

# 5<sup>th</sup> Atmospheric Composition and the Asian Monsoon Workshop



**A warm welcome on  
behalf of the ACAM SSG**



Hans Schlager, Mian Chin

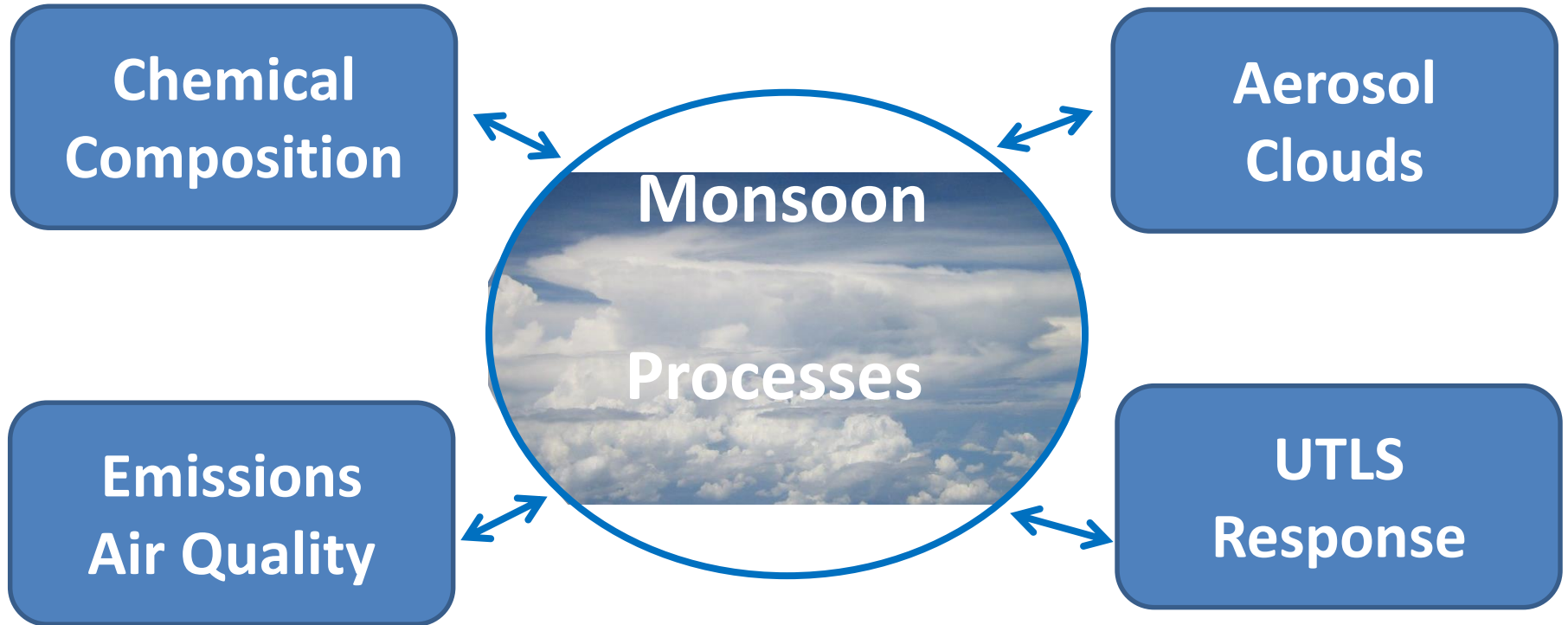
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Chang-Keun Song, Jonathon Wright, Xiaohua Pan, Bhupesh Adhikary, Federico Fierli,  
Hiroshi Tanimoto



