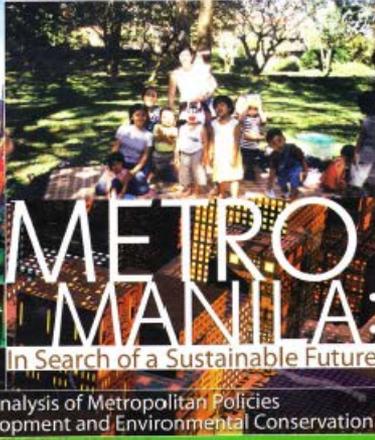
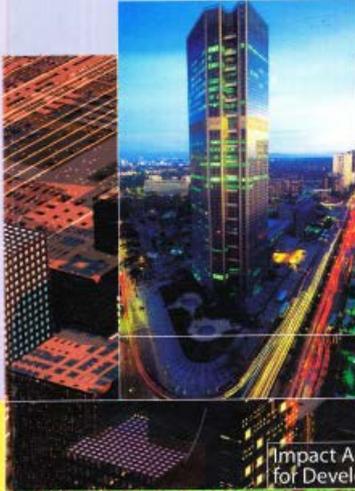


# アジア大都市圏の ピンポイント大気環境予報



# METRO MANILA

In Search of a Sustainable Future

Impact Analysis of Metropolitan Policies  
for Development and Environmental Conservation

