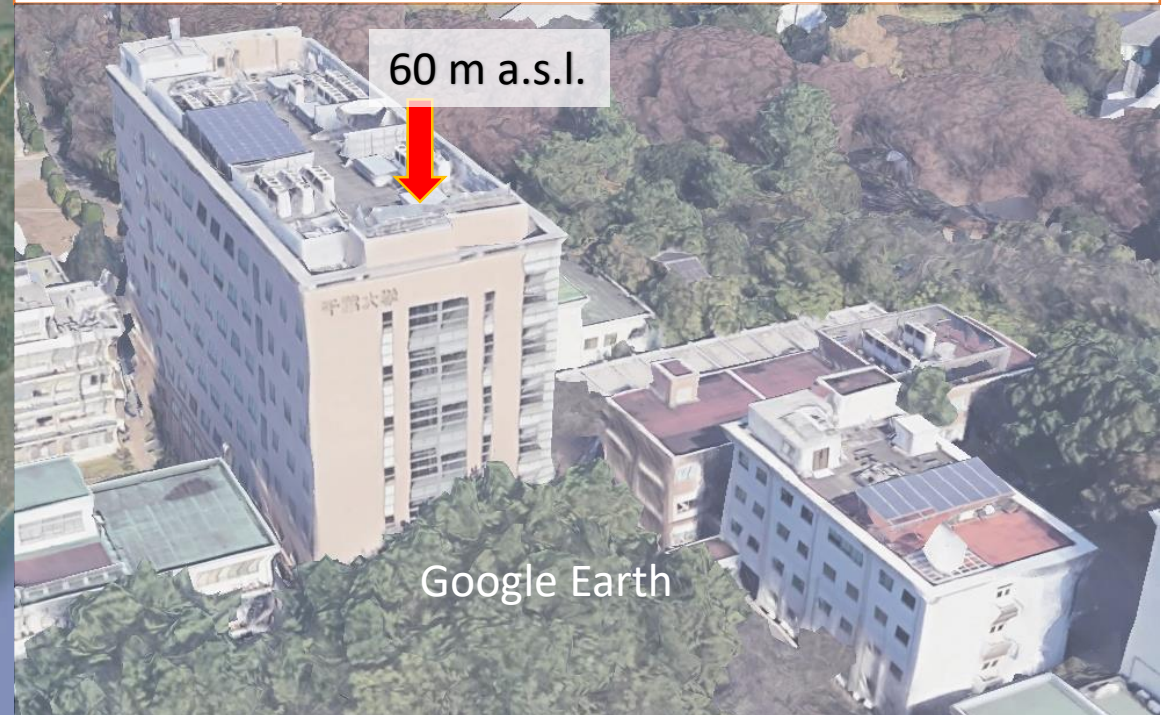



CHIBA CAMPAIGN 2020



SKYNET CHIBA SITE




2020-12-08
Irie Lab. B4
Takeru Ohno



Daily Update

2020-12-08



Out line

- AEROSOLS

1.AOD (Sky radiometer & MAX-DOAS)

2.AEC &Color Index (MAX-DOAS)

