

HEFS workshop, 03/12/2015

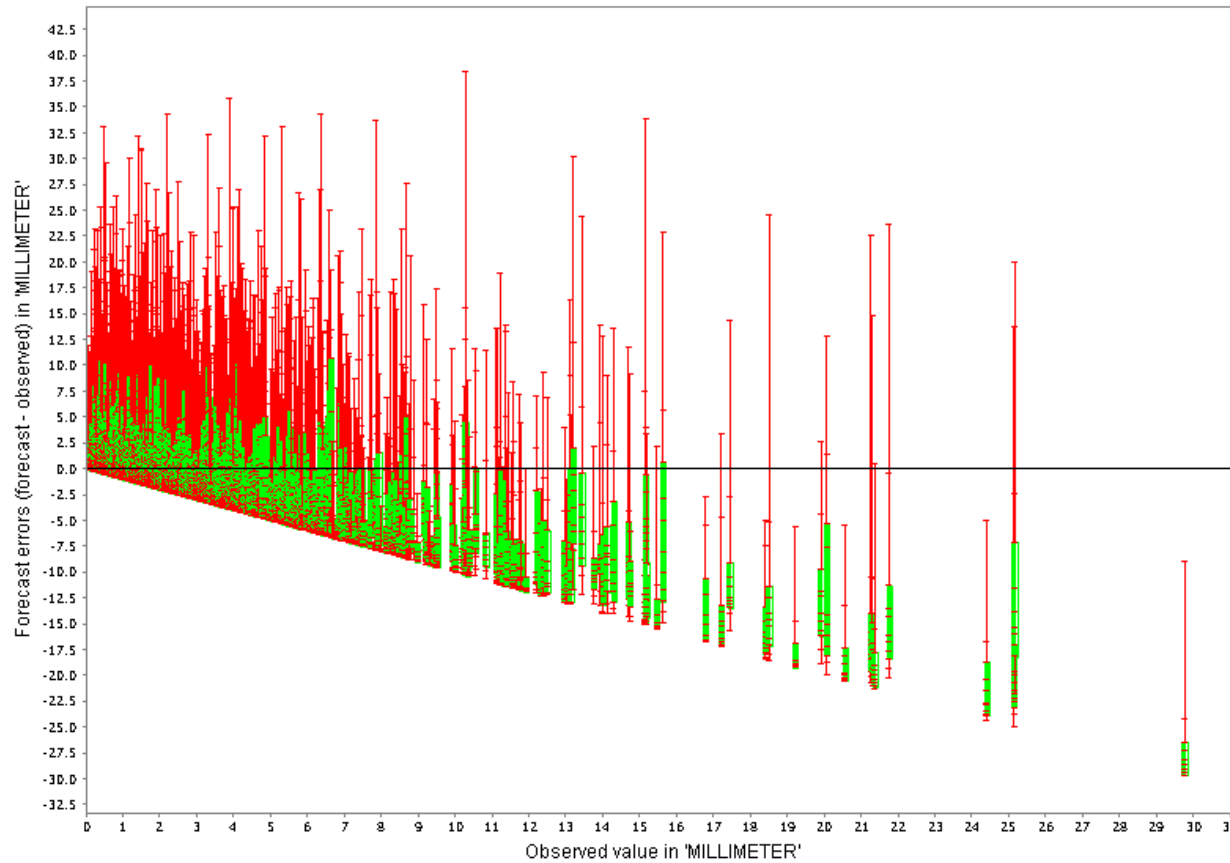
Seminar D: review results from Exercise 3

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Exercise 3: Q1 (BLK02)

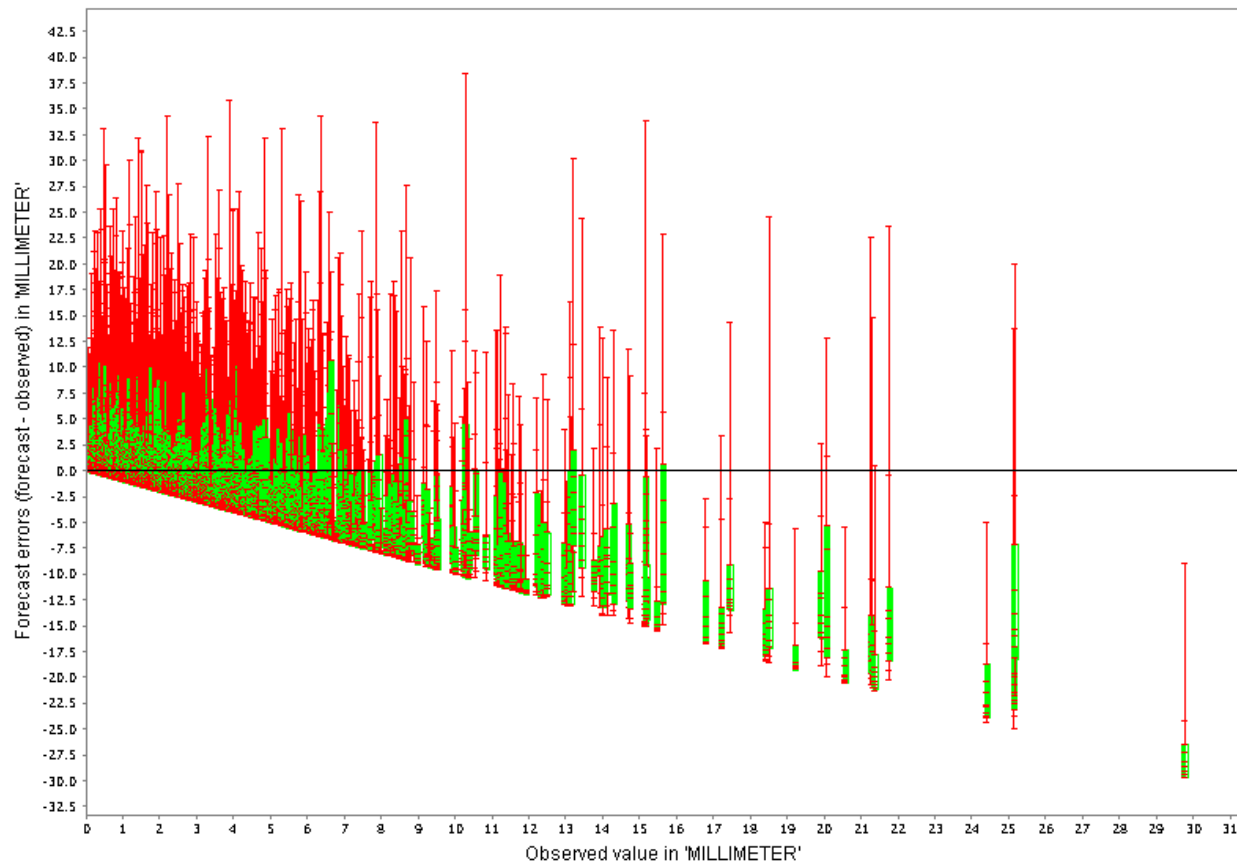
Modified box plot of ensemble forecast errors against observed value.
BLK02.Precipitation.GEFS at lead hour 24.0



Q1: Do the forecasts show any systematic biases?