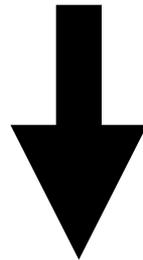


Tatsuo Ohmachi  
Emerlinda R. Roman

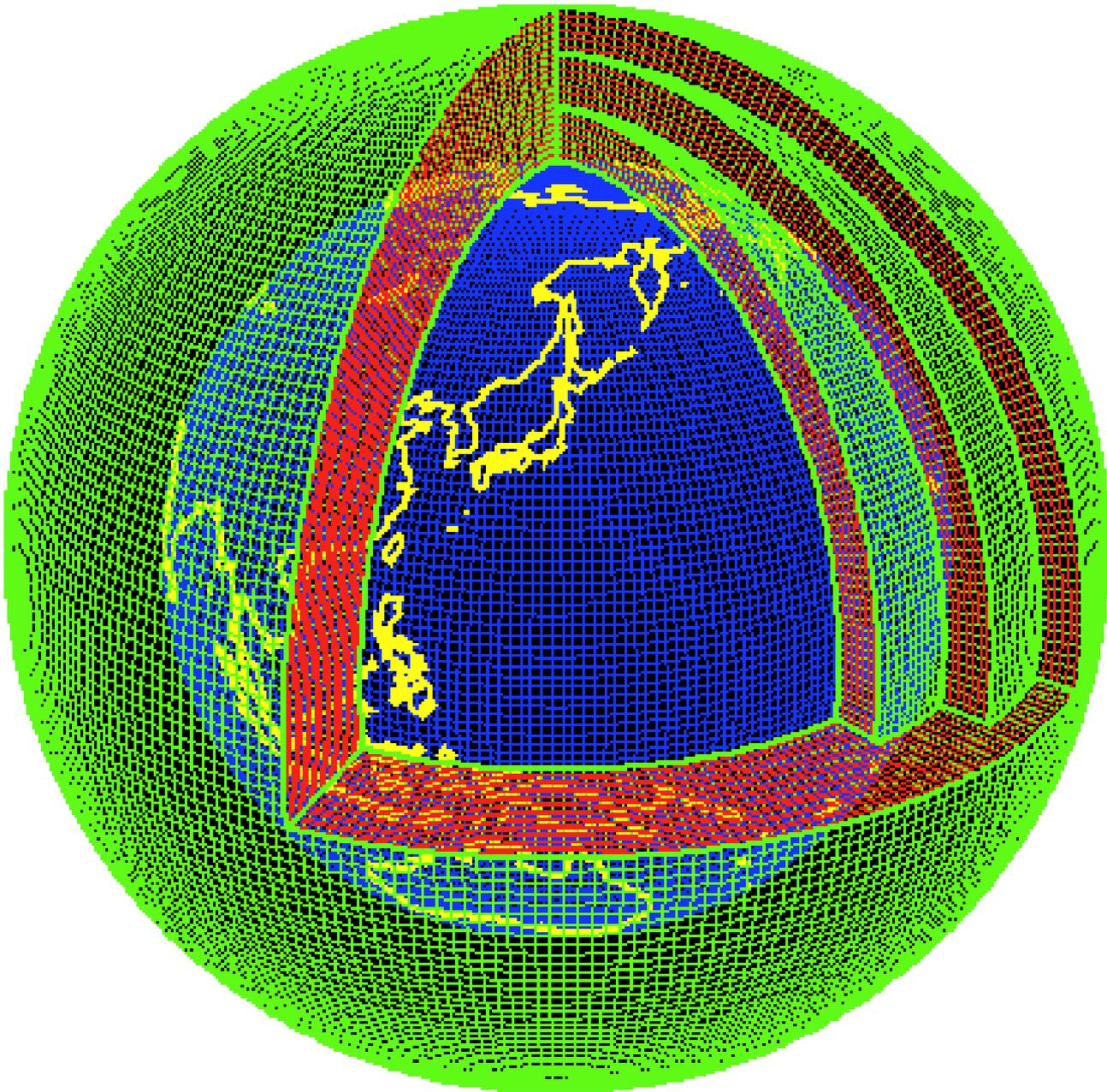
Editors

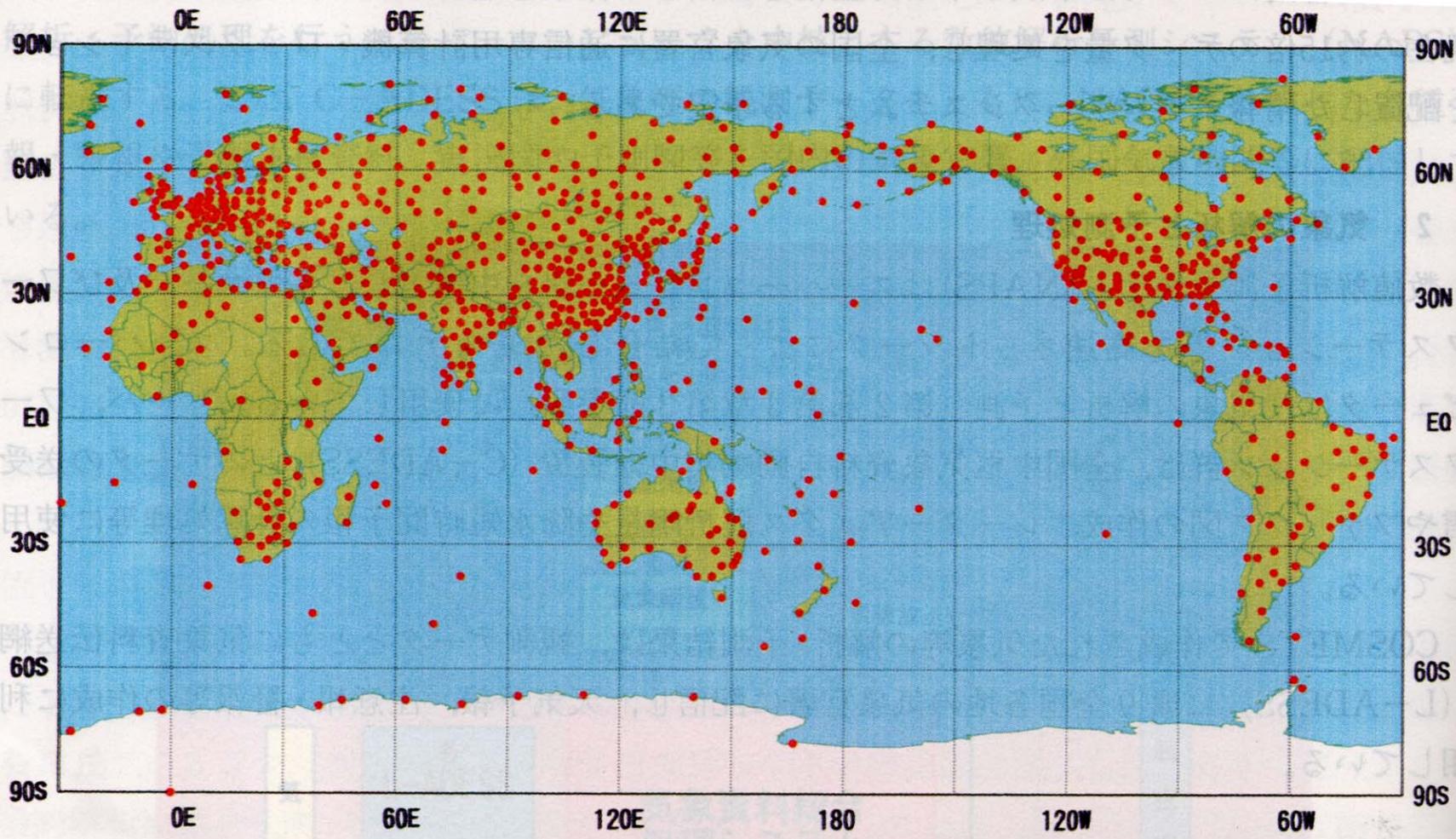
# マニラの環境天気予報の解析事例

- (1) 水災害の死者の98%はアジア
- (2) すさまじい交通大気汚染
- (3) 貧弱な観測ネットワーク



強力な大気環境シミュレーション技術

