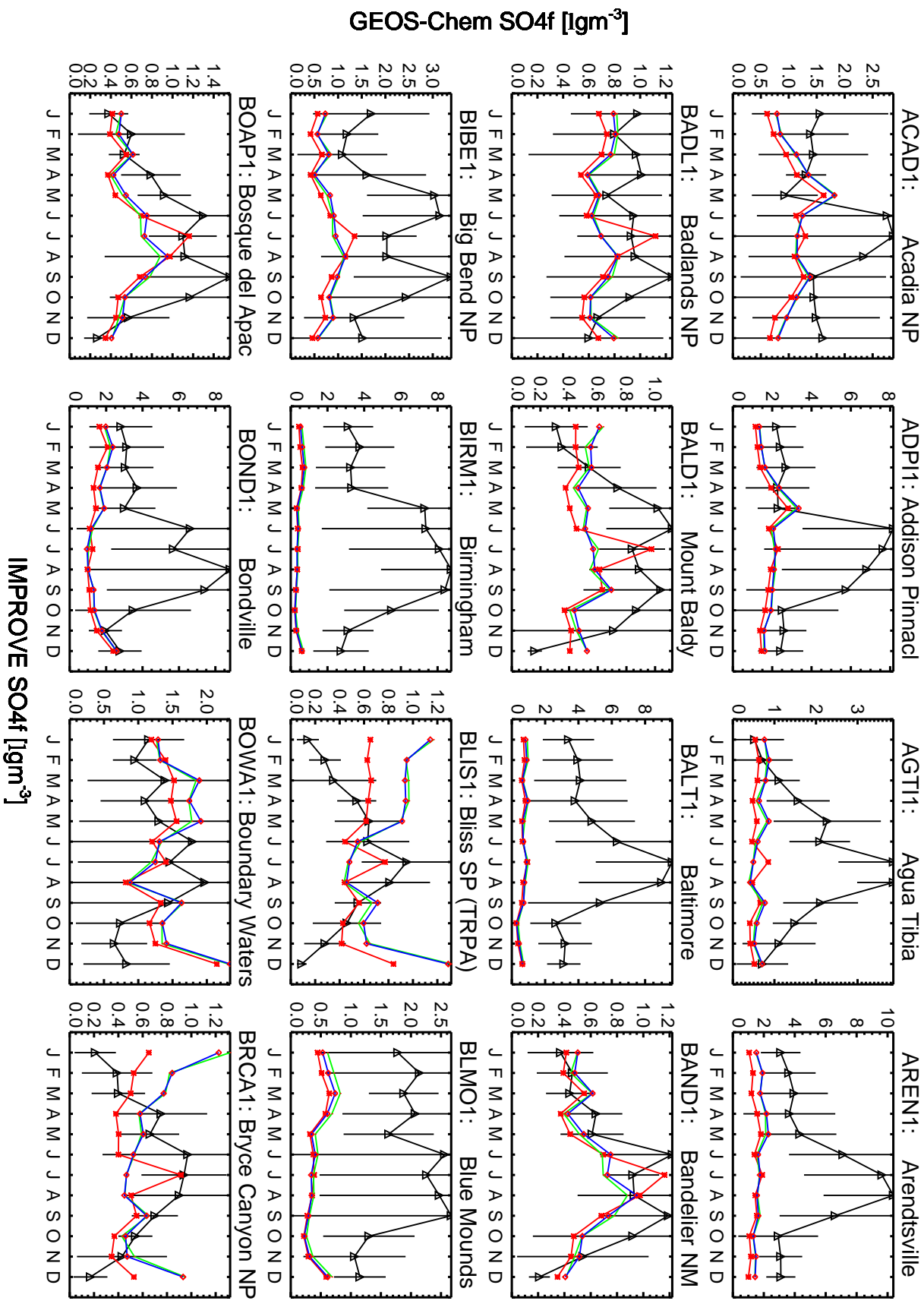
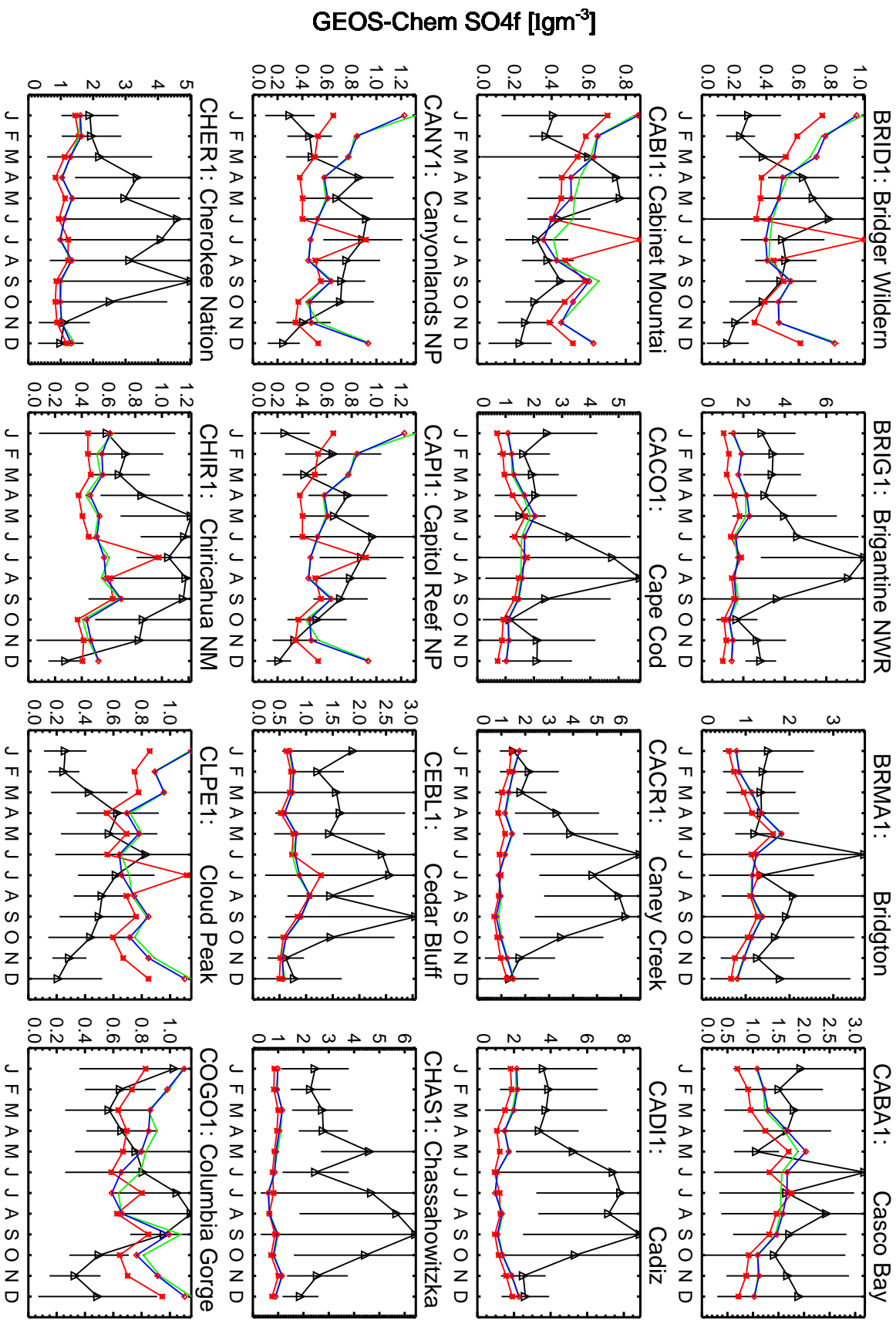


Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)



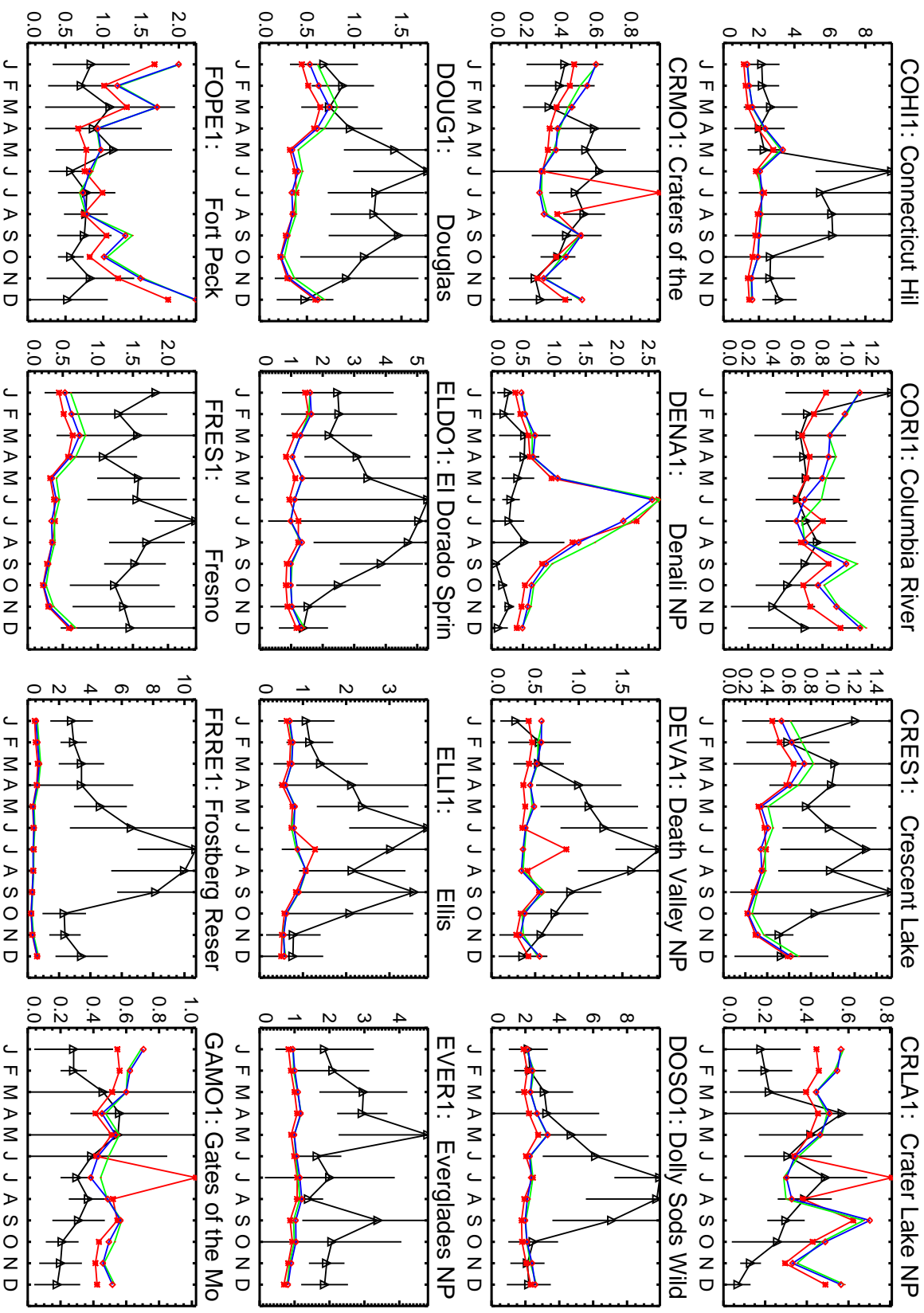
Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)



IMPROVE SO<sub>4</sub>f [Igm<sup>-3</sup>]

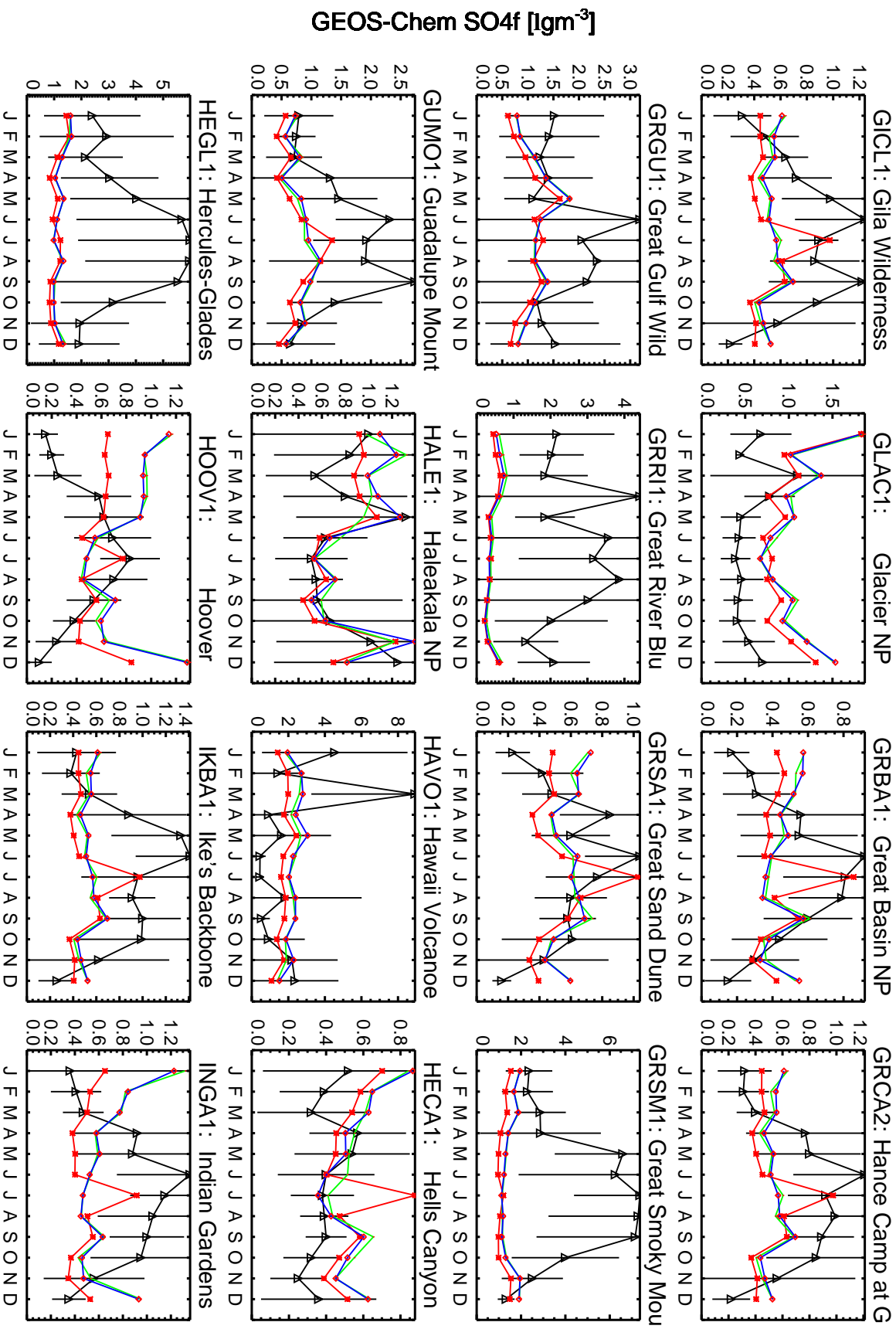
Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)

GEOS-Chem SO<sub>4</sub>f [Igm<sup>-3</sup>]



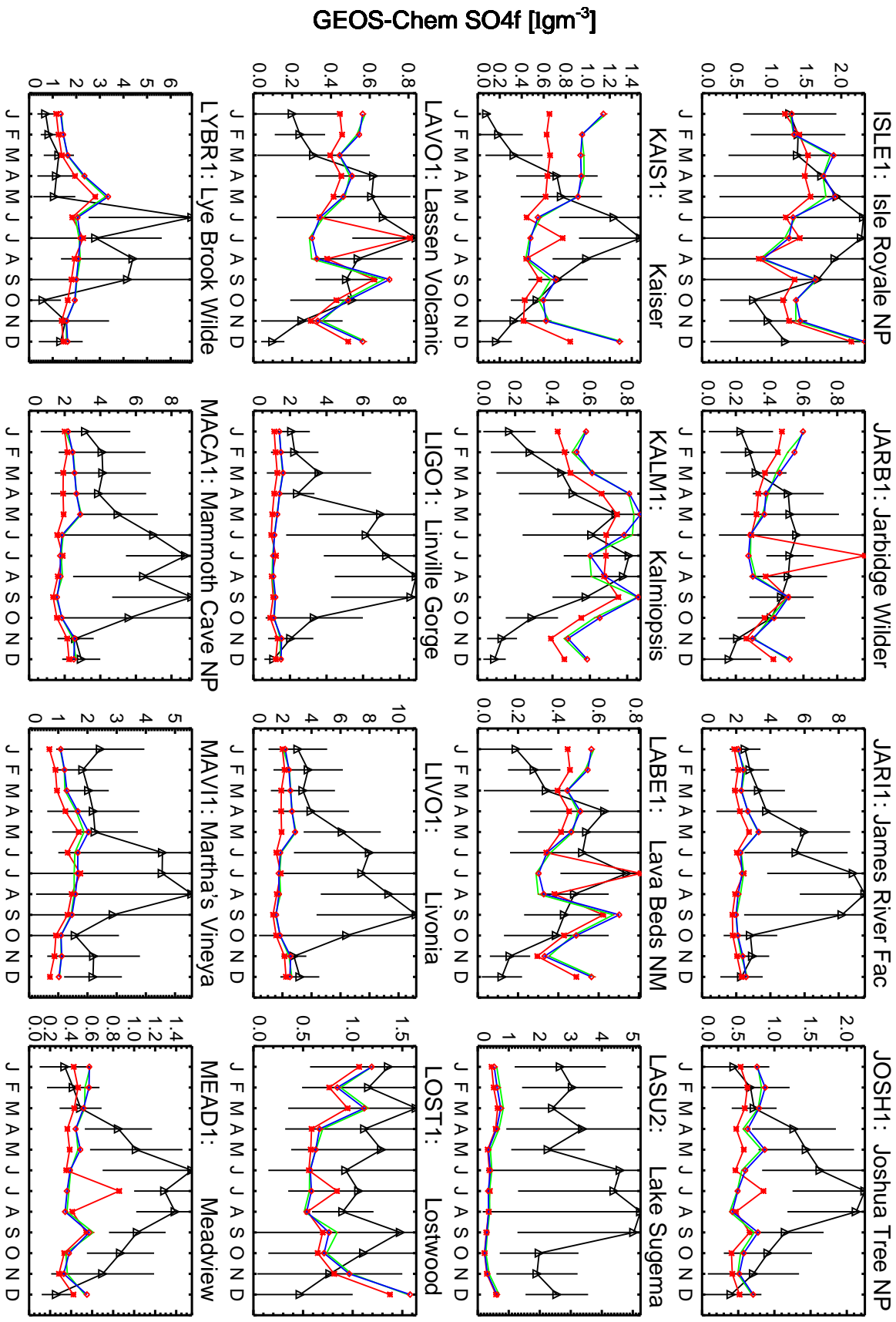
IMPROVE SO<sub>4</sub>f [Igm<sup>-3</sup>]

Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)