Exercise 3: Q1 (BLK02) answer

Modified box plot of ensemble forecast errors against observed value.
BLK02.Precipitation.GEFS at lead hour 24.0

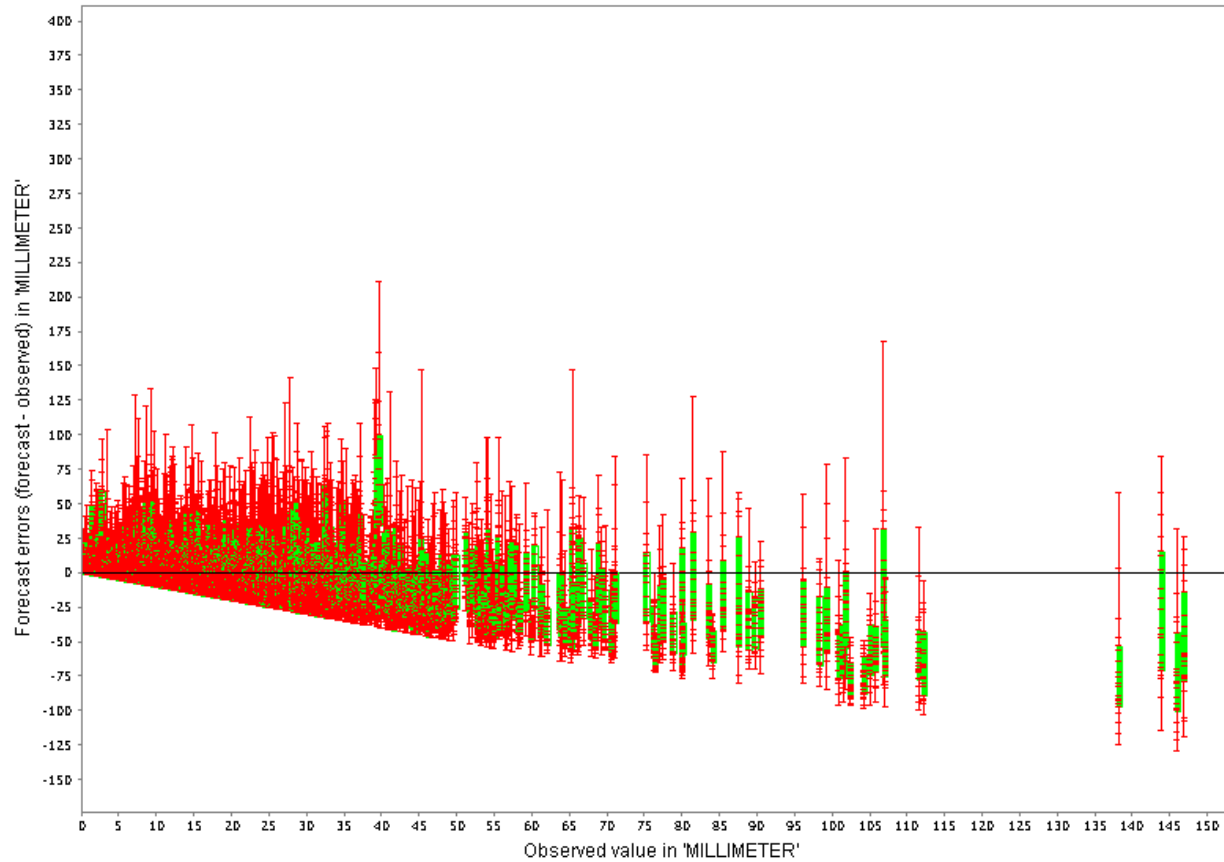


Q1: Do the forecasts show any systematic biases?

A1: Yes, they underestimate the highest observed precipitation amounts

Exercise 3: Q2 (FTSC1)

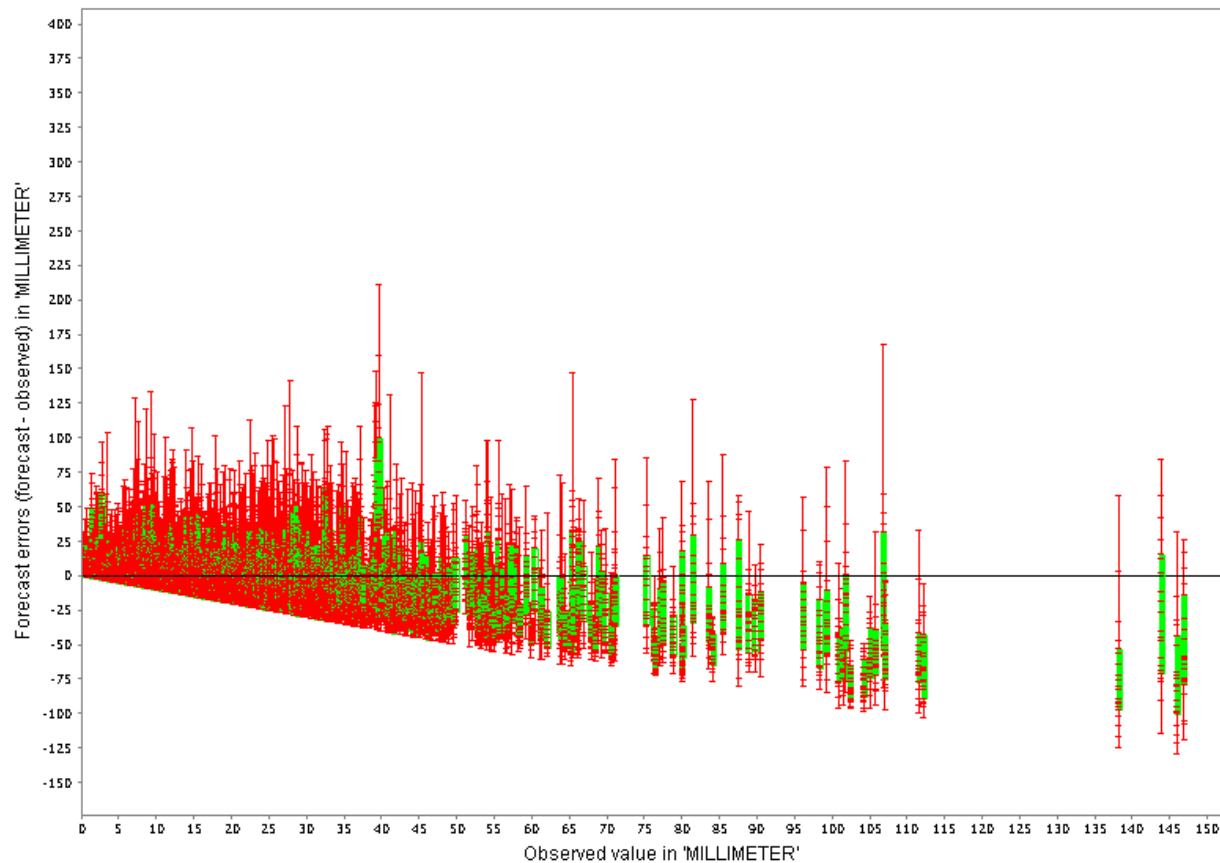
Modified box plot of ensemble forecast errors against observed value.
FTSC1.Precipitation.GEFS at lead hour 24.0



Q2: What differences are noticeable when compared to BLKO2?