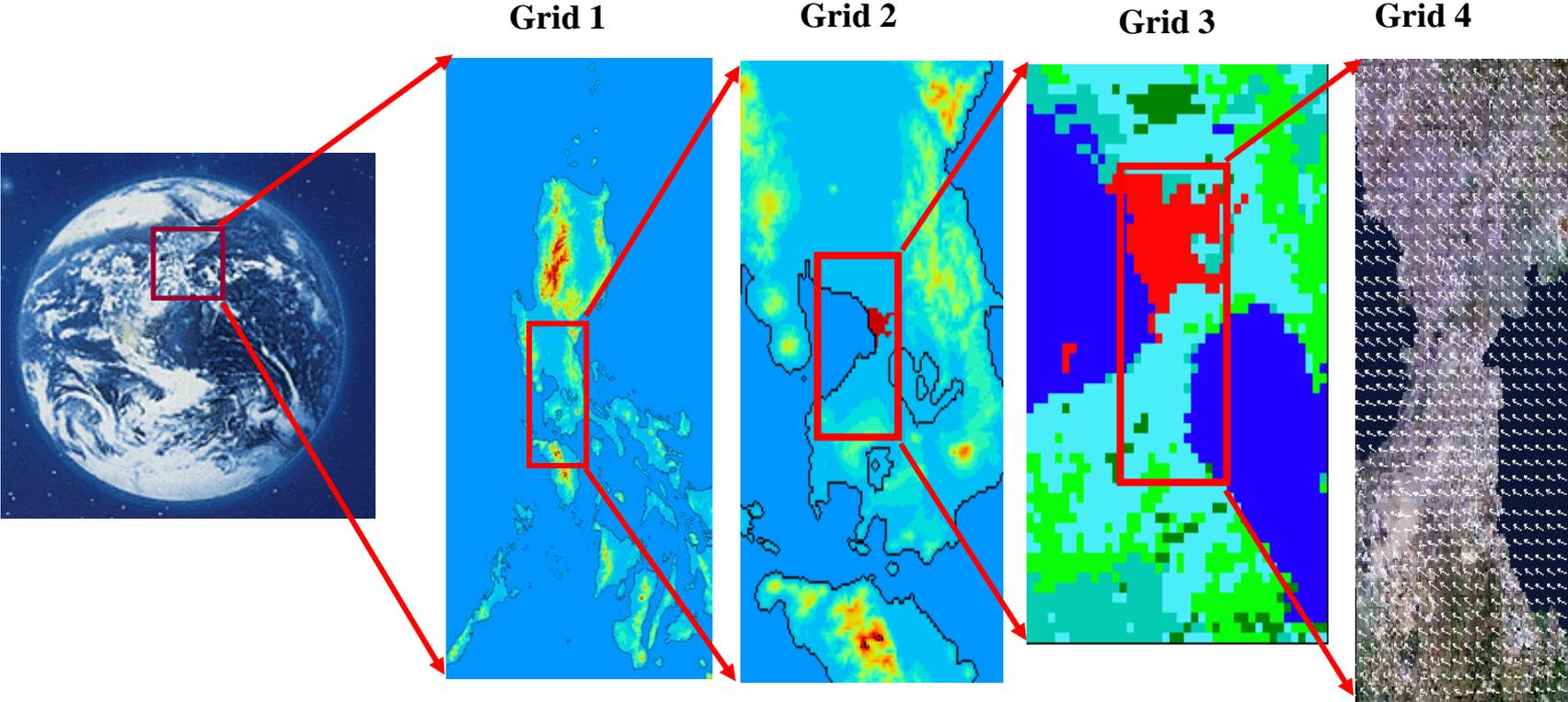




第 4 - 5 - 1 図 世界の高層気象観測所

# 4DDA ( Four Dimensional Data Assimilation )

## Multi Nested Grid System



Global  
atmospheric  
data archive

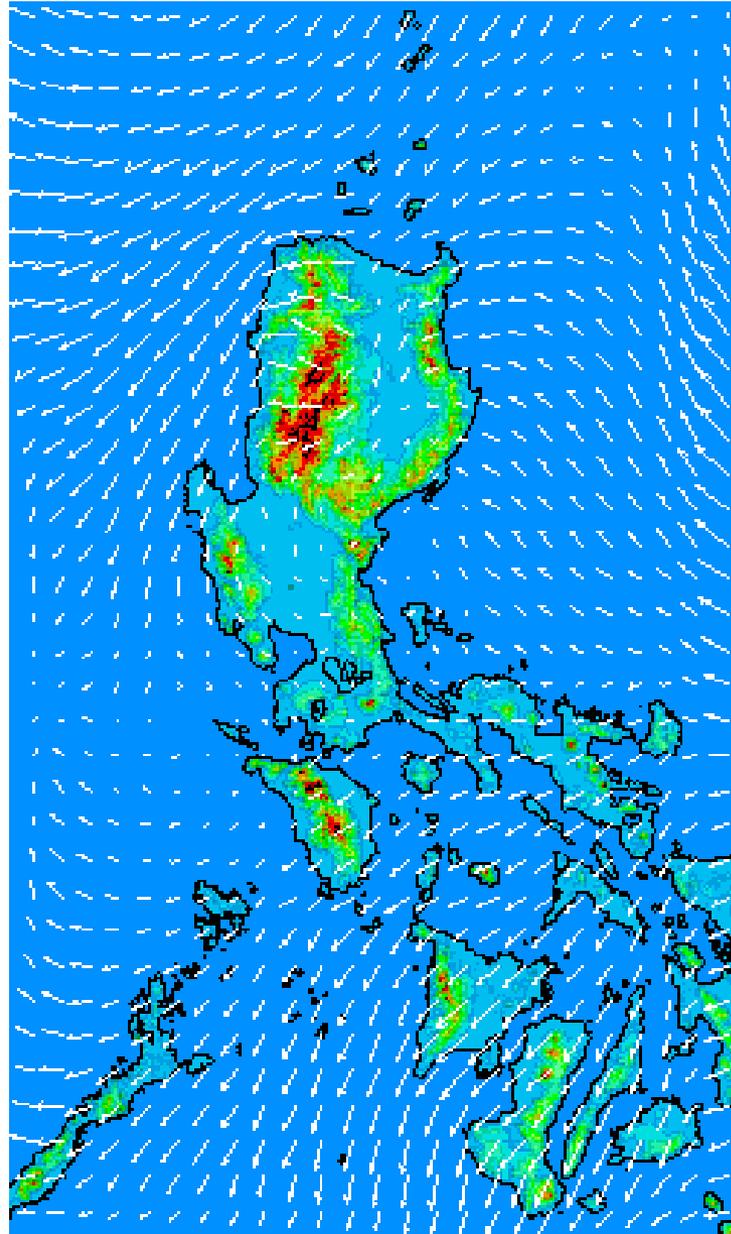
Initial conditions  
Boundary conditions

