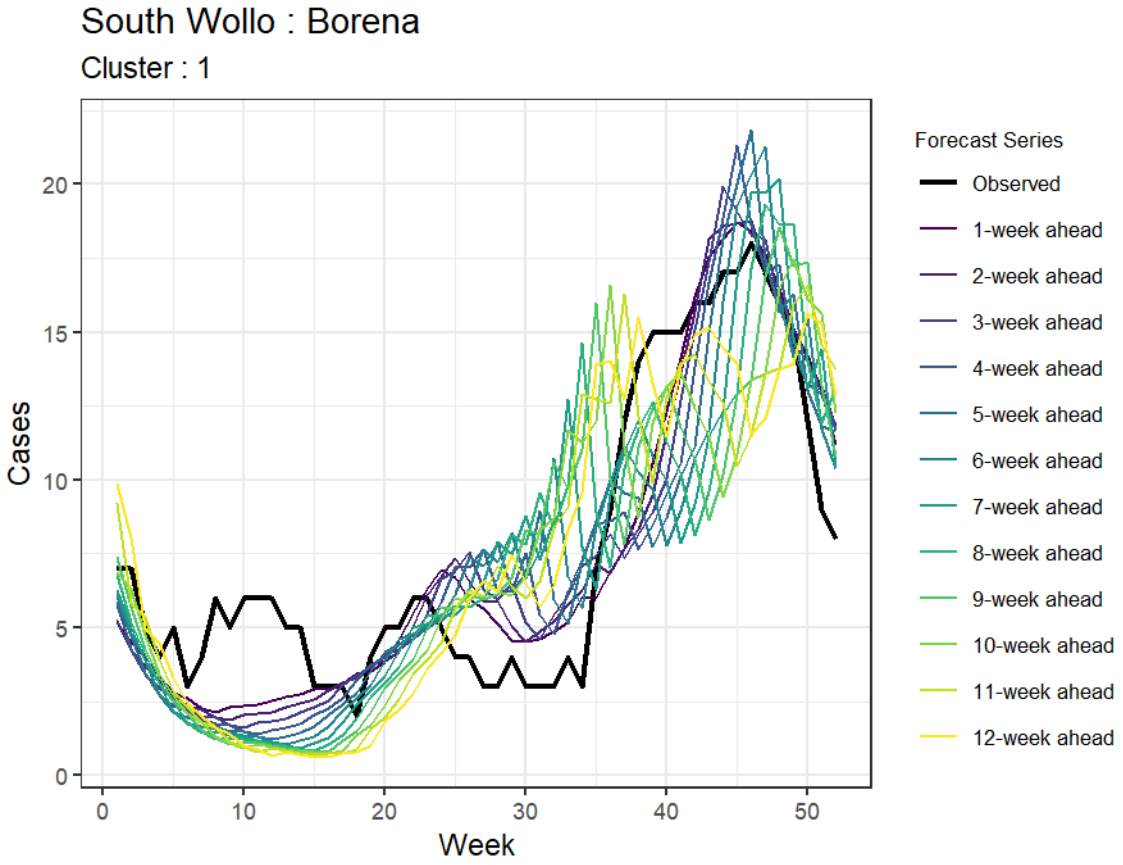
11-week ahead
12-week ahead


South Wollo : Borena
Cluster : 1
Cases
Week
0
5
10
15
20
0
10
20
30
40
50
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