Exercise 3: Q2 (FTSC1) answer

Modified box plot of ensemble forecast errors against observed value.
FTSC1.Precipitation.GEFS at lead hour 24.0

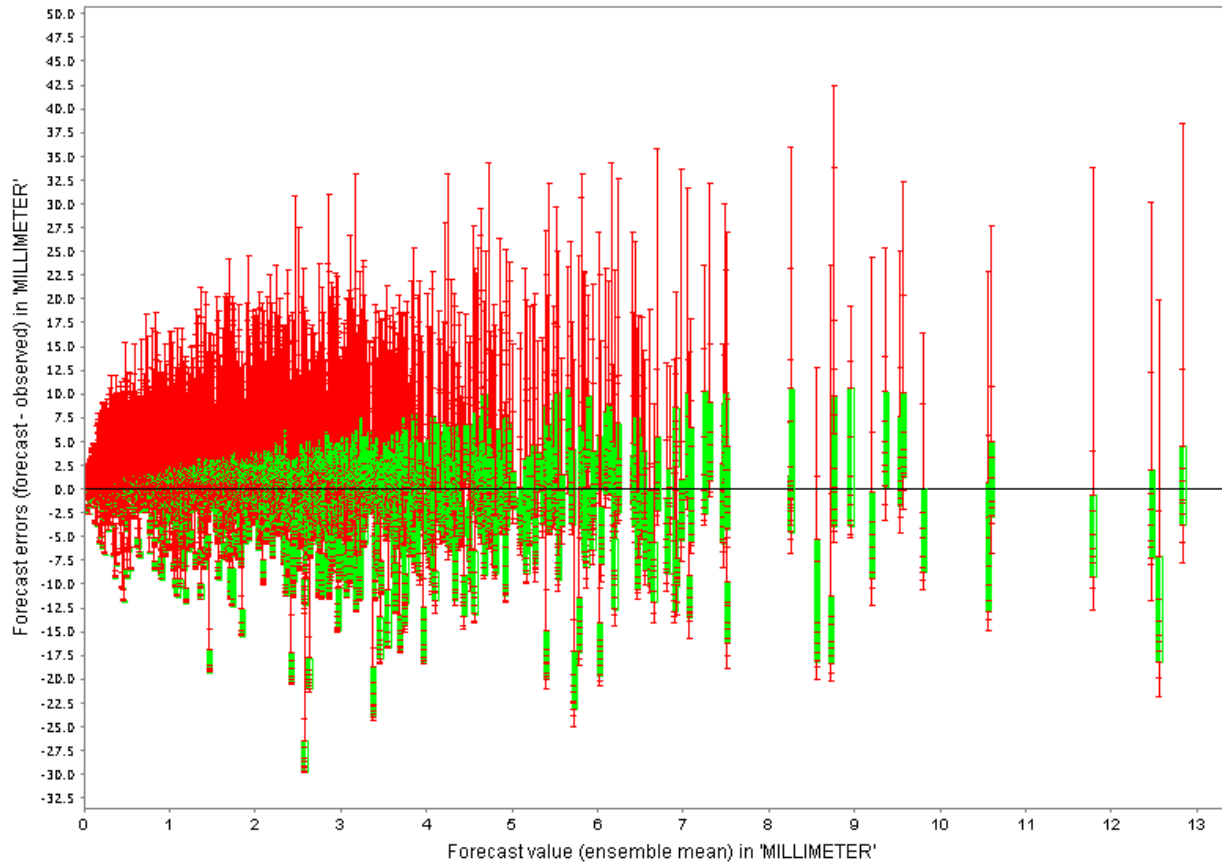


Q2: What differences are noticeable when compared to BLKO2?

A2: Biases at high precipitation are lower. Good predictability in FTSC1.

Exercise 3: Q3 (BLK02)

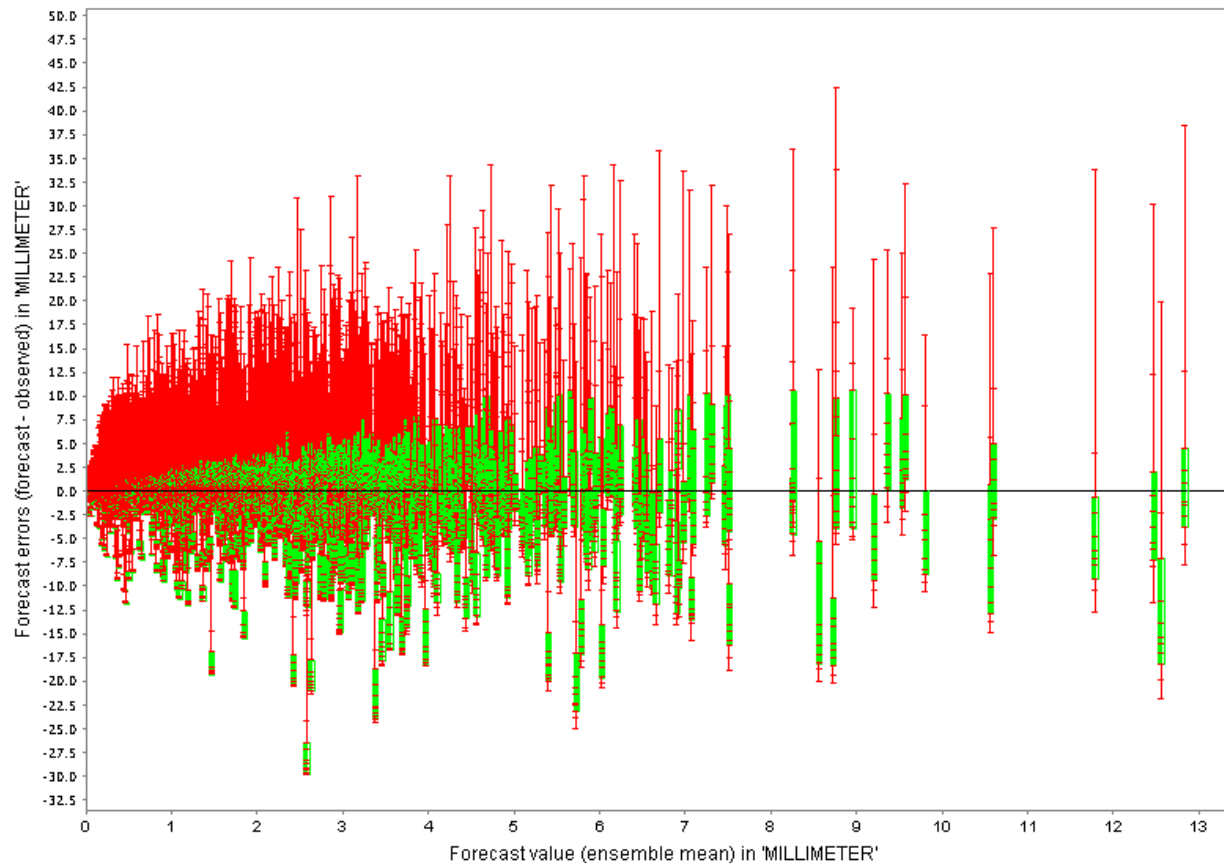
Modified box plot of ensemble forecast errors against forecast value (ensemble mean).
BLK02.Precipitation.GEFS at lead hour 24.0



Q3: What differences are noticeable when arranged by forecast value?

