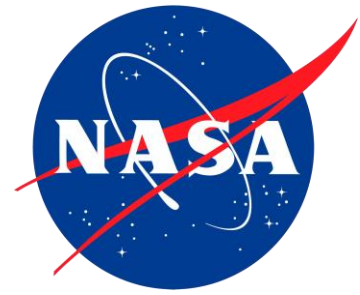




Ministry of Environment  
National Institute of  
Environmental Research



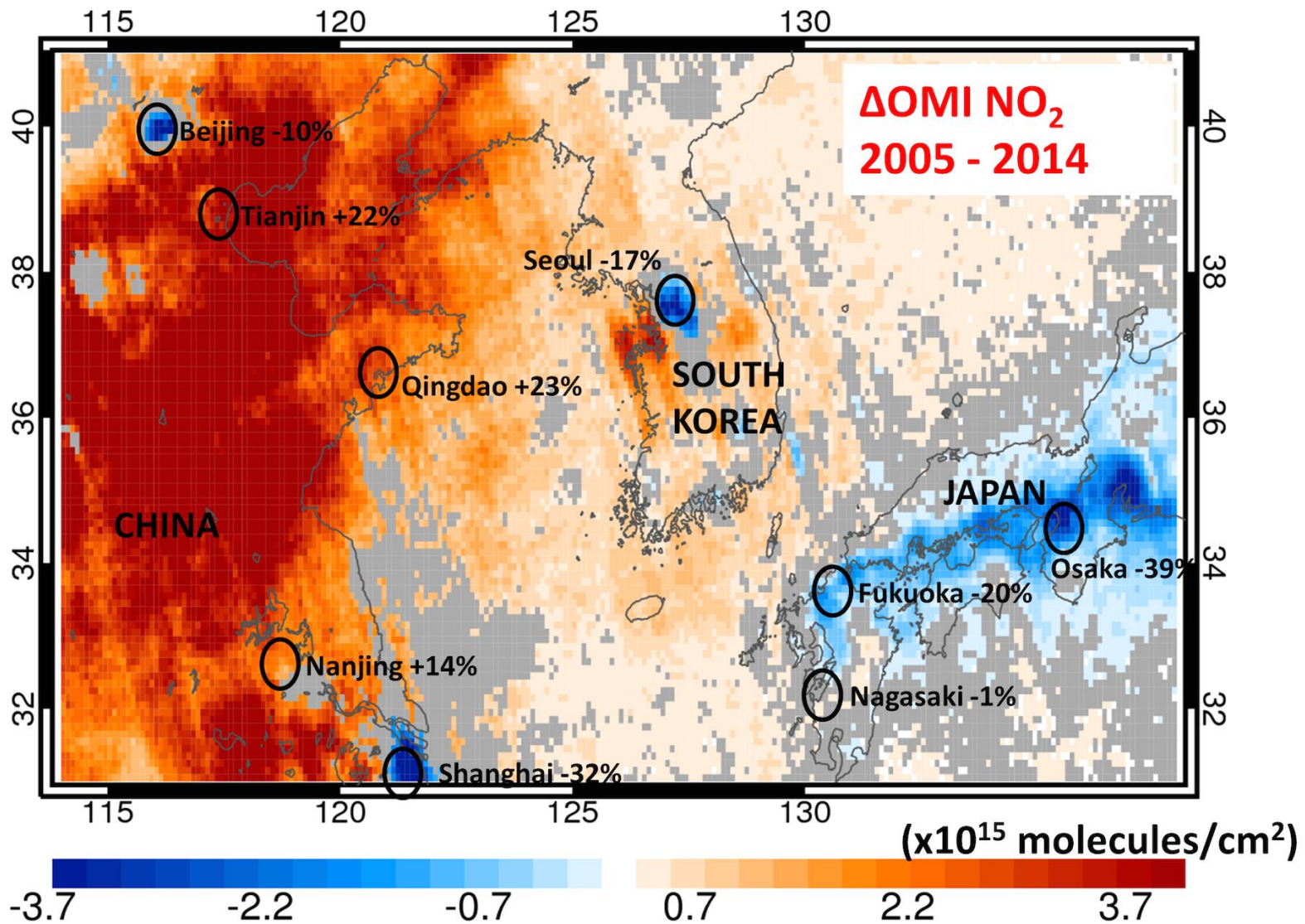
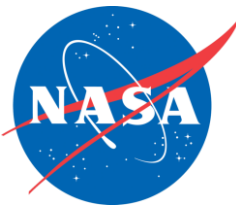
# KORUS-AQ campaign: Overview and Status

## (1 May – 14 June 2016)

Jeong-Hoo Park<sup>1</sup>, James Crawford<sup>2</sup>, Jhoon Kim<sup>3</sup>, Gangwoong Lee<sup>4</sup>, Rokjin Park<sup>5</sup>, Ji-Hyung Hong<sup>1</sup>,  
Lim-Seok Chang<sup>1</sup>, Jay Al-Saadi<sup>2</sup>, Louisa Emmons<sup>6</sup>, Barry Lefer<sup>7</sup>, You-Deog Hong<sup>1</sup>, Chang-Keun Song<sup>1</sup>,  
Sang-Kyun Kim<sup>1</sup>, Im-Suk Jang<sup>1</sup>, Jun-Young Ahn<sup>1</sup>, Ji-Young Kim<sup>1</sup>, Yong-Hwan Lee<sup>1</sup>, Yunseo Park<sup>1</sup>

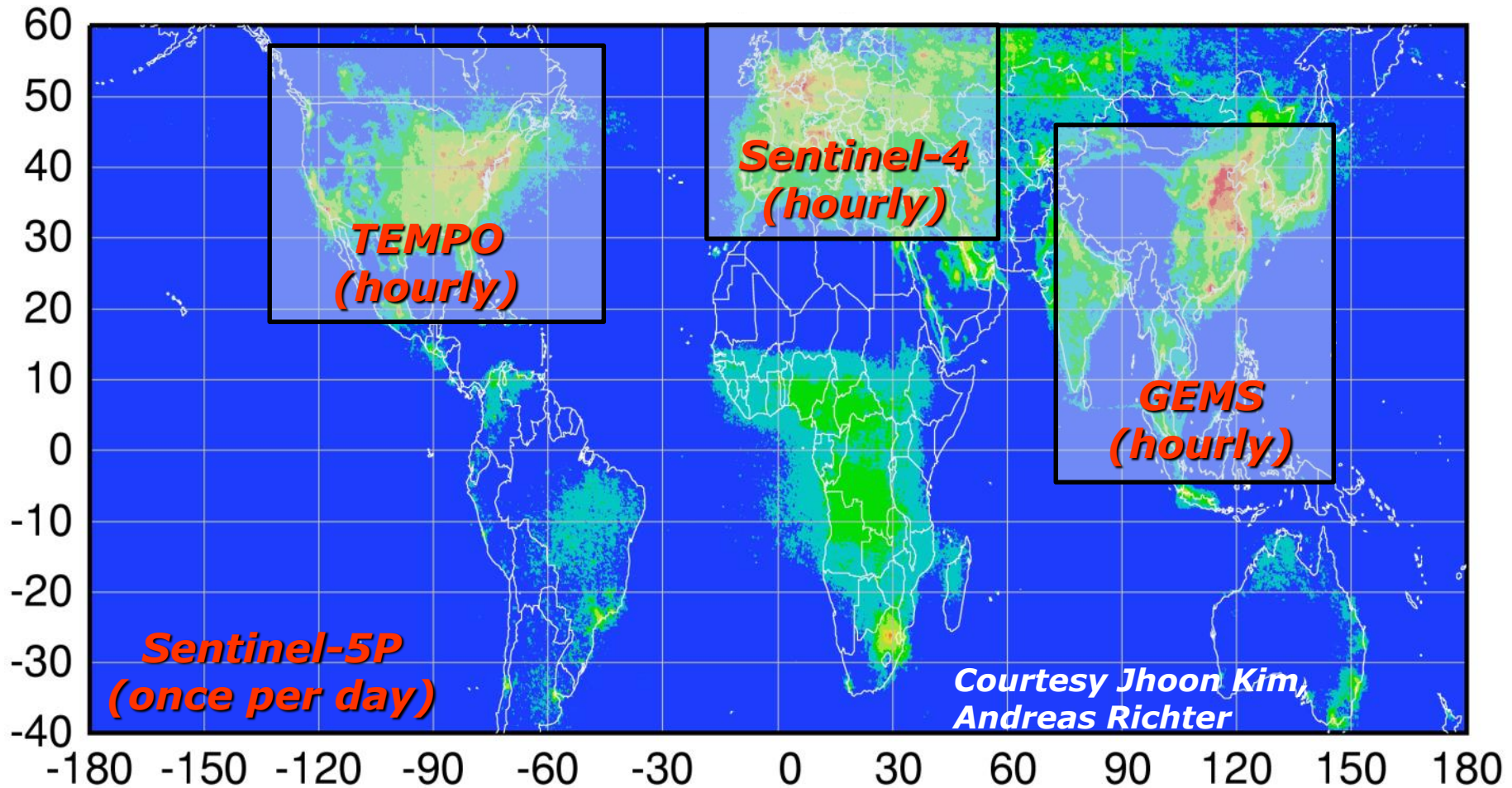
<sup>1</sup> *National Institute of Environmental Research, South Korea*, <sup>2</sup> *NASA Langley Research Center*,  
<sup>3</sup> *Yonsei University*, <sup>4</sup> *Hankuk University of Foreign Studies*, <sup>5</sup> *Seoul National University*,  
<sup>6</sup> *National Center for Atmospheric Research, United States*, <sup>7</sup> *NASA Headquarters*