Dry  
season

Wind field (Grid1)

6:00 ~ 20:00

Every 2 hours



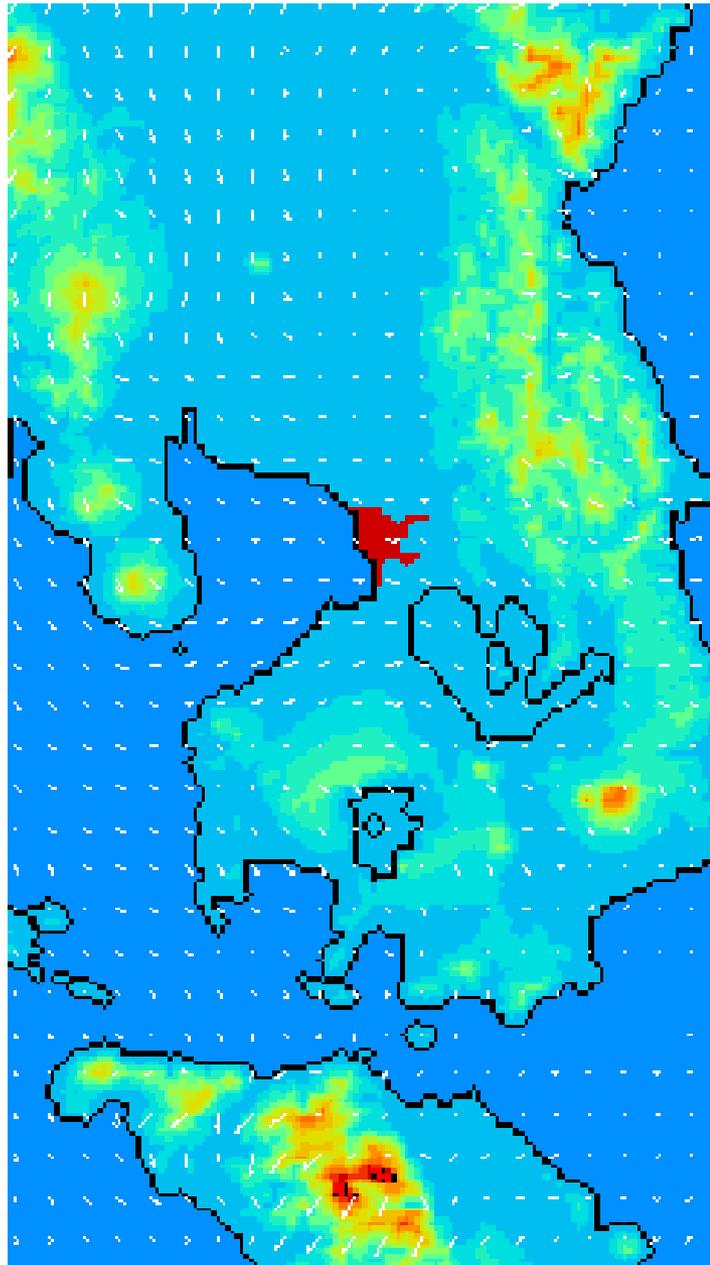
5.0m/s

Dry season

Wind field (Grid2)

6:00 ~ 20:00

Every 2 hours



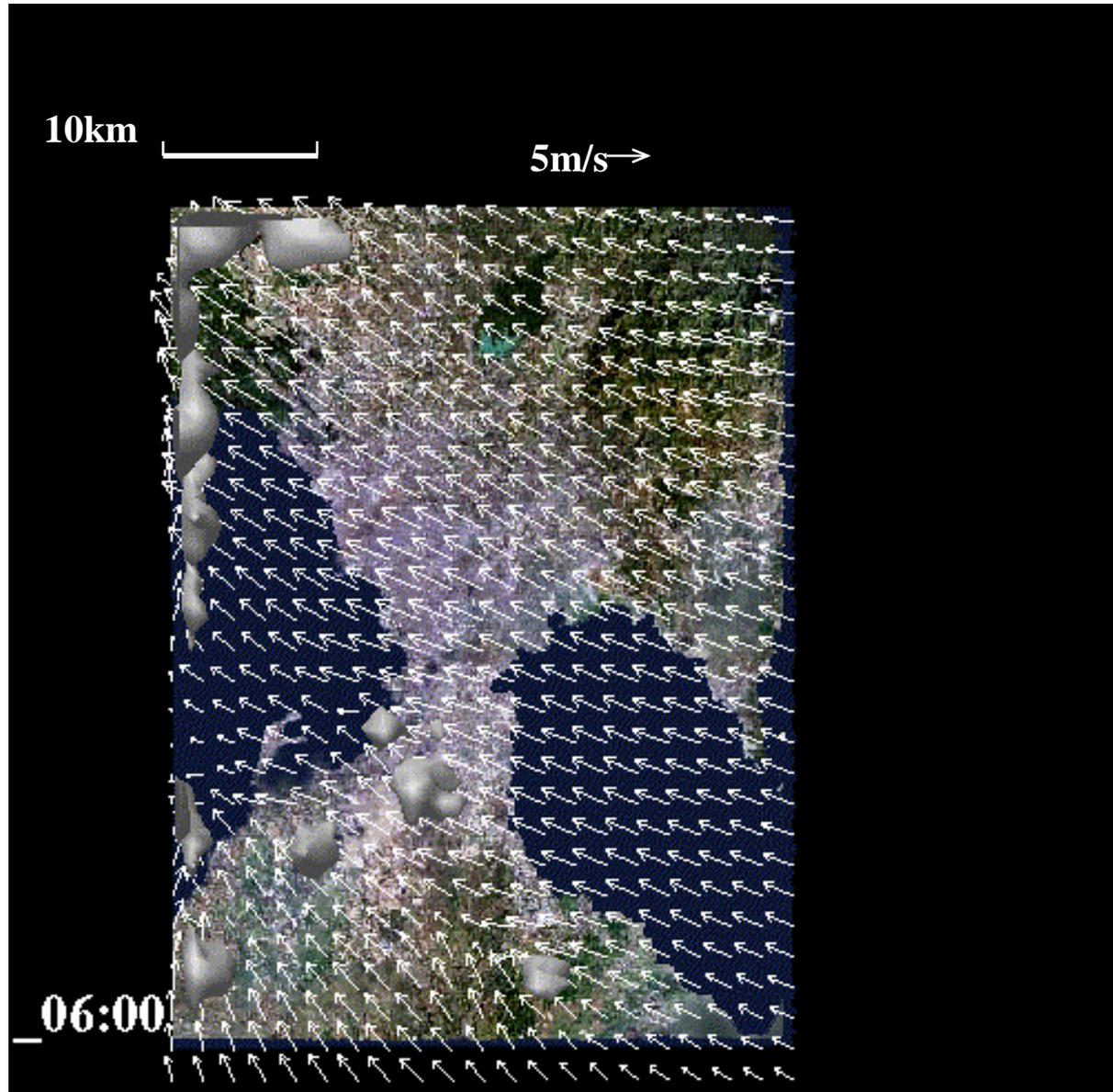
5.0m/s

Dry season

Wind field and  
Cumulus cloud  
(Grid 3)