Exercise 3: Q3 (BLK02) answer

Modified box plot of ensemble forecast errors against forecast value (ensemble mean).
BLK02.Precipitation.GEFS at lead hour 24.0

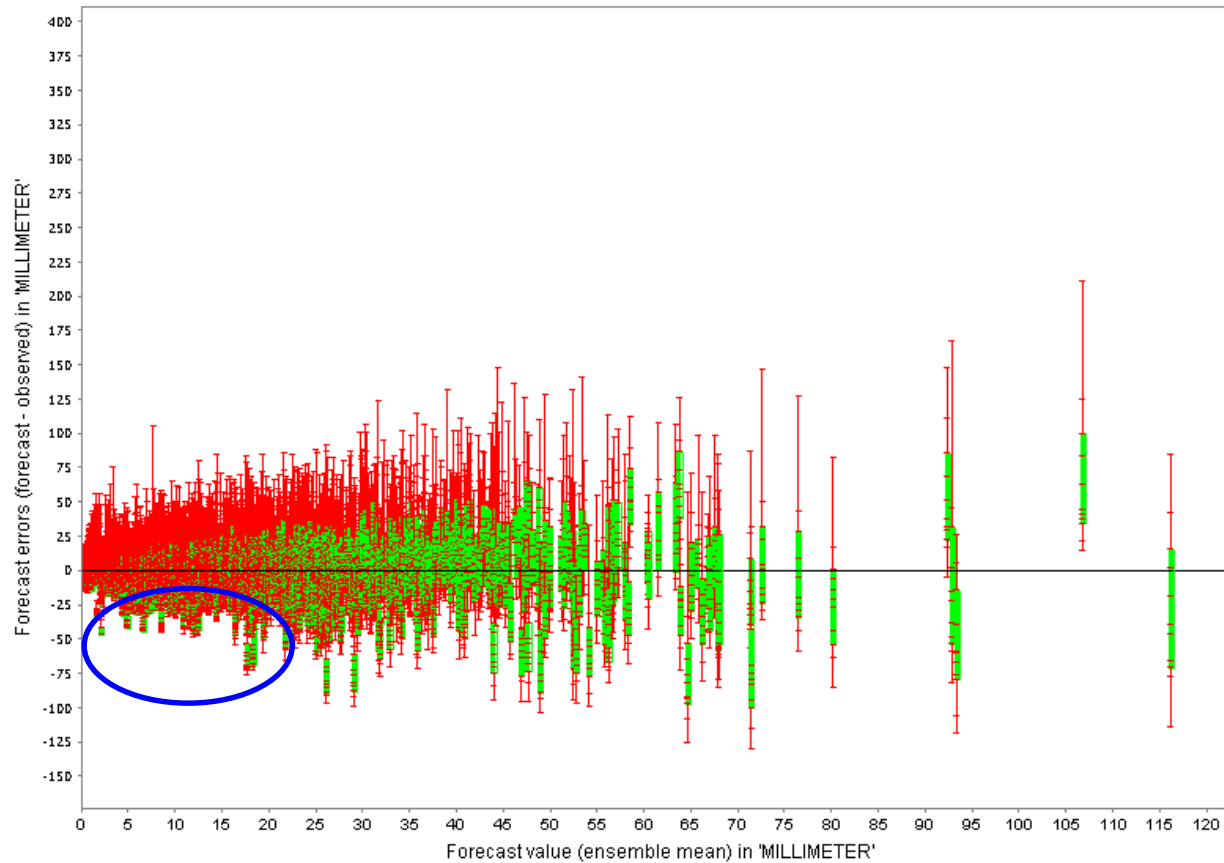


Q3: What differences are noticeable when arranged by forecast value?

A3: No systematic biases for high forecast amounts (but these are lower).

Exercise 3: Q4 (FTSC1)

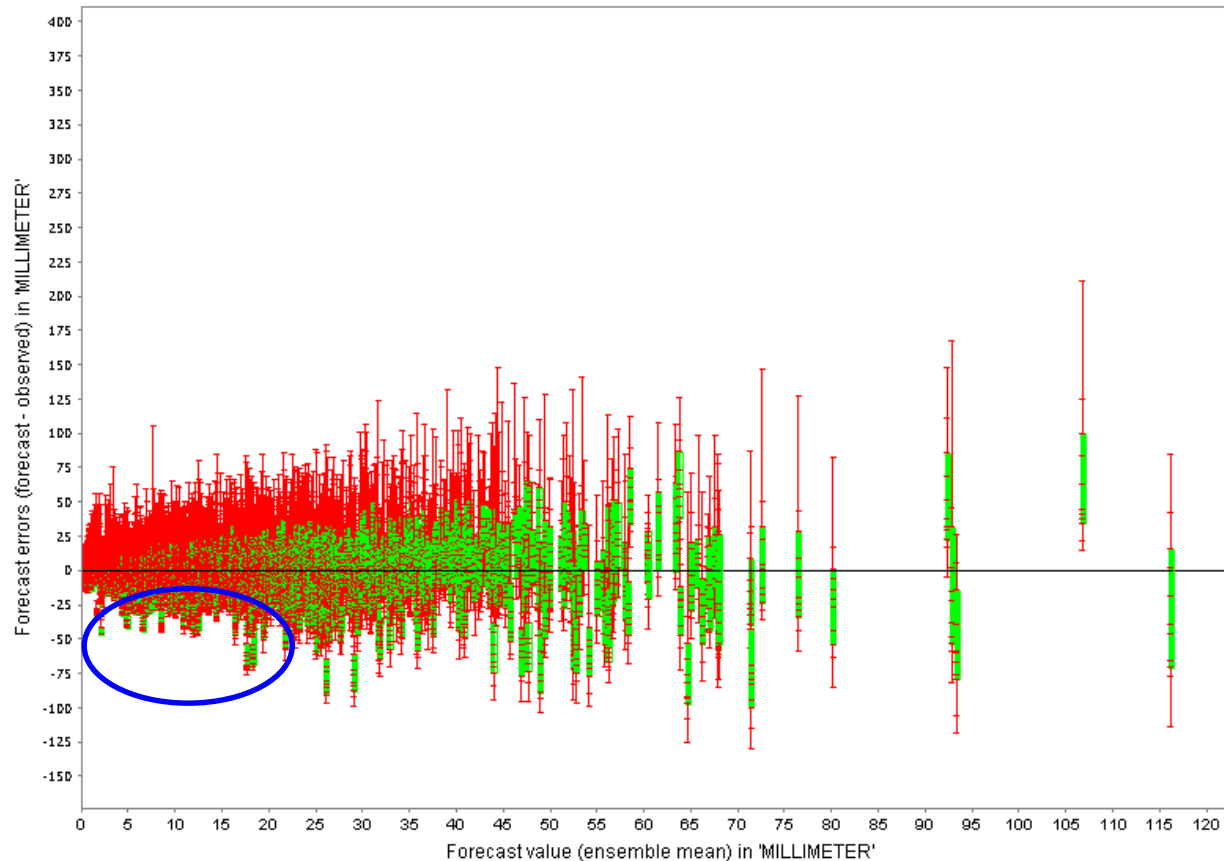
Modified box plot of ensemble forecast errors against forecast value (ensemble mean).
FTSC1.Precipitation.GEFS at lead hour 24.0



Q4: What explains the “blown” forecasts at light/moderate amounts?

