Technische Universität München

Recent and future climate extremes - bivariate changes in temperature and precipitation in Bavaria

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ESF COST Extreme Environmental Events
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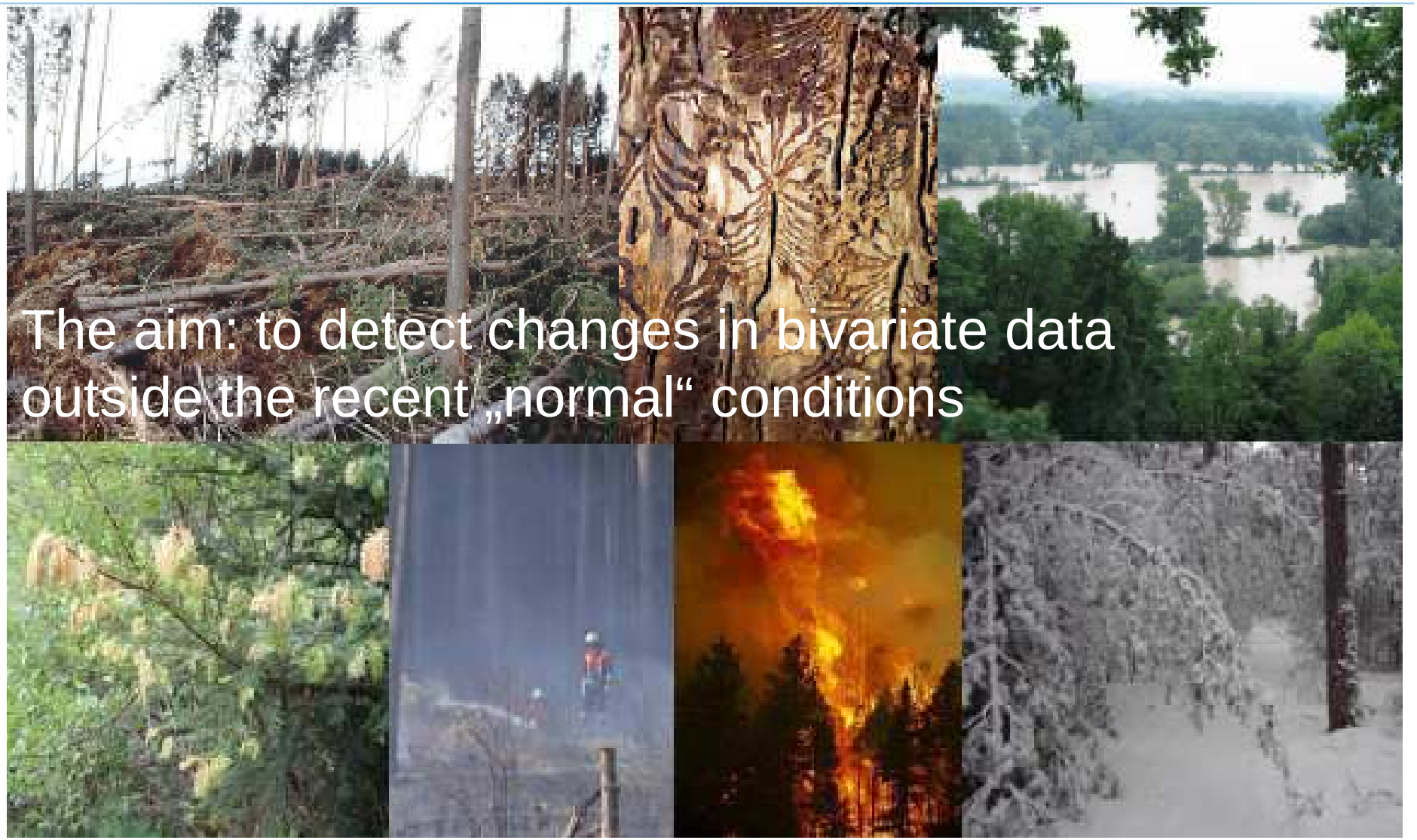
FACHGEBIET FÜR ÖKOKLIMATOLOGIE

