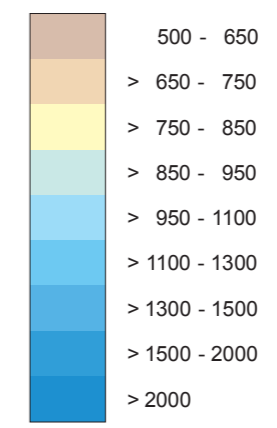


Water

# Average Annual Precipitation in Bavaria 1981-2010

1:1250000

Precipitation in mm/yr



- Main watershed
- District capital
- City
- Urban area
- National border
- State border

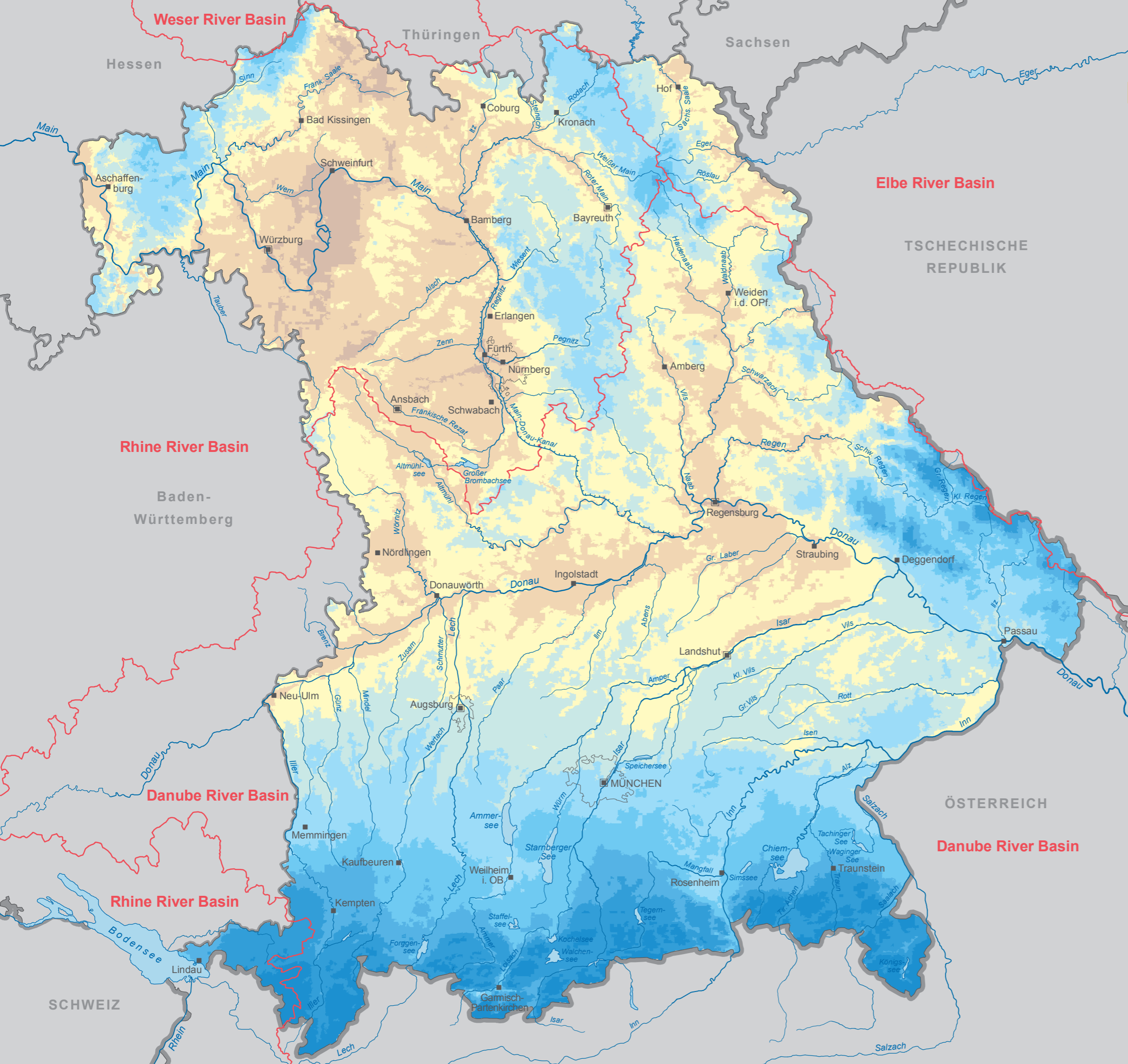


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Thematic geodata: The map is based on uncorrected REGNIE-data provided by the German Weather Service (DWD).  
 River basins: DLM1000 W (Länderarbeitsgemeinschaft Wasser, Federal Environment Agency), Version: September 2012

Topographic geodata: DLM1000, © GeoBasis-DE / BKG 2013 (Data modified)

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Maps for Water Management

## Average Annual Precipitation in Bavaria 1981-2010

### 1 General

The average annual precipitation is a central water balance component. It dictates the amount of water available for subsequent processes (e.g. evapotranspiration, discharge, groundwater recharge) and related water use (e.g. agriculture, water management). The spatial precipitation distribution is highly variable. Consequently, the German Weather Service (DWD) maintains a dense observation network across Germany. Compared with discharge and evapotranspiration, precipitation constitutes the largest proportion of the overall water balance.

### 2 Methodology

The precipitation data was derived from the uncorrected REGNIE-dataset, published by the DWD. The daily values of the REGNIE grids were averaged over the 30 year period 1981-2010 and then rescaled to fit the 105 000 individual areas of the soil-water balance model GWN-BW for Bavaria (please refer to maps of Actual Evapotranspiration, Discharge and Groundwater Recharge). The precipitation is represented here on a 200m × 200m grid.

### 3 Interpretation

Averaged over 30 years, the annual precipitation sum for Bavaria is 962 mm (or l/m<sup>2</sup>). The values vary between 540 mm/yr in the region south of Würzburg and over 2000 mm/yr in parts of the Bavarian Alps. For the Bavarian part of the Main River Basin the average precipitation sum is 793 mm/yr, for the Bavarian part of the Danube River Basin it is 1023 mm/yr. Comparing northern and southern Bavaria (north/south of the Danube), the precipitation sums are 833 mm/yr and 1123 mm/yr, respectively. The mean annual precipitation is characterized by a significant elevation dependency: mountainous regions such as *Spessart*, *Rhön*, *Frankenwald*, *Fichtelgebirge*, *Fränkische Alb*, *Oberpfälzer Wald* and *Bayerischer Wald* stand out clearly against their dryer surroundings. In addition, the lee effect is an important factor: the lowest precipitation sums are found east of the *Spessart* and *Odenwald*, where large parts of the precipitation fall. A similar phenomenon is observed for the *Oberpfälzer Wald*, which is located in the rain shadow of the *Frankenalb* and consequently has lower precipitation than the *Bayerische Wald*. Another characteristic effect is the increase in precipitation towards the Alps. The mountains act as a barrier in the path of air masses, forcing them to rise and thereby intensifying precipitation. Heavy precipitation occurs mostly in conjunction with northerly or north-westerly airstreams or as a result of so called “Vb-cyclones”. In the vicinity of the Alps the summer months are also characterized by a higher tendency towards (thunder) storms.

### 4 Notes Concerning the Use of the Map

The average annual precipitation sums presented here are the result of spatial interpolation of measured data from selected stations. Against this backdrop, this map represents a large scale overview, which allows the regional conditions to be described in a manner that is appropriate for the scale 1:1250 000. The use of values for individual grid cells is not valid for methodological reasons.