World Meteorological Organization

A feasibility study of pseudo-rapid scan images from multi-GEO satellites

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Outline of the presentation

- **Introduction**
- **GK-2A AMI and Himawari AHI**
- **Obaservaion area and schedule**
  - GK-2A AMI and Himawari-8 AHI
- **Ananlysis (COMS vs MTSAT-2)**
  - Typhoon
  - Developing Convective Cloud
- **Summary**

GK-2A AMI and Himawari-8 AHI

- **Channel Characteristic of AMI and AHI**

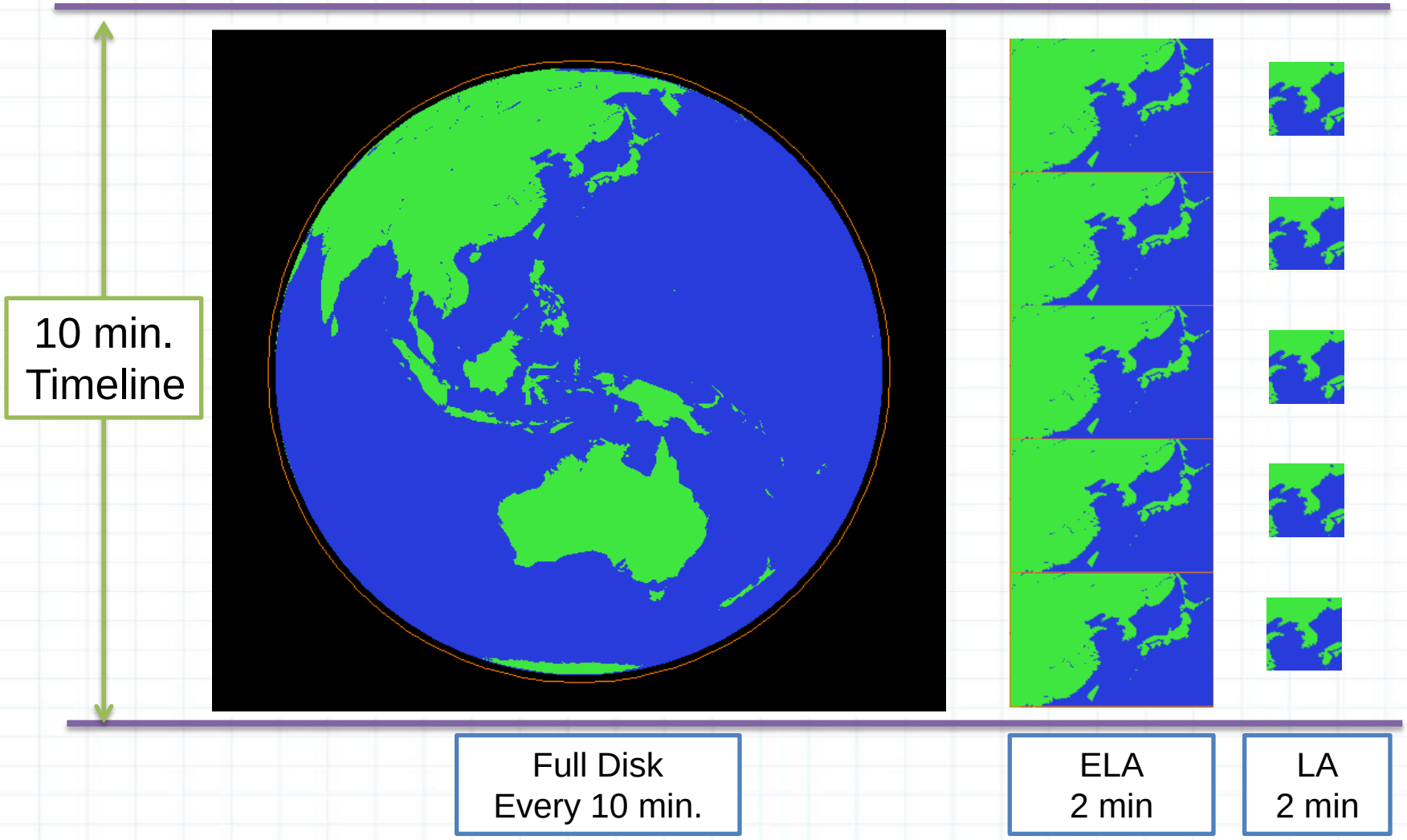
	Center wavelength (μm)			
	AMI (Resolution)		AHI	ABI
	1 blue	0.47 (1km)	0.46 (1km)	0.47
	2 green	0.511 (1km)	0.51 (1km)	
★	3 red	0.64 (0.5km)	0.64 (0.5km)	0.64
	4	0.856 (1km)	0.86 (1km)	0.865
★	5	1.38 (2km)		1.378
	6	1.61 (2km)	1.6 (2km)	1.61
★			2.3 (2km)	2.25
	7	3.830 (2km)	3.9 (2km)	3.90
	8	6.241 (2km)	6.2 (2km)	6.185
	9	6.952 (2km)	7.0 (2km)	6.95
	10	7.344 (2km)	7.3 (2km)	7.34
	11	8.592 (2km)	8.6 (2km)	8.50
	12	9.625 (2km)	9.6 (2km)	9.61
	13	10.403 (2lkm)	10.4 (2km)	10.35
	14	11.212 (2km)	11.2 (2km)	11.2
	15	12.364 (2km)	12.3 (2km)	12.3
	16	13.31 (2km)	13.3 (2km)	13.3