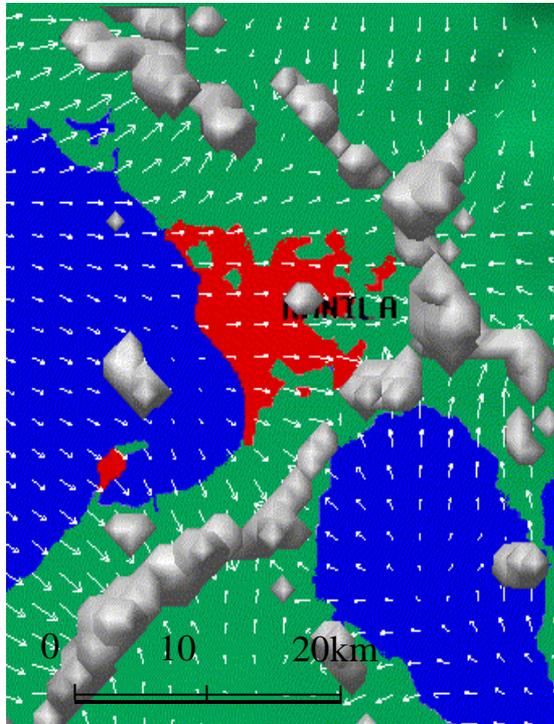
6:00 ~ 20:00

Every 2 hours



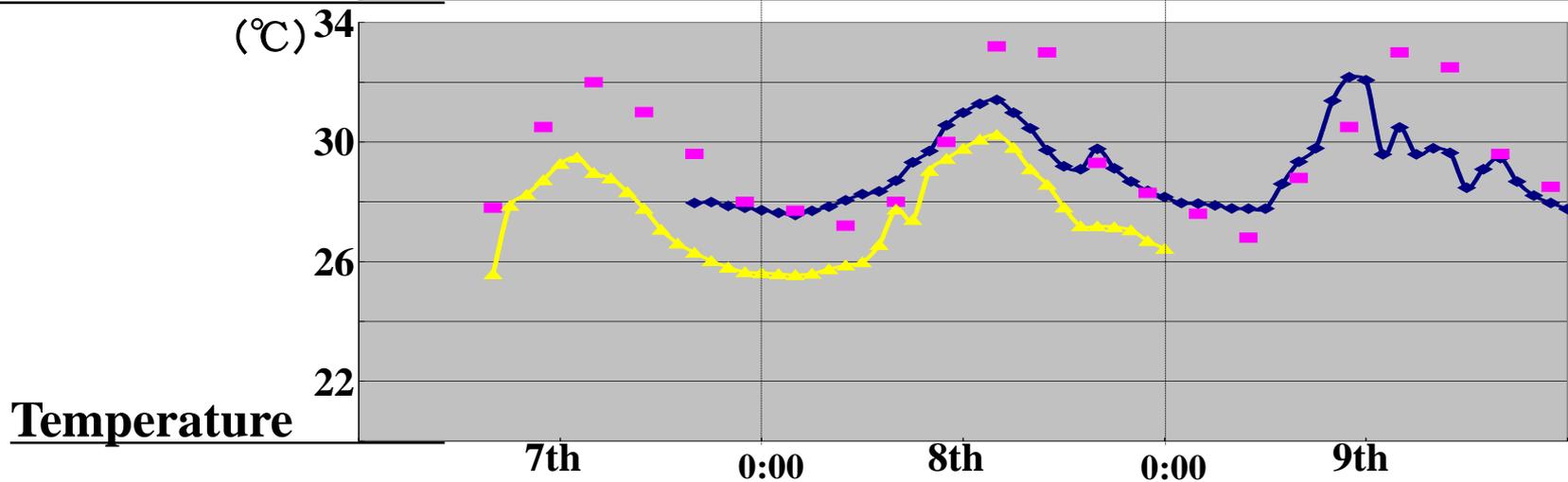
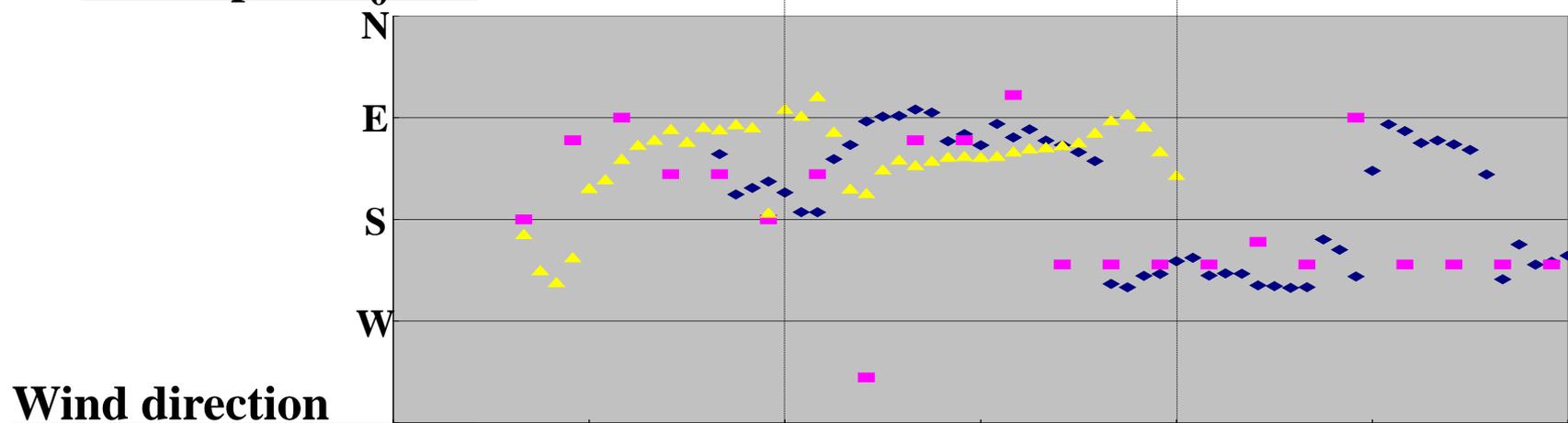
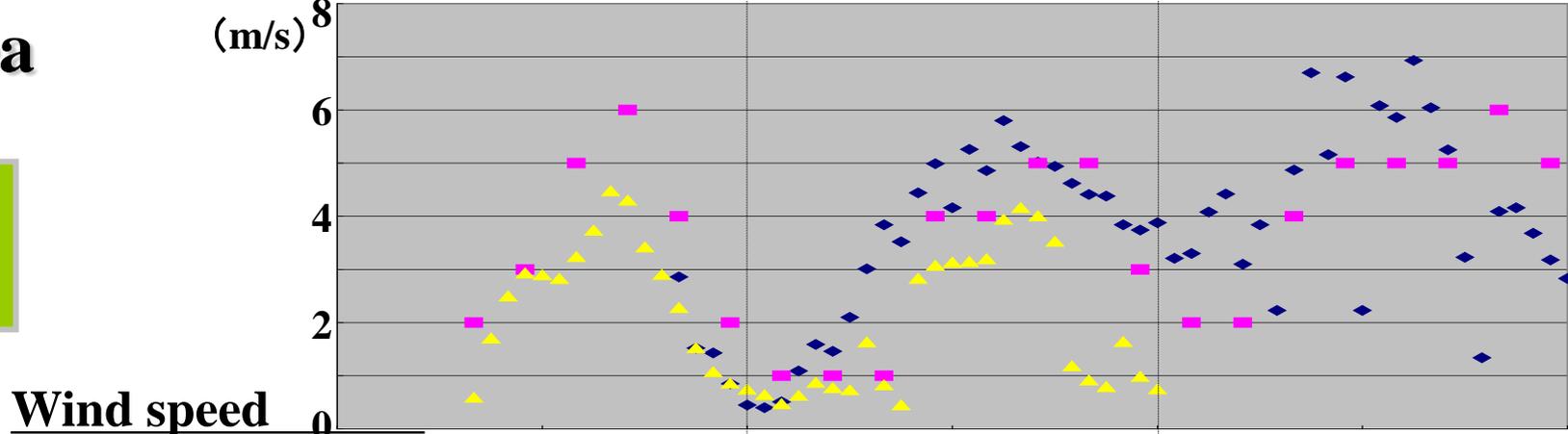
# Dry season