University of Dhaka, Bangladesh, 8-10 June 2023



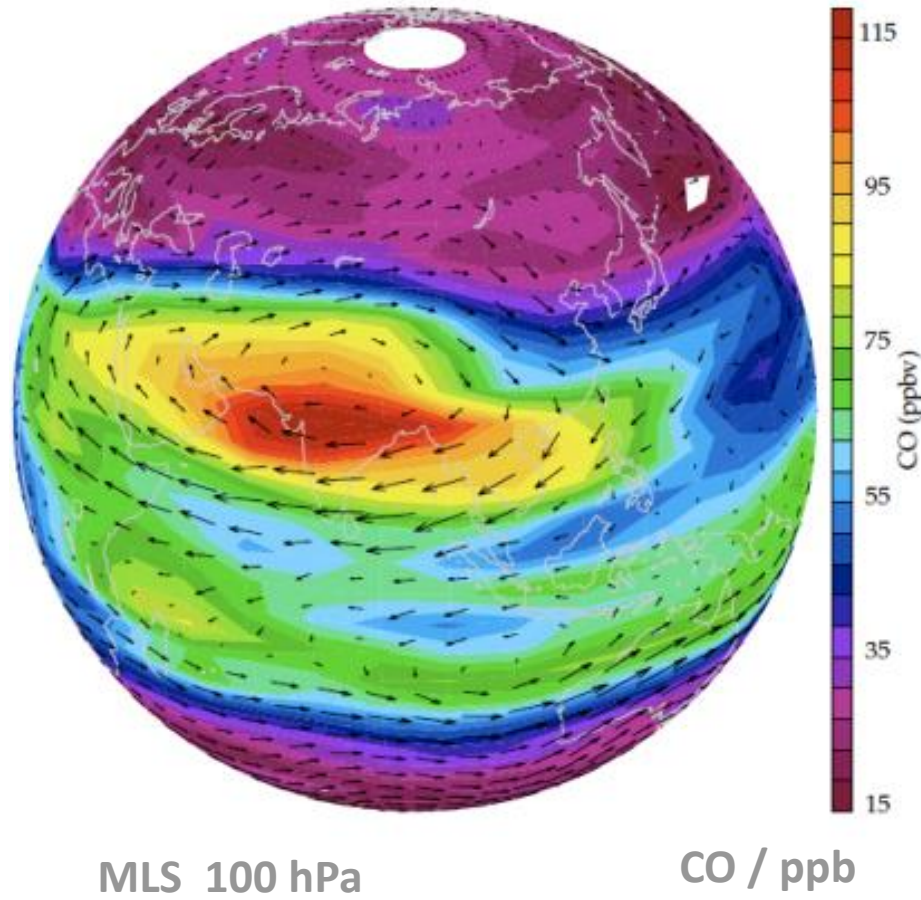
# ACAM Scientific themes



**Emissions ↔ Monsoon ↔ UTLS Composition ↔ Climate**

# Asian Summer Monsoon Anticyclone (ASMA)

Chemical signature from satellite obs

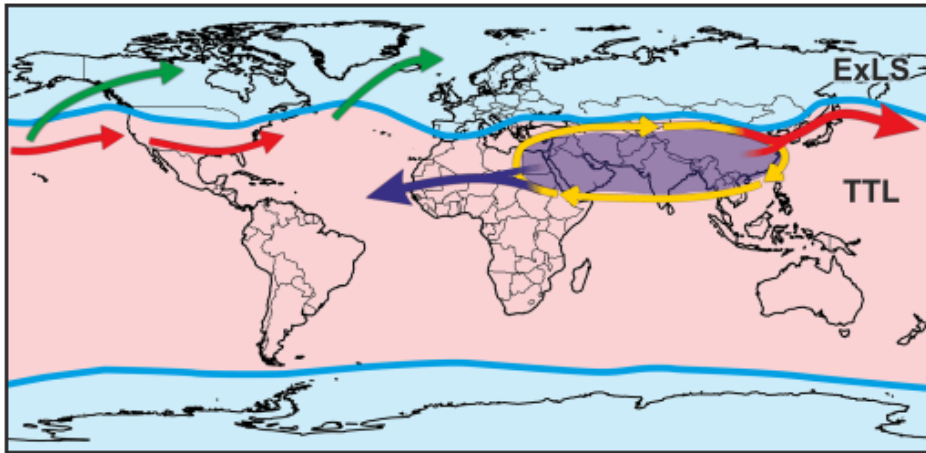


## Features:

- One of the largest meteorological features on Earth
- Distinct air mass isolated by closed circulation in the UTLS
- Input of BL air by frequent deep convection
- Located over very polluted region
- ASMA causes large-scale dispersion of pollution
- Important gateway for air to enter the stratosphere
- Region of a persistent aerosol layer (ATAL)
- Highest and coldest TP in JJA