3.Weather&SKYVIEW

- Daily Log

MAX-DOAS
Measurement Directions



Irie et al., 2017

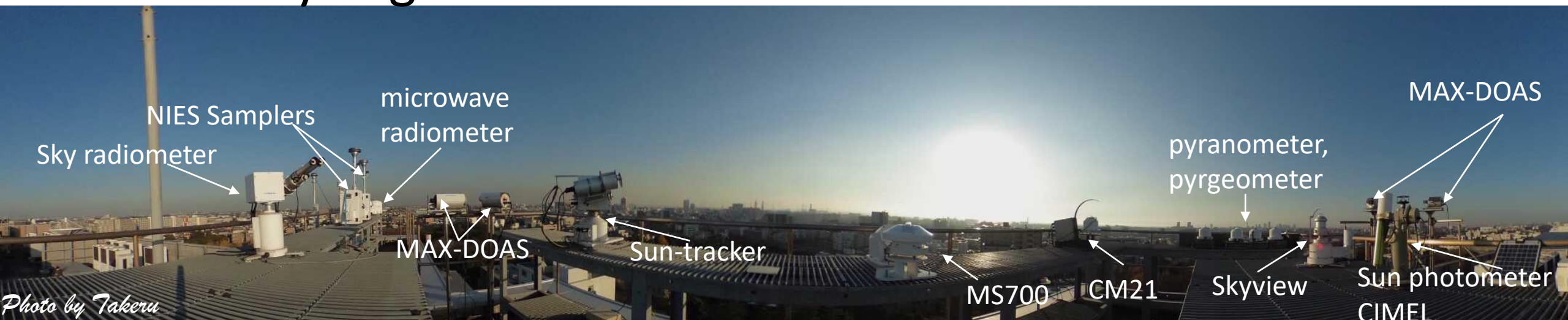
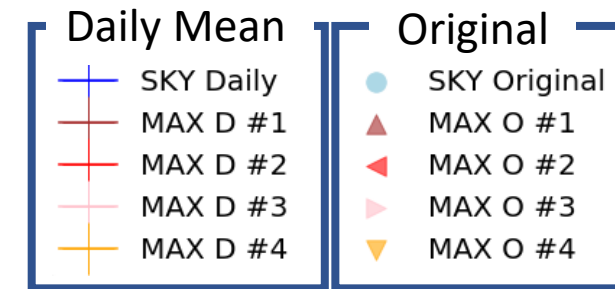
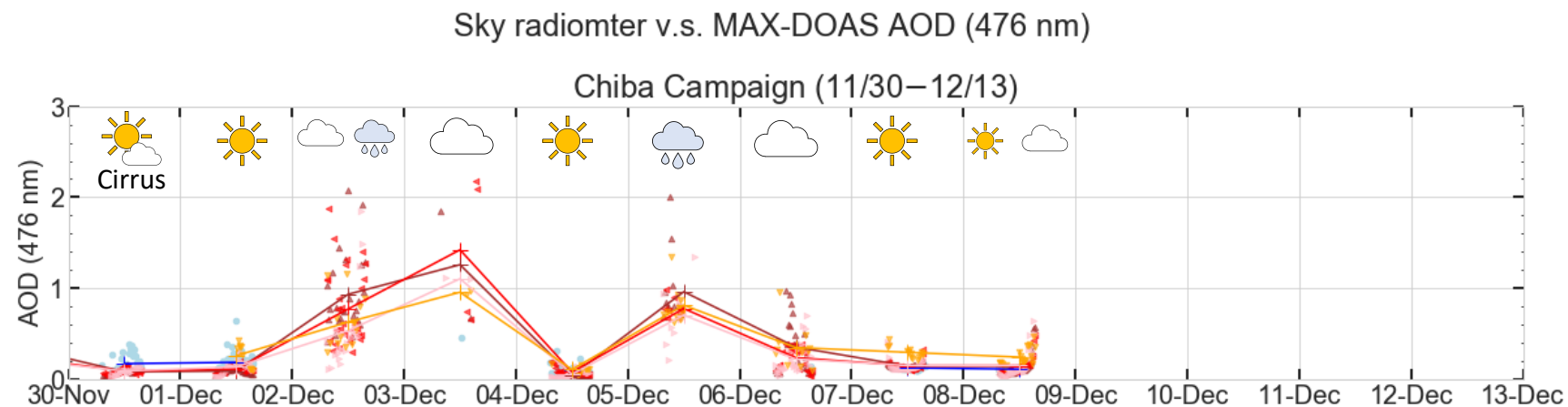


