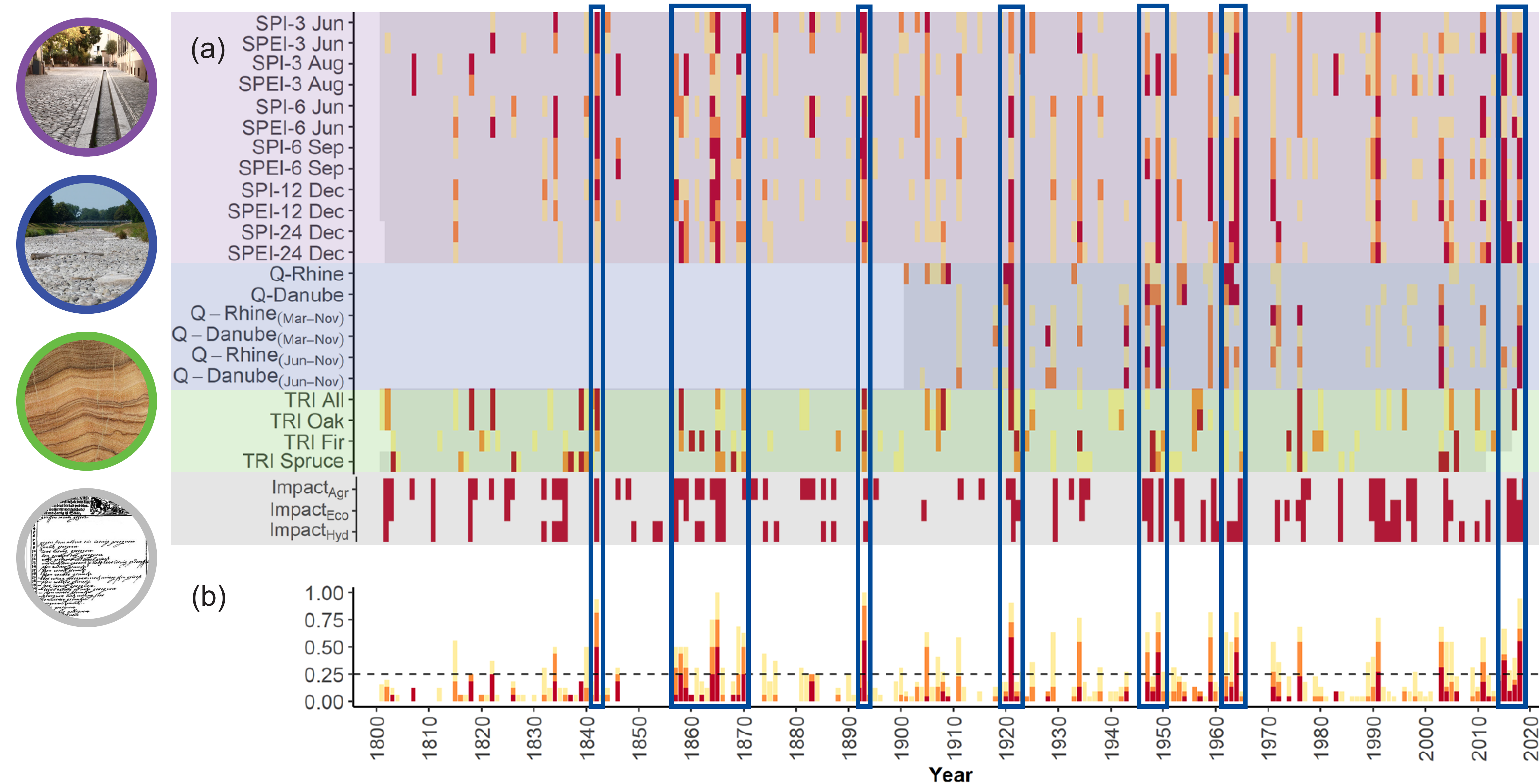


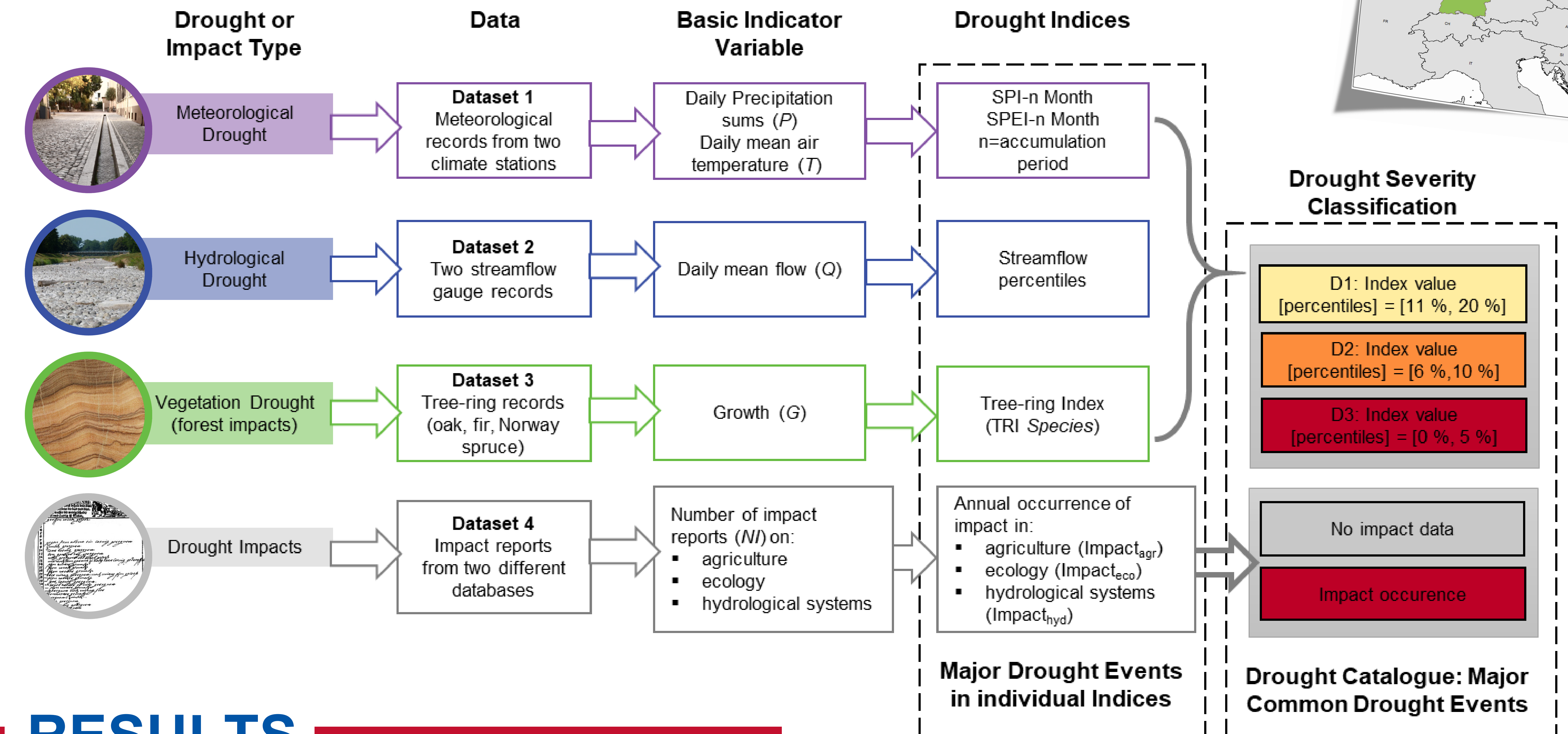
To understand drought processes, multiple perspectives need to be considered. Extreme droughts remain undetected if only one data type is used. Long-term data uncovers extreme events in the 19th century.

The Drought Catalogue*: (a) Annual time series of drought occurrence in southwestern Germany according to different groups of indices, blue boxes highlight particular dry years; (b) the percentage of indices indicating droughts (Legend see Methods).



