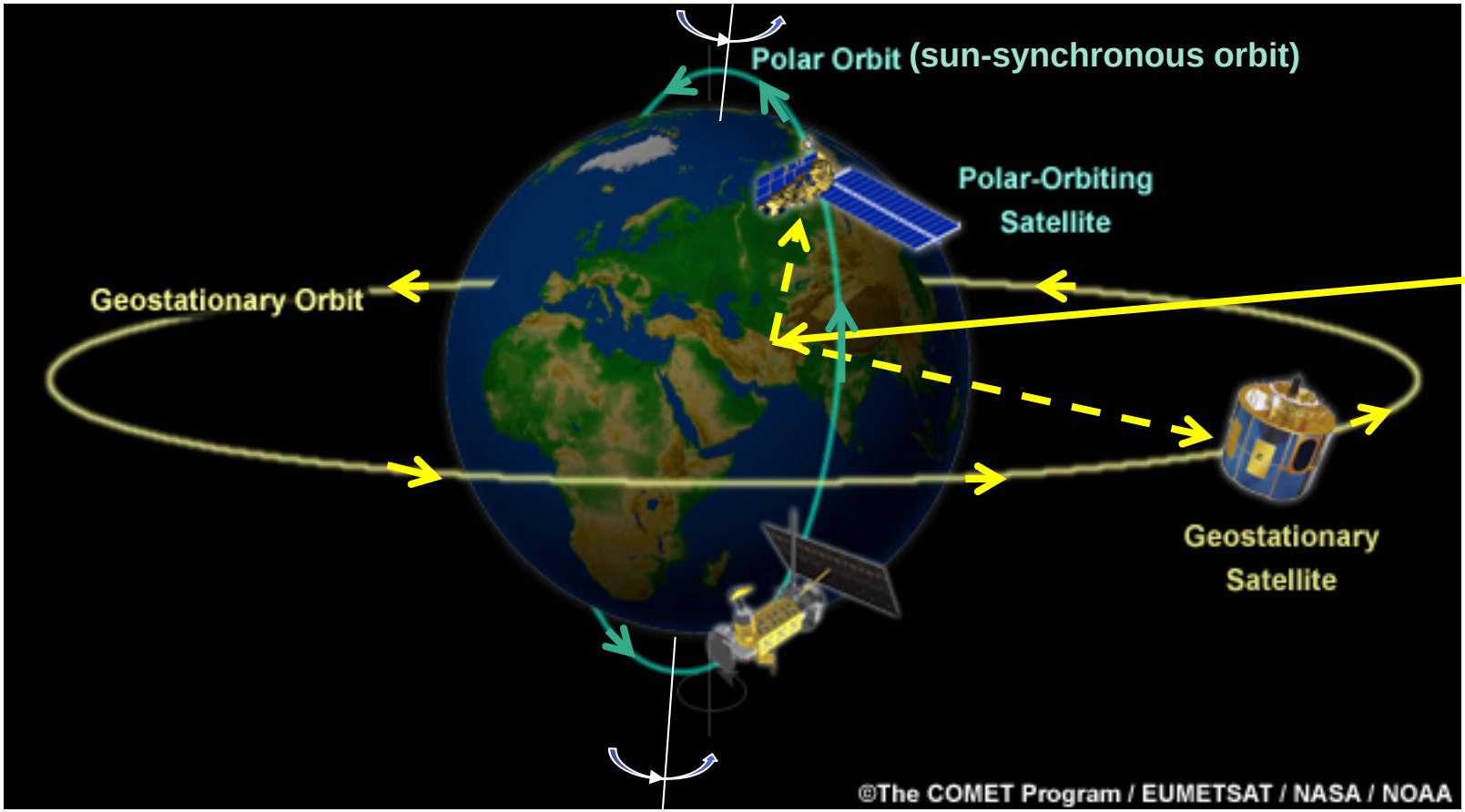
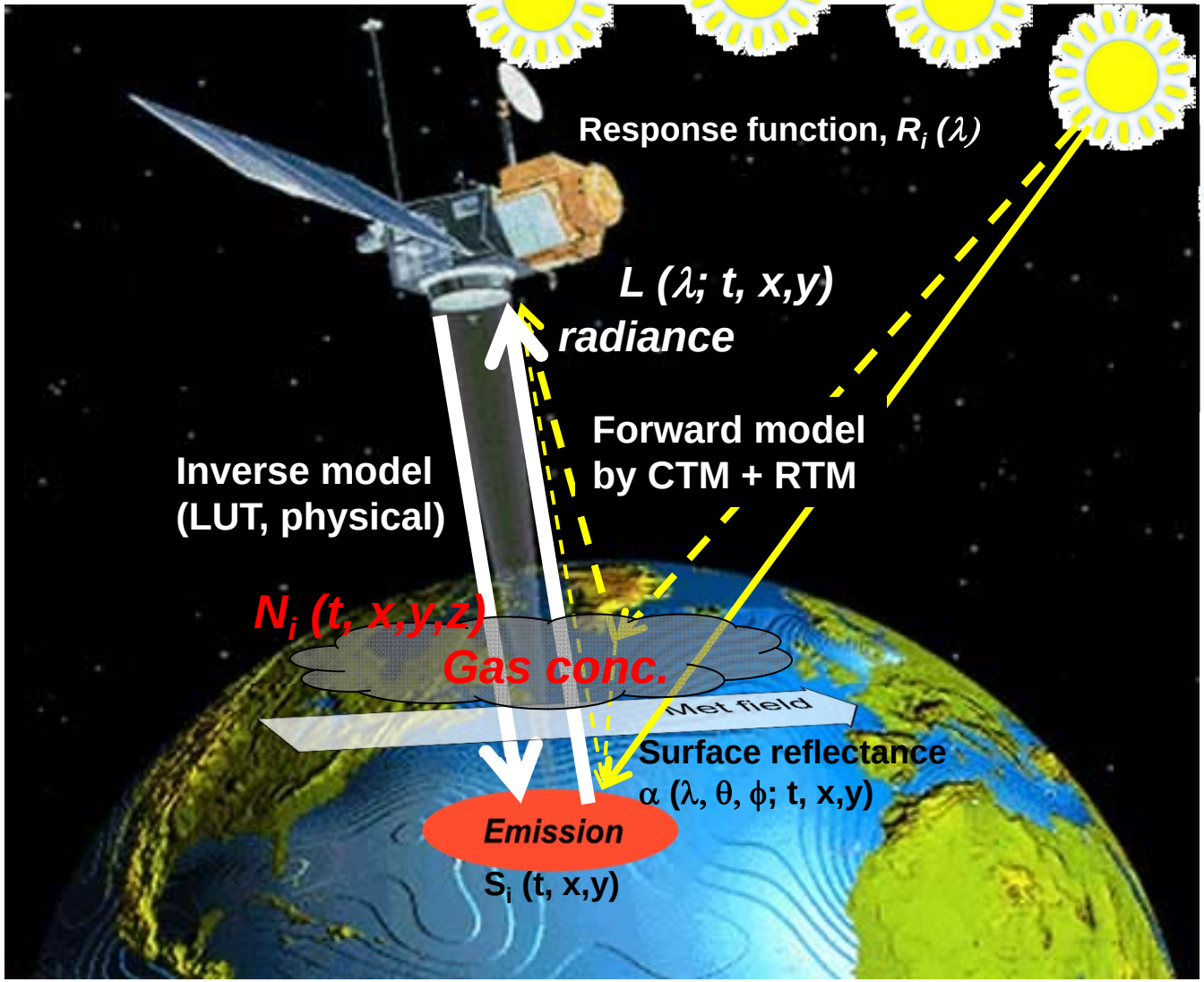
GEO-specific retrieval challenges