# Area with changing emissions over past decade



# Global pollution monitoring constellation:

Tropospheric chemistry missions funded for launch 2017–2022



## Policy-relevant science and environmental services enabled by common observations

- Improved emissions, at common confidence levels, over industrialized Northern Hemisphere
- Improved air quality forecasts and assimilation systems
- Improved assessment, e.g., observations to support United Nations Convention on Long Range Transboundary Air Pollution

## Goals and Rationale

### Science:

- Improve capability for satellite remote sensing of air quality
- Better understanding of the factors controlling air quality
- Test and improve model simulation of air quality

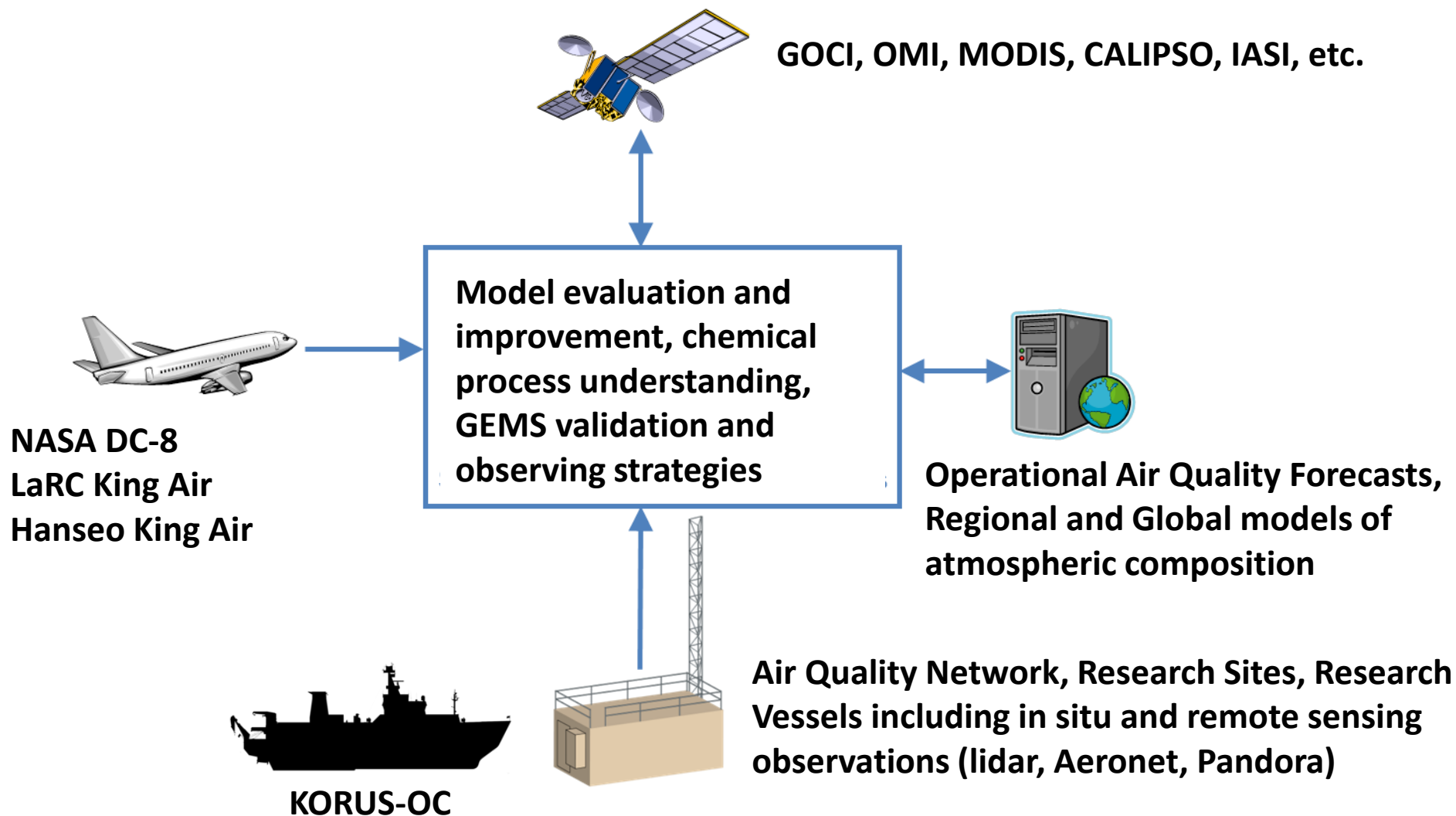
### International Collaboration

Develop relationships that will enhance the global air quality satellite constellation including geostationary observations from TEMPO (NASA) and GEMS (KARI).

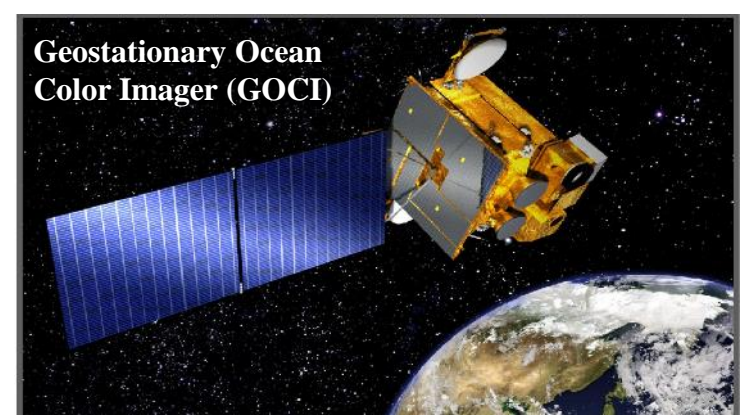
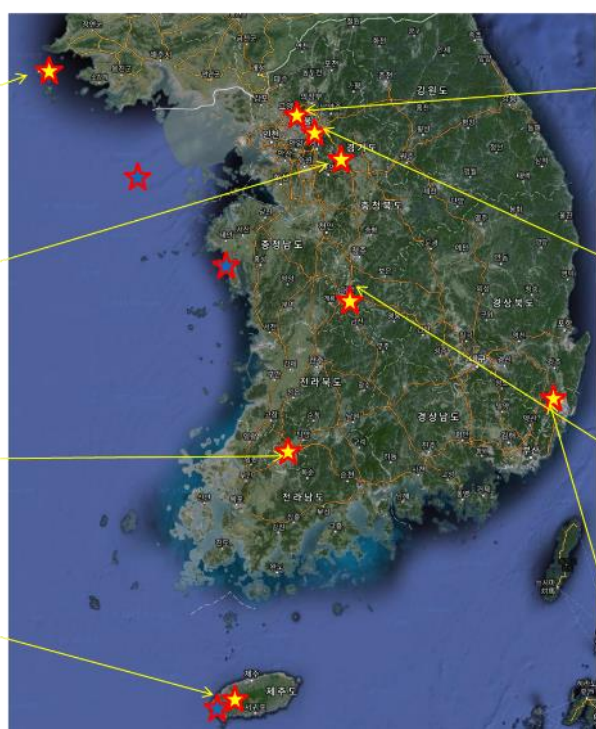
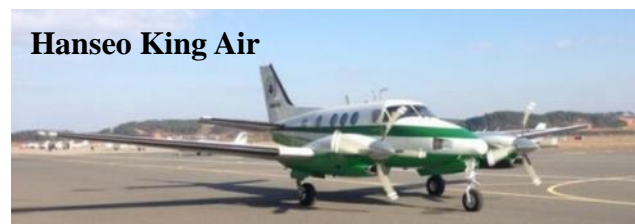
### Societal Impact

A Rapid Science Synthesis Report led by investigators from NIER with support from the full Science Team will be presented to the Ministry of Environment.

