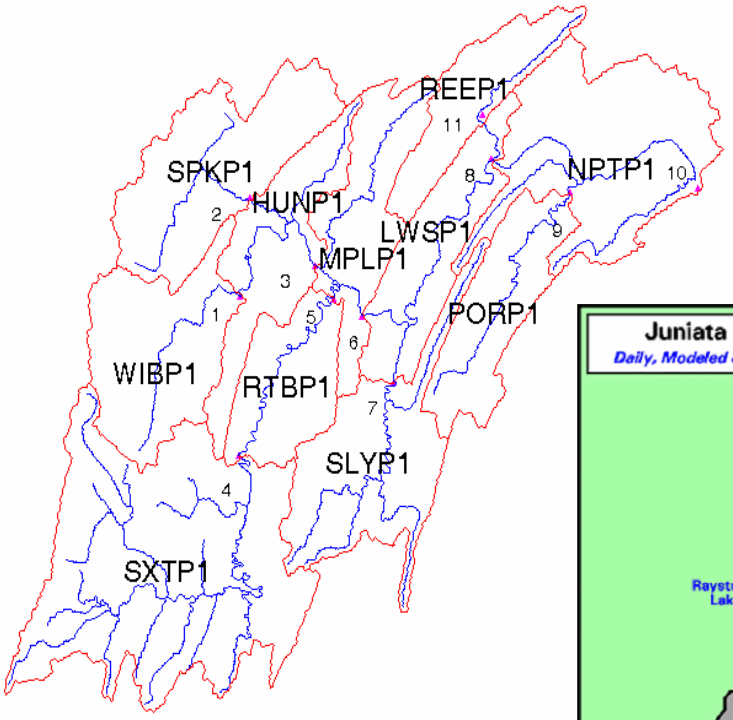
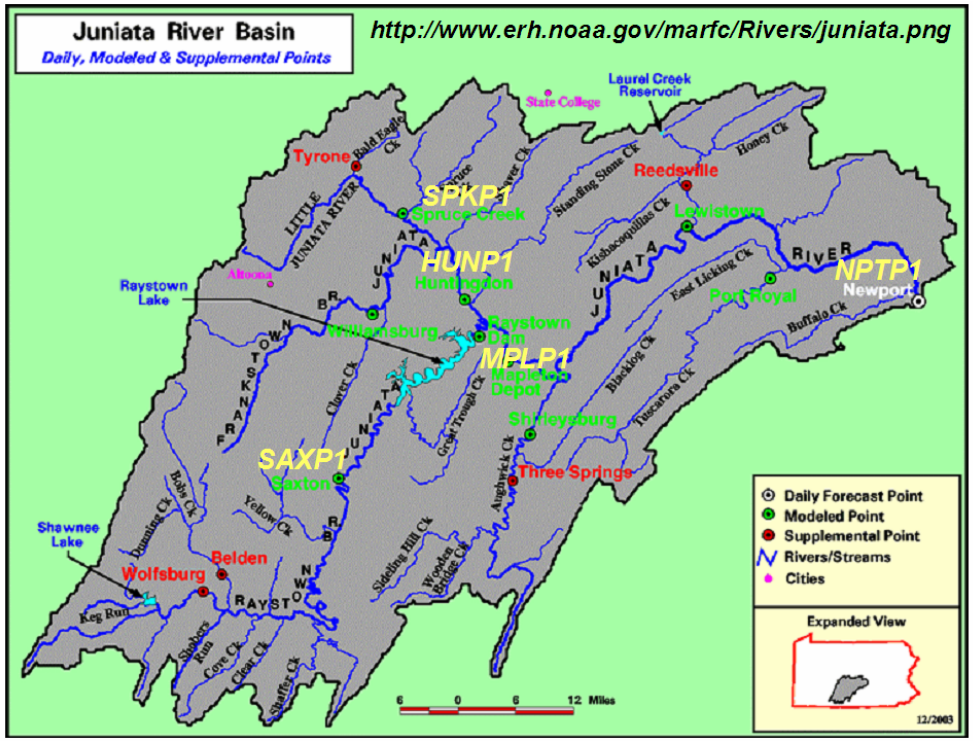
Precipitation Ensemble Verification Example - MARFC

Hydrologic Ensemble Prediction Group
Hydrologic Science and Modeling Branch
Hydrology Laboratory
Office of Hydrologic Development
NOAA/National Weather Service

MARFC/Juniata/10 Segments

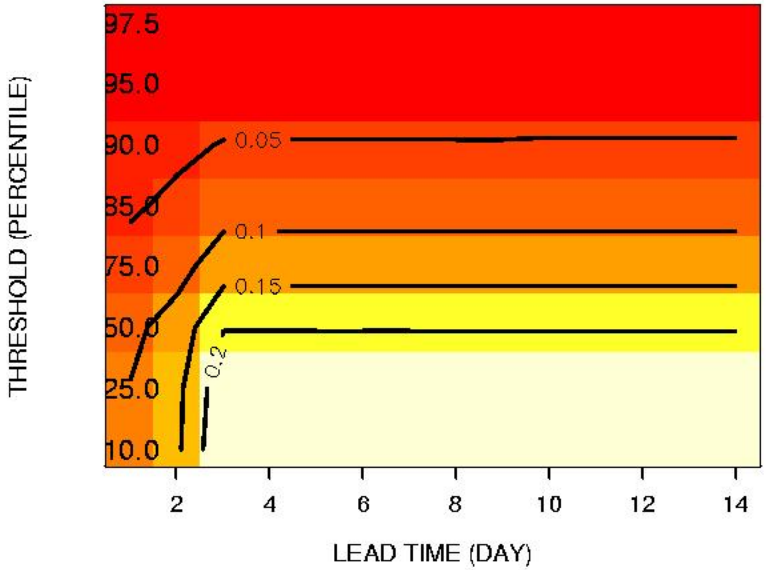
Huntingdon
Lewistown
Mapleton
Newport
Portroyal
Raystown
Saxton
Shirleysburg
Sprucecreek
Williamsburg



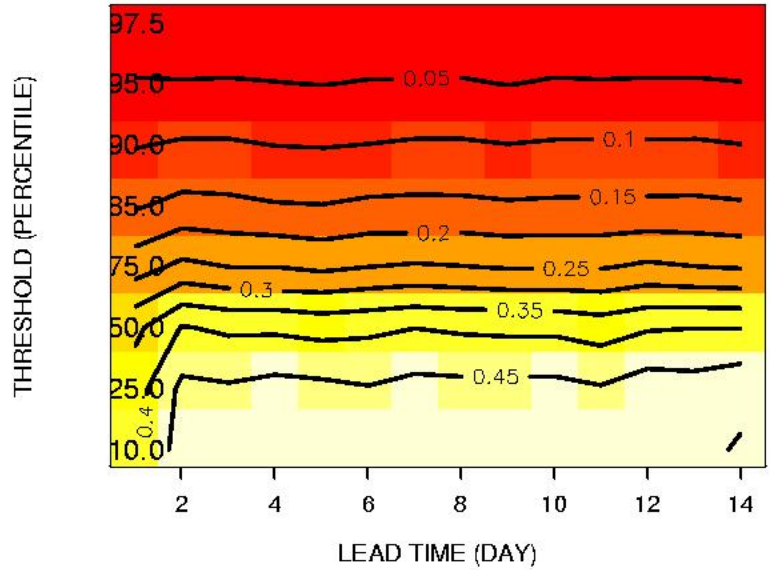


Old

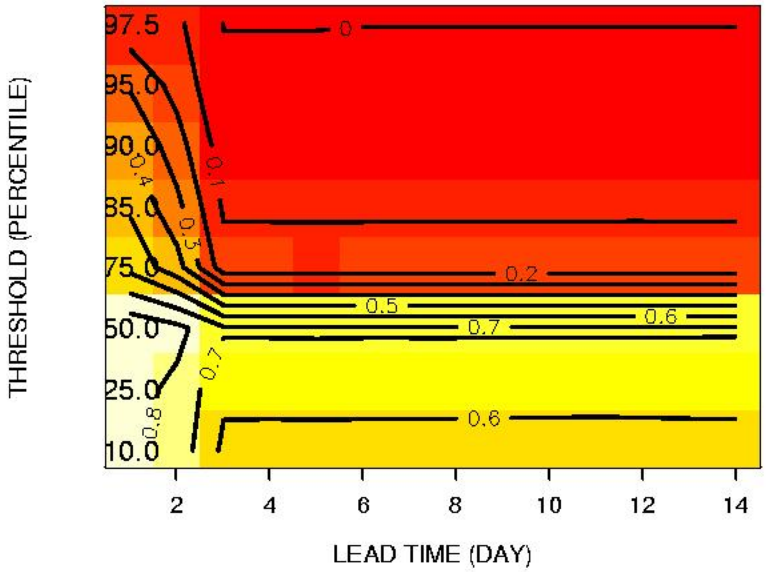
MARFC – BS, ENSEMBLE FCST OF 24HR PRECIP.



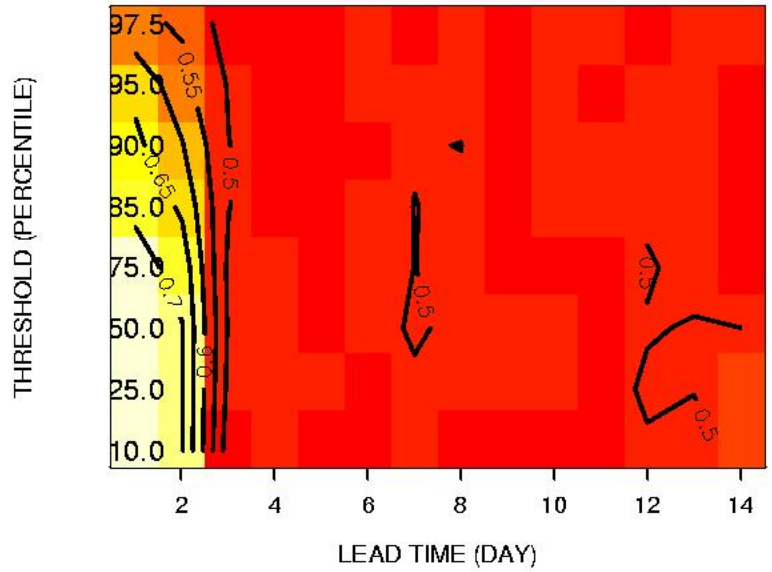
MARFC – BS, PERSISTENCE FCST OF 24HR PRECIP.



MARFC – BSS, ENSEMBLE FCST VS. CLIMATOLOGY



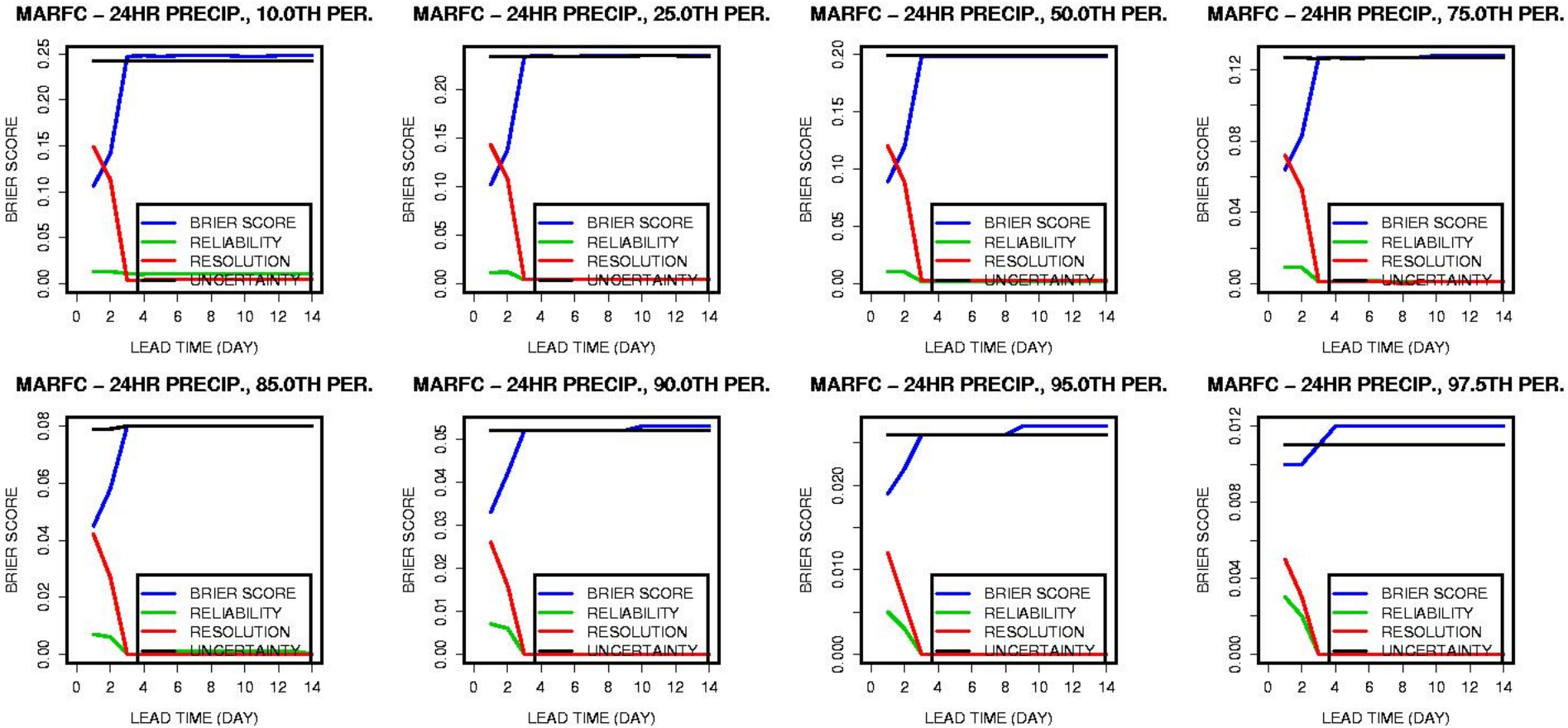
MARFC – BSS, ENSEMBLE FCST VS. PERSISTENCE



Precipitation amounts in mm

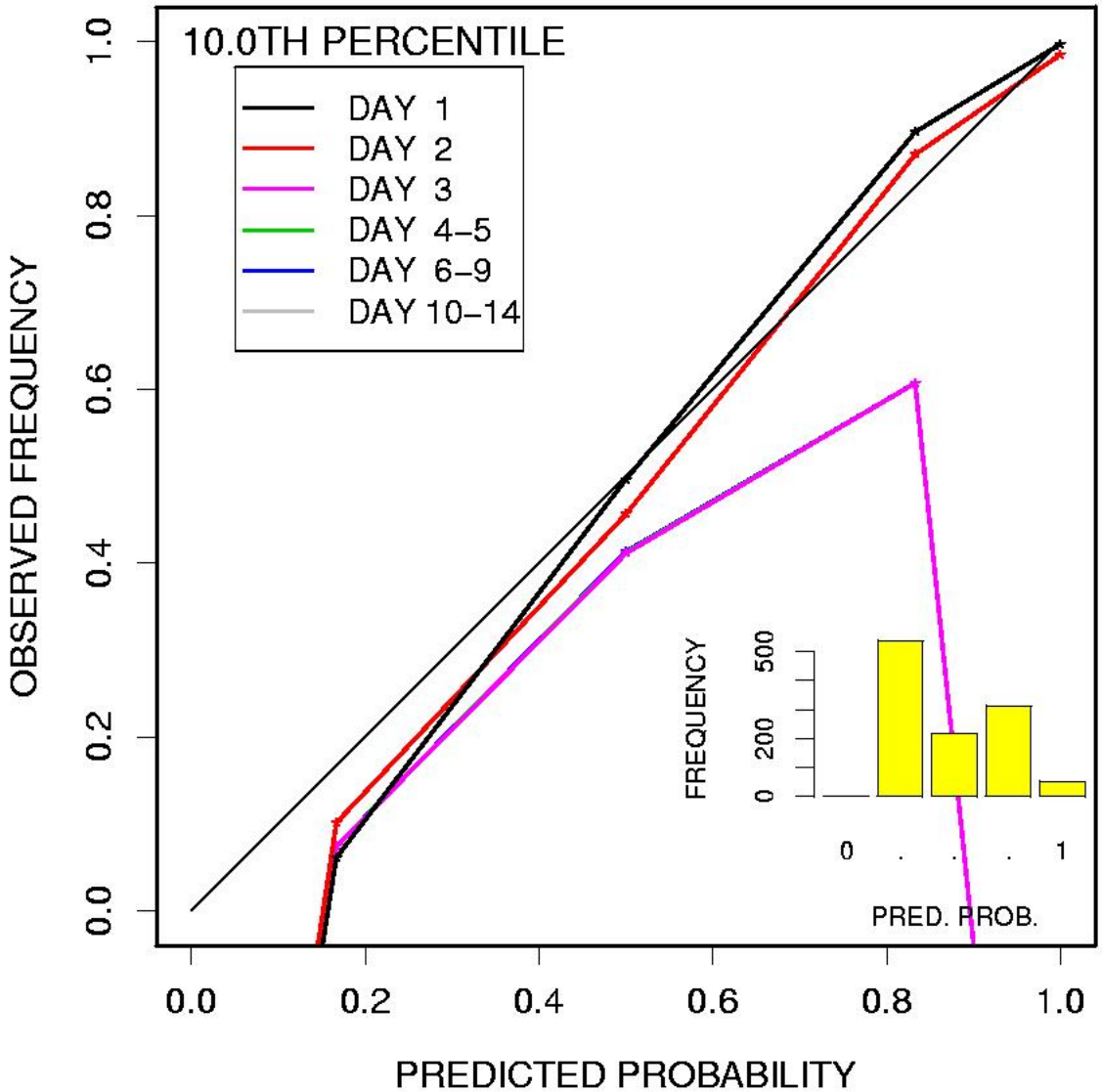
	10.0th	25.0th	50.0th	75.0th	85.0th	90.0th	95.0th	97.0th
huntingdon	0.051	0.229	1.422	5.867	10.262	13.792	20.142	24.636
lewistown	0.076	0.432	2.286	7.671	12.598	16.561	23.012	28.423
mapleton	0.076	0.365	1.803	6.807	11.227	14.961	21.234	26.162
newport	0.051	0.279	1.676	6.452	10.871	14.701	2.082	26.391
portroyal	0.127	0.559	2.515	7.899	12.700	16.815	24.282	30.226
raystown	0.051	0.279	1.829	6.883	11.480	15.367	21.539	26.035
saxton	0.076	0.305	1.626	6.071	10.389	13.995	20.345	24.435
shirleysburg	0.076	0.432	2.184	7.315	11.826	15.951	22.860	27.534
sprucecreek	0.051	0.254	1.753	6.528	11.151	14.783	21.565	26.010
williamsburg	0.076	0.305	1.600	6.198	10.566	14.173	20.498	24.409

Old


MARFC – 24HR PRECIP., 10.0TH PER.
MARFC – 24HR PRECIP., 25.0TH PER.
MARFC – 24HR PRECIP., 50.0TH PER.
MARFC – 24HR PRECIP., 75.0TH PER.
MARFC – 24HR PRECIP., 85.0TH PER.
MARFC – 24HR PRECIP., 90.0TH PER.
MARFC – 24HR PRECIP., 95.0TH PER.
MARFC – 24HR PRECIP., 97.5TH PER.
BRIER SCORE
RELIABILITY
RESOLUTION
UNCERTAINTY
LEAD TIME (DAY)

Old

MARFC – RELIABILITY DIAGRAM, 24–HR PRECIP., AN



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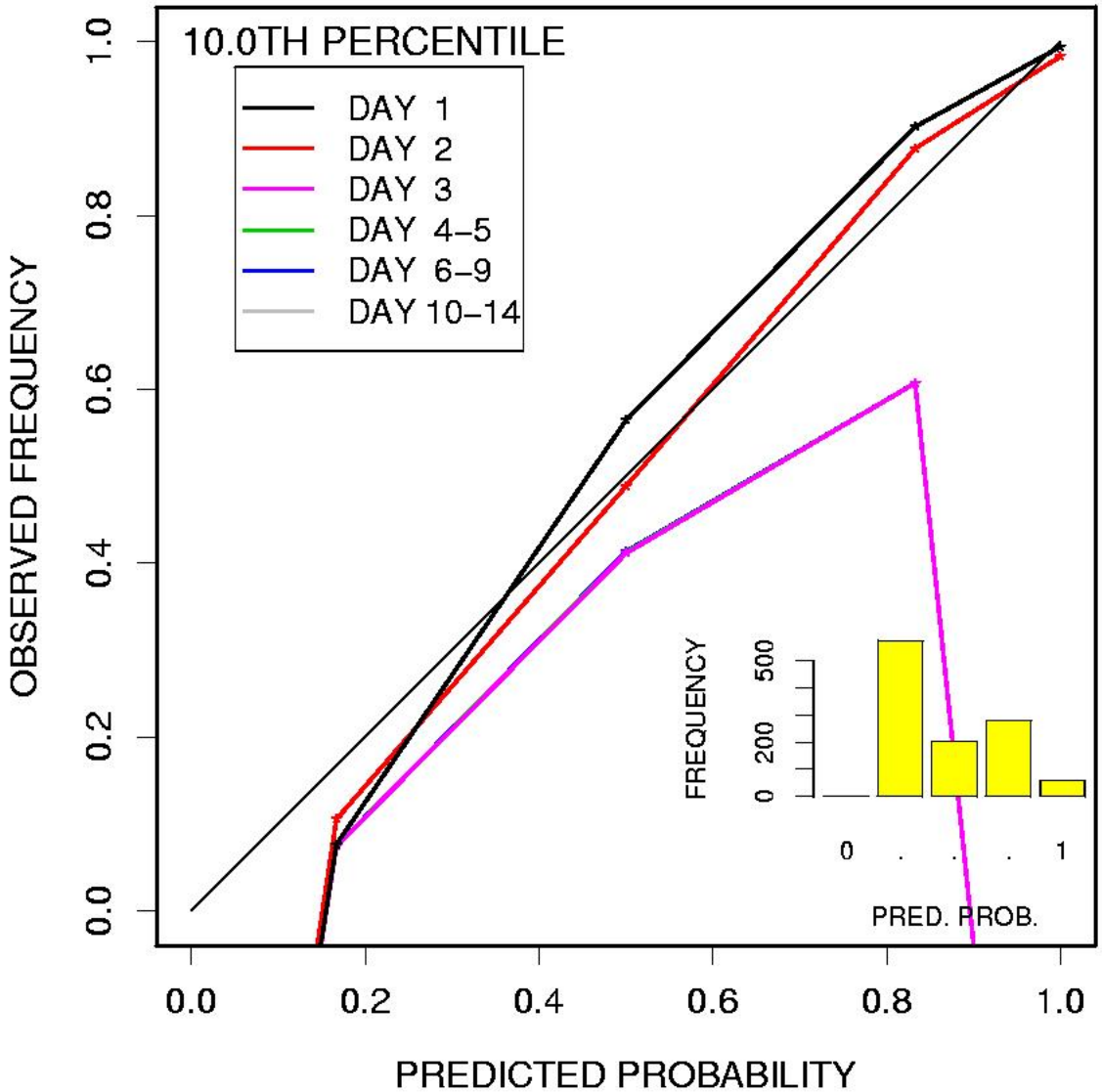