Retrieval Geometry

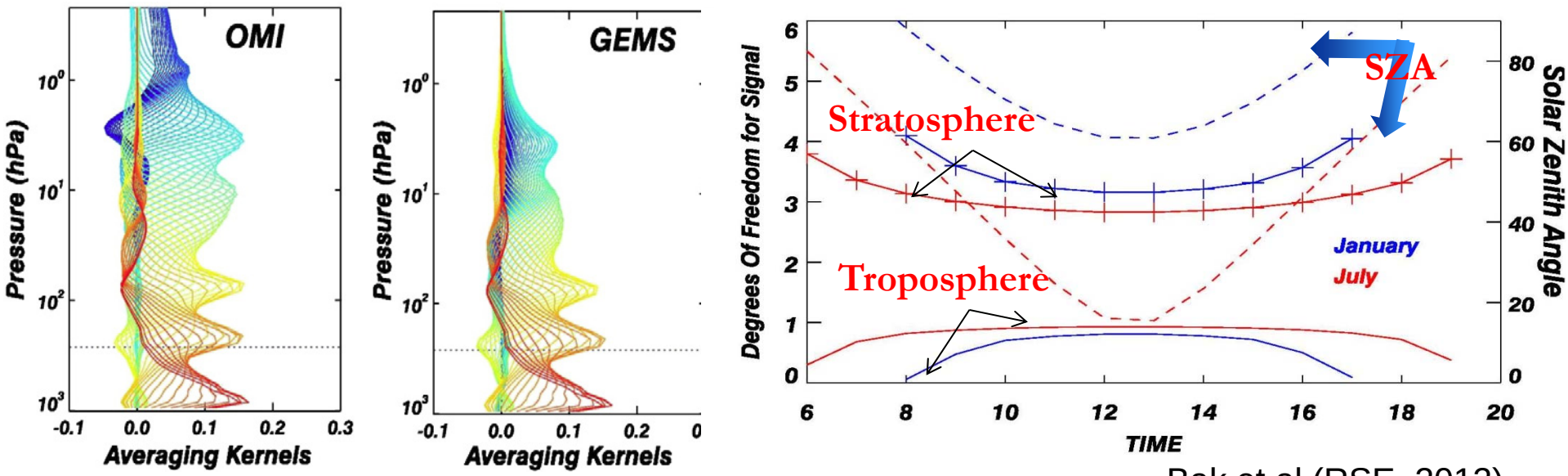


In sic



BRDF, AMF

Ozone



Bak et al.(RSE, 2012)