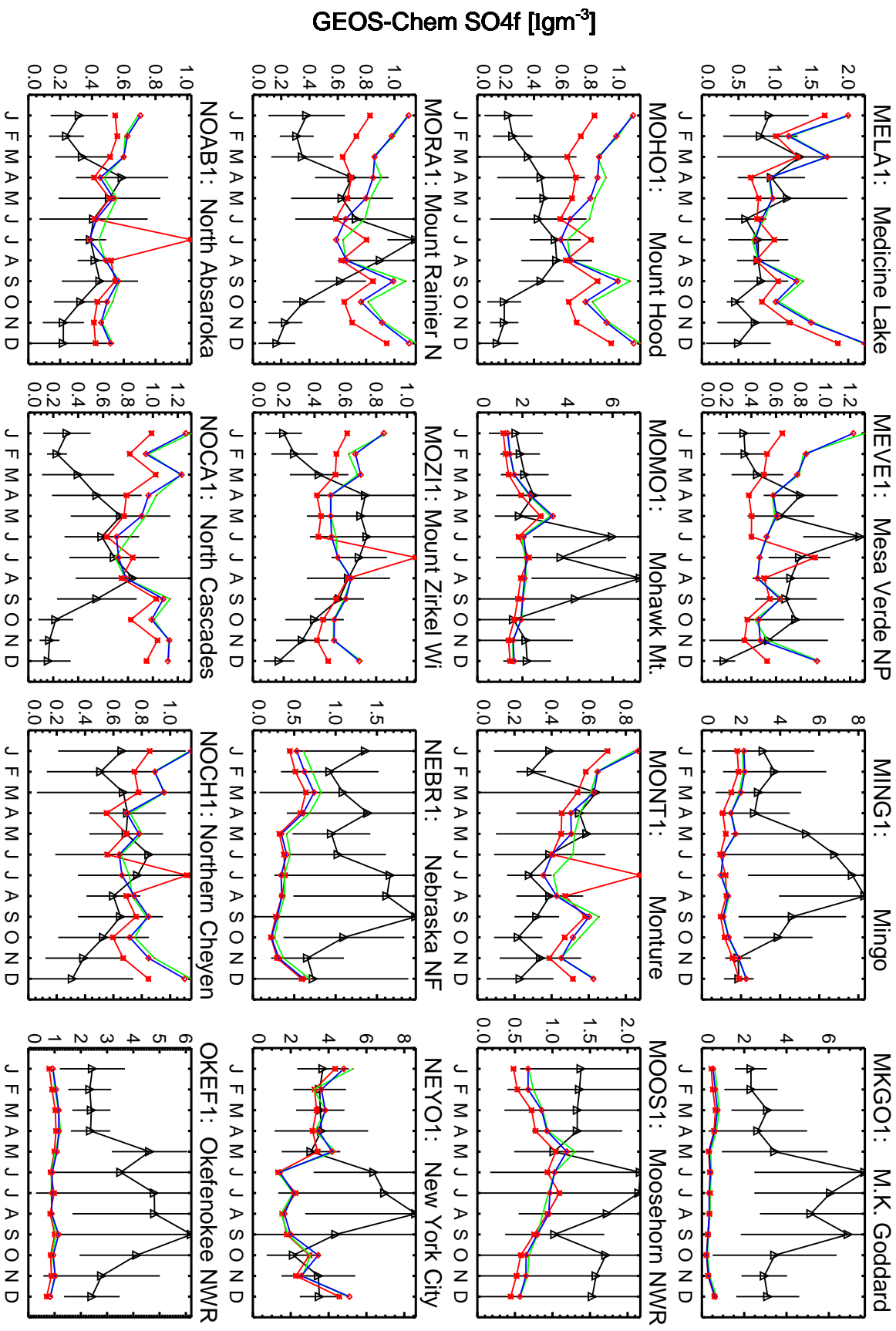


IMPROVE SO<sub>4</sub>f [Igm<sup>-3</sup>]

Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)



Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)

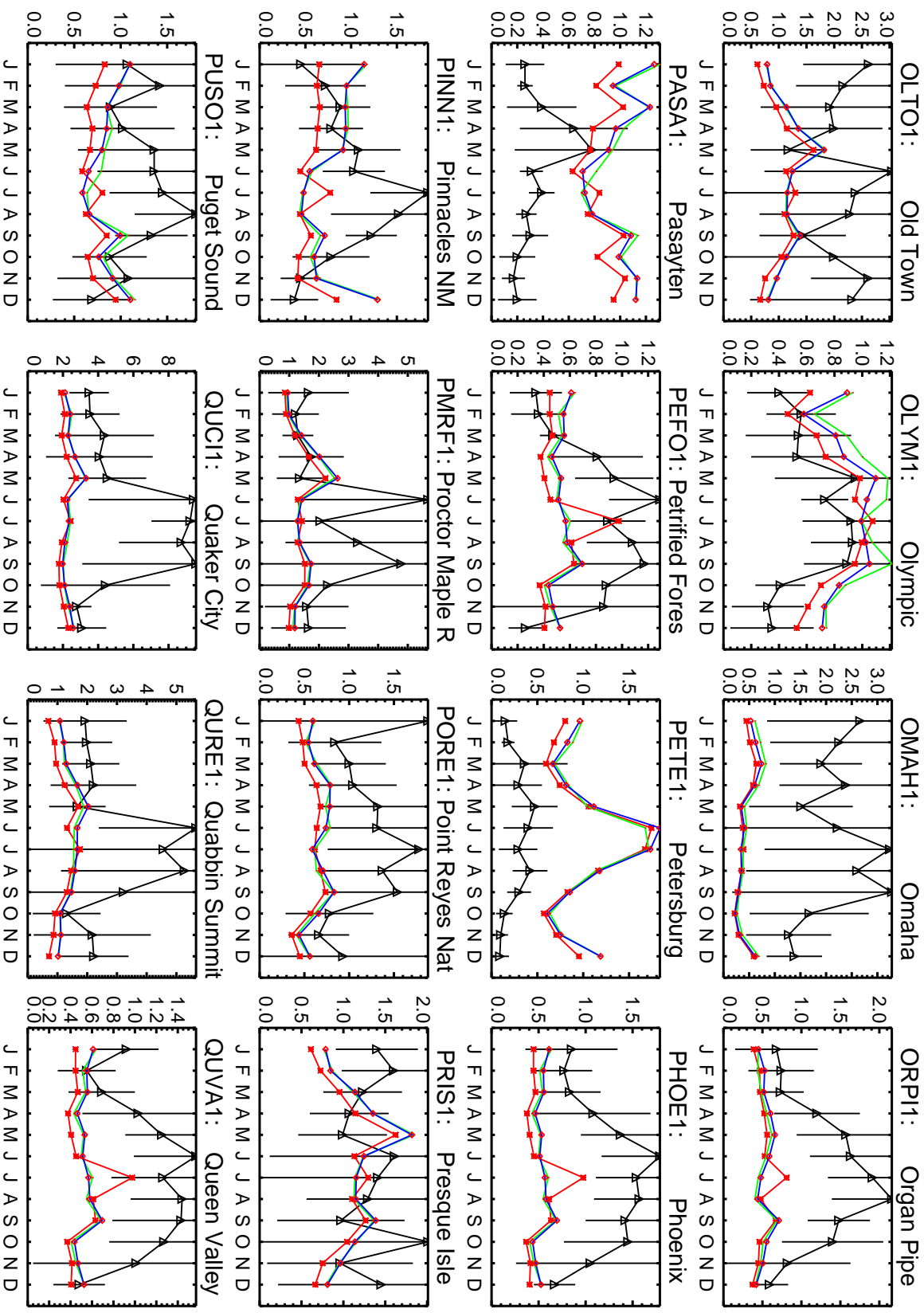


IMPROVE SO<sub>4</sub>f [Igm<sup>-3</sup>]



Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)

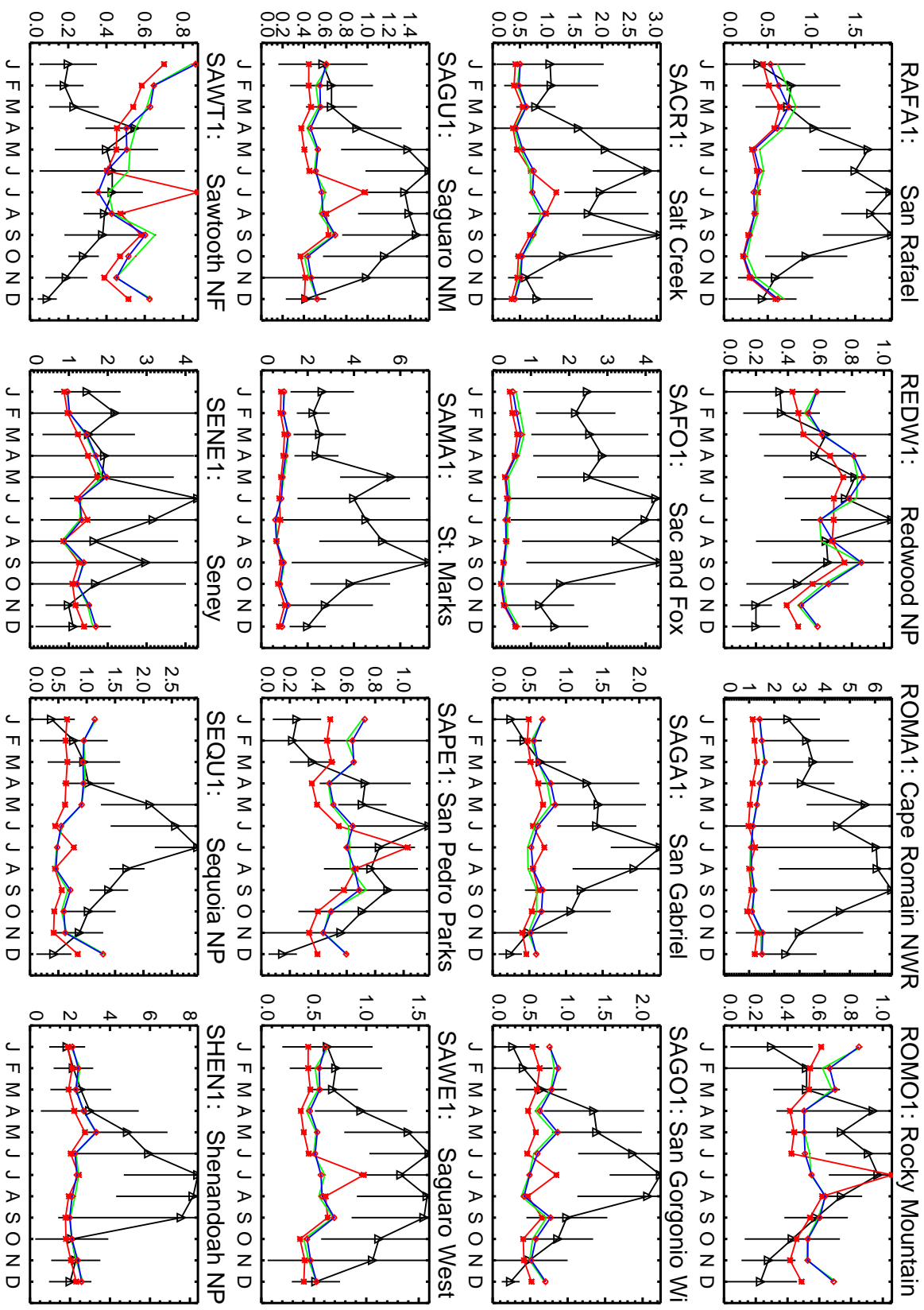
GEOS-Chem SO<sub>4</sub>f [Igm<sup>-3</sup>]



IMPROVE SO<sub>4</sub>f [Igm<sup>-3</sup>]

Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)

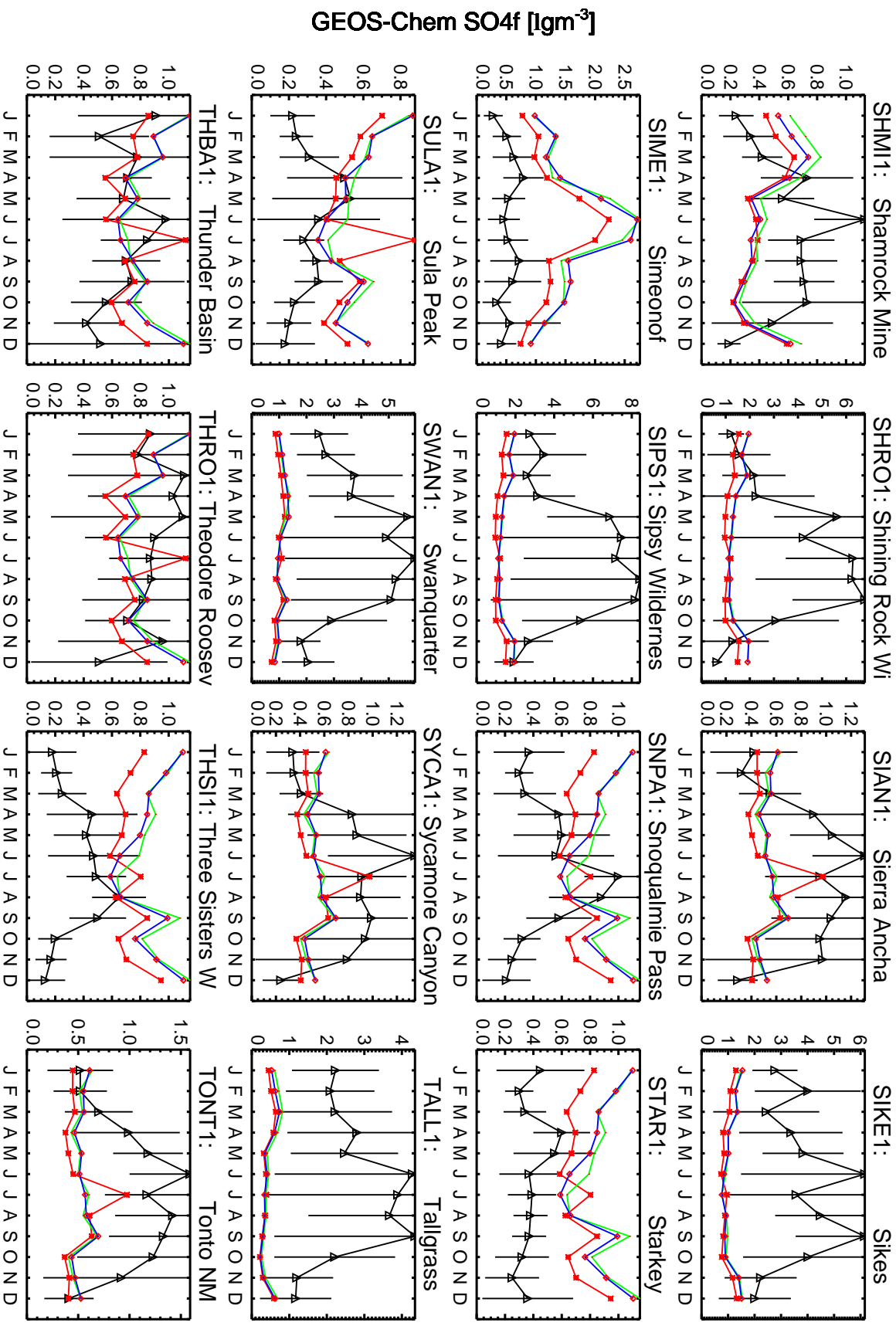
GEOS-Chem SO<sub>4</sub>f [Igm<sup>-3</sup>]



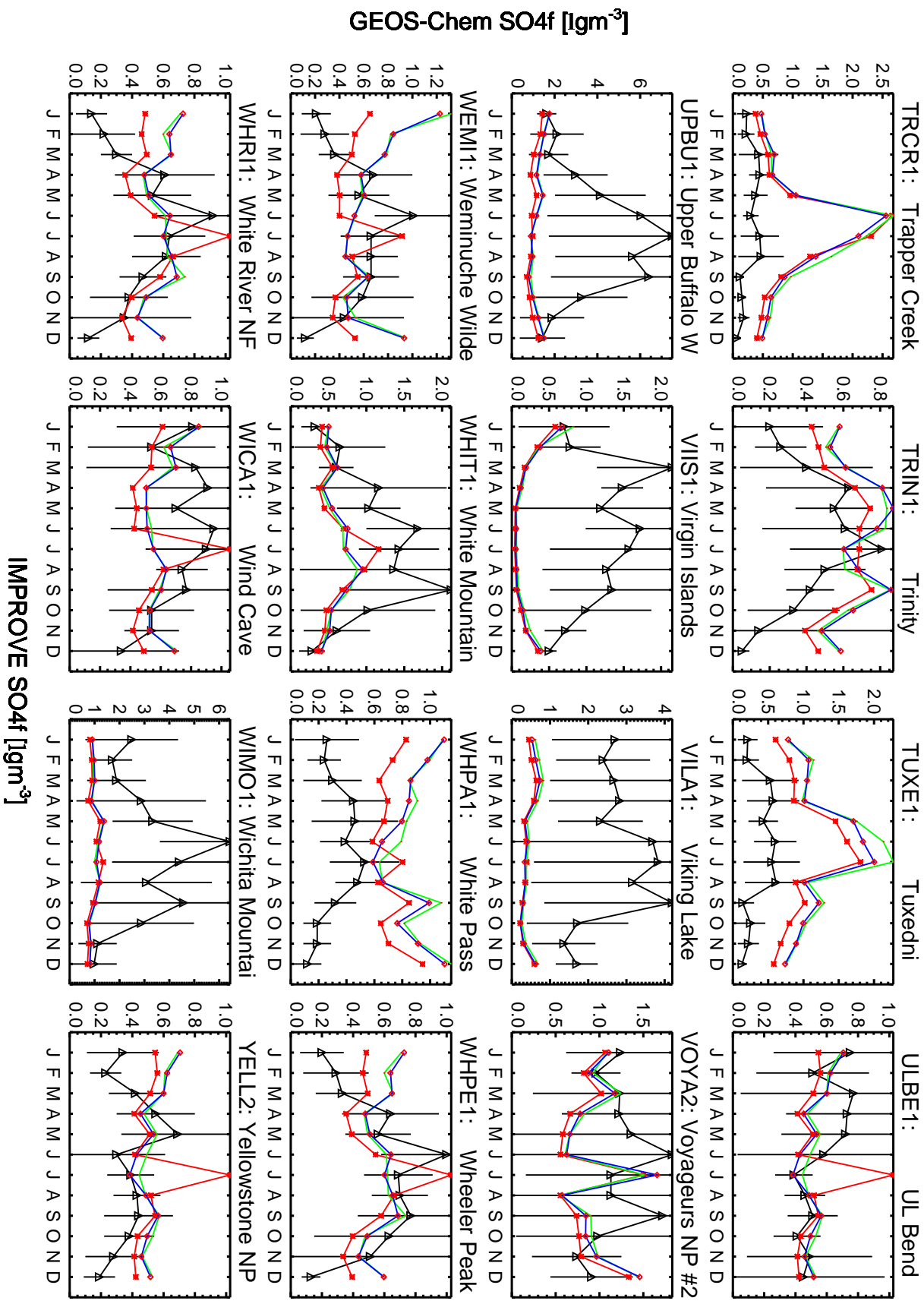
IMPROVE SO<sub>4</sub>f [Igm<sup>-3</sup>]



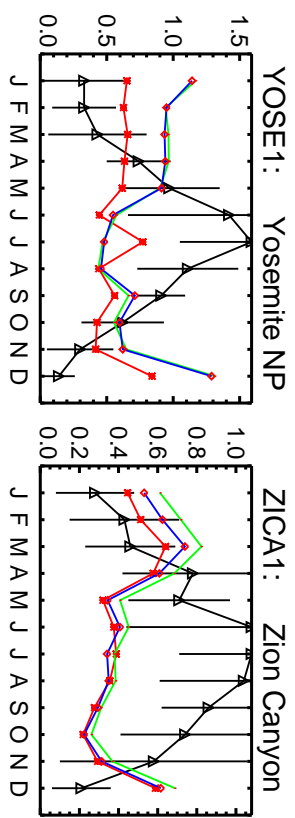
Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)



Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)