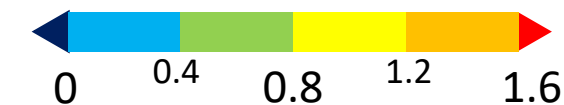
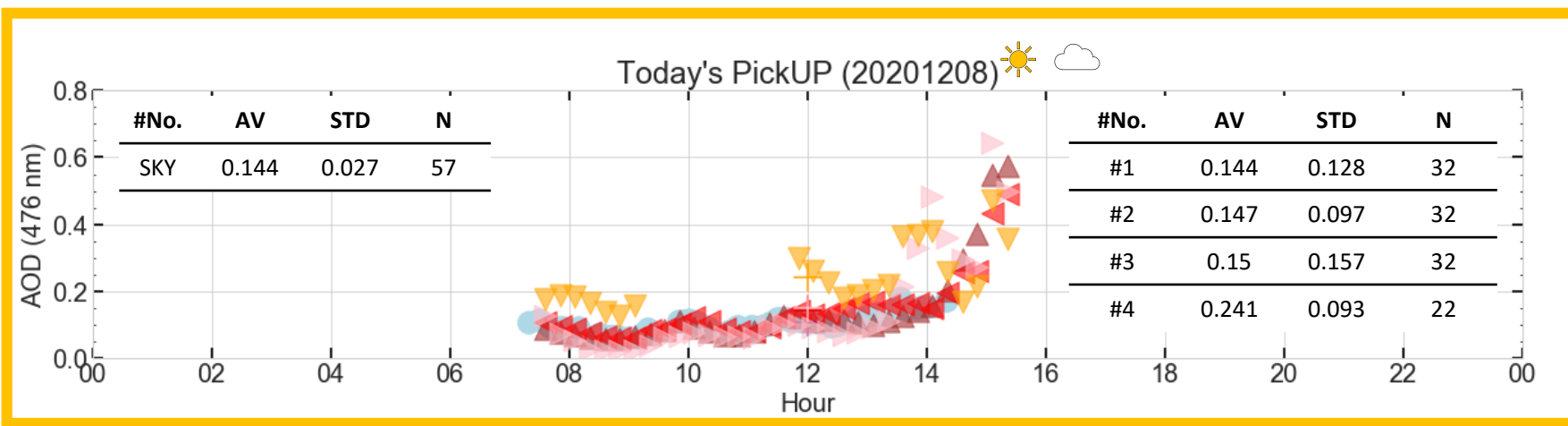
Photo by Takeru

AOD (Sky radiometer(476 nm) & MAX-DOAS(476 nm))



Sky Cloud Flag≠0

Today's AOD



(Fig. Irie et al., 2017)

AEC & Color Index(MAX-DOAS)