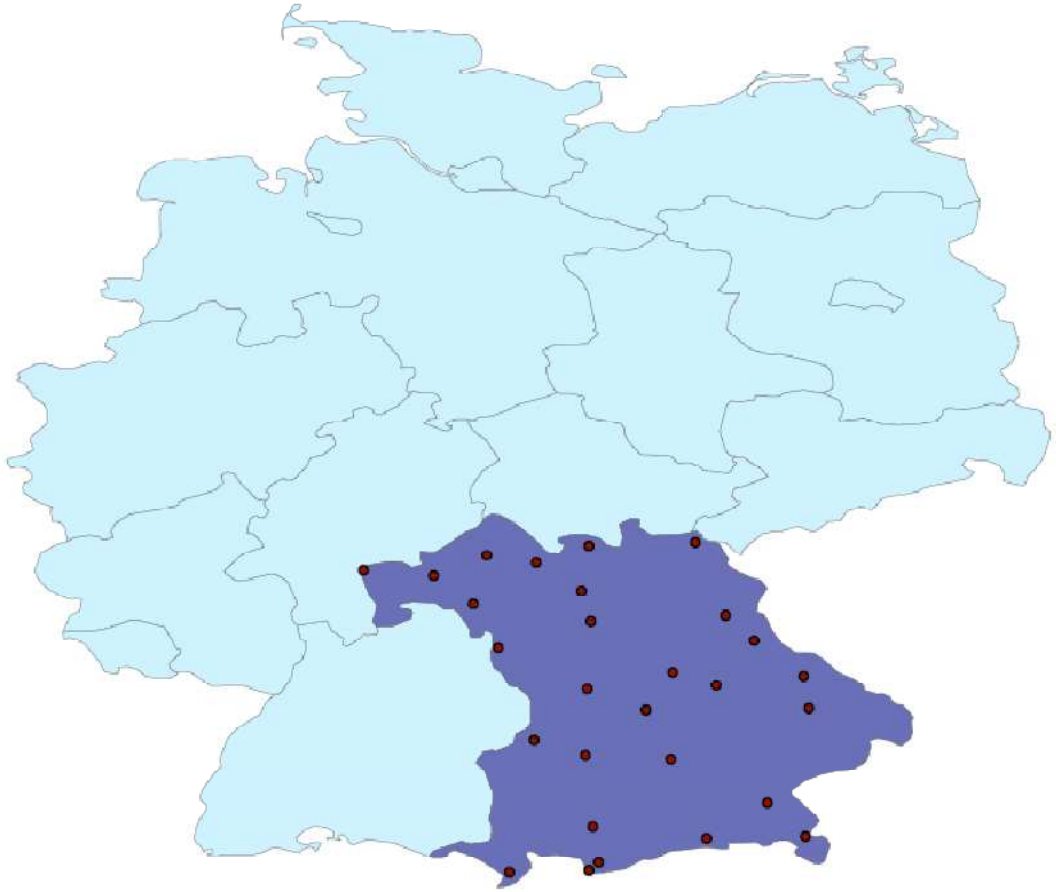

The aim: to detect changes in bivariate data
outside the recent „normal“ conditions

Data

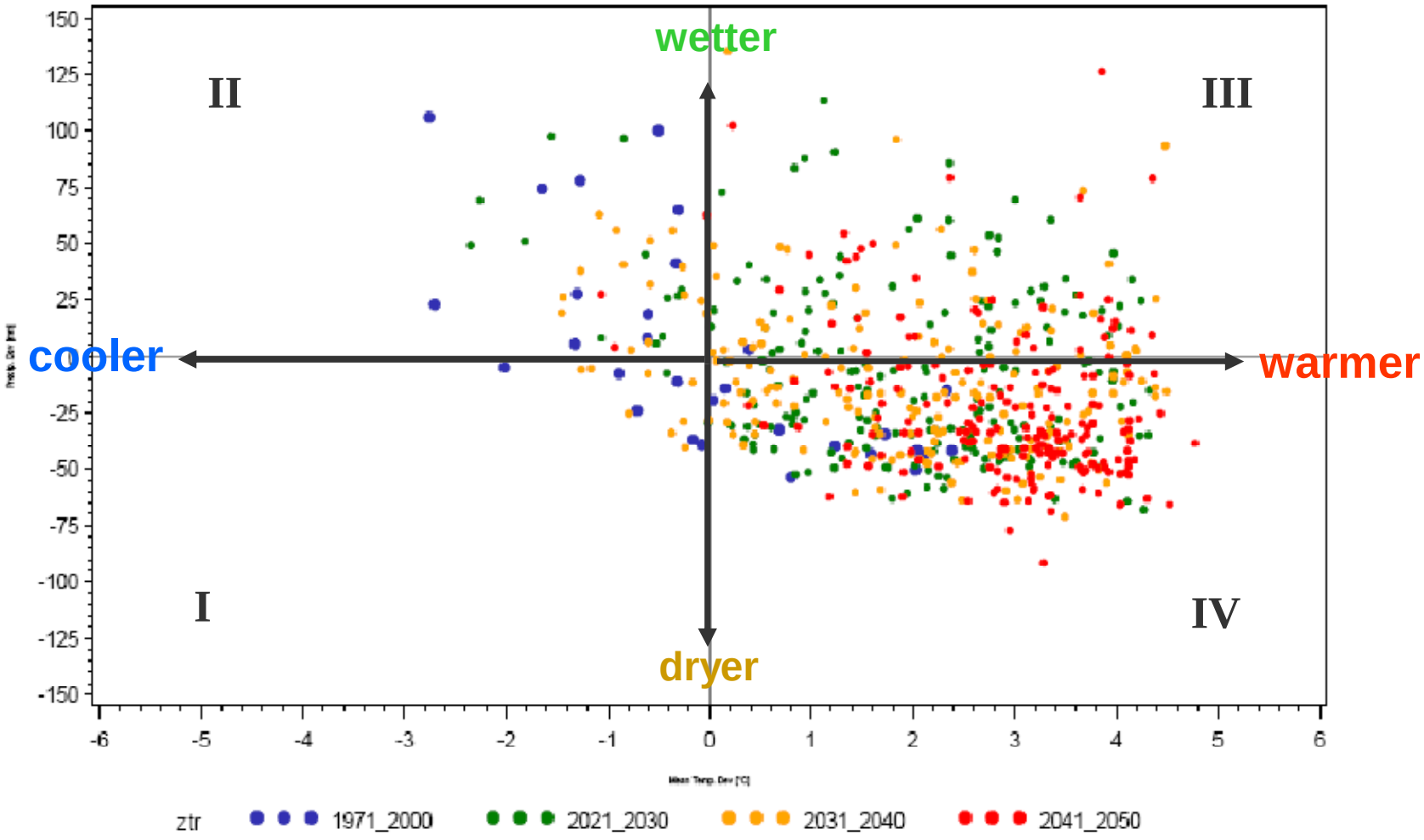
KLIWA WETTREG: Statistically downscalled regionalisation of the ECHAM4 climate simulations of the emission scenario B