- Location
  - AMI : 128.2° E
  - AHI : 140.7° E

- 1.38 μm : favorable for cirrus cloud detection, cloud type and amount
- 2.3 μm : favorable for Land/cloud Properties

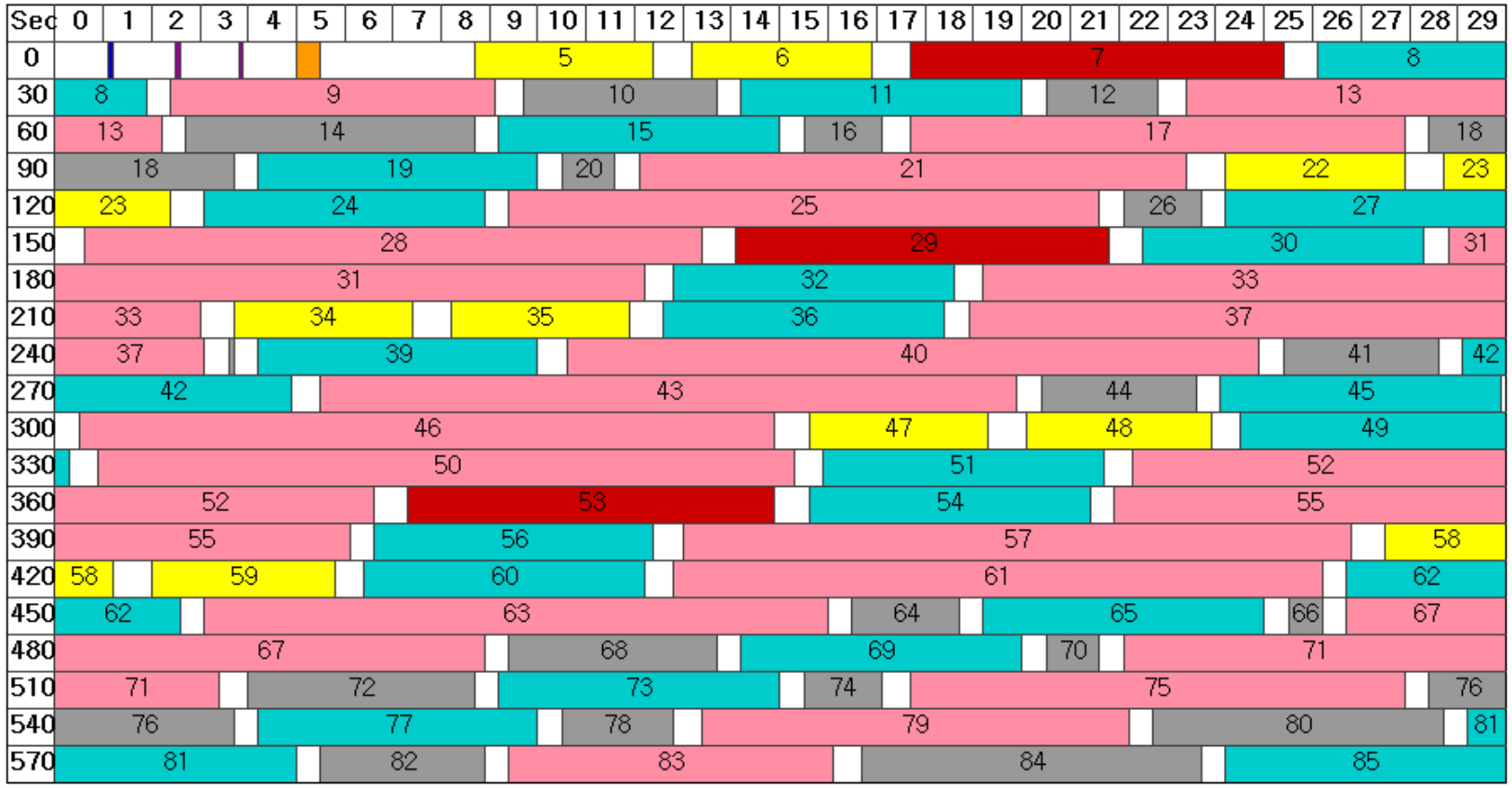
Observation Area and Schedule (AMI)

- Full Disk : 1 time
- Extended Local Area(ELA) : 3800 X 2400 km (EW X NS), 5 times
- LA : 1000 X 1000 km, 5 times



Observation Schedule (AMI)

