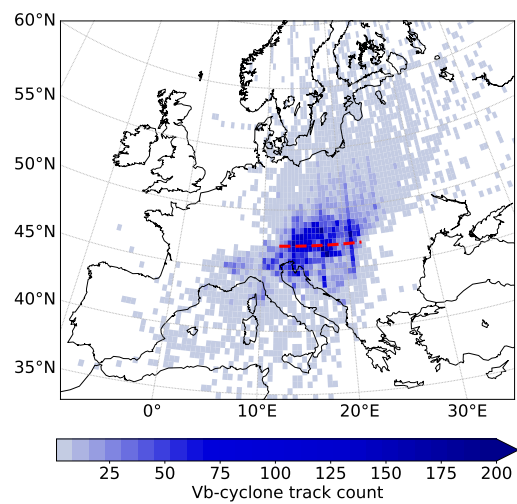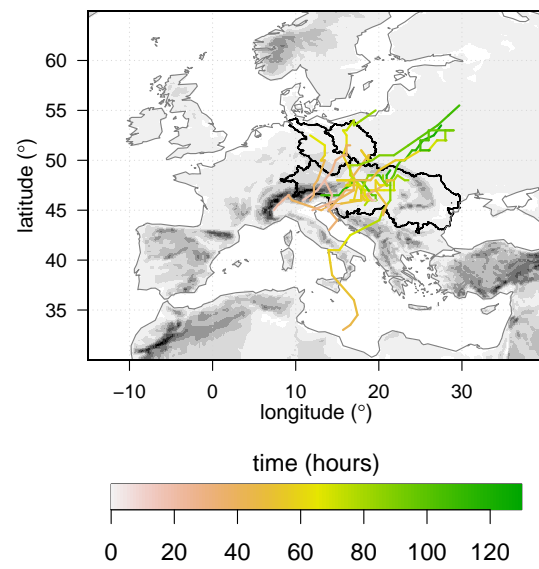## S1 Supplement

S1.1 Vb-cyclones in the dynamically downscaled ERA-20C reanalysis
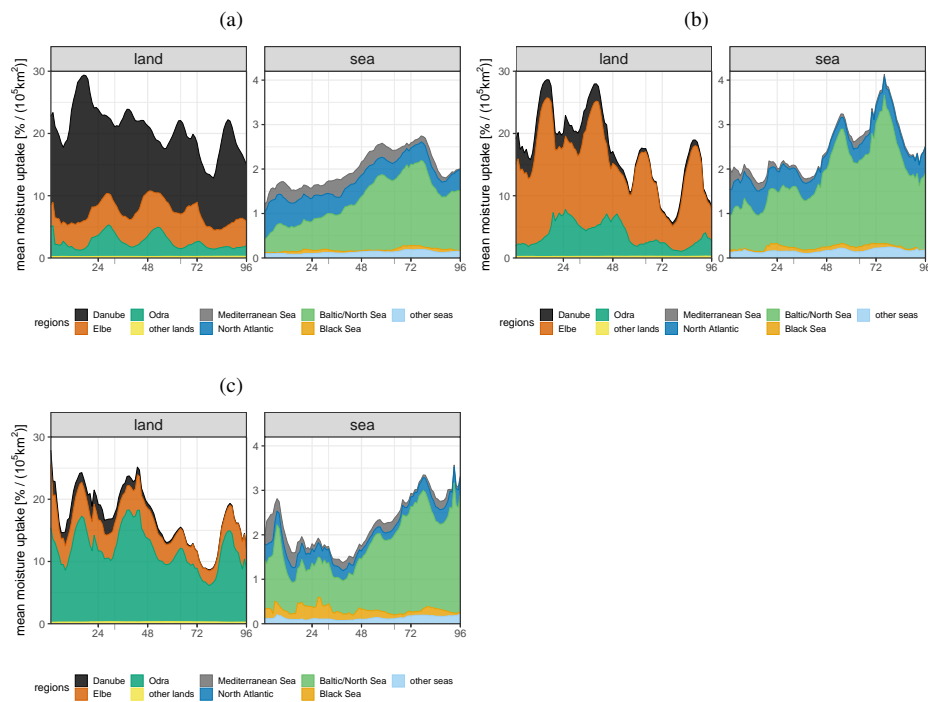