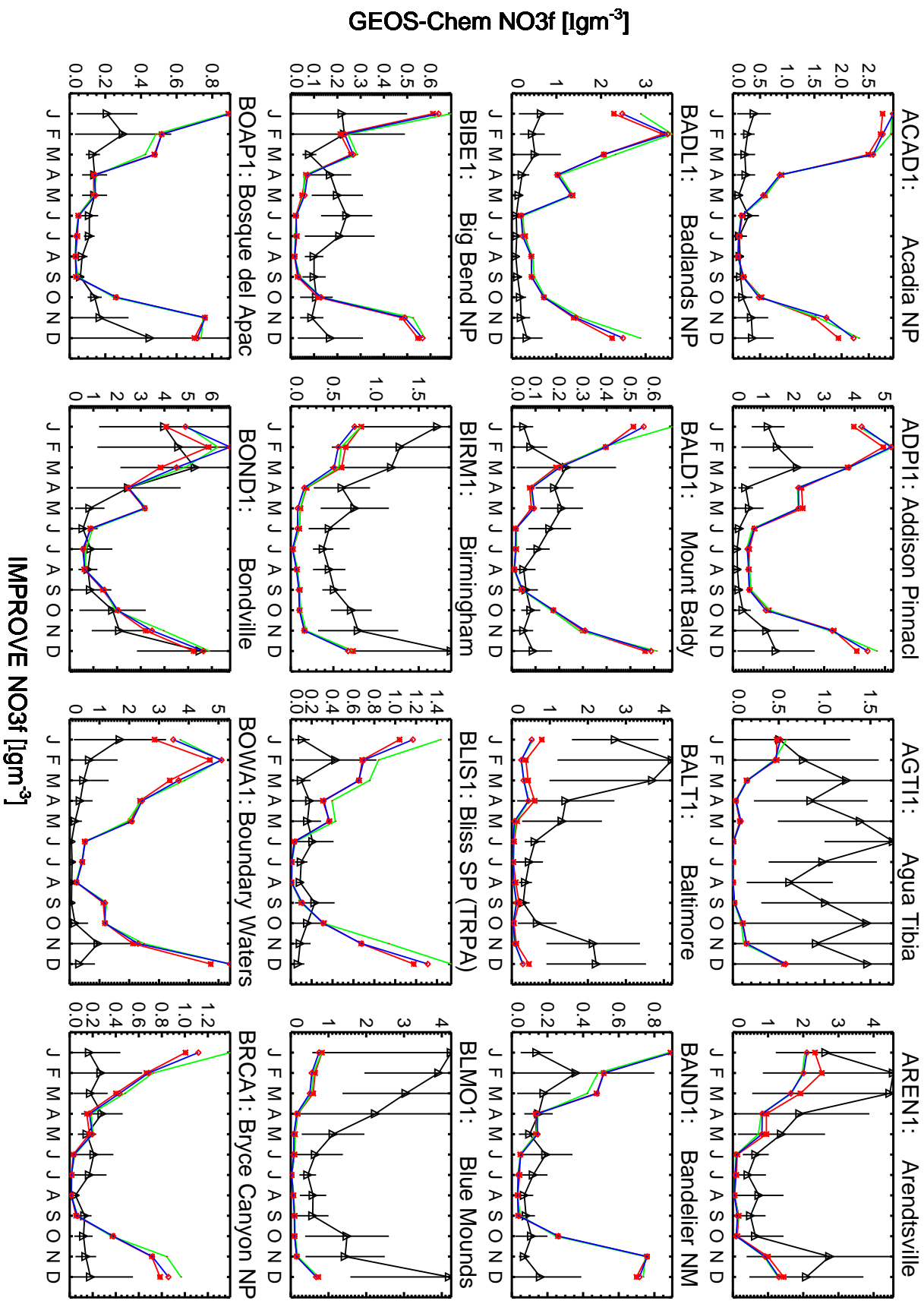
Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)



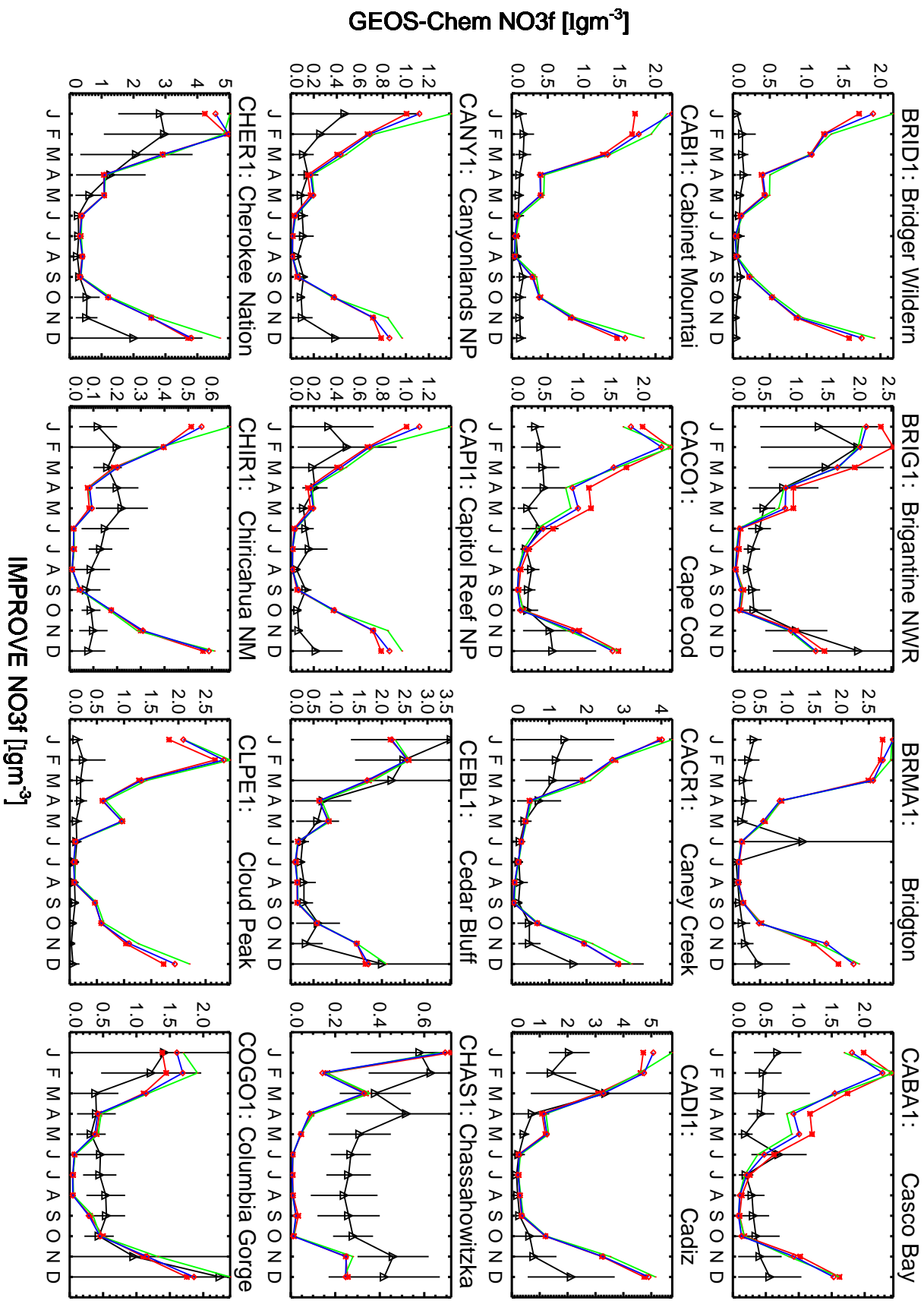
GEOS-Chem SO4f [ $\mu\text{gm}^{-3}$ ]

IMPROVE SO4f [ $\mu\text{gm}^{-3}$ ]

Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)

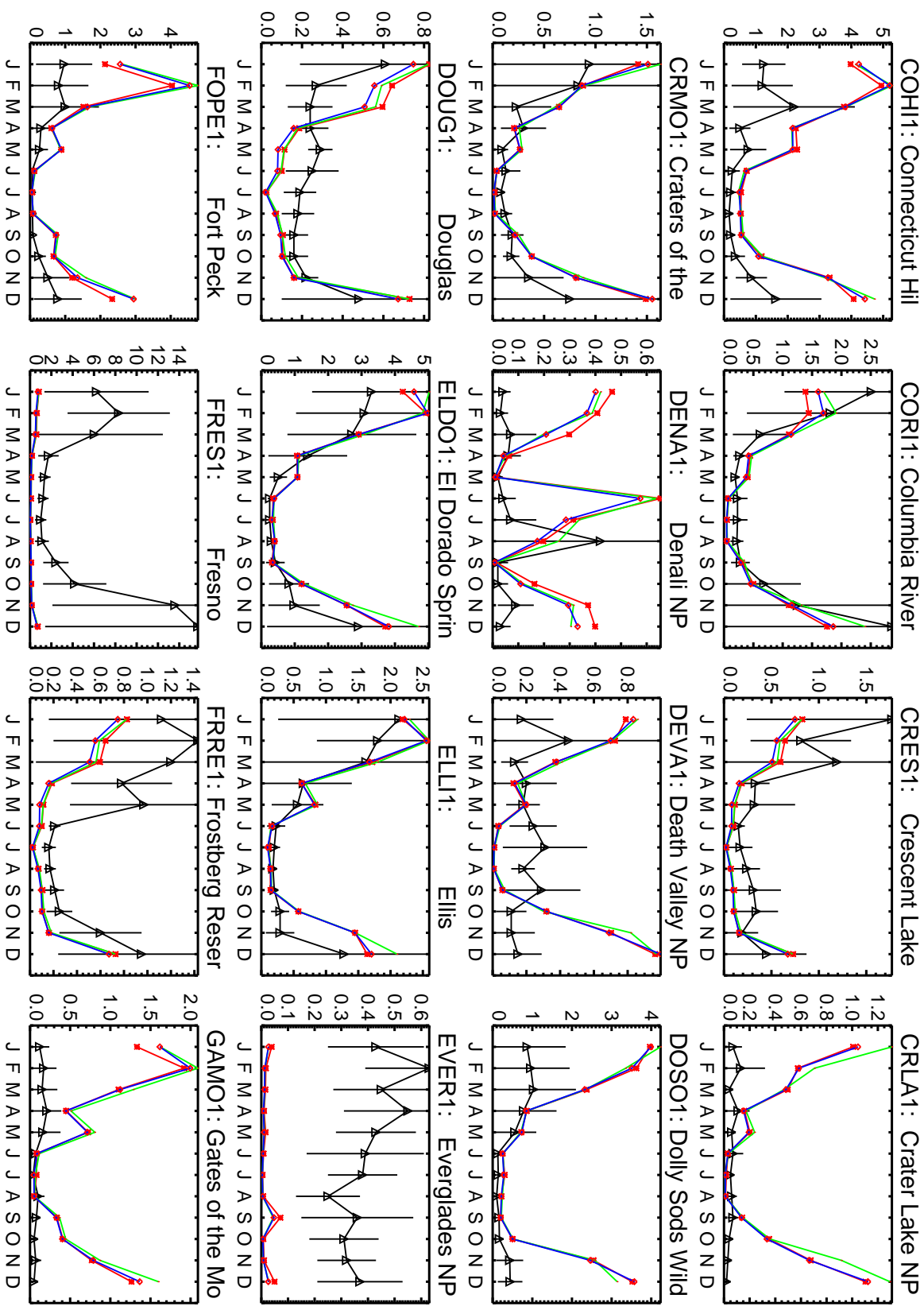


Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)



Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)

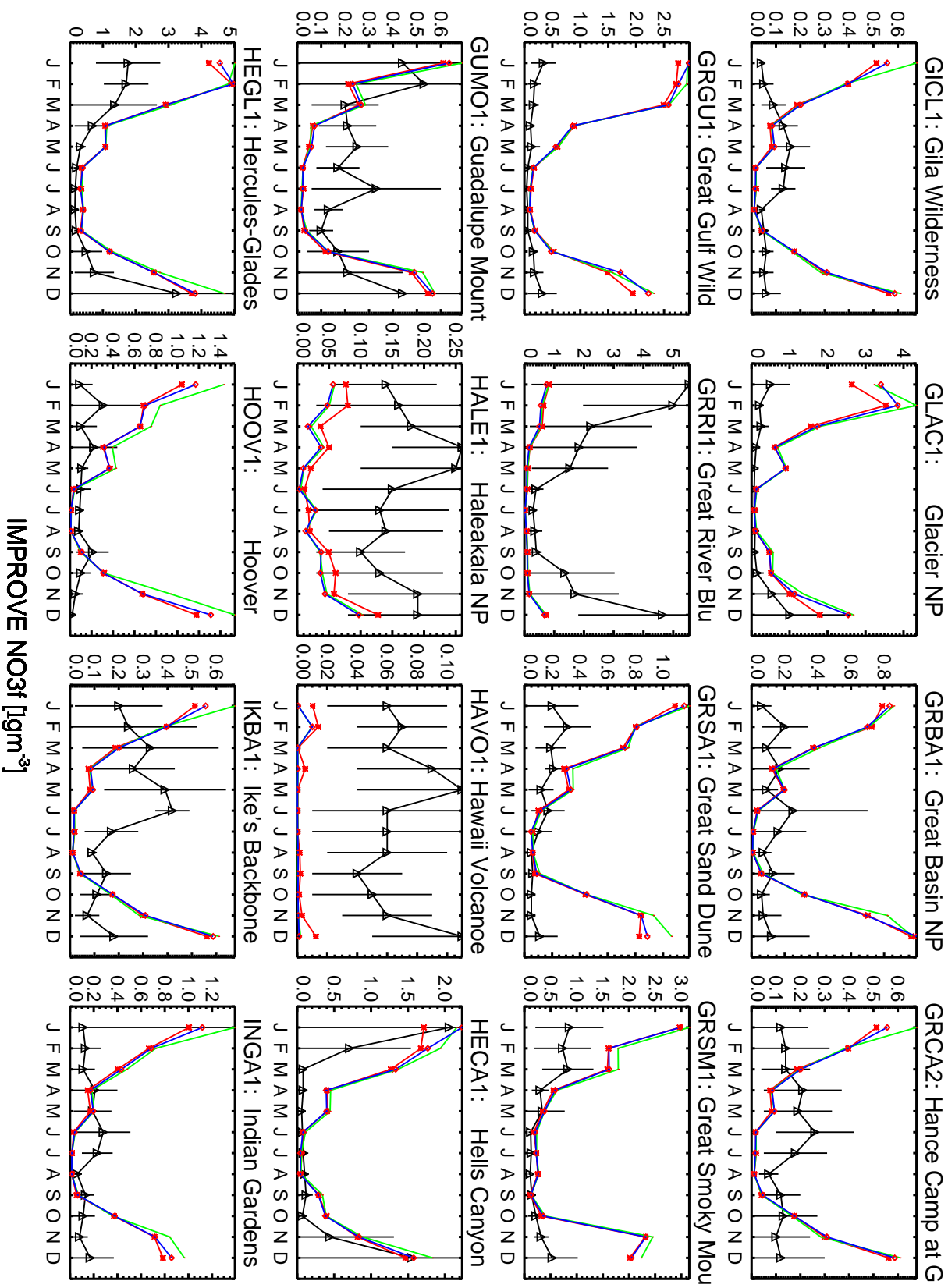
GEOS-Chem NO<sub>3</sub>f [Igm<sup>-3</sup>]



IMPROVE NO<sub>3</sub>f [Igm<sup>-3</sup>]

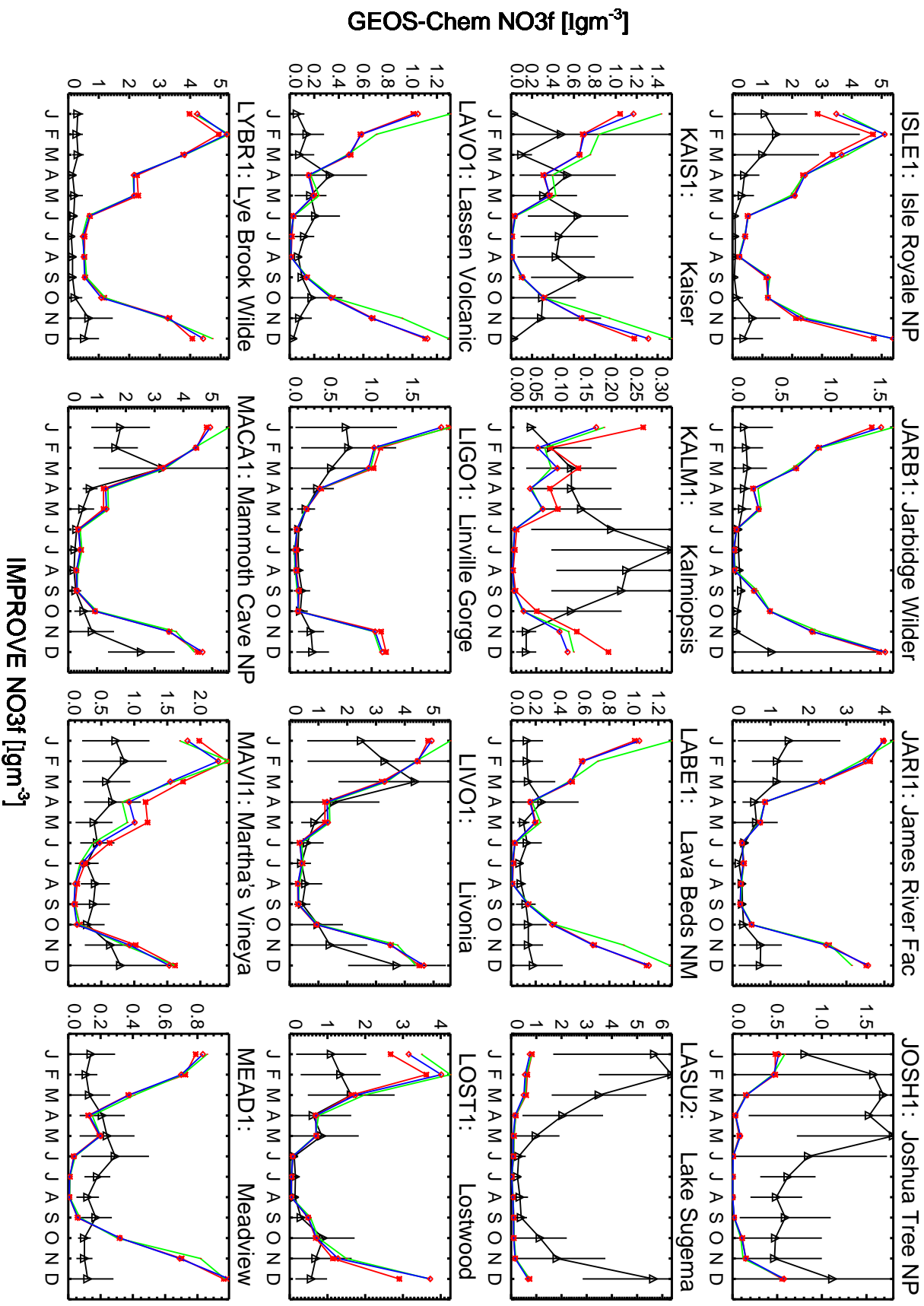
Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)

GEOS-Chem NO<sub>3</sub>f [Igm<sup>-3</sup>]