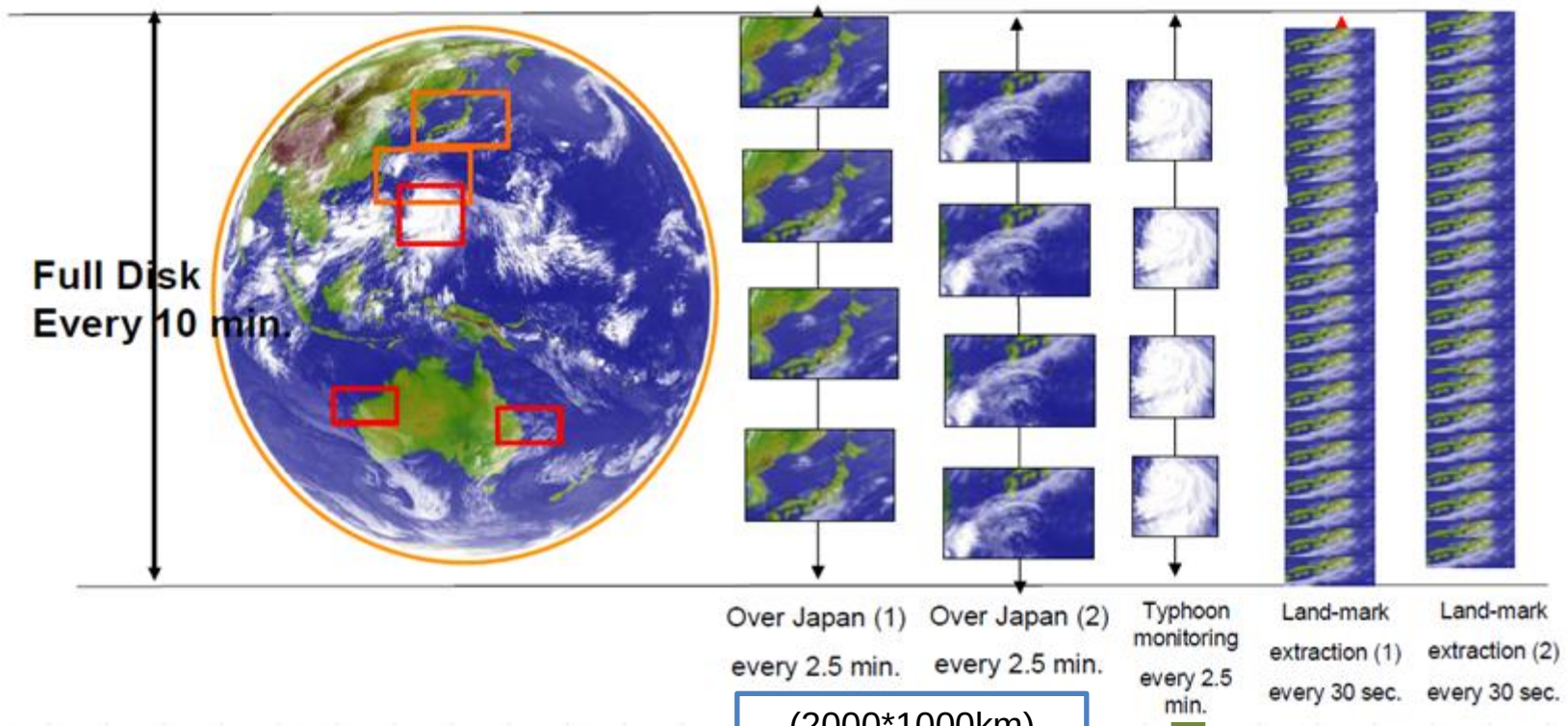
- GK-2A AMI Timeline



	Spacelook		Scan Ops		ICT(BB)		Nadir
	Vis Star		IR Star		FD		ELA

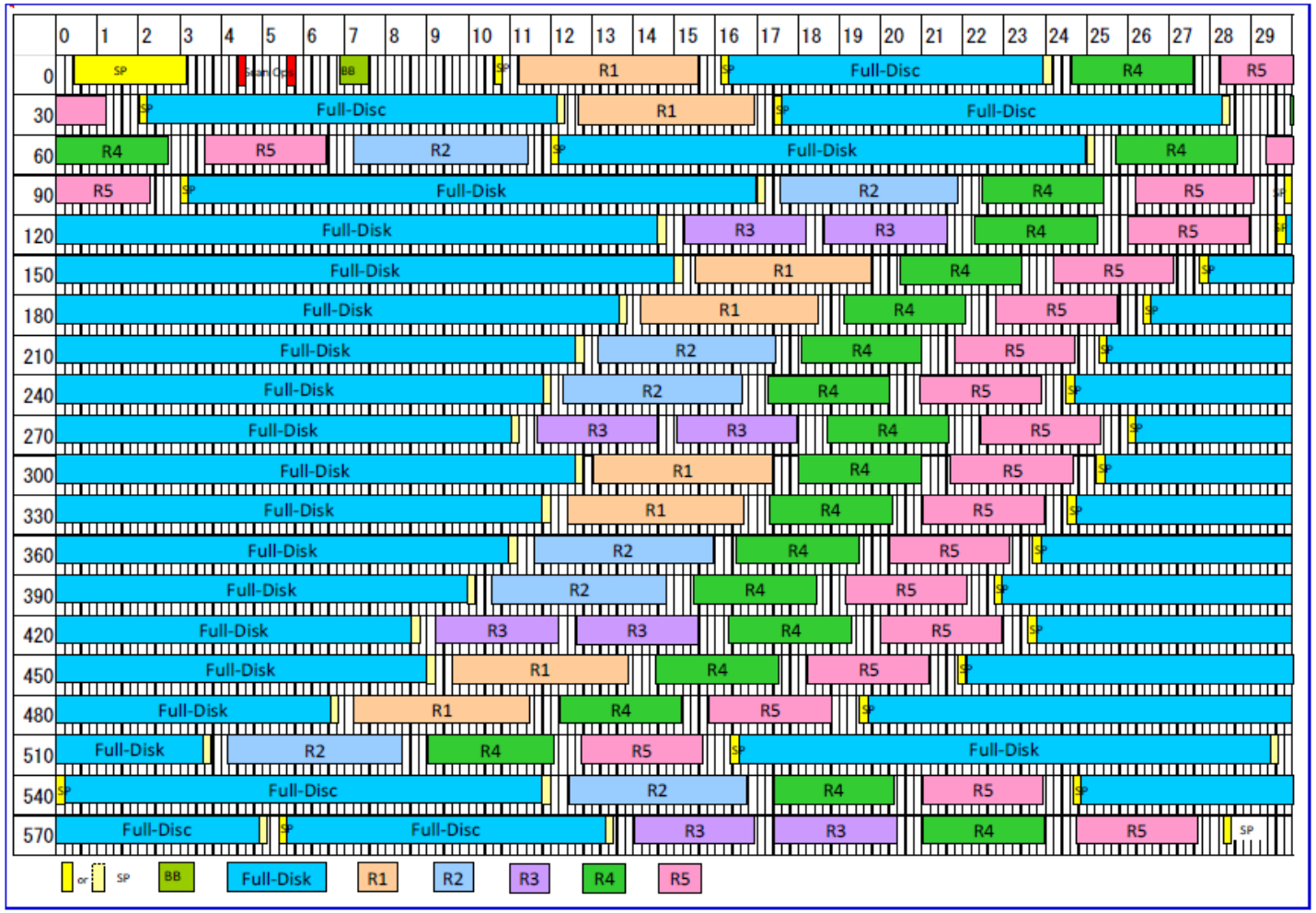
