

Figure 1: Study site in the Vietnamese Mekong Delta. The pie charts indicate the location of national stations monitoring groundwater levels within seven aquifers. Color/white pie segments denote that a monitoring borehole is available/unavailable at a given aquifer, respectively.

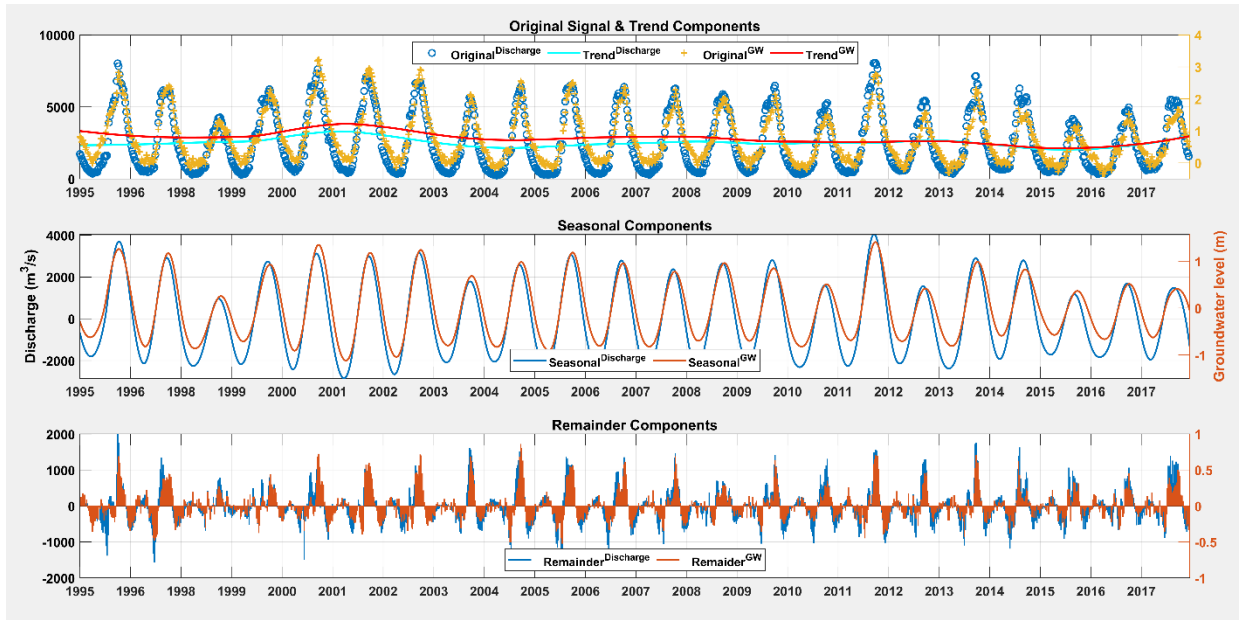


Figure 2: STL decomposition of weekly discharge (at Chau Doc) and GWL time series (borehole No. 14). Trends T_t (top), seasonal components S_t (middle) and remainder components R_t (bottom).