- Meteorological parameters used: monthly mean temperature and precipitation sum April to May (Vegetation period)
- Station based data: 28 stations in Bavaria
- Reference period 1971-2000,
- Future projections: 2021-2030, 2031-2040 and 2041-2050.

Analysed stations



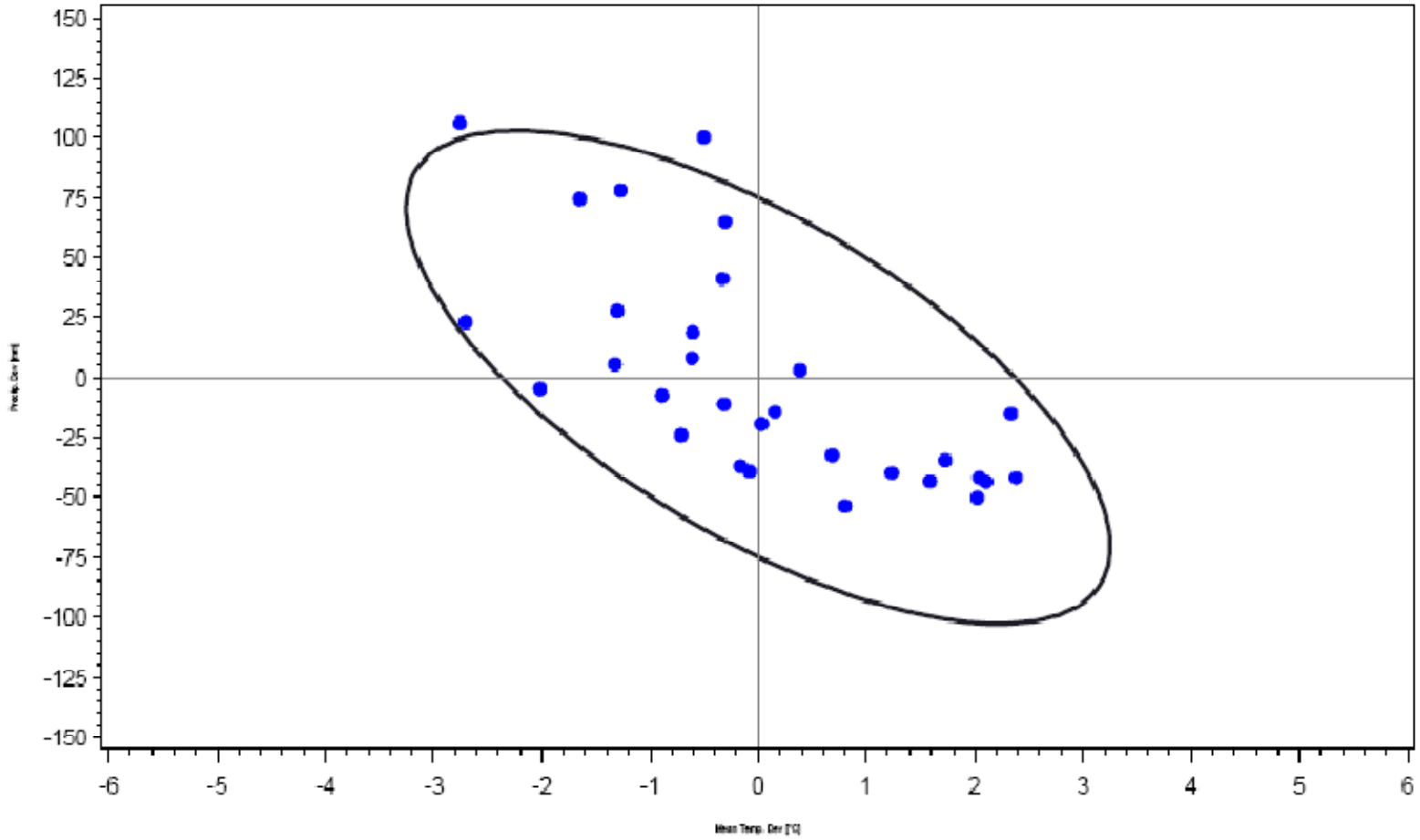
Anomalies **Augsburg June**



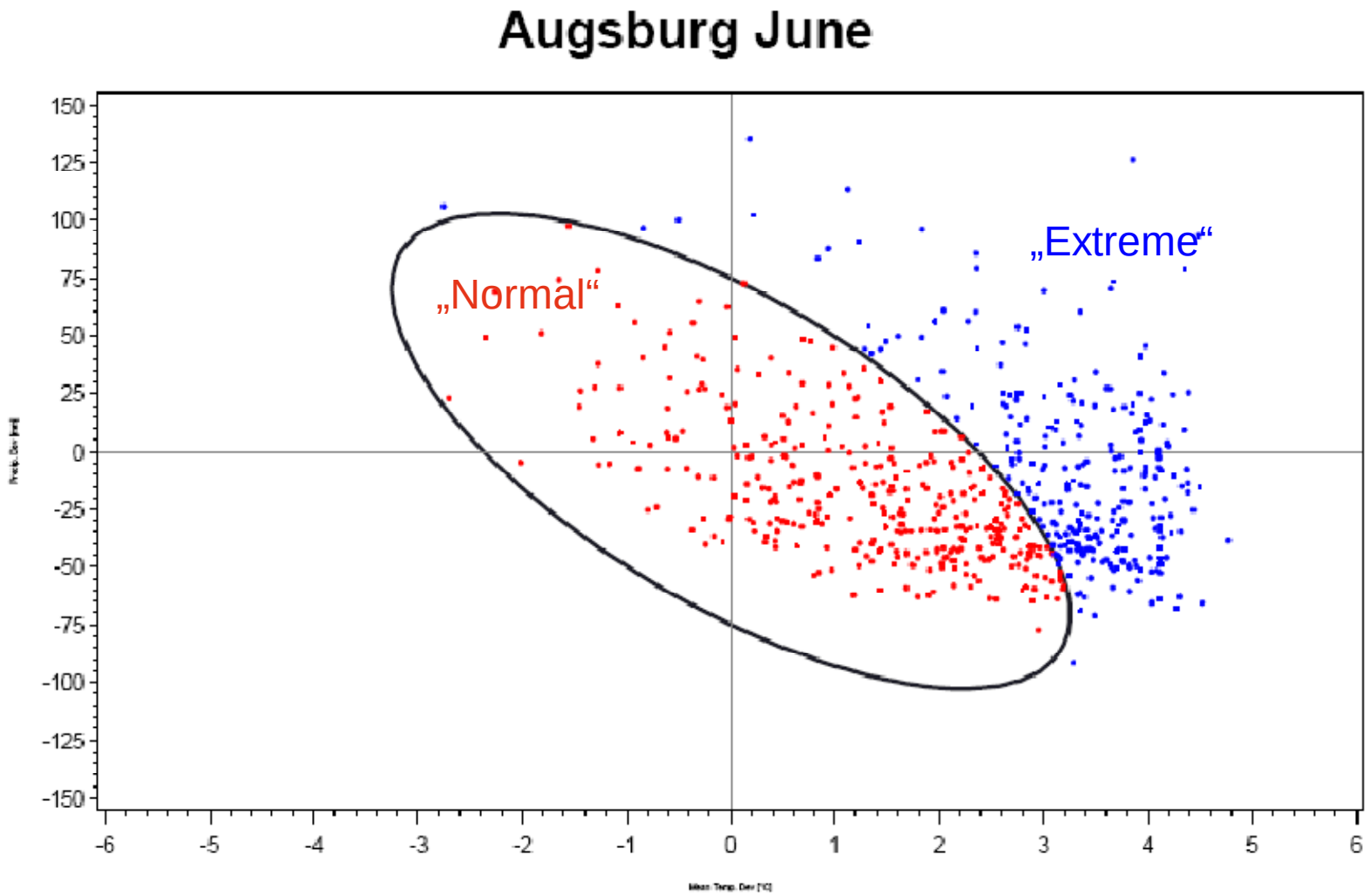
Reference Ellipse

(=90% probability ellipse for reference climate 1971-2000)