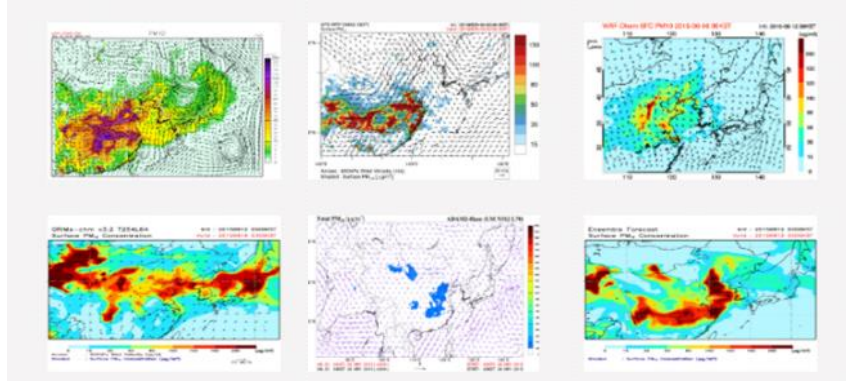
**KORUS-AQ combined assets from the Korean and U.S. atmospheric science communities and their supporting organizations (NIER, NASA, Universities, etc.) to implement an integrated observing system for improving our understanding of Air Quality**

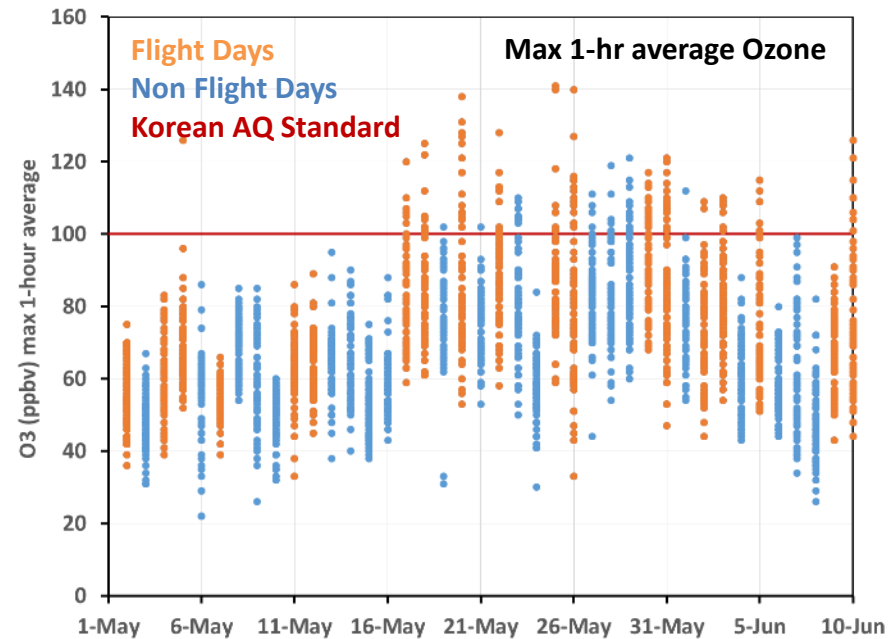
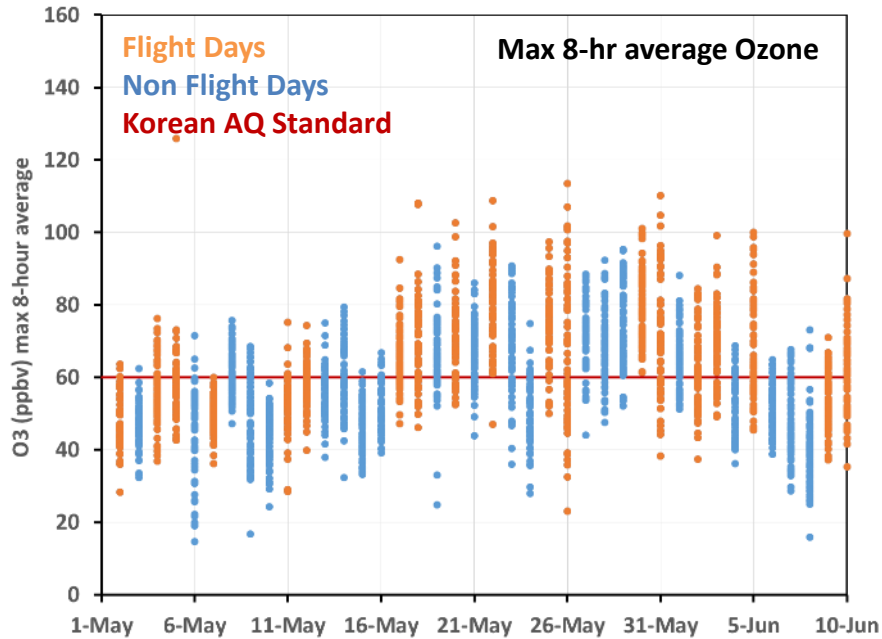
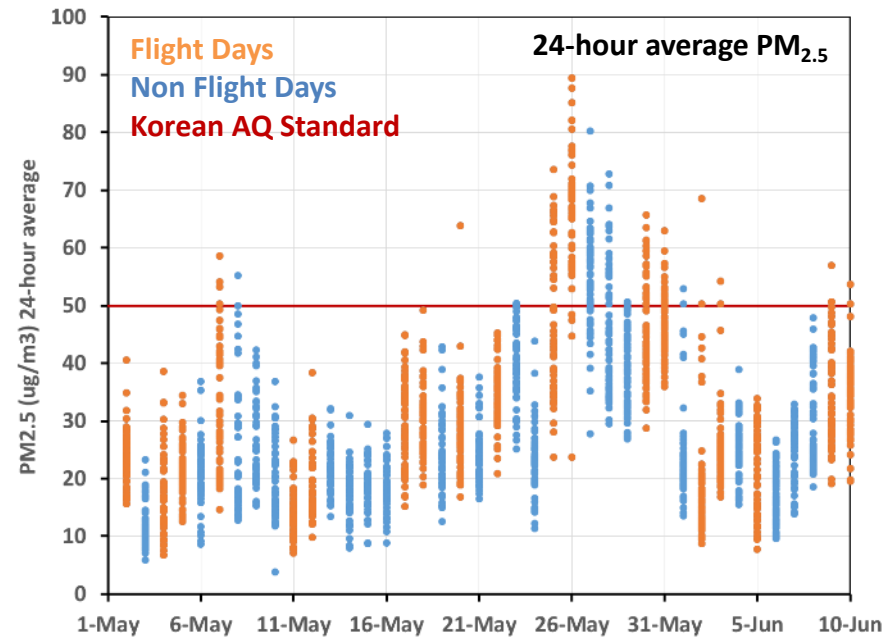
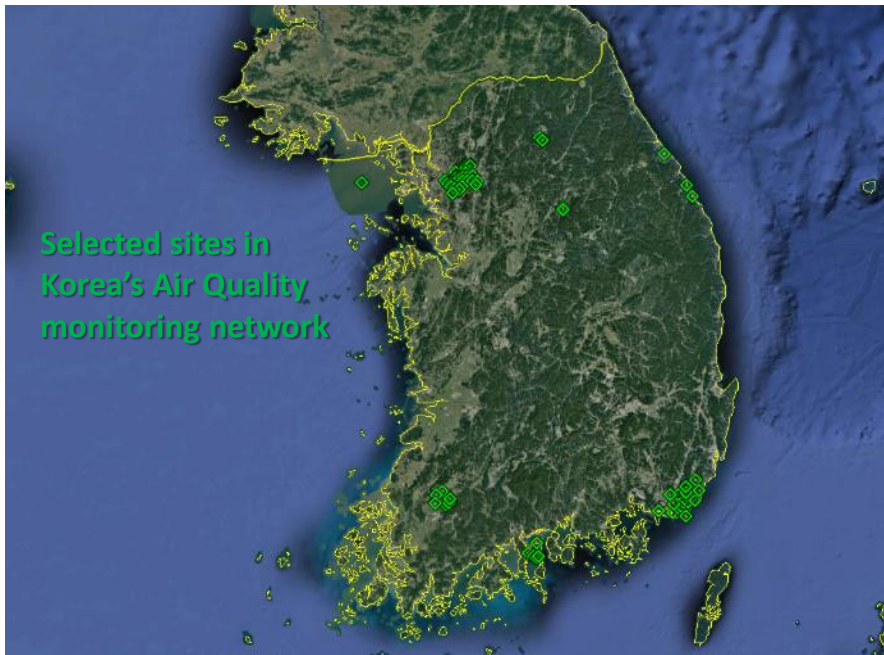