Simulated cumulus cloud in Grid 3 (left) and LANDSAT image (right).



# Port Area

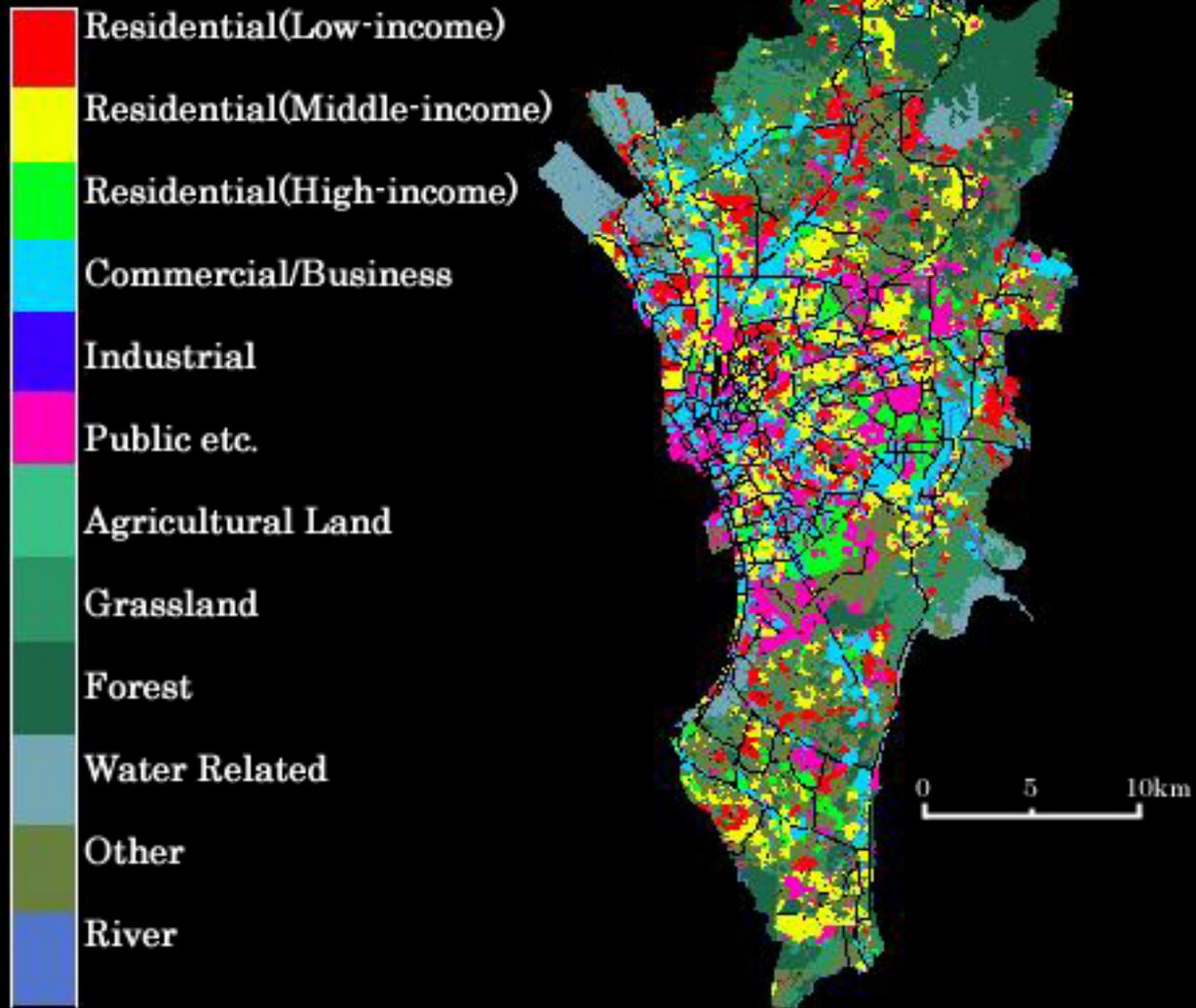
April 1991



# Land Use MAP

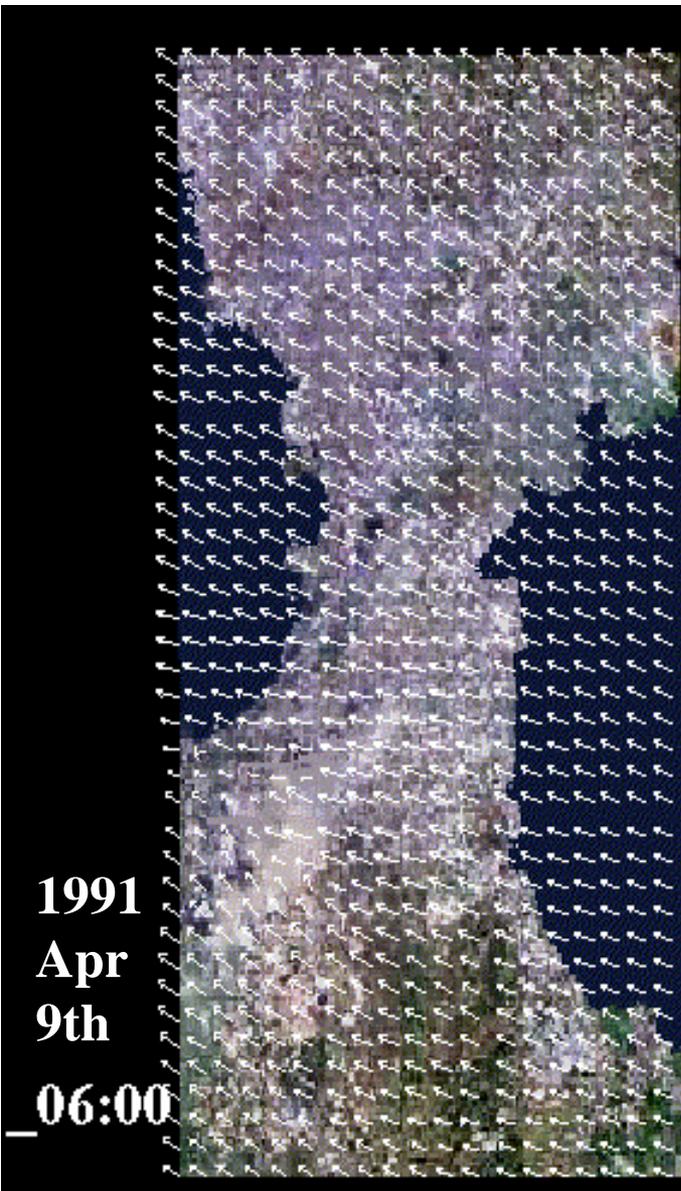
resolution:100m

## Metro Manila 1996

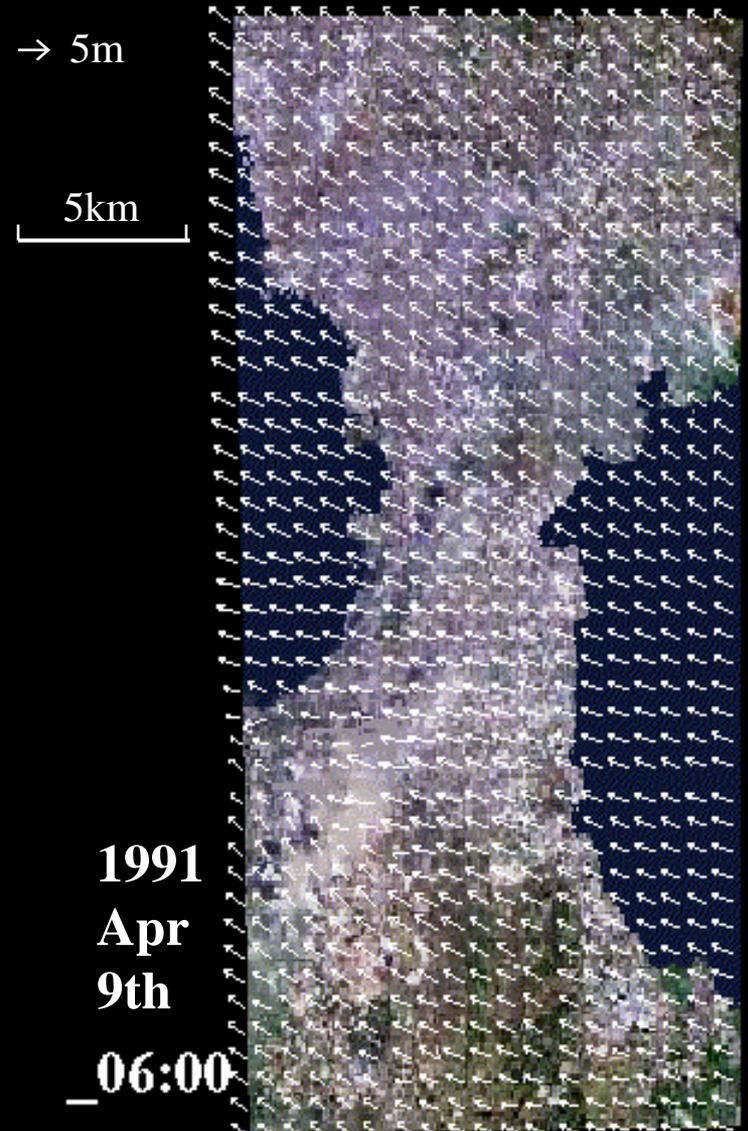


Pollutant

Dry season