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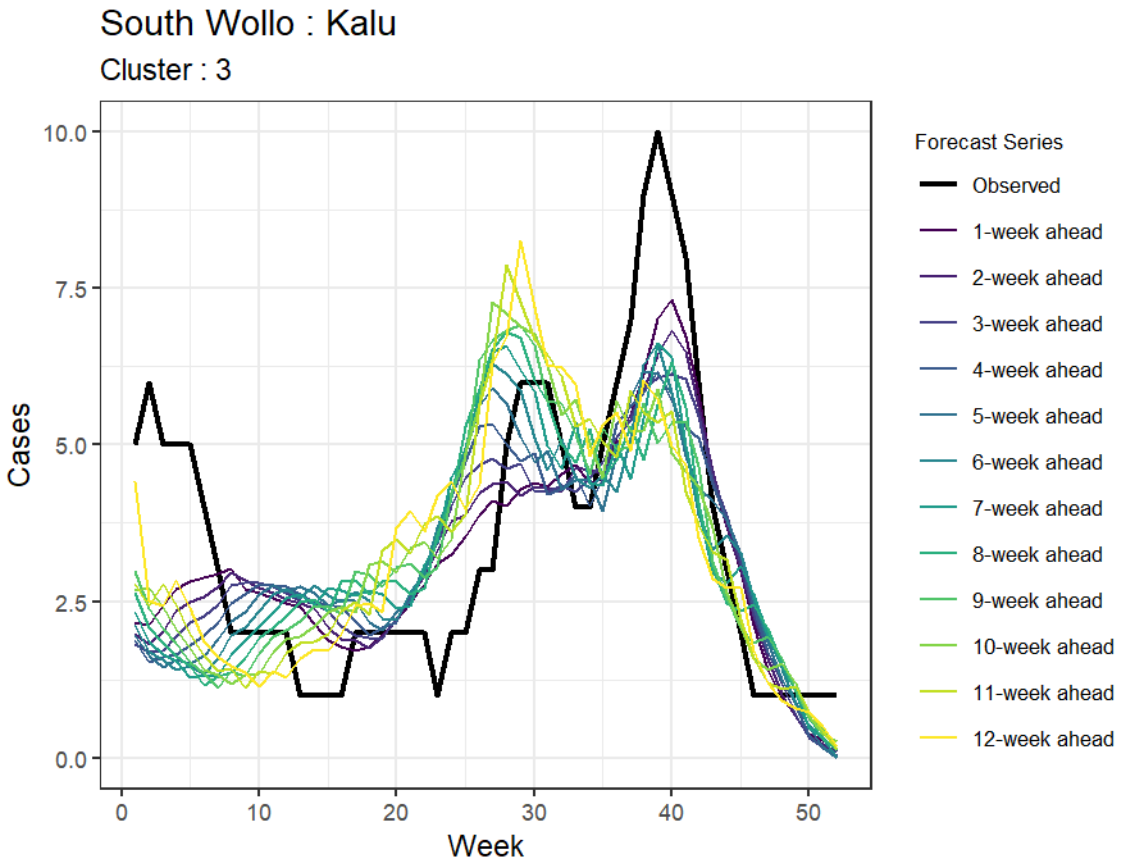
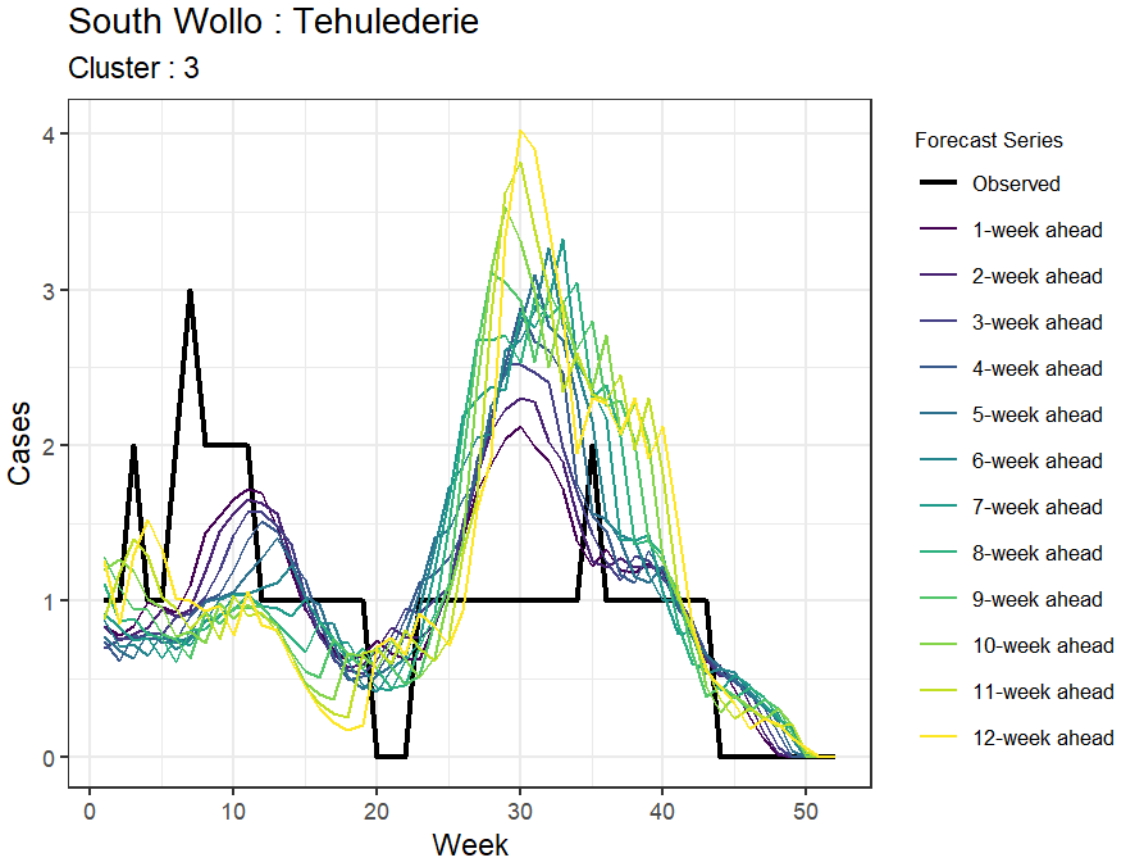
11-week ahead
12-week ahead