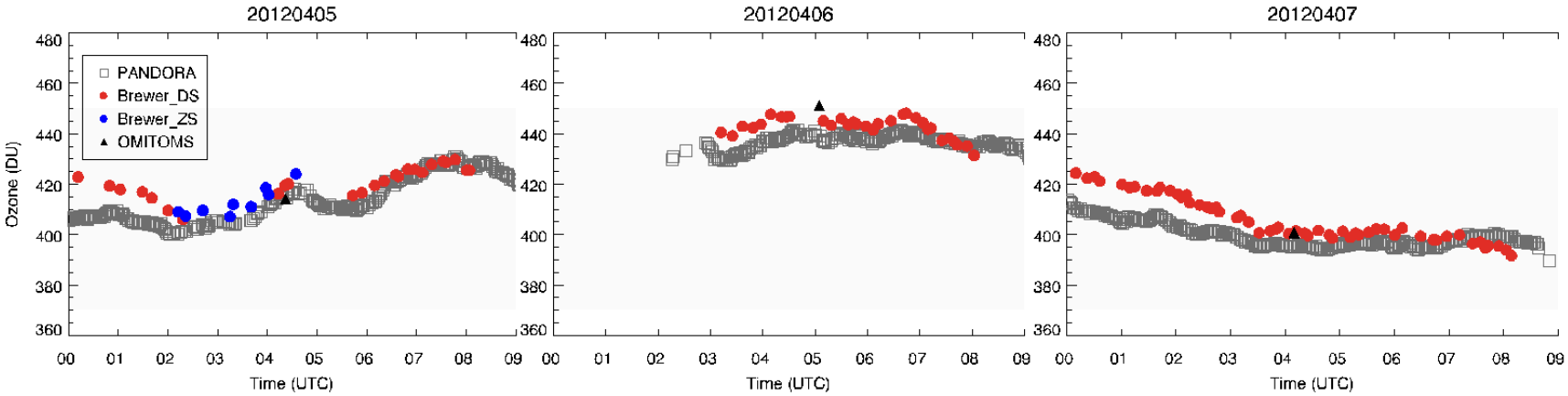
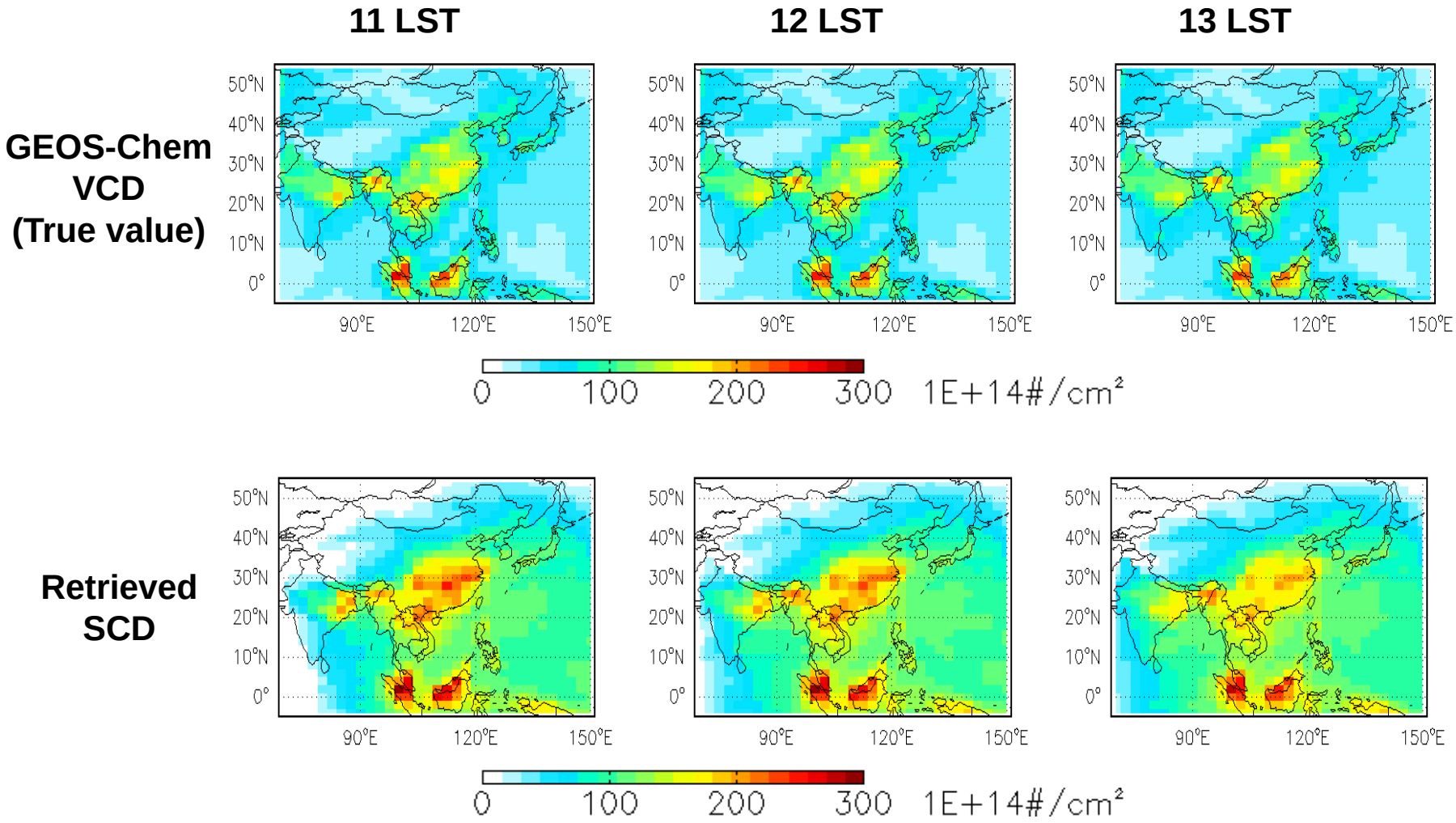