Fig. S1 Vb-cyclone track count of 1107 Vb-cyclones detected in the dynamically downscaled ERA-20C reanalysis data interpolated to a horizontal resolution of 0.5°. The red crossing line shows the selection criterion following Hofstätter and Blöschl (2019).
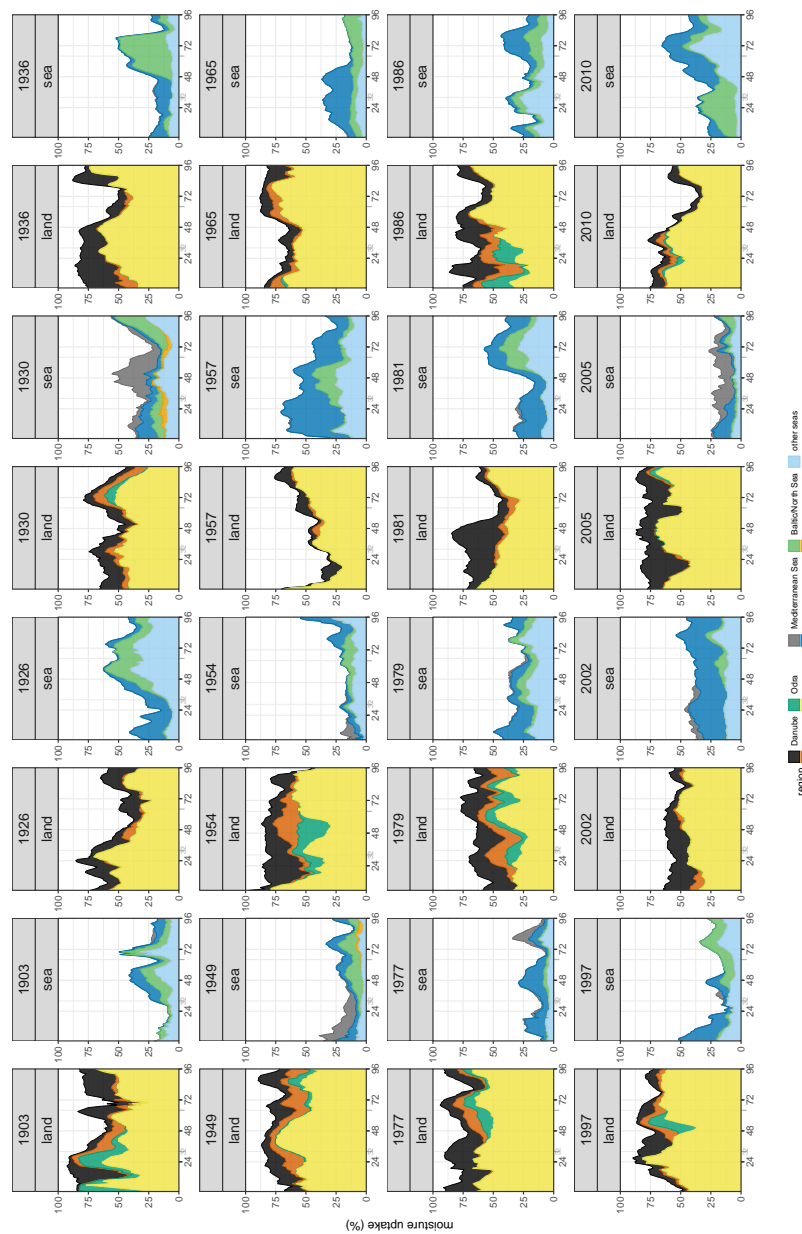
Fig. S2 Vb-cyclone tracks of selected events in Table 1 based on dynamically downscaled ERA-20C reanalysis data interpolated to a horizontal resolution of 0.5°.

S1.2 Average temporal evolution of the moisture uptake

Fig. S3 Area-weighted mean moisture uptakes in various uptake regions for precipitation in the (a) Danube, (b) Elbe, and (c) Odra catchment averaged over all 16 events listed in Table 1. The x-axis corresponds to the four days of heavy precipitation selected for the moisture diagnostics. Note the different y-axis scales.