Observation Area and Schedule (AHI)

A Sequence of Himawari-8/9 AHI Observation in 10 minutes Time Frame

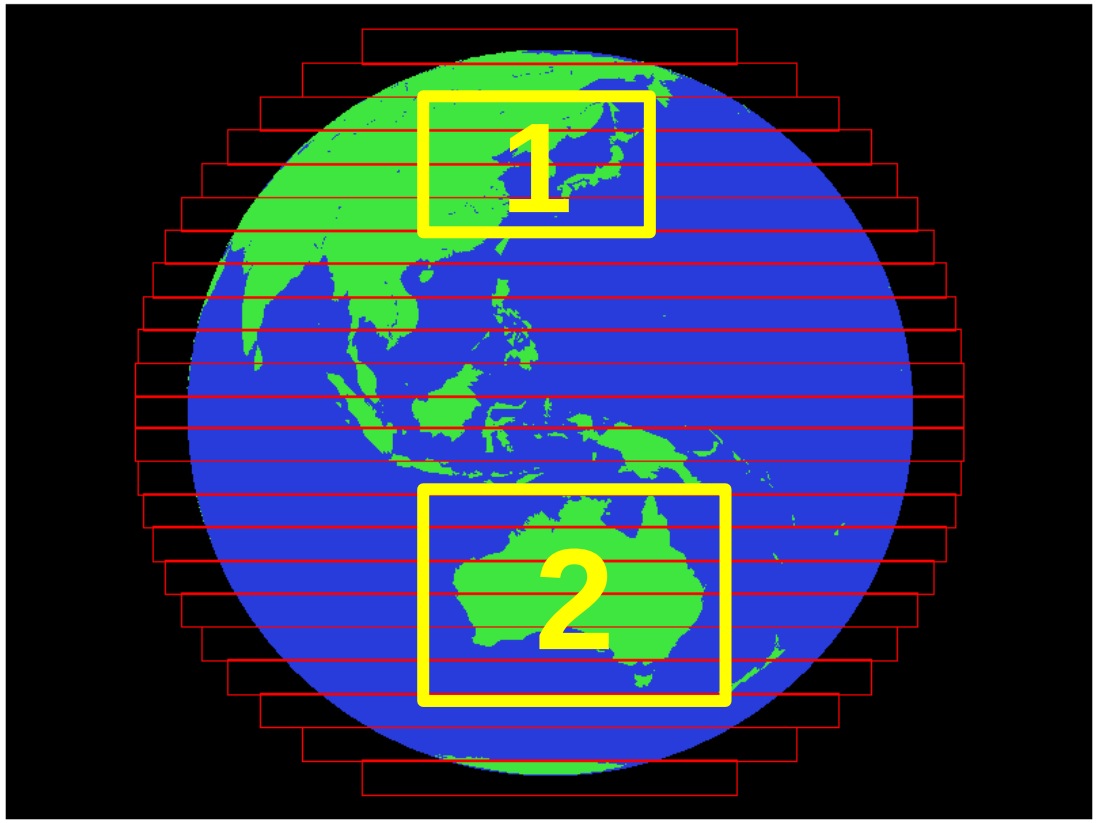


Observation Area and Schedule (AHI)