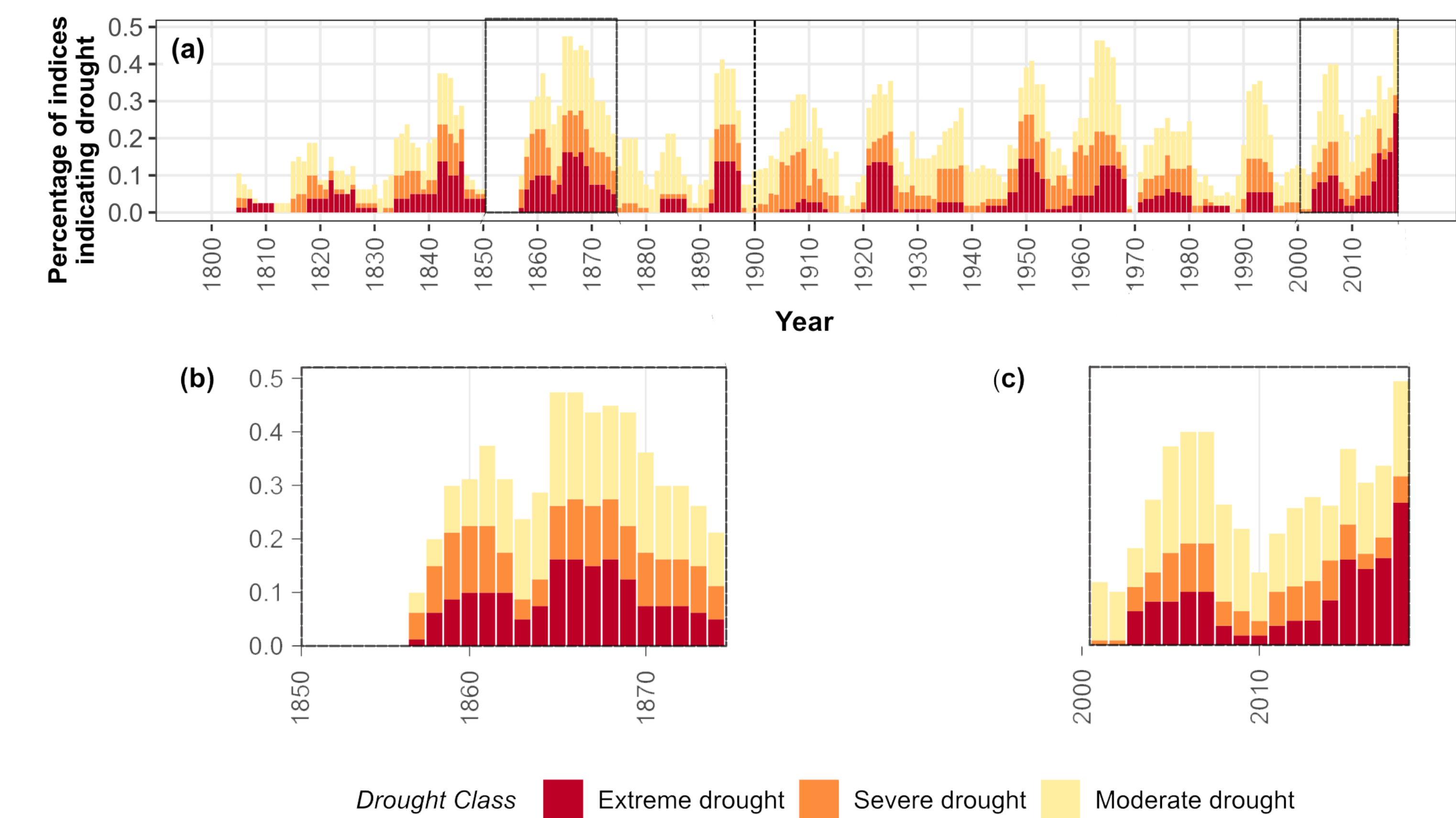
METHODS

Conceptual overview of the multi-variable dataset and variables used in this study.*



RESULTS

Annual time series showing the fraction of indices in drought (different severities) with a 5 year backward smoothing window.*



Within this catalogue, 22 extreme drought events were identified as common events among different archives and data types. Ranking the ten most severe droughts per indicator uncovers extreme events in the 19th century.

However the development of drought frequency and severity over the last two centuries highlights an intensification of drought events in the 21st century.

CONCLUSION

Droughts affect both environmental and anthropogenic systems in complex ways. Using a multidisciplinary dataset helped to improve the understanding about interactions between the different drought characteristics. The drought catalogue provides valuable information on long-term drought occurrence in southwestern Germany and uncovers extreme drought clusters in the 19th century. The pool of worst case droughts, identified from different perspectives, can be used to inform future drought planning.

A multivariate Drought Catalogue - For Southwestern Germany dating back to 1801

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