Exercise 3: Q4 (FTSC1) answer

Modified box plot of ensemble forecast errors against forecast value (ensemble mean).
FTSC1.Precipitation.GEFS at lead hour 24.0

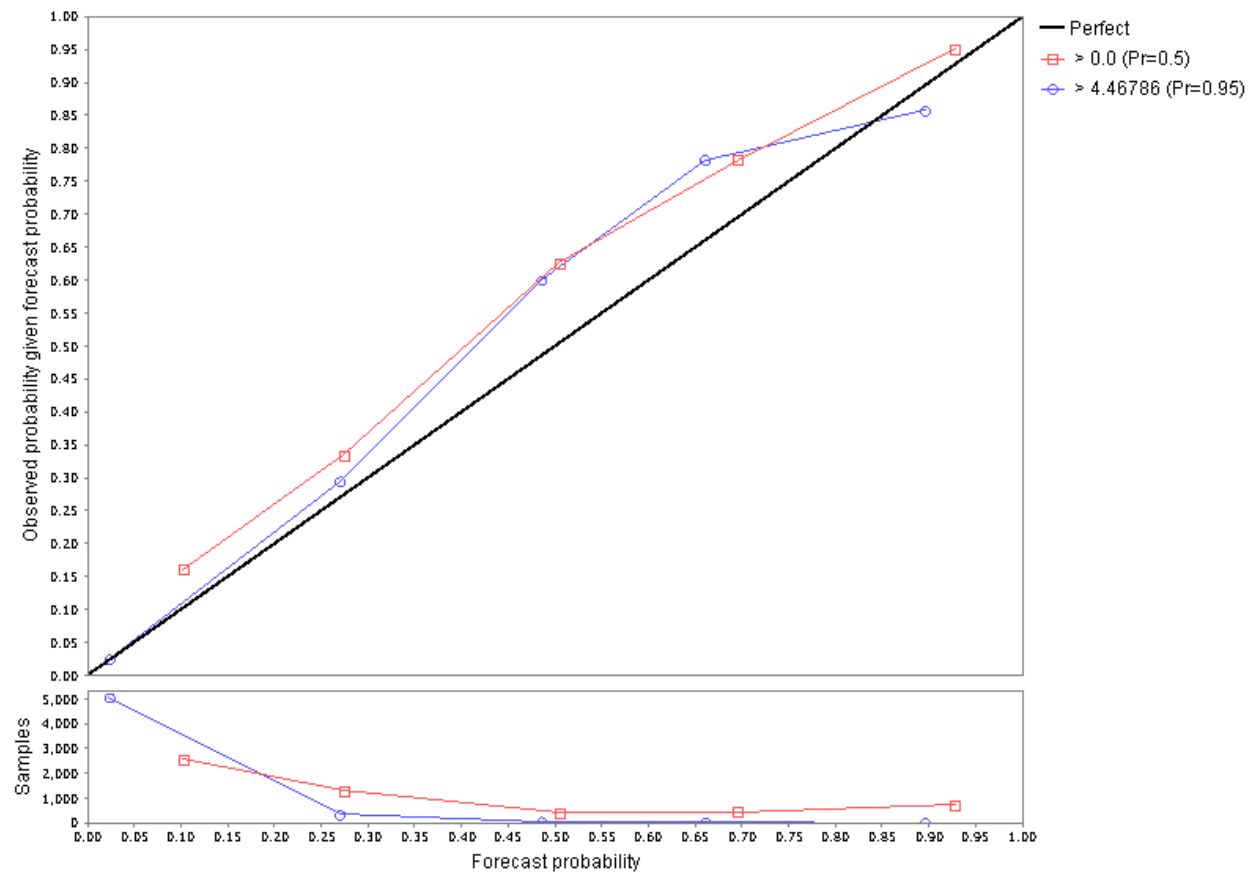


Q4: What explains the “blown” forecasts at small/moderate amounts?

A4: Large observed events that were forecast as light/moderate.

Exercise 3: Q5 (BLK02)

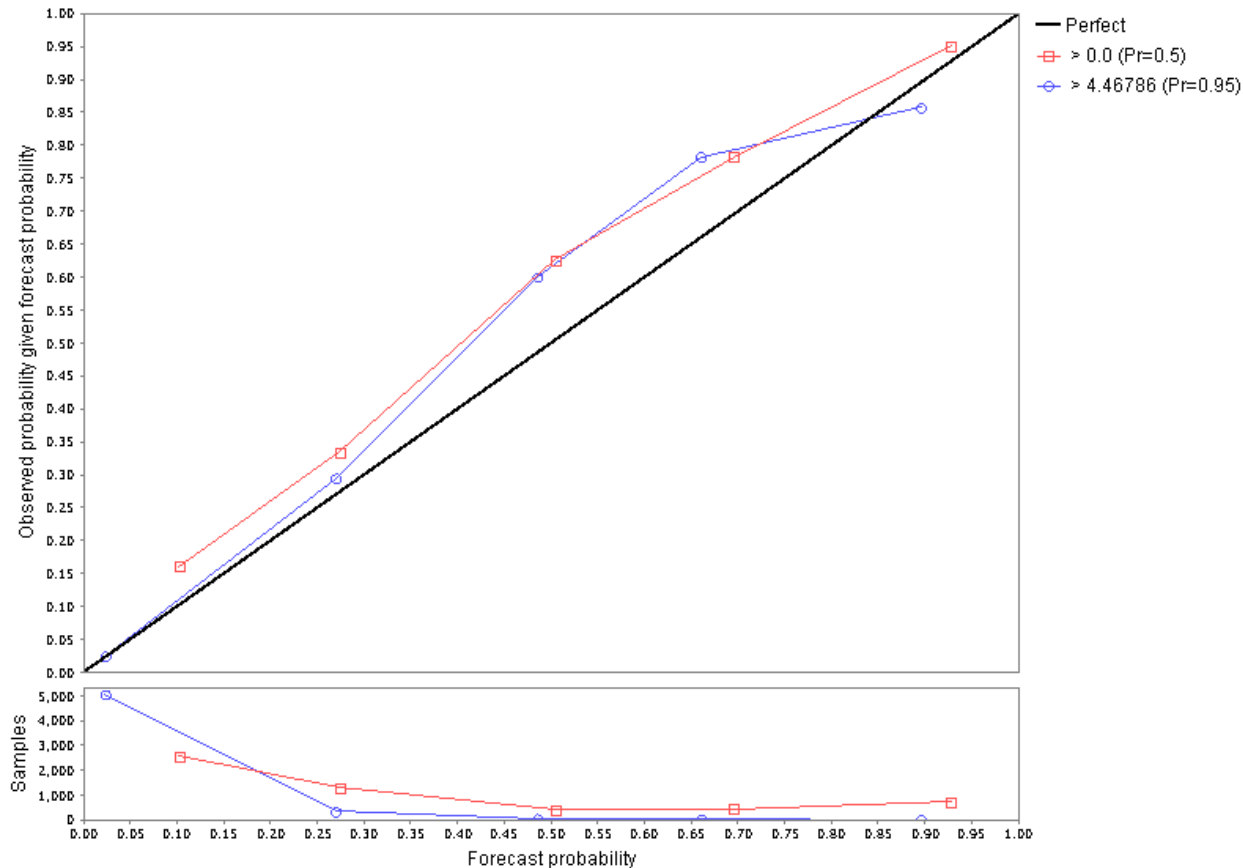
Reliability diagram for various event thresholds (upper) and sample counts (lower).
BLK02.Precipitation.GEFS at lead hour 24.0



Q5: What two events are considered in the reliability diagram?