South Wollo : Kalu
Cluster : 3
Cases
Week
0.0
2.5
5.0
7.5
10.0
0
10
20
30
40
50
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
10-week ahead
11-week ahead
12-week ahead


South Wollo : Tehulederie
Cluster : 3
Cases
Week
0
10
20
30
40
50
0
1
2
3
4
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
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9-week ahead
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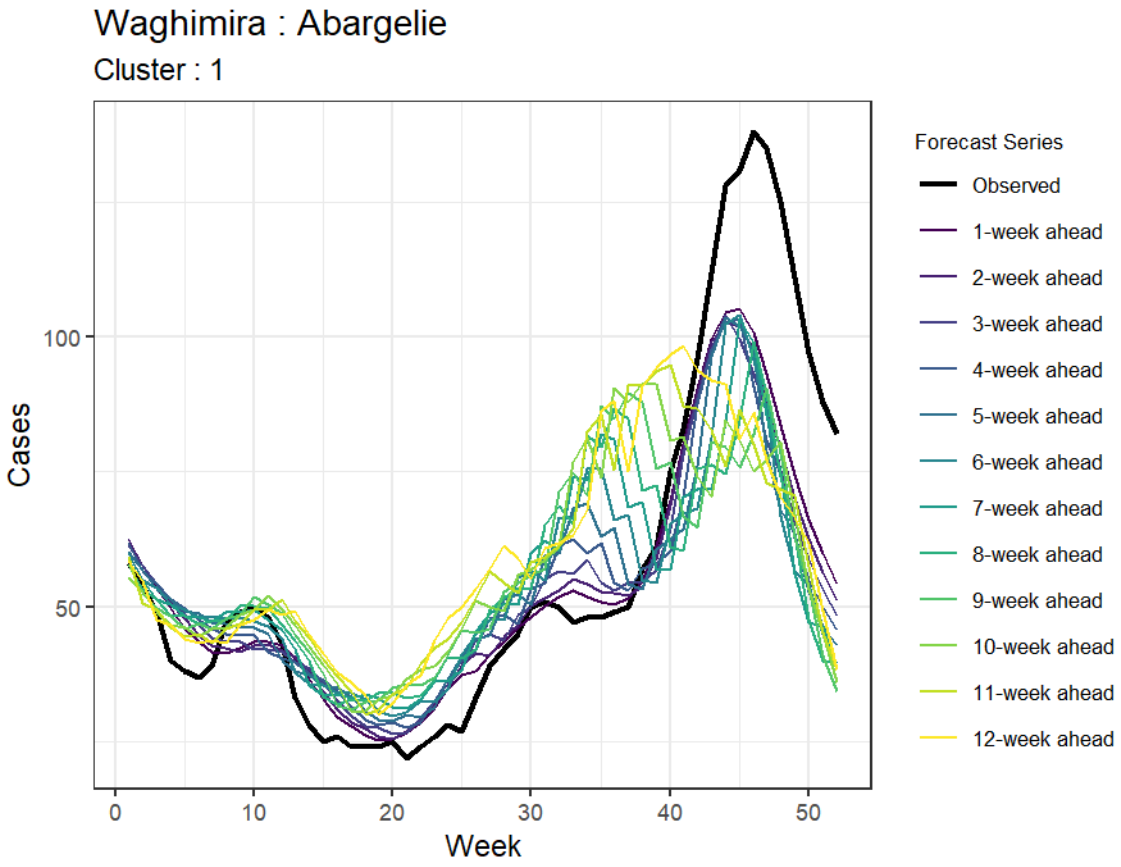
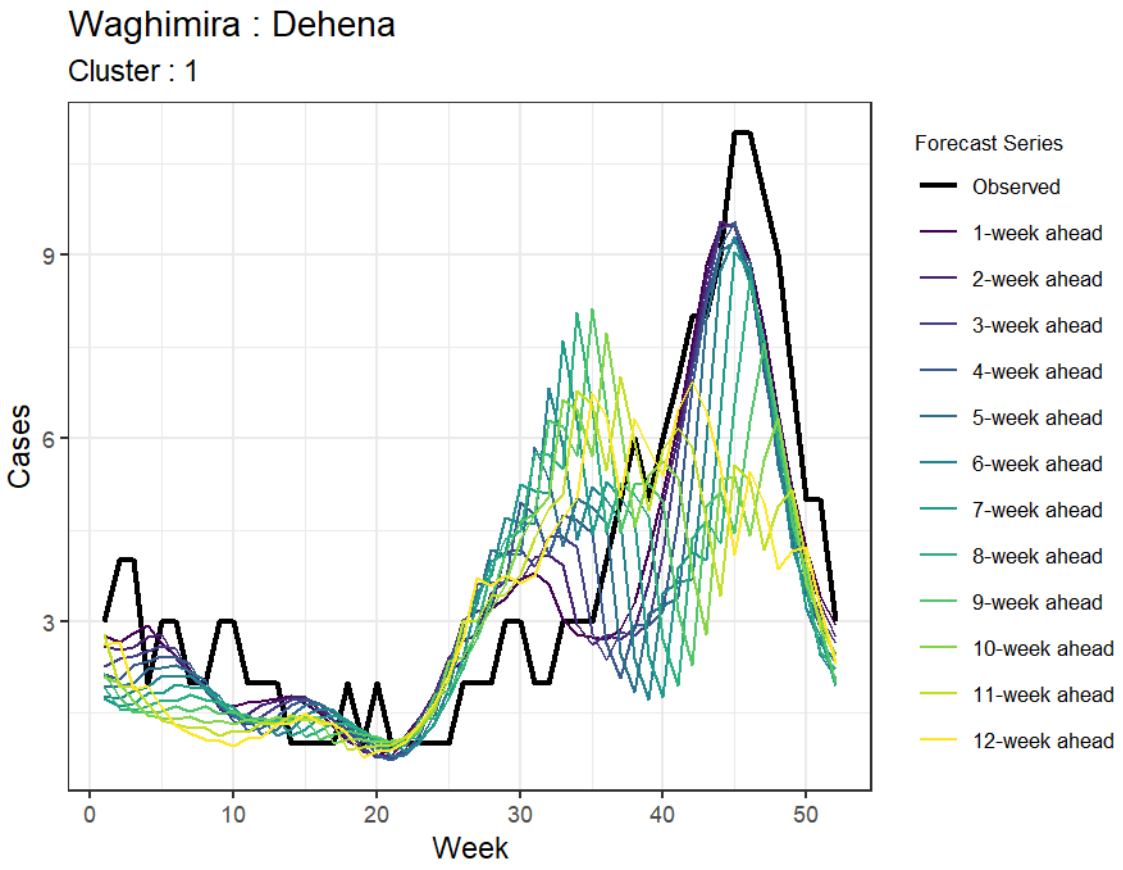
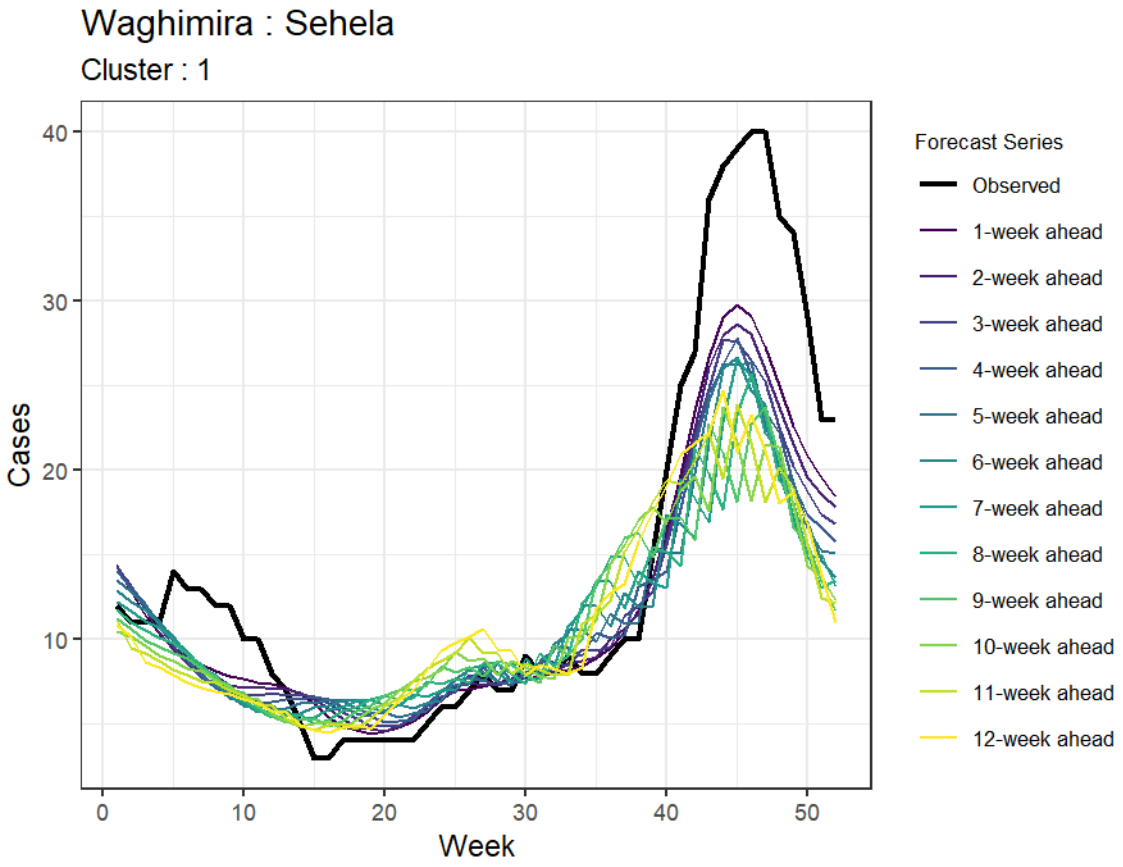
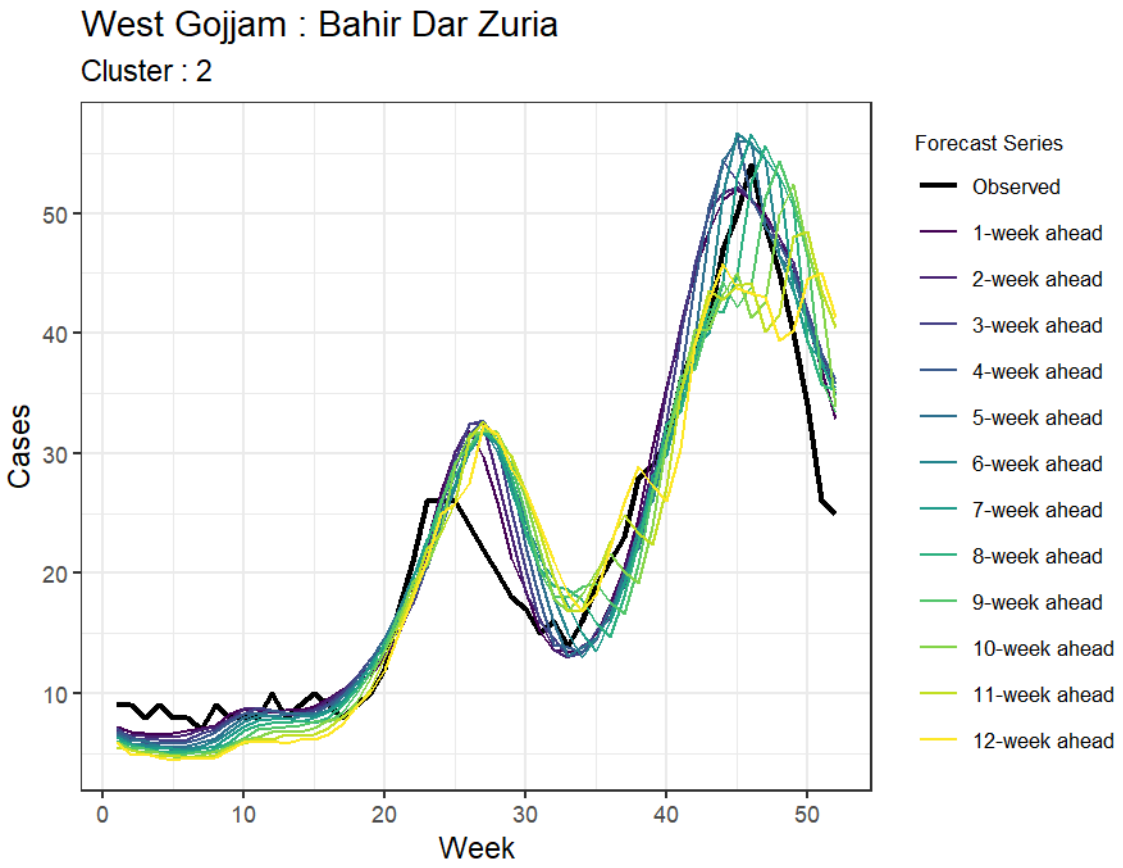
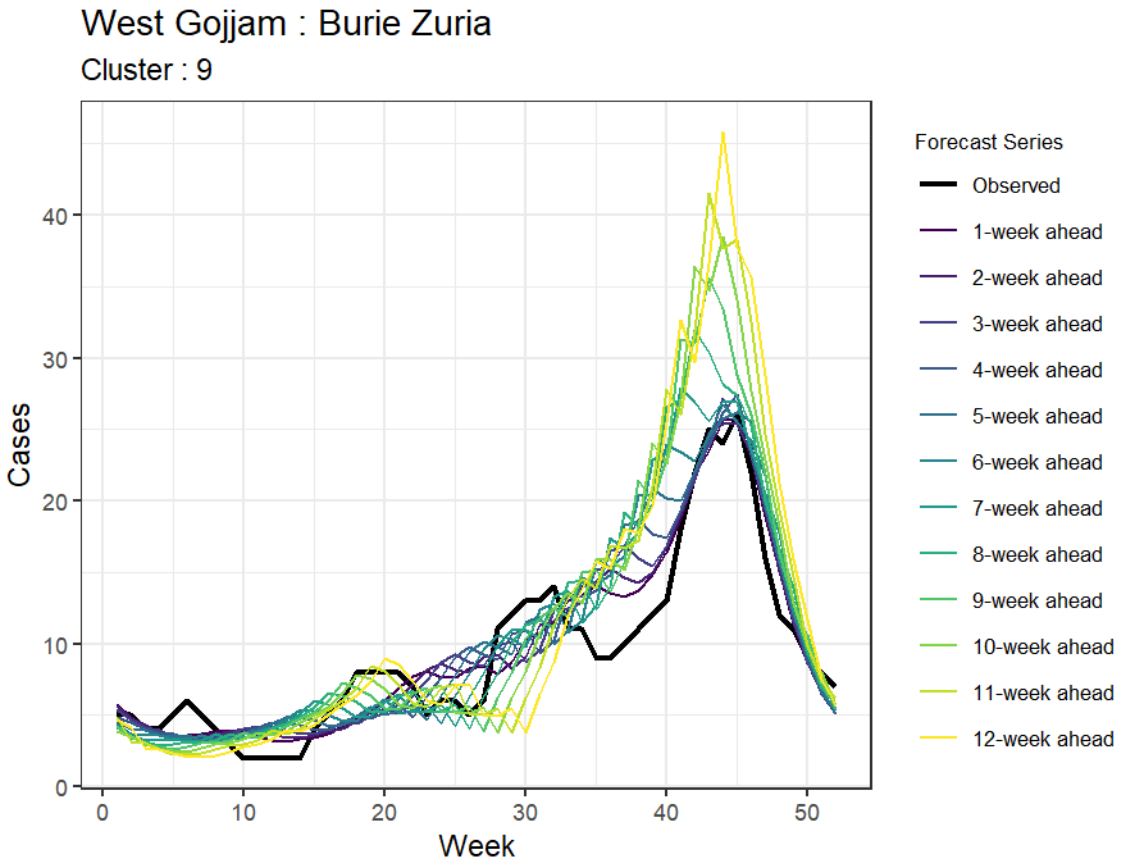
11-week ahead
12-week ahead

