|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table S4. Percent contribution of elliptic Fourier coefficients (variables) per principal component (factor) | | | | | | | | | | | | | | | | | | |  | |
|  |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |
|  | | F1 | | F2 | | F3 | | F4 | | F5 | | F6 | | F7 | | F8 | | F9 | | F10 | |
| Var1 | | 9.700 | | 40.238 | | 0.113 | | 1.107 | | 7.967 | | 16.189 | | 1.138 | | 0.139 | | 0.007 | | 0.084 | |
| Var2 | | 0.212 | | 13.287 | | 7.262 | | 7.418 | | 15.947 | | 10.575 | | 0.504 | | 2.839 | | 19.655 | | 0.346 | |
| Var3 | | 0.368 | | 5.922 | | 76.807 | | 2.390 | | 3.391 | | 4.472 | | 0.007 | | 0.138 | | 0.467 | | 1.573 | |
| Var4 | | 56.084 | | 16.773 | | 0.016 | | 12.644 | | 4.304 | | 8.025 | | 0.065 | | 0.005 | | 0.016 | | 0.107 | |
| Var5 | | 10.828 | | 1.733 | | 0.005 | | 19.049 | | 30.176 | | 1.516 | | 3.058 | | 0.530 | | 0.499 | | 0.817 | |
| Var6 | | 0.037 | | 4.456 | | 1.344 | | 3.507 | | 2.794 | | 2.953 | | 0.013 | | 15.105 | | 43.800 | | 2.347 | |
| Var7 | | 0.035 | | 0.533 | | 0.047 | | 0.669 | | 0.179 | | 0.199 | | 0.191 | | 50.725 | | 24.782 | | 1.175 | |
| Var8 | | 0.235 | | 6.476 | | 0.042 | | 26.385 | | 17.107 | | 34.517 | | 0.114 | | 0.060 | | 0.221 | | 9.645 | |
| Var9 | | 8.141 | | 2.978 | | 0.074 | | 0.373 | | 1.810 | | 6.073 | | 3.021 | | 0.027 | | 0.031 | | 1.239 | |
| Var10 | | 0.076 | | 3.499 | | 7.972 | | 1.952 | | 2.341 | | 1.690 | | 0.014 | | 0.290 | | 0.000 | | 1.349 | |
| Var11 | | 0.032 | | 0.406 | | 0.176 | | 0.150 | | 0.722 | | 0.511 | | 1.110 | | 0.732 | | 0.131 | | 0.014 | |
| Var12 | | 0.069 | | 0.100 | | 0.008 | | 0.159 | | 3.101 | | 0.270 | | 67.484 | | 0.296 | | 0.095 | | 2.632 | |
| Var13 | | 5.060 | | 0.600 | | 0.000 | | 10.587 | | 3.884 | | 0.128 | | 0.229 | | 0.153 | | 0.067 | | 0.138 | |
| Var14 | | 0.005 | | 0.656 | | 0.319 | | 0.428 | | 0.224 | | 0.857 | | 0.058 | | 10.929 | | 2.891 | | 2.611 | |
| Var15 | | 0.005 | | 0.045 | | 0.000 | | 0.046 | | 0.020 | | 0.331 | | 0.121 | | 1.770 | | 1.548 | | 0.024 | |
| Var16 | | 0.500 | | 0.070 | | 0.145 | | 0.954 | | 2.287 | | 4.185 | | 0.174 | | 0.747 | | 1.091 | | 35.411 | |
| Var17 | | 3.002 | | 0.487 | | 0.007 | | 0.872 | | 0.149 | | 1.327 | | 7.856 | | 0.038 | | 0.503 | | 0.335 | |
| Var18 | | 0.011 | | 0.222 | | 2.765 | | 0.411 | | 0.741 | | 1.091 | | 0.006 | | 0.147 | | 0.433 | | 3.171 | |
| Var19 | | 0.001 | | 0.000 | | 0.152 | | 0.020 | | 0.205 | | 0.354 | | 0.140 | | 0.311 | | 0.072 | | 0.314 | |
| Var20 | | 0.798 | | 0.001 | | 0.001 | | 0.468 | | 0.274 | | 0.532 | | 3.922 | | 0.040 | | 0.003 | | 1.529 | |
| Var21 | | 1.678 | | 0.396 | | 0.013 | | 5.271 | | 0.229 | | 0.002 | | 0.052 | | 0.549 | | 0.658 | | 7.464 | |
| Var22 | | 0.000 | | 0.016 | | 0.175 | | 0.083 | | 0.191 | | 0.881 | | 0.009 | | 6.998 | | 0.262 | | 1.383 | |
| Var23 | | 0.003 | | 0.111 | | 0.000 | | 0.003 | | 0.025 | | 0.302 | | 0.053 | | 0.135 | | 0.332 | | 0.084 | |