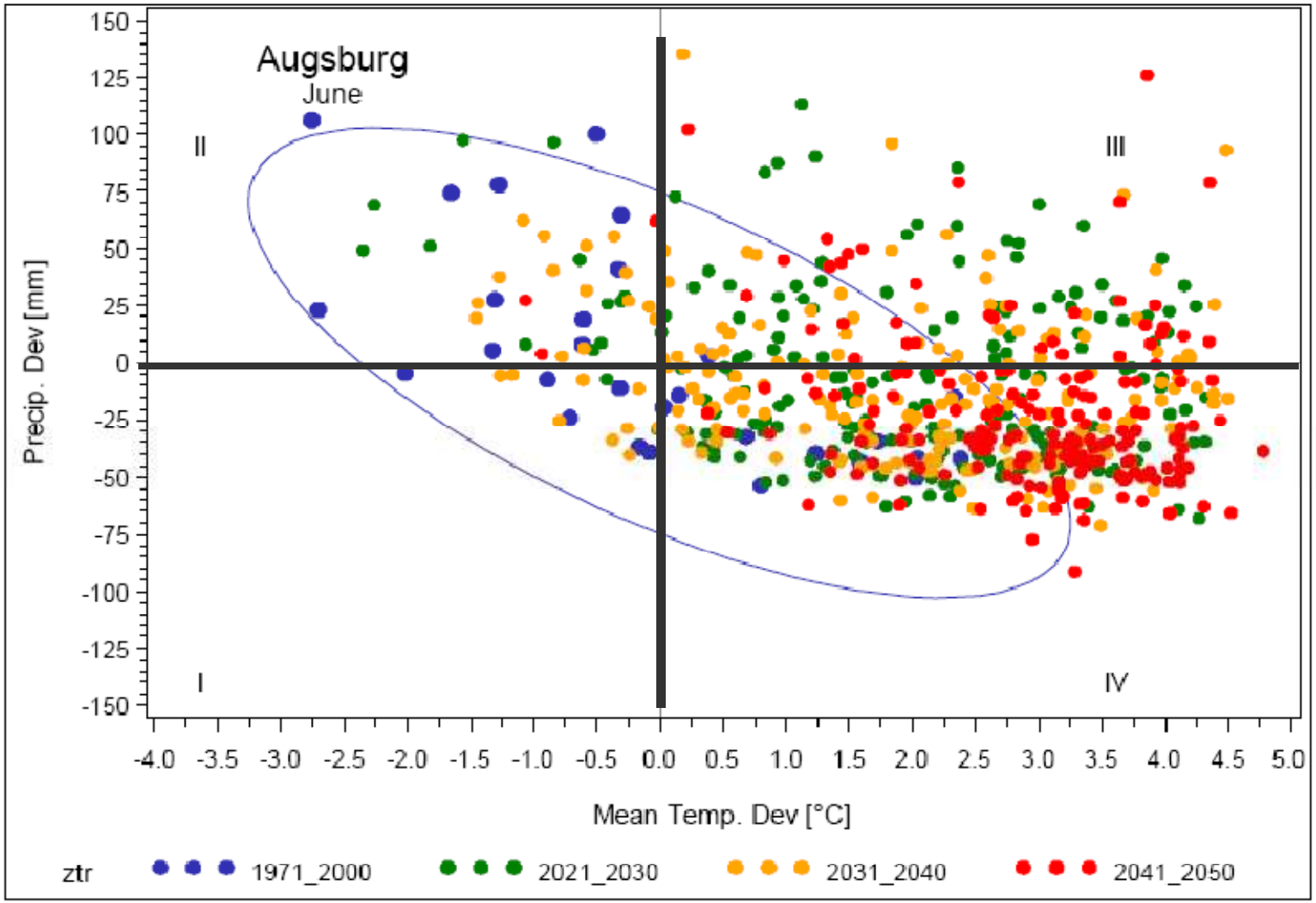
Augsburg June



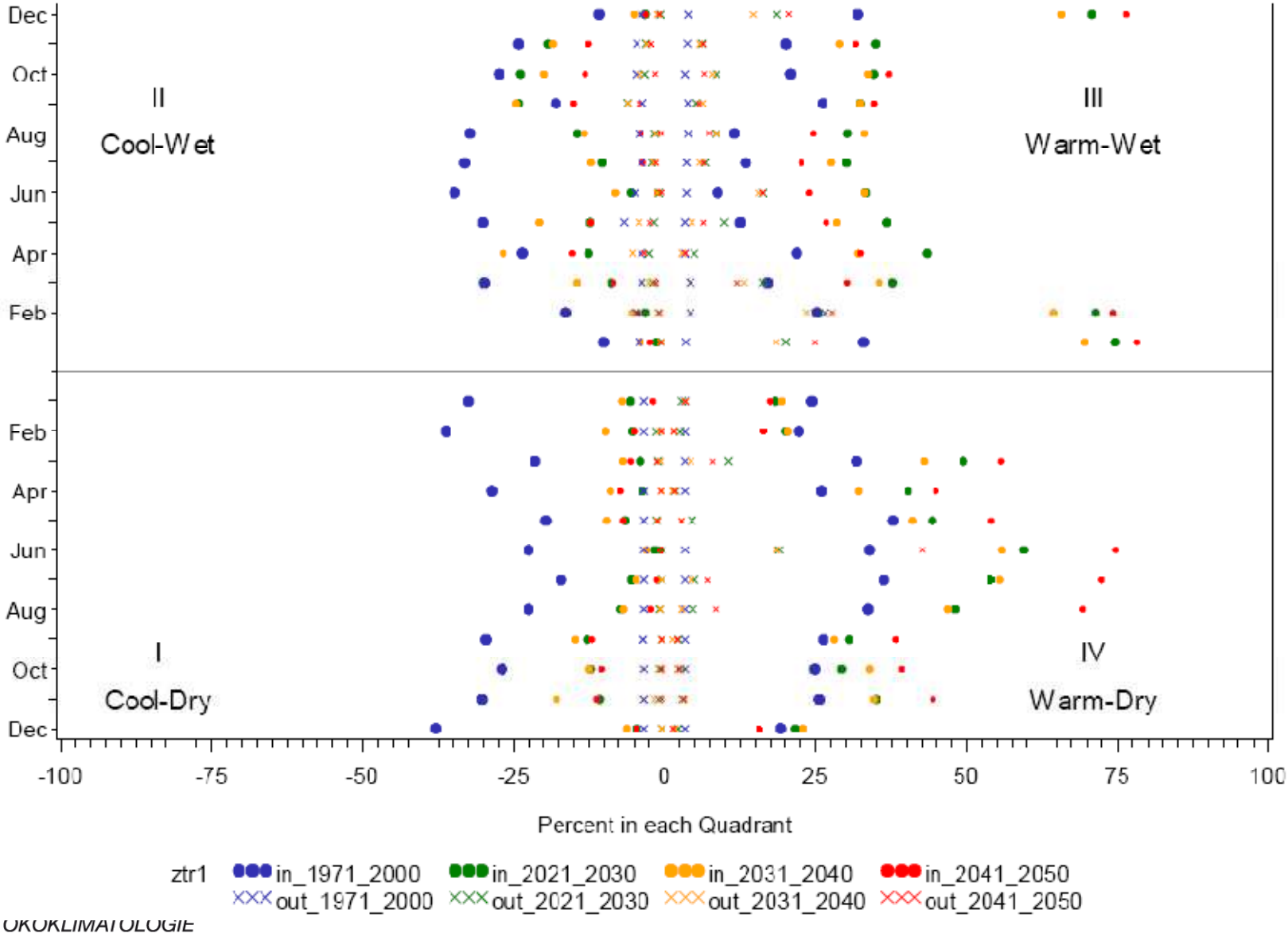
Classification of data points