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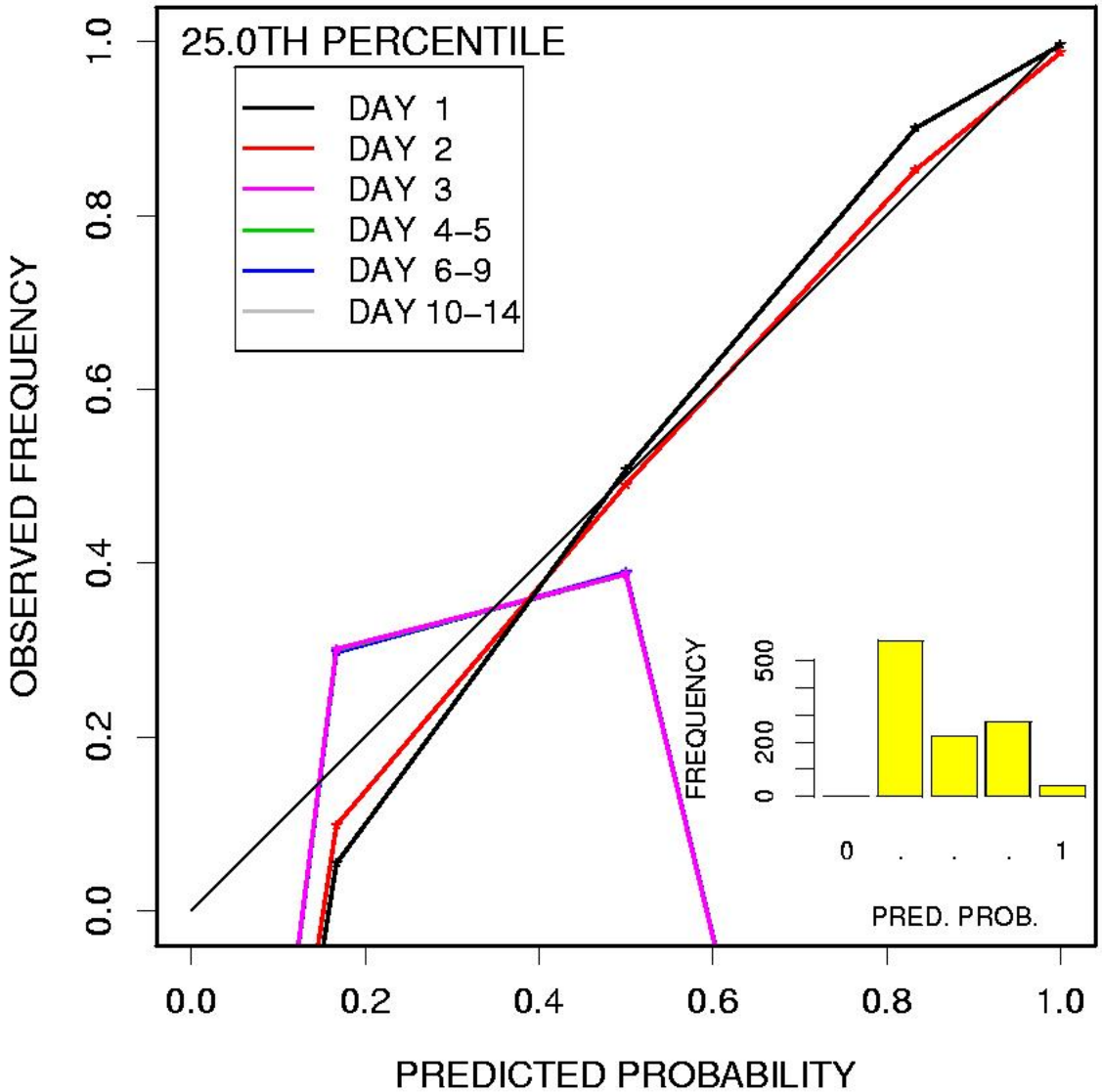

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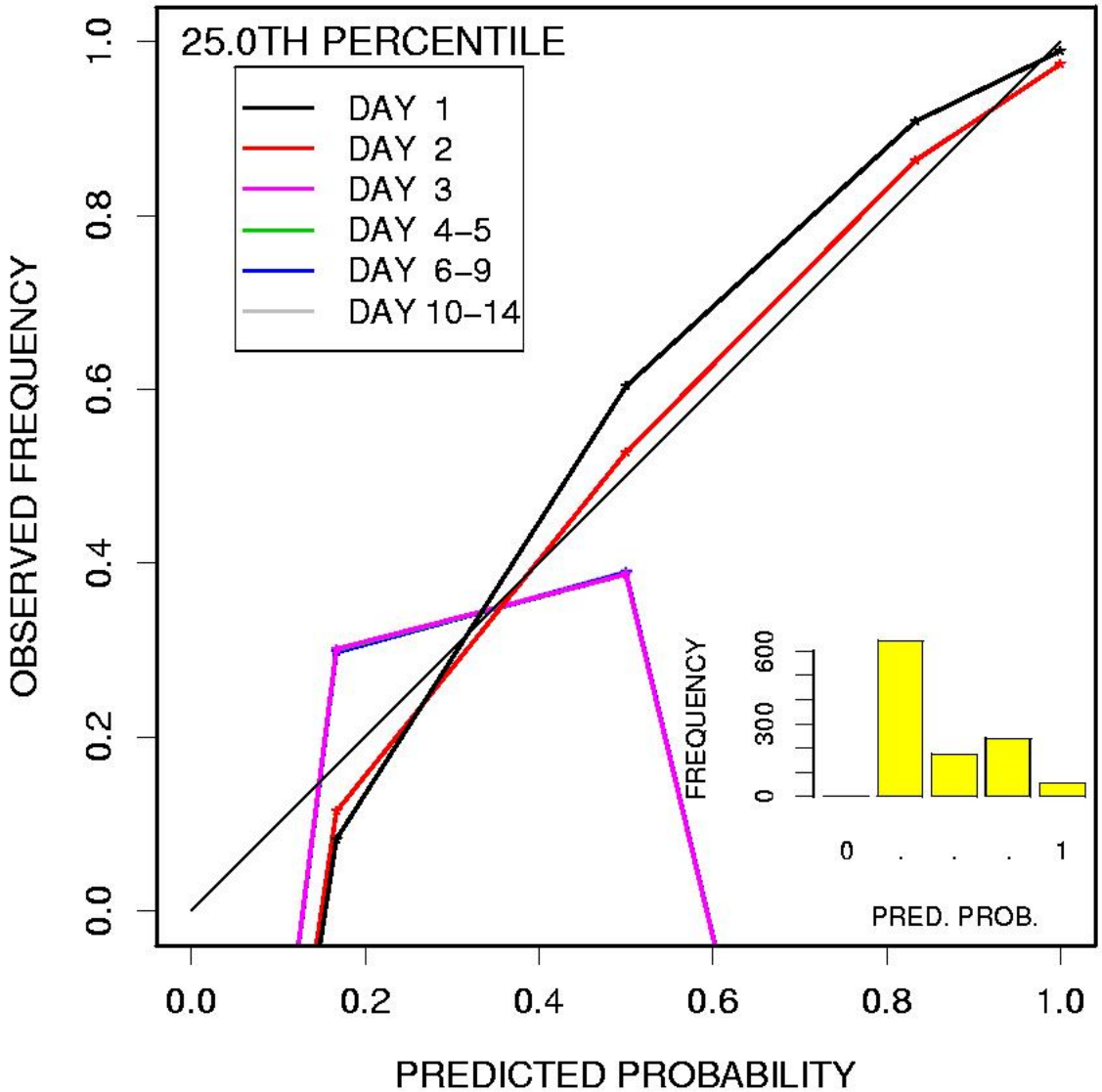
MARFC – RELIABILITY DIAGRAM, 24–HR PRECIP., AN



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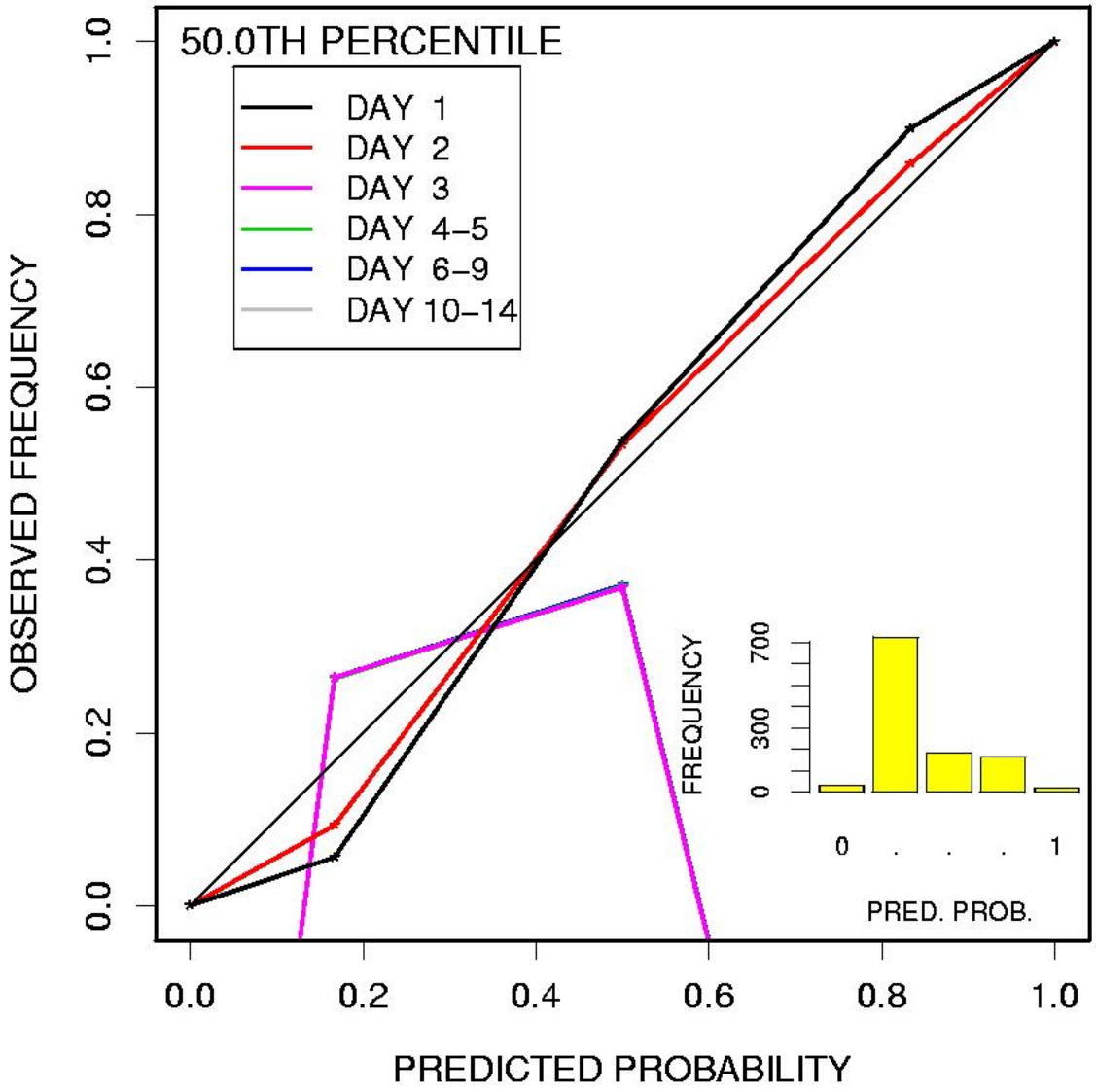

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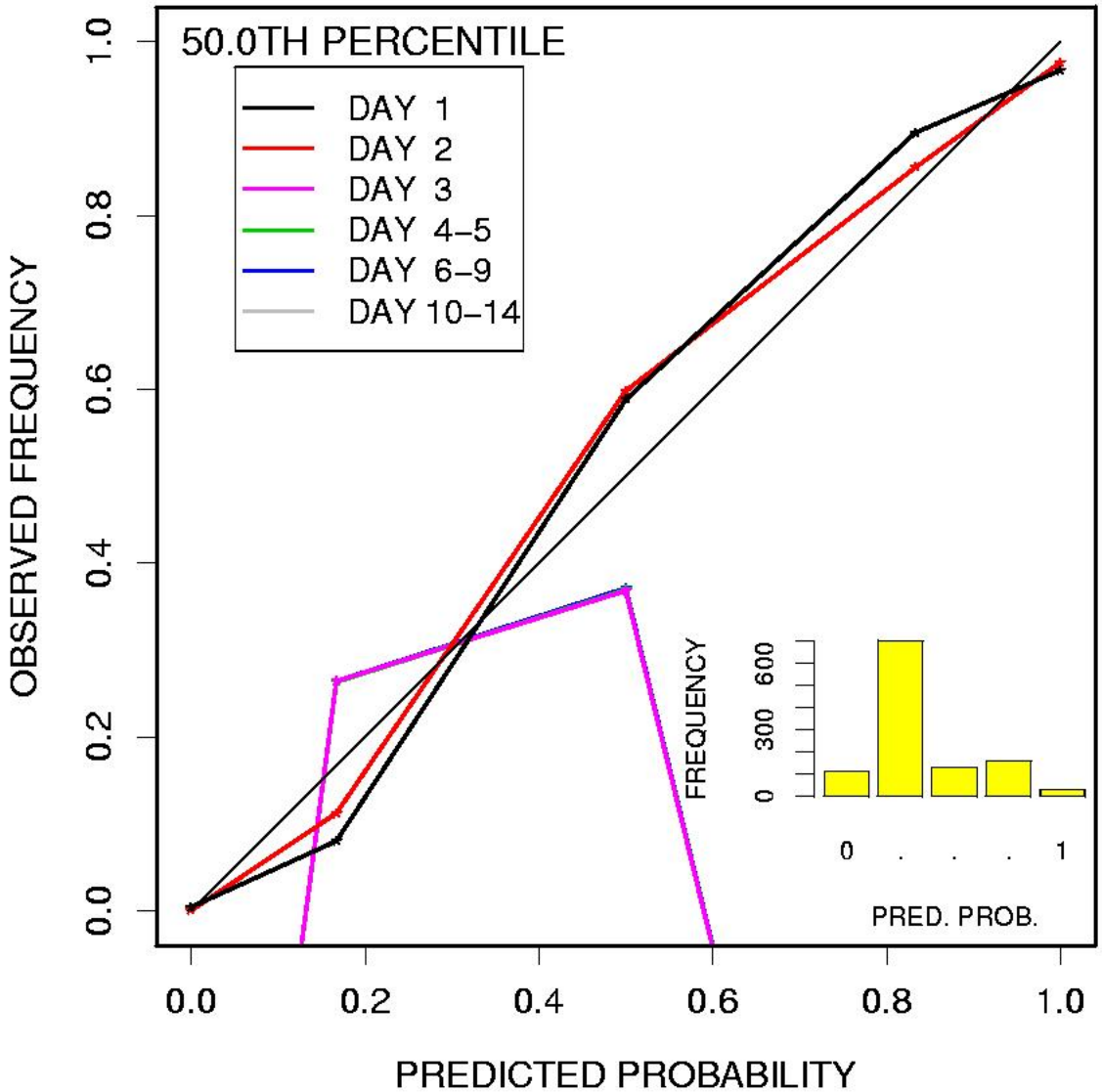

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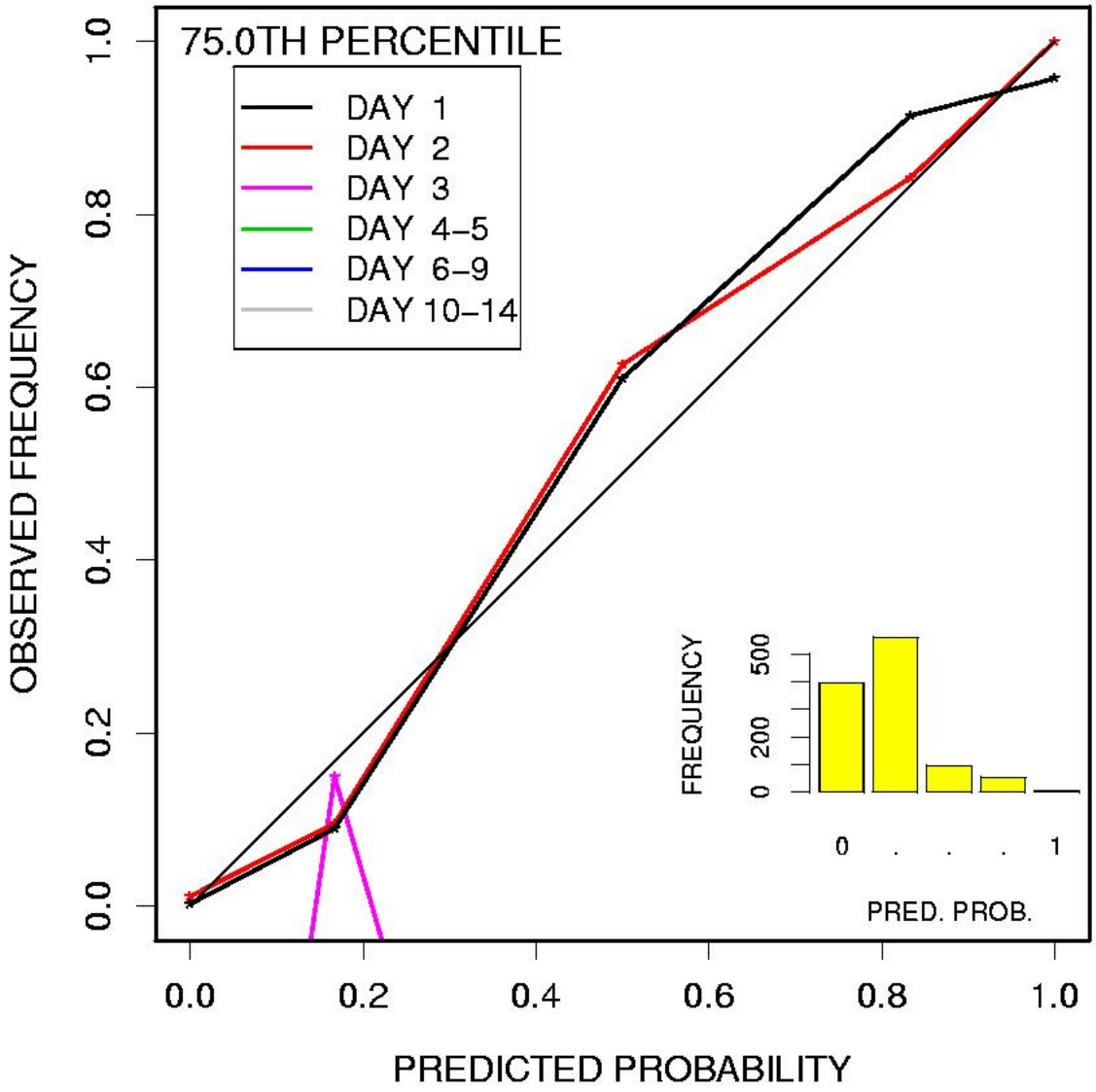