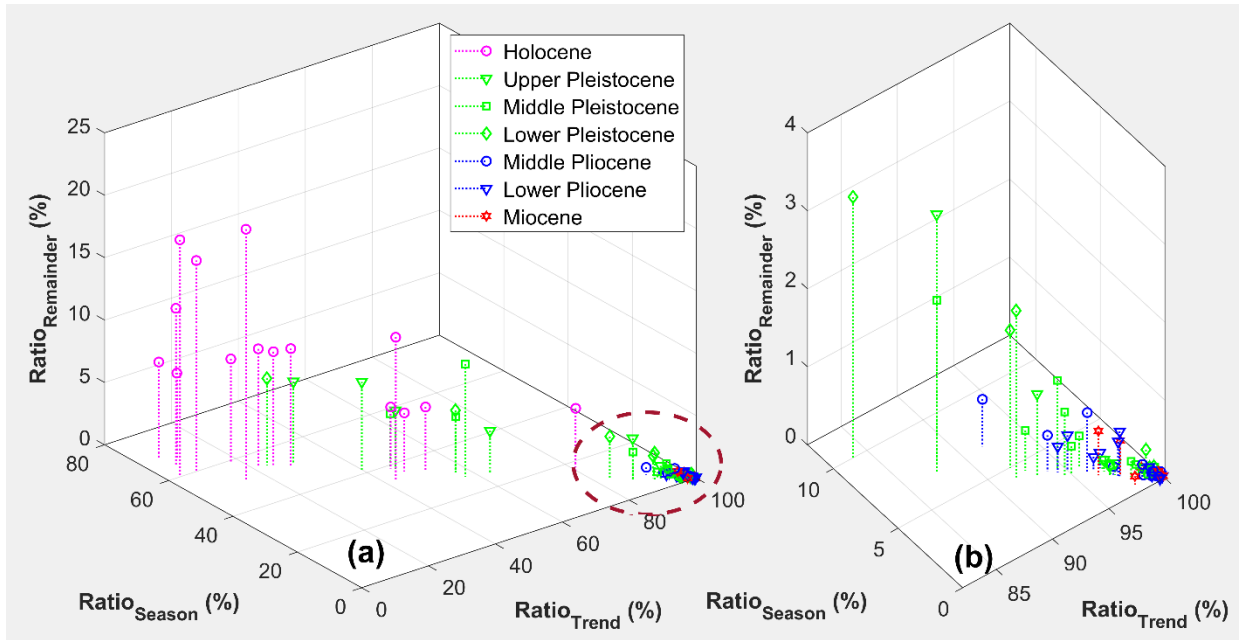


Figure 3: Variability ratios (defined by Eq. 2) associated with each time series component for the different aquifers. The encircled area from (a) is shown in (b).