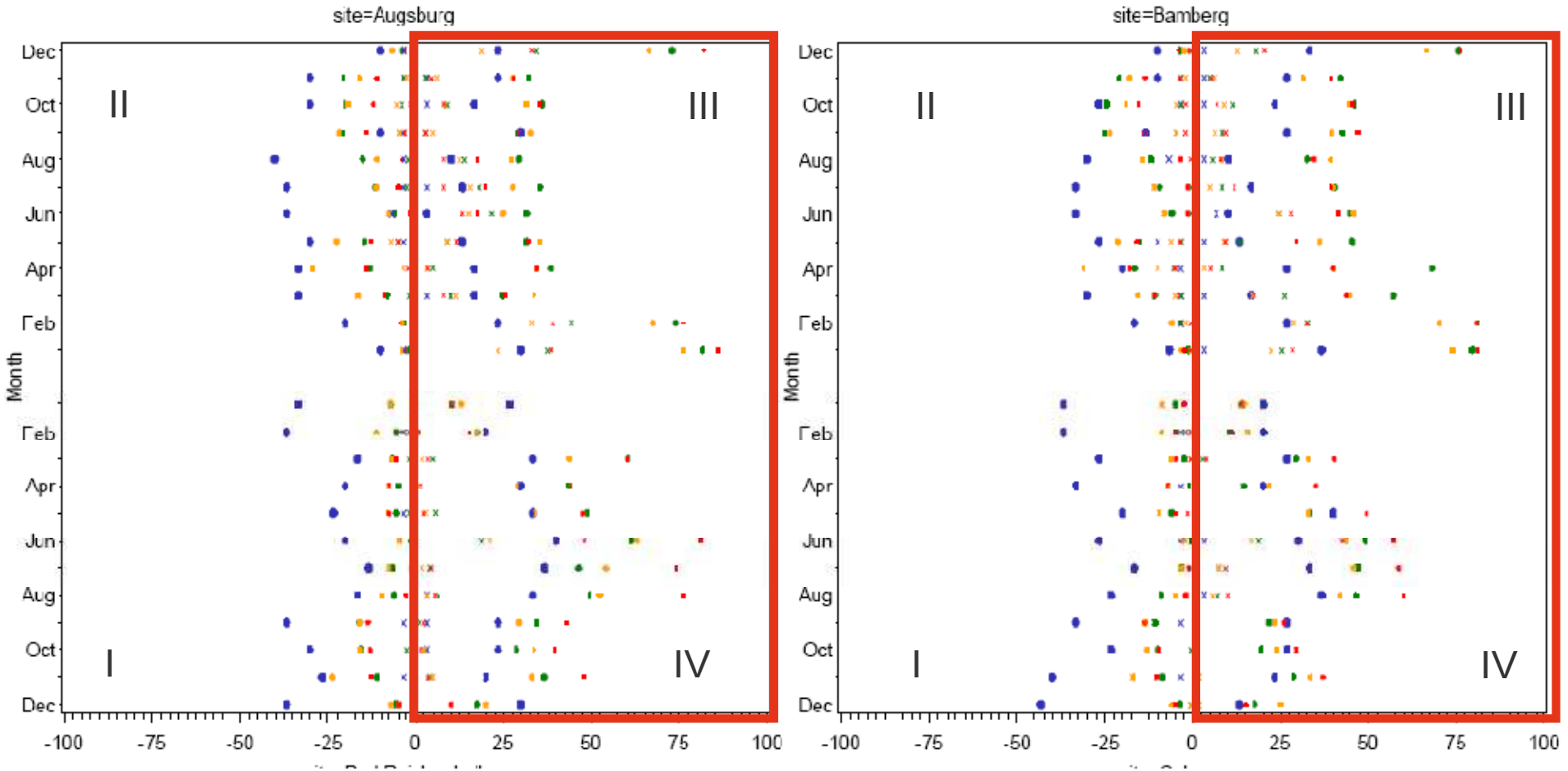
90% probability ellipse for reference climate 1971-2000



