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3D modelling of Holocene groundwater level rise in two drowned Rhine valleys in the Netherlands

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We present a full 3D interpolation describing groundwater rise in two neighboring river valleys based on agedepth relations of basal peat index points for GW levels through the Holocene.

Rapid drowning 9000 to 8000 cal BP occurred relatively synchronous in the two valleys, explained by strong sealevel rise control and similar valley gradients and dimensions of the inundated valley sections. After 8000 the drowning history diversifies. From then on a strong river gradient is in effect in the Rhine delta (valley 1), and absence of a larger river keeps gradients near sea-level far inland in the northern valley (valley 2). Varying valley slopes explain further differences. Via GW rise effects, the palaeovalley dimensions are an important control on Holocene transgressive landscape development.





results showing the drowning of the two valleys during the Holocene

10000 cal BP