# Asian Summer Monsoon Anticyclone (ASMA)

Horizontal transport pathways from the ASMA



(Vogel et al. 2016)

## Scientific Questions:

- Which emissions and source regions are impacting the ASMA?
- Is there enhanced photochemistry in the ASMA?
- Role of reactive nitrogen and importance of LNO<sub>x</sub>?
- What is the nature of the ATAL aerosol and precursor gases?
- What are the properties of ice clouds?
- Which are the key transport pathways from the ASMA?
- What is the composition of air exported from the ASMA?

# ACAM Major activities

**Foster research  
related to the  
Asian monsoon**

**Organise  
workshops and  
training schools**



**Build an  
international  
community**

# ACAM Workshops





# Current ACAM working groups

**WG 1**  
**Observations and  
Data sharing**

**WG 2**  
**Modeling and  
Analysis**



**WG 3**  
**Training School**

# ACAM related Balloon campaigns

(BATAL, India; SWOP, China; StratoClim, India, Bangladesh, Palau)



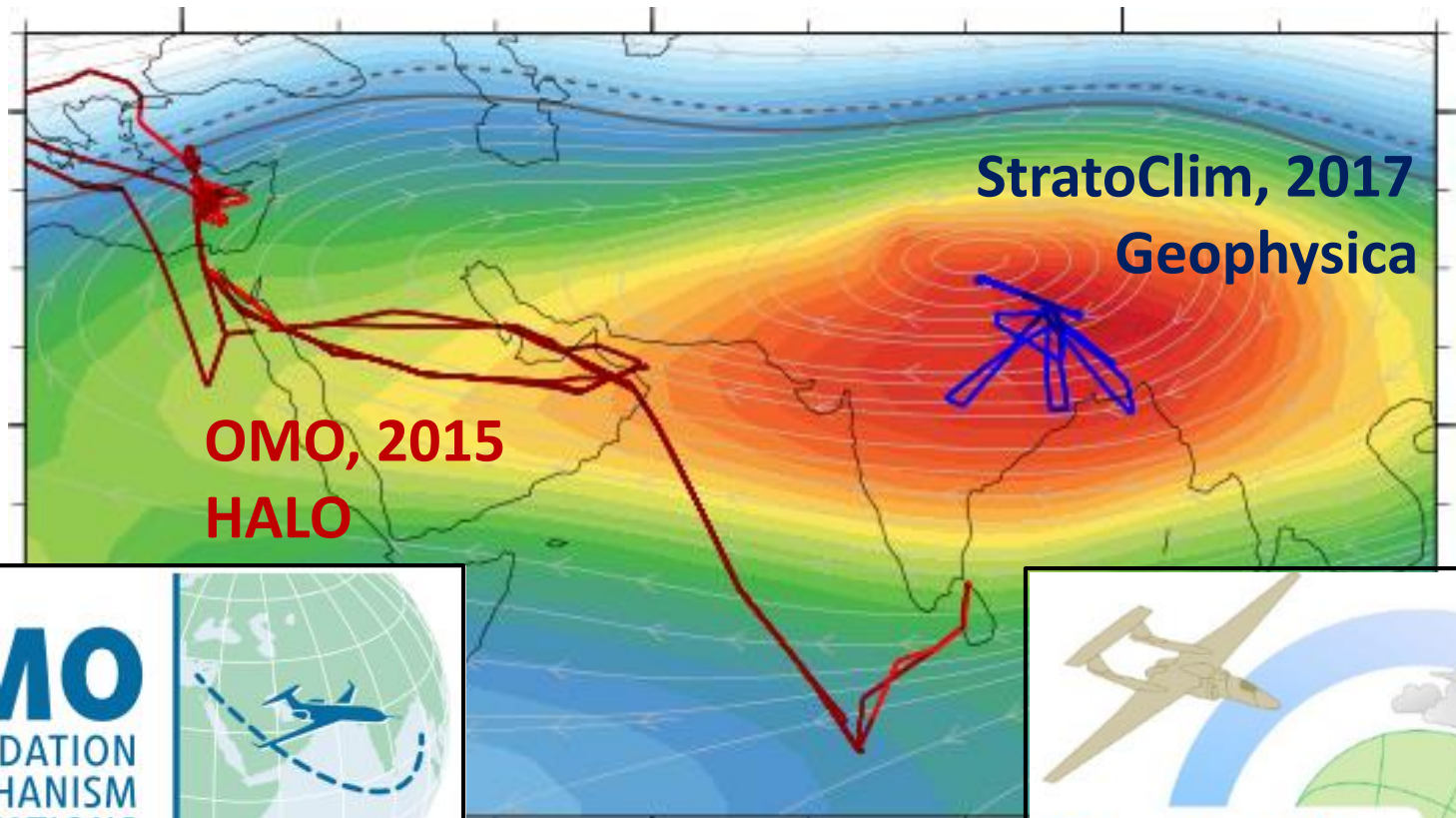
Balloon Launch in Hyderabad  
(Vernier et al. 2017)



