| i   |                      |          |           |            |                       |                      |       |       |  |                       |       |       |       |                            |                      |       |       |       |  |
|---|----------------------|----------|-----------|------------|-----------------------|----------------------|-------|-------|--|-----------------------|-------|-------|-------|----------------------------|----------------------|-------|-------|-------|--|
| x and y offset<br>Haversine distance                              | 0.003                | 0.353    | 0.0       | 1.0        | 0.09                  | 0.003                | 0.075 | 1.0   |  | 0.191                 | 0.001 | 0.426 | 1.0   |                            | 0.0                  | 0.0   | 0.009 | 1.0   |  |
|   | 0.014                | 0.0      | 1.0       | 0.0        | 0.958                 | 0.0                  | 1.0   | 0.075 |  | 0.596                 | 0.0   | 1.0   | 0.426 |                            | 0.101                | 0.0   | 1.0   | 0.009 |  |
|   | 0.0                  | 1.0      | 0.0       | 0.353      | 0.0                   | 1.0                  | 0.0   | 0.003 |  | 0.001                 | 1.0   | 0.0   | 0.001 |                            | 0.075                | 1.0   | 0.0   | 0.0   |  |
|   | 1.0                  | 0.0      | 0.014     | 0.003      | 1.0                   | 0.0                  | 0.958 | 0.09  |  | 1.0                   | 0.001 | 0.596 | 0.191 |                            | 1.0                  | 0.075 | 0.101 | 0.0   |  |
|   | Forecasting time 2 s |          |           |            | Fo                    | Forecasting time 3 s |       |       |  | Forecasting time 4 s  |       |       |       |                            | Forecasting time 5 s |       |       |       |  |
|   | 0.0                  | 0.0      | 0.0       | 1.0        | 0.0                   | 0.0                  | 0.0   | 1.0   |  | 0.0                   | 0.0   | 0.0   | 1.0   |                            |                      |       |       |       |  |
|   | 0.0                  | 0.002    | 1.0       | 0.0        | 0.426                 | 0.0                  | 1.0   | 0.0   |  | 0.874                 | 0.672 | 1.0   | 0.0   |                            |                      |       |       |       |  |
|   | 0.0                  | 1.0      | 0.002     | 0.0        | 0.0                   | 1.0                  | 0.0   | 0.0   |  | 0.634                 | 1.0   | 0.672 | 0.0   |                            |                      |       |       |       |  |
|   | 1.0                  | 0.0      | 0.0       | 0.0        | 1.0                   | 0.0                  | 0.426 | 0.0   |  | 1.0                   | 0.634 | 0.874 | 0.0   |                            |                      |       |       |       |  |
|   | Foi                  | ecasting | g time 10 | 0 <i>s</i> | Forecasting time 20 s |                      |       |       |  | Forecasting time 30 s |       |       |       |                            |                      |       |       |       |  |
| Speed, heading, and time<br>Haversine distance                    | 0.0                  | 0.0      | 0.0       | 1.0        | 0.0                   | 0.0                  | 0.0   | 1.0   |  | 0.0                   | 0.0   | 0.0   | 1.0   |                            | 0.0                  | 0.0   | 0.0   | 1.0   |  |
|   | 0.442                | 0.508    | 1.0       | 0.0        | 0.252                 | 0.09                 | 1.0   | 0.0   |  | 0.833                 | 0.381 | 1.0   | 0.0   |                            | 0.007                | 0.101 | 1.0   | 0.0   |  |
|   | 0.979                | 1.0      | 0.508     | 0.0        | 0.141                 | 1.0                  | 0.09  | 0.0   |  | 0.771                 | 1.0   | 0.381 | 0.0   |                            | 0.312                | 1.0   | 0.101 | 0.0   |  |
|   | 1.0                  | 0.979    | 0.442     | 0.0        | 1.0                   | 0.141                | 0.252 | 0.0   |  | 1.0                   | 0.771 | 0.833 | 0.0   |                            | 1.0                  | 0.312 | 0.007 | 0.0   |  |
|   | Fo                   | recastin | g time 2  | ? s        | Forecasting time 3 s  |                      |       |       |  | Forecasting time 4 s  |       |       |       |                            | Forecasting time 5 s |       |       |       |  |
|   | 0.0                  | 0.0      | 0.0       | 1.0        | 0.0                   | 0.0                  | 0.0   | 1.0   |  | 0.0                   | 0.0   | 0.0   | 1.0   | - UniTS                    |                      |       |       |       |  |
|   | 0.0                  | 0.015    | 1.0       | 0.0        | 0.002                 | 0.731                | 1.0   | 0.0   |  | 0.071                 | 0.22  | 1.0   | 0.0   | - GRU Att 4<br>- GRU Att 2 |                      |       |       |       |  |
|   | 0.0                  | 1.0      | 0.015     | 0.0        | 0.01                  | 1.0                  | 0.731 | 0.0   |  | 0.003                 | 1.0   | 0.22  | 0.0   |                            |                      |       |       |       |  |
|   | 1.0                  | 0.0      | 0.0       | 0.0        | 1.0                   | 0.01                 | 0.002 | 0.0   |  | 1.0                   | 0.003 | 0.071 | 0.0   | - GRI                      | J Att 1              |       |       |       |  |
| Forecasting time 10 s Forecasting time 20 s Forecasting time 30 s |                      |          |           |            |                       |                      |       |       |  |                       |       |       |       |                            |                      |       |       |       |  |