- **Himawari-8 AHI Timeline**



Observation Area and Schedule (AHI)



Area	Scan line No.	Observation time	
		AMI	AHI
Area 1 (Ease-Asia)	3 ~ 6 **(5)**	77~162 sec	48~134 sec
Area 2 (Australia)	15 ~ 20**(17)**	381~512 sec	384~538 sec

Swath No.	Time of Line center	
	AMI	AHI
5	135	100
17	458	452

Observation time and interval (AHI vs AMI)

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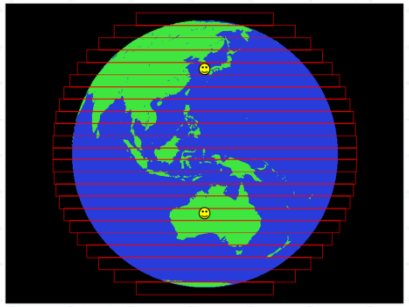
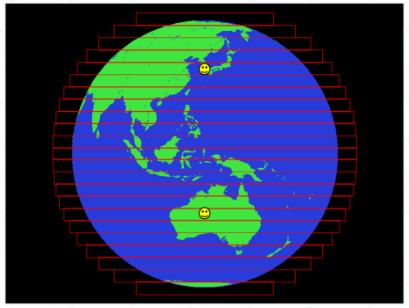
AHI 00:00



Point 1	1:40
Point 2	7:32

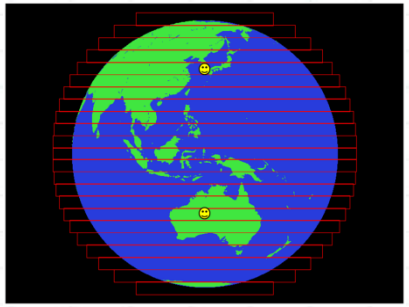
AMI 00:05



Point 1	7:15
Point 2	12:38

Point 1	5:35
Point 2	5:06

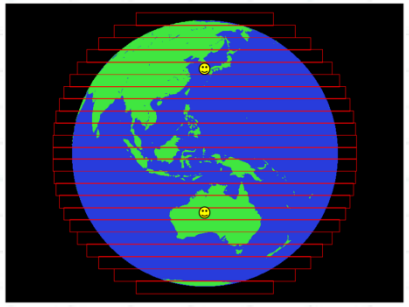
AHI 00:10



Point 1	11:40
Point 2	17:32

Point 1	4:25
Point 2	4:54

AMI 00:15



Point 1	17:15
Point 2	22:38

Point 1	5:35
Point 2	5:06

Preliminary Study (COMS vs. MTSAT-2)

