RESULTS

HYDROLOGICAL ANALYSIS

Below we describe patterns of variation functional dispersion as they relate to the two groups of hydrological variables described in Table X: those describing frequency and magnitude of flood disturbance, and those describing variability in water availability in the riparian zone. Statistics for all univariate regression models are shown in Table X.

Table 1. Statistics for univariate linear regression models comparing FDis with hydrological metrics. p.adj represents p values which have been adjusted to control the false discovery rate. Relationships which remained significant following adjustment are shown in bold typeface. Relationships for which p < 0.05 but became non-significant following adjustment are shown in italic typeface. All models are linear apart from M\_MinM for which a quadratic model provided a substantially better fit.

|  |  |  |  |
| --- | --- | --- | --- |
| metric | p | R2 | p.adj |
| CVAnnHSPeak | **0.001** | **0.577** | **0.023** |
| MDFMDFSummer | **0.003** | **0.503** | **0.035** |
| CVMDFWinter | **0.01** | **0.414** | **0.049** |
| CVAnnMRateRise | **0.011** | **0.403** | **0.049** |
| M\_MinM | **0.012** | **0.540** | **0.043** |
| CVAnnMRateFall | **0.013** | **0.39** | **0.049** |
| MDFMDFSpring | **0.013** | **0.386** | **0.049** |
| AS20YrARI | **0.015** | **0.377** | **0.049** |
| M\_MDFM | *0.021* | *0.347* | *0.054* |
| M\_MaxM | *0.026* | *0.327* | *0.054* |
| CVMDFSpring | *0.026* | *0.327* | *0.054* |
| CVMDFAutumn | *0.034* | *0.301* | *0.064* |
| CVAnnHSNum | *0.036* | *0.296* | *0.064* |
| HSPeak | 0.065 | 0.238 | 0.106 |
| MDFMDFWinter | 0.088 | 0.207 | 0.127 |
| C\_MaxM | 0.088 | 0.207 | 0.127 |
| C\_MDFM | 0.109 | 0.186 | 0.139 |
| MDFMDFAutumn | 0.109 | 0.185 | 0.139 |
| C\_MinM | 0.136 | 0.163 | 0.165 |
| MRateRise | 0.156 | 0.149 | 0.172 |
| MRateFall | 0.157 | 0.148 | 0.172 |
| CVMDFSummer | 0.287 | 0.087 | 0.3 |
| MDFAnnHSNum | 0.727 | 0.01 | 0.727 |

COMPARISONS WITH GLOBAL ENVIRONMENTAL VARIABLES

No significant relationships were found between FDis and latitude (, elevation above sea level or catchment area.

IS FUNCTIONAL DIVERSITY RELATED TO THE FREQUENCY AND MAGNITUDE OF FLOODING DISTURBANCE?

IS FUNCTIONAL DIVERSITY RELATED TO SEASONAL VARIABILITY IN WATER AVAILABILITY IN THE RIPARIAN ZONE?