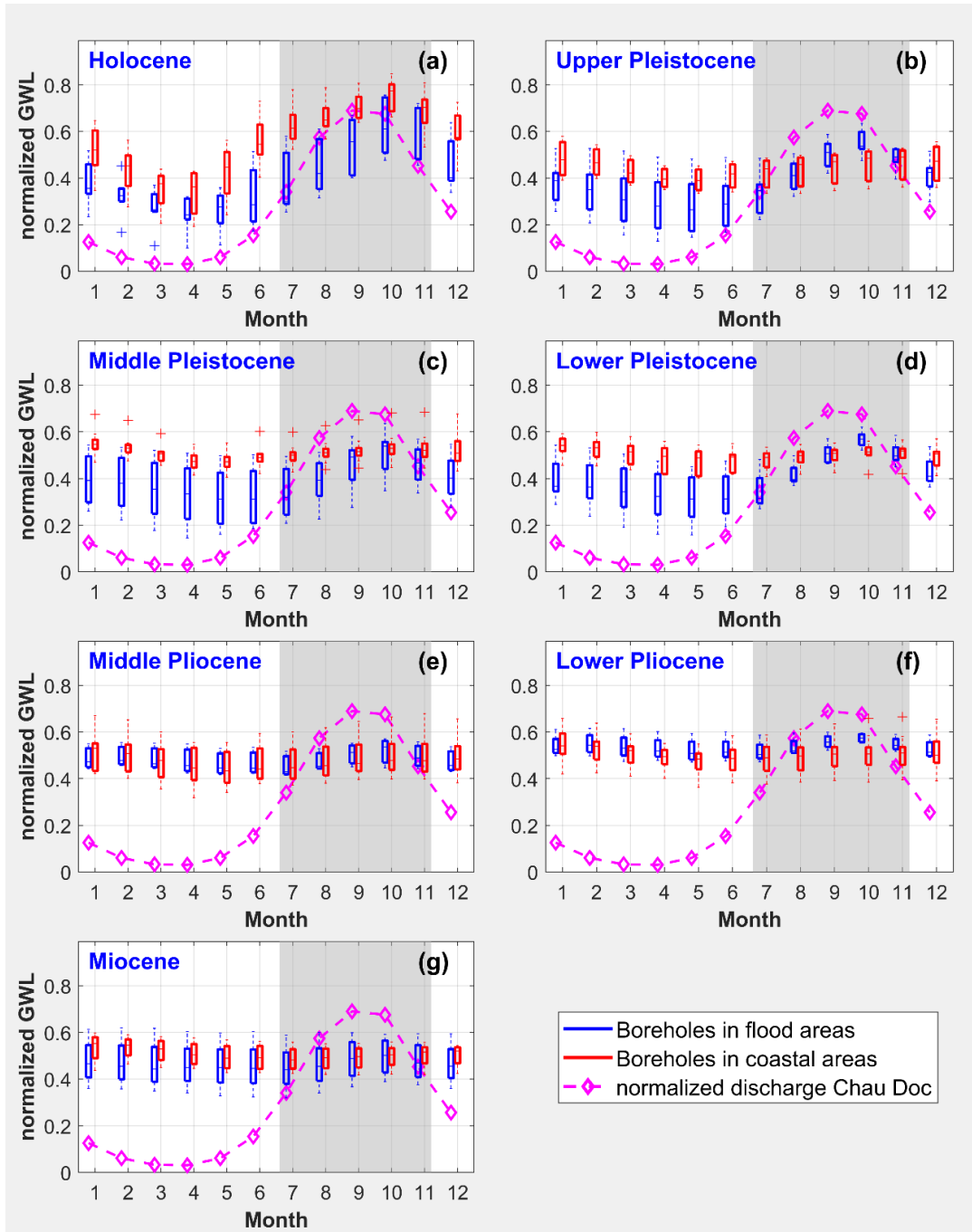


Figure 4: Seasonal variation of normalized GWL and discharge at Chau Doc station. The box-whisker plots show the interquartile ranges; the whiskers show the minimum and maximum values associated with 1.5 times the interquartile range. The grey areas mark the monsoon/flood season.

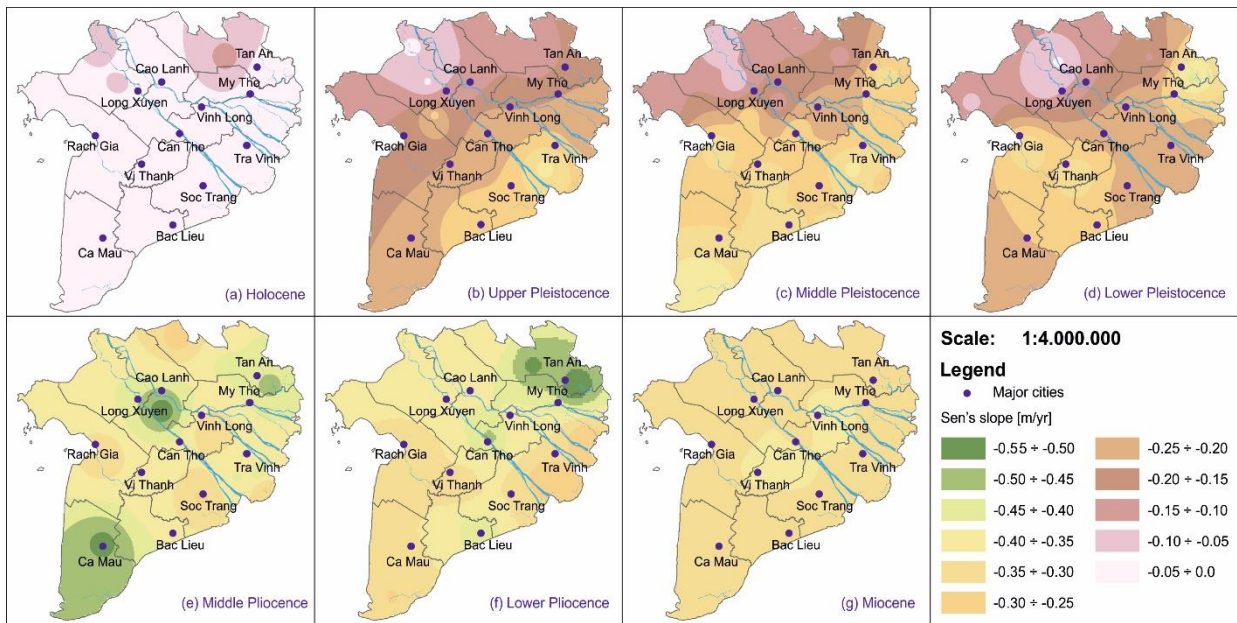


Figure 5: Spatially interpolated recent (1996–2017) trends of GWLs of the different aquifers in the VMD.

