Skill of precipitation forecasts at Takle, Norway

Group 3

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Dataset

- Dataset from May 2003 to January 2007
  - 12hr accumulated precipitation

- MM5 12km res at +18 and +42 hrs are evaluated

- Takle is one of the wettest places in Norway
  - approx 3500 mm/year!
What do we want to achieve with our verification?

- Categorical verification: Rain or not?
- Is the model over- or underforecasting?
- What is the overall skill of our forecasts?
- Is the skill decreasing with increasing forecast length?
Can we trust our forecasts?

Rain or NO Rain?

Rain if precip > 0.5 mm/12hr

Scores used for evaluation:

- Hit Rate
- False alarm ratio
- Threat Score
- Heidke Skill Score
- Frequency Bias Index
The 18 hour forecasts

Precipitation - TAKLE

Observed precip hole period: 12695 mm
Forecasted precip hole period: 11059 mm

ME -0.64 mm
MAE 2.77 mm
RMSE 5.60 mm

QQPLOT
42hr data

Observed precip hole period: **12695 mm**

Forecasted precip hole period: **11609 mm**

**ME**  -0.41 mm  
**MAE**  3.30 mm  
**RMSE**  6.65 mm
## Contingency table
**precip > 0.5 mm/12hr**

<table>
<thead>
<tr>
<th></th>
<th>Obs Yes</th>
<th>Fcst Yes</th>
<th>Fcst No</th>
<th>Obs Sum</th>
</tr>
</thead>
<tbody>
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<td>Fcst Yes</td>
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<td>322</td>
<td>1438</td>
<td>1218</td>
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<td>Fcst No</td>
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<td>1016</td>
<td>1118</td>
<td>1218</td>
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<td><strong>obs Sum</strong></td>
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<td>2556</td>
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</table>

+ 18 hr fcst

<table>
<thead>
<tr>
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<th>Obs Sum</th>
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<tbody>
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<td><strong>obs Sum</strong></td>
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+ 42 hr fcst
### Skill of forecasting rain?

<table>
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<th>Threshold = 0.5 mm</th>
<th>+ 18</th>
<th>+ 42</th>
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<tbody>
<tr>
<td>Frequency Bias index</td>
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<tr>
<td>Hit Rate</td>
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<tr>
<td>False Alarm Ratio</td>
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<td>Threat Score</td>
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<tr>
<td>Heidke Skill Score</td>
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<td>0.58</td>
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</table>
Conclusive Remarks

Rain or no rain?
- Good skill, but as expected worse forecasts at 42 hours
- Fine hit rate
- False alarm rate little too large

The FBI indicates that the MM5 predictions are
- Slightly overpredicting the rain events
Future improvements

Shorter time intervals to see if the model actually describes the events

Multicategorical verification for checking if there is a bias for the extremities