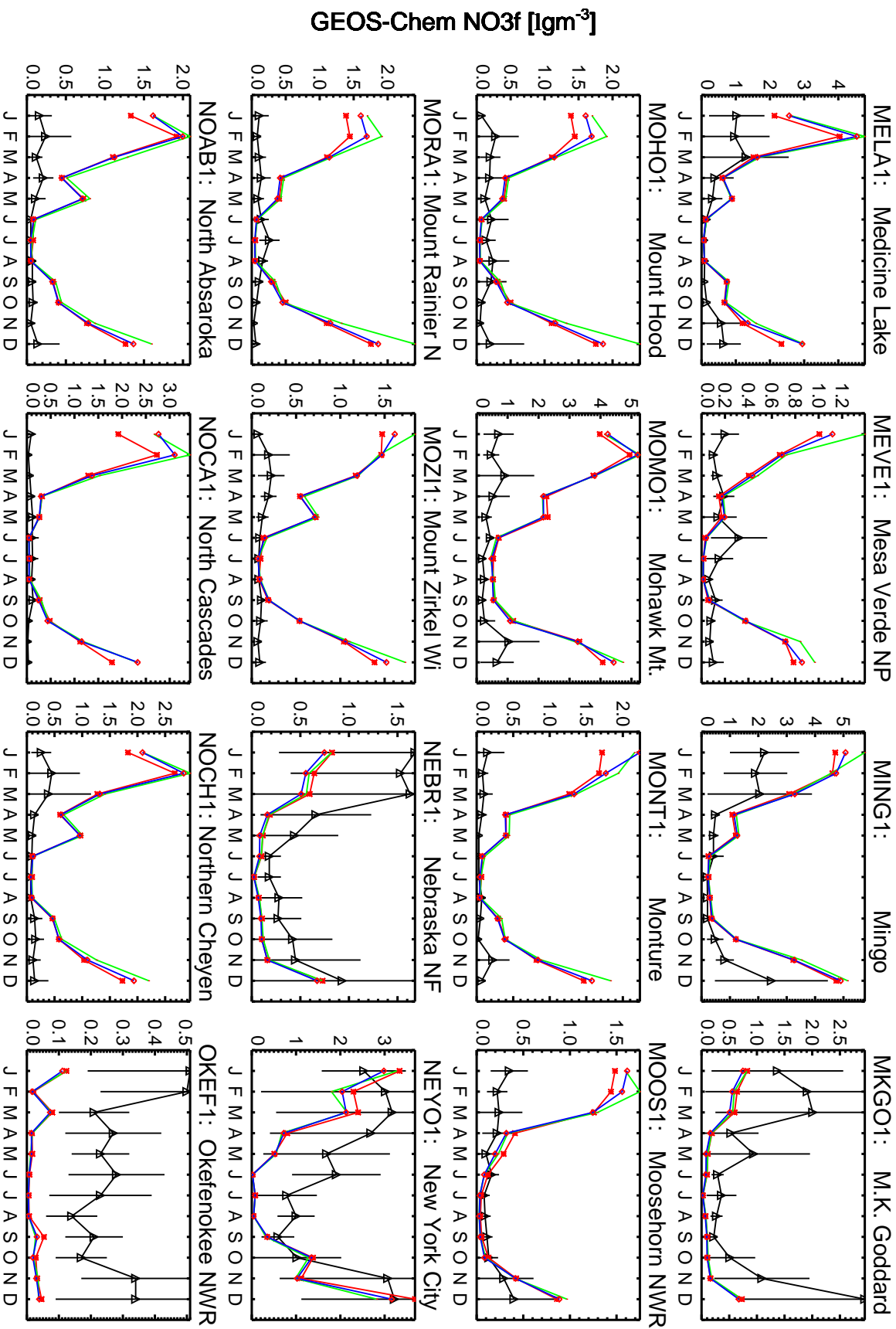




Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)

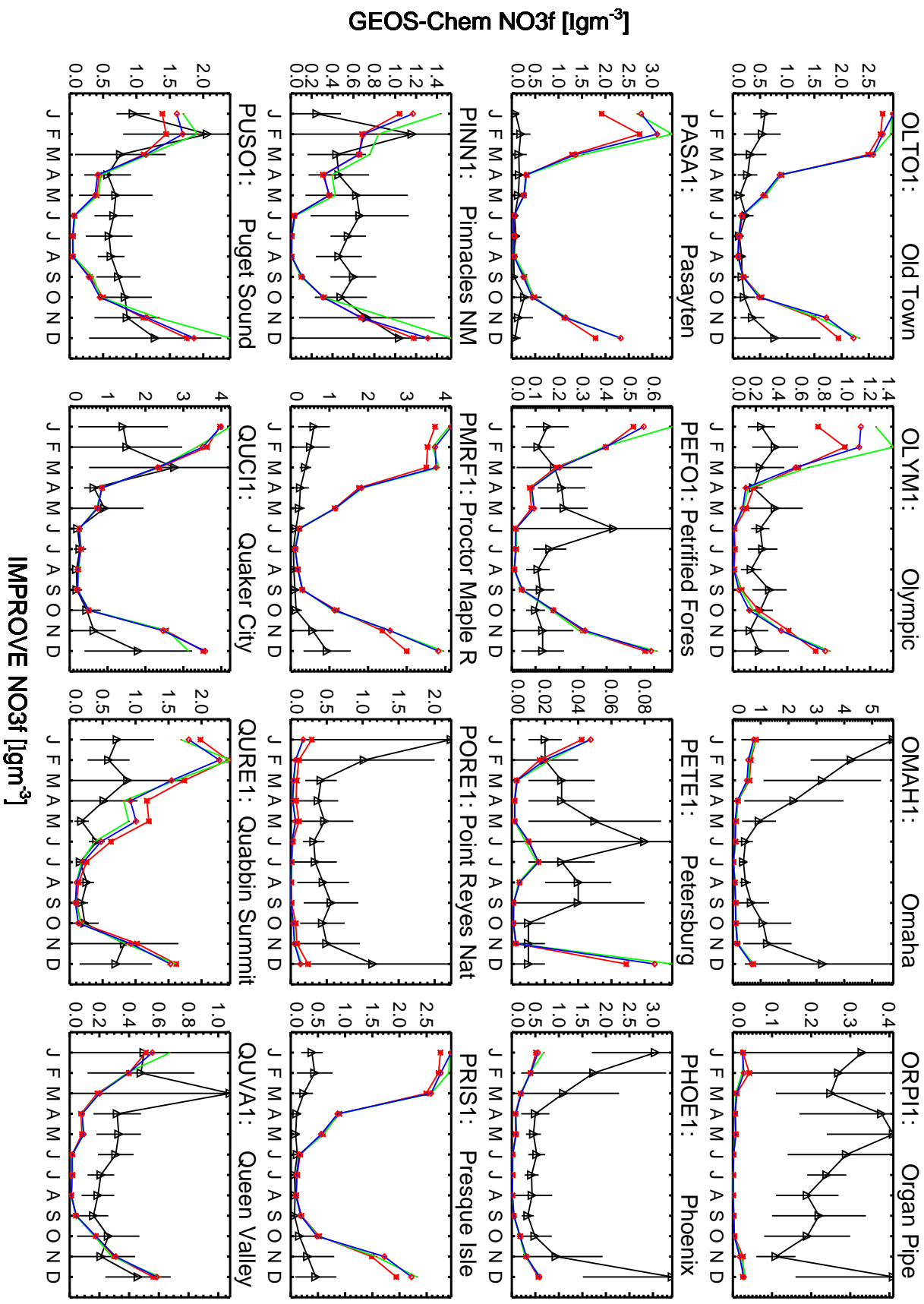


Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)



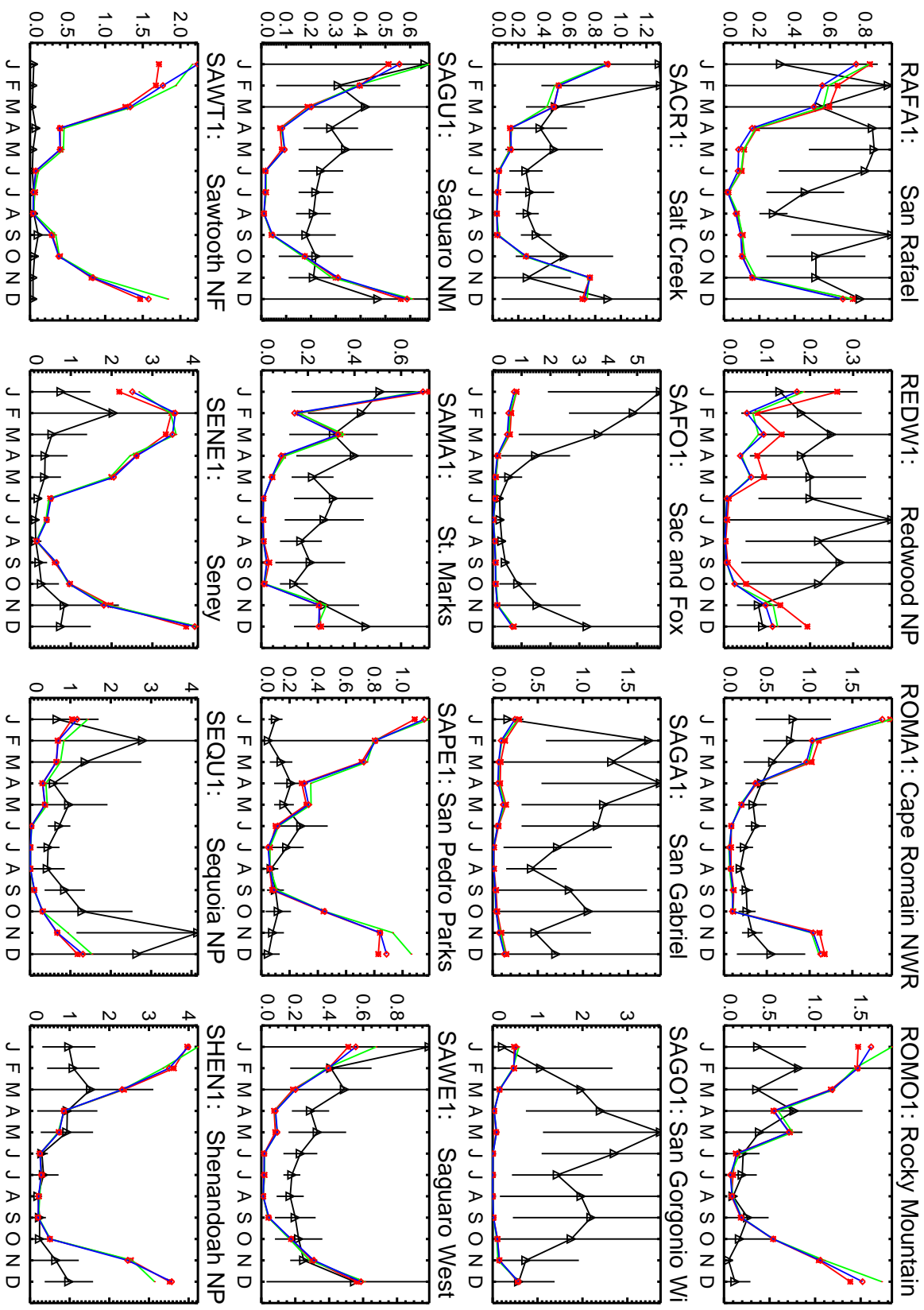
IMPROVE NO<sub>3</sub>f [Igm<sup>-3</sup>]

Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)



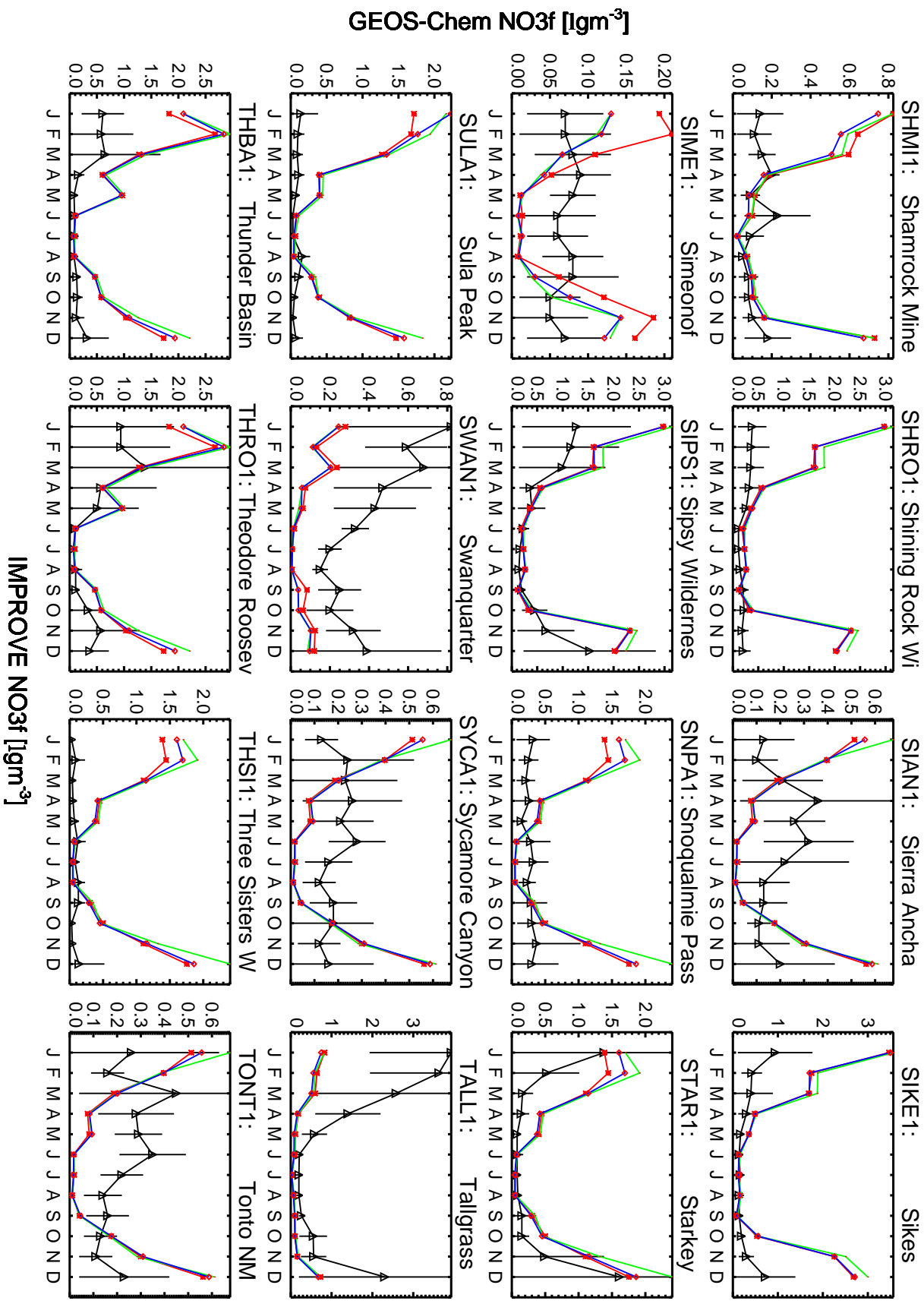
Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)

GEOS-Chem NO<sub>3</sub>f [Igm<sup>-3</sup>]



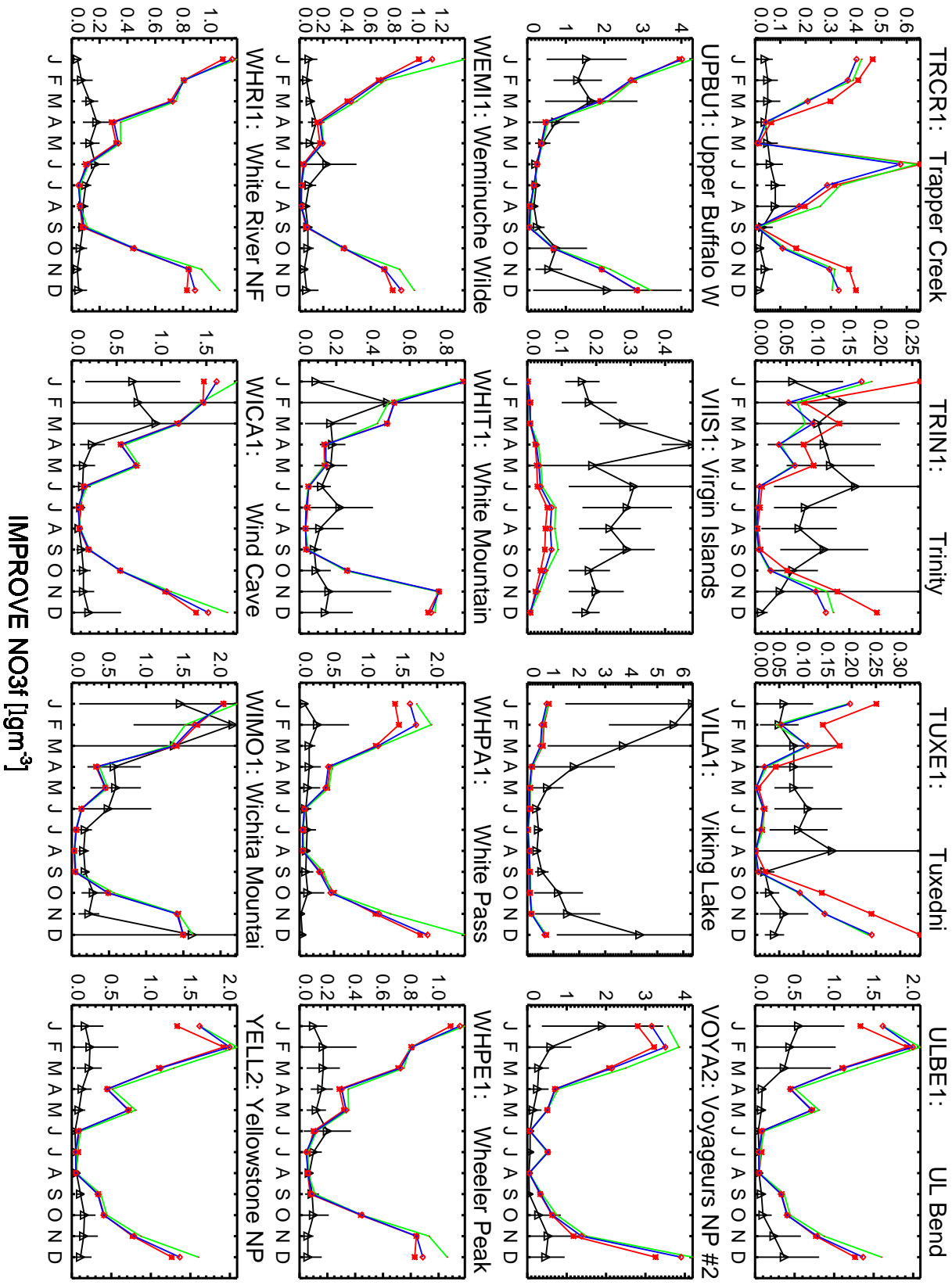
IMPROVE NO<sub>3</sub>f [Igm<sup>-3</sup>]

Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)



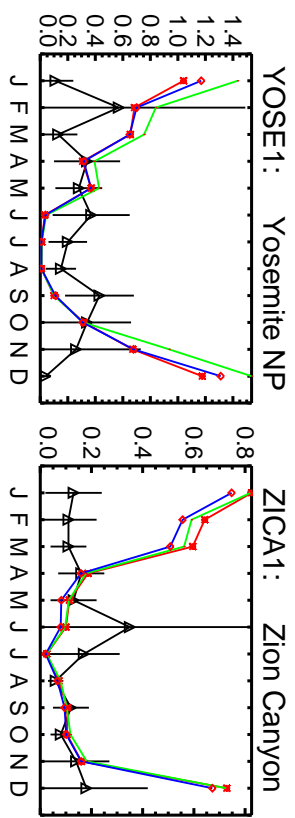
Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)