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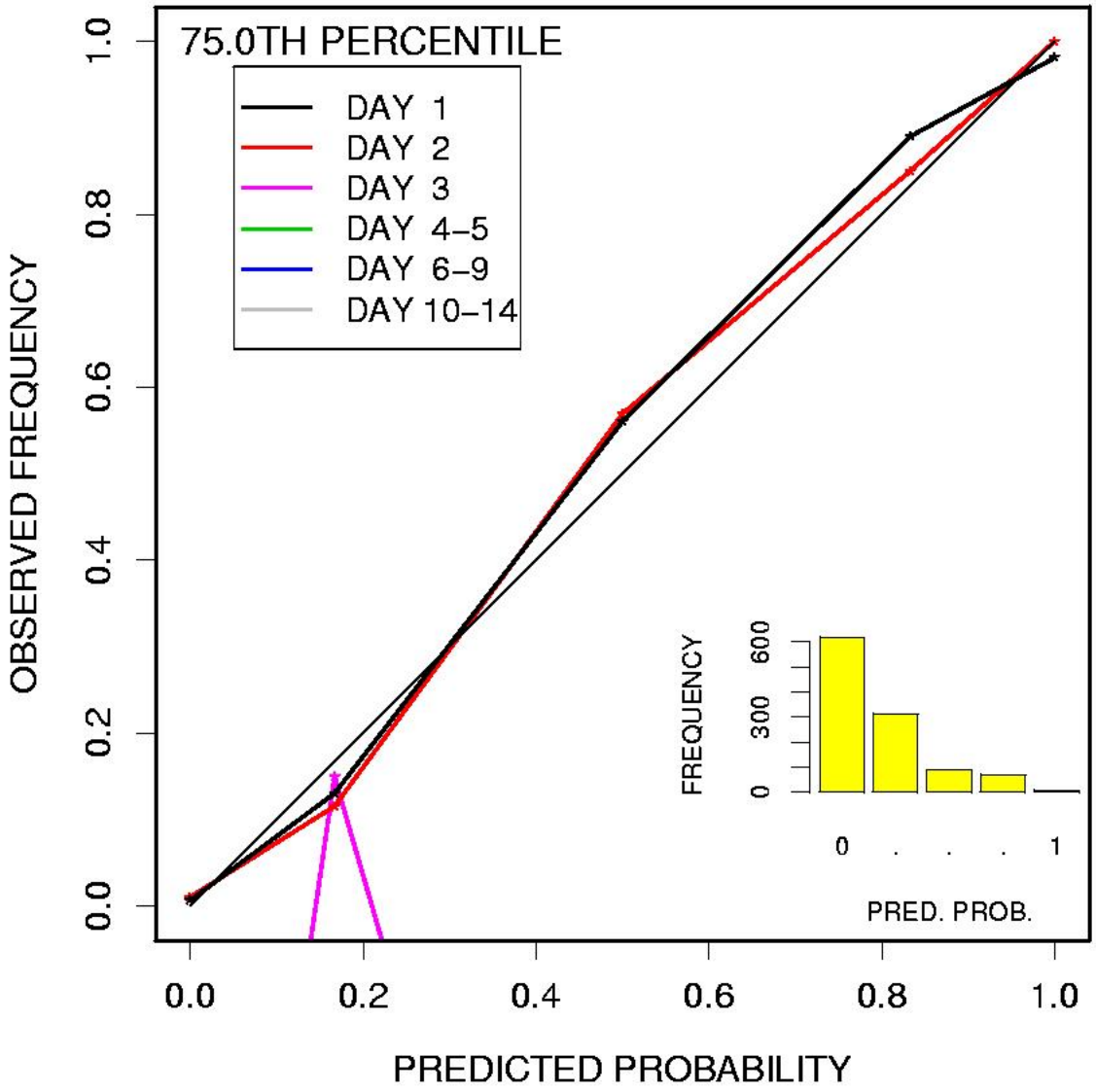

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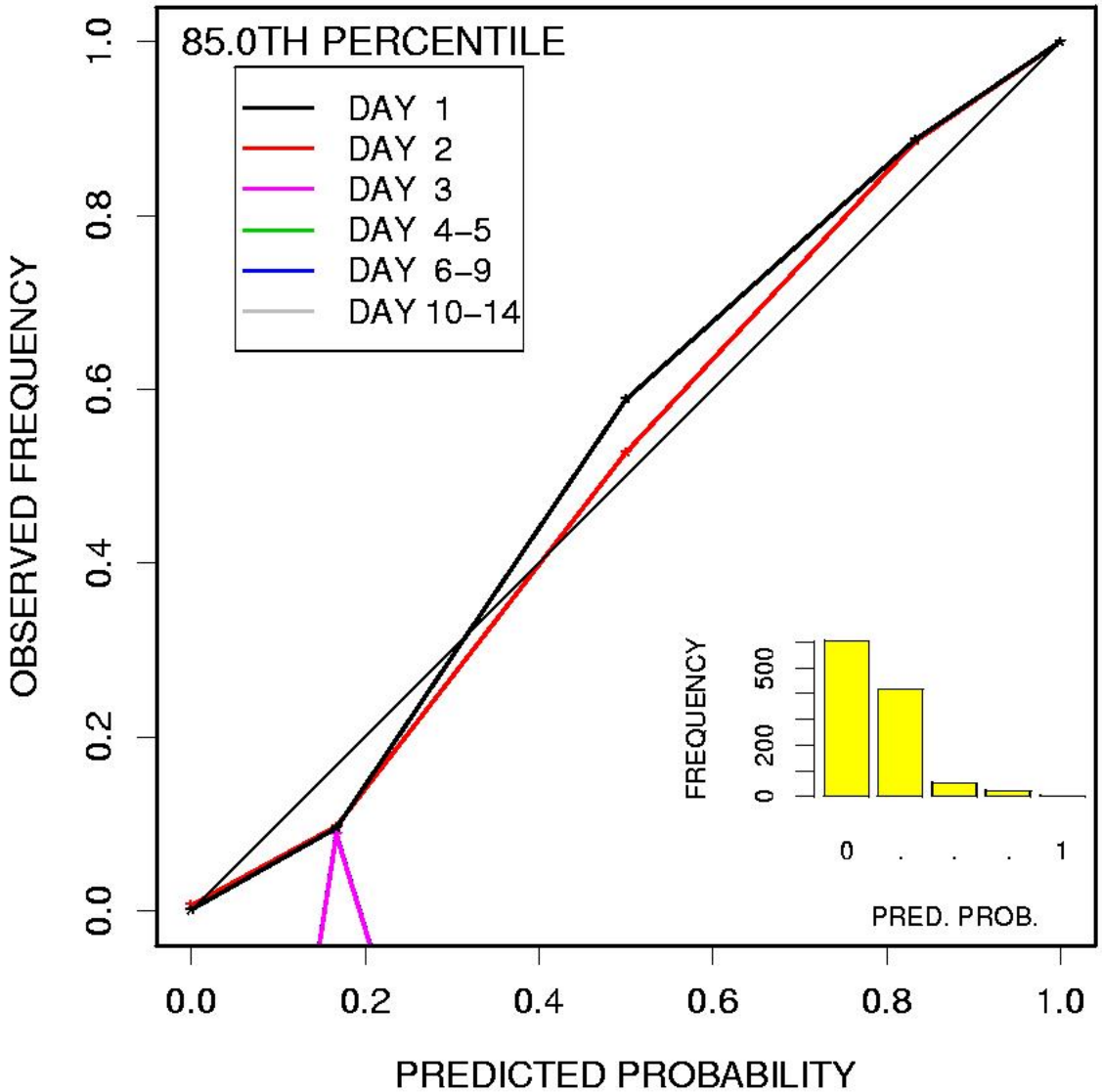

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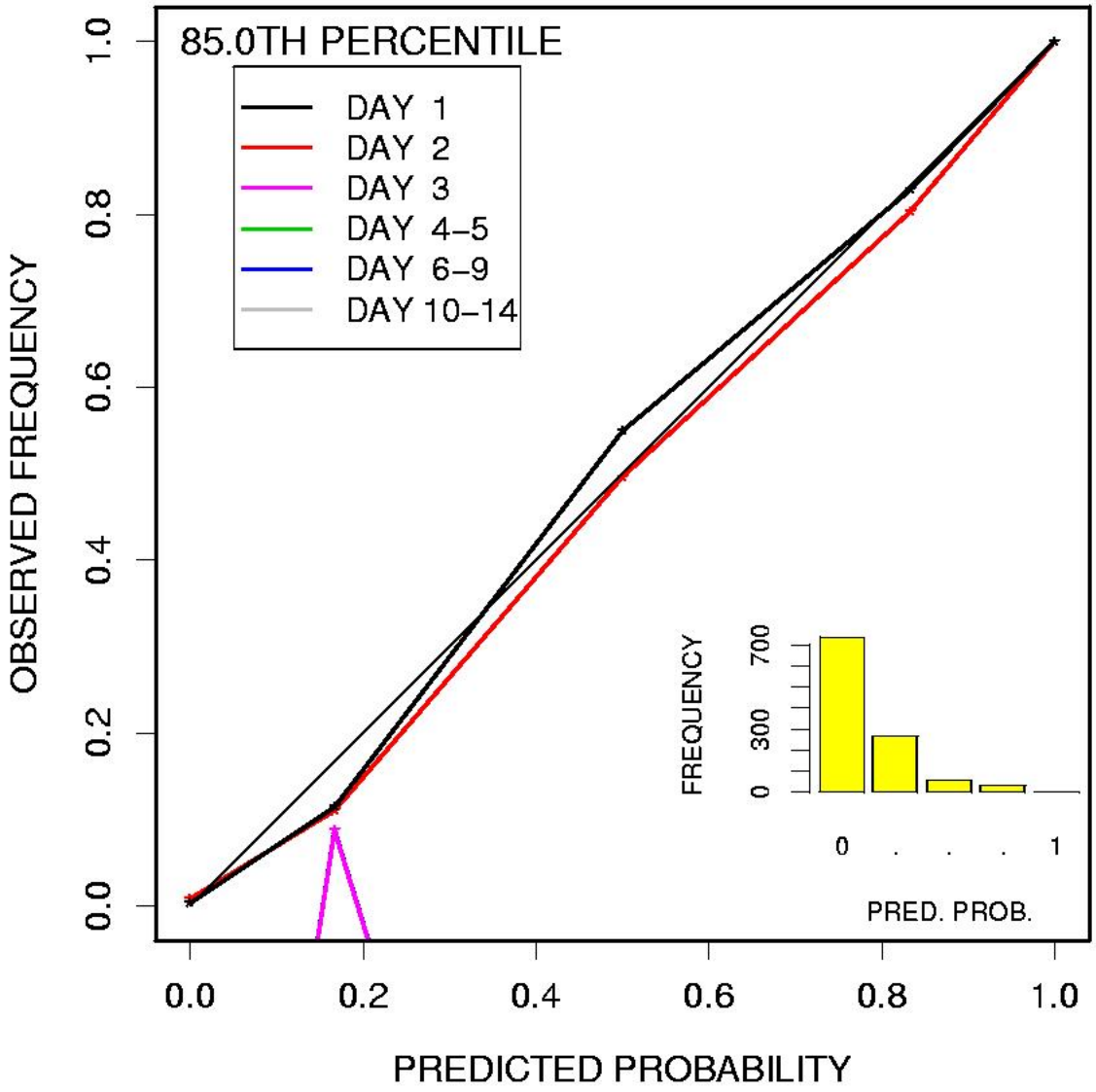

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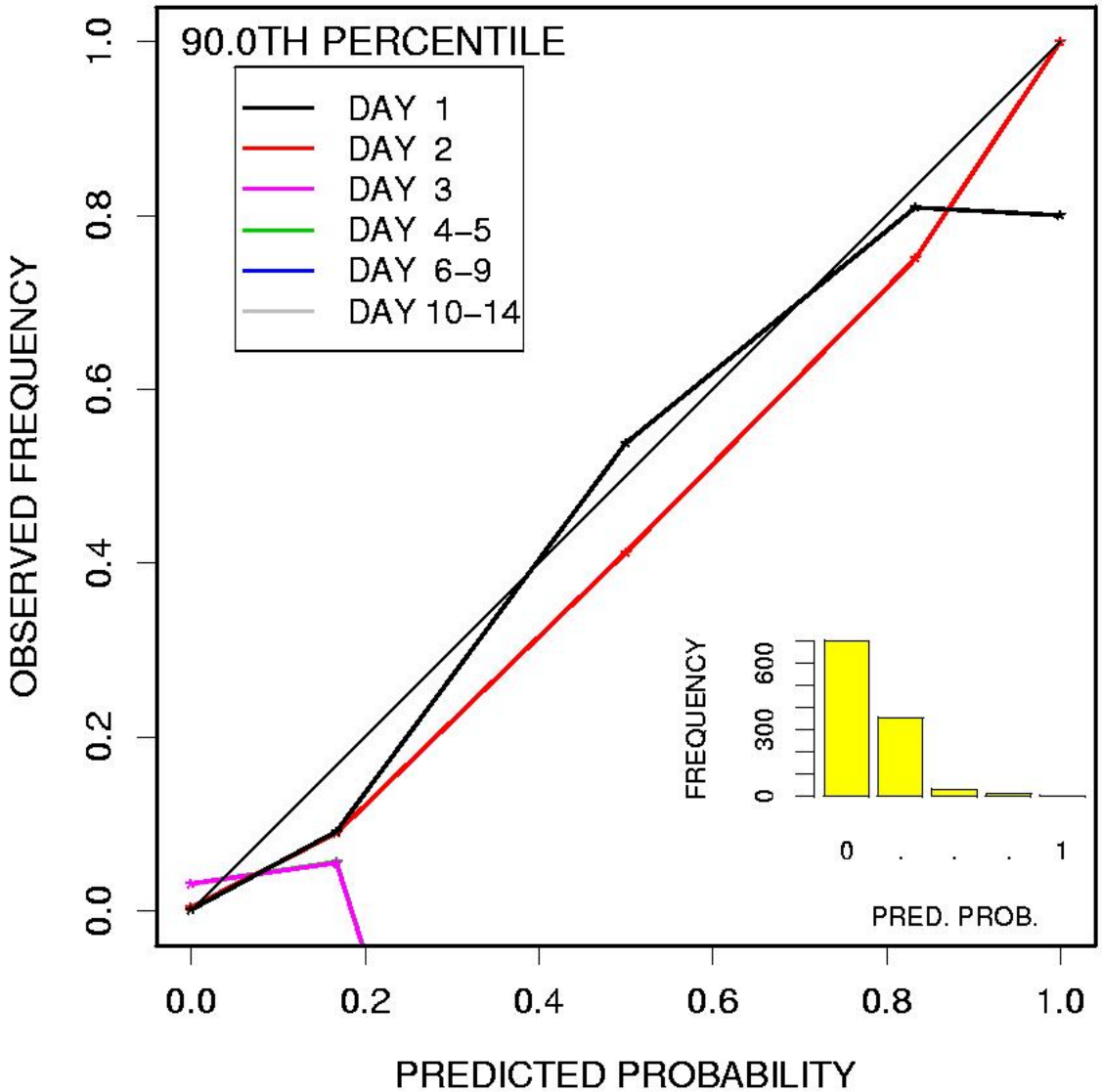

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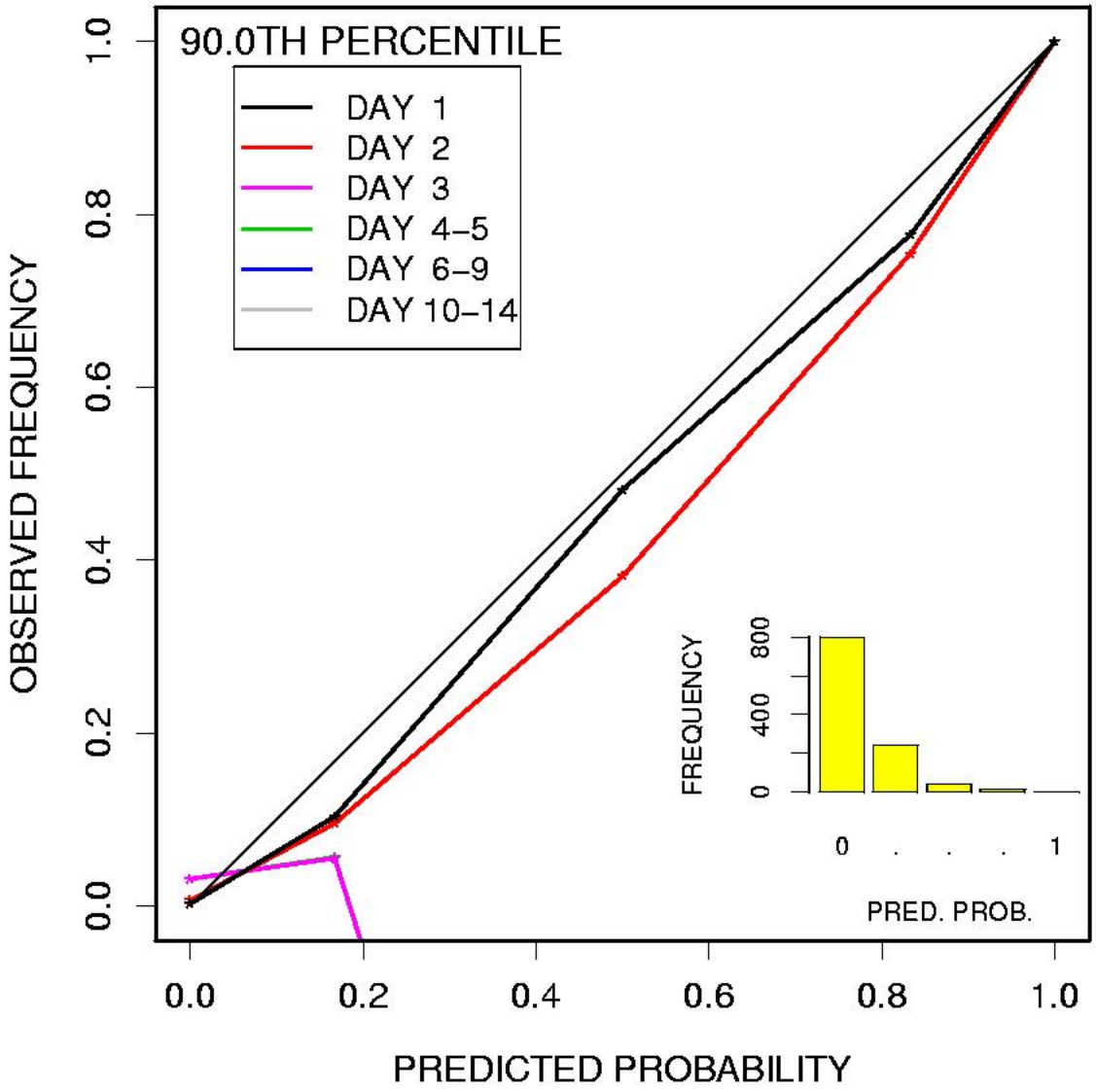

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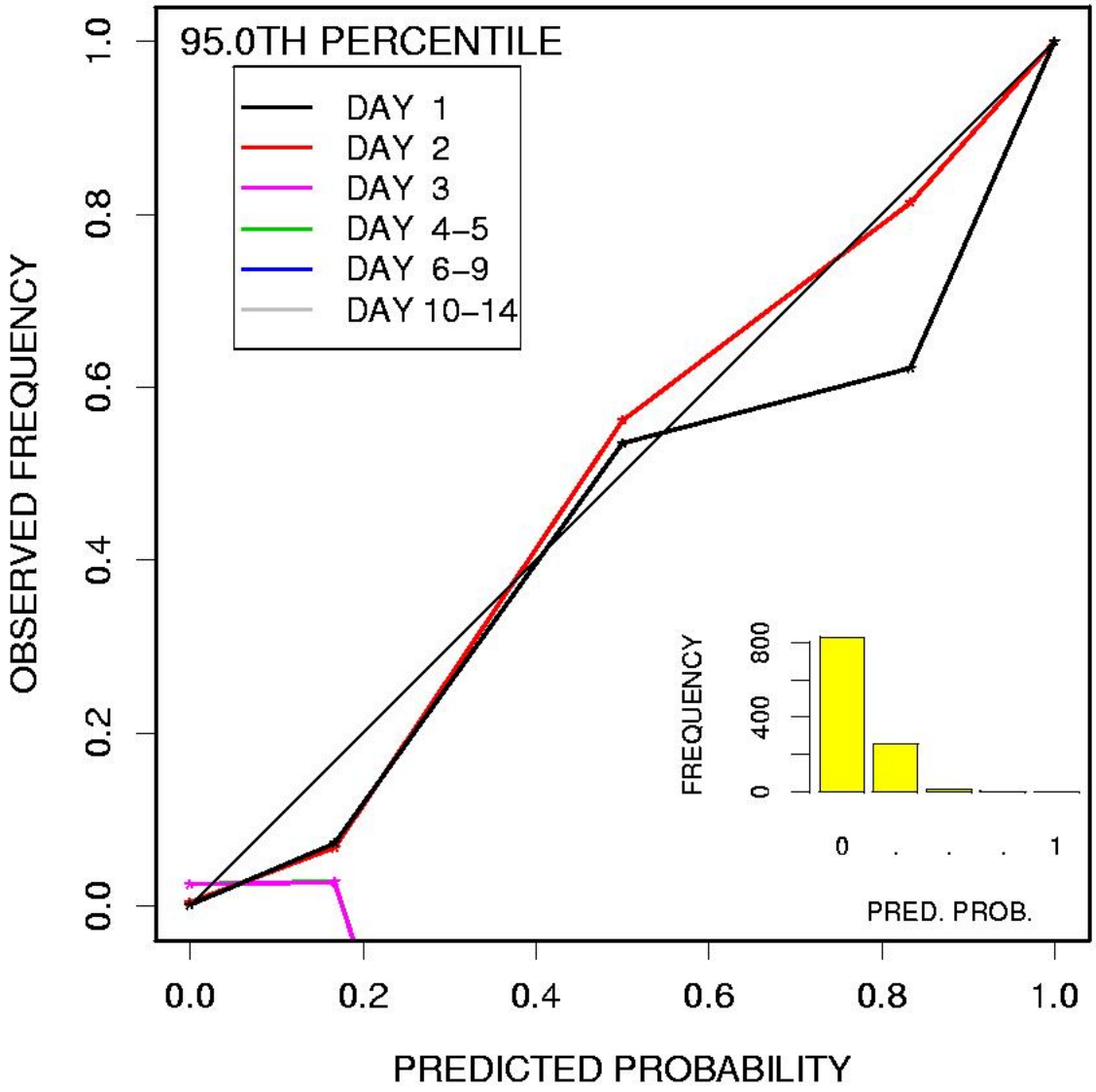