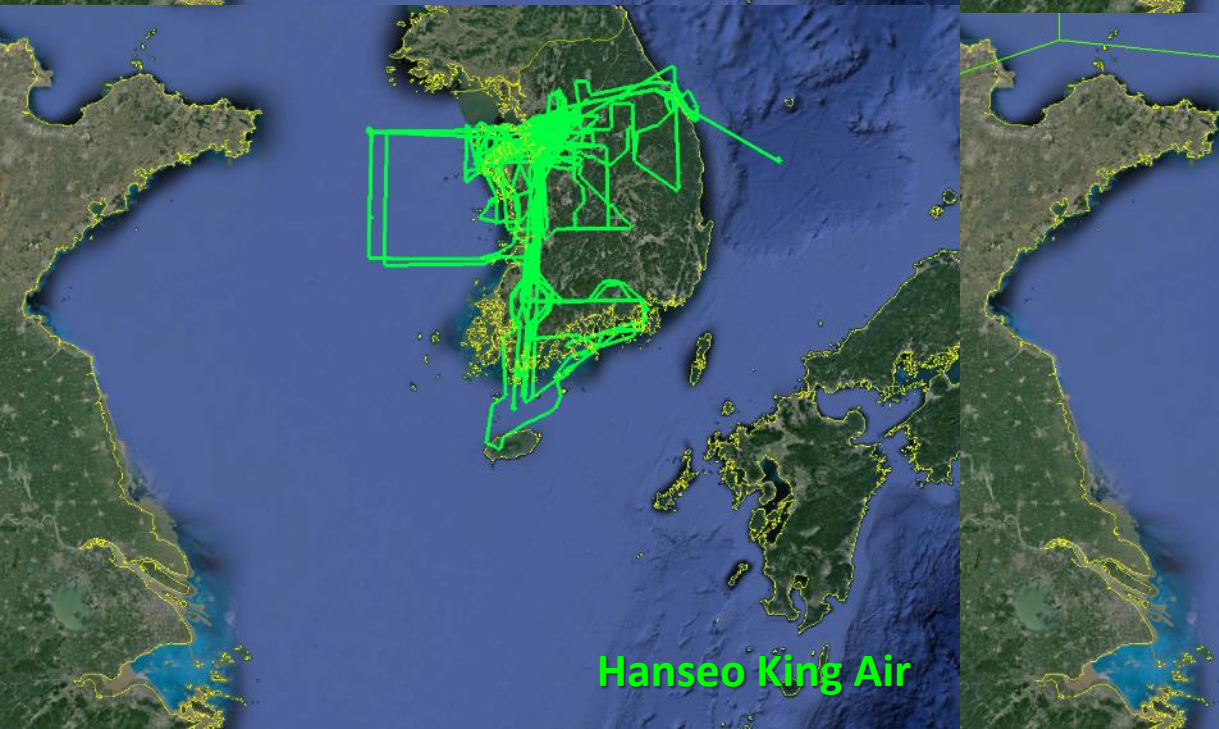
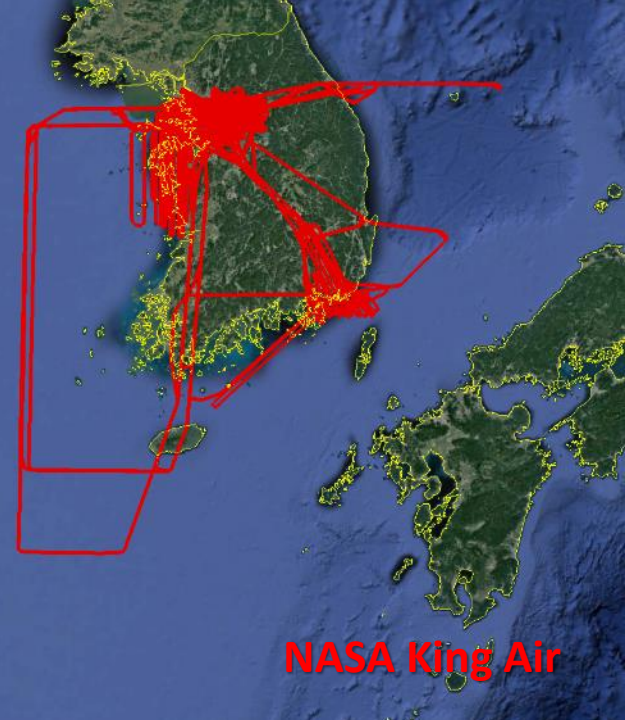
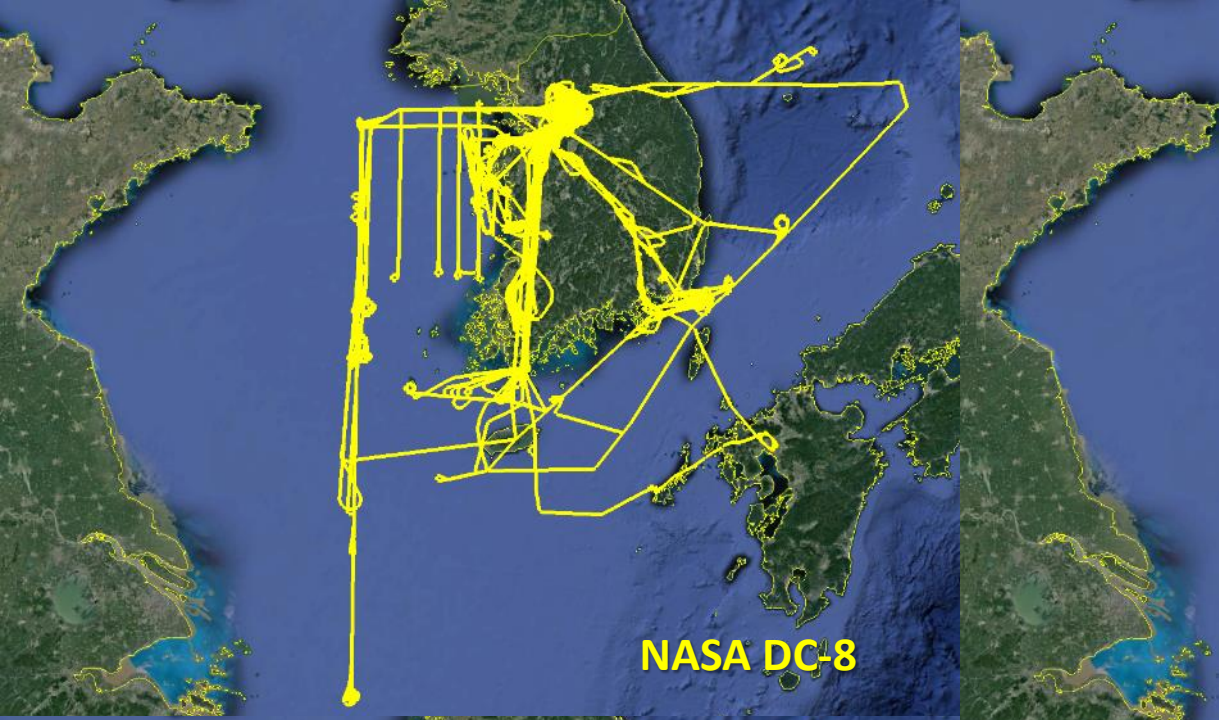
# KORUS → AQ