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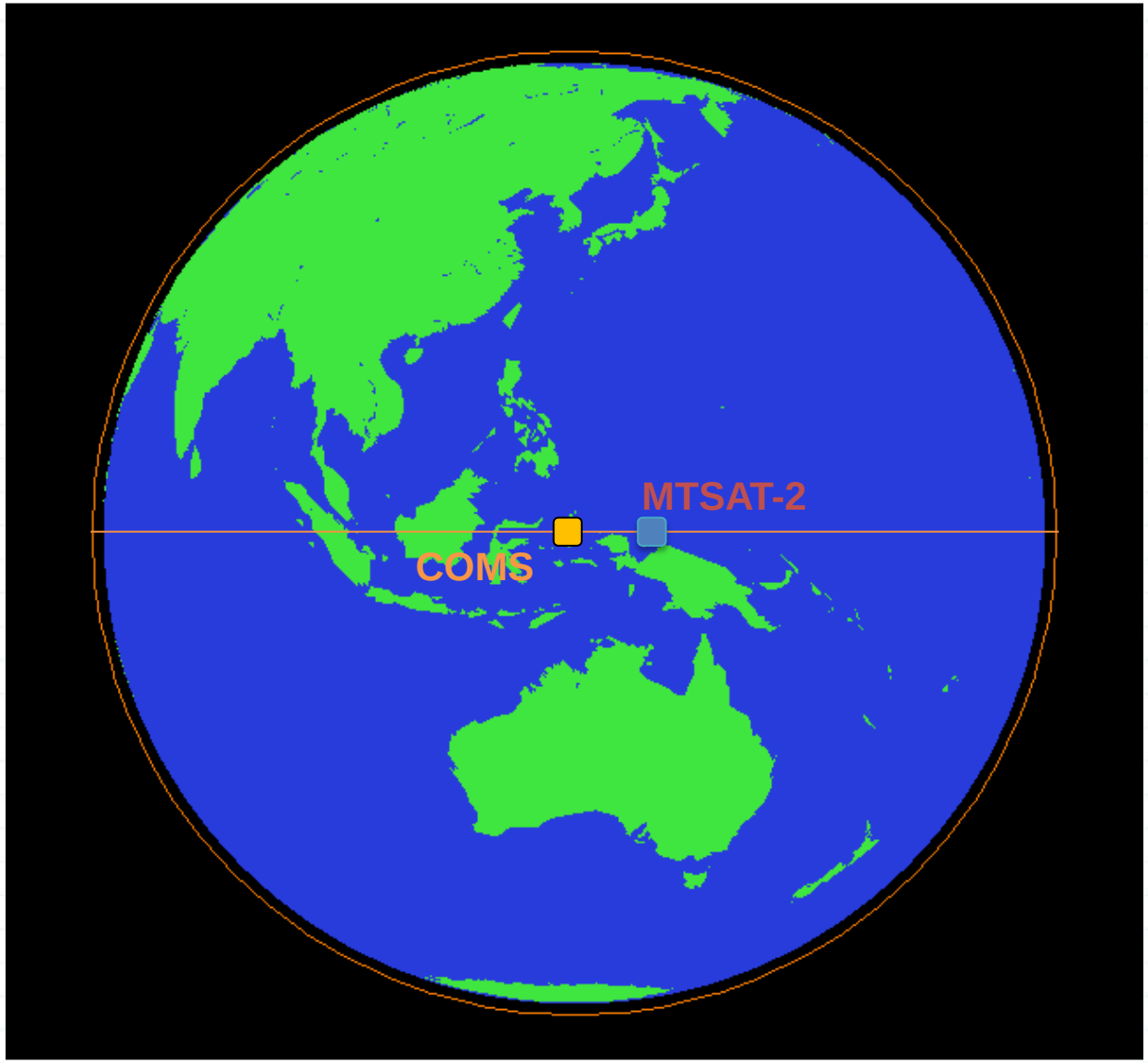
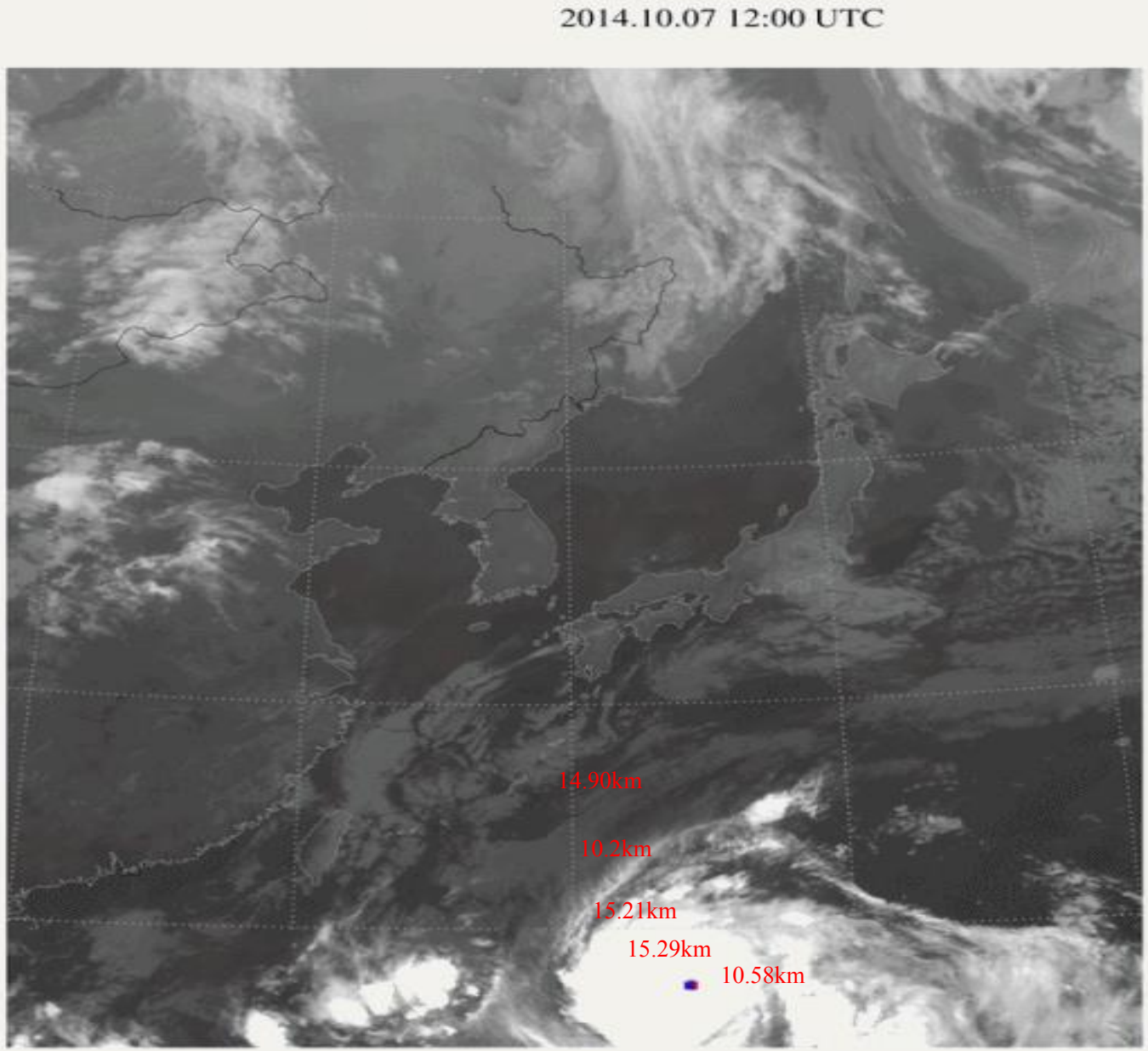
Location

