Table S6. Cross-validation (CV) statistics of the ozone national Integrated Empirical Geographic (IEG) models including no some and all geographic variables and/or satellite estimates for four metrics by summer and all seasons

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 　 | 　 | 　 | 　 | 　 |  Conventional CV | Clustered CV |
| Season | Metric | N of sites | Year | N of variables | Median | 25% | 75% | Median | 25% | 75% |
| All  | 24-hr mean | 213-479 | 1979-1986 | 0 | 0.38  | 0.26  | 0.47  | 0.00  | 0.00  | 0.00  |
|  |  |  | 1990-2015 | 3-30a | 0.73  | 0.68  | 0.75  | 0.63  | 0.55  | 0.66  |
|  |  |  |  | All | 0.64  | 0.59  | 0.67  | 0.40  | 0.25  | 0.50  |
|  | 8-hr max | 　 | 　 | 0 | 0.57  | 0.45  | 0.65  | 0.14  | 0.03  | 0.19  |
|  |  |  |  | 3-30 | 0.70  | 0.64  | 0.74  | 0.46  | 0.32  | 0.54  |
|  |  |  |  | All | 0.67  | 0.59  | 0.71  | 0.25  | 0.11  | 0.40  |
|  | 8-hr mean | 　 | 　 | 0 | 0.60  | 0.48  | 0.67  | 0.17  | 0.07  | 0.23  |
|  |  |  |  | 3-30 | 0.71  | 0.66  | 0.77  | 0.50  | 0.36  | 0.57  |
|  |  |  |  | All | 0.69  | 0.61  | 0.74  | 0.32  | 0.16  | 0.45  |
|  | 1-hr max | 　 | 1980-1986 | 0 | 0.57  | 0.44  | 0.63  | 0.18  | 0.06  | 0.29  |
|  |  |  | 1990-2015 | 3-30 | 0.67  | 0.58  | 0.73  | 0.43  | 0.23  | 0.50  |
|  |  |  |  | All | 0.63  | 0.52  | 0.69  | 0.18  | 0.00  | 0.35  |
| Summer | 24-hr mean | 232-916 | 1979-2015 | 0 | 0.50  | 0.46  | 0.57  | 0.08  | 0.00  | 0.14  |
| (May-Sep) |  |  |  | 3-30 | 0.69  | 0.62  | 0.73  | 0.46  | 0.29  | 0.52  |
|  | 　 | 　 | 　 | All | 0.61  | 0.55  | 0.64  | 0.28  | 0.14  | 0.36  |
|  | 8-hr max | 　 | 　 | 0 | 0.72  | 0.65  | 0.77  | 0.34  | 0.17  | 0.46  |
|  |  |  |  | 3-30 | 0.73  | 0.68  | 0.78  | 0.41  | 0.24  | 0.52  |
|  |  |  |  | All | 0.73  | 0.65  | 0.78  | 0.36  | 0.16  | 0.47  |
|  | 8-hr mean | 　 | 　 | 0 | 0.72  | 0.65  | 0.78  | 0.32  | 0.16  | 0.47  |
|  |  |  |  | 3-30 | 0.74  | 0.66  | 0.79  | 0.41  | 0.23  | 0.52  |
|  | 　 | 　 | 　 | All | 0.73  | 0.64  | 0.79  | 0.36  | 0.15  | 0.48  |
|  | 1-hr max |  |  | 0 | 0.73  | 0.57  | 0.77  | 0.36  | 0.22  | 0.47  |
|  |  |  |  | 3-30 | 0.74  | 0.59  | 0.78  | 0.39  | 0.27  | 0.54  |
| 　 | 　 | 　 | 　 | All | 0.74  | 0.58  | 0.78  | 0.32  | 0.18  | 0.48  |

a. Summaries of the highest R2s among years