Figure 1. Preliminary comparisons from Three day during the Dragon campaign, 5 April 2012. Comparison of total ozone between PANDORA (square), single Brewer (circles), OMI TOMS(triangle).

(Jae H. Kim)

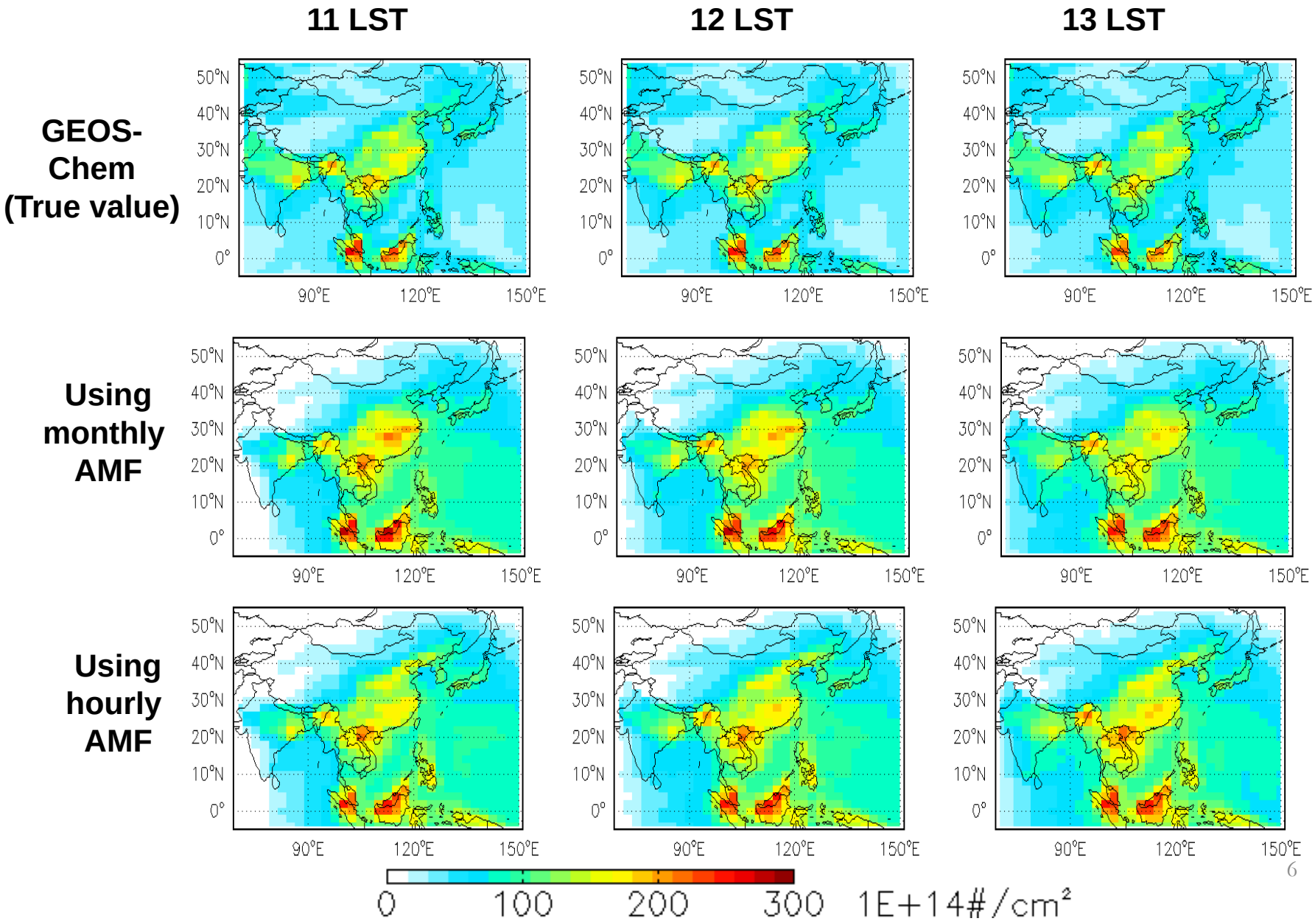
Simulated HCHO VCD and retrieved SCD (June 21, 2009)