## Korean and US Air Quality Model Forecasts

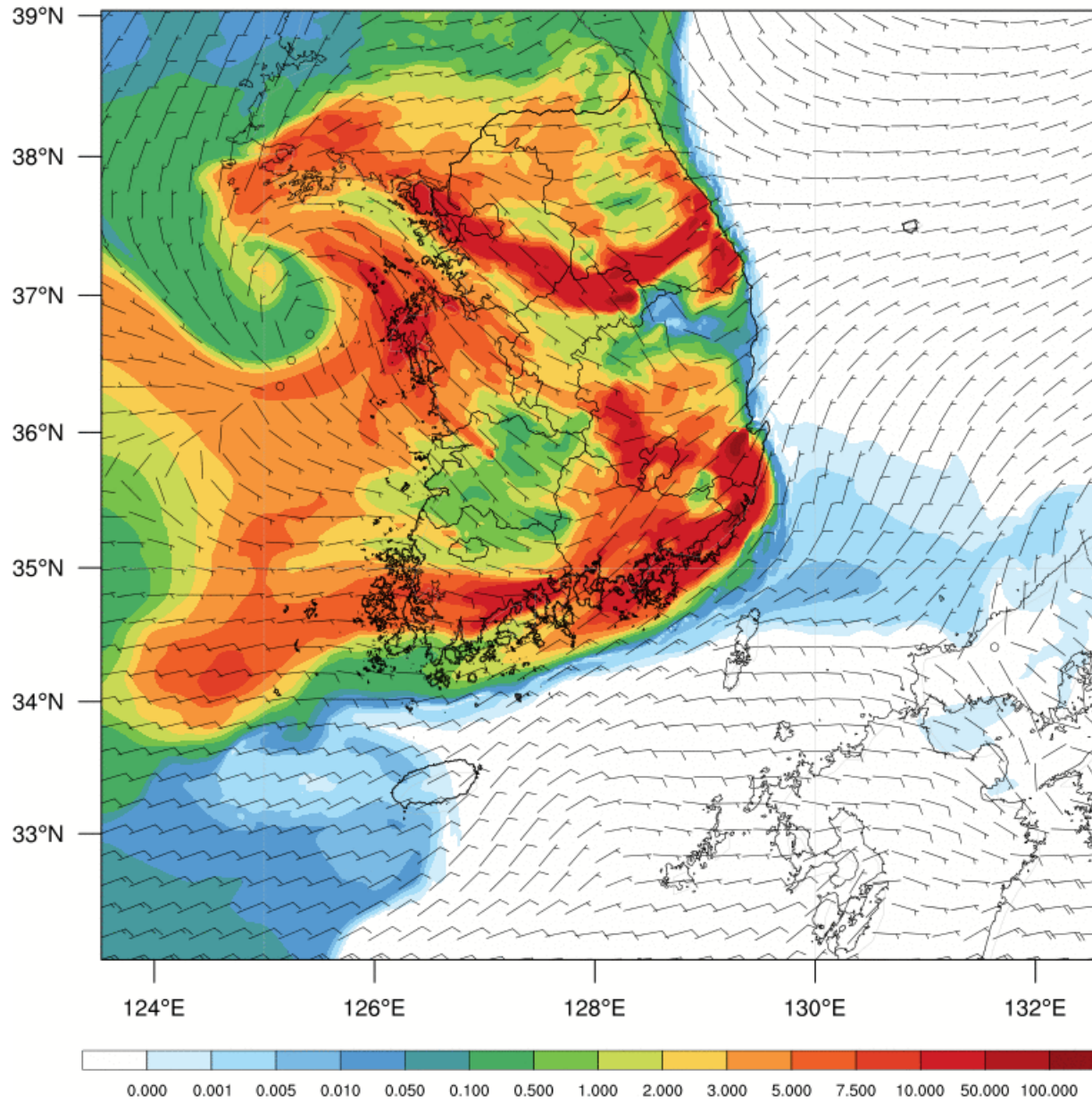




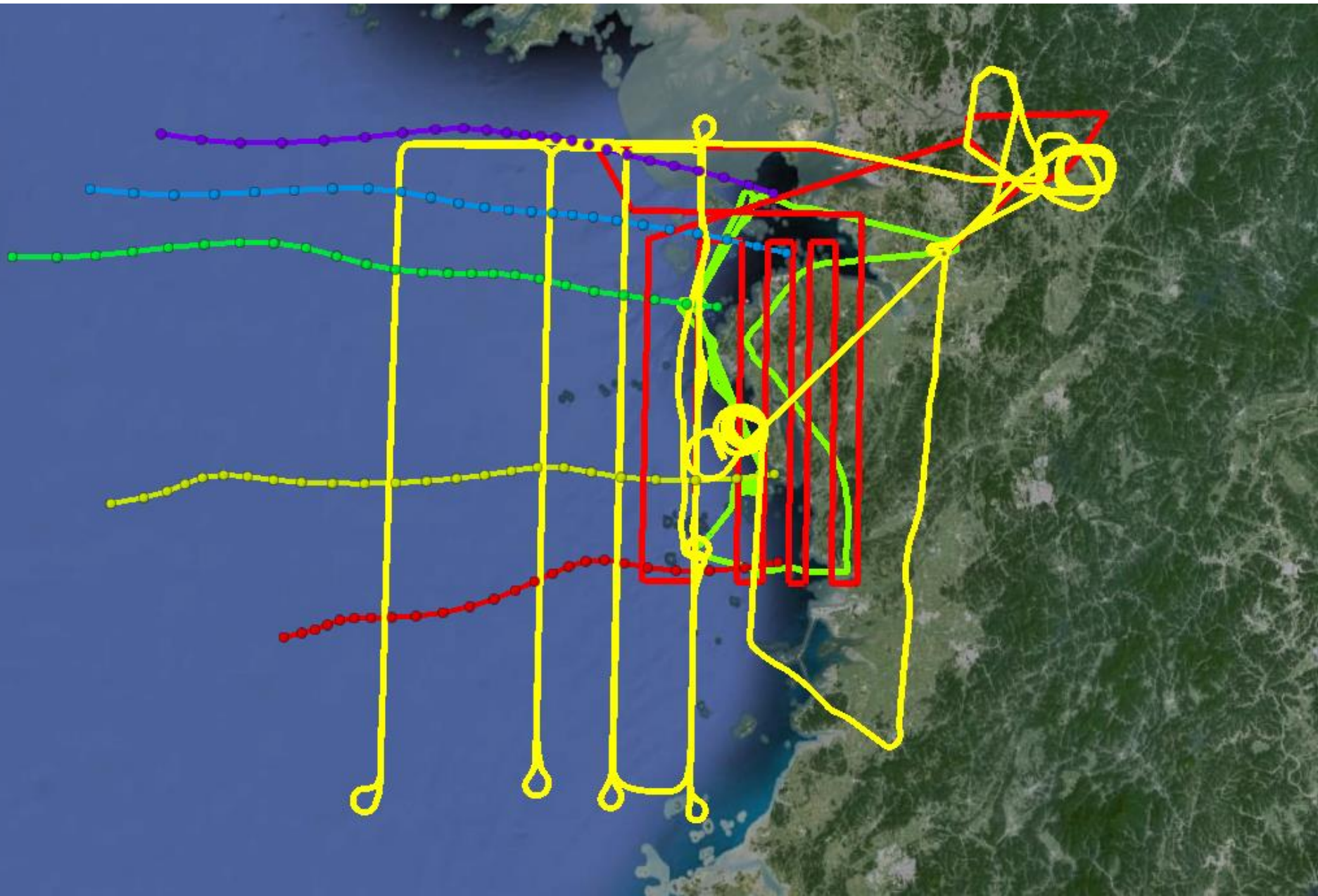




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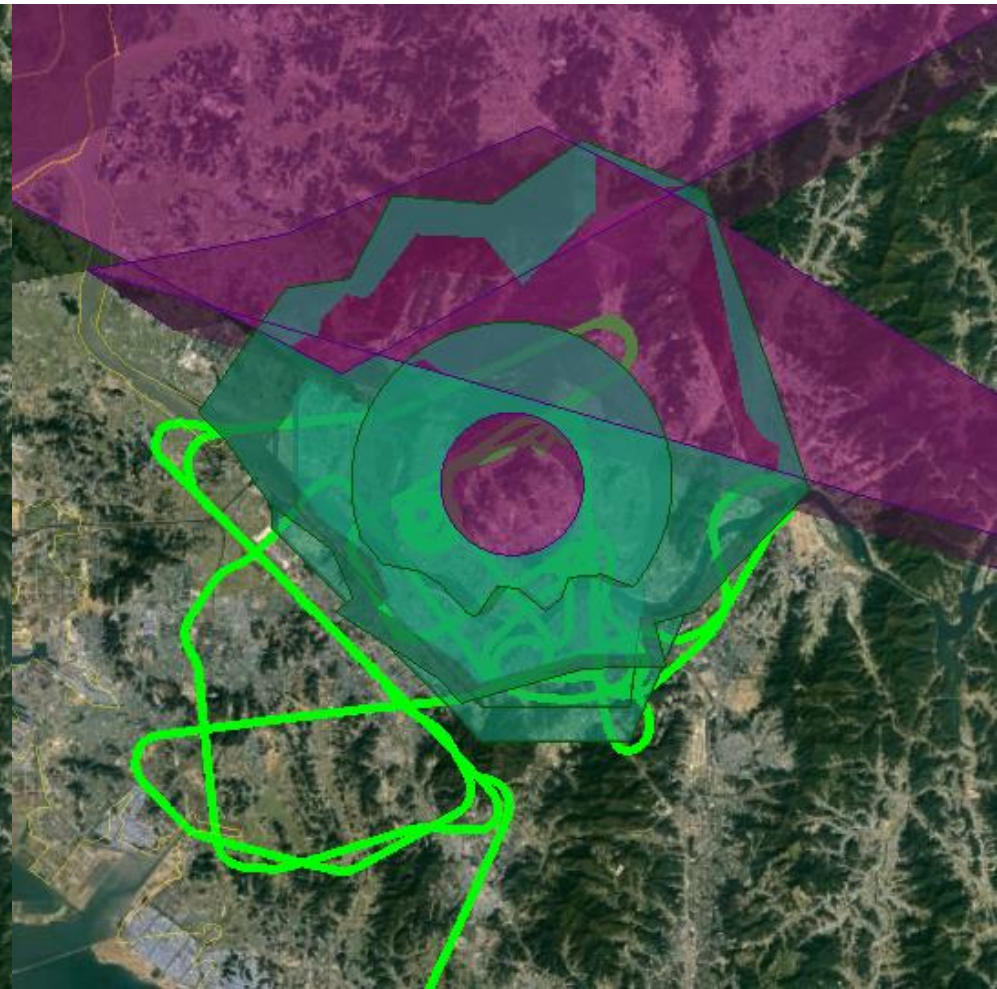
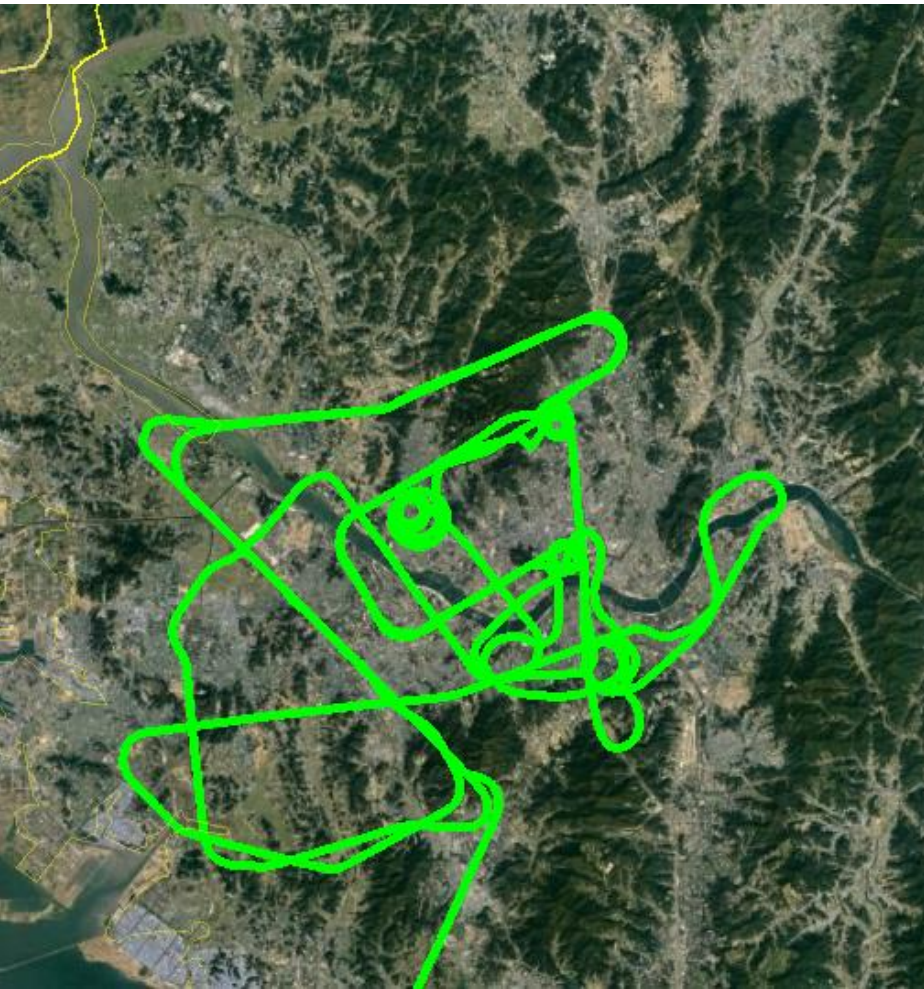
# Cooperative sampling of Power Plant and Seoul Emissions over the West Sea