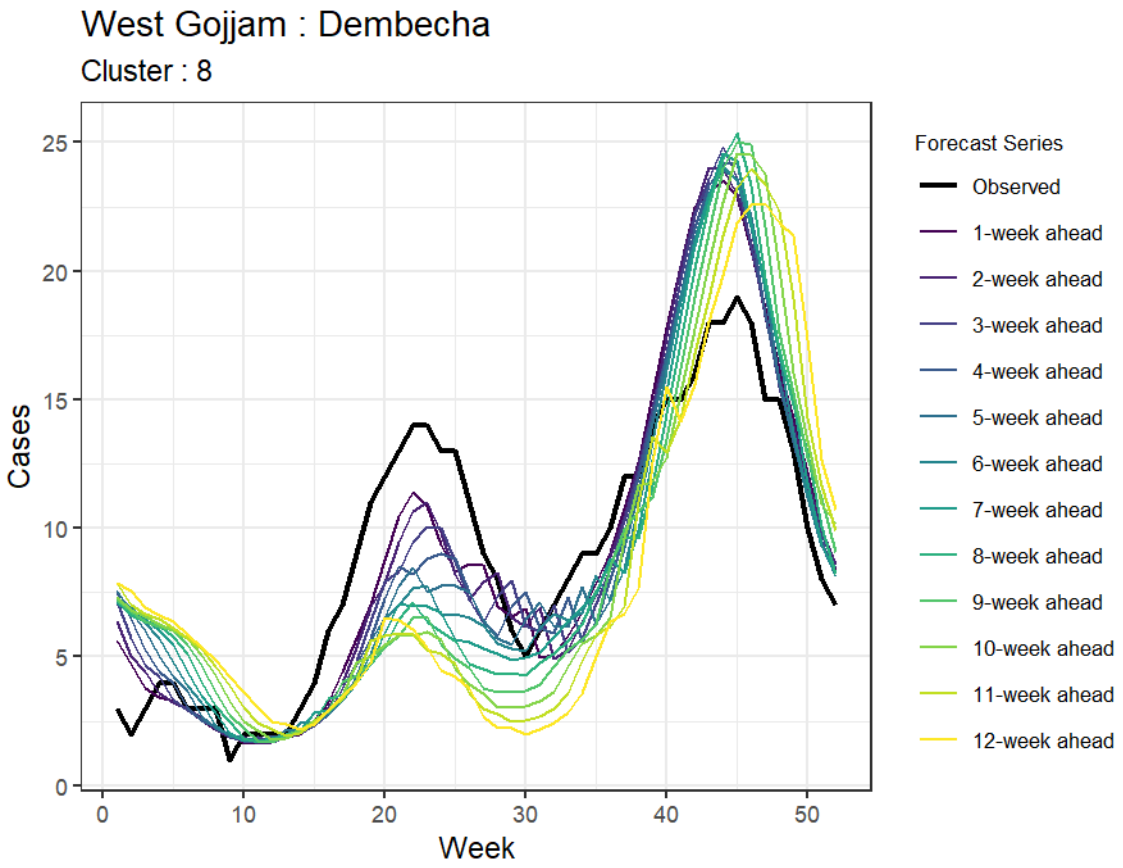

Waghimira : Abargelie
Cluster : 1
Cases
Week
0
10
20
30
40
50
50
100
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
10-week ahead
11-week ahead
12-week ahead

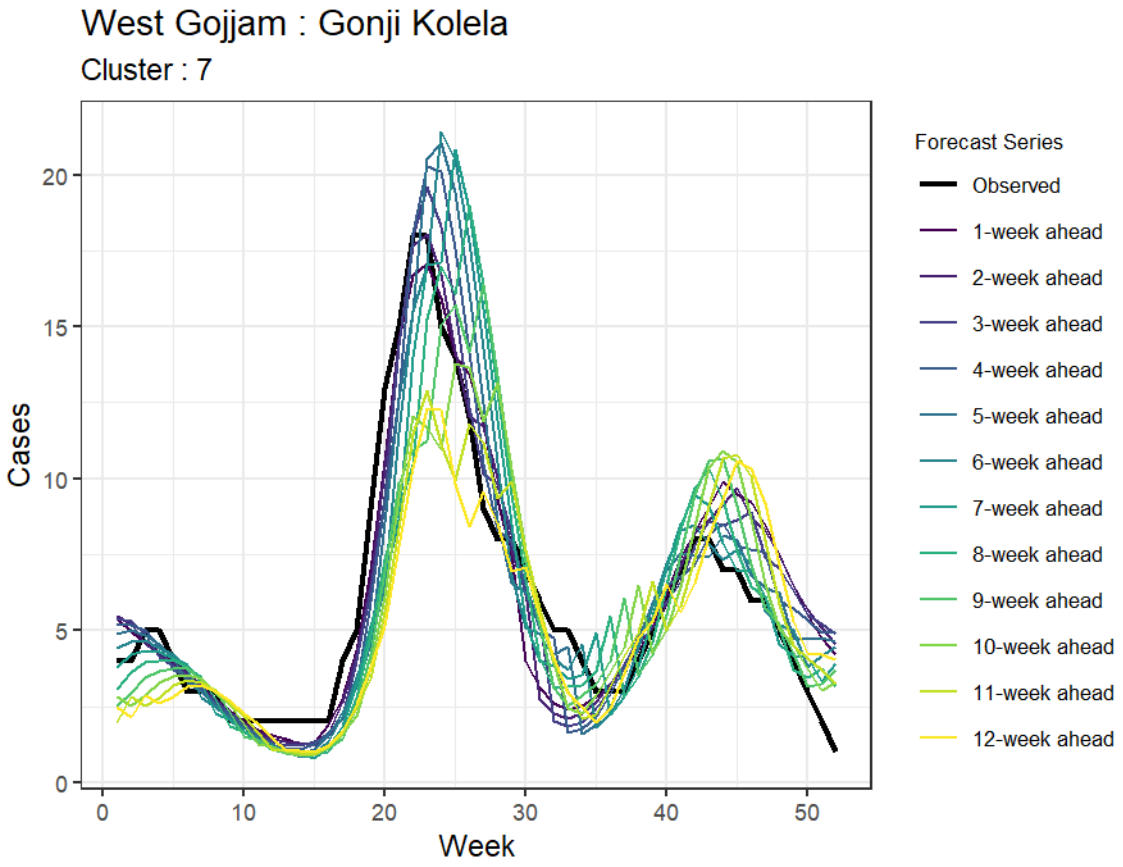

Waghimira : Dehena
Cluster : 1
Cases
Week
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
10-week ahead
11-week ahead
12-week ahead

