

# To modify the emission

1. Download emission files and “NetCDFModifier\_v2.jar” from our webpage
2. Create a table as below and save it as tab-separated text file.

Variable	I	J	K	Hour	Action	Value
PMC	40-45		30	1 *	Replace	0.0004
PMFINE		30	30	1	1 Scale	10
NO2		50	50	1	1 Add	1

where

Variable: Emission species name

I, J: Horizontal coordinates of grid cell

K: Vertical level

Hour: Greenwich Mean Time (GMT) in hour 1 to 25

Add: Addition (Unit: g/s for particulates; mole/s for gaseous)

Scale: Multiplication (Unit: dimensionless)

Replace: Overwrite (Unit: same as Add)

\* : Represents all possible values

- : Represents a range of values

3. Execute the “NetCDFModifier\_v2.jar” using the following command

```
java -jar NetCDFModifier_v2.jar [Emission] [Inputs]
```

Parameter	Description
[Emission]	A NetCDF file containing hourly (25 hours in total) values of all pollutants
[Input]	A tab-separated text file

4. Example

```
NetCDFModifier $ls
edit_1538-1639-l01.txt emiss_CB05.HongKong.1km_2015258.ncf grid_3041-l01.txt NetCDFExtractor.jar NetCDFModifier_v2.jar
NetCDFModifier $java -jar NetCDFModifier_v2.jar emiss_CB05.HongKong.1km_2015258.ncf edit_1538-1639-l01.txt
Done
NetCDFModifier $
```

5. Remarks

- Everything should be put in one directory
- Emission files will be modified in-place (Backup first)
- GMT is used in the emission files “xxx.ncf”, a conversion from HKT to GMT is needed (e.g. HKT 08:00 corresponds to Hour 1 in emission file)
- Repeat the modification for all emission files (1 file per simulation day)
- 380 emission files to be edited for each re-run (for model spinning)

# Dump and modify the emission

1. Download emission files and “NetCDFExtractor.jar” from our webpage
2. Execute the “NetCDFExtractor.jar” using the following command  
*java -jar NetCDFExtractor.jar [Emission] [Pollutants] [Is] [Js] [Ks] [Output]*

Parameter	Description
[Emission]	A NetCDF file containing hourly (25 hours in total) values of all pollutants
[Pollutants]	List of pollutant names, separated by “,”
[Is] [Js]	Grid horizontal coordinates (“-”for a range or “*” for all)
[Ks]	Vertical levels (“-”for a range or “*” for all)
[Output]	Output file in ASCII format, tabulated by tab

### 3. Examples

```
NetCDFModifier $java -jar NetCDFExtractor.jar emiss_CB05.HongKong.1km_2015258.ncf NO2,NO 30 41 1 grid_3041-l01.txt
Done
NetCDFModifier $java -jar NetCDFExtractor.jar emiss_CB05.HongKong.1km_2015258.ncf NO2,NO 30-32 41 "*" grid_3041_3241-lAll.txt
Done
NetCDFModifier $ls
emiss_CB05.HongKong.1km_2015258.ncf grid_3041_3241-lAll.txt grid_3041-l01.txt NetCDFExtractor.jar NetCDFModifier_v2.jar
NetCDFModifier $head grid_3041-l01.txt
Variable      I      J      K      Hour      Action      Value
NO2           30     41     1     1         Replace    2.607453461678233E-5
NO2           30     41     1     2         Replace    2.607453461678233E-5
```

4. Edit the dumped emission files and execute the “NetCDFModifier\_v2.jar” using the following command  
*java -jar NetCDFModifier\_v2.jar [Emission] [Inputs]*

Parameter	Description
[Emission]	A NetCDF file containing hourly (25 hours in total) values of all pollutants
[Input]	A tab-separated text file