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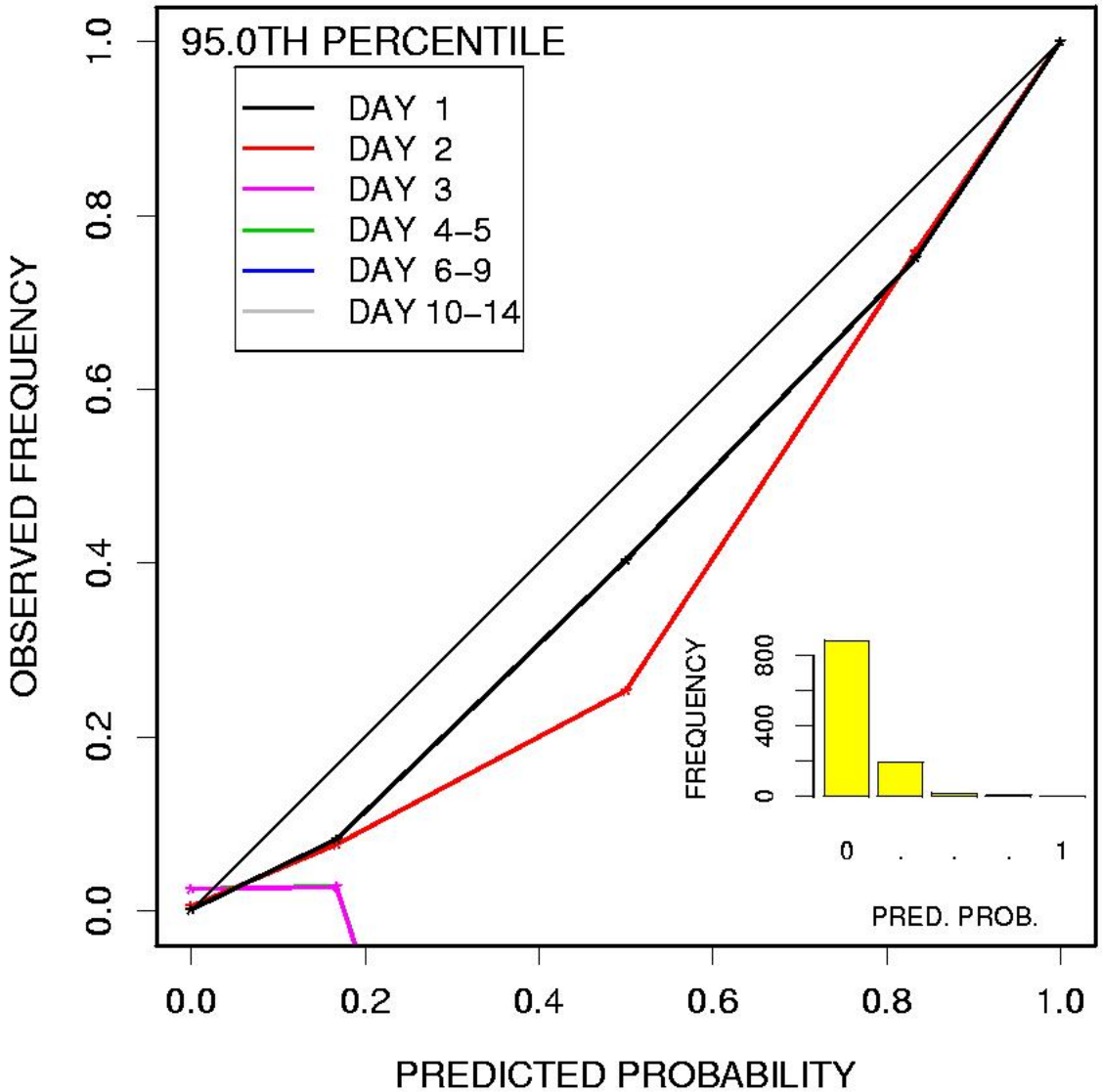

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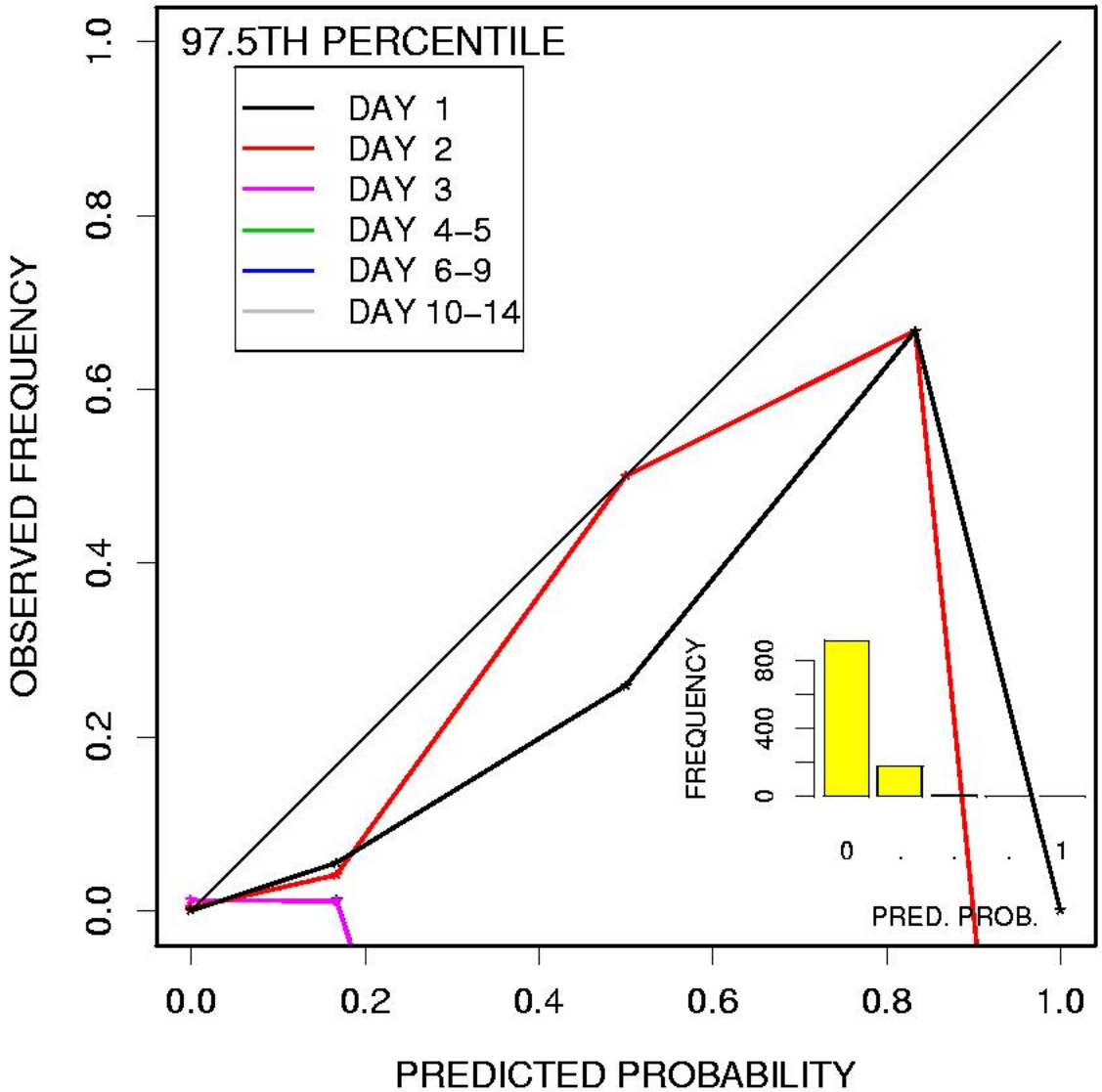

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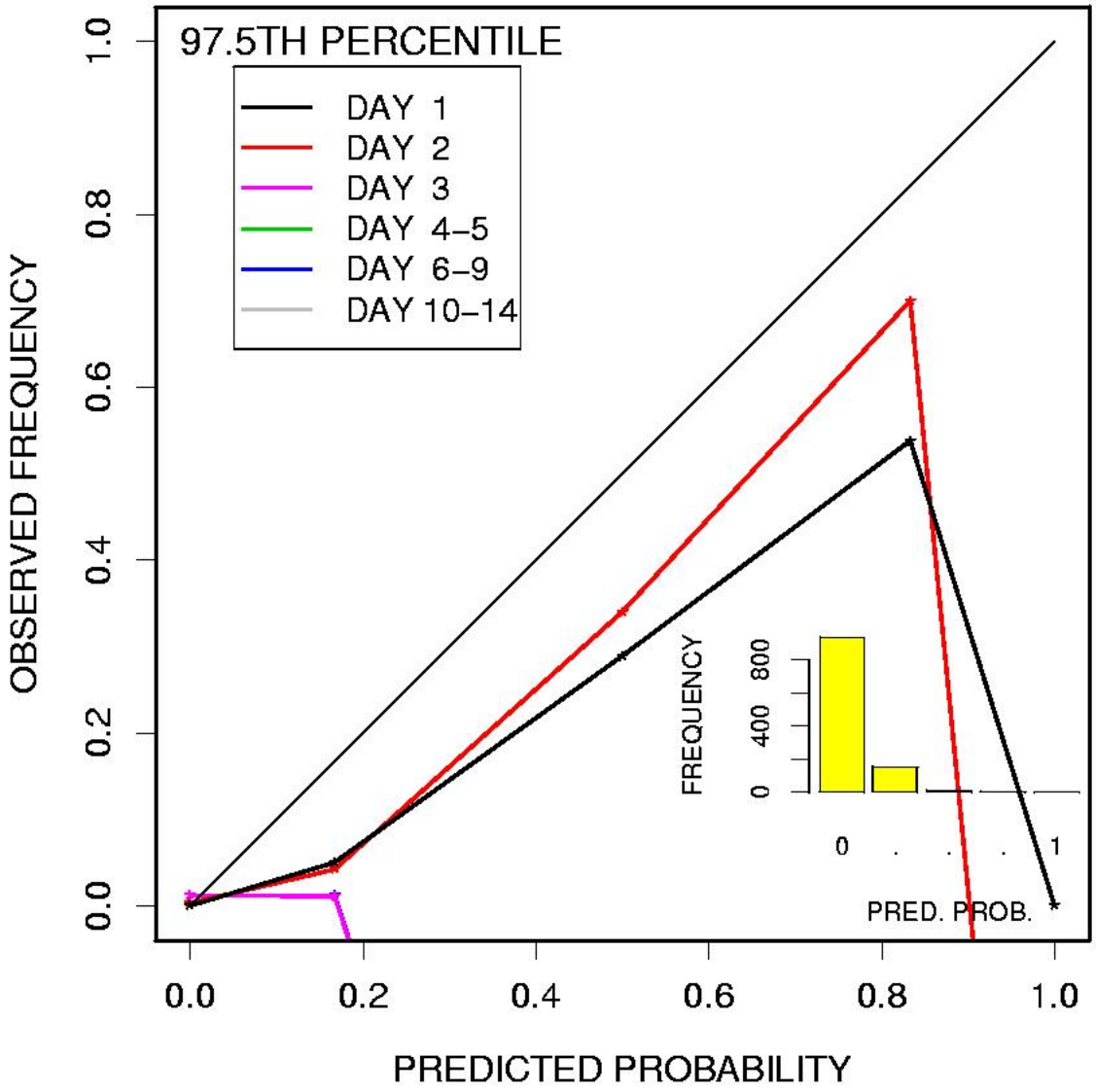

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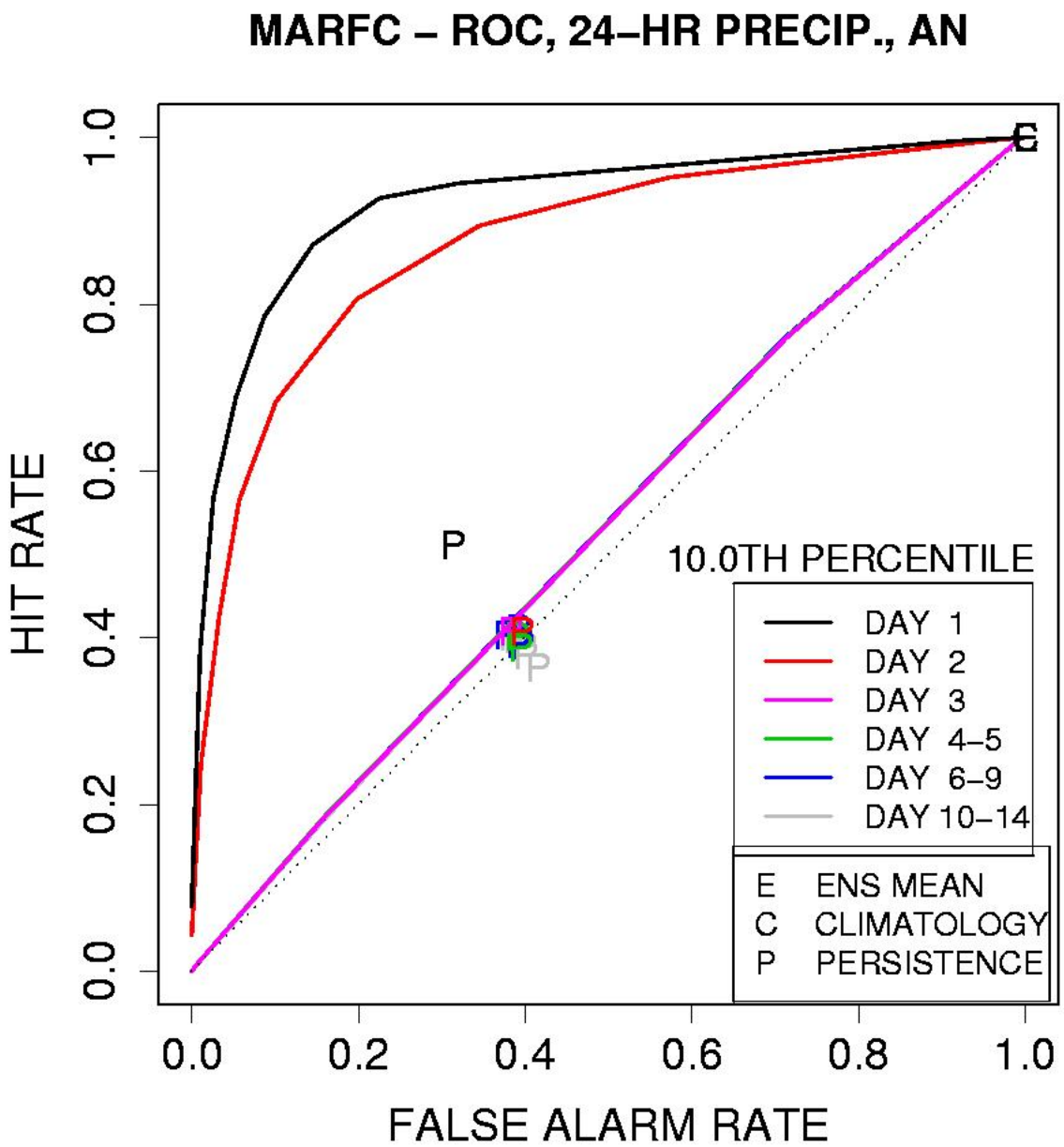
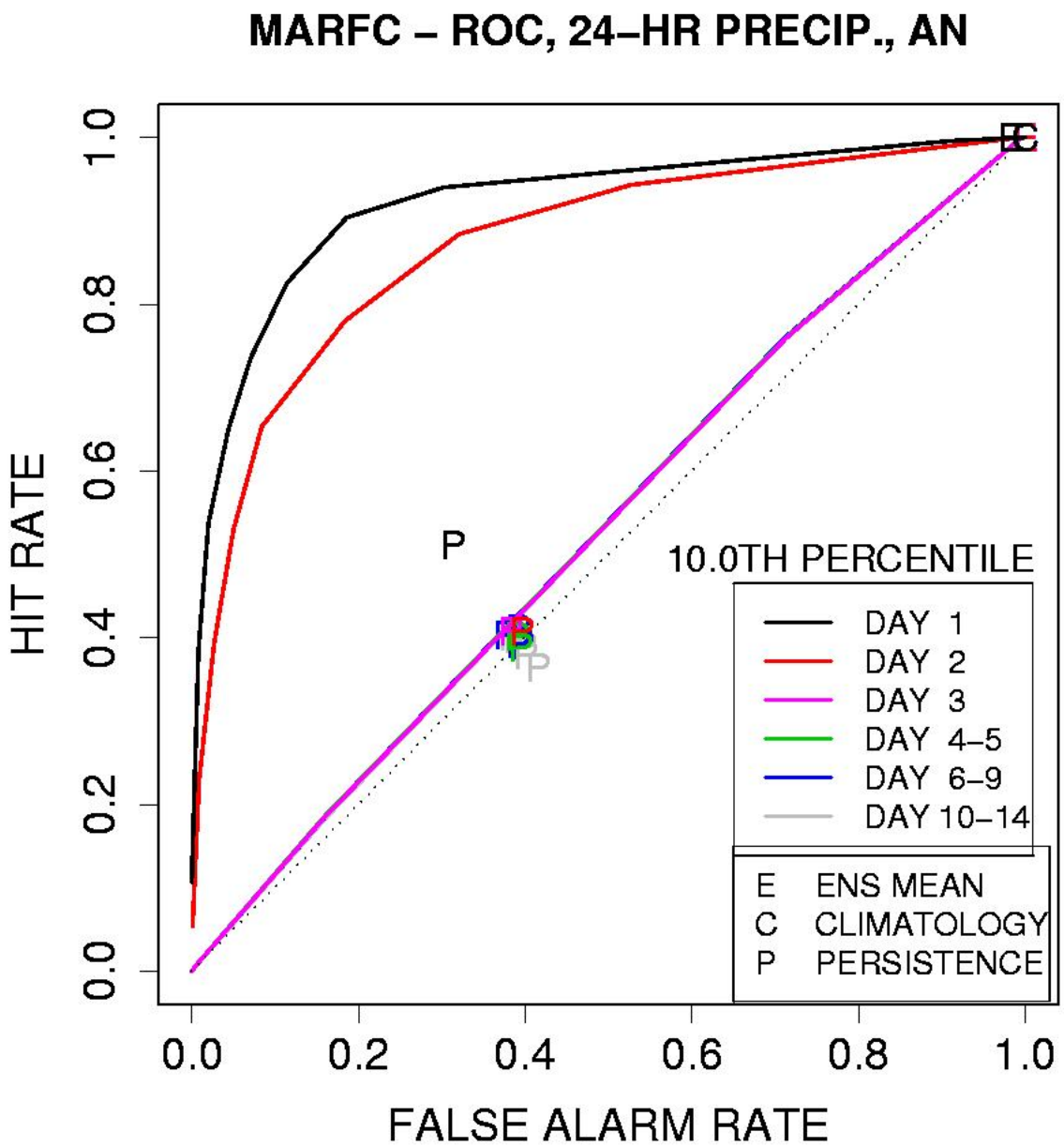
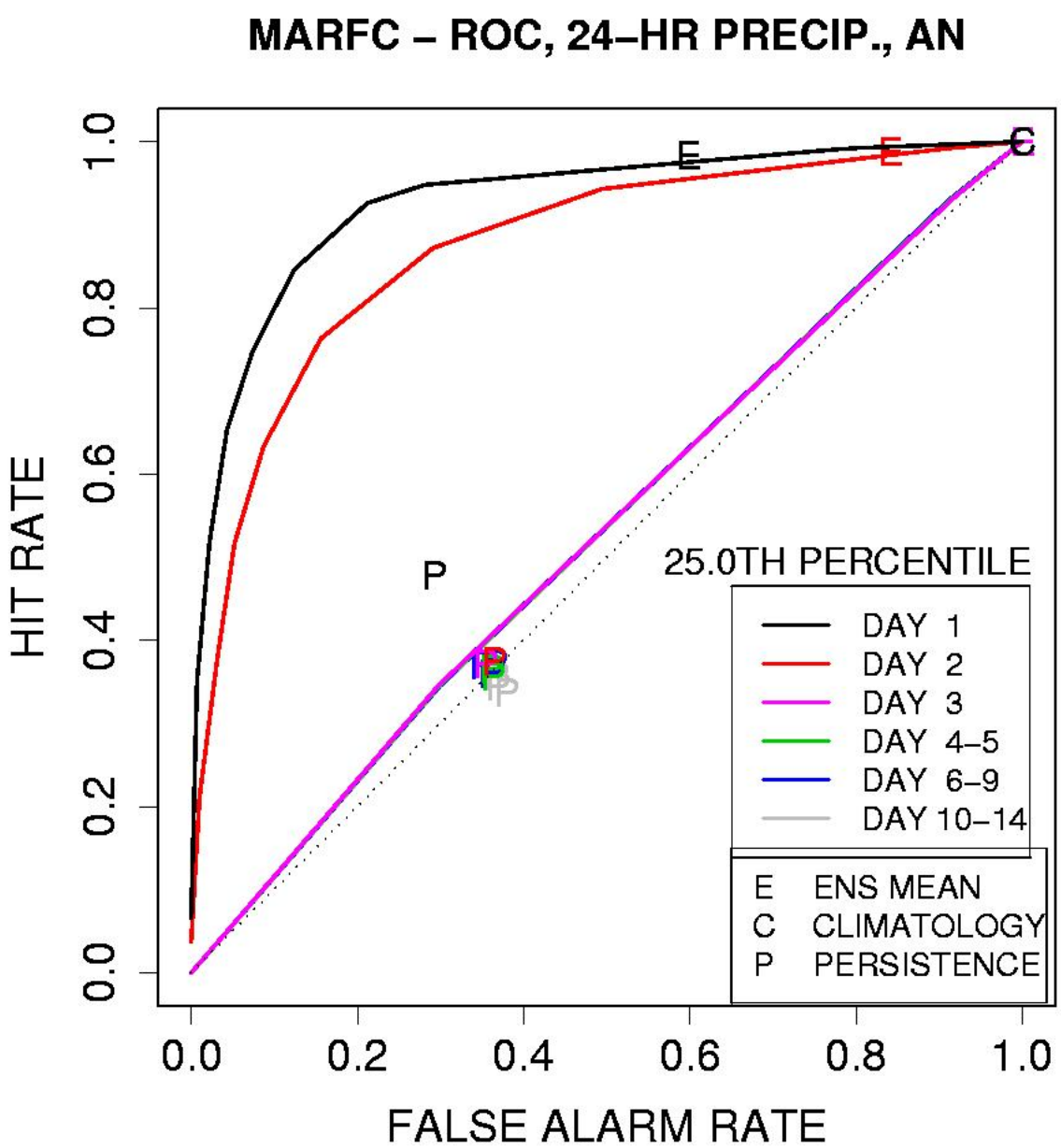