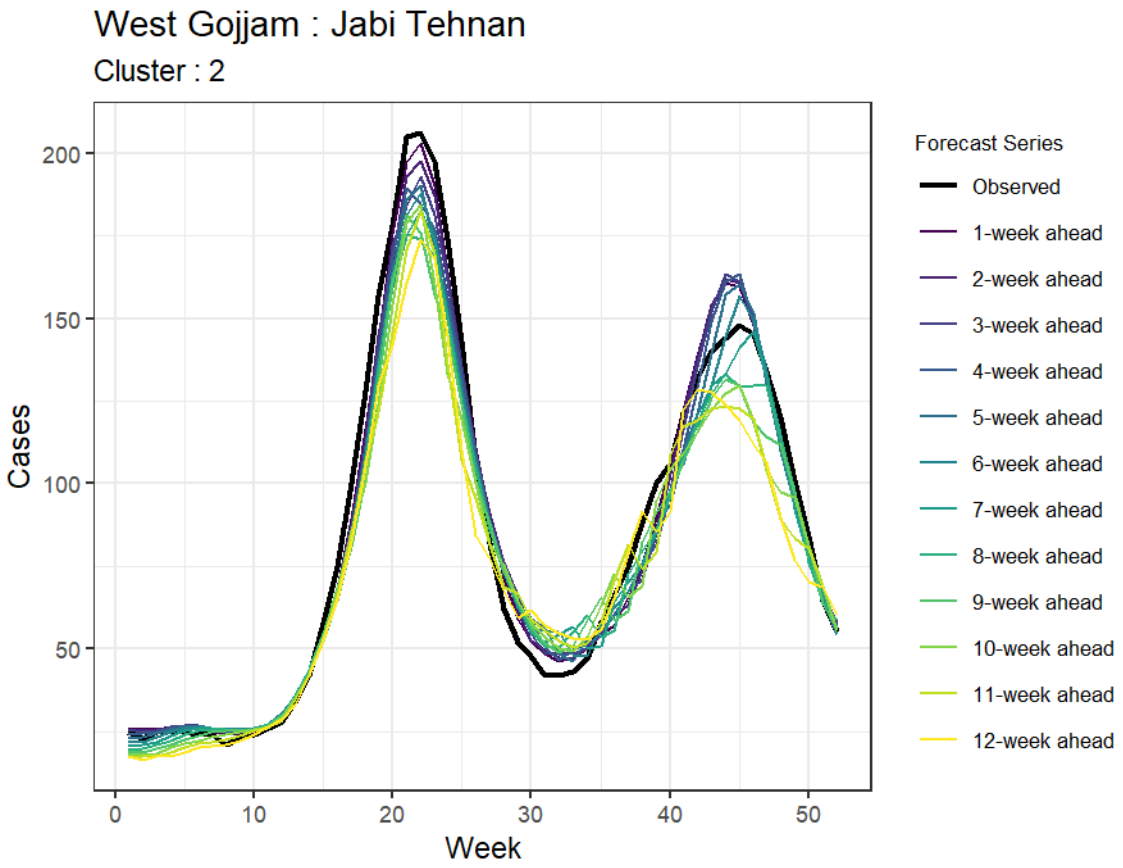

Waghimira : Sehela
Cluster : 1
Cases
Week
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
10-week ahead
11-week ahead
12-week ahead

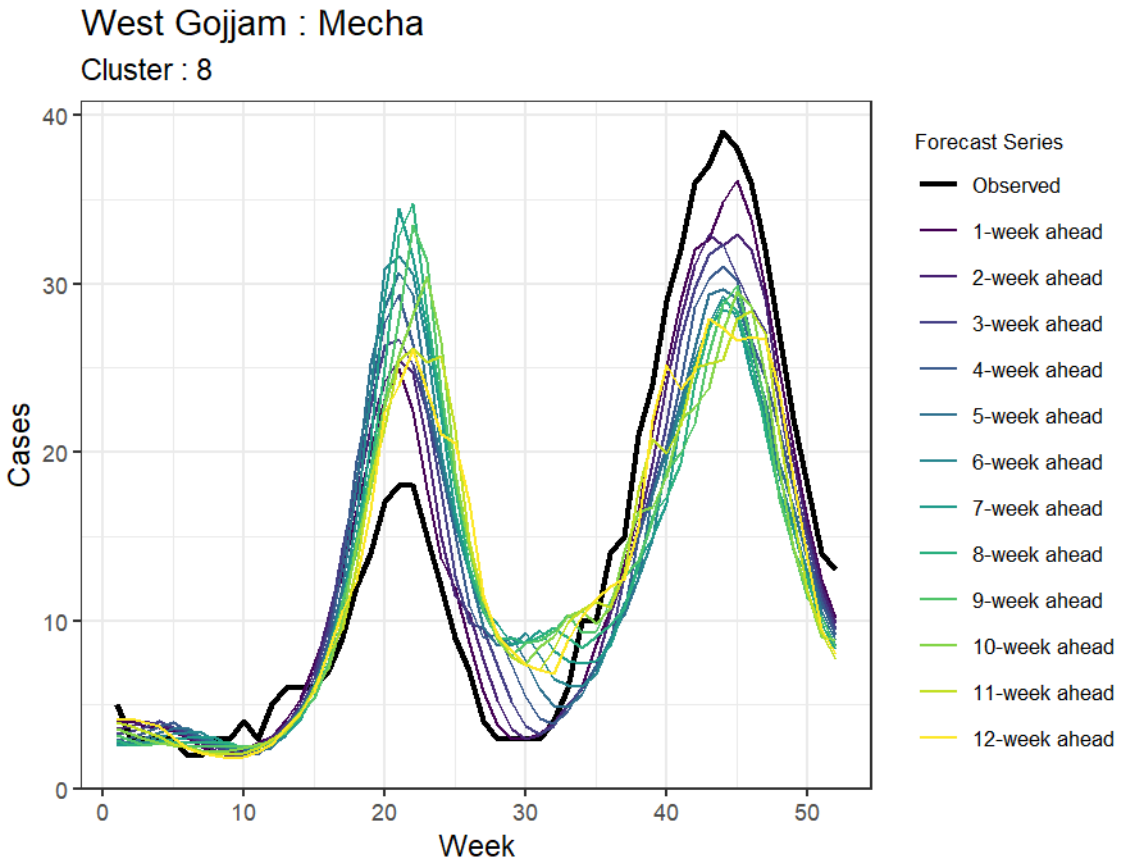

West Gojjam : Bahir Dar Zuria
Cluster : 2
Cases
Week
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
10-week ahead
11-week ahead
12-week ahead