S1.3 Temporal evolution of the individual events

Fig. S4 Moisture contributions of various uptake regions to precipitation in the Danube catchment 1. The x-axis corresponds to the four days of heavy precipitation selected for the moisture diagnostics.
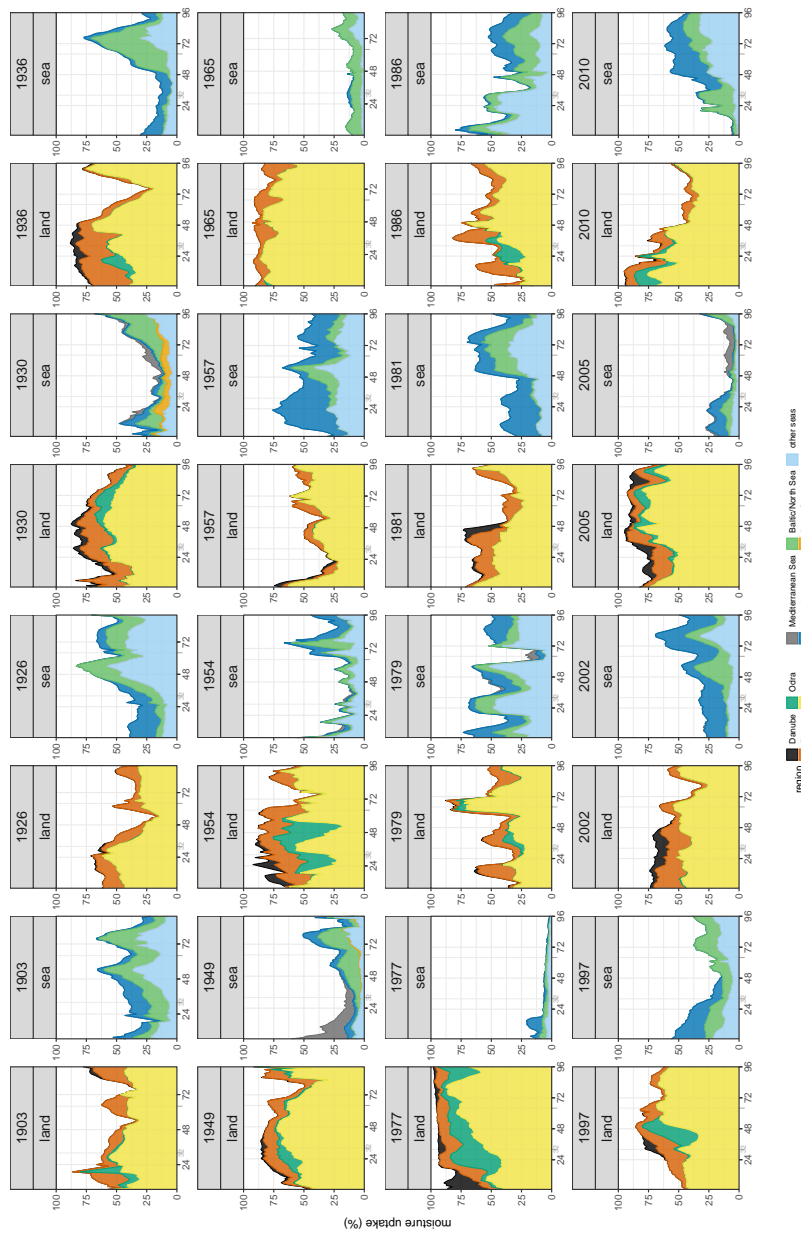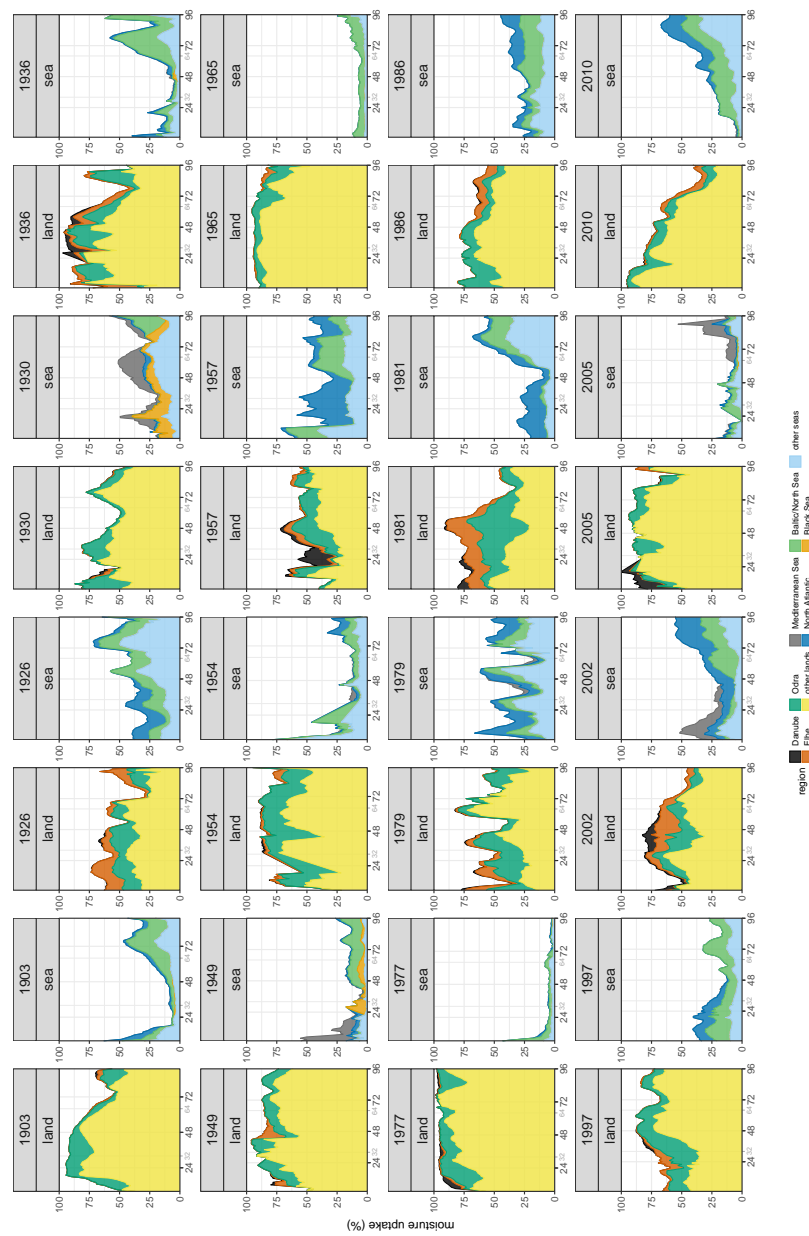
Fig. S5 The same as Figure S4 but for the Elbe catchment region.

Fig. S6 The same as Figure S4 but for the Odra catchment region.