MARFC – ROC, 24–HR PRECIP., AN
HIT RATE
FALSE ALARM RATE
0.0
0.2
0.4
0.6
0.8
1.0
E
P
10.0TH PERCENTILE
DAY 1
DAY 2
DAY 3
DAY 4–5
DAY 6–9
DAY 10–14
E ENS MEAN
C CLIMATOLOGY
P PERSISTENCE

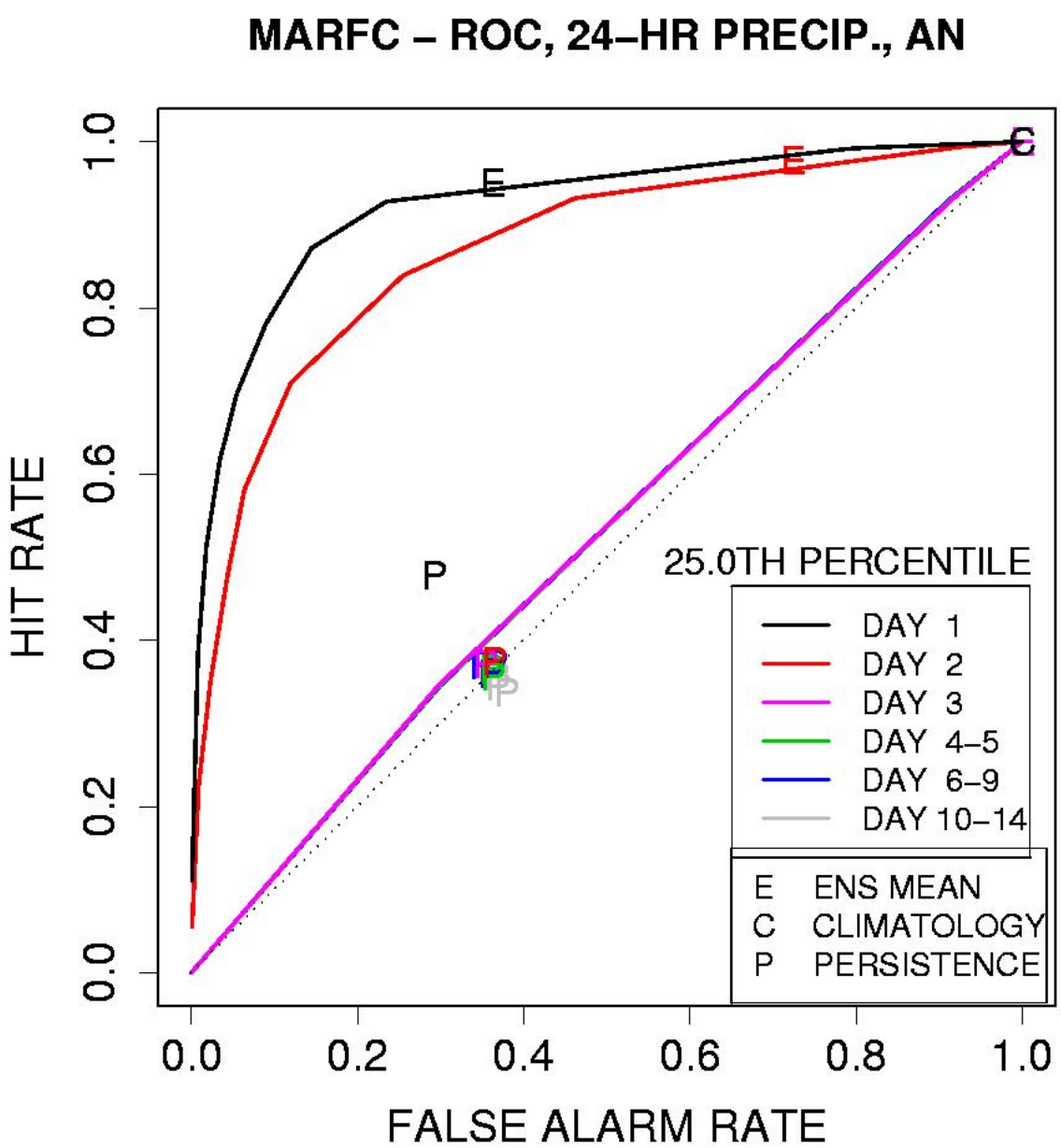
New


MARFC – ROC, 24–HR PRECIP., AN
HIT RATE
FALSE ALARM RATE
0.0
0.2
0.4
0.6
0.8
1.0
P
10.0TH PERCENTILE
DAY 1
DAY 2
DAY 3
DAY 4–5
DAY 6–9
DAY 10–14
E ENS MEAN
C CLIMATOLOGY
P PERSISTENCE

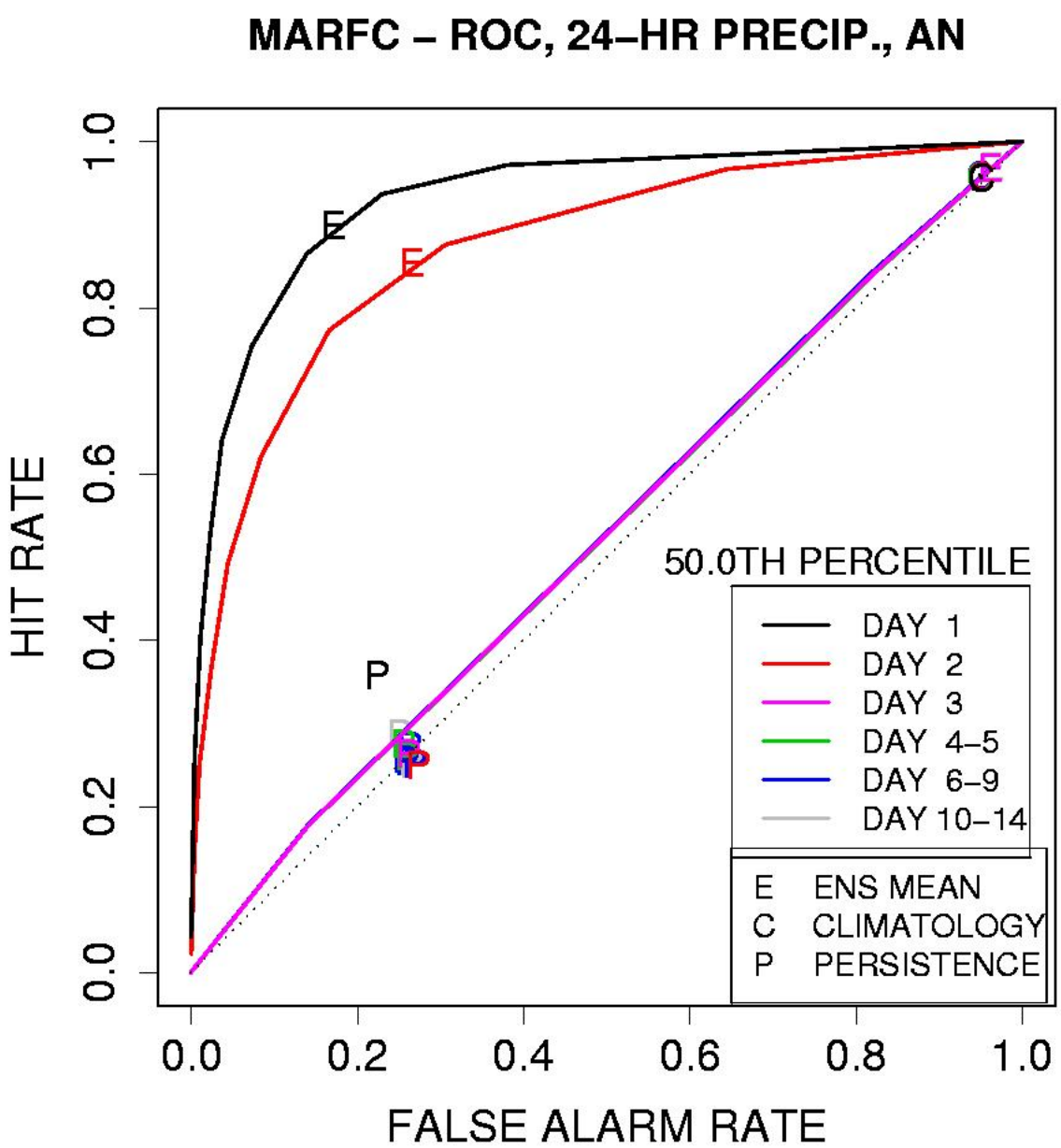
Old


MARFC – ROC, 24–HR PRECIP., AN
HIT RATE
FALSE ALARM RATE
0.0
0.2
0.4
0.6
0.8
1.0
E
C
P
25.0TH PERCENTILE
DAY 1
DAY 2
DAY 3
DAY 4–5
DAY 6–9
DAY 10–14
E ENS MEAN
C CLIMATOLOGY
P PERSISTENCE

New


MARFC – ROC, 24–HR PRECIP., AN
HIT RATE
FALSE ALARM RATE
0.0
0.2
0.4
0.6
0.8
1.0
E
C
P
25.0TH PERCENTILE
DAY 1
DAY 2
DAY 3
DAY 4–5
DAY 6–9
DAY 10–14
E ENS MEAN
C CLIMATOLOGY
P PERSISTENCE

Old


MARFC – ROC, 24–HR PRECIP., AN
HIT RATE
FALSE ALARM RATE
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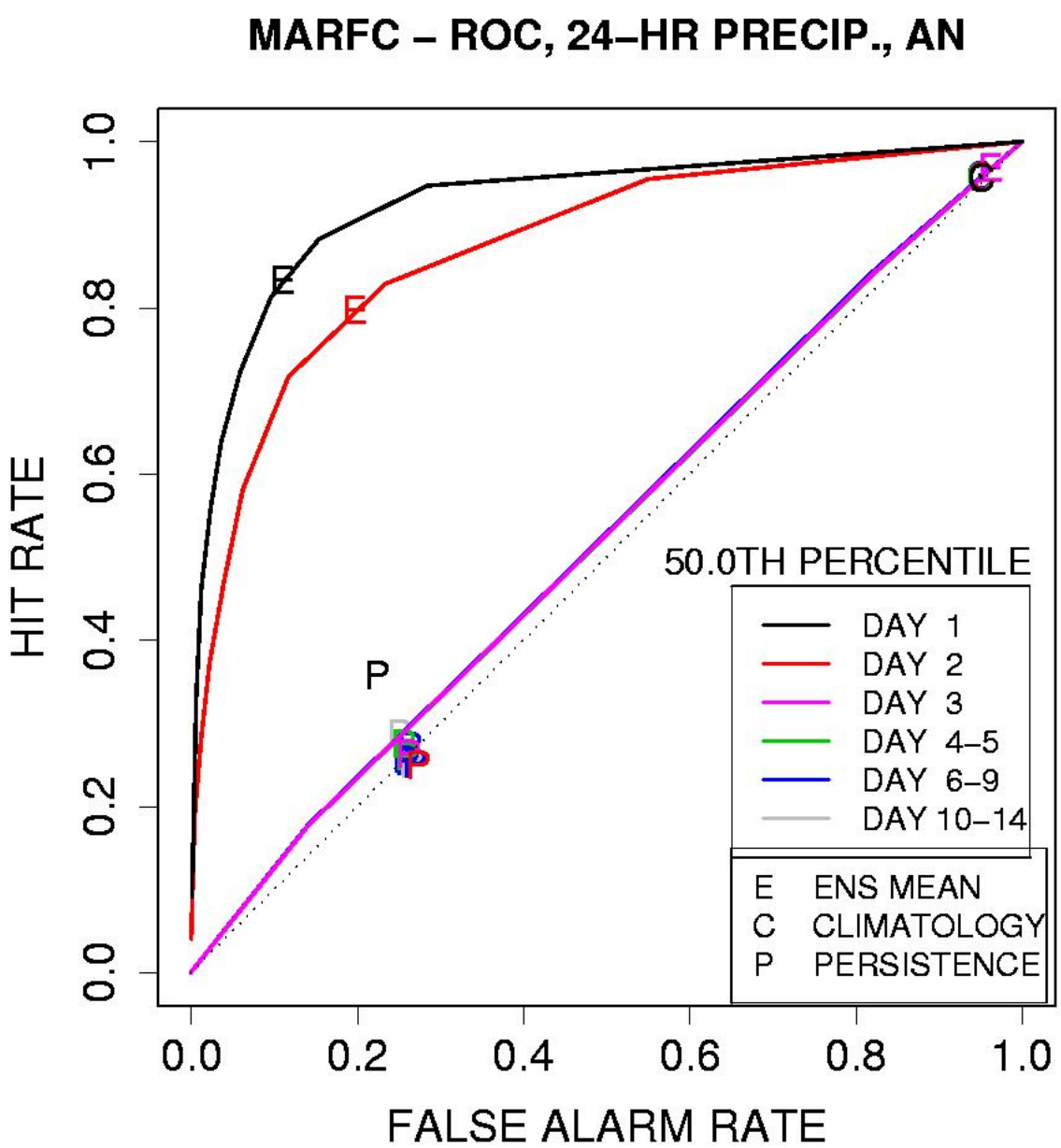
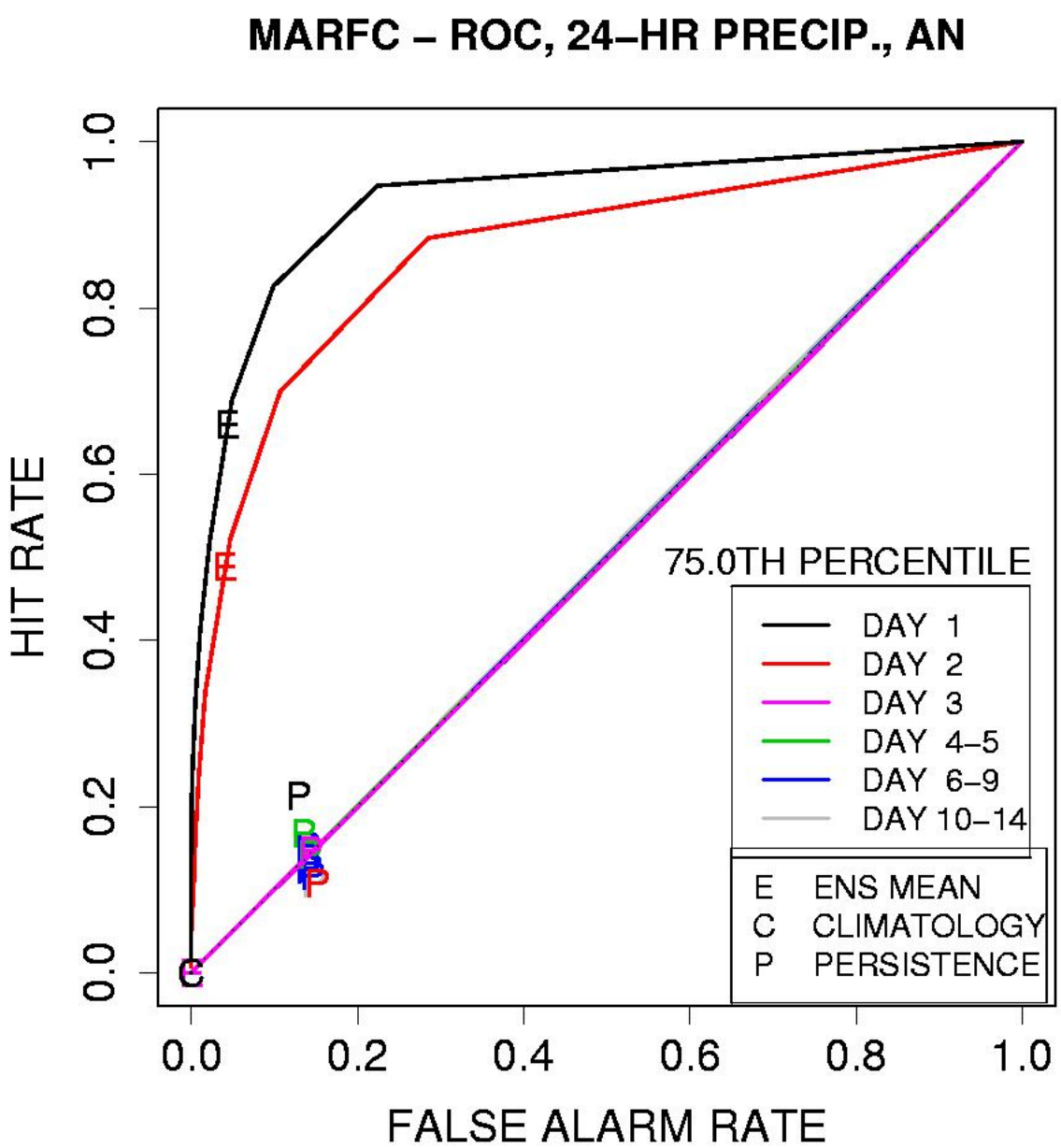
0.2
0.4
0.6
0.8
1.0
50.0TH PERCENTILE
DAY 1
DAY 2
DAY 3
DAY 4–5
DAY 6–9
DAY 10–14
E ENS MEAN
C CLIMATOLOGY
P PERSISTENCE

New


MARFC – ROC, 24–HR PRECIP., AN
HIT RATE
FALSE ALARM RATE
0.0
0.2
0.4
0.6
0.8
1.0
50.0TH PERCENTILE
DAY 1
DAY 2
DAY 3
DAY 4–5
DAY 6–9
DAY 10–14
E ENS MEAN
C CLIMATOLOGY
P PERSISTENCE

Old


MARFC – ROC, 24–HR PRECIP., AN
HIT RATE
FALSE ALARM RATE
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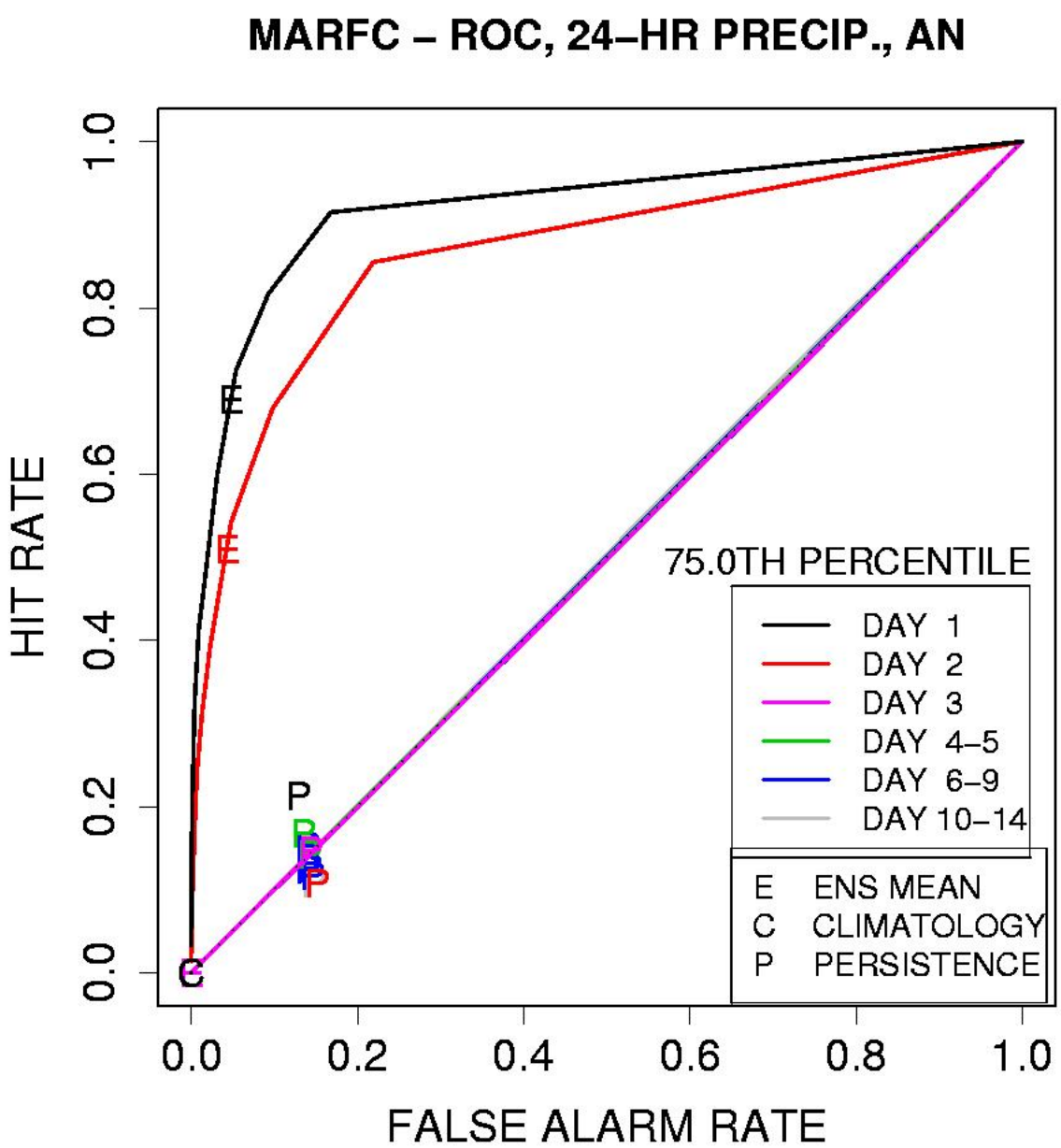
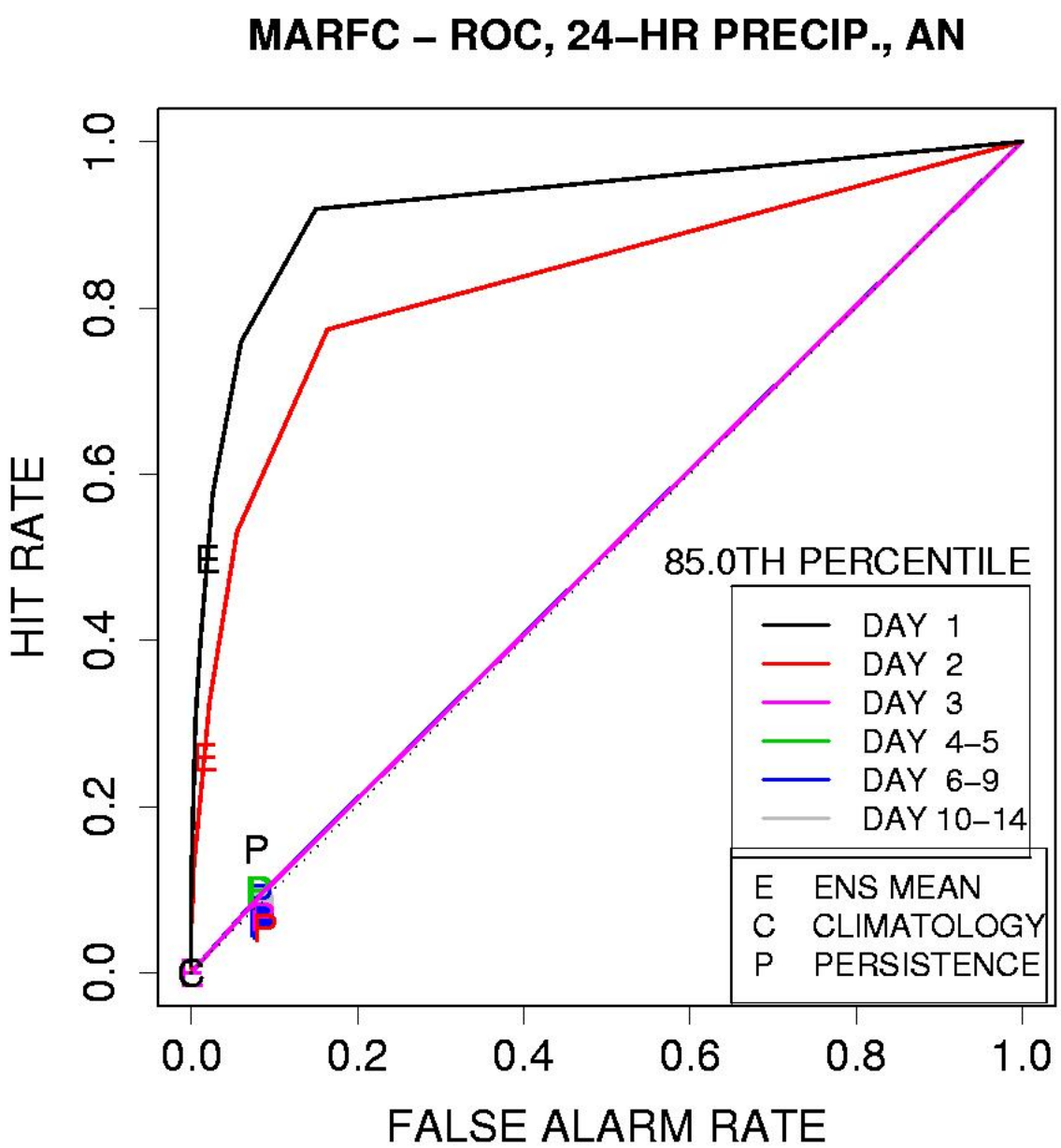
0.2
0.4
0.6
0.8
1.0
75.0TH PERCENTILE
DAY 1
DAY 2
DAY 3
DAY 4–5
DAY 6–9
DAY 10–14
E ENS MEAN
C CLIMATOLOGY
P PERSISTENCE

