

## Suggestions for revision or reasons for rejection

My comments to this manuscript have been figured out in this revision.

I would like to ask the authors to describe the brief information for diurnal variation of the modeling system, because both REAS and EDGAR do not provide such information.

I think this manuscript is valuable to be published from GMD.

Response: We thank the reviewer for his/her comments on our paper. We have added a brief description on diurnal variation in section 2.2, paragraph 2. We have also added Table S1 to provide ratios used for each pollutant to create hourly emissions in our study.

*We apply the same diurnal variation to both REAS and EDGAR based on the East Asian Air Pollutant Emission Grid Database (EAGrid2000, [http://www.cger.nies.go.jp/db/eagrid/eagrid\\_index\\_e.html](http://www.cger.nies.go.jp/db/eagrid/eagrid_index_e.html)). The ratios used to create hourly emissions for different pollutants are presented in Table S1.*

*Table S1. Ratios used to create hourly emissions for each pollutant in this study. The diurnal variation is adapted from the East Asian Air pollutant Emission Grid Database (EAGrid2000, [http://www.cger.nies.go.jp/db/eagrid/eagrid\\_index\\_e.html](http://www.cger.nies.go.jp/db/eagrid/eagrid_index_e.html)).*

Hours	CO	NO <sub>x</sub>	NMVOC	SO <sub>2</sub>	NH <sub>3</sub>	PM/BC/OC
0	0.015	0.023	0.019	0.033	0.021	0.021
1	0.015	0.023	0.019	0.033	0.021	0.021
2	0.015	0.023	0.019	0.033	0.021	0.021
3	0.015	0.023	0.019	0.033	0.021	0.021
4	0.015	0.023	0.023	0.033	0.021	0.025
5	0.030	0.031	0.023	0.033	0.025	0.031
6	0.038	0.046	0.028	0.038	0.029	0.040
7	0.075	0.061	0.056	0.038	0.038	0.048
8	0.068	0.061	0.075	0.043	0.042	0.063
9	0.060	0.061	0.075	0.047	0.050	0.063
10	0.060	0.061	0.071	0.052	0.067	0.062
11	0.057	0.054	0.066	0.052	0.084	0.060
12	0.057	0.058	0.066	0.052	0.092	0.058
13	0.060	0.058	0.066	0.052	0.084	0.062
14	0.060	0.058	0.066	0.052	0.076	0.060
15	0.060	0.058	0.056	0.052	0.063	0.060
16	0.064	0.054	0.056	0.047	0.050	0.058
17	0.060	0.046	0.053	0.043	0.042	0.046
18	0.042	0.038	0.028	0.043	0.034	0.042
19	0.034	0.031	0.028	0.043	0.025	0.035
20	0.030	0.031	0.023	0.040	0.025	0.029
21	0.026	0.028	0.023	0.038	0.025	0.027
22	0.026	0.025	0.023	0.036	0.021	0.025
23	0.015	0.023	0.023	0.033	0.021	0.023