Balloon launch during  
StratoClim



# ACAM related Aircraft campaigns



**OMO**  
OXIDATION  
MECHANISM  
OBSERVATIONS

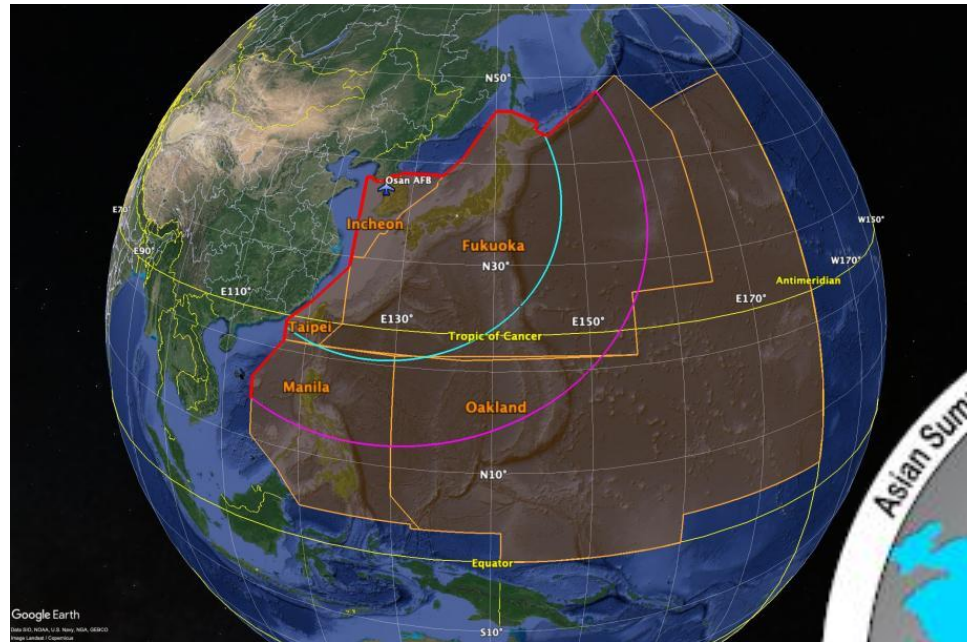


Primary goal: To investigate the chemical composition in the ASMA



Primary goal: To investigate the composition of the UTLS in the centre of the ASMA

# ACAM related Aircraft Campaigns



Primary goal:  
To investigate impact of ASM  
on global chemistry, aerosol  
composition and climate

# Special Thanks for the Preparation of the Workshop and Training School

- Abdus Salam & local team
- Jim Crawford & Laura Pan
- Training school team
- ACAM SSG
- Sponsors
- Michelle Santee & Ritesh Gautam



Thank you all for being here and enjoy the workshop!