New


MARFC – ROC, 24–HR PRECIP., AN
HIT RATE
FALSE ALARM RATE
0.0
0.2
0.4
0.6
0.8
1.0
75.0TH PERCENTILE
DAY 1
DAY 2
DAY 3
DAY 4–5
DAY 6–9
DAY 10–14
E ENS MEAN
C CLIMATOLOGY
P PERSISTENCE

Old


MARFC – ROC, 24–HR PRECIP., AN
HIT RATE
FALSE ALARM RATE
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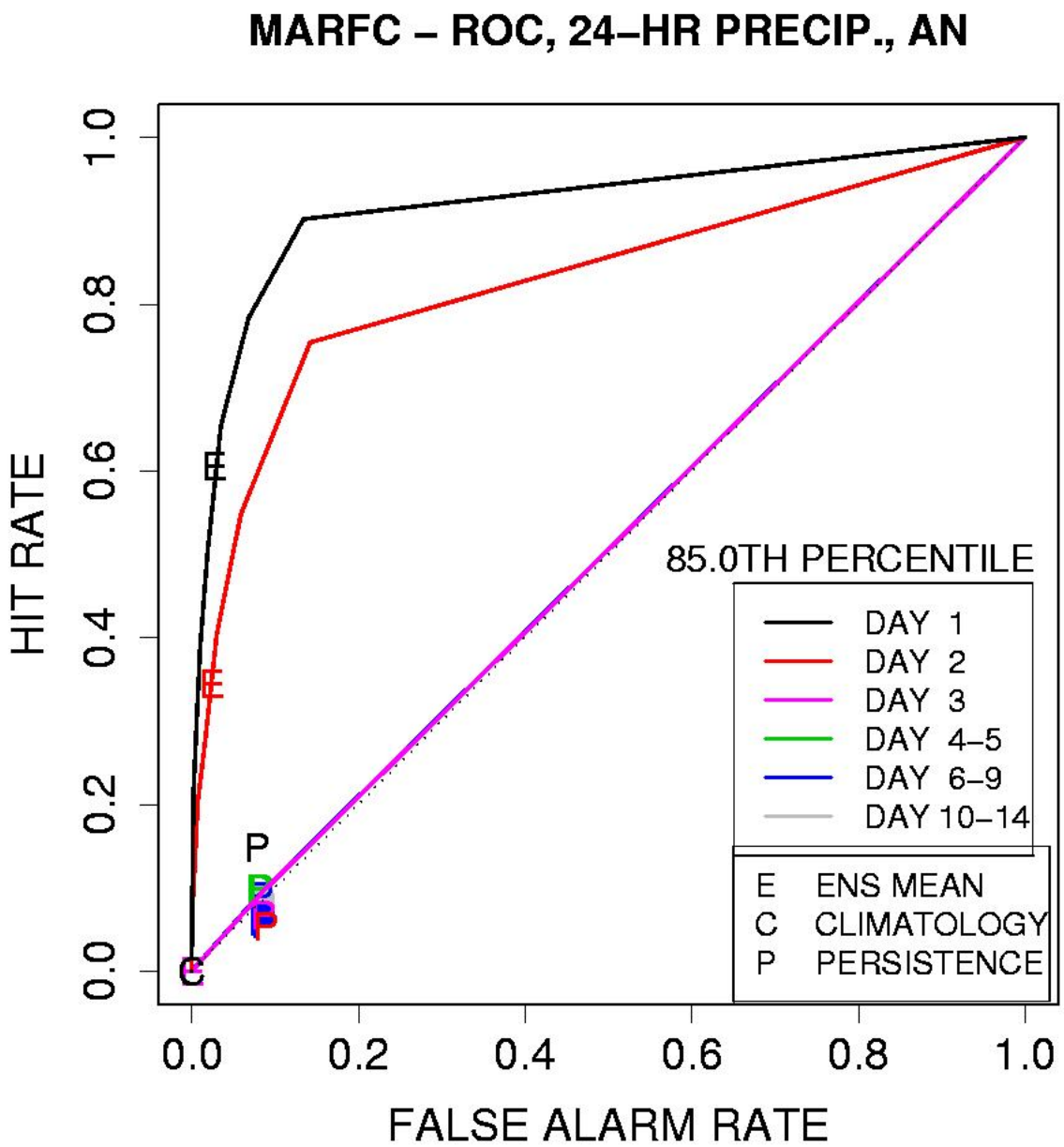
0.2
0.4
0.6
0.8
1.0
85.0TH PERCENTILE
DAY 1
DAY 2
DAY 3
DAY 4–5
DAY 6–9
DAY 10–14
E ENS MEAN
C CLIMATOLOGY
P PERSISTENCE

New


MARFC – ROC, 24–HR PRECIP., AN
HIT RATE
FALSE ALARM RATE
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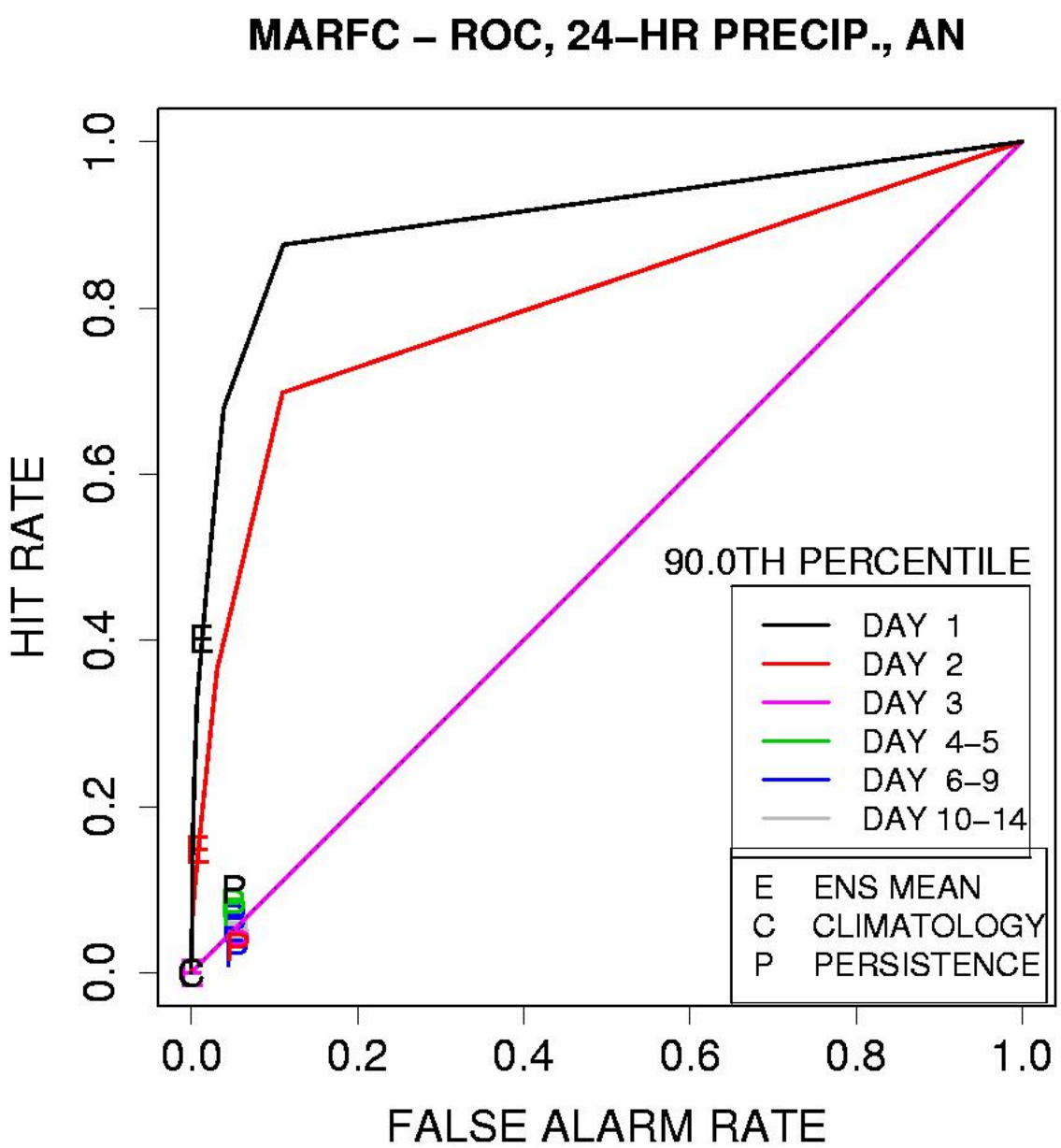
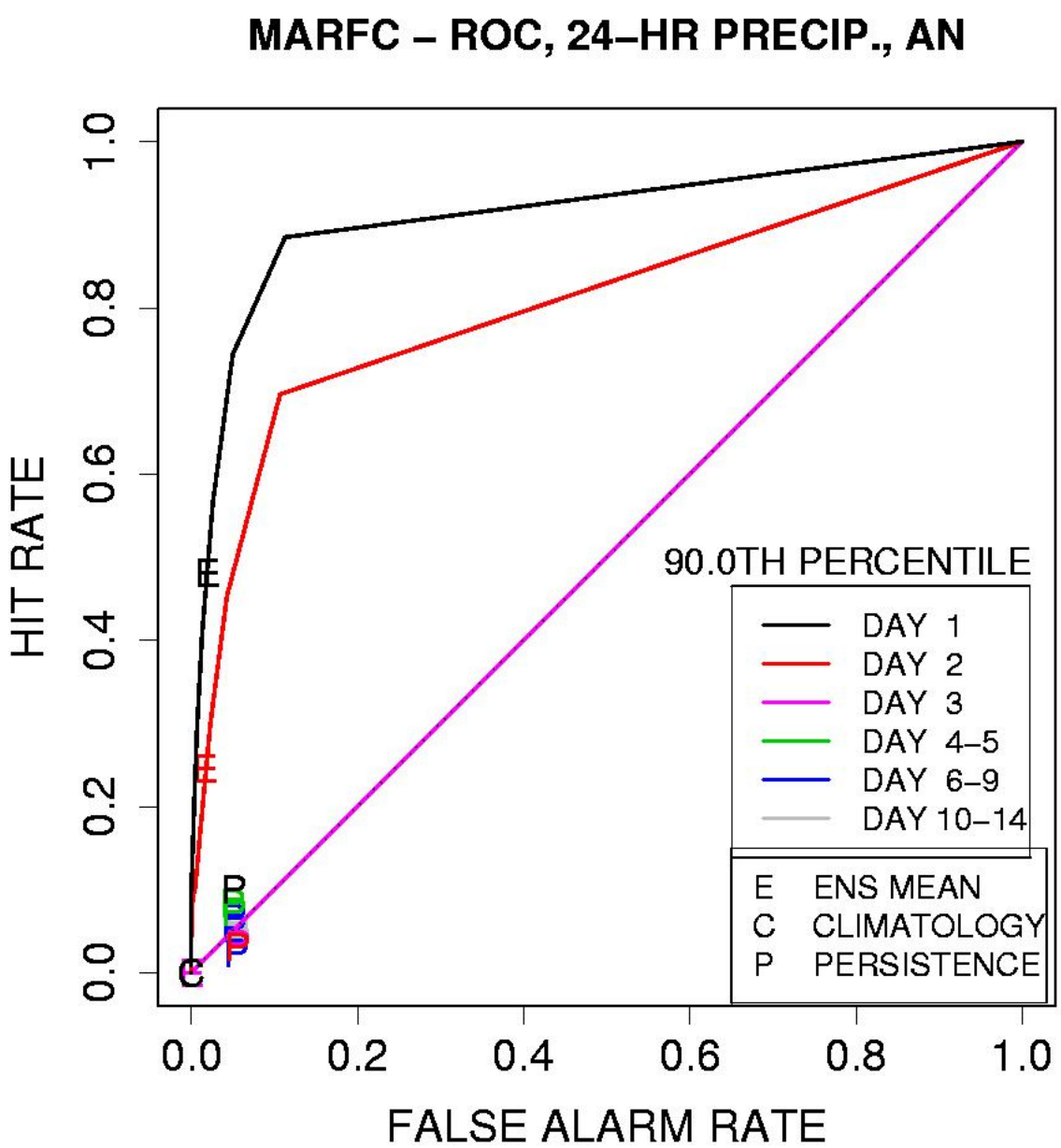
0.2
0.4
0.6
0.8
1.0
85.0TH PERCENTILE
DAY 1
DAY 2
DAY 3
DAY 4–5
DAY 6–9
DAY 10–14
E ENS MEAN
C CLIMATOLOGY
P PERSISTENCE

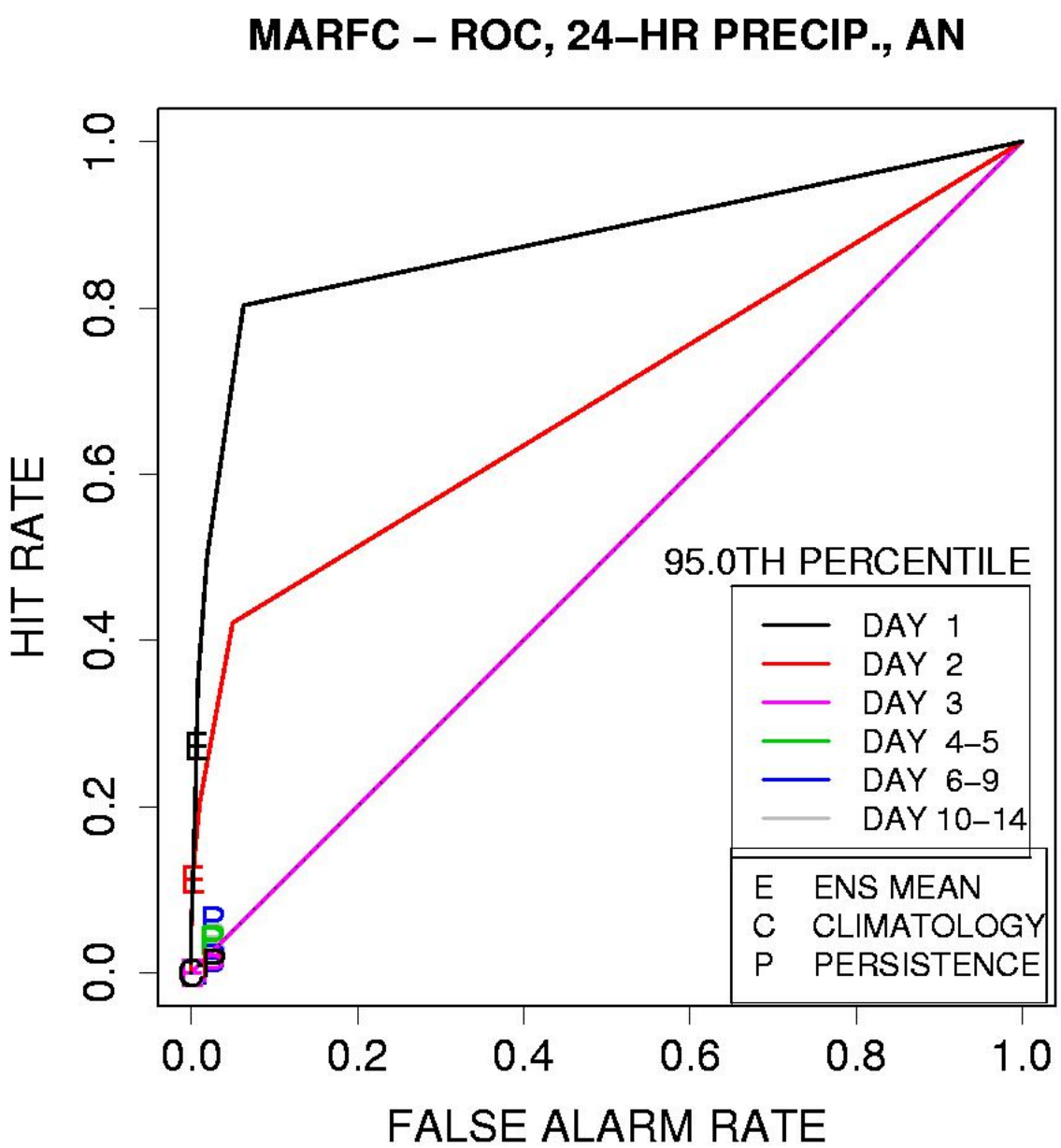
Old


MARFC – ROC, 24–HR PRECIP., AN
HIT RATE
FALSE ALARM RATE
0.0
0.2
0.4
0.6
0.8
1.0
90.0TH PERCENTILE
DAY 1
DAY 2
DAY 3
DAY 4–5
DAY 6–9
DAY 10–14
E ENS MEAN
C CLIMATOLOGY
P PERSISTENCE