GEOS-Chem NO<sub>3</sub>f [Igm<sup>-3</sup>]



IMPROVE NO<sub>3</sub>f [Igm<sup>-3</sup>]

Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)

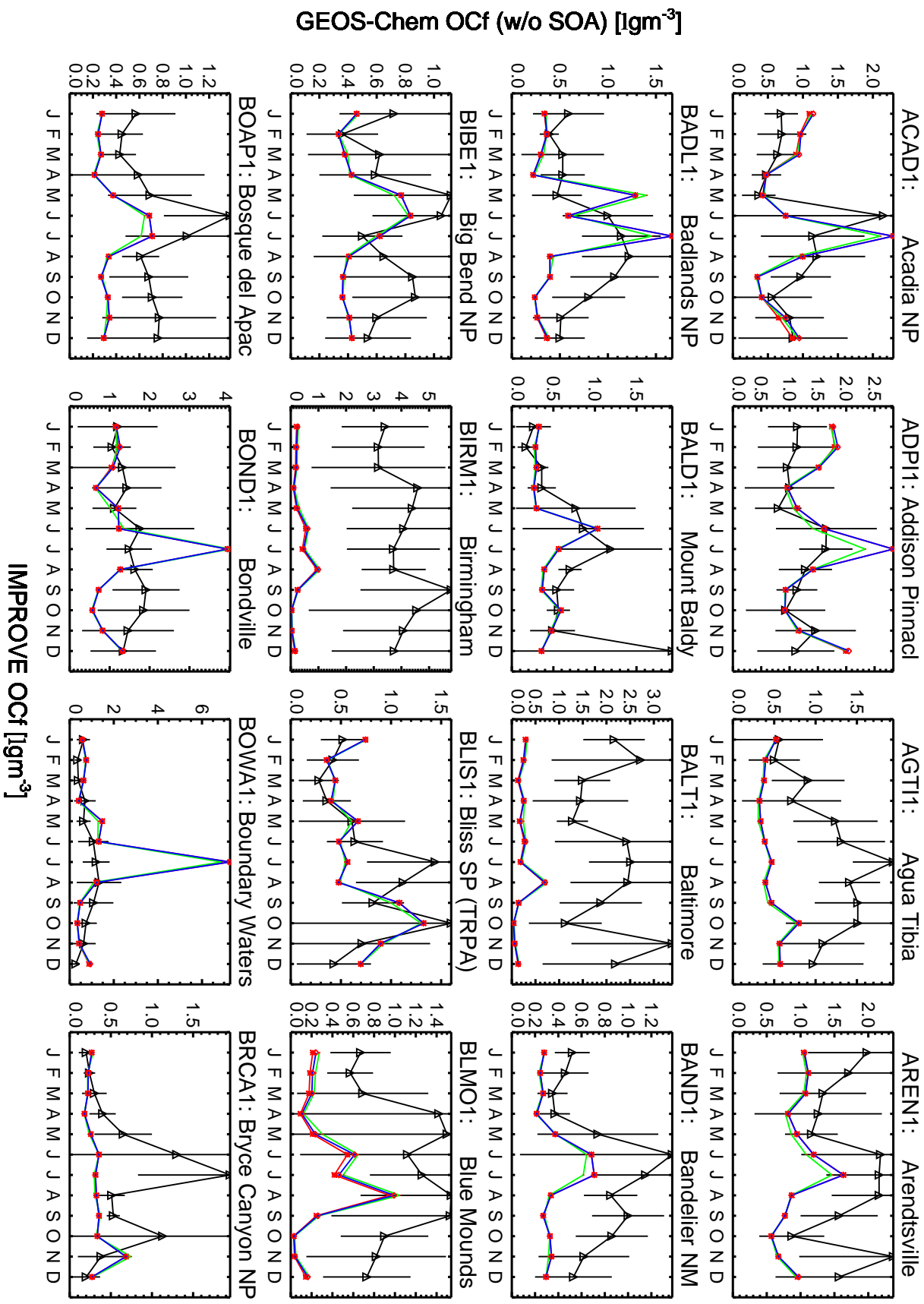


GEOS-Chem  $\text{NO}_3\text{f}$  [ $\mu\text{g m}^{-3}$ ]

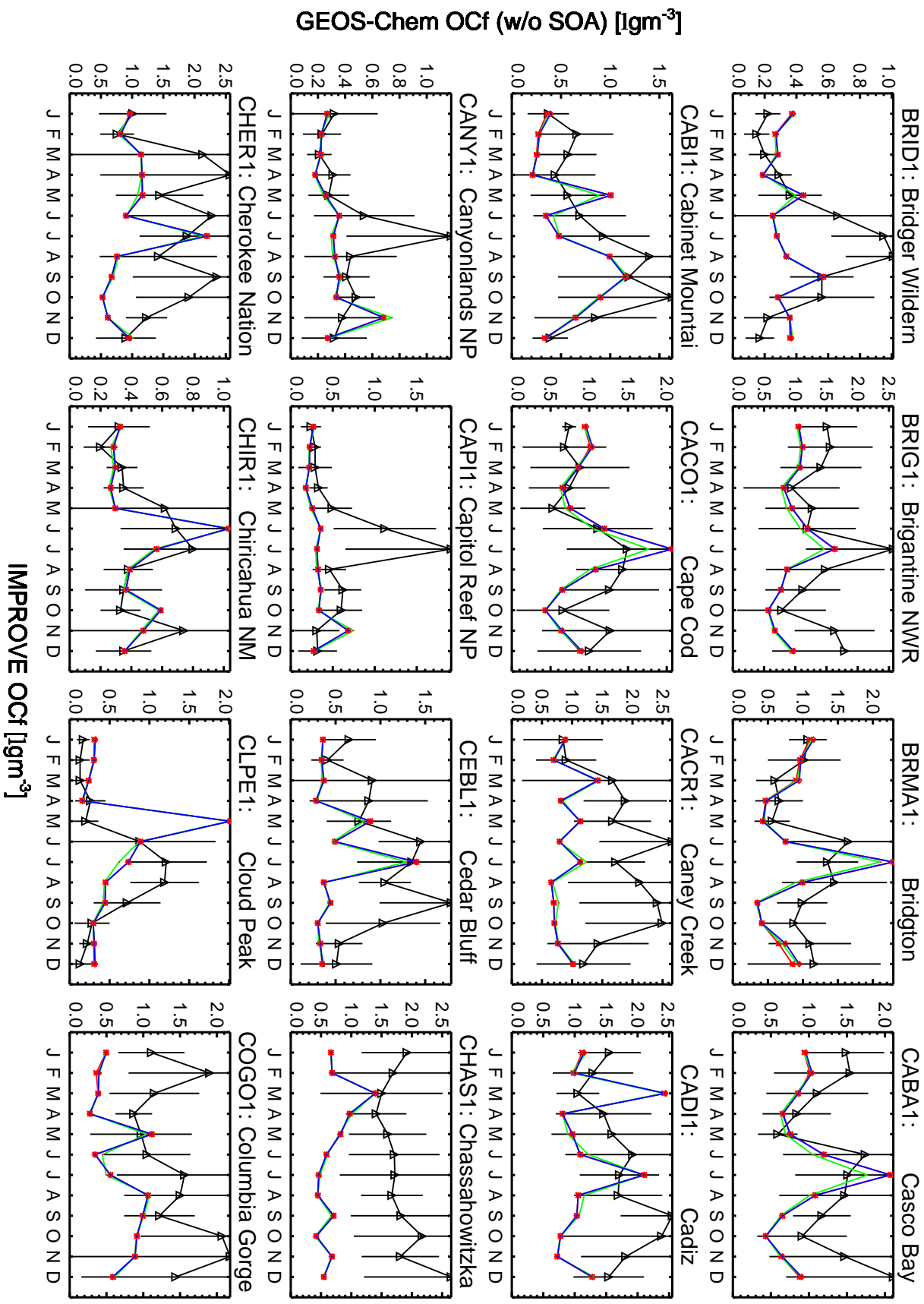
IMPROVE  $\text{NO}_3\text{f}$  [ $\mu\text{g m}^{-3}$ ]



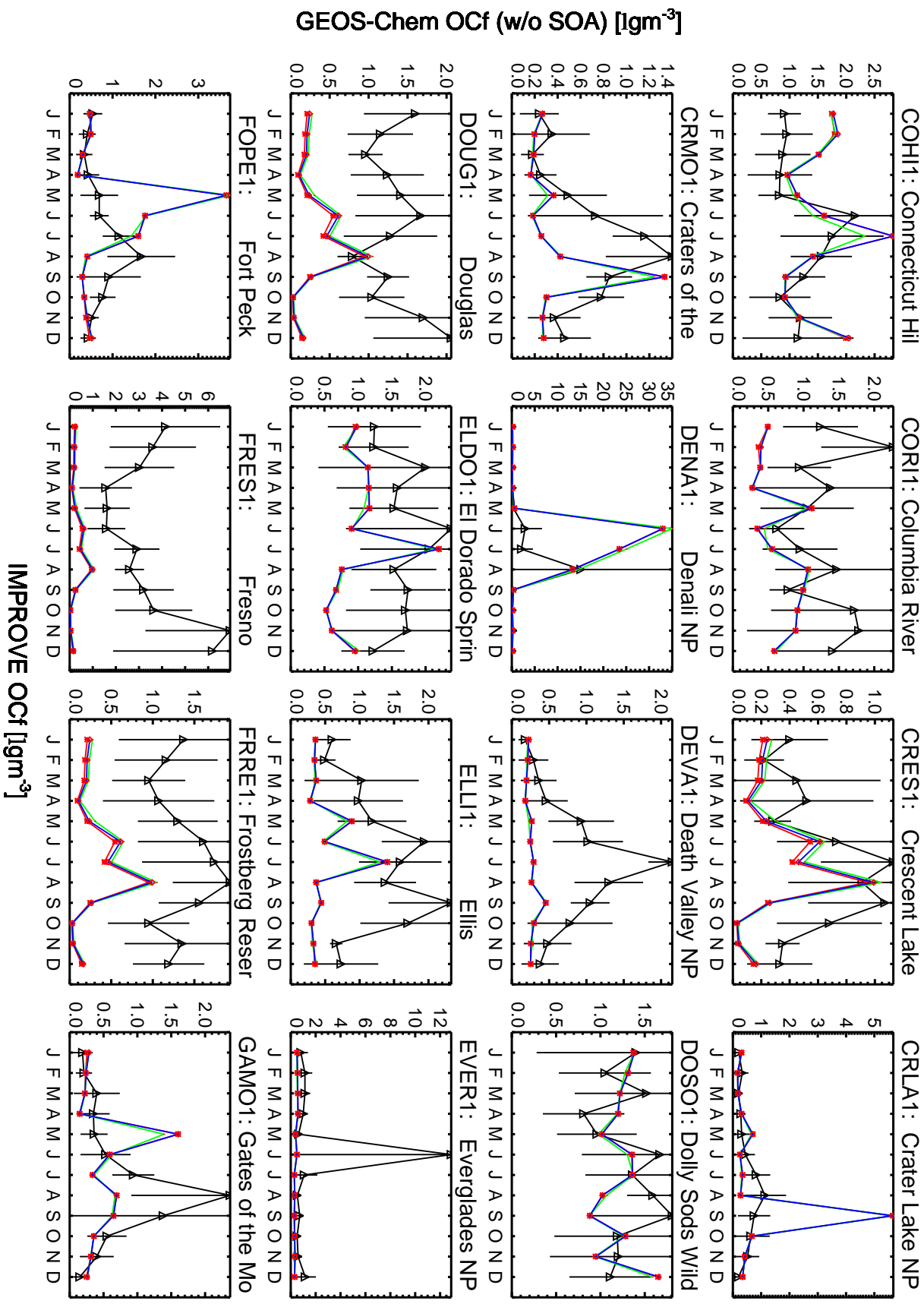
Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)



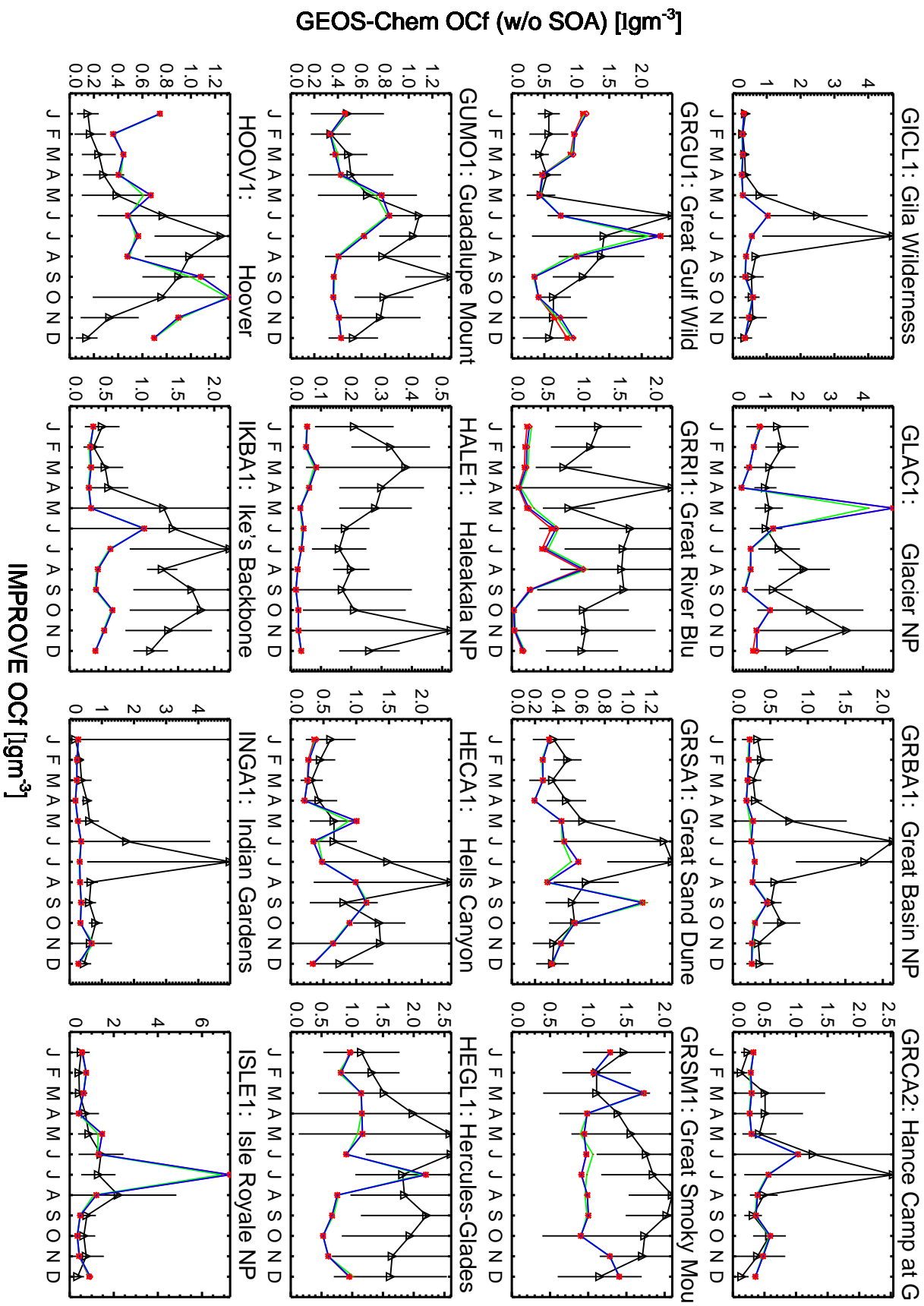
Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)



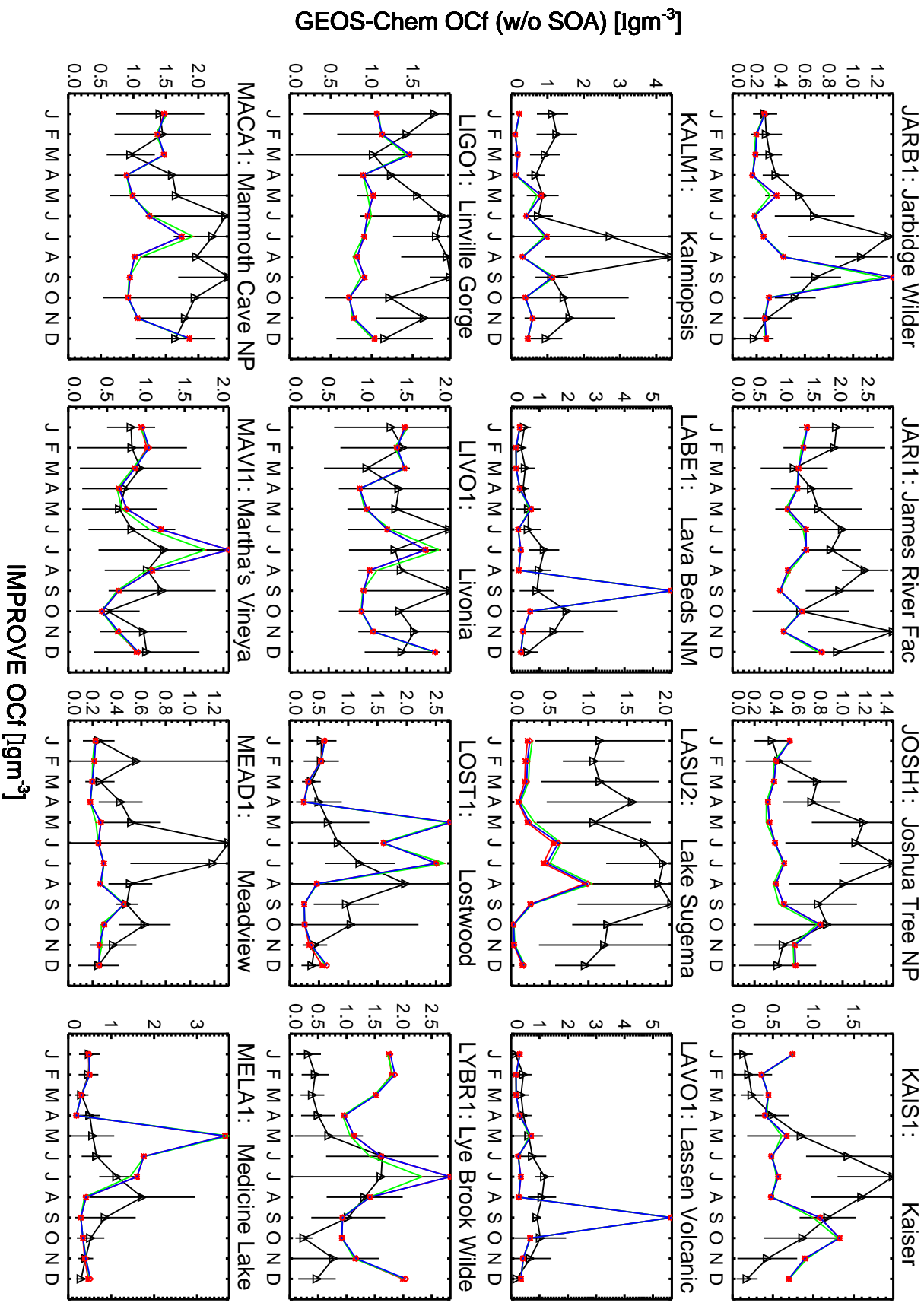
Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)



Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)