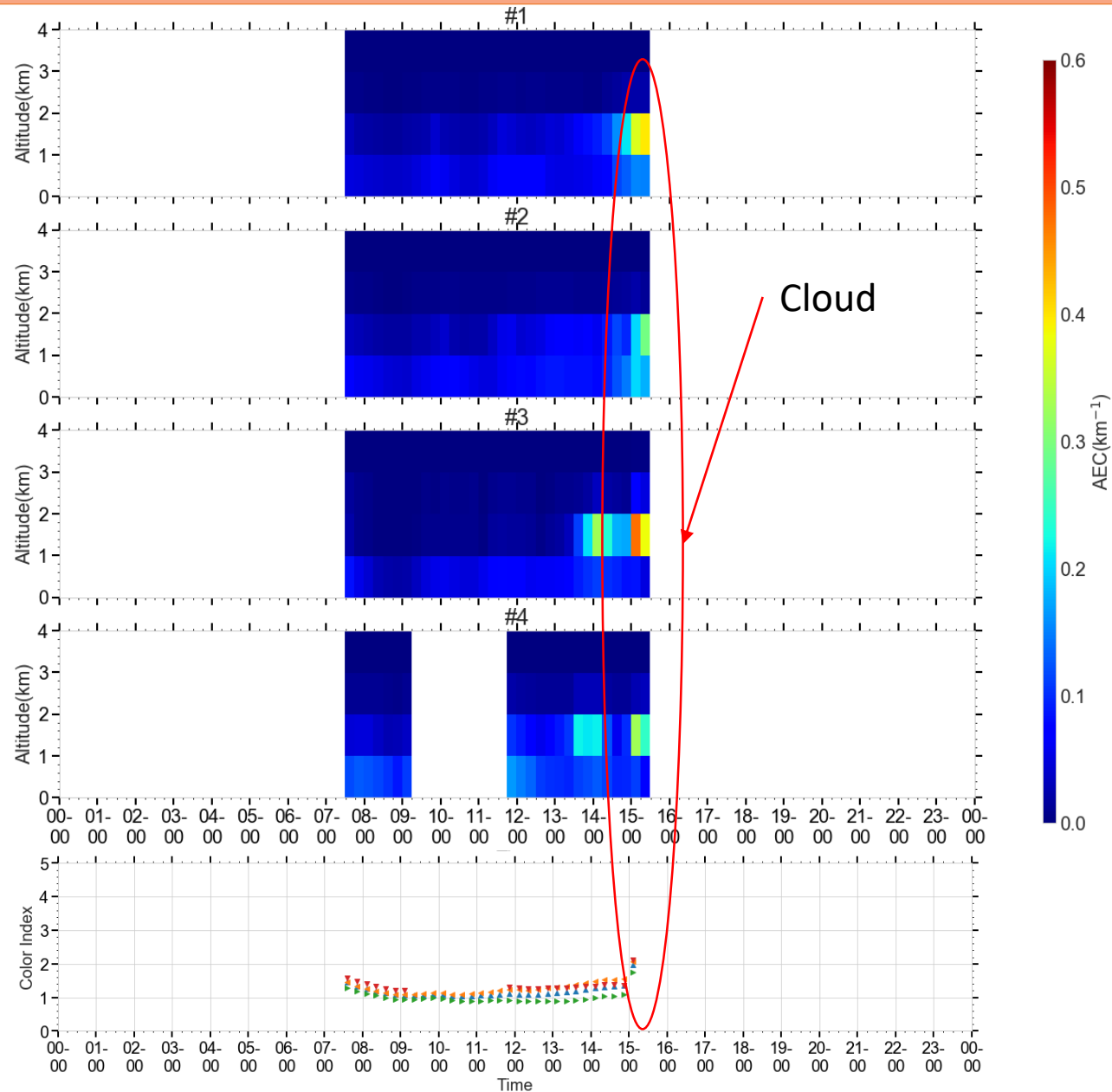


Fig. 5 Schematic illustration of observations by the North-, West-, East-, and South-viewing MAX-DOAS instruments (this set is called the 4AZ-MAXDOAS system) located at the SKYNET Chiba site (Chiba University).

