Table S3. Statistical summary of comparisons between modeled and measured annual 2005 wet deposition fluxes

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| --- | --- | --- |
|  | Regiona | Model Configuration |
| 1A | 1B | 1C | 2A | 2B | 2C | 3A | 3B | 3C | 2D | 3D |
| Base case: O-20, R-0 | O-20, R-33 | O-20, R-67 | O-33, R-0 | O-33, R-33 | O-33, R-67 | O-10, R-0  | O-10, R-33 | O-10, R-67 | O-33, base emit | O-10, base emit |
| Biasb | GL-WC | -27% | -31% | -35% | -9% | -13% | -17% | -40% | -45% | -49% | -22% | -32% |
| GL-E | 16% | 10% | 3% | 43% | 37% | 31% | -5% | -12% | -19% | 23% | 8% |
| GL | -11% | -16% | -21% | 9% | 4% | 0% | -28% | -33% | -38% | -6% | -18% |
| GOM | -58% | -59% | -60% | -46% | -47% | -47% | -69% | -69% | -70% | -55% | -63% |
| Other | -16% | -18% | -19% | 7% | 5% | 4% | -35% | -37% | -38% | -11% | -23% |
| All | -28% | -30% | -33% | -9% | -11% | -13% | -43% | -46% | -48% | -23% | -34% |
| All-GOM | -14% | -17% | -20% | 8% | 5% | 2% | -32% | -35% | -38% | -8% | -21% |
| Correlation coefficient (r2)c | GL-WC | 0.59 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.58 | 0.59 | 0.59 | 0.60 | 0.58 |
| GL-E | 0.46 | 0.45 | 0.42 | 0.45 | 0.43 | 0.40 | 0.46 | 0.46 | 0.44 | 0.46 | 0.46 |
| GL | 0.30 | 0.28 | 0.26 | 0.29 | 0.27 | 0.24 | 0.31 | 0.29 | 0.27 | 0.30 | 0.30 |
| GOM | 0.18 | 0.21 | 0.24 | 0.21 | 0.24 | 0.26 | 0.14 | 0.17 | 0.21 | 0.19 | 0.17 |
| Other | 0.29 | 0.27 | 0.25 | 0.28 | 0.27 | 0.25 | 0.30 | 0.27 | 0.25 | 0.30 | 0.28 |
| All | 0.09 | 0.10 | 0.10 | 0.11 | 0.11 | 0.11 | 0.08 | 0.08 | 0.08 | 0.10 | 0.08 |
| All-GOM | 0.29 | 0.27 | 0.25 | 0.28 | 0.27 | 0.25 | 0.29 | 0.28 | 0.25 | 0.30 | 0.28 |
| RMSEd | GL-WC | 2.7 | 2.9 | 3.1 | 2.1 | 2.0 | 2.1 | 3.6 | 3.9 | 4.2 | 2.5 | 3.1 |
| GL-E | 2.0 | 1.7 | 1.5 | 3.8 | 3.4 | 3.0 | 1.3 | 1.5 | 1.8 | 2.4 | 1.5 |
| GL | 2.5 | 2.5 | 2.6 | 2.9 | 2.6 | 2.5 | 3.0 | 3.2 | 3.5 | 2.5 | 2.6 |
| GOM | 8.9 | 8.9 | 9.0 | 7.3 | 7.4 | 7.4 | 10.1 | 10.2 | 10.3 | 8.4 | 9.4 |
| Other | 3.3 | 3.4 | 3.5 | 3.6 | 3.6 | 3.7 | 3.8 | 3.9 | 4.0 | 3.2 | 3.4 |
| All | 4.7 | 4.8 | 4.9 | 4.4 | 4.4 | 4.3 | 5.5 | 5.6 | 5.7 | 4.6 | 5.0 |
| All-GOM | 2.9 | 3.0 | 3.1 | 3.3 | 3.2 | 3.2 | 3.4 | 3.6 | 3.8 | 2.9 | 3.1 |

a. Region: *GL-WC* = Western/Central Great Lakes; *GL-E* = Eastern Great Lakes; *GL* = Great Lakes (all); *GOM* = Gulf of Mexico; *Other* = all MDN sites other than in the Great Lakes and Gulf of Mexico regions; *All* = all MDN sites; *All – GOM* = all MDN sites except sites in the Gulf of Mexico region. See Figure 5 in the main paper for locations of each region’s sites.

b. *Bias* = (modeled average regional annual flux / measured average regional annual flux) – 1.0. The *bias* is expressed as a percentage, i.e., a bias value of 0.20 is shown as 20% in the above table.

c. *Correlation coefficient* = r2 for linear regression of annual modeled vs. measured annual wet deposition fluxes for sites within a given region.

d. *RMSE* = root mean square error in annual fluxes for sites within a given region (µg m-2 yr-1).