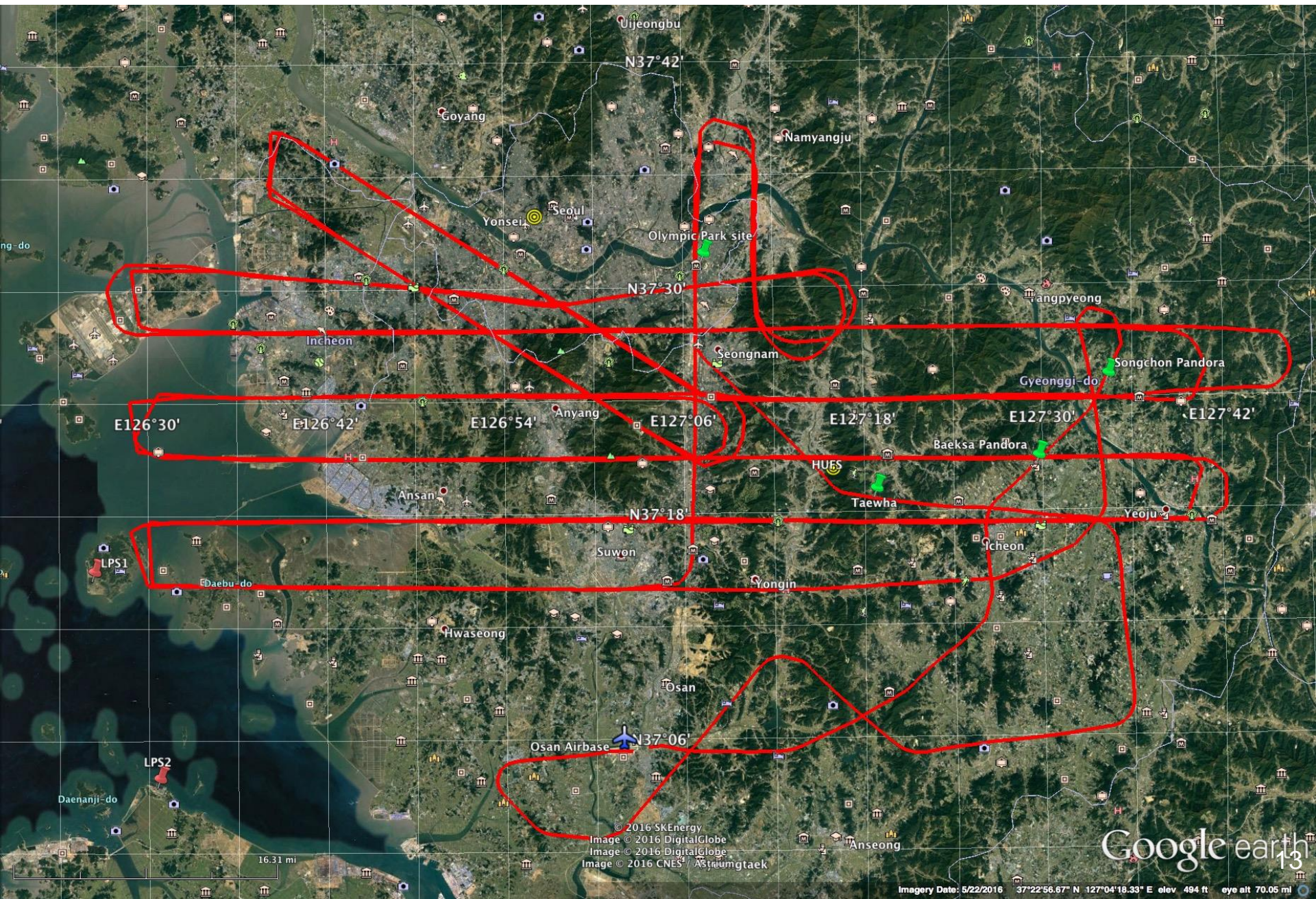
# Repetitive sampling by the DC-8 over research sites in Seoul and adjacent rural areas