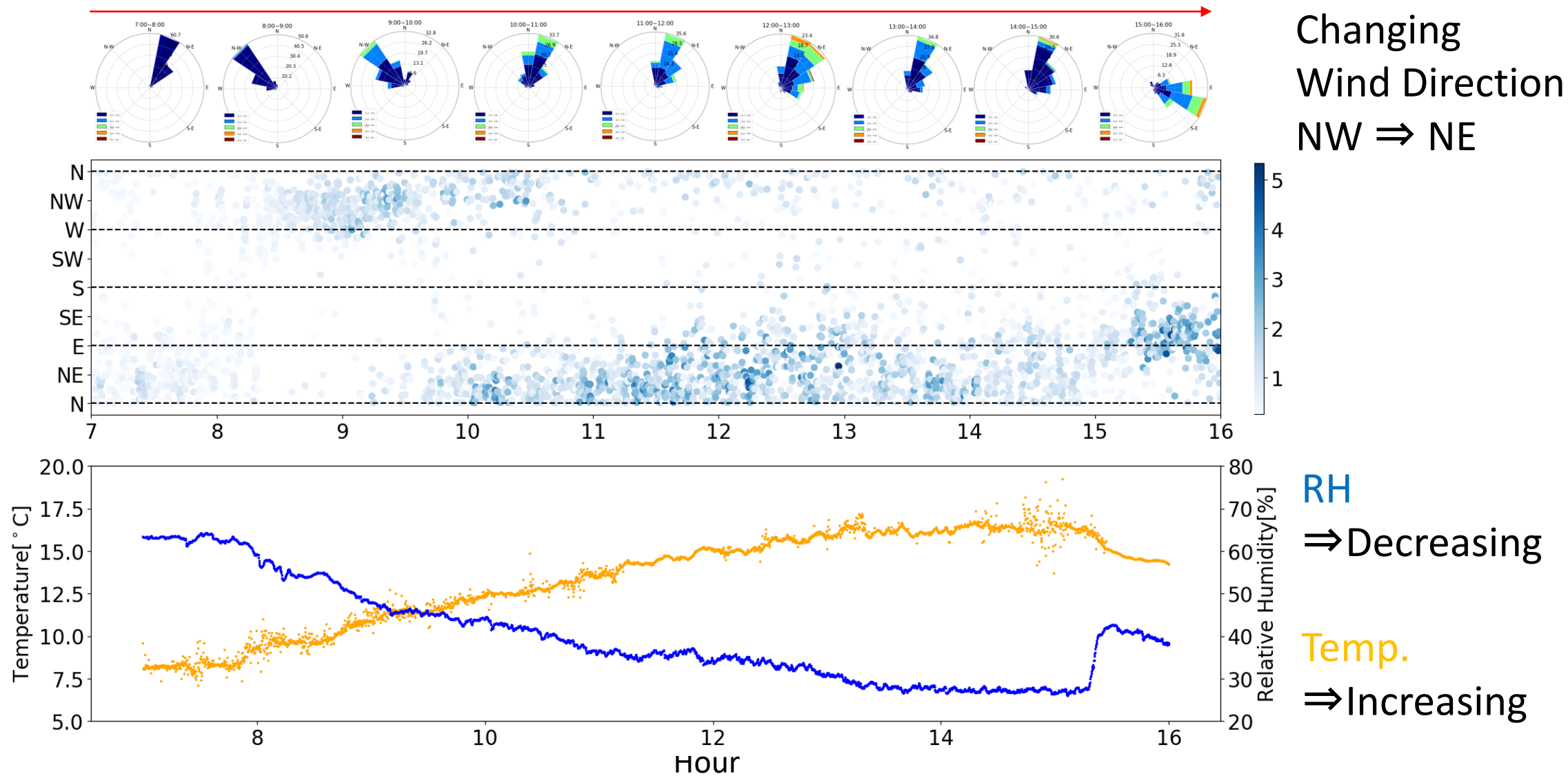
Irie et al., 2017

Color Index(CI)

$$CI = \frac{I_{\text{Longwave}}}{I_{\text{shortwave}}} = \frac{I_{500}}{I_{380}}$$

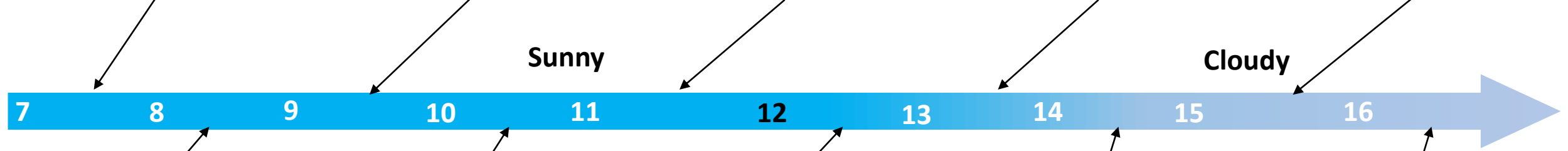
Takashima et al., 2009

Weather












SKYVIEW

N
4



Daily Log

	Weather	Findings & Insights
✓ 11-30(Mon):	 Sunny, Cirrus(巻雲 <small>けんうん</small>)	Possibility: Cirrus affected Sky radiometer AOD
✓ 12-01(Tue):	 Sunny	
✓ 12-02(Wed):	 Cloudy, then Rainy	MAX-DOAS AOD seems to be too high because of the weather
✓ 12-03(Thu):	 Cloudy	The same as 12-02, Walk-around observation(CH ₄ , CO ₂ , H ₂ O)
✓ 12-04(Fri):	 Sunny(10:00~Low cloudage)	High AOD with #2 & sky radiometer before 10:00
✓ 12-05(Sat):	 Rainy	No Data Today because of the weather
✓ 12-06(Sun):	 Cloudy(Ac: 高積雲?)	The sky was covered with the Altocumulus until 16:00(≠12/3)
✓ 12-07(Mon):	 Sunny	South: High AOD & AEC(-2 km), Walk-around observation
✓ 12-08(Tue):	 Sunny→Cloudy(15:00~)	15:00~ High MAX-DOAS AOD & AEC because of the cloud
• 12-09(Wed):		
• 12-10(Thu):		
• 12-11(Fri):		
• 12-12(Sat):		
• 12-13(Sun):		