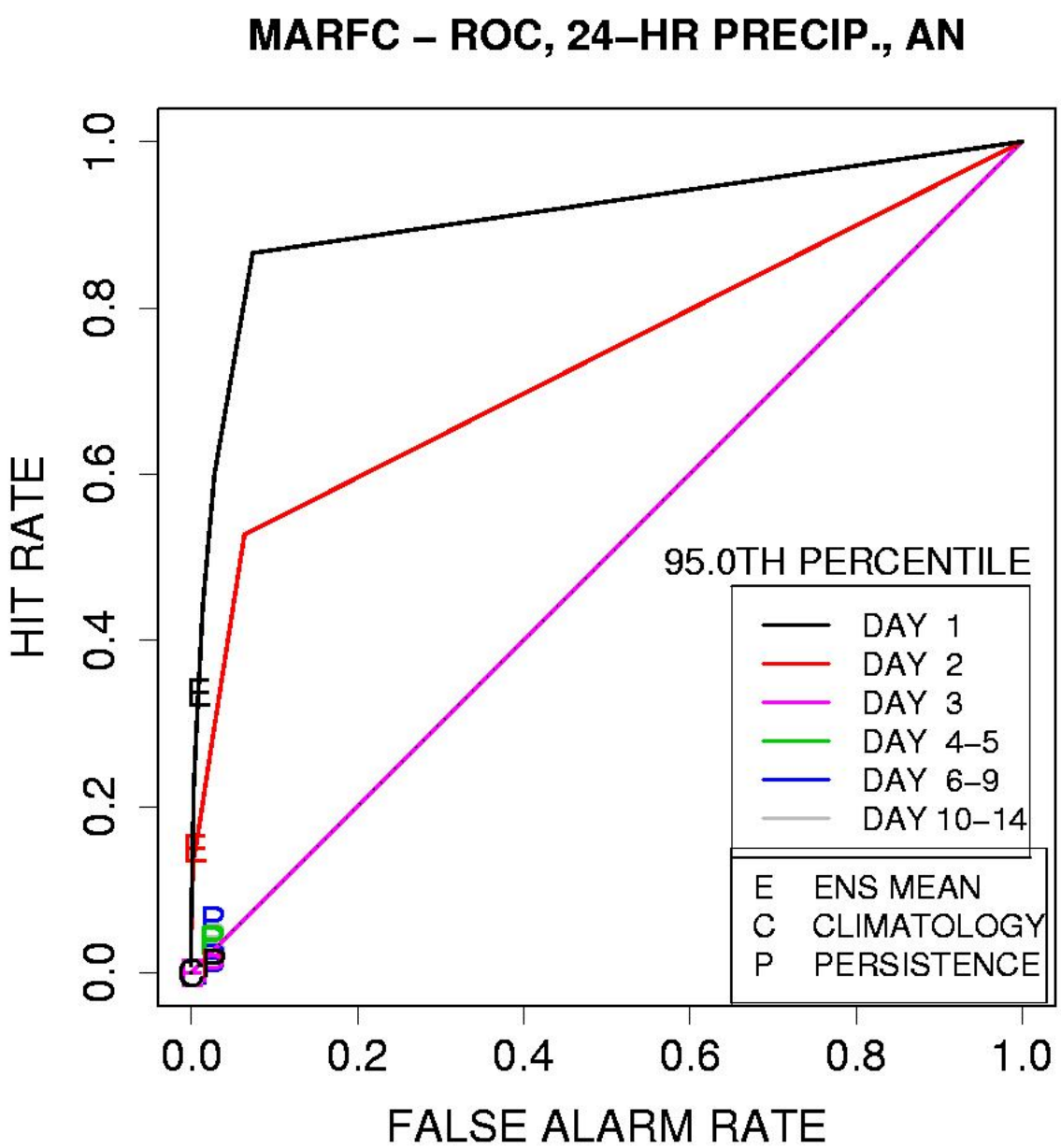
New


MARFC – ROC, 24–HR PRECIP., AN
HIT RATE
FALSE ALARM RATE
0.0
0.2
0.4
0.6
0.8
1.0
90.0TH PERCENTILE
DAY 1
DAY 2
DAY 3
DAY 4–5
DAY 6–9
DAY 10–14
E ENS MEAN
C CLIMATOLOGY
P PERSISTENCE

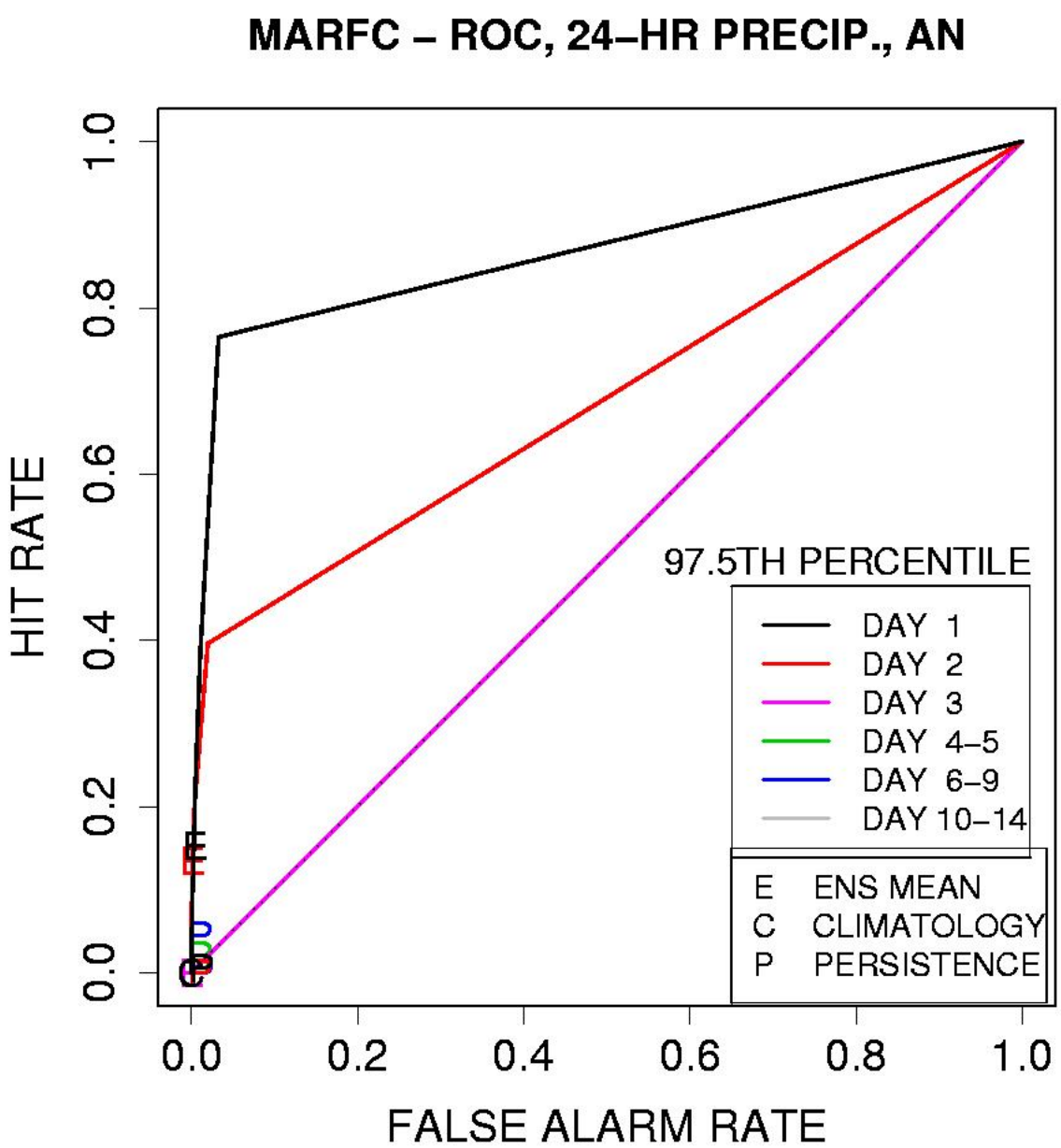
Old


MARFC – ROC, 24–HR PRECIP., AN
HIT RATE
FALSE ALARM RATE
0.0
0.2
0.4
0.6
0.8
1.0
95.0TH PERCENTILE
DAY 1
DAY 2
DAY 3
DAY 4–5
DAY 6–9
DAY 10–14
E ENS MEAN
C CLIMATOLOGY
P PERSISTENCE

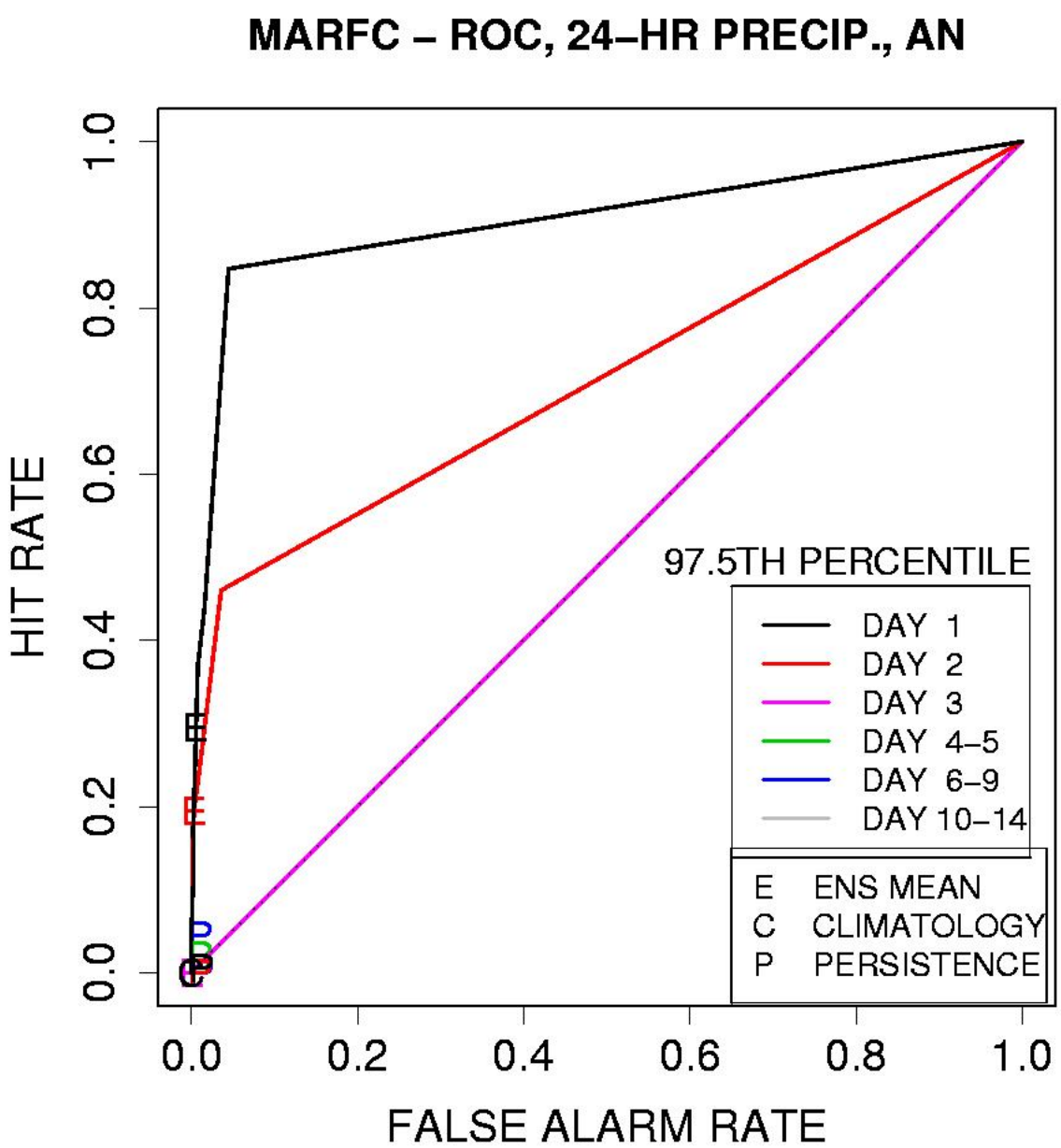
New


MARFC – ROC, 24–HR PRECIP., AN
HIT RATE
FALSE ALARM RATE
0.0
0.2
0.4
0.6
0.8
1.0
95.0TH PERCENTILE
DAY 1
DAY 2
DAY 3
DAY 4–5
DAY 6–9
DAY 10–14
E ENS MEAN
C CLIMATOLOGY
P PERSISTENCE

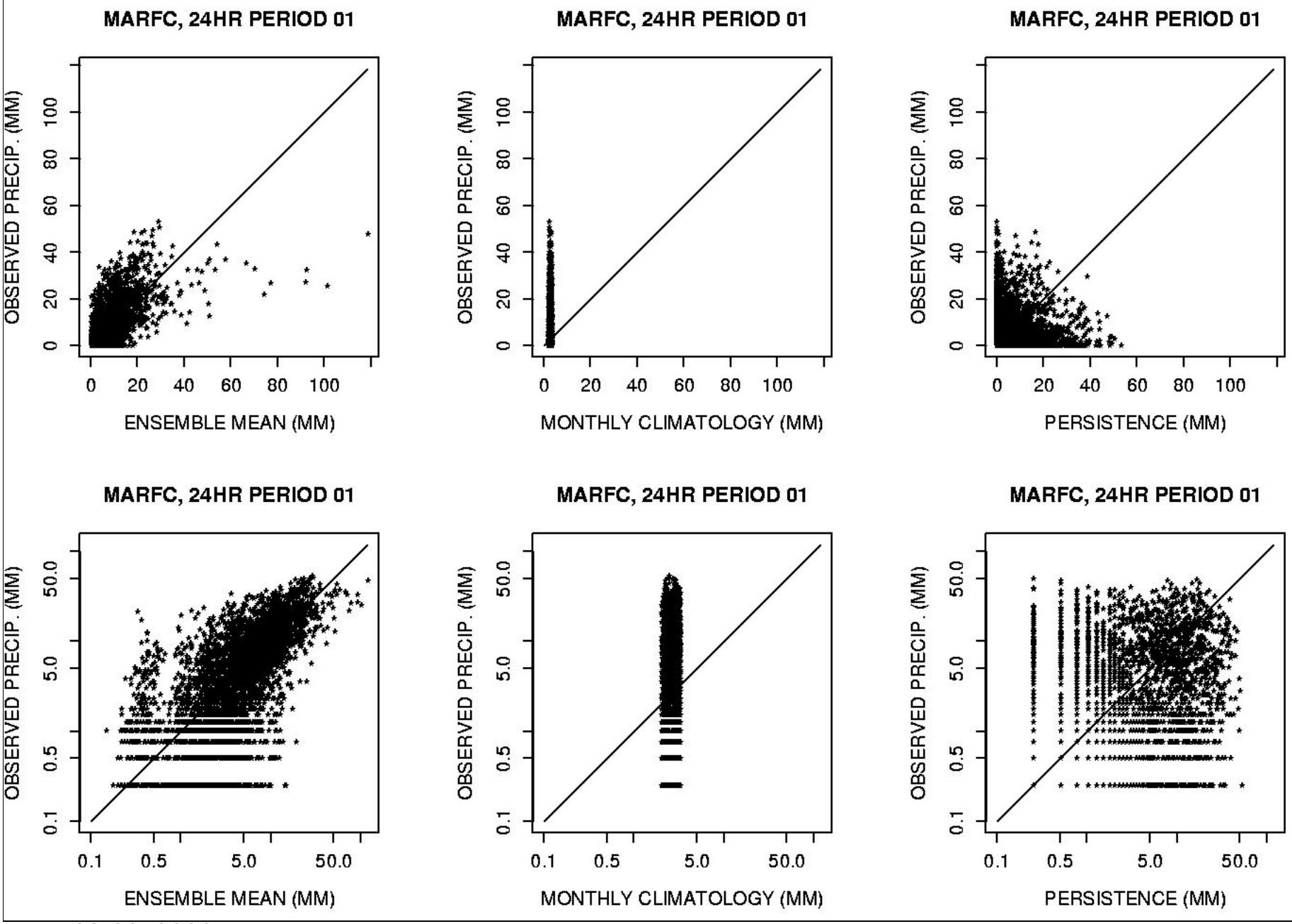
Old


MARFC – ROC, 24–HR PRECIP., AN
HIT RATE
FALSE ALARM RATE
0.0
0.2
0.4
0.6
0.8
1.0
97.5TH PERCENTILE
DAY 1
DAY 2
DAY 3
DAY 4–5
DAY 6–9
DAY 10–14
E ENS MEAN
C CLIMATOLOGY
P PERSISTENCE

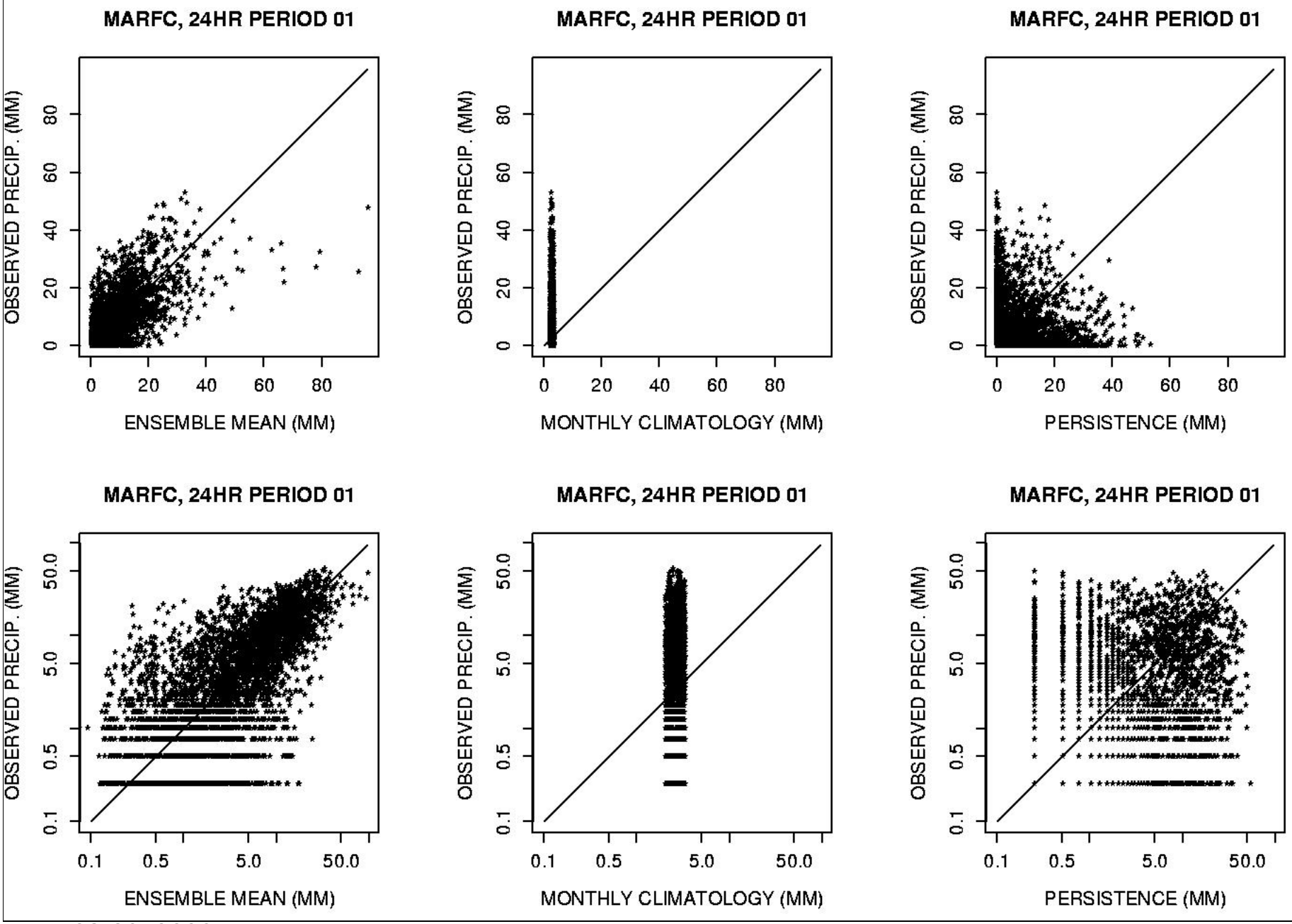
New


MARFC – ROC, 24–HR PRECIP., AN
HIT RATE
FALSE ALARM RATE
0.0
0.2
0.4
0.6
0.8
1.0
97.5TH PERCENTILE
DAY 1
DAY 2
DAY 3
DAY 4–5
DAY 6–9
DAY 10–14
E ENS MEAN
C CLIMATOLOGY
P PERSISTENCE

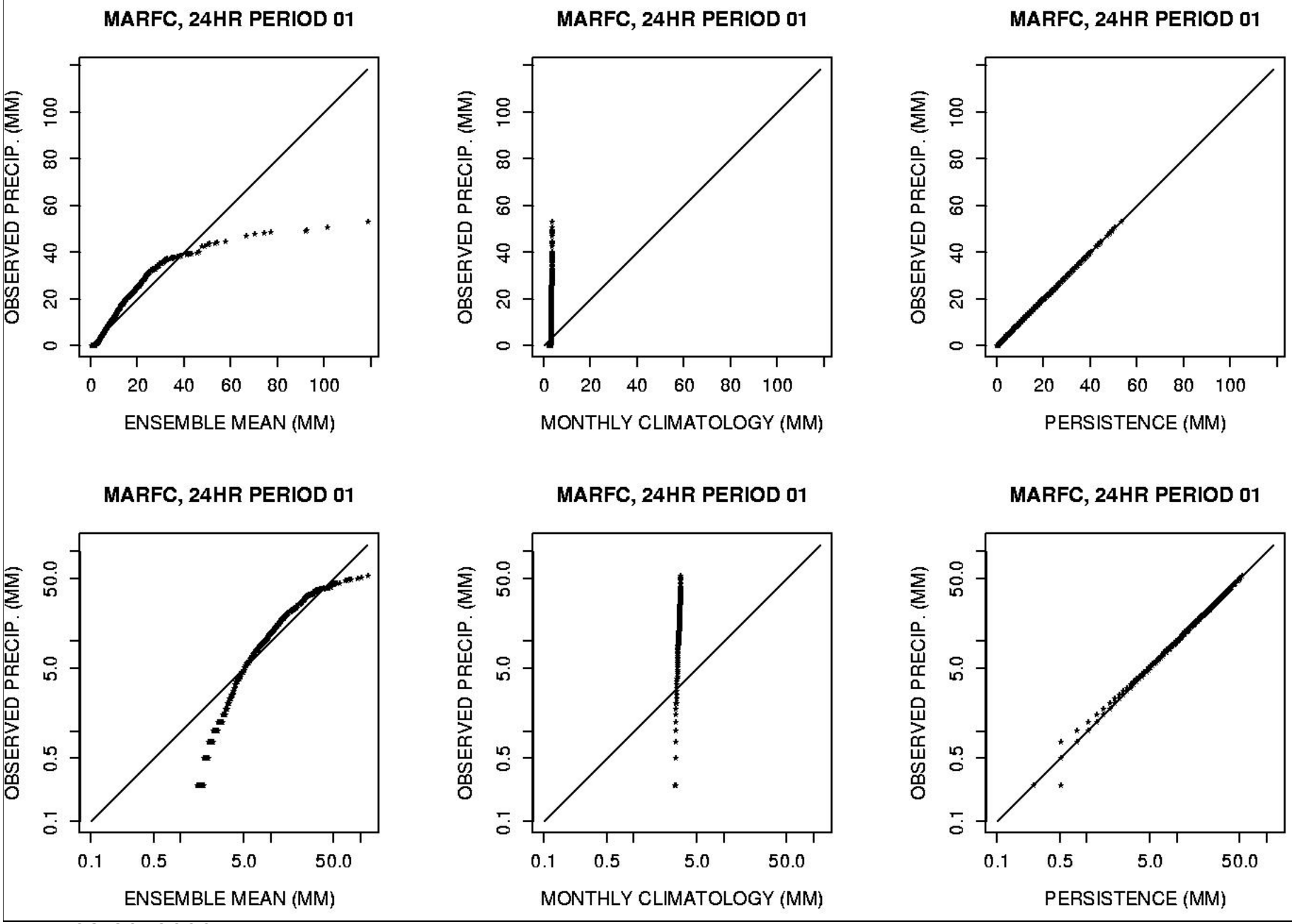
Old


MARFC, 24HR PERIOD 01
OBSERVED PRECIP. (MM)
ENSEMBLE MEAN (MM)
MONTHLY CLIMATOLOGY (MM)
PERSISTENCE (MM)
0
20
40
60
80
100
0.1
0.5
5.0
50.0

