Is there a higher chance of precipitation on weekends?

**METHODS**

A spatio-temporal analysis of precipitation in Austria

Nikolaus Umlauf, Georg Mayr, Jakob Messner, and Achim Zeileis

University of Innsbruck

Rain probabilities increase from south-east to north-west (Fig. 1)

- No significant time trend (Fig. 2)

- Precipitation in southern regions has a clear annual peak, while in northern regions the semiannual pattern is pronounced (Fig. 3).

- Amplitudes pertaining to the annual frequency are higher in the south (Fig. 4)

- No spatial pattern of weekend effect (Fig. 5)

- Compared to the other effects the weekend effect is extremely small and in both directions (Fig. 5)

**CONCLUSION**

there is no evidence of a weekend effect for precipitation in Austria

**REFERENCES**


**DATA**

HOMSTART project (http://www.zamg.ac.at/forschung/klimatologie/klimawandel/homstart/) - homogenized precipitation time series for 57 Austrian meteorological stations

altogether almost 1,120,000 observations

1948-2009

flexible regression model that can deal simultaneously with possible nonlinear temporal effects as well as the homogenized precipitation time series for 57 Austrian meteorological stations

- R2BayesX

Model fitting is carried out in R using R2BayesX (Umlauf et al., 2011).

**SUMMARY**

- Rain probabilities increase from south-east to north-west (Fig. 1)

- No significant time trend (Fig. 2)

- Precipitation in southern regions has a clear annual peak, while in northern regions the semiannual pattern is pronounced (Fig. 3).

- Amplitudes pertaining to the annual frequency are higher in the south (Fig. 4)

- No spatial pattern of weekend effect (Fig. 5)

- Compared to the other effects the weekend effect is extremely small and in both directions (Fig. 5)

**CONCLUSION**

there is no evidence of a weekend effect for precipitation in Austria

**ACKNOWLEDGMENTS**

We are thankful to Stefan Lang and Thomas Kneib for help and support for BayesX and Ingeborg Auer for the HOMSTART data.

**OBJECTIVE**

The objective of this work is to study the occurrence of precipitation in Austria from a spatio-temporal perspective. We have 1,120,000 observations of homogenized precipitation in 57 Austrian meteorological stations during the period 1948-2009.

**MOTIVATION**

Popular believe: “there is always bad weather on weekends”

**VARIOUS EFFECTS**

Fig. 1: Spatial effect \( f_{\text{spatial}, \text{weekend}} \)

lower precipitation probability

higher precipitation probability

smaller amplitudes

larger amplitudes

higher precipitation probability on weekends

lower precipitation probability on weekends

**WEEKEND EFFECT**

Fig. 5: Weekend effect \( \omega \)

(scale approx. one magnitude smaller)

Note that the weekend effect is very small compared to the other effects!

\((\pm 0.07 \text{ compared to e.g. } \pm 0.5 \text{ of spatial effect})\)

\(\omega \) is the spatial weekend effect of station \( i \).

Note that the weekend effect is extremely small compared to the other effects!

\((\pm 0.07 \text{ compared to e.g. } \pm 0.5 \text{ of spatial effect})\)

**REFERENCES**


**REFERENCES**