Exercise 3: Q5 (BLK02) answer

Reliability diagram for various event thresholds (upper) and sample counts (lower).
BLK02.Precipitation.GEFS at lead hour 24.0

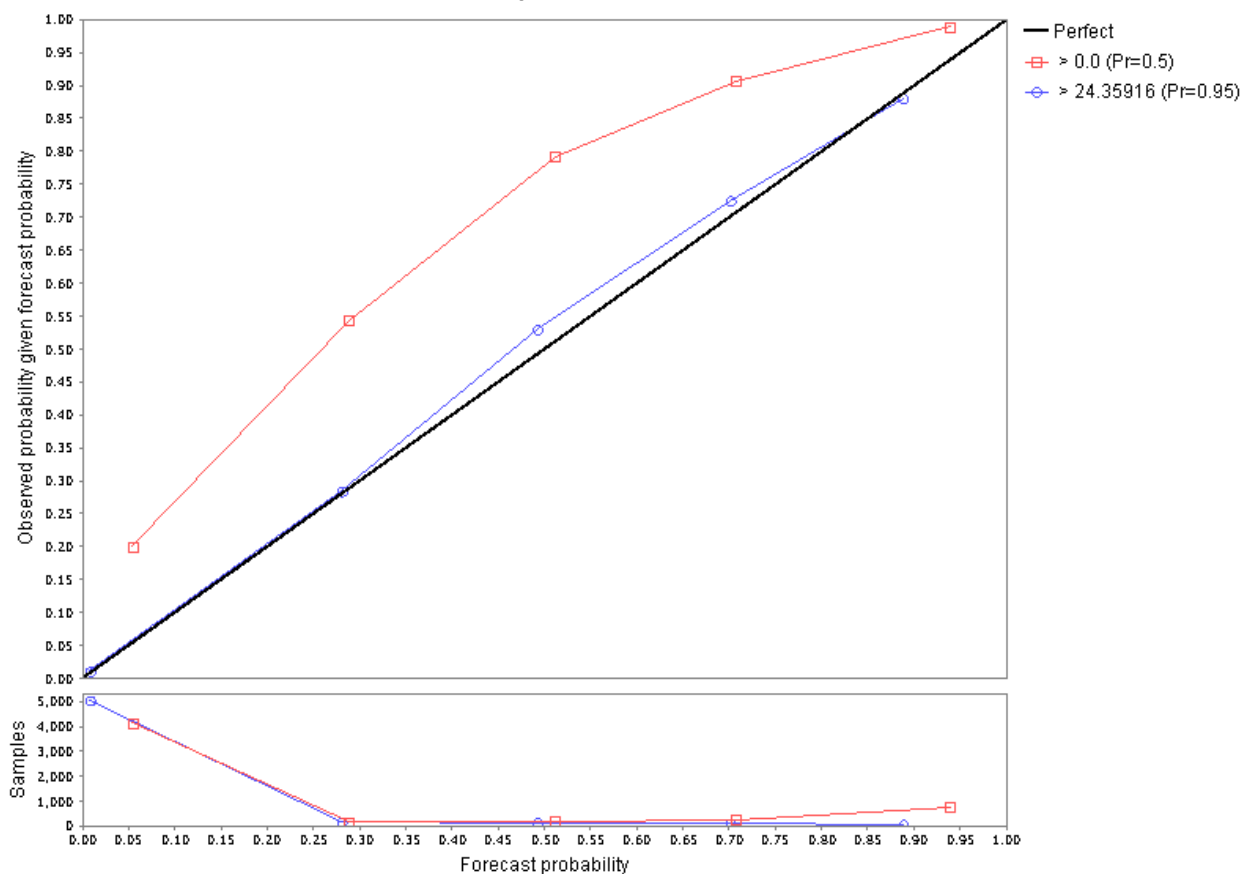


Q5: What two events are considered in the reliability diagram?

A5: Probability of Precipitation (0mm, 50%) and 5% precipitation amount

Exercise 3: Q6 (FTSC1)

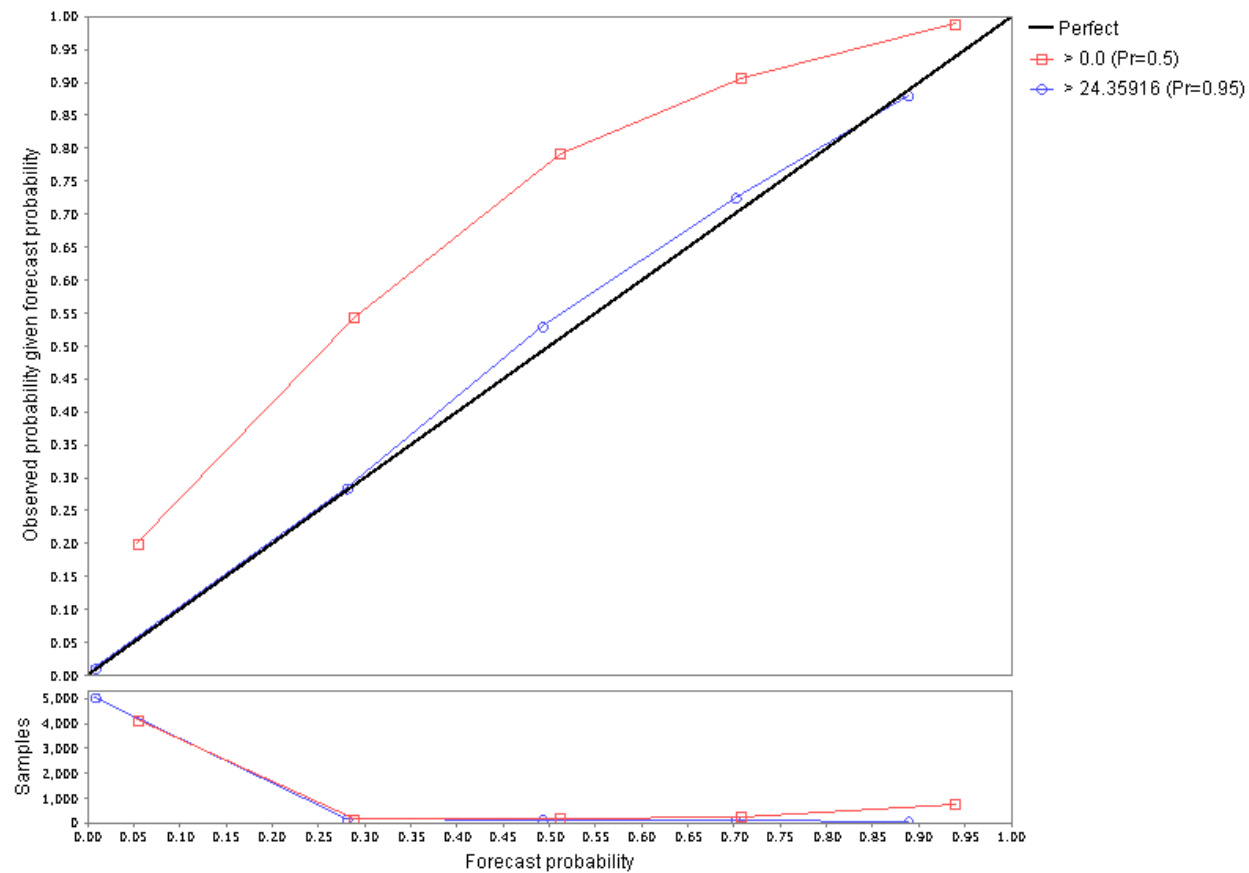
Reliability diagram for various event thresholds (upper) and sample counts (lower).
FTSC1.Precipitation.GEFS at lead hour 24.0



Q6: Are the forecasts broadly reliable or unreliable?

