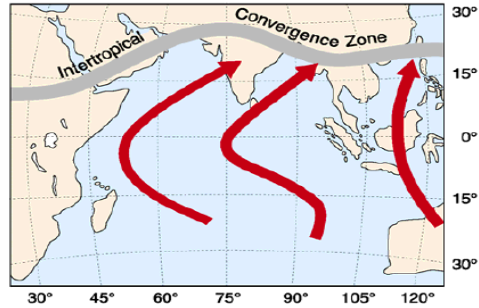


Asian Monsoon – a link for Asian emissions to the global atmosphere

“A Perfect Storm”

a) June - September

The Asian Monsoon brings tropical air northward onto the continent. As this “moist” air converges over Southern Asia, it rises, forming large thunderstorm systems across the region.



1

Asian Monsoon – a link for Asian emissions to the global atmosphere

“A Perfect Storm”

Widespread pollution in Asia

Thunderstorms act as chimneys to carry pollutants rapidly from the surface to high altitudes (10-18 Km, 32,000-59,000 feet).



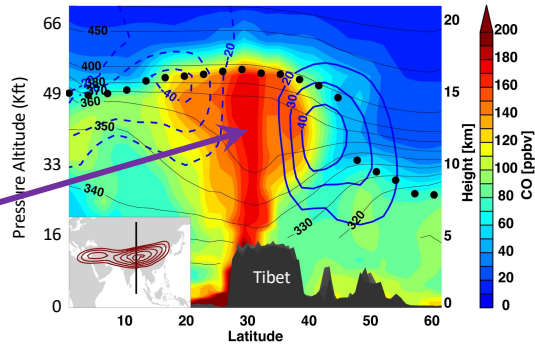
2

Asian Monsoon – a link for Asian emissions to the global atmosphere

“A Perfect Storm”

Satellite data and model simulations show surface pollutants being carried to extremely high altitudes over Asia.

Here, carbon monoxide (a burn-product gas) has been carried over 15Km upward from the surface.



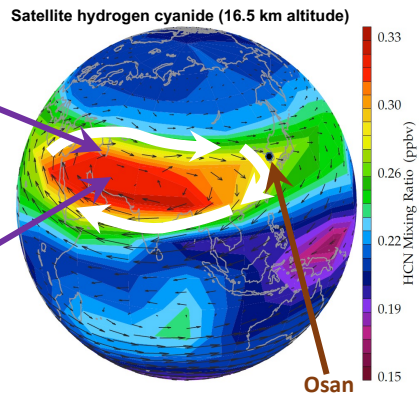
3

Asian Monsoon – a link for Asian emissions to the global atmosphere

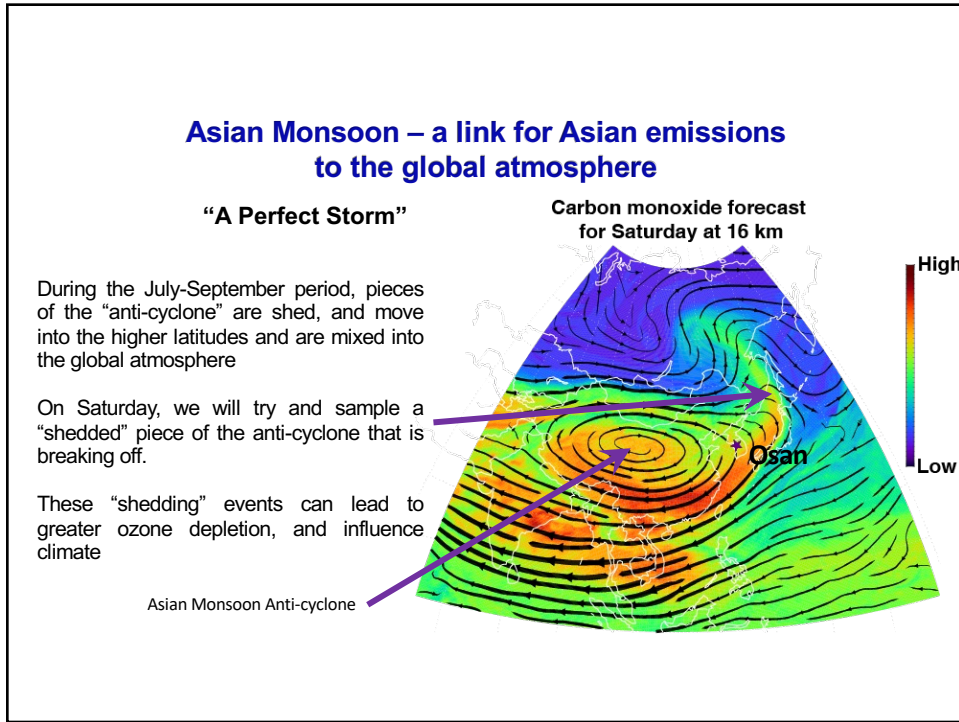
“A Perfect Storm”

Satellite data and model simulations show that air pumped into the upper atmosphere is trapped inside the Asian Monsoon Anti-cyclone (clockwise circulation)

Hydrogen cyanide (HCN) is a gas produced in biomass burning. High values of HCN are found inside the anti-cyclone.



4



5

ACCLIP Korean team Collaborations

NASA WB-57

Ground Obs

국립환경과학원 NIER (core partner)
National Institute of Environmental Research

Regional Air Quality
King Air 1900D, Ozone sonde
(O₃, NO₂, VOCs, SO₂, etc.)

GK2-GEMS
East Asian Env. Monitoring
(O₃, NO₂, HCHO, UVI, etc.)
* GMAP, SJAQ Collaboration





국립기상과학원 NIMS (National Institute of Meteorological Sciences)

GHG measurements
Stratospheric O₃ watch

Universities
10 research teams from 6 universities

- 연세대학교 YONSEI UNIVERSITY
- 국립공주대학교 KONGJU NATIONAL UNIVERSITY
- 서울대학교 SEOUL NATIONAL UNIVERSITY
- 울산과학기술원 ULSAN NATIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY
- 부산대학교 BUSAN NATIONAL UNIVERSITY
- 충남대학교 CHUNGNAM NATIONAL UNIVERSITY

6

Korean team Science Collaborations

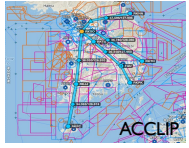
ACCLIP mission purpose

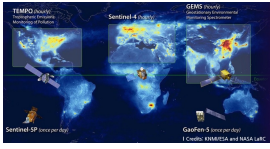
Transport Pathways in Asian Summer Monsoon (ASM)
 Chemistry of UTLS Ozone and SLCFs in ASM
 Aerosol, SLCFs and their radiative impact
 Water vapor distribution associated with ASM dynamics

Additional opportunity 1

Korean Air Quality research

- Take-off and landing profiles of various chemical species
- Comprehensive research on atmospheric chemistry
- Better understanding of vertical transport and mixing process





Additional opportunity 2

GEMS evaluation (Geostationary Environment Monitoring Spectrometer)

- Evaluation & improvement of GEMS products
- Contribute to future monitoring of Asian air quality
- Era of Geostationary environmental monitoring