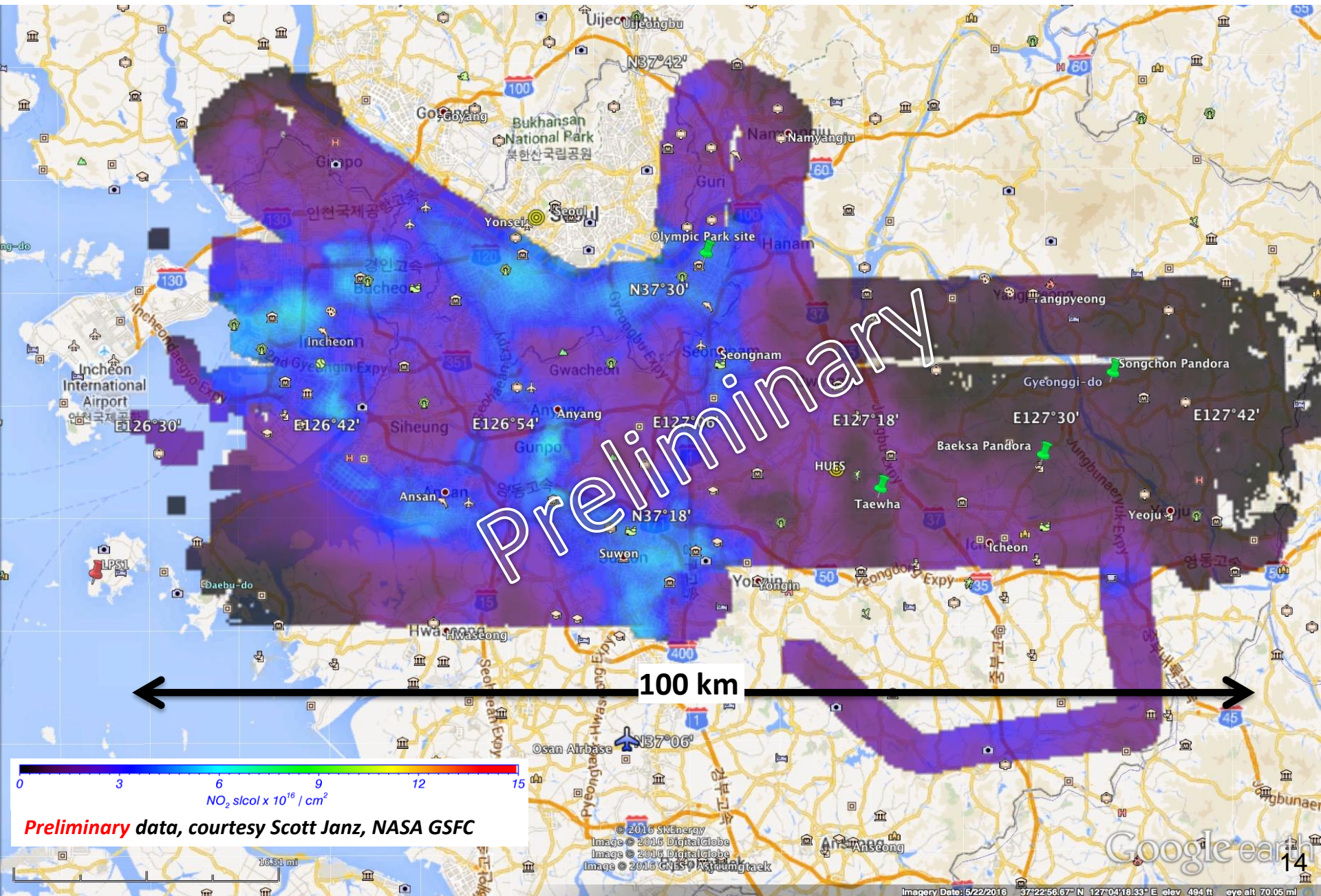
# Special access by the Hanseo King Air to map emissions over major portions of Seoul north of the Han River



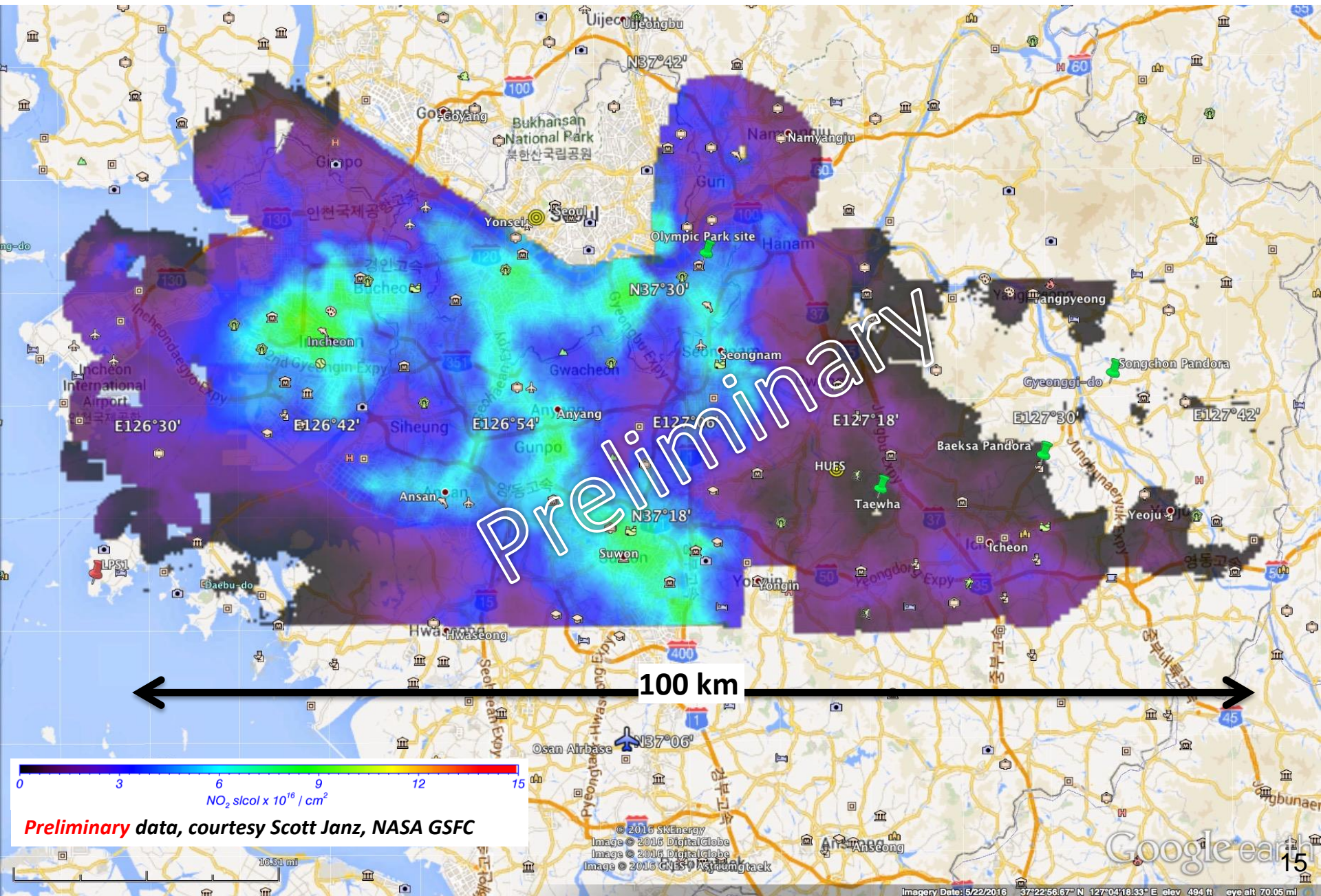
# Repetitive sampling by the NASA King Air to map emissions over the Seoul Metropolitan Area and adjacent rural areas



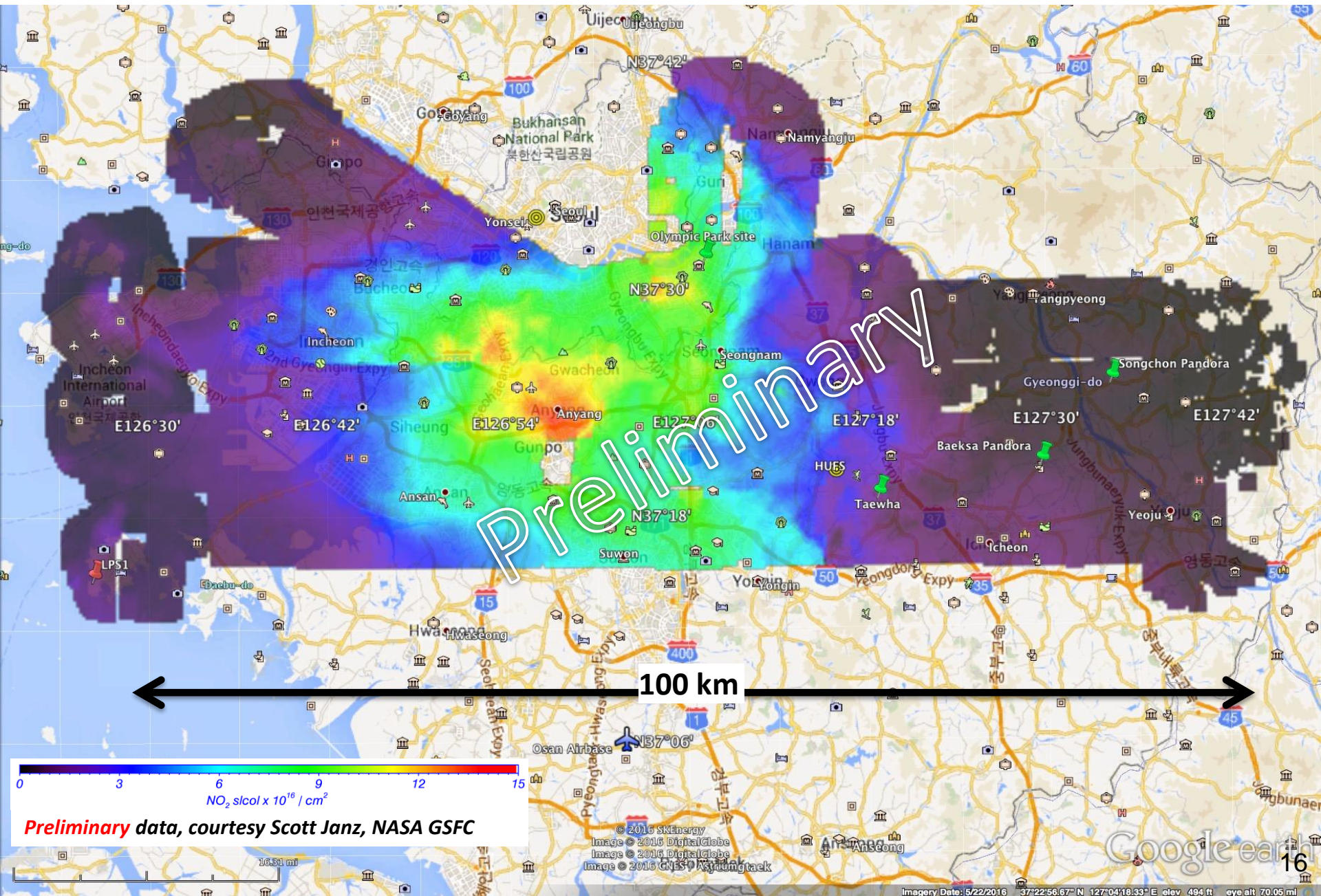
# GeoTASO Quick-look differential slant column NO<sub>2</sub> 2016/06/09, 8:00-10:00 AM local time