Exercise 3: Q6 (FTSC1) answer

Reliability diagram for various event thresholds (upper) and sample counts (lower).
FTSC1.Precipitation.GEFS at lead hour 24.0



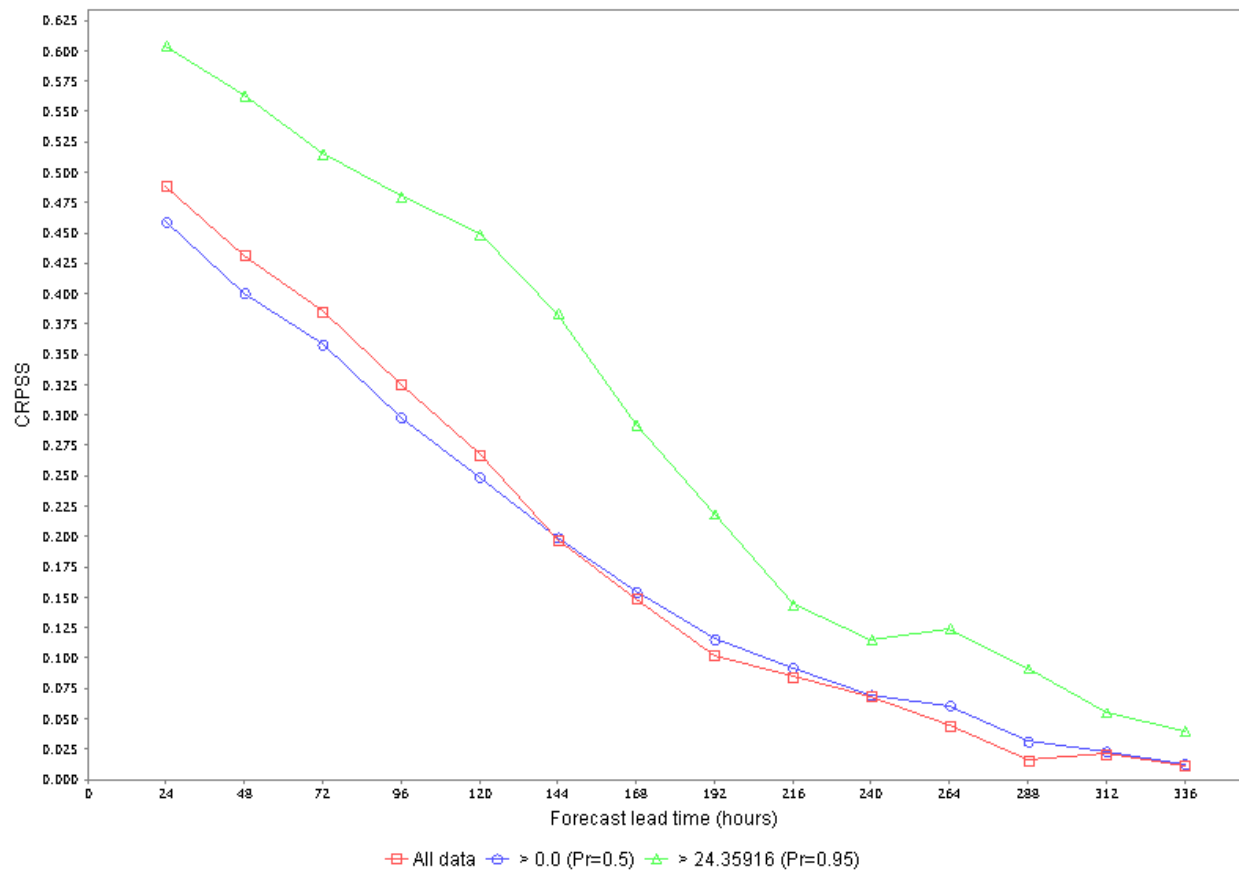
Q6 Are the forecasts broadly reliable or unreliable?

A6: Strongly Underestimate PoP, but reliable for top 5% (>24.35 mm/day)

Additional questions

Exercise 3: Q7 (FTSC1)

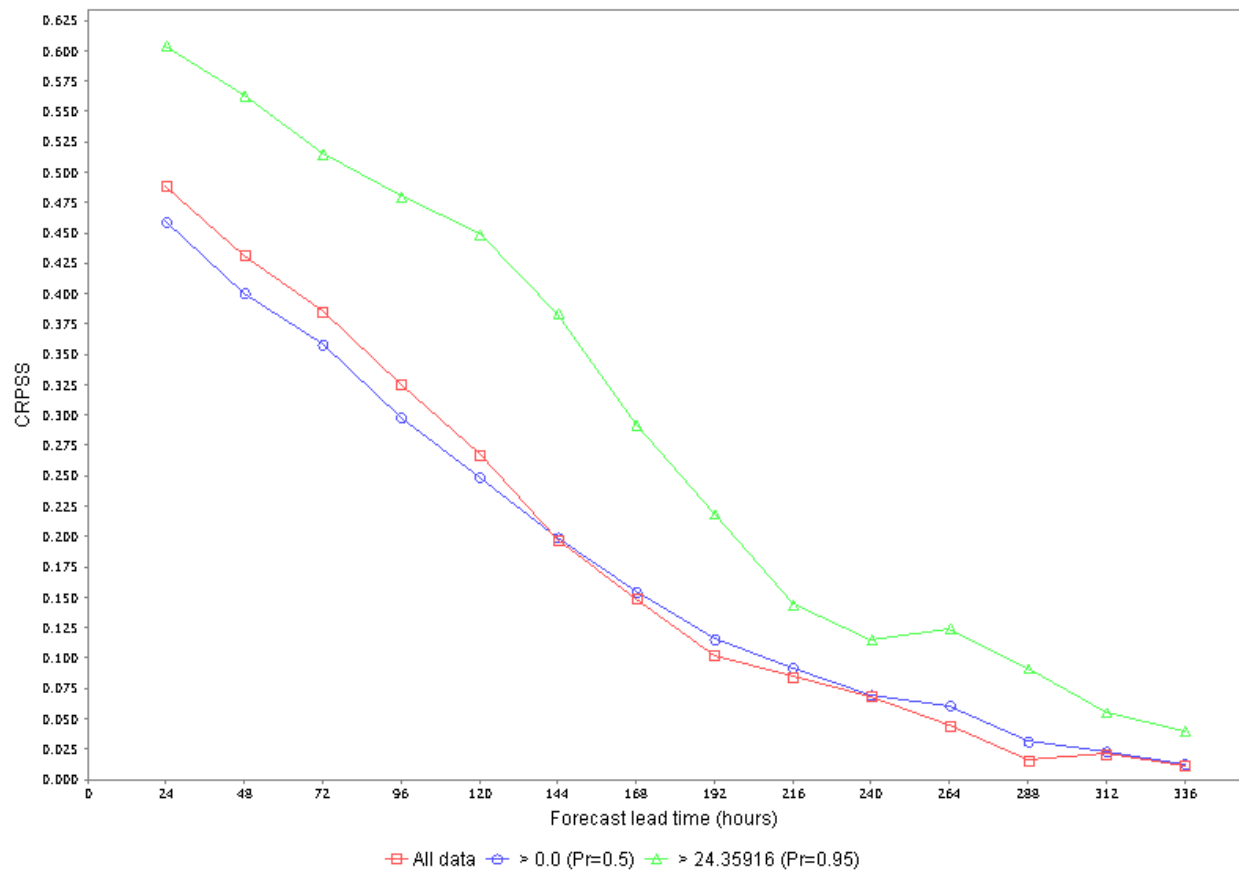
Continuous Ranked Probability Skill Score (CRPSS) by forecast lead time.
FTSC1.Precipitation.GEFS (first reference forecast in aggregation: FTSC1LLF.Precipitation.RCLIM)



Q7: Are the forecasts much more skillful than climatology? How?