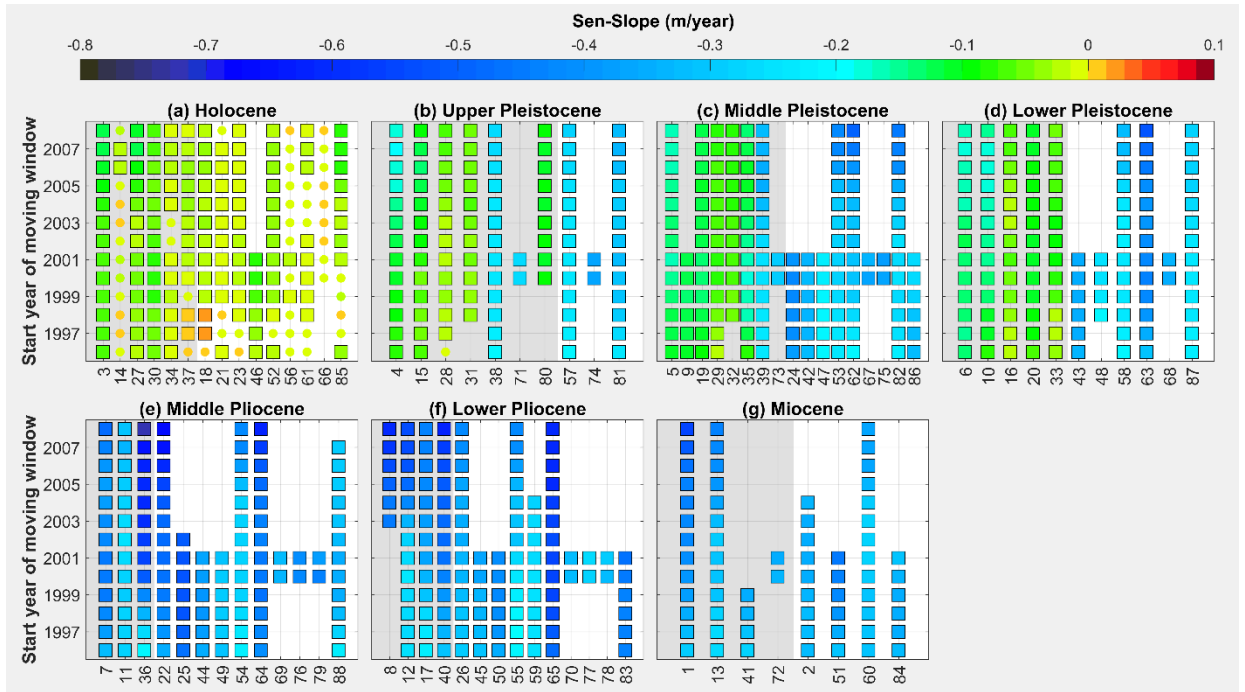


Figure 6: Time-variant trends (reported as Sen's slope) calculated for ten-year periods in different aquifers in the VMD. The y-axis shows the start year of the moving window, while the x-axis shows the borehole number (Table 1). The values of Sen's slope (m/year) correspond to the color bar. The squares and circles indicate that the trends are significant or insignificant at the 95% level, respectively. Grey (or white) backgrounds indicate that the location of a borehole is at flood (or coastal) areas. Blank areas indicate no available GWL data.

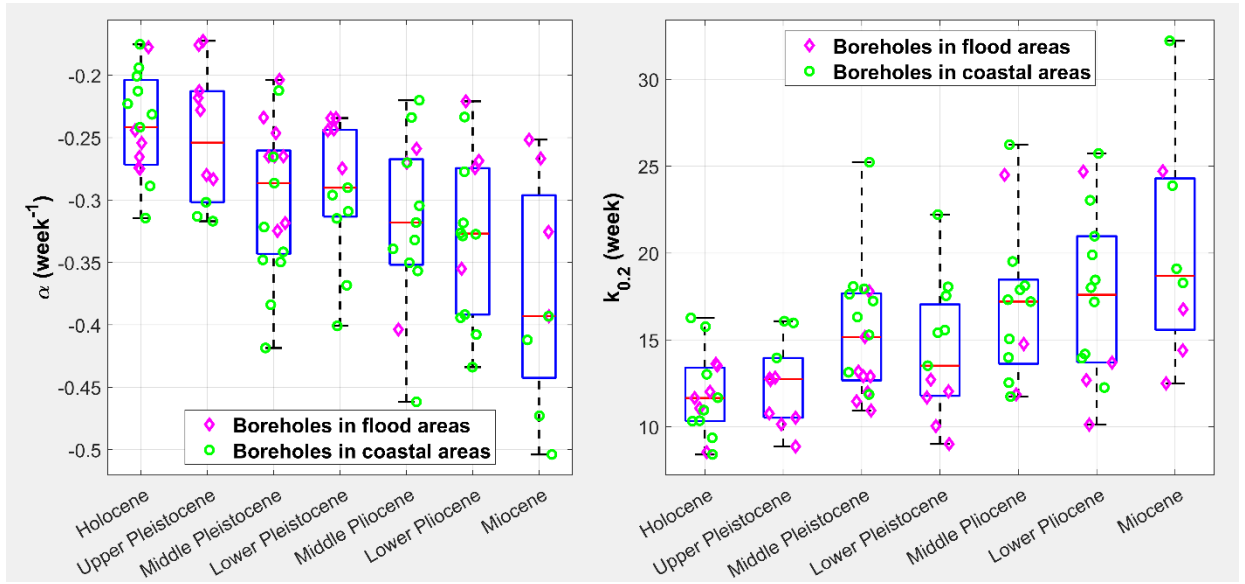


Figure 7: Memory effect of aquifers in the VMD, characterized by (α) the rate of decrease of the autocorrelation function (left), and ($k_{0.2}$) the lag time (week) to reach the autocorrelation coefficient of 0.2 (right).