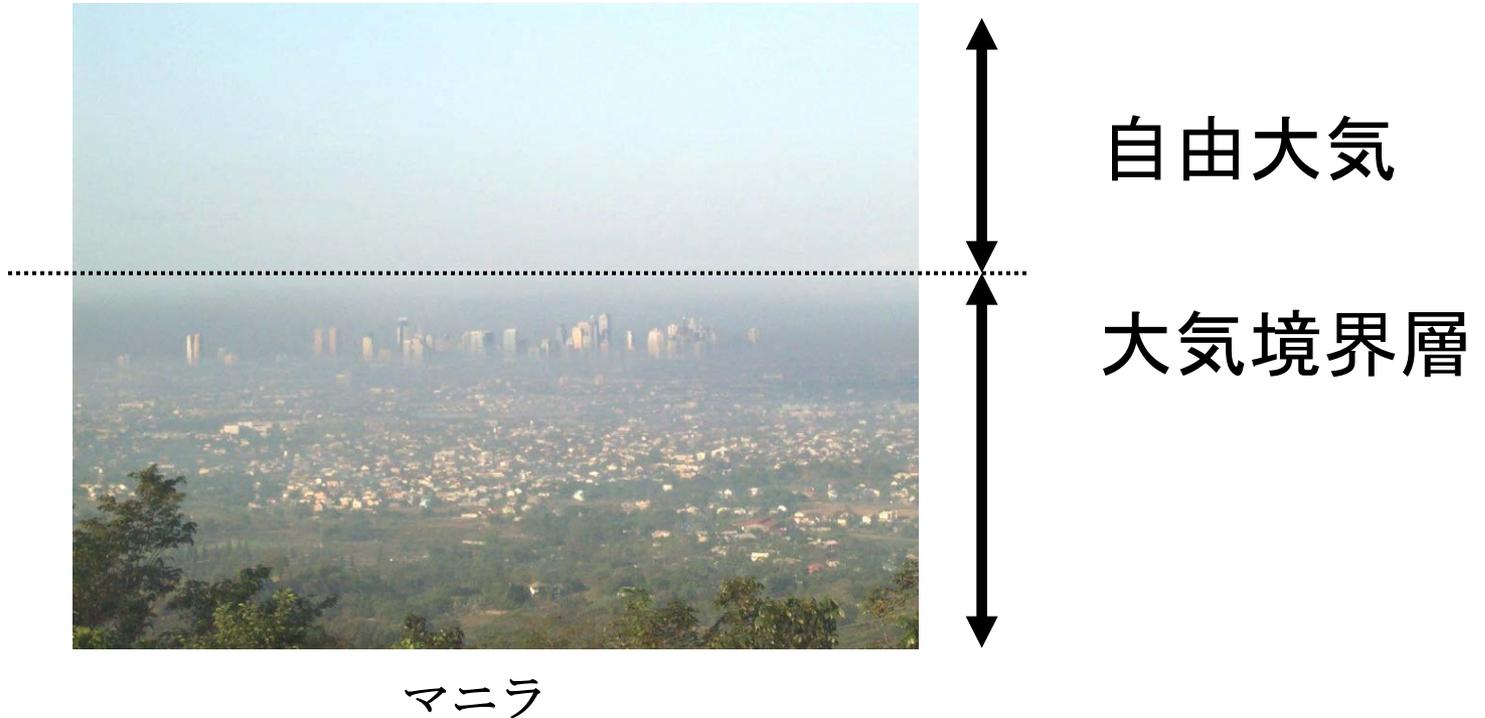
High concentration



Low concentration

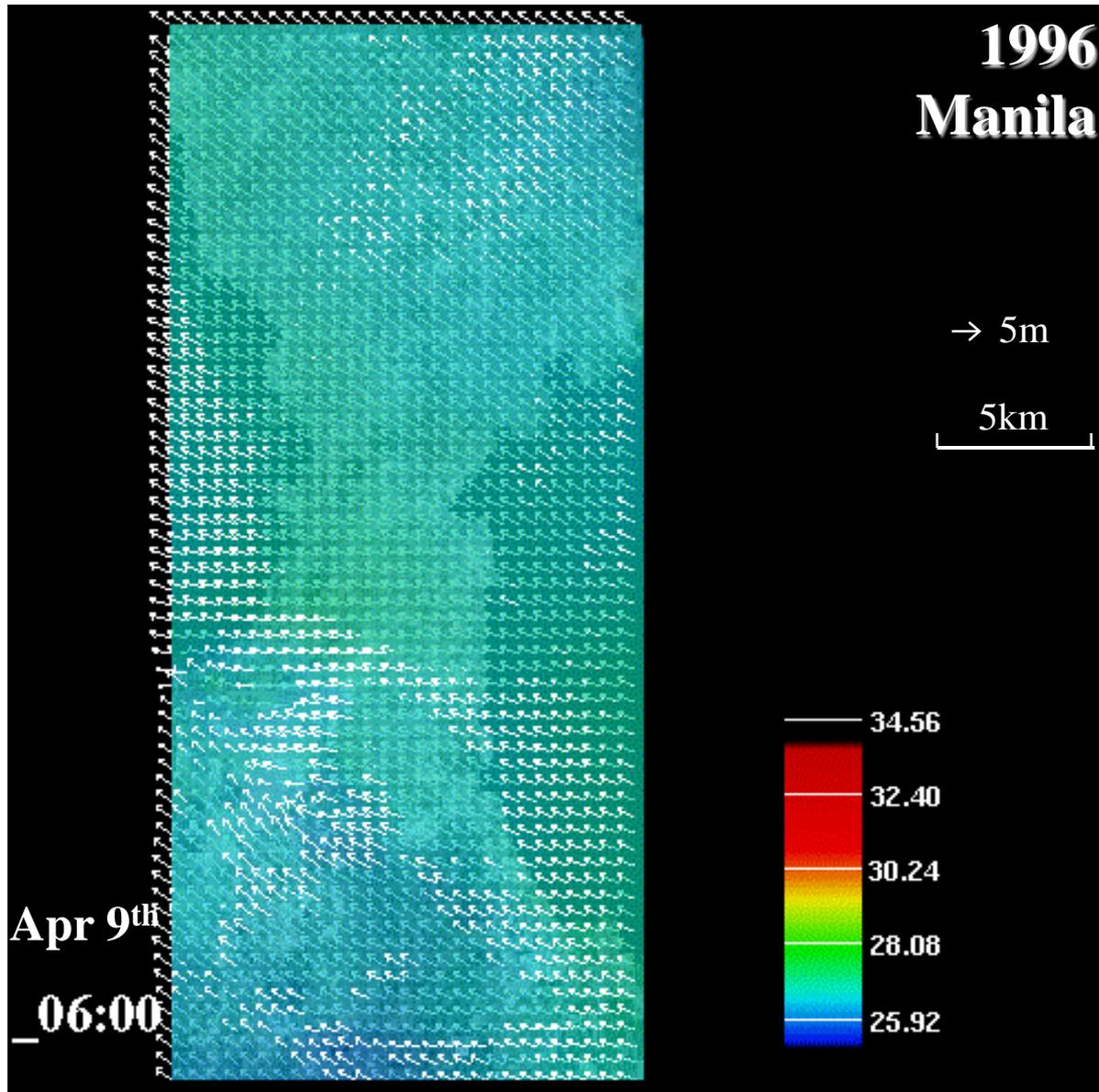
# 大気境界層の基礎

よく煮え立った鍋のお湯

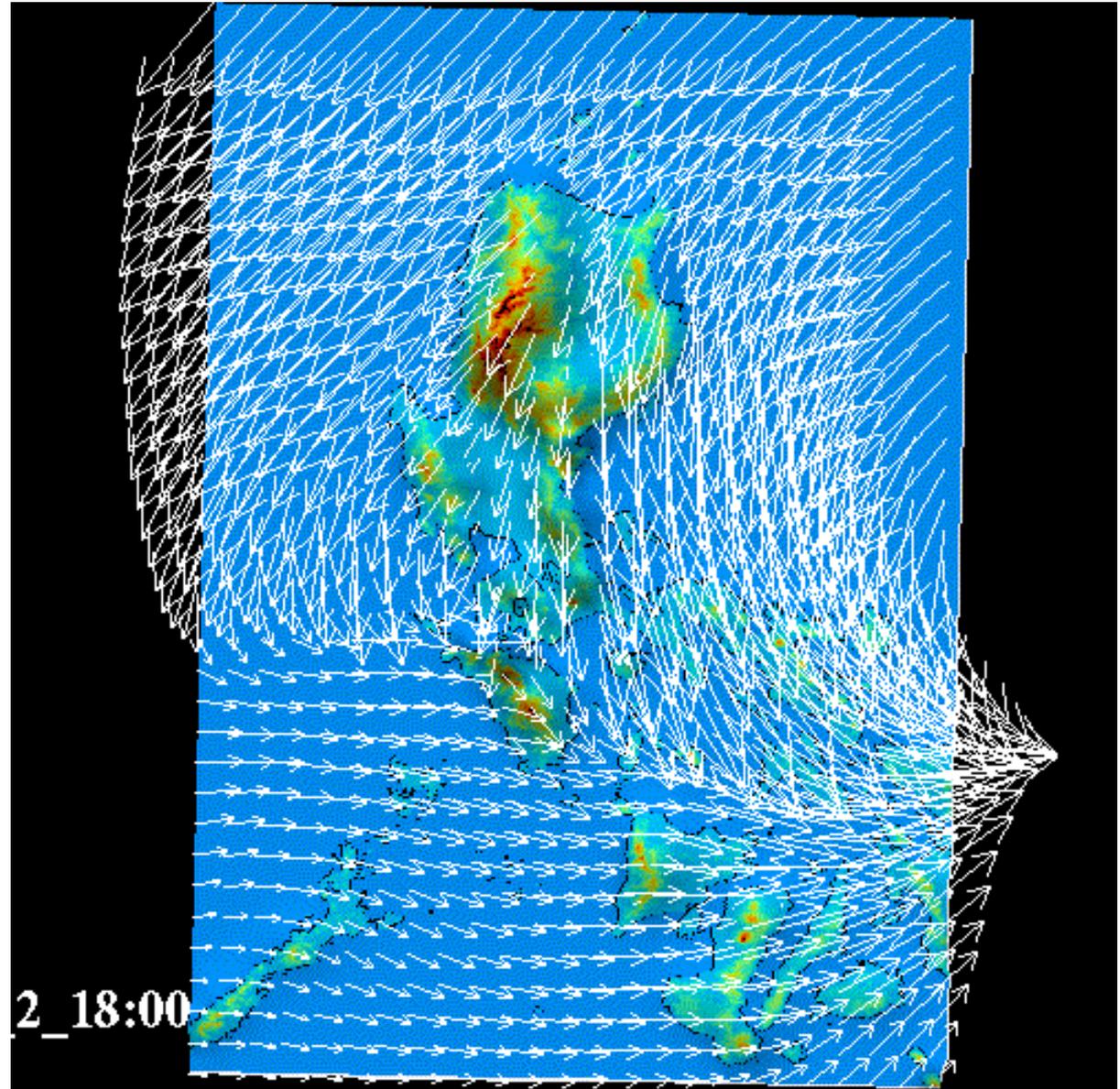


Surface temperature

Dry season



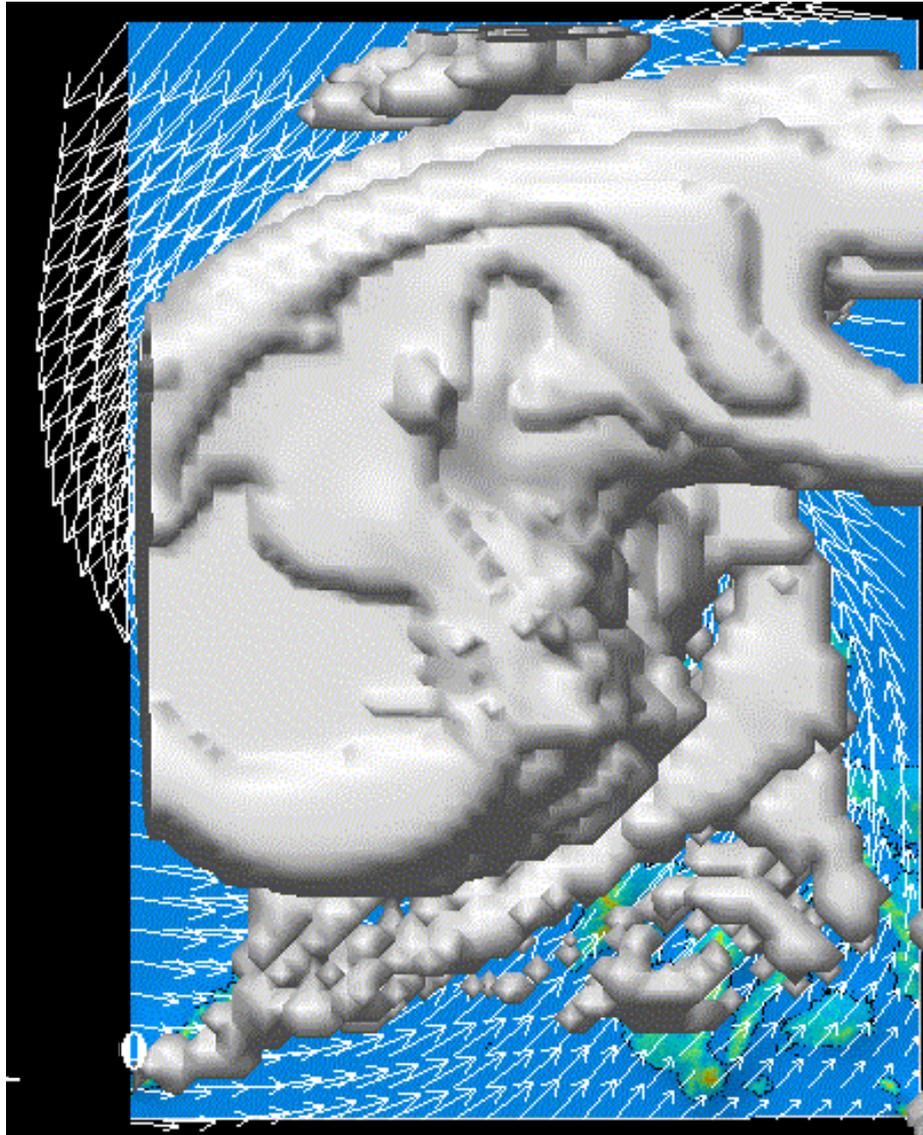
Grid1



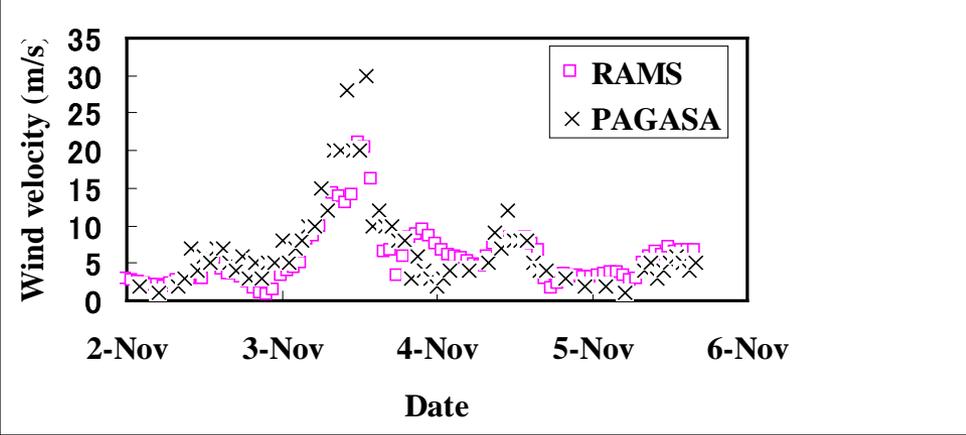