We apply monthly mean AMF and hourly mean AMF to the SCD.

(Rokjin Park)

Hourly mean HCHO vertical abundance (June 21, 2009)



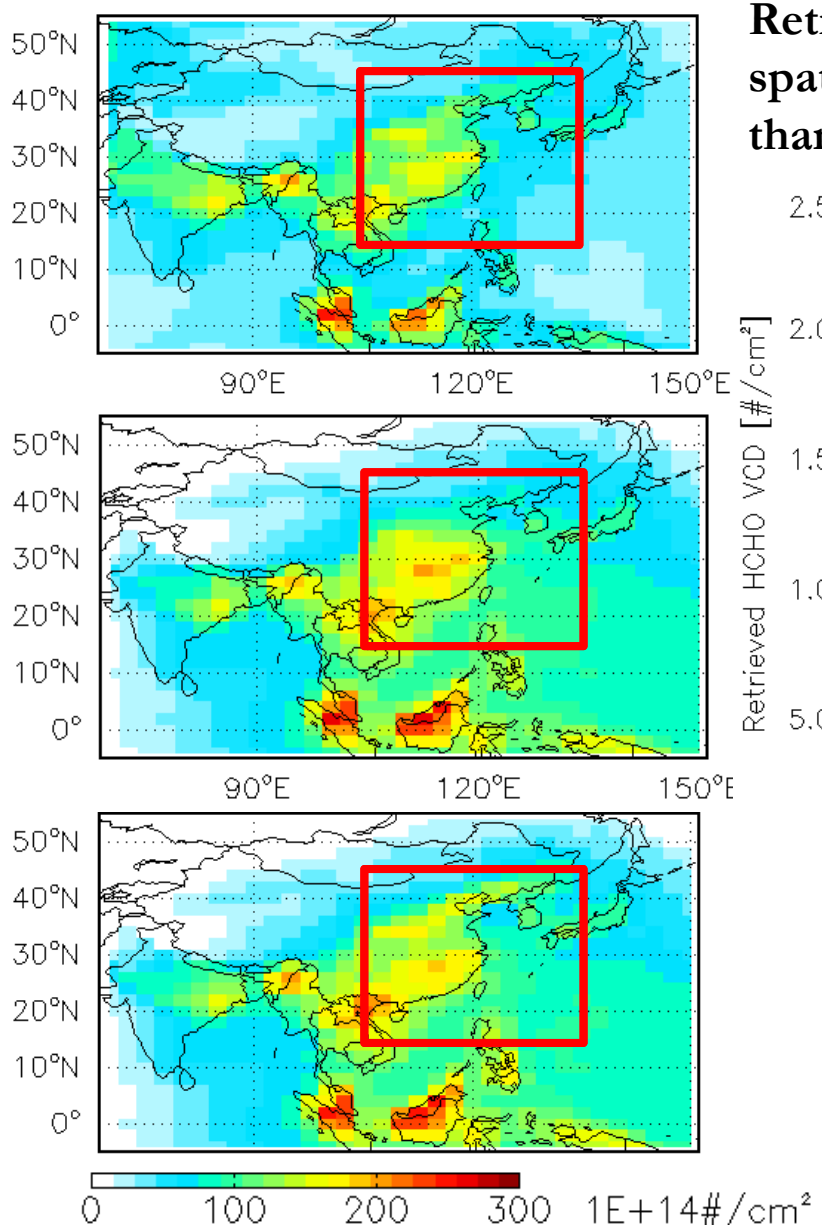
Comparisons between the true vs. retrieved HCHO VCD