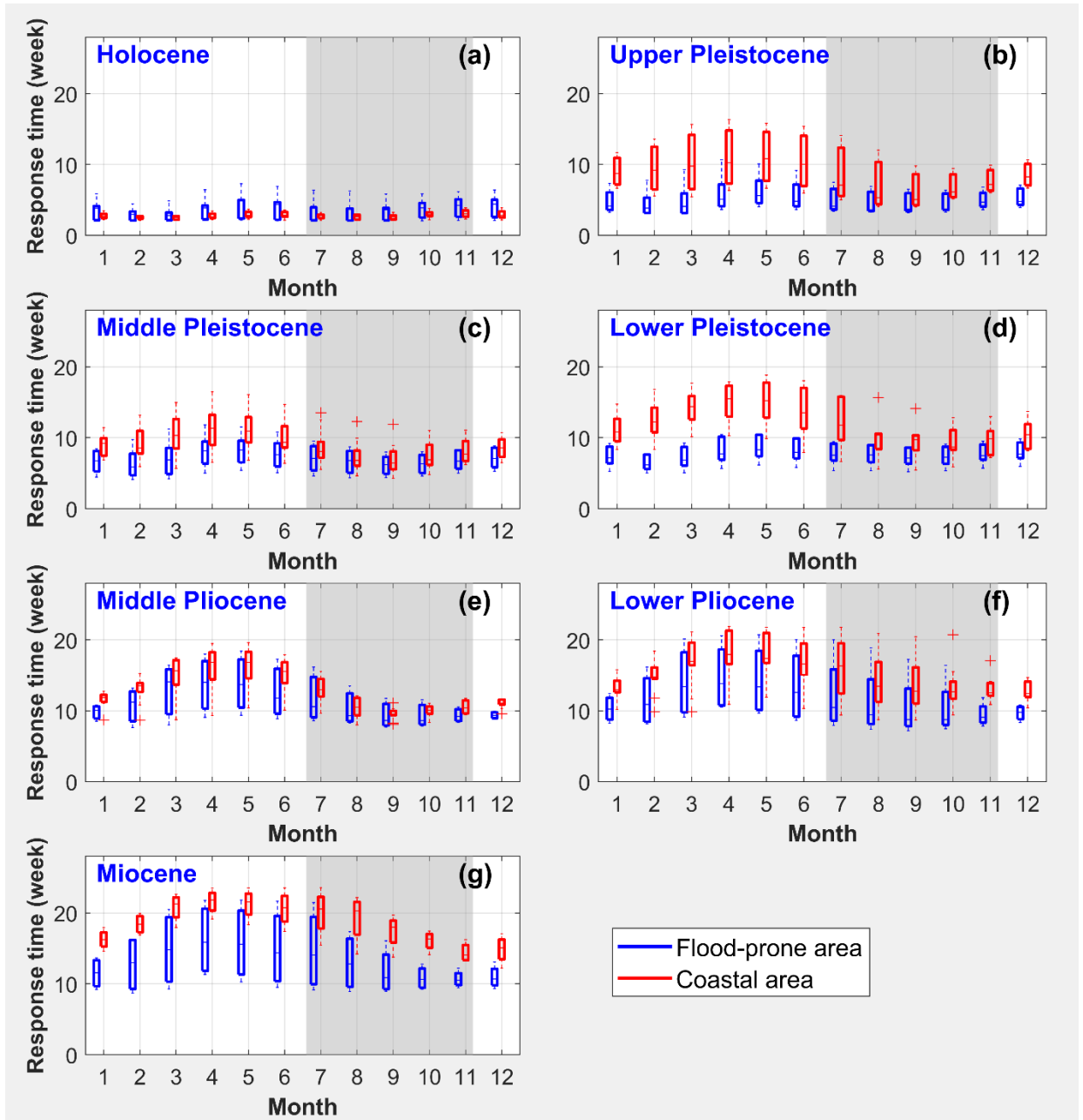


Figure 8: Response time, averaged for each month, between surface water and groundwater for different aquifers in flood-prone and coastal areas in the VMD. Grey areas indicate flood season.