- **COMS** : 128.2° E
- **MTSAT-2** : 145° E



Application of two satellites (Typhoon) 1/2



2014 19th Typhoon VONGFONG

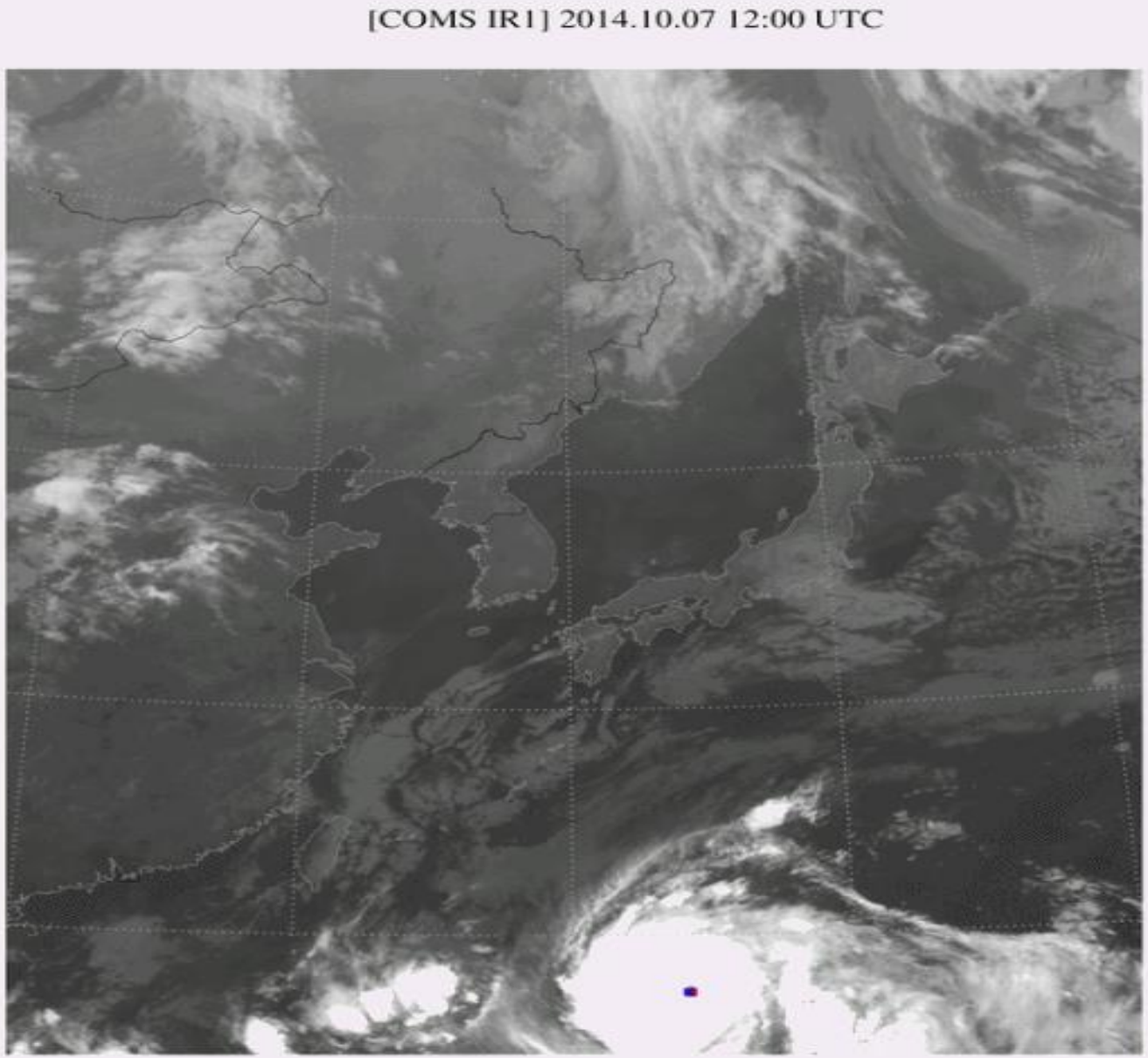
- **2014.10.07 – 10.12**
- **COMS (128.2E) 00 minute**
- **MTSAT-2 (145E) 33 minute**

✓ Red : Eye measured by COMS

✓ Blue : Eye measured by MTSAT-2

- Difference the center of typhoon based on parallax of COMS and MTSAT-2

Application of two satellites (Typhoon) 2/2



2014 8th Typhoon

NEOGURI

- **2014.07.05 – 07.08**
- **COMS (128.2E) 00 minute**
- **MTSAT-2 (145E) 33 minute**