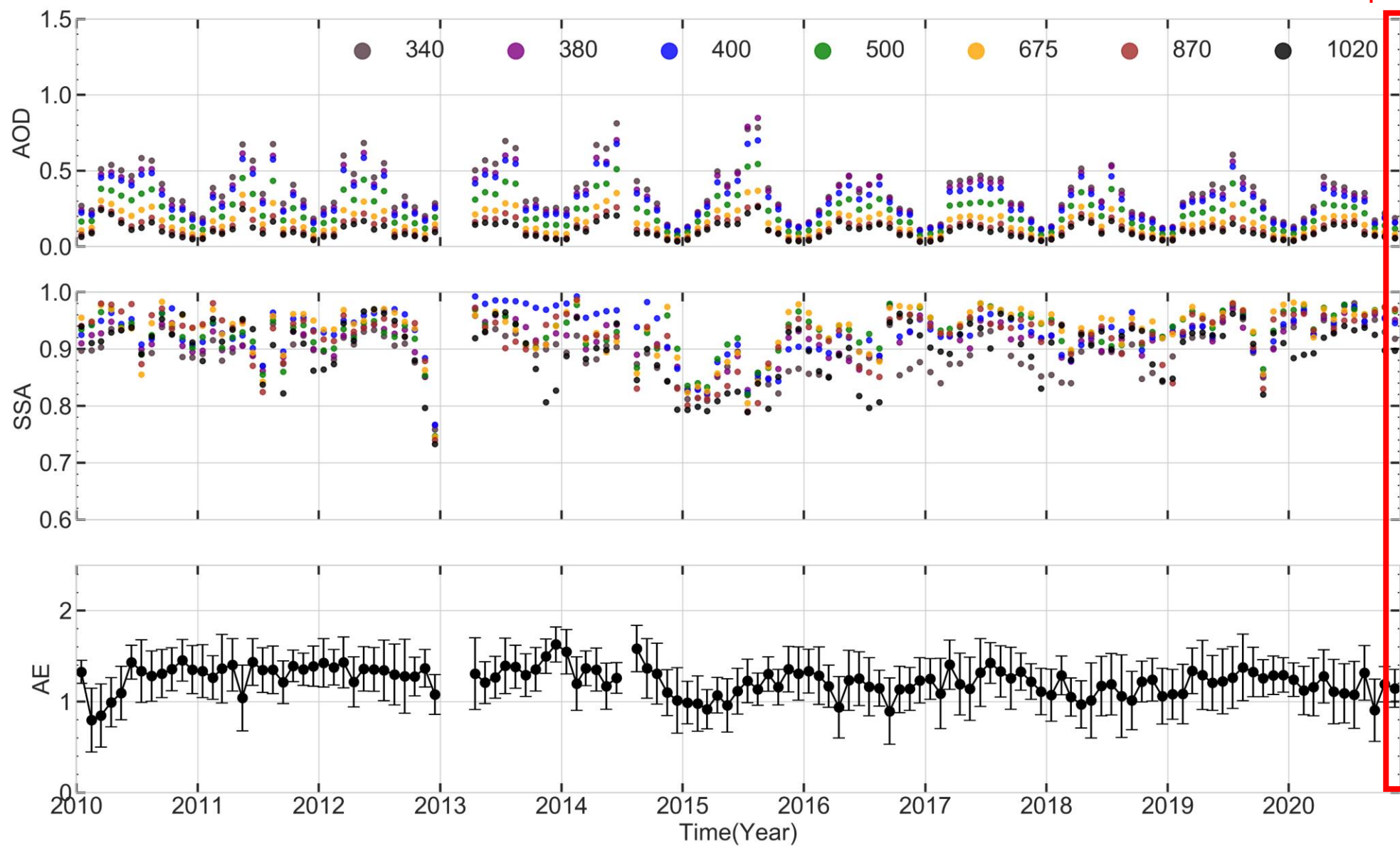


Appendix