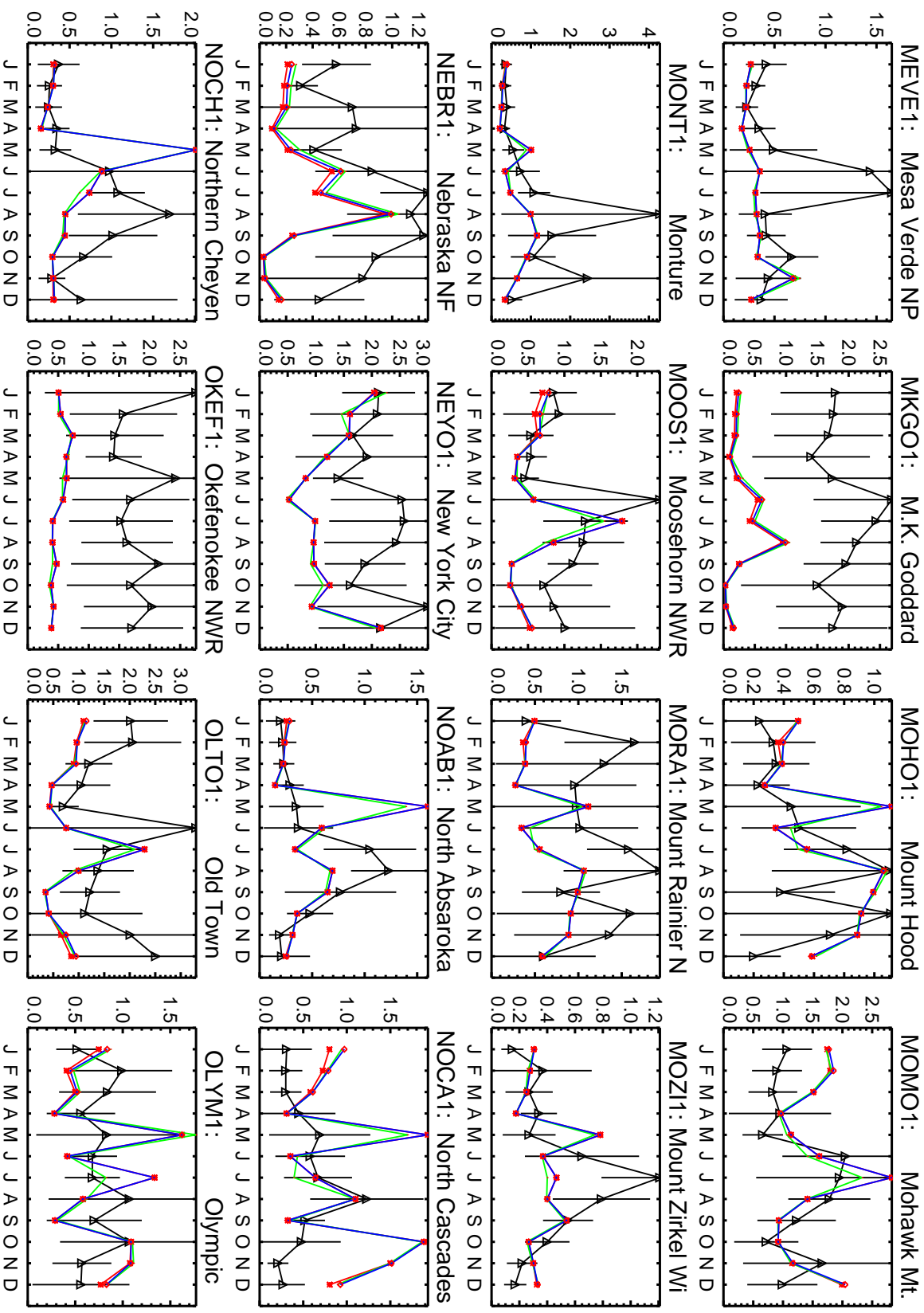


Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)



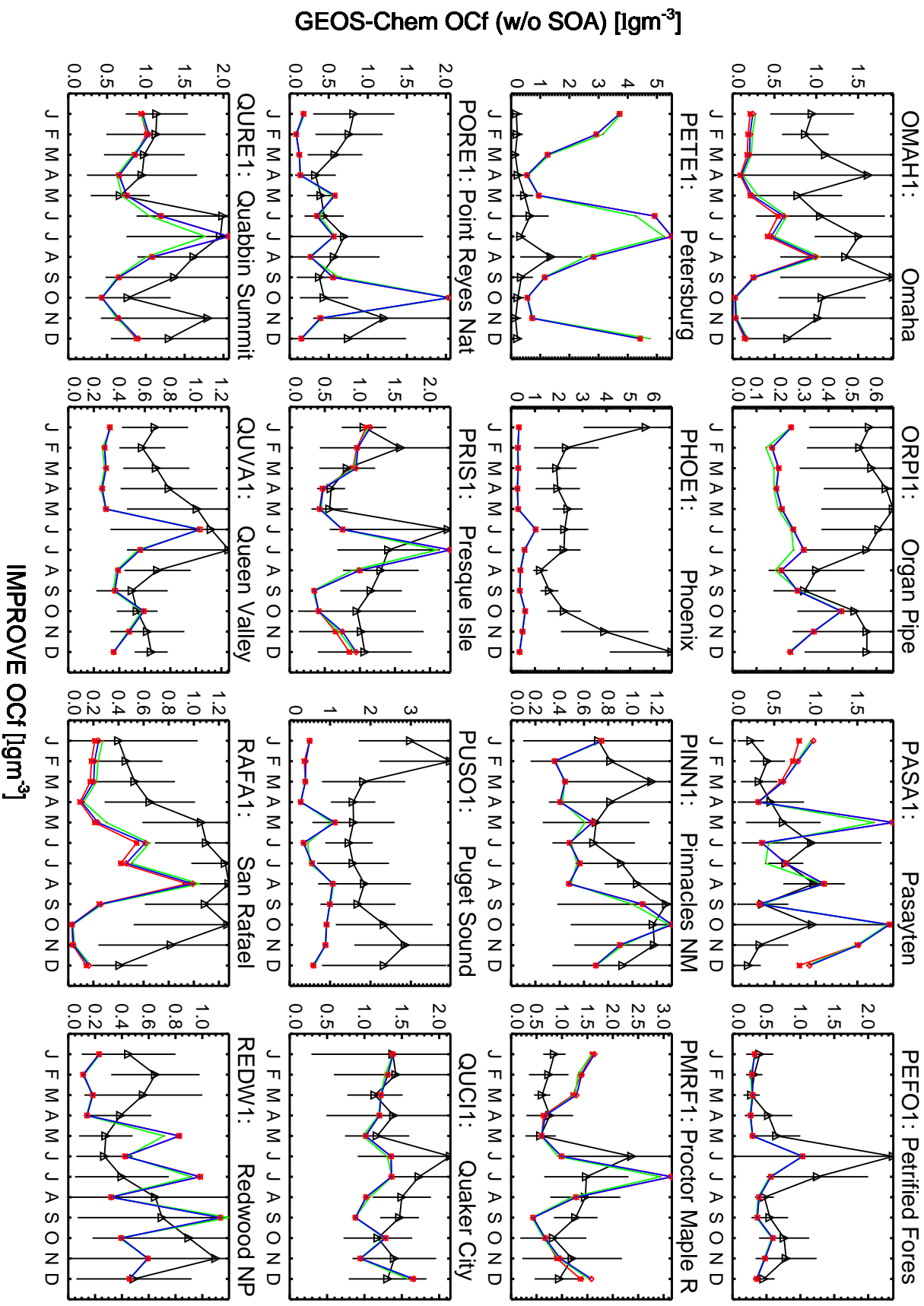
Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)

GEOS-Chem OCf (w/o SOA) [ $\mu\text{g m}^{-3}$ ]



IMPROVE OCf [ $\mu\text{g m}^{-3}$ ]

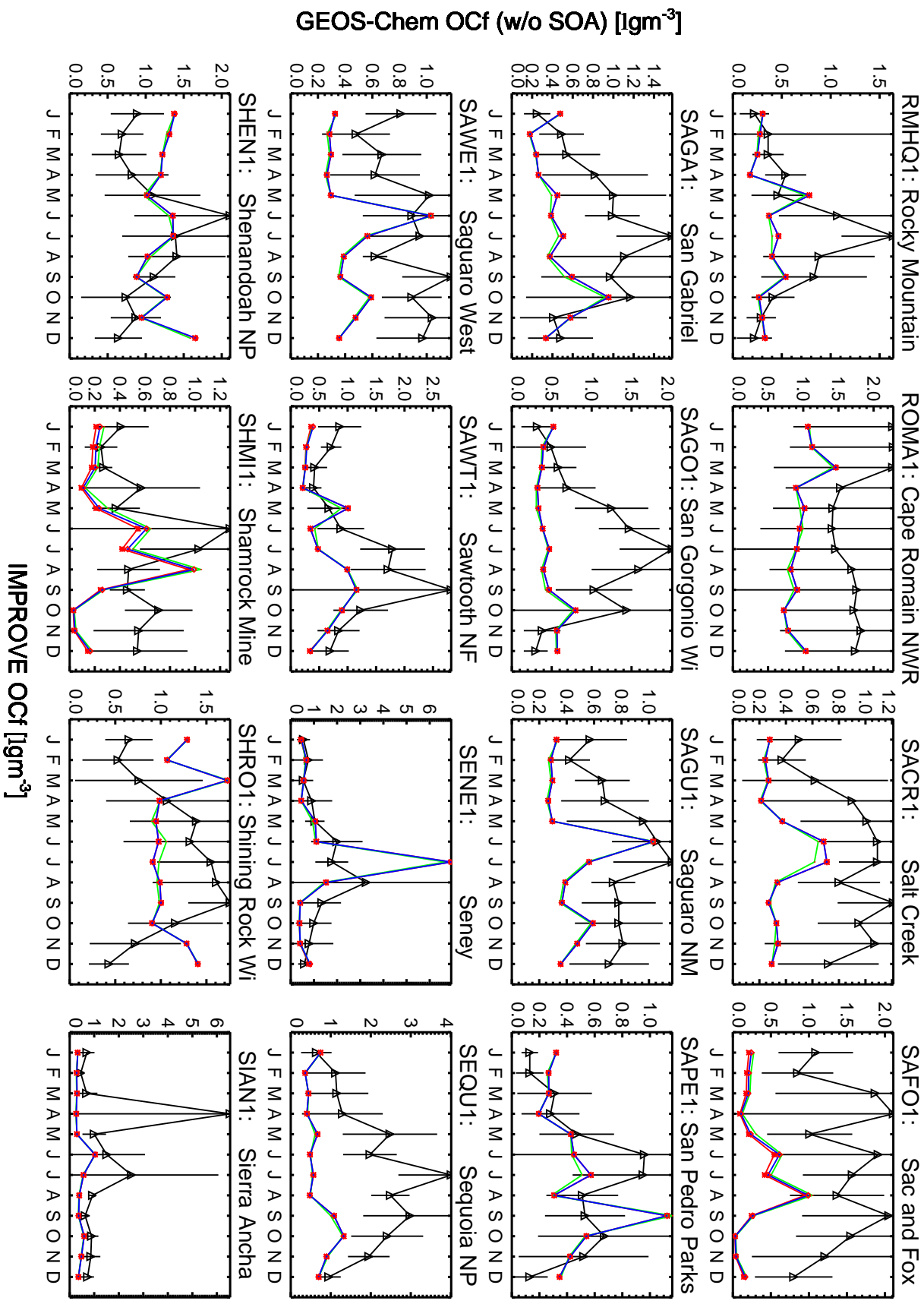
Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)



IMPROVE OCf [ $\mu\text{g m}^{-3}$ ]

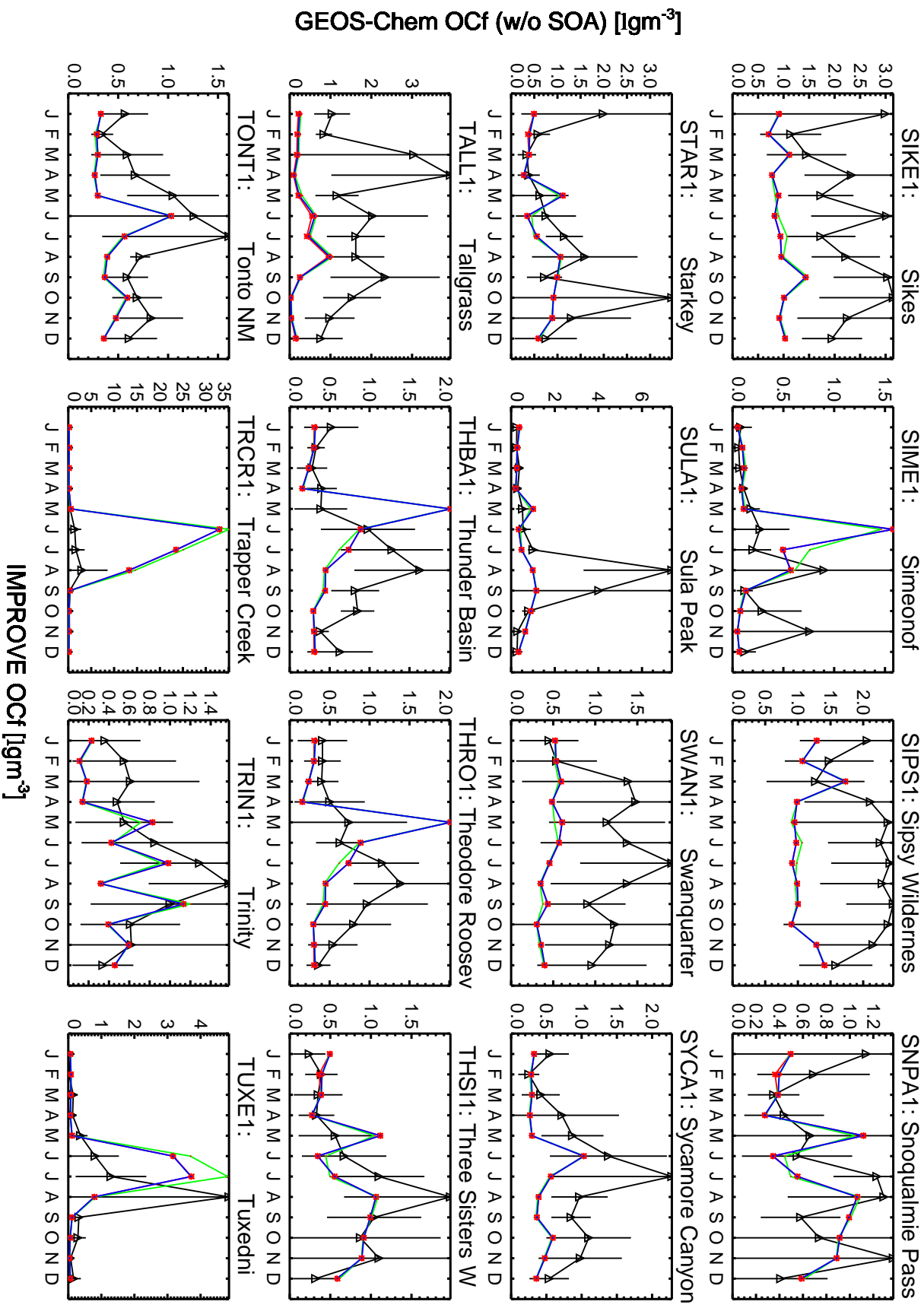


Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)

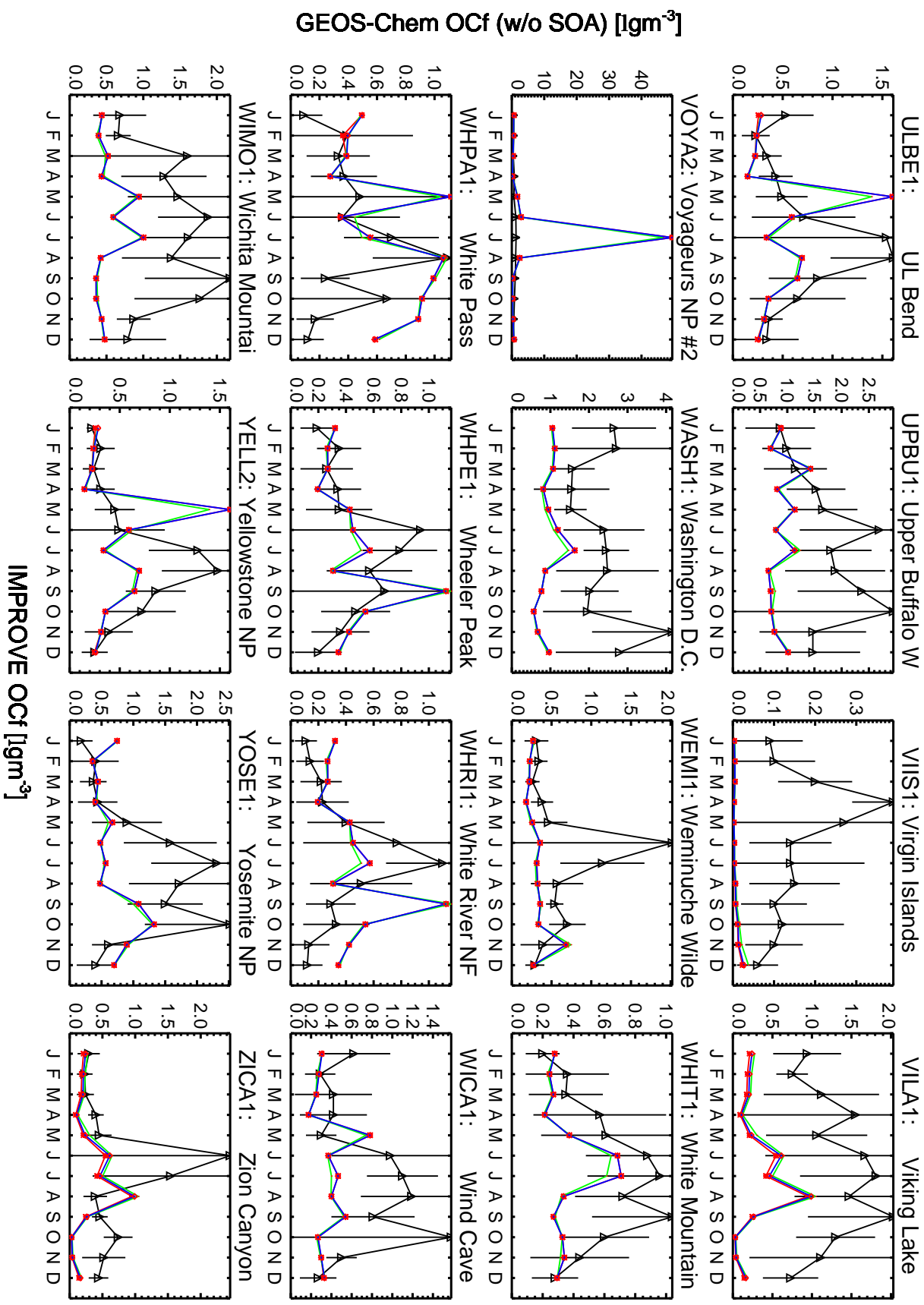


IMPROVE OCf [ $\mu\text{g m}^{-3}$ ]

