Lee – Preliminary results of UV index product in Asia using GEMS measurement
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Overview of GEMS UV index algorithm

Step 1.
1. Reflectance at 354 nm
   - Mie calculation
   - Homogeneous water cloud
   - Cloud droplet C1 model by Deirmendjian (1969)
2. LUTs of UV, Dose rate, and Photolysis frequency
   - Action spectra
   - Quantum yield
   - Absorption cross section

Step 2.
Estimation of cloud optical depth

Step 3.
Estimation of UV Index, photolysis frequency

Step 4.
Post-correction

GEMS L1C at 354 nm,
GEMS L2 Total ozone,
L2 AOD, L2 SFC

Read LUTs

Read GEMS L1C, L2,
Climatology data

Cloud optical depth


Case study (August 6, 2020)

• UV Index
• Damage of DNA, plant response, vit. D synthesis indices

[Data credit: NIER]

Validation (2020/08~2020/12)

- Distance <10 km, Time <30 min

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