| Var24 | | 0.667 | | 0.025 | | 0.013 | | 0.445 | | 0.491 | | 0.824 | | 0.137 | | 0.261 | | 0.501 | | 8.154 | |
| Var25 | | 0.893 | | 0.159 | | 0.010 | | 0.231 | | 0.001 | | 0.087 | | 4.919 | | 0.000 | | 0.007 | | 0.320 | |
| Var26 | | 0.002 | | 0.006 | | 1.084 | | 0.019 | | 0.450 | | 0.443 | | 0.081 | | 0.032 | | 0.125 | | 1.056 | |
| Var27 | | 0.004 | | 0.004 | | 0.165 | | 0.008 | | 0.058 | | 0.052 | | 0.057 | | 0.053 | | 0.007 | | 0.120 | |
| Var28 | | 0.454 | | 0.014 | | 0.000 | | 0.000 | | 0.209 | | 0.125 | | 0.023 | | 0.047 | | 0.003 | | 0.264 | |
| Var29 | | 0.435 | | 0.125 | | 0.027 | | 1.819 | | 0.035 | | 0.097 | | 0.073 | | 0.158 | | 0.027 | | 5.385 | |
| Var30 | | 0.002 | | 0.027 | | 0.086 | | 0.010 | | 0.035 | | 0.506 | | 0.010 | | 3.091 | | 0.010 | | 0.608 | |
| Var31 | | 0.002 | | 0.013 | | 0.002 | | 0.000 | | 0.007 | | 0.003 | | 0.001 | | 0.311 | | 0.083 | | 0.027 | |
| Var32 | | 0.155 | | 0.004 | | 0.000 | | 0.902 | | 0.081 | | 0.060 | | 0.069 | | 0.002 | | 0.066 | | 0.173 | |
| Var33 | | 0.182 | | 0.199 | | 0.013 | | 0.030 | | 0.000 | | 0.002 | | 2.493 | | 0.013 | | 0.018 | | 0.439 | |
| Var34 | | 0.002 | | 0.042 | | 0.434 | | 0.017 | | 0.027 | | 0.017 | | 0.000 | | 0.013 | | 0.032 | | 0.398 | |
| Var35 | | 0.000 | | 0.002 | | 0.235 | | 0.000 | | 0.000 | | 0.001 | | 0.006 | | 0.080 | | 0.127 | | 0.186 | |
| Var36 | | 0.082 | | 0.029 | | 0.002 | | 0.000 | | 0.090 | | 0.019 | | 0.245 | | 0.108 | | 0.008 | | 0.014 | |
| Var37 | | 0.093 | | 0.013 | | 0.023 | | 0.794 | | 0.061 | | 0.008 | | 0.086 | | 0.139 | | 0.061 | | 4.041 | |
| Var38 | | 0.000 | | 0.007 | | 0.037 | | 0.004 | | 0.004 | | 0.159 | | 0.002 | | 1.055 | | 0.185 | | 0.069 | |
| Var39 | | 0.002 | | 0.005 | | 0.023 | | 0.009 | | 0.000 | | 0.002 | | 0.019 | | 0.401 | | 0.008 | | 0.011 | |
| Var40 | | 0.047 | | 0.000 | | 0.000 | | 0.442 | | 0.033 | | 0.028 | | 0.002 | | 0.024 | | 0.017 | | 0.328 | |
| Var41 | | 0.040 | | 0.167 | | 0.007 | | 0.003 | | 0.003 | | 0.074 | | 0.905 | | 0.060 | | 0.032 | | 0.080 | |
| Var42 | | 0.000 | | 0.002 | | 0.107 | | 0.000 | | 0.027 | | 0.016 | | 0.008 | | 0.058 | | 0.000 | | 0.018 | |
| Var43 | | 0.001 | | 0.035 | | 0.067 | | 0.001 | | 0.002 | | 0.002 | | 0.000 | | 0.003 | | 0.006 | | 0.024 | |
| Var44 | | 0.013 | | 0.013 | | 0.005 | | 0.006 | | 0.001 | | 0.033 | | 0.563 | | 0.004 | | 0.002 | | 0.025 | |
| Var45 | | 0.012 | | 0.000 | | 0.014 | | 0.153 | | 0.007 | | 0.022 | | 0.008 | | 0.060 | | 0.025 | | 1.963 | |
| Var46 | | 0.001 | | 0.023 | | 0.020 | | 0.008 | | 0.002 | | 0.074 | | 0.006 | | 0.373 | | 0.199 | | 0.021 | |
| Var47 | | 0.000 | | 0.007 | | 0.007 | | 0.001 | | 0.001 | | 0.003 | | 0.005 | | 0.286 | | 0.019 | | 0.002 | |
| Var48 | | 0.018 | | 0.001 | | 0.005 | | 0.071 | | 0.009 | | 0.076 | | 0.045 | | 0.081 | | 0.038 | | 0.224 | |
| Var49 | | 0.001 | | 0.005 | | 0.001 | | 0.001 | | 0.062 | | 0.014 | | 0.296 | | 0.000 | | 0.001 | | 0.057 | |
| Var50 | | 0.000 | | 0.015 | | 0.032 | | 0.006 | | 0.003 | | 0.029 | | 0.033 | | 0.063 | | 0.000 | | 0.009 | |