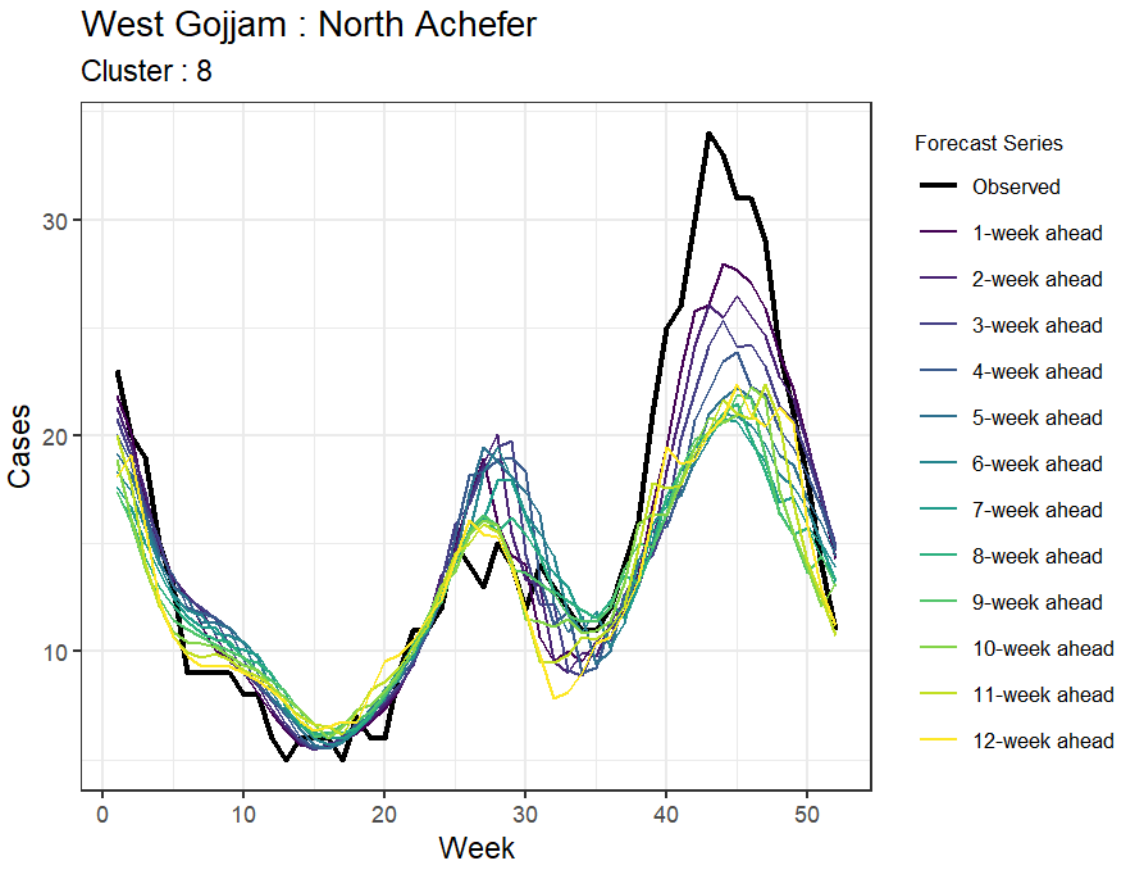

West Gojjam : Burie Zuria
Cluster : 9
Cases
Week
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
10-week ahead
11-week ahead
12-week ahead

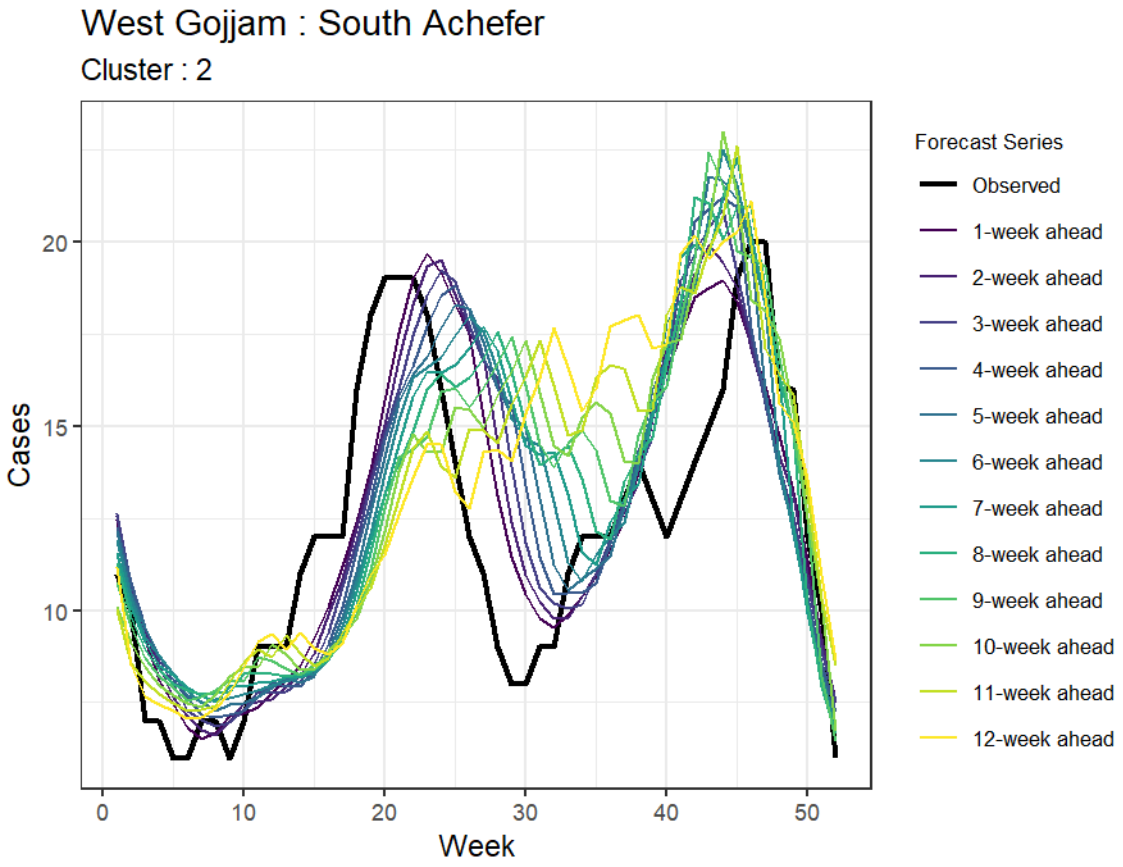

West Gojjam : Dembecha
Cluster : 8
Cases
Week
0
5
10
15
20
25
0
10
20
30
40
50
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
10-week ahead
11-week ahead
12-week ahead