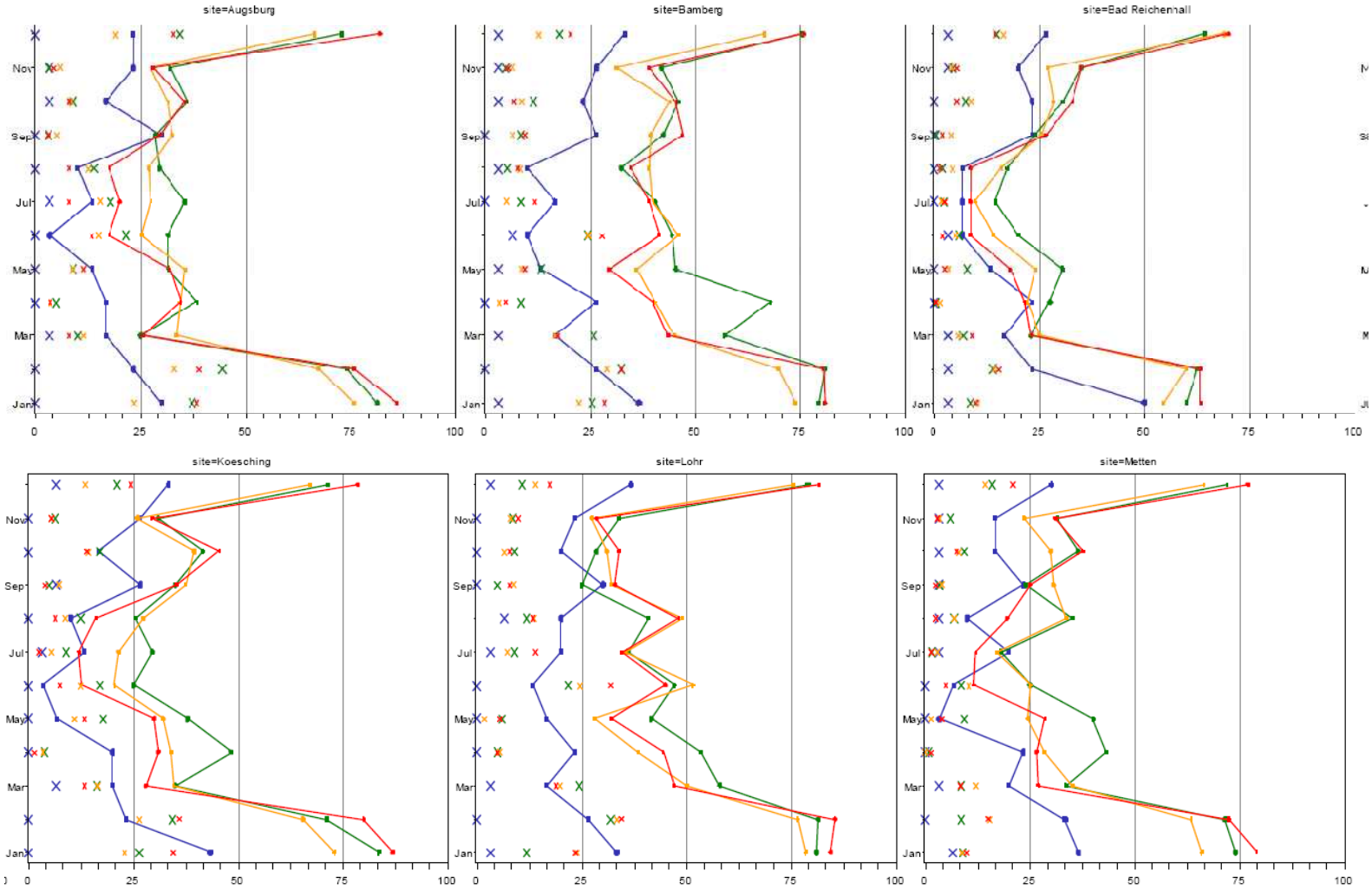
Mean distribution in each quadrant



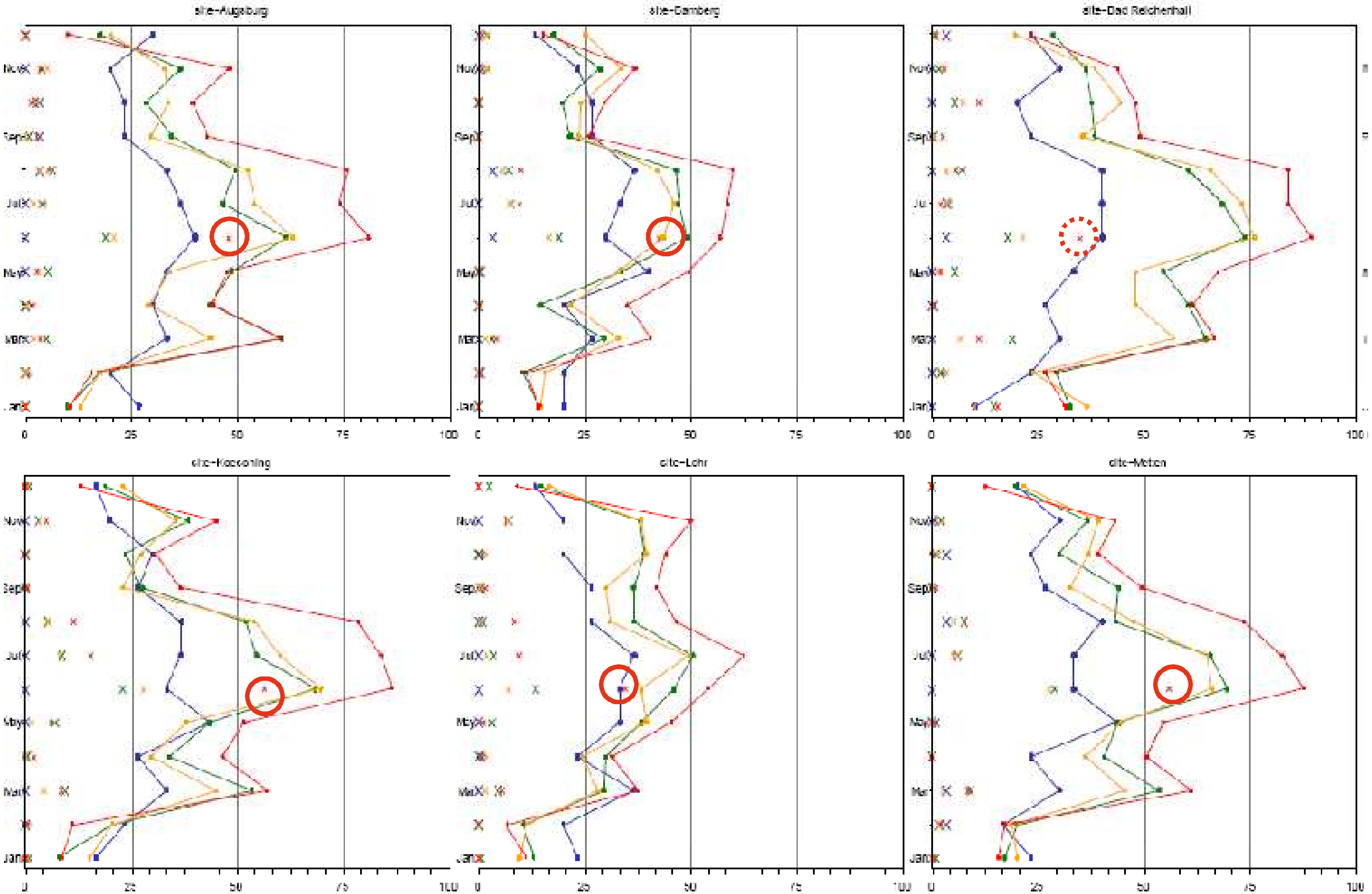
By station in each quadrant



Q III: Warm & wet



Q IV: Warm & dry


site-Augsburg
site-Bamberg
site-Bad Reichenhall
site-Lohr
Jan
Mar
May
Jul
Sep
Nov
0
25
50
75
100

Conclusion

In Future decades extremer events can be mainly expected in the warmer quadrants:

- Winter will be warmer and wetter more often
- Sommer month will be warmer and drier, especially June will be outside frequently extremer than the reference periode
- Cool and dry conditions will be rarer in future, cool and wet conditions decrease mainly during summer months, extremes are hardly changing or decreasing

Thank you for your attention!

Observed data vs. modelled reference data

Gray: precipitation

Black: temperature