11-13 LST mean

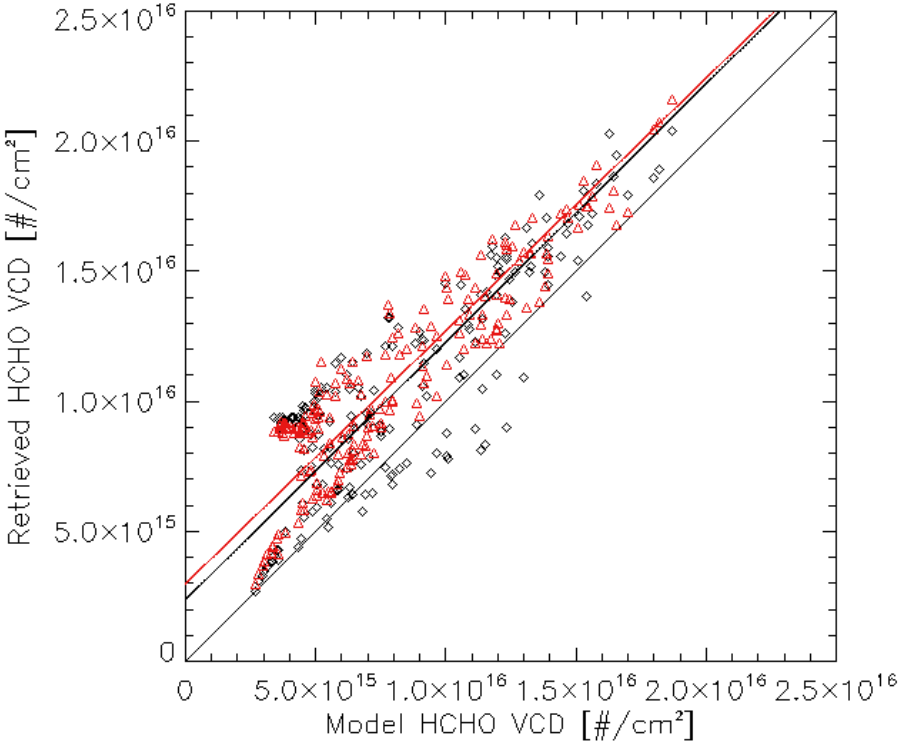
GEOS-Chem (True value)

Using monthly AMF

Using hourly AMF



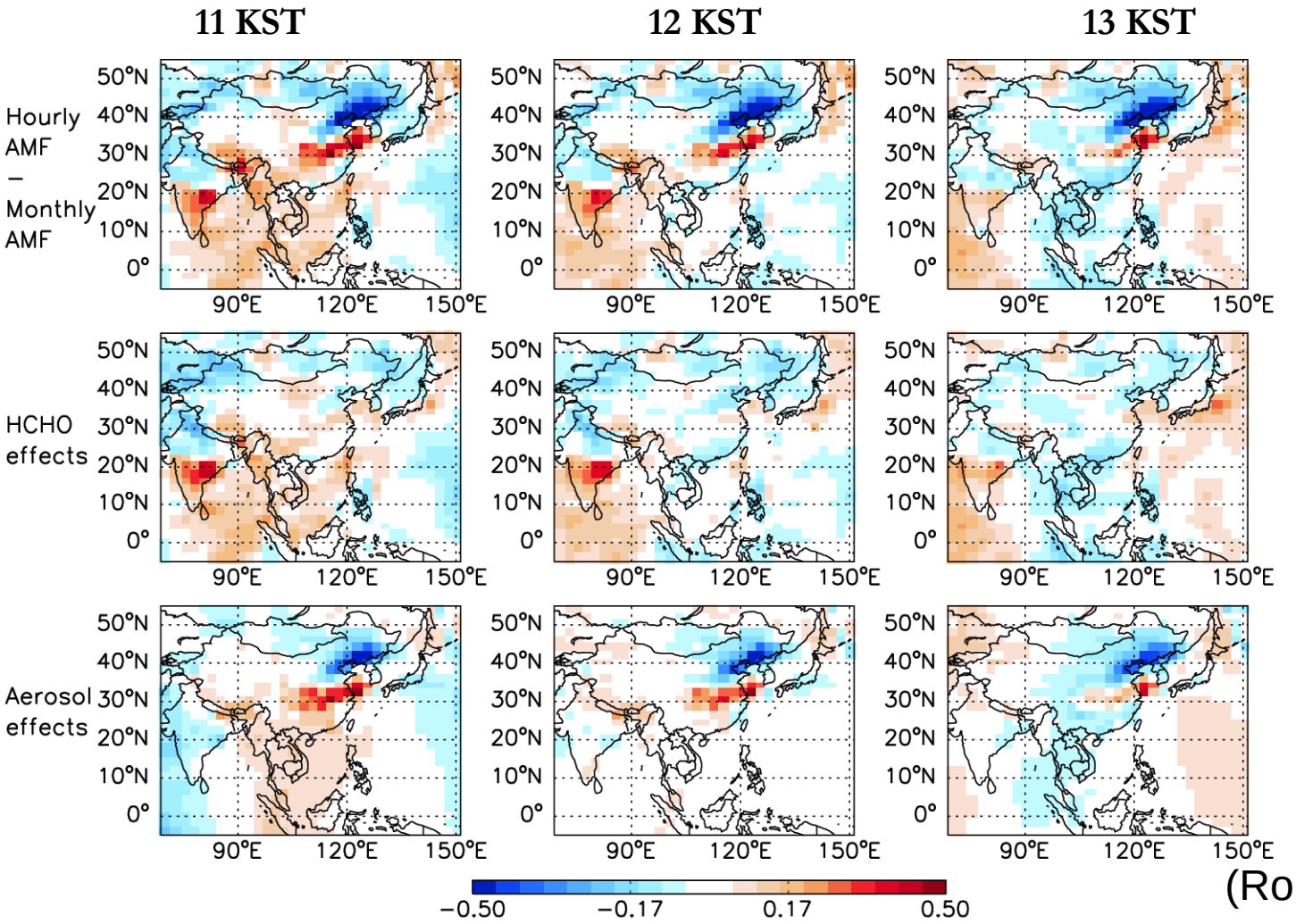
Retrieval with hourly AMF reproduces the spatial variability of HCHO VCD better than that with monthly AMF.