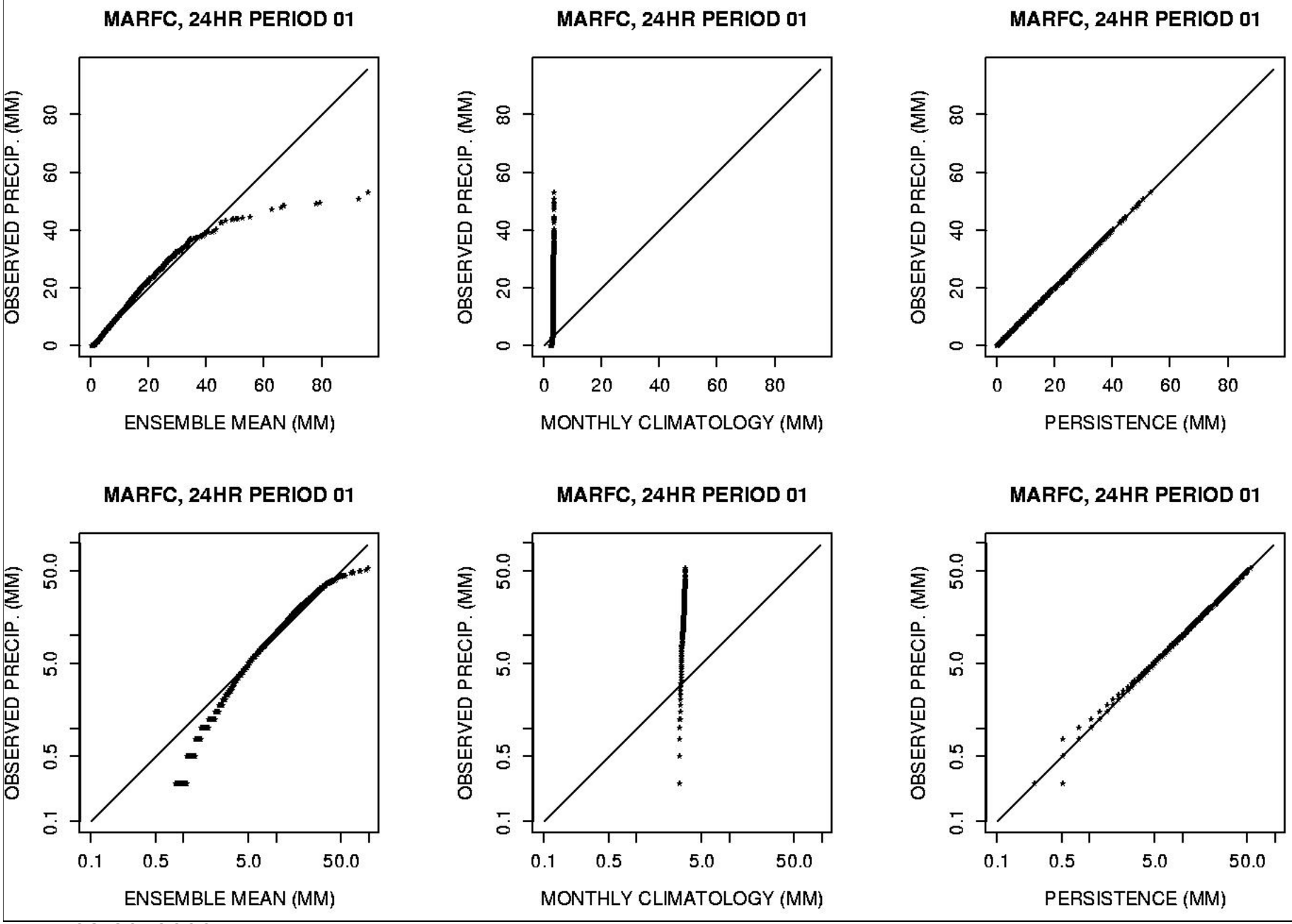
New


MARFC, 24HR PERIOD 01
OBSERVED PRECIP. (MM)
ENSEMBLE MEAN (MM)
MONTHLY CLIMATOLOGY (MM)
PERSISTENCE (MM)
0
20
40
60
80
0.1
0.5
5.0
50.0

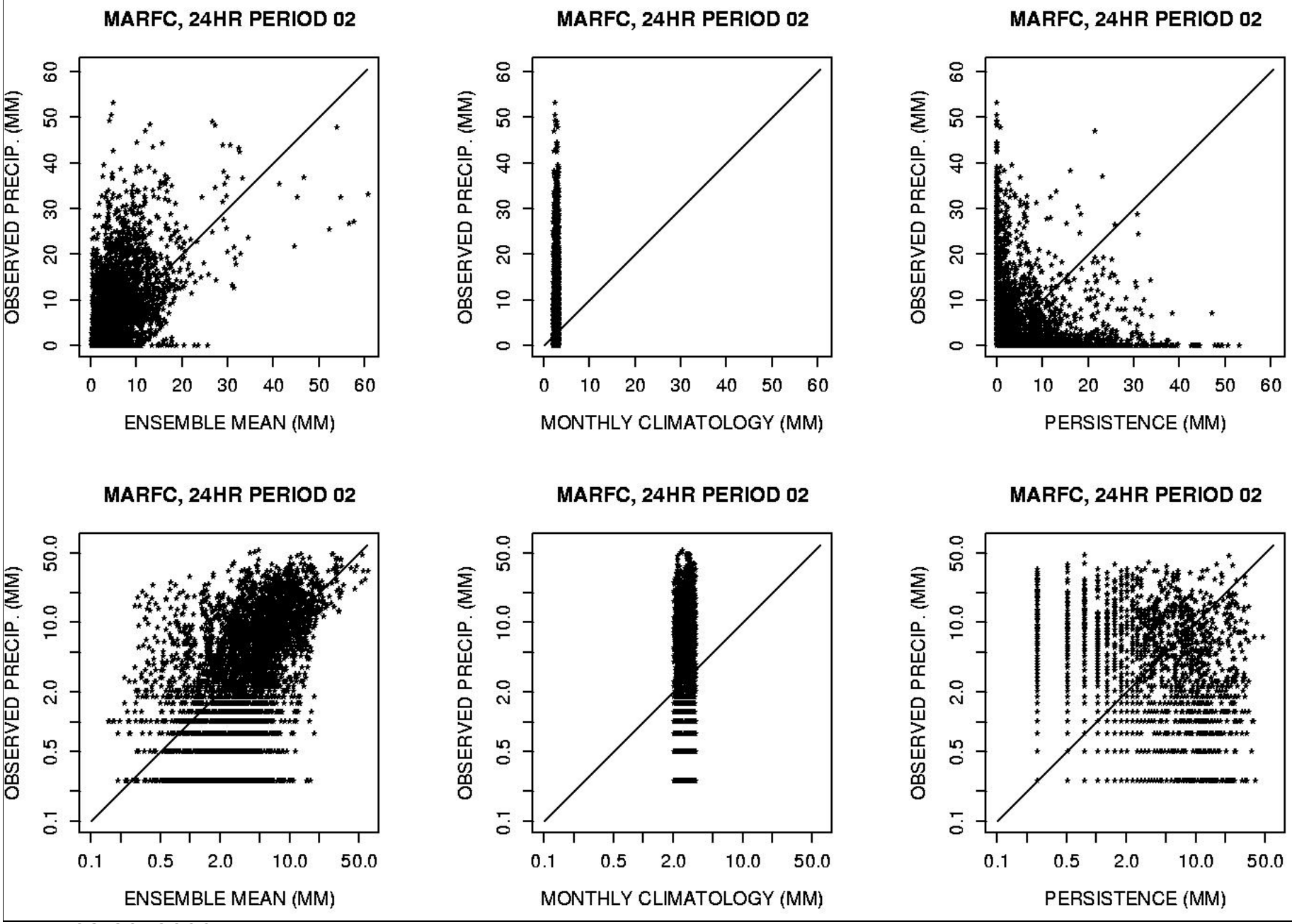
Old


MARFC, 24HR PERIOD 01
OBSERVED PRECIP. (MM)
ENSEMBLE MEAN (MM)
MONTHLY CLIMATOLOGY (MM)
PERSISTENCE (MM)
0
20
40
60
80
100
0.1
0.5
5.0
50.0

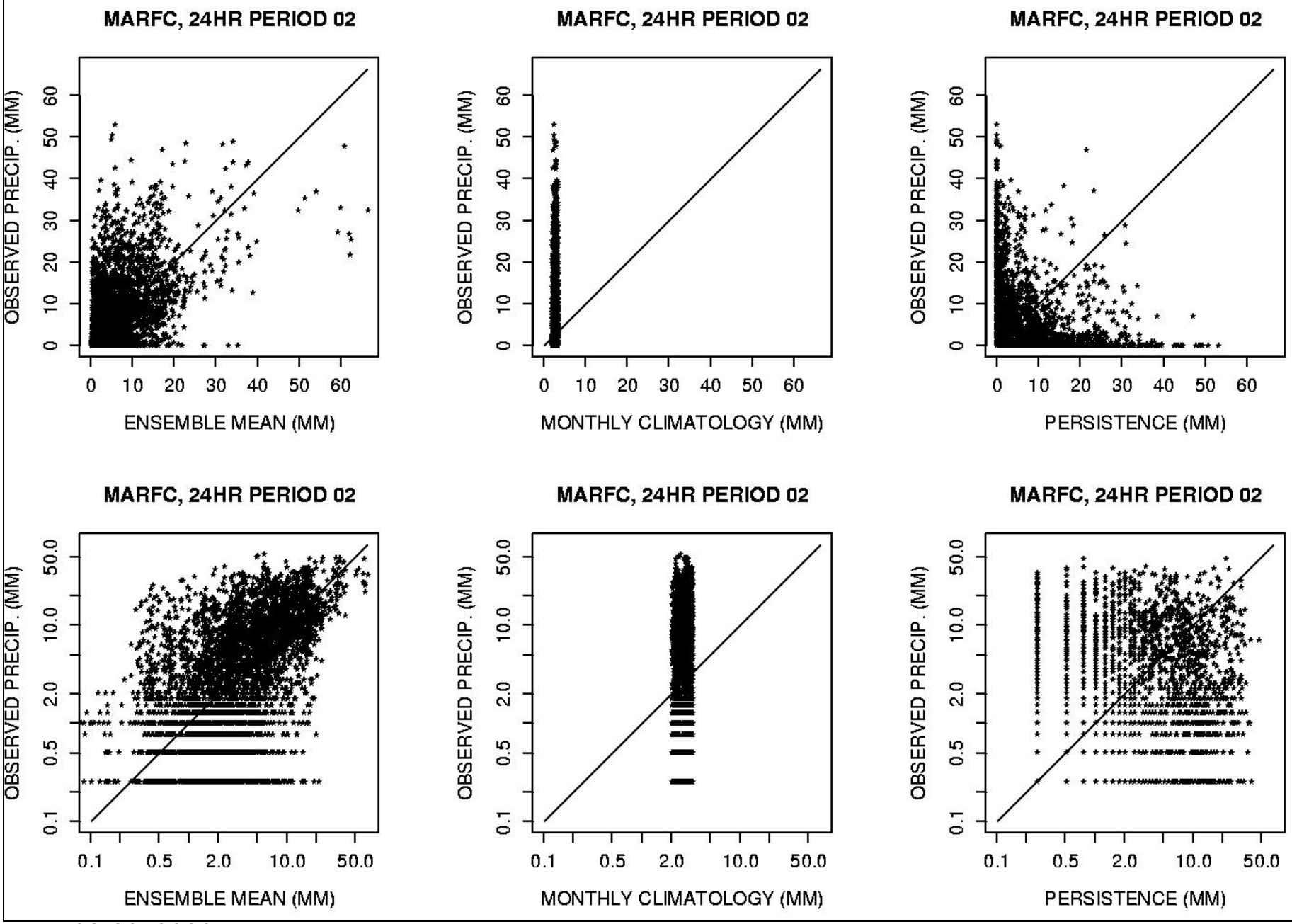
New


MARFC, 24HR PERIOD 01
OBSERVED PRECIP. (MM)
ENSEMBLE MEAN (MM)
MONTHLY CLIMATOLOGY (MM)
PERSISTENCE (MM)
0
20
40
60
80
0.1
0.5
5.0
50.0

Old


MARFC, 24HR PERIOD 02
OBSERVED PRECIP. (MM)
ENSEMBLE MEAN (MM)
MONTHLY CLIMATOLOGY (MM)
PERSISTENCE (MM)
0
10
20
30
40
50
60
0.1
0.5
2.0
10.0
50.0

New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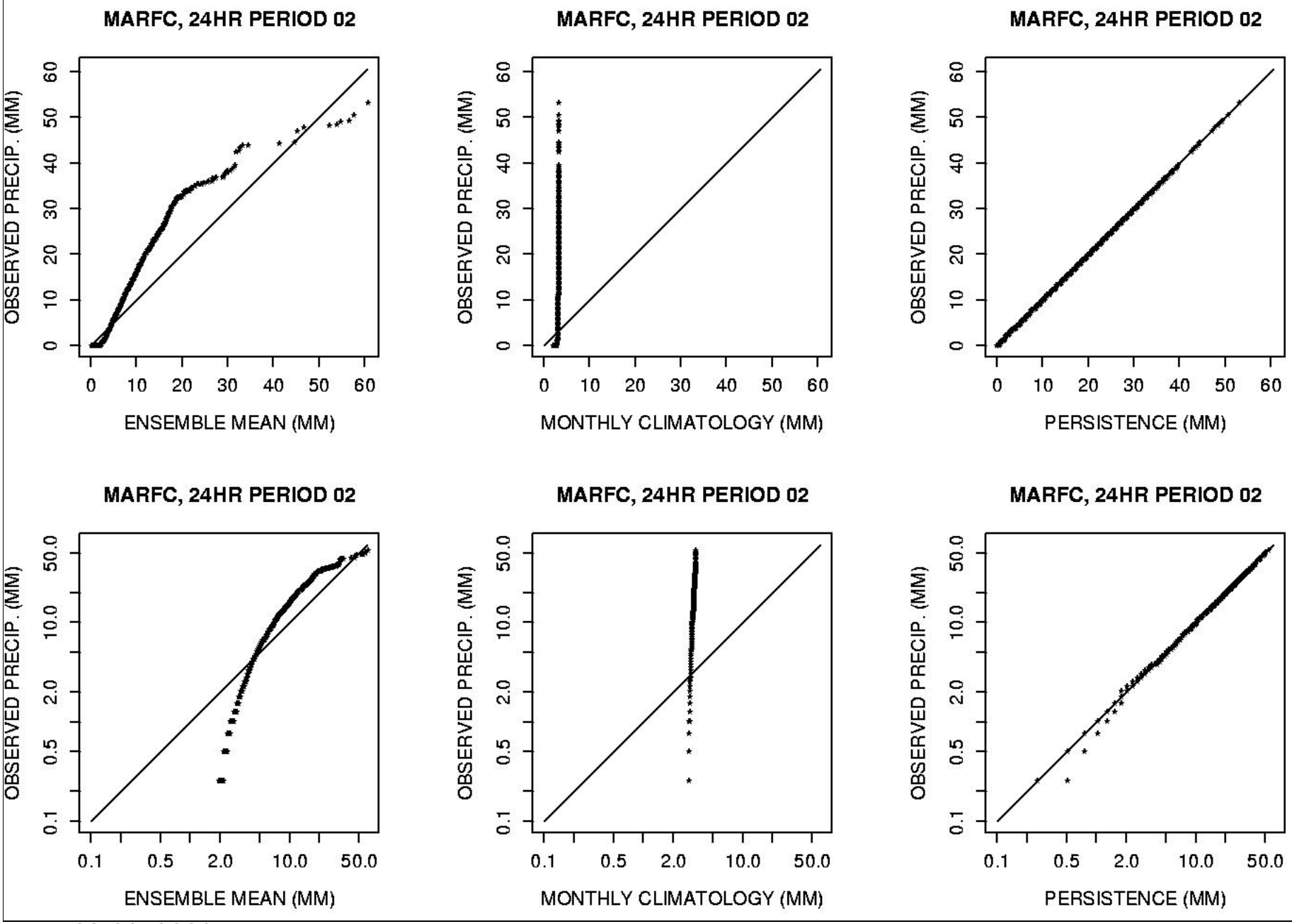
OBSERVED PRECIP. (MM)
ENSEMBLE MEAN (MM)
MONTHLY CLIMATOLOGY (MM)
PERSISTENCE (MM)
0 10 20 30 40 50 60
0.1 0.5 2.0 10.0 50.0

Old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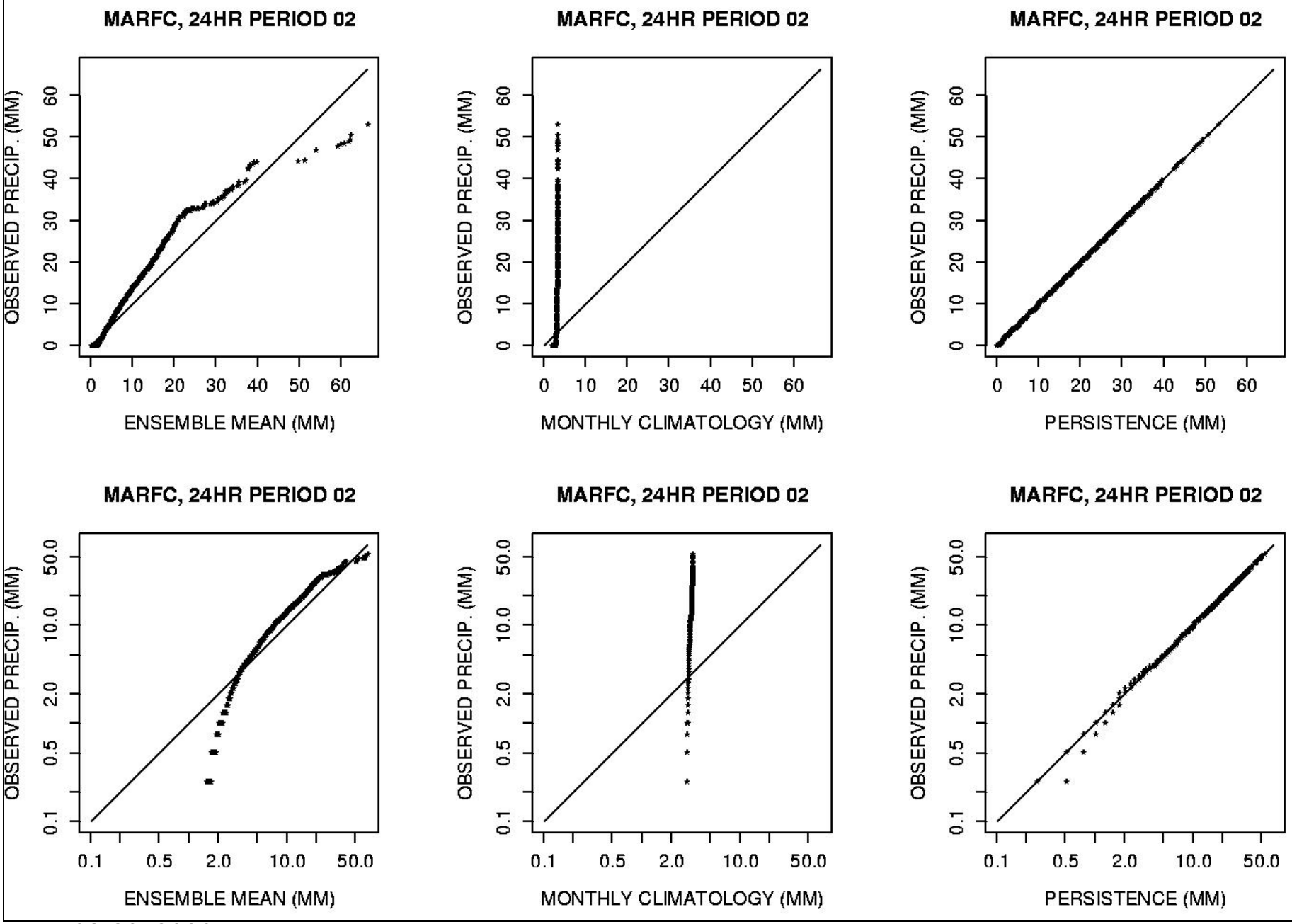
OBSERVED PRECIP. (MM)
ENSEMBLE MEAN (MM)
MARFC, 24HR PERIOD 02
OBSERVED PRECIP. (MM)
MONTHLY CLIMATOLOGY (MM)
MARFC, 24HR PERIOD 02
OBSERVED PRECIP. (MM)
PERSISTENCE (MM)
MARFC, 24HR PERIOD 02
OBSERVED PRECIP. (MM)
ENSEMBLE MEAN (MM)
MARFC, 24HR PERIOD 02
OBSERVED PRECIP. (MM)
MONTHLY CLIMATOLOGY (MM)
MARFC, 24HR PERIOD 02
OBSERVED PRECIP. (MM)
PERSISTENCE (MM)

New


MARFC, 24HR PERIOD 02
OBSERVED PRECIP. (MM)
ENSEMBLE MEAN (MM)
MONTHLY CLIMATOLOGY (MM)
PERSISTENCE (MM)
0 10 20 30 40 50 60
0.1 0.5 2.0 10.0 50.0

End of slides