| | Hypothesis | Evaluation strategy |
|---|---|---|
| H1 | There is no monotonic trend in the annual frequency of flood events globally and in different latitudinal belts. | Nonparametric Mann–Kendall trend test is applied to the annual time series of flood counts ($F_{\mathrm{C}}^{t,\mathrm{r}}$). |
| H2 | There is no monotonic trend in the distribution of flood duration globally and in different latitudinal belts. | Nonparametric Mann–Kendall trend test is applied to the annual time series of median, median absolute deviation, resistant skewness, and 90th percentile of the flood duration's distributions ($F_{\mathrm{D}}^{t,\mathrm{r}}$). |
| H3 | There is no monotonic trend in the annual frequency of short-, moderate-, and long-duration flood events in different latitudinal belts. | Nonparametric Mann-Kendall trend test is applied to the annual time series of short-, moderate-, and long-duration flood events ($\mathrm{Fc}_{\mathrm{S}}^{t,\mathrm{r}}$, $\mathrm{Fc}_{\mathrm{M}}^{t,\mathrm{r}}$, $\mathrm{Fc}_{\mathrm{L}}^{t,\mathrm{r}}$). |
| H4 | Any observed trend(s) in H1 and/or H2 is related to atmospheric teleconnections. | Generalized linear models are developed for $F_{\mathrm{C}}^{t,\mathrm{r}}$ and $F_{\mathrm{D}}^{t,\mathrm{r}}$ using climate indices; Mann–Kendall trend test is applied to the residual of the models. |