| Var51 | | 0.000 | | 0.001 | | 0.031 | | 0.001 | | 0.008 | | 0.000 | | 0.005 | | 0.004 | | 0.000 | | 0.022 | |
| Var52 | | 0.000 | | 0.000 | | 0.005 | | 0.000 | | 0.109 | | 0.001 | | 0.237 | | 0.008 | | 0.002 | | 0.007 | |
| Var53 | | 0.004 | | 0.012 | | 0.012 | | 0.012 | | 0.003 | | 0.046 | | 0.001 | | 0.003 | | 0.159 | | 0.885 | |
| Var54 | | 0.000 | | 0.001 | | 0.010 | | 0.004 | | 0.003 | | 0.016 | | 0.008 | | 0.089 | | 0.157 | | 0.016 | |
| Var55 | | 0.001 | | 0.001 | | 0.009 | | 0.007 | | 0.008 | | 0.013 | | 0.000 | | 0.049 | | 0.080 | | 0.000 | |
| Var56 | | 0.001 | | 0.001 | | 0.001 | | 0.018 | | 0.007 | | 0.016 | | 0.004 | | 0.005 | | 0.130 | | 0.416 | |
| Var57 | | 0.000 | | 0.000 | | 0.000 | | 0.001 | | 0.021 | | 0.000 | | 0.082 | | 0.000 | | 0.020 | | 0.004 | |
| Var58 | | 0.001 | | 0.005 | | 0.011 | | 0.000 | | 0.000 | | 0.027 | | 0.019 | | 0.031 | | 0.006 | | 0.000 | |
| Var59 | | 0.000 | | 0.007 | | 0.001 | | 0.002 | | 0.000 | | 0.003 | | 0.005 | | 0.050 | | 0.019 | | 0.015 | |
| Var60 | | 0.002 | | 0.003 | | 0.005 | | 0.000 | | 0.030 | | 0.006 | | 0.107 | | 0.023 | | 0.013 | | 0.001 | |
| Var61 | | 0.001 | | 0.000 | | 0.007 | | 0.007 | | 0.004 | | 0.034 | | 0.010 | | 0.038 | | 0.053 | | 0.357 | |
| Var62 | | 0.000 | | 0.003 | | 0.006 | | 0.001 | | 0.000 | | 0.010 | | 0.002 | | 0.031 | | 0.083 | | 0.003 | |
| Var63 | | 0.000 | | 0.000 | | 0.001 | | 0.000 | | 0.002 | | 0.005 | | 0.001 | | 0.009 | | 0.006 | | 0.000 | |
| Var64 | | 0.000 | | 0.000 | | 0.002 | | 0.000 | | 0.001 | | 0.011 | | 0.000 | | 0.000 | | 0.003 | | 0.303 | |
| Var65 | | 0.000 | | 0.007 | | 0.003 | | 0.001 | | 0.005 | | 0.004 | | 0.023 | | 0.001 | | 0.000 | | 0.004 | |
| Var66 | | 0.000 | | 0.000 | | 0.008 | | 0.001 | | 0.006 | | 0.000 | | 0.000 | | 0.038 | | 0.023 | | 0.004 | |
| Var67 | | 0.000 | | 0.000 | | 0.001 | | 0.000 | | 0.003 | | 0.006 | | 0.000 | | 0.003 | | 0.006 | | 0.006 | |
| Var68 | | 0.000 | | 0.000 | | 0.003 | | 0.000 | | 0.010 | | 0.008 | | 0.005 | | 0.004 | | 0.002 | | 0.001 | |
| Var69 | | 0.000 | | 0.001 | | 0.002 | | 0.006 | | 0.006 | | 0.013 | | 0.029 | | 0.025 | | 0.016 | | 0.118 | |
| Var70 | | 0.000 | | 0.000 | | 0.009 | | 0.001 | | 0.001 | | 0.012 | | 0.001 | | 0.031 | | 0.002 | | 0.001 | |
| Var71 | | 0.000 | | 0.000 | | 0.000 | | 0.001 | | 0.003 | | 0.002 | | 0.005 | | 0.026 | | 0.018 | | 0.000 | |
| Var72 | | 0.000 | | 0.002 | | 0.000 | | 0.000 | | 0.003 | | 0.000 | | 0.001 | | 0.001 | | 0.000 | | 0.008 | |
| Var73 | | 0.000 | | 0.000 | | 0.004 | | 0.002 | | 0.000 | | 0.003 | | 0.022 | | 0.002 | | 0.001 | | 0.001 | |
| Var74 | | 0.000 | | 0.003 | | 0.005 | | 0.002 | | 0.001 | | 0.001 | | 0.000 | | 0.014 | | 0.008 | | 0.011 | |
| Var75 | | 0.000 | | 0.000 | | 0.000 | | 0.000 | | 0.000 | | 0.002 | | 0.000 | | 0.037 | | 0.019 | | 0.005 | |
| Var76 | | 0.000 | | 0.001 | | 0.000 | | 0.000 | | 0.001 | | 0.004 | | 0.000 | | 0.000 | | 0.000 | | 0.007 | |