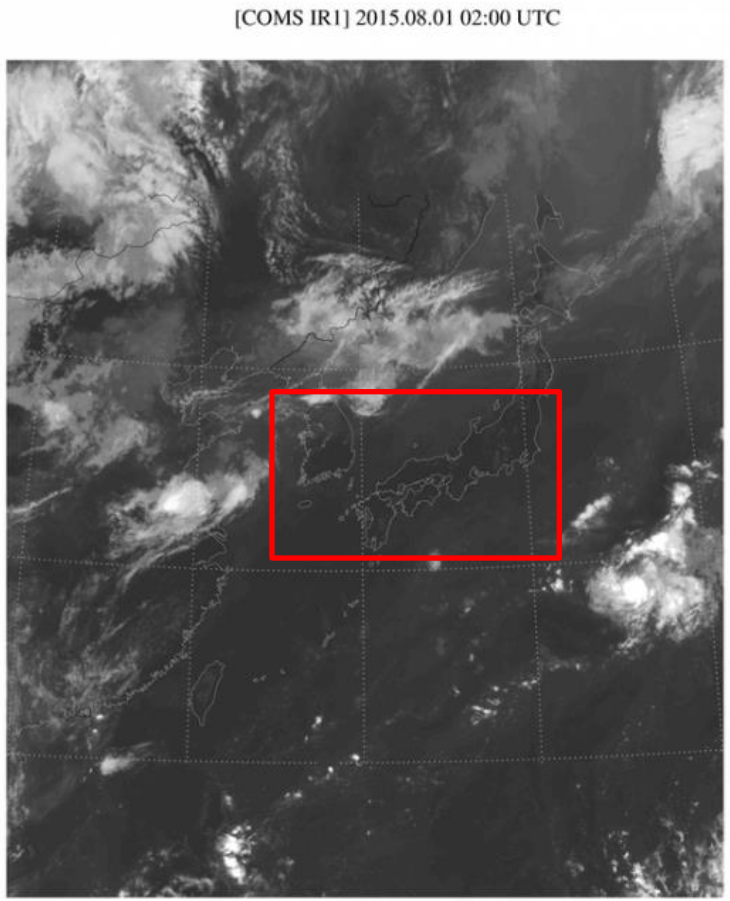
✓ Red : Eye measured by COMS

✓ Blue : Eye measured by MTSAT-2

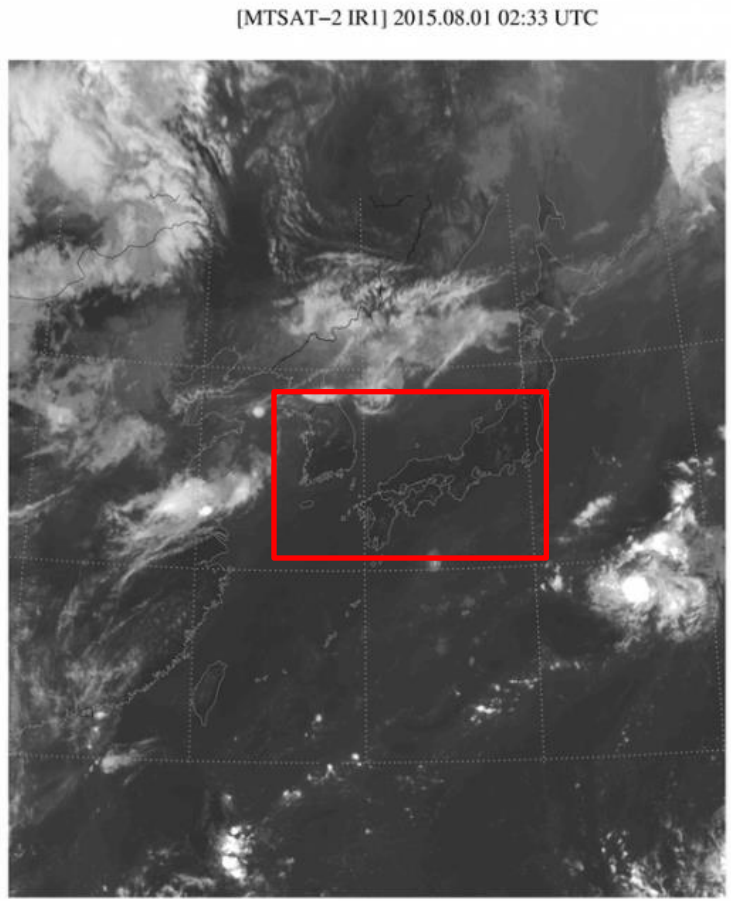
- Difference the center of typhoon based on parallax of COMS and MTSAT-2

COMS and MTSAT-2

- **Developing Convective Could (I)**
  - Observation data of COMS and MTSAT-2
  - 02:00~14:00UTC 1 Aug. 2015



COMS



MTSAT-2

Application of two satellites (Convective Clouds)

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- **Date : 1 August 2015 (COMS vs. MTSAT-2)**

Summary

- **AHI(00’)-AMI(05’)- AHI(10’)-AMI(15’)- ….**
  - **Relatively reasonable for typhoon, developing convective clouds….**
  - **Time interval is not exactly 5 minute when measuring specific area**

- **Preliminary study : COMS vs. MTSAT-2**
  - **Typhoon showed parallax around 10-15km, but AMI/AHI hopes to reduce the effect**
  - **Developing convective clouds with two satellites gives advantage for measuring detailed developing step and analysis**

감사합니다.

Thank you

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