Monthly AMF	**Hourly AMF**
R=0.84	R=0.91
Slope=0.99	Slope=0.97

Issues in Algorithm Development

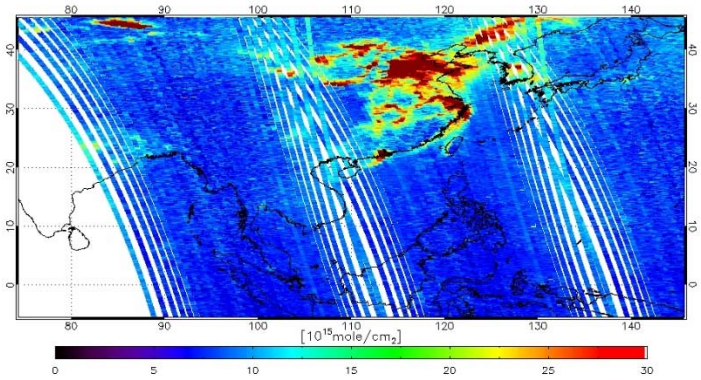
- Effect of Hourly AMF variation to gas retrieval
- Aerosol shielding effect of Trace gas retrieval
- Radiometric polarization correction



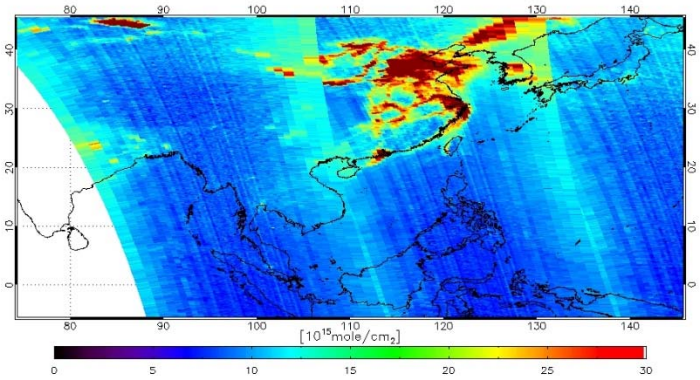
(Rokjin Park)

NO_2 Slant column densities (OMI vs. GEMS)