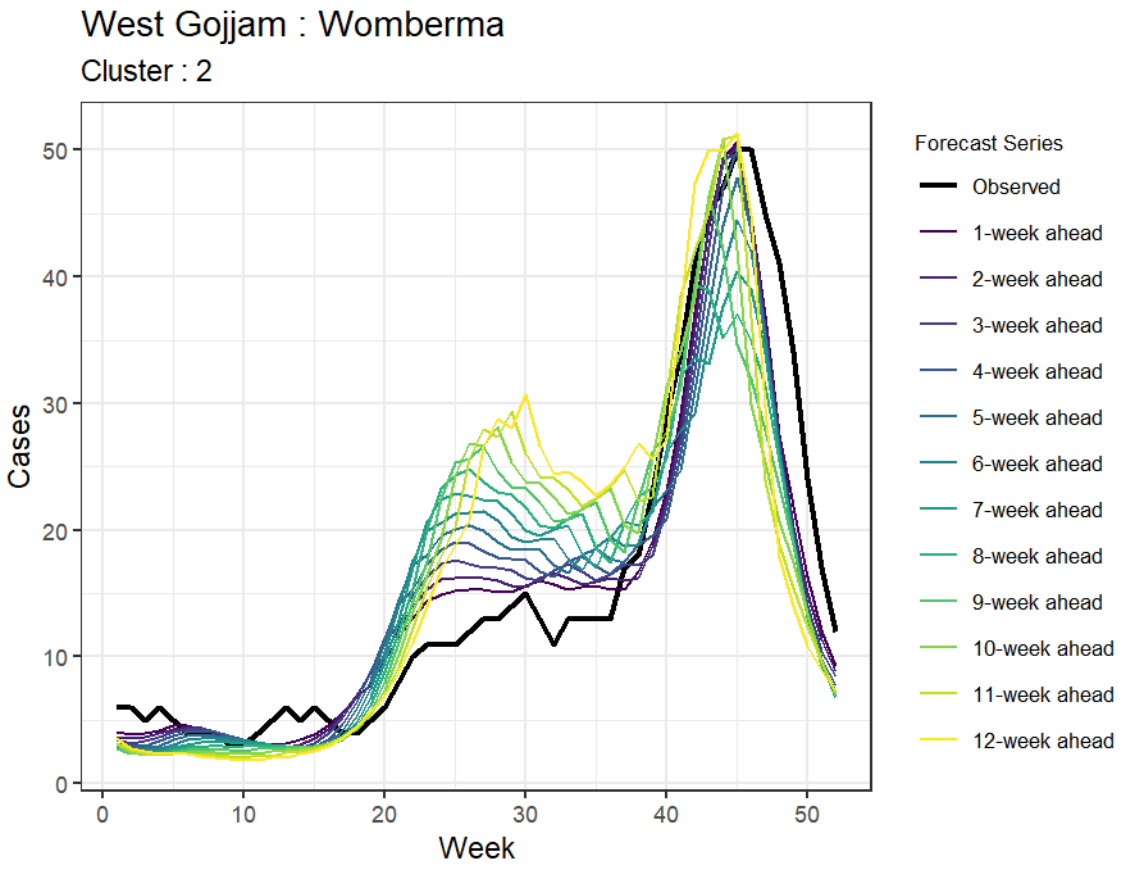

West Gojjam : Gonji Kolela
Cluster : 7
Cases
Week
0
5
10
15
20
0
10
20
30
40
50
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
10-week ahead
11-week ahead
12-week ahead

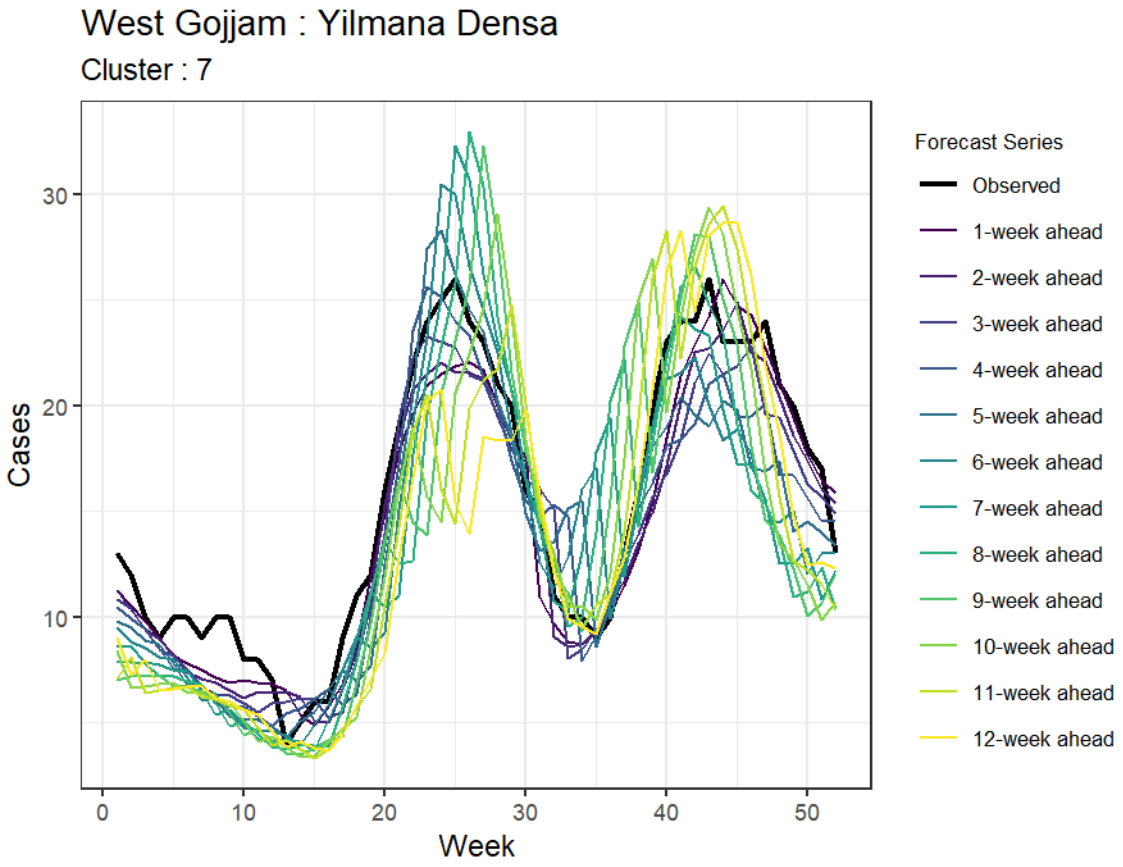

West Gojjam : Jabi Tehnan
Cluster : 2
Cases
Week
0
10
20
30
40
50
50
100
150
200
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
10-week ahead
11-week ahead
12-week ahead


West Gojjam : Mecha
Cluster : 8
Cases
Week
0
10
20
30
40
50
0
10
20
30
40
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
10-week ahead
11-week ahead
12-week ahead


West Gojjam : North Achefer
Cluster : 8
Cases
Week
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
10-week ahead
11-week ahead
12-week ahead


West Gojjam : South Achefer
Cluster : 2
Cases
Week
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
10-week ahead
11-week ahead
12-week ahead


West Gojjam : Womberma
Cluster : 2
Cases
Week
0
10
20
30
40
50
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
10-week ahead
11-week ahead
12-week ahead


West Gojjam : Yilmana Densa
Cluster : 7
Cases
Week
10
20
30
40
50
Forecast Series
Observed
1-week ahead
2-week ahead
3-week ahead
4-week ahead
5-week ahead
6-week ahead
7-week ahead
8-week ahead
9-week ahead
10-week ahead
11-week ahead
12-week ahead