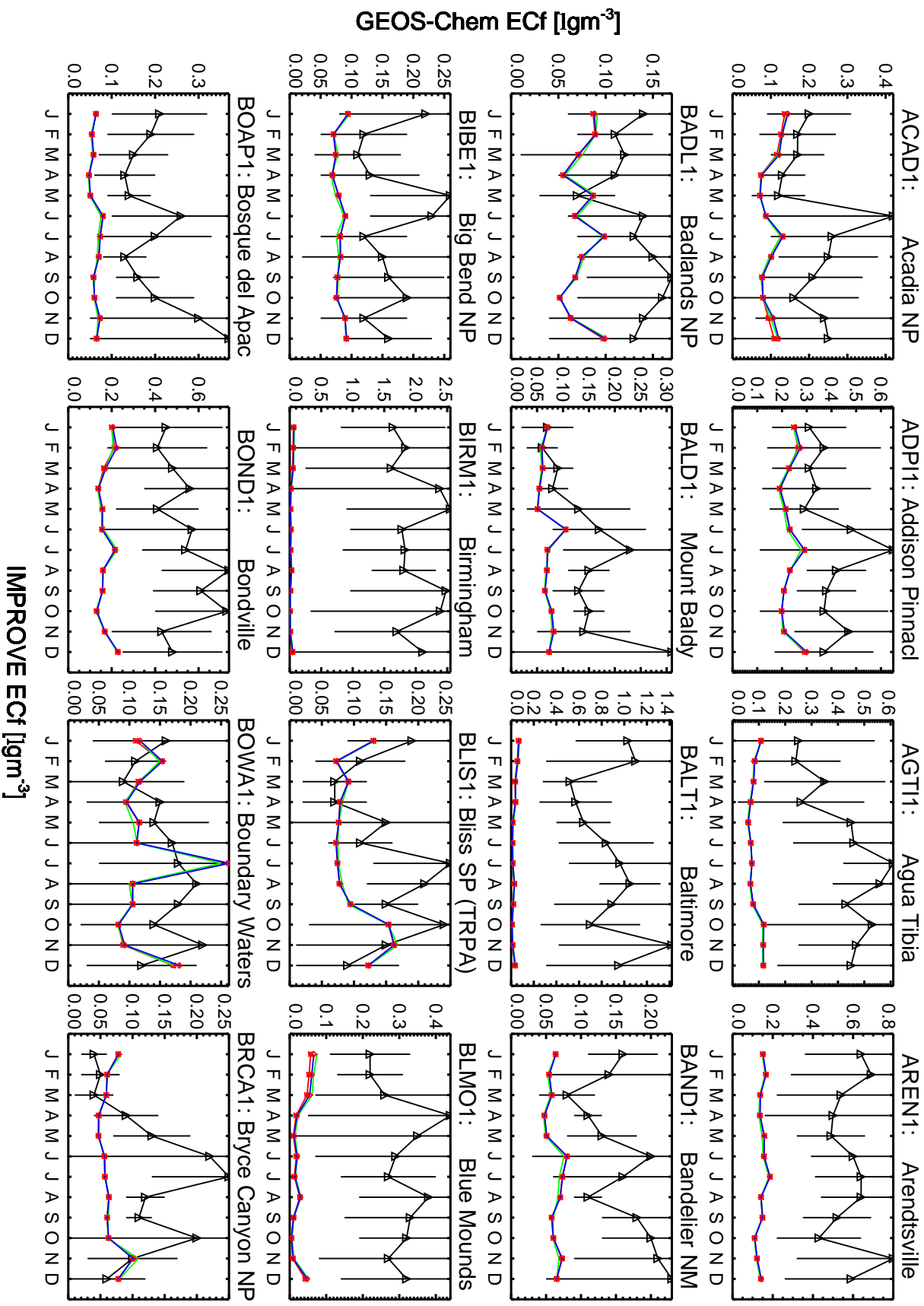
Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)



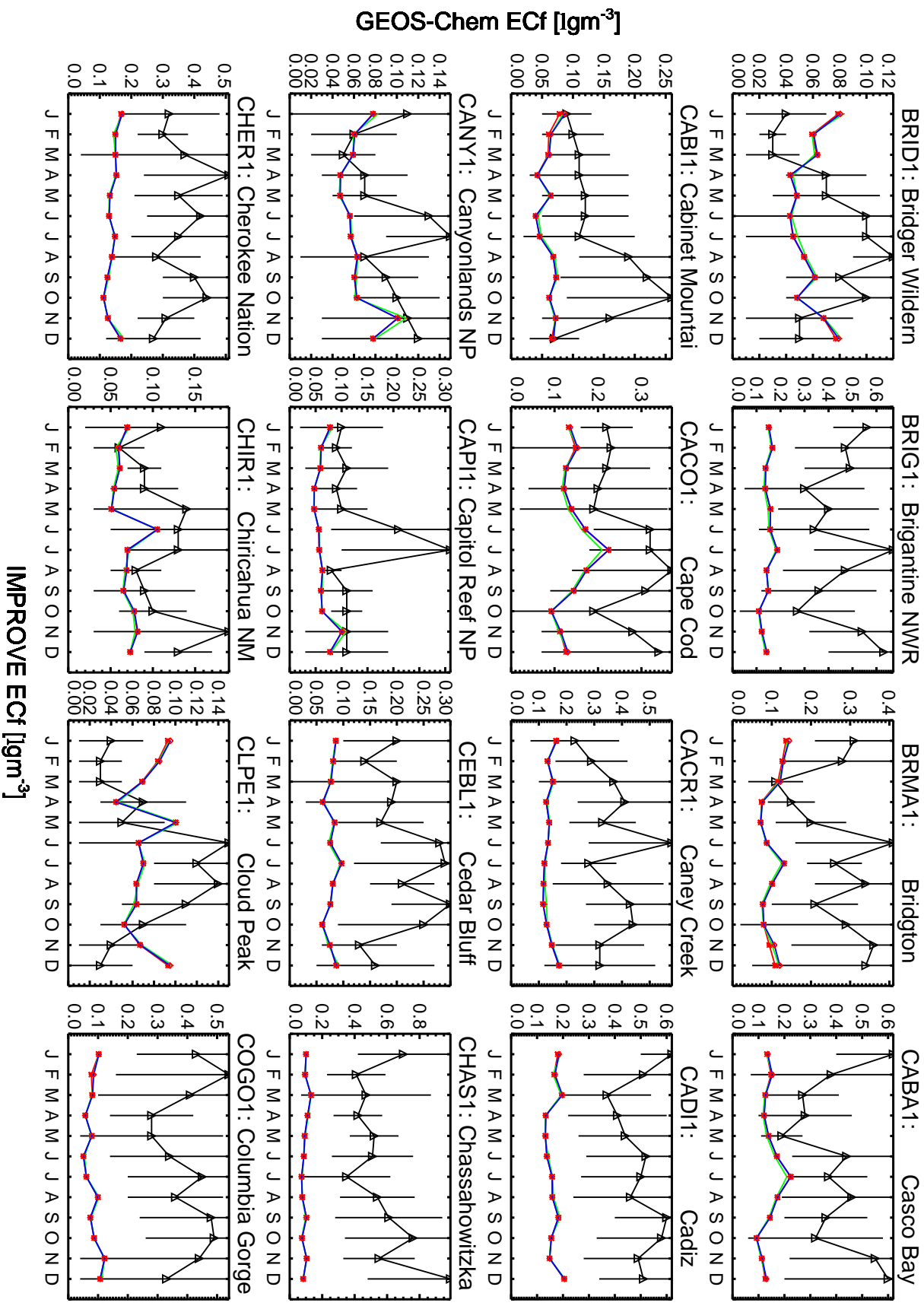
Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)



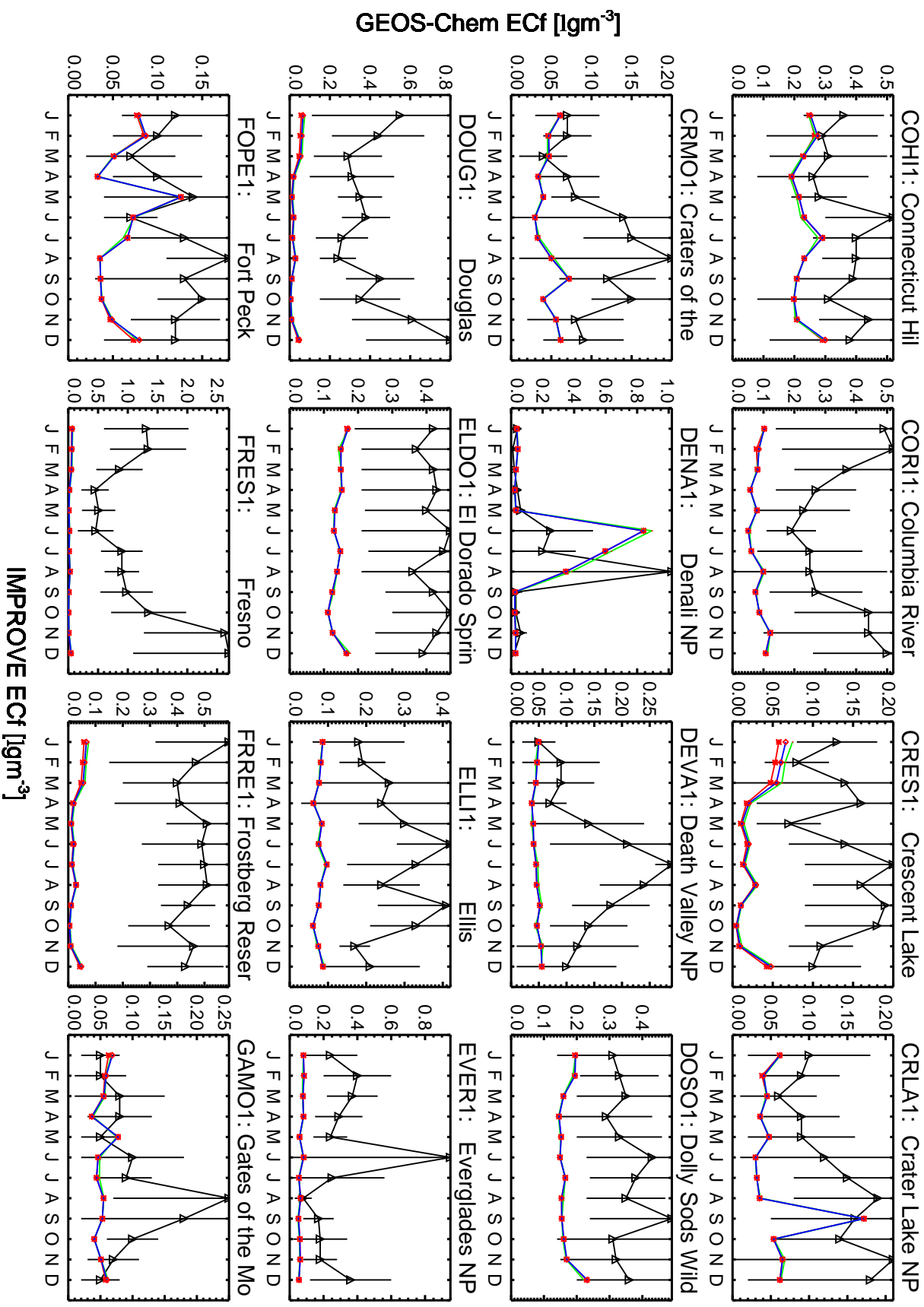
Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)



Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)

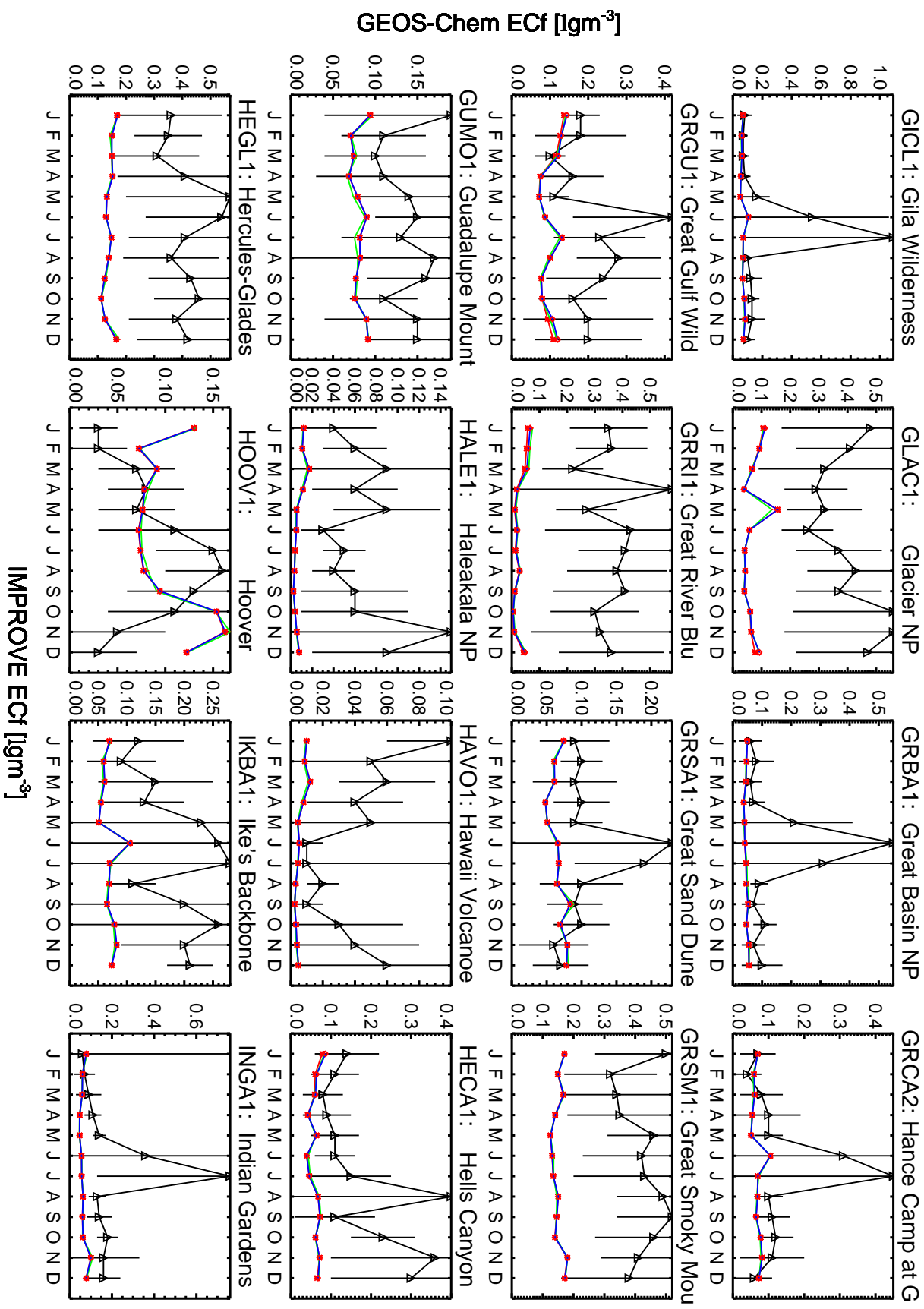


Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)



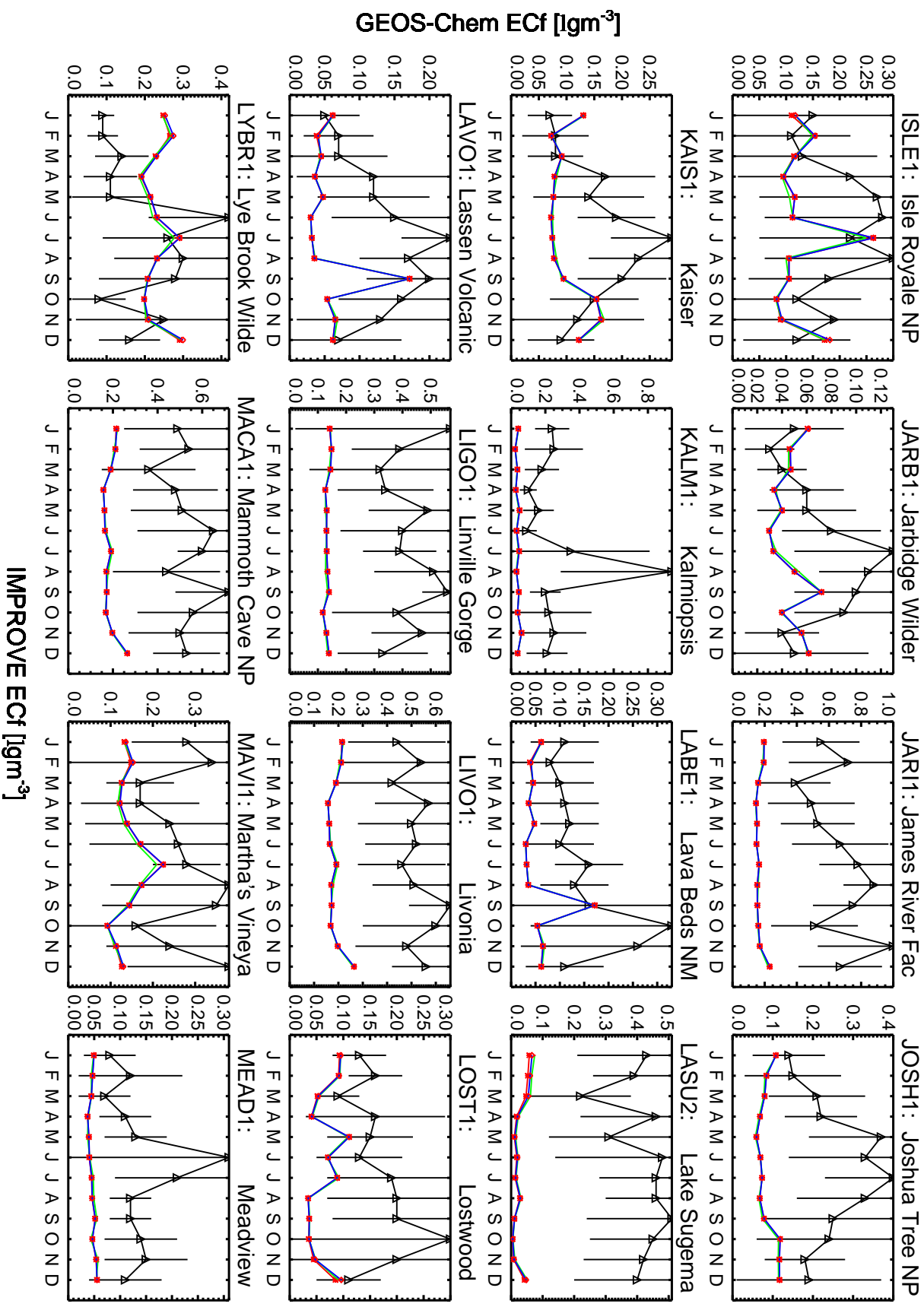
IMPROVE ECf [ $\mu\text{g m}^{-3}$ ]

Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)