Simulated stratocumulus cloud with cyclone.

Rainy season

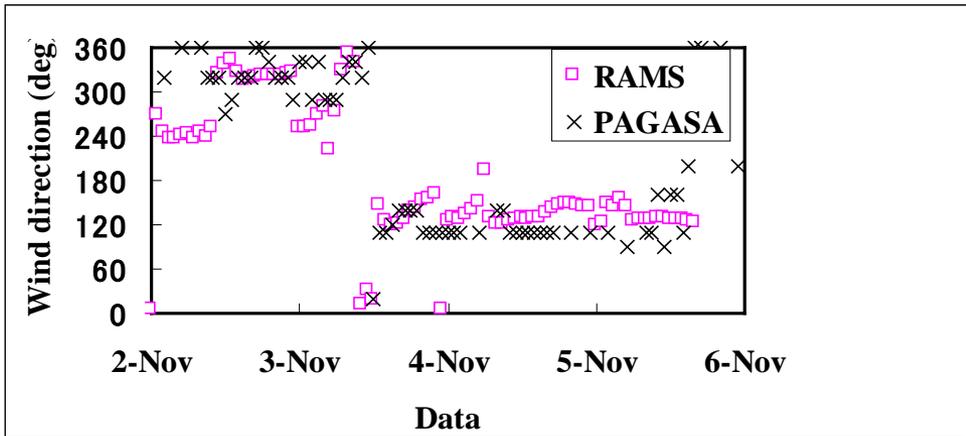
Grid1



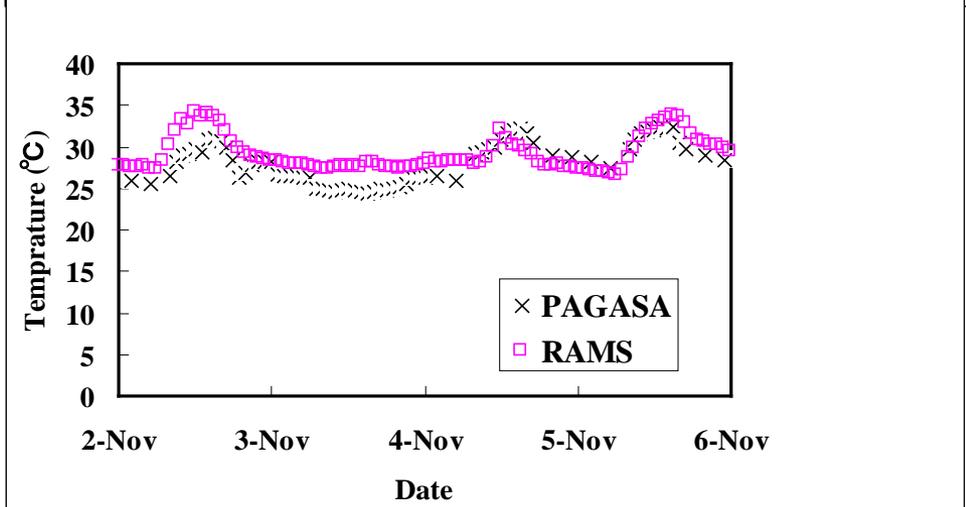
# Wind velocity



# Wind direction



# Temperature



at Port Area in a rainy season.

# その後と現在の状況

## 都市気象学の横断的・国際的進展

- 多彩な参加国
- 多彩な発表分野（高引用数）
- 気候変動研究の中での枠組み
- 大型プロジェクト