Exercise 3: Q7 (FTSC1) answer

Continuous Ranked Probability Skill Score (CRPSS) by forecast lead time.
FTSC1.Precipitation.GEFS (first reference forecast in aggregation: FTSC1LLF.Precipitation.RCLIM)

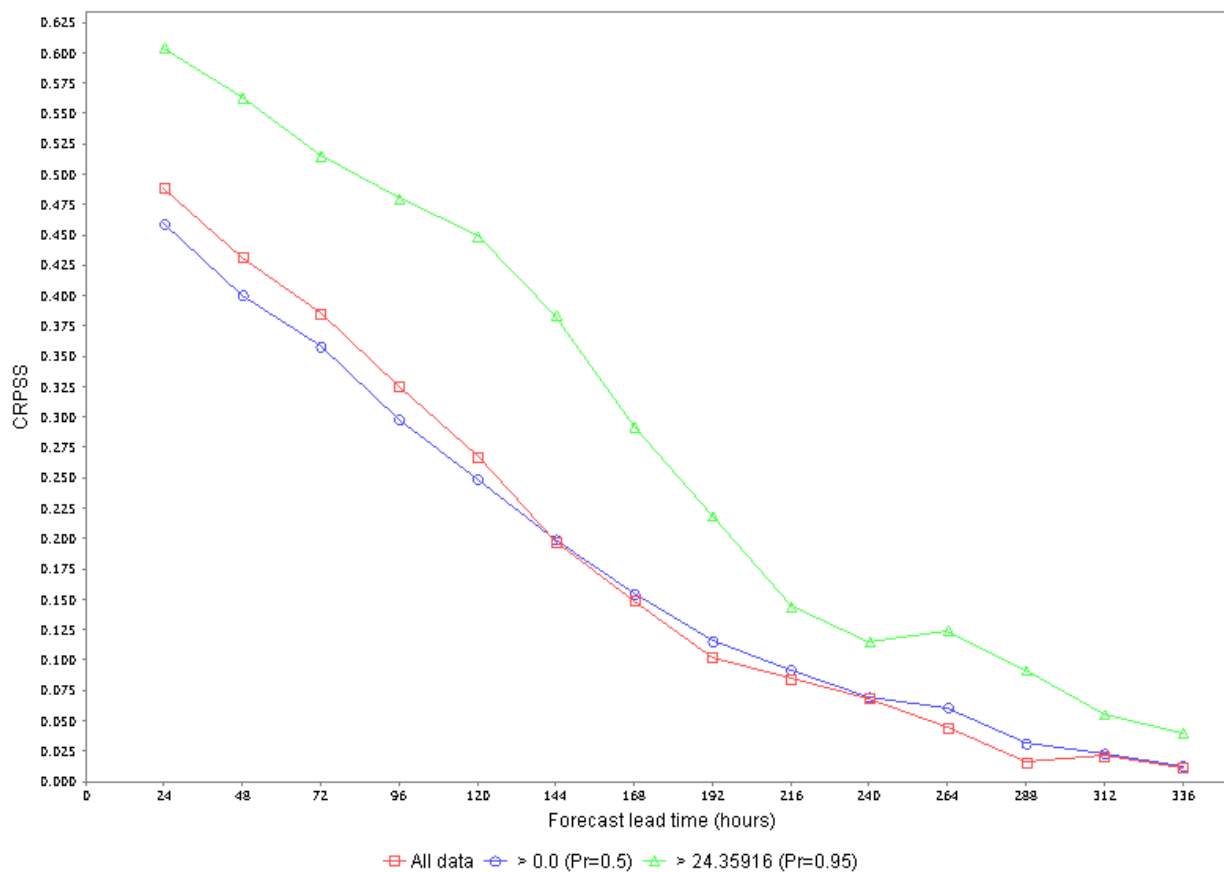


Q7: Are the forecasts much more skillful than climatology? How?

A7: Yes, particularly at early forecast lead times and for high precipitation

Exercise 3: Q8 (FTSC1)

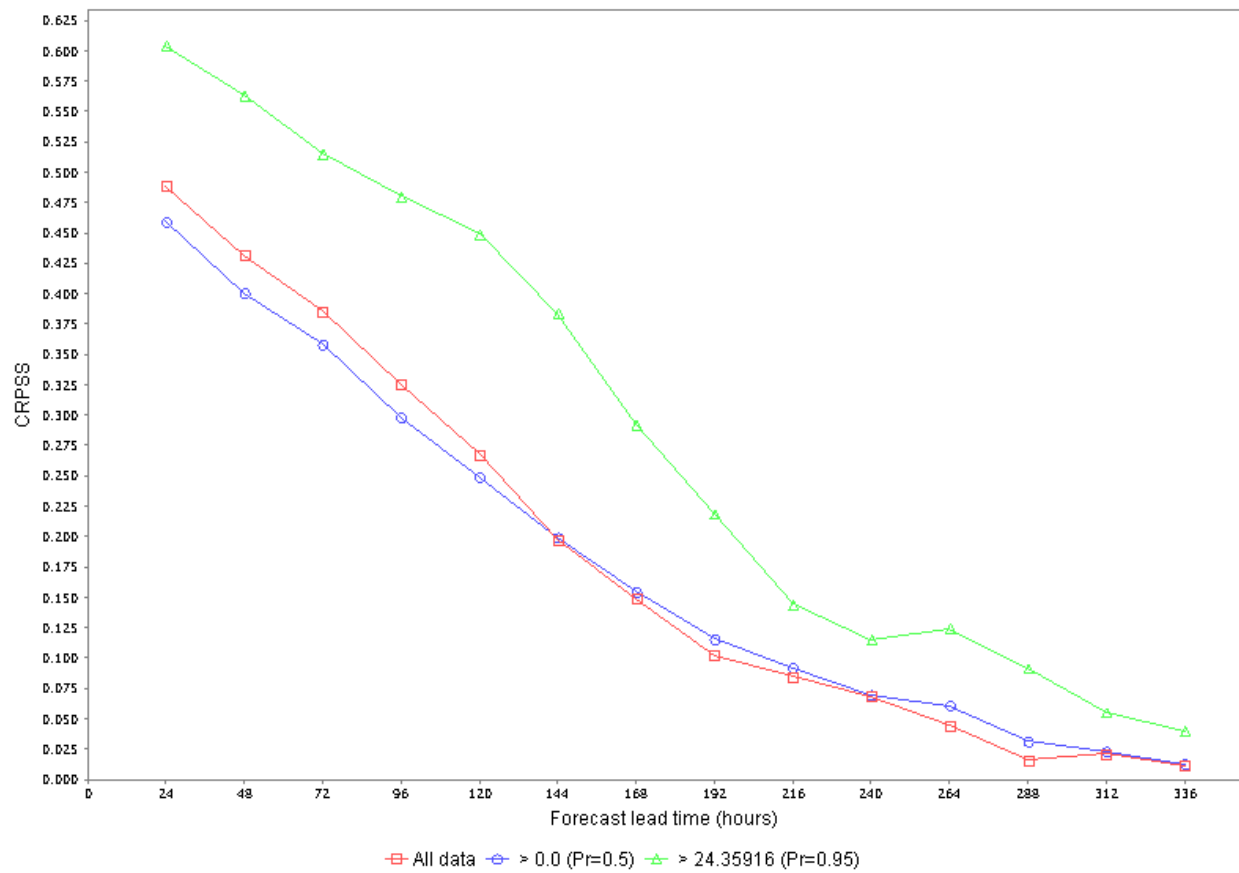
Continuous Ranked Probability Skill Score (CRPSS) by forecast lead time.
FTSC1.Precipitation.GEFS (first reference forecast in aggregation: FTSC1LLF.Precipitation.RCLIM)



Q8: Why is the skill higher for higher precipitation amounts?

Exercise 3: Q8 (FTSC1) answer

Continuous Ranked Probability Skill Score (CRPSS) by forecast lead time.
FTSC1.Precipitation.GEFS (first reference forecast in aggregation: FTSC1LLF.Precipitation.RCLIM)



Q8: Why is the skill higher for higher precipitation amounts?

A8: Predictability in FTSC1 (winter). Climatology poor at high amounts.