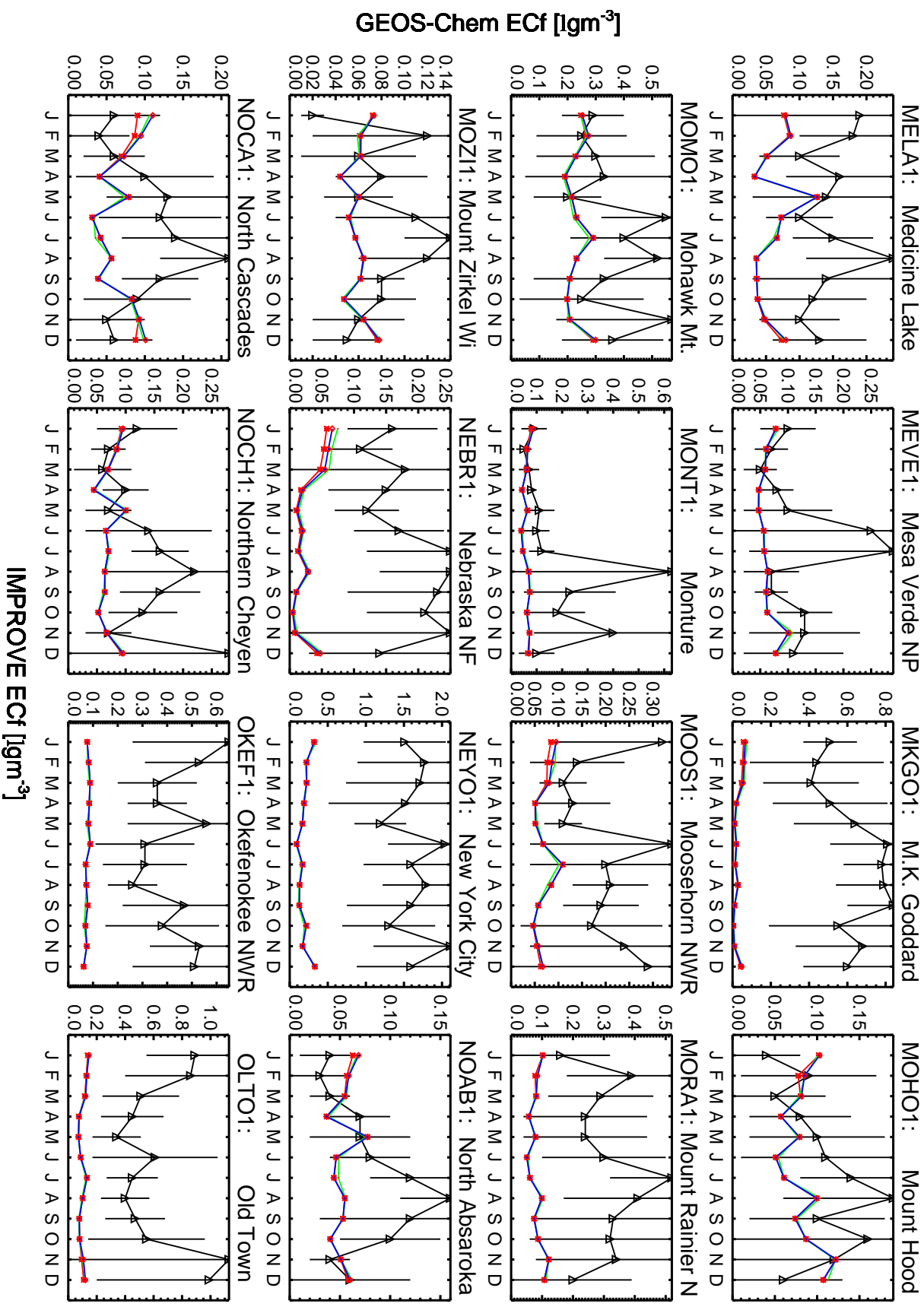




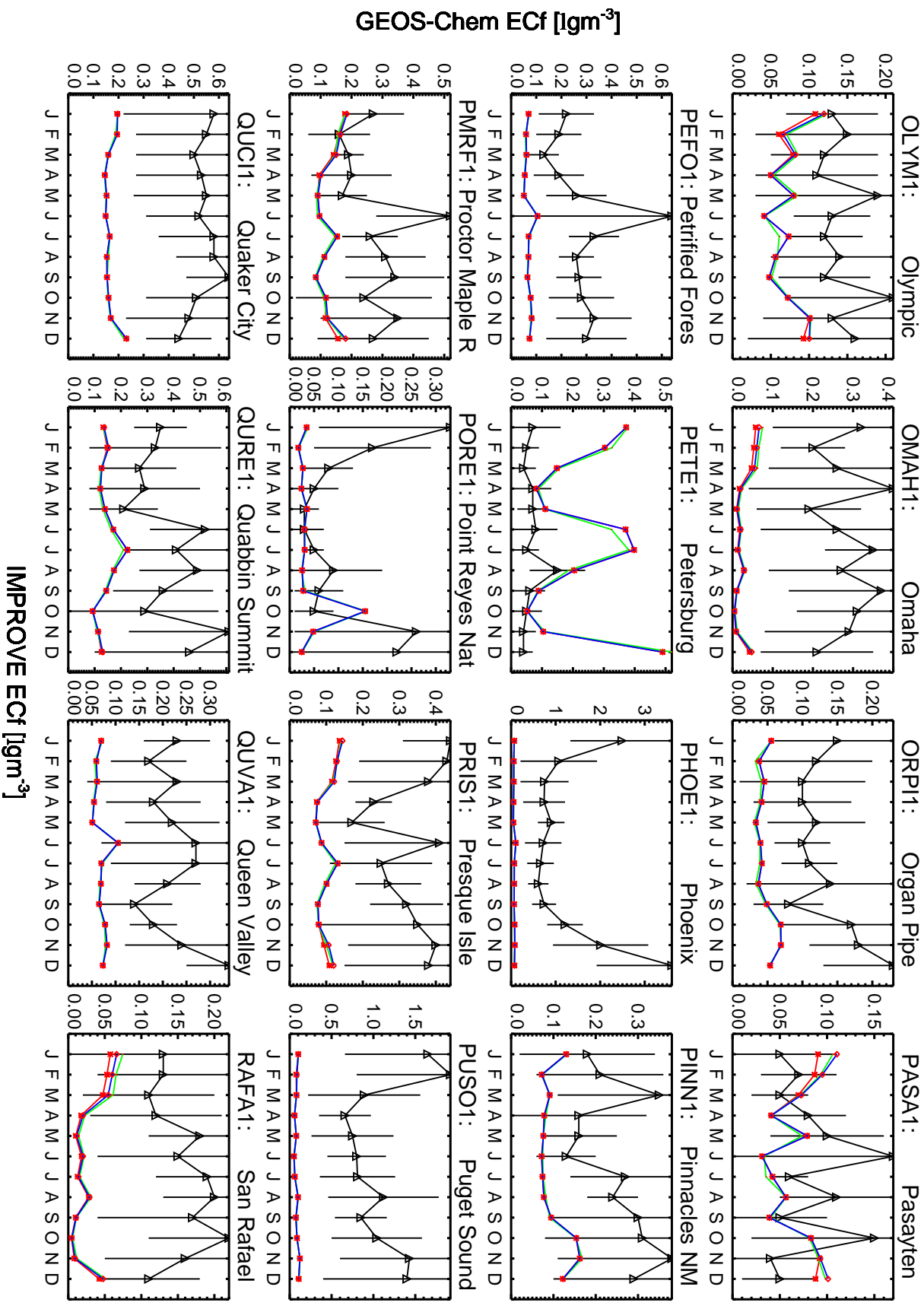
Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)



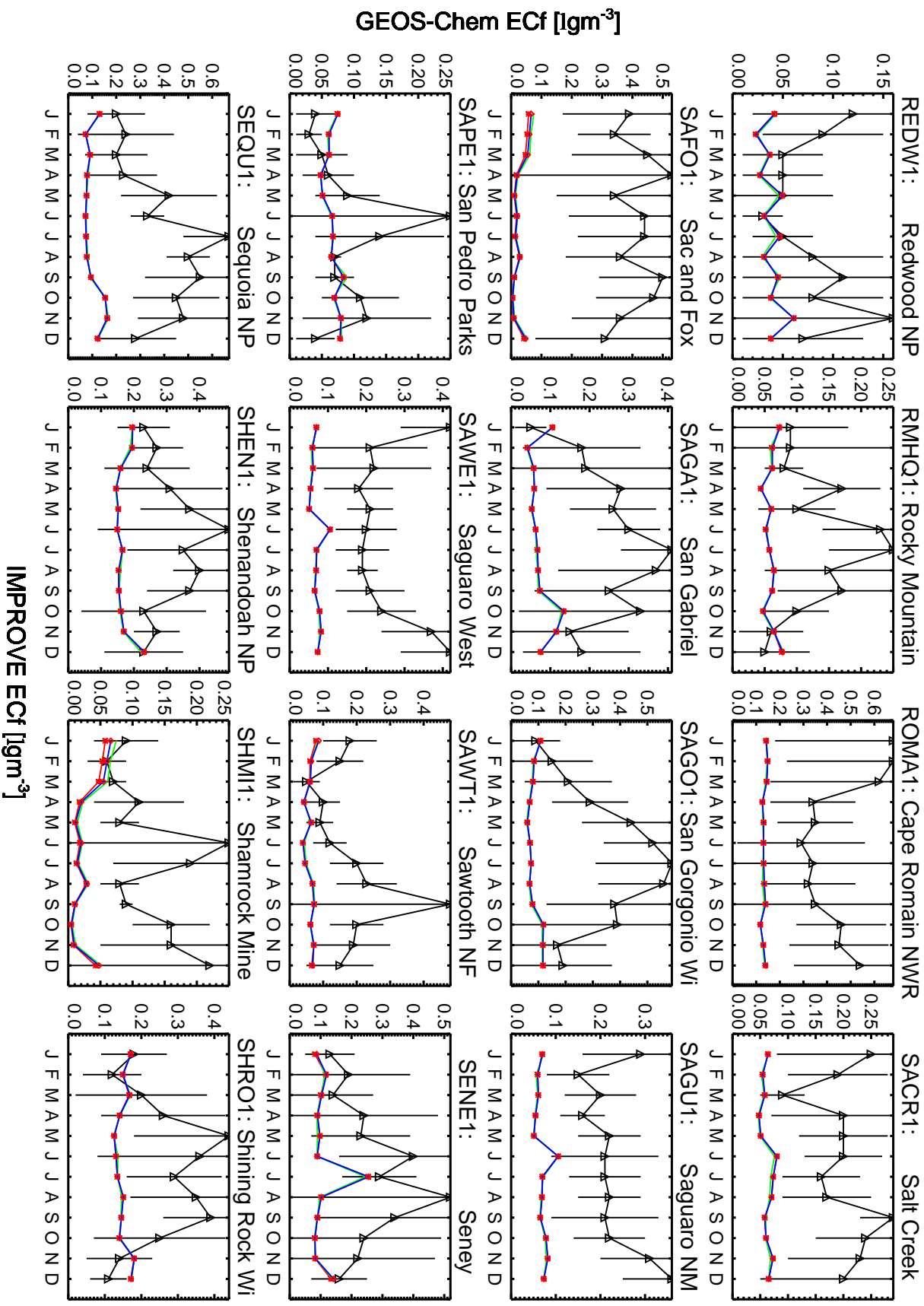
Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)



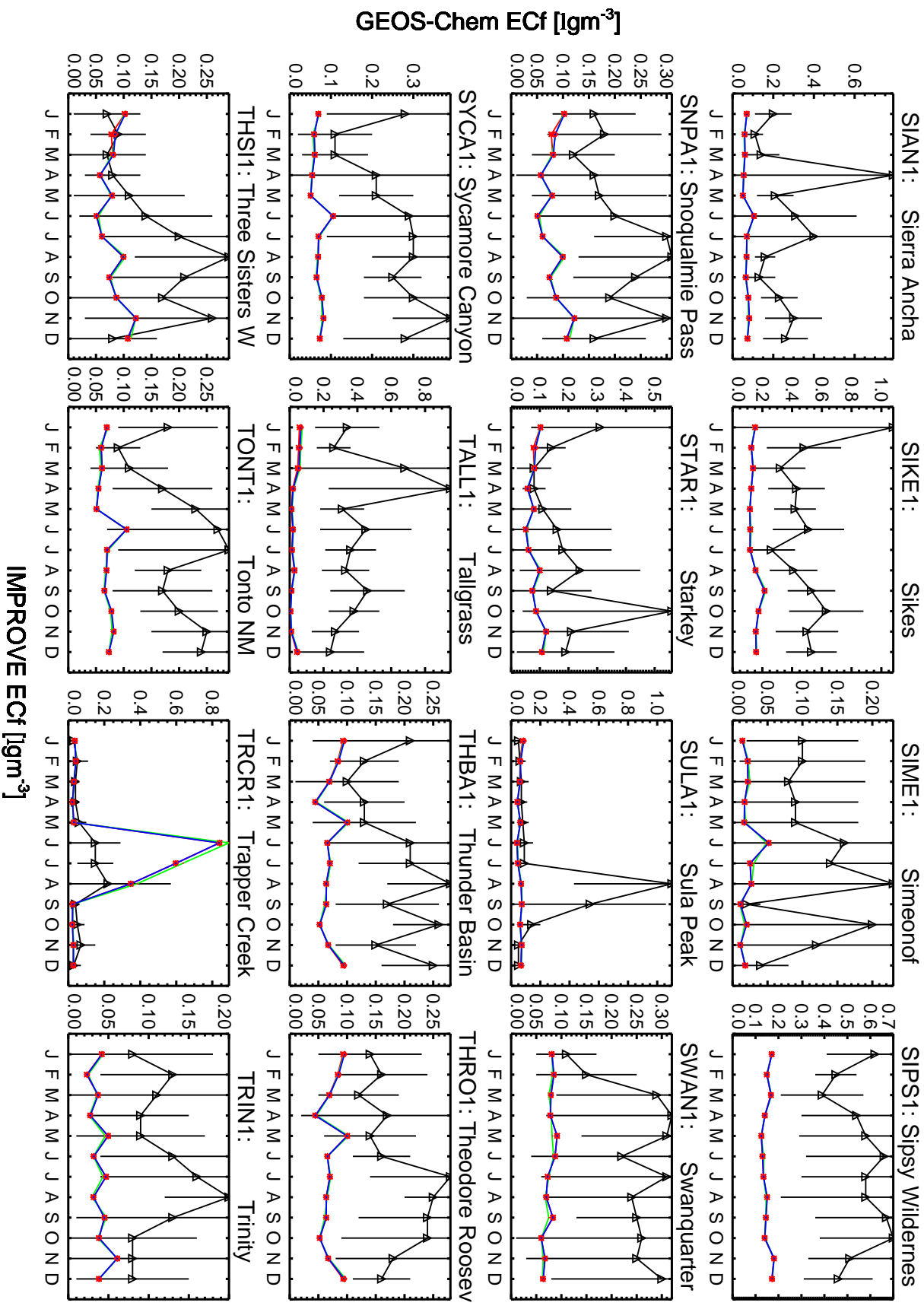
Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)



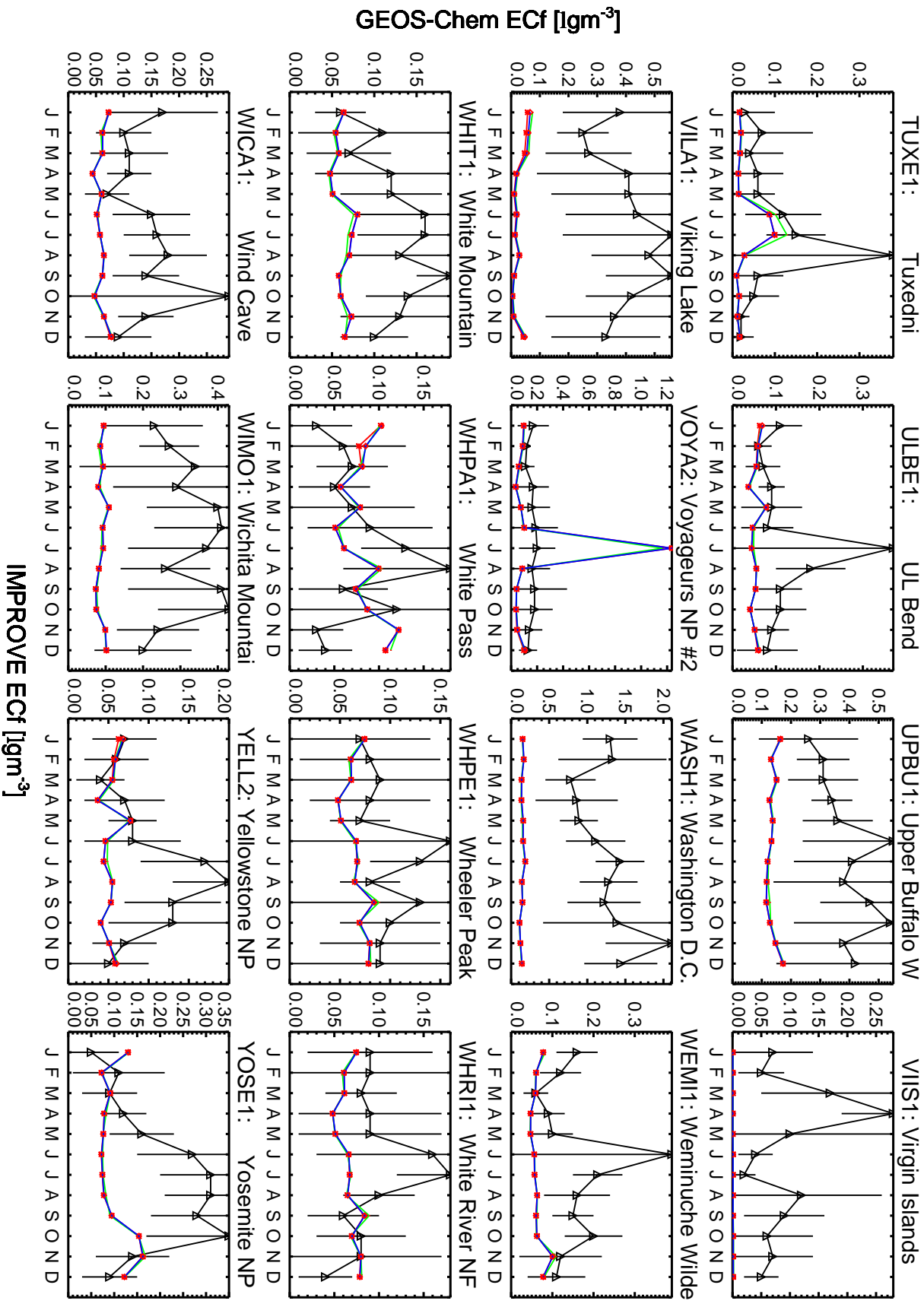
Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)



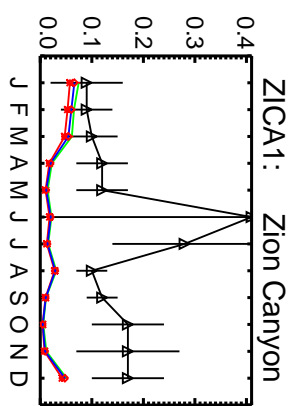
Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)



Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)



Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)

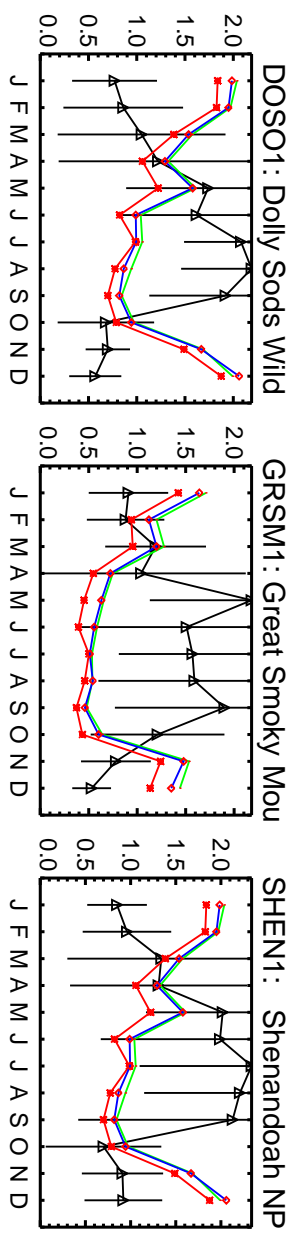


GEOS-Chem ECf [ $\mu\text{g m}^{-3}$ ]

IMPROVE ECf [ $\mu\text{g m}^{-3}$ ]



Red: GCC\_13.3.0 (2019); Green: GCC\_13.4.0 (2019); Blue: GCC\_14.0.0 (2019)



GEOS-Chem NH4f [ $\mu\text{g m}^{-3}$ ]

IMPROVE NH4f [ $\mu\text{g m}^{-3}$ ]