Test for January, 1st 2008



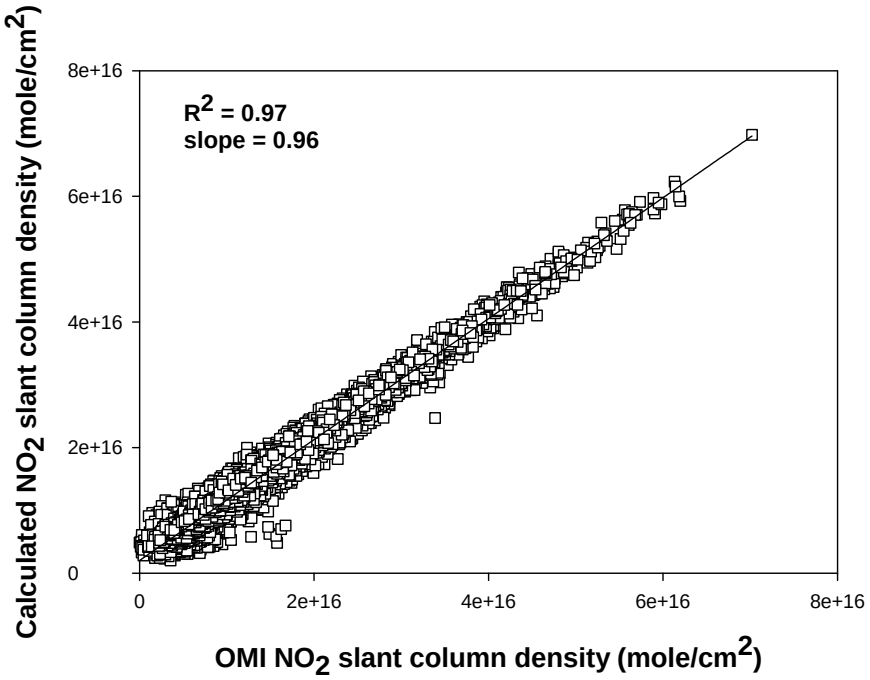
Calculated NO_2 SCD



OMI NO_2 SCD

Fitting window: 426 ~ 450 nm
Used OMI LV1B irradiance Data (OMI LV1 BRVG)
Used gas cross section: O_3_228K, NO_2_273K, O_4_294K, Molecular Ring

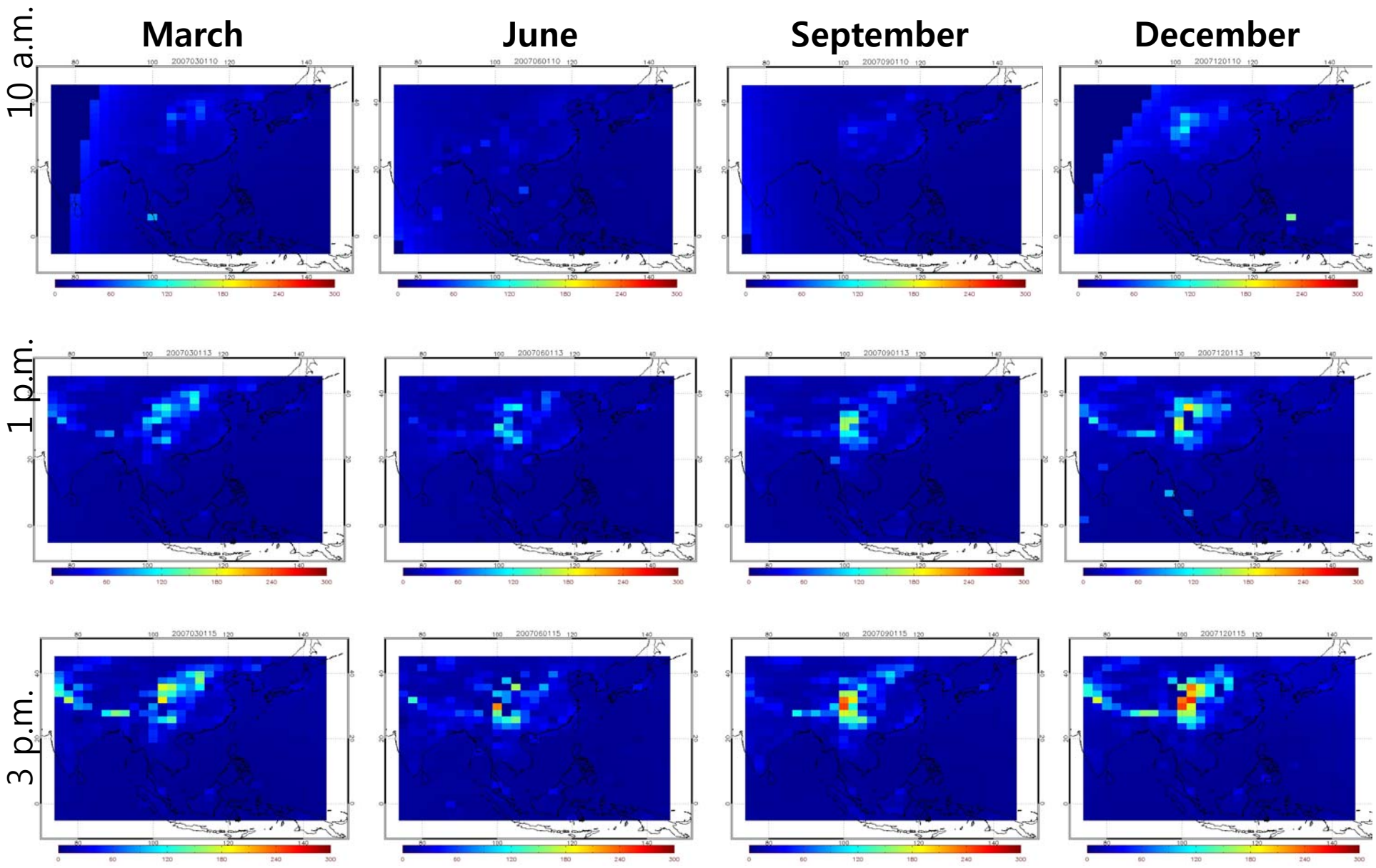
(Hanlim Lee)



Seasonal hourly SCD for GEMS NO_2

(Hanlim Lee)

Unit: x 10^{15} mole/cm^2



Seasonal hourly AMF for GEMS NO_2