# GeoTASO Quick-look differential slant column NO<sub>2</sub> 2016/06/09, 10:00 AM-12:00 PM local time



GeoTASO Quick-look differential slant column NO<sub>2</sub>  
 2016/06/09, 2:00-4:00 PM local time

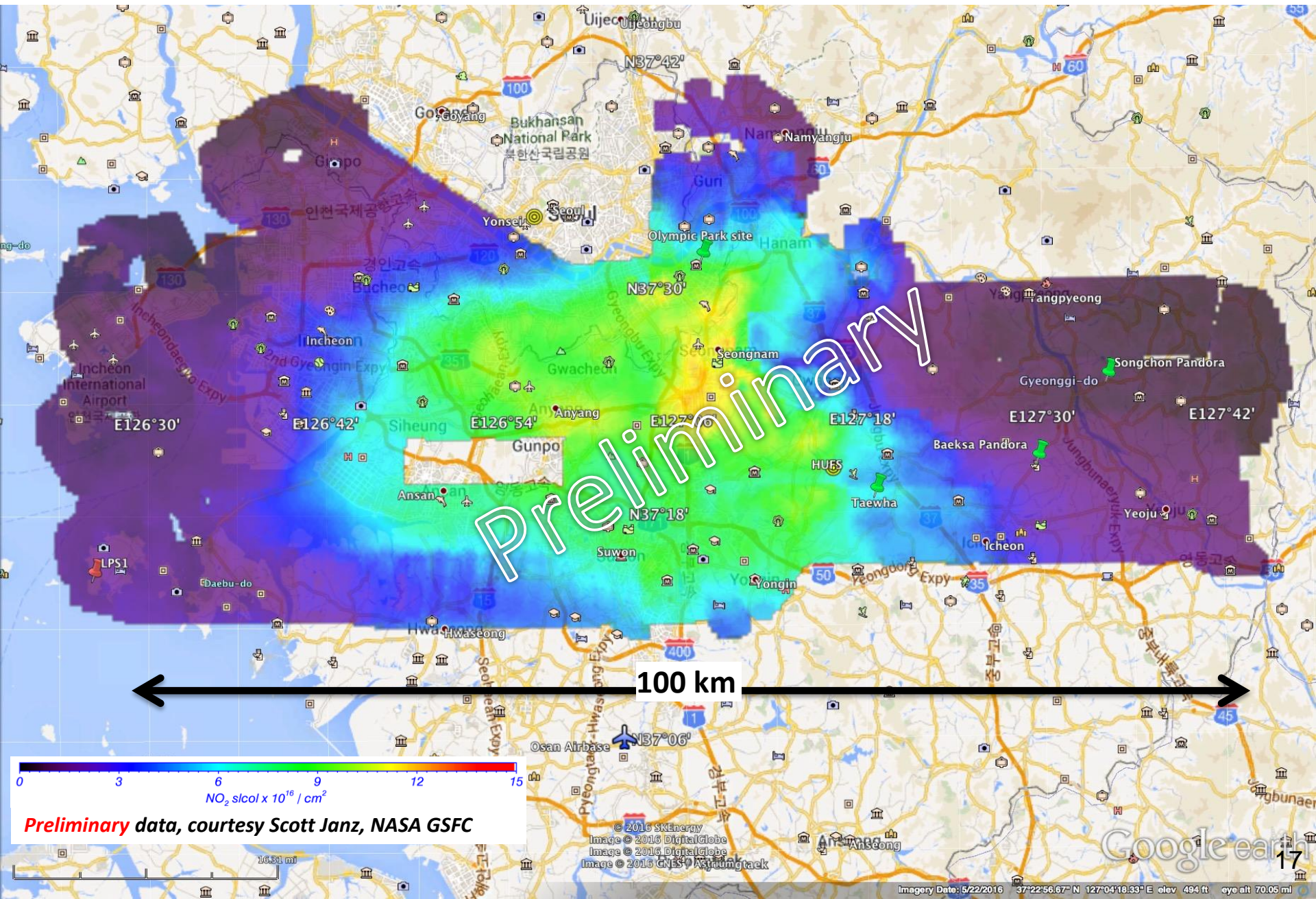


Preliminary data, courtesy Scott Janz, NASA GSFC

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 Image © 2016 DigitalGlobe  
 Image © 2016 CNES/Airbus

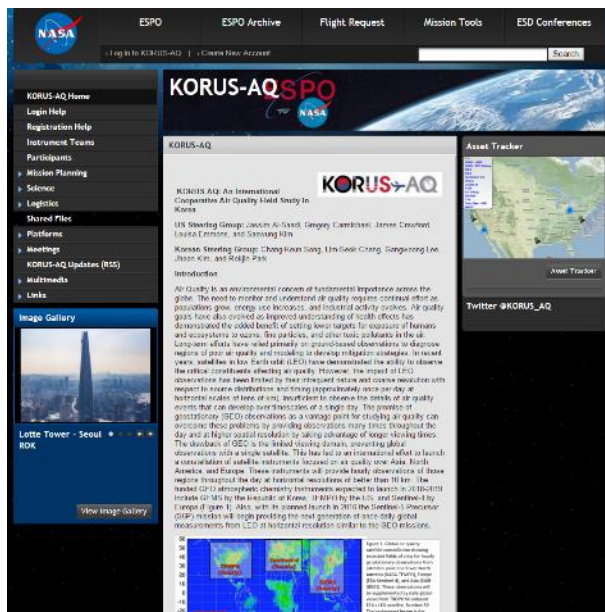


# GeoTASO Quick-look differential slant column NO<sub>2</sub> 2016/06/09, 4:00-6:00 PM local time



**Preliminary data, courtesy Scott Janz, NASA GSFC**

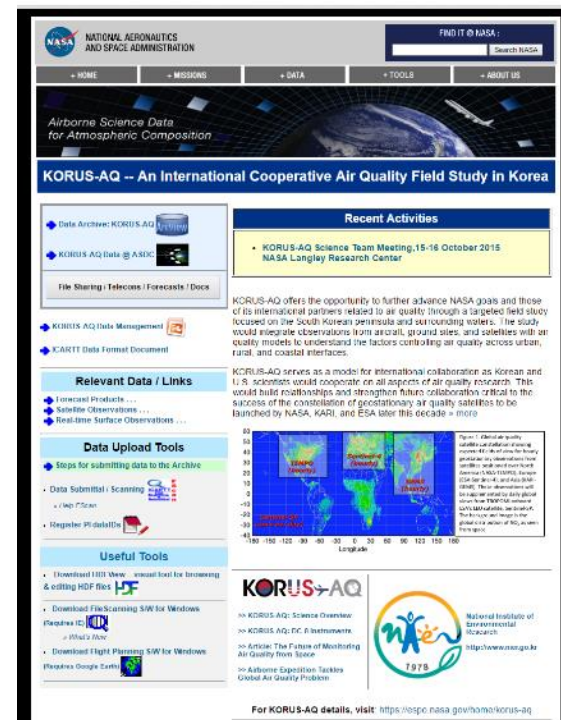
## Website



<https://espo.nasa.gov/home/korus-aq/content/KORUS-AQ>

A science team meeting is planned for Spring 2017 and final data are expected by July 2017

## Data Archive



<http://www-air.larc.nasa.gov/missions/korus-aq/index.html>

Also find blogs, photos, videos, and more by searching "NASA Earth Expeditions KORUS-AQ"

**KORUS** → **AQ**



**THANK YOU**

# Backup Slides



**3<sup>rd</sup> ACAM Workshop**  
**Guangzhou, China**  
**5-9 June 2017**

**2<sup>nd</sup> ACAM Training School**  
**Guangzhou, China**  
**10-12 June 2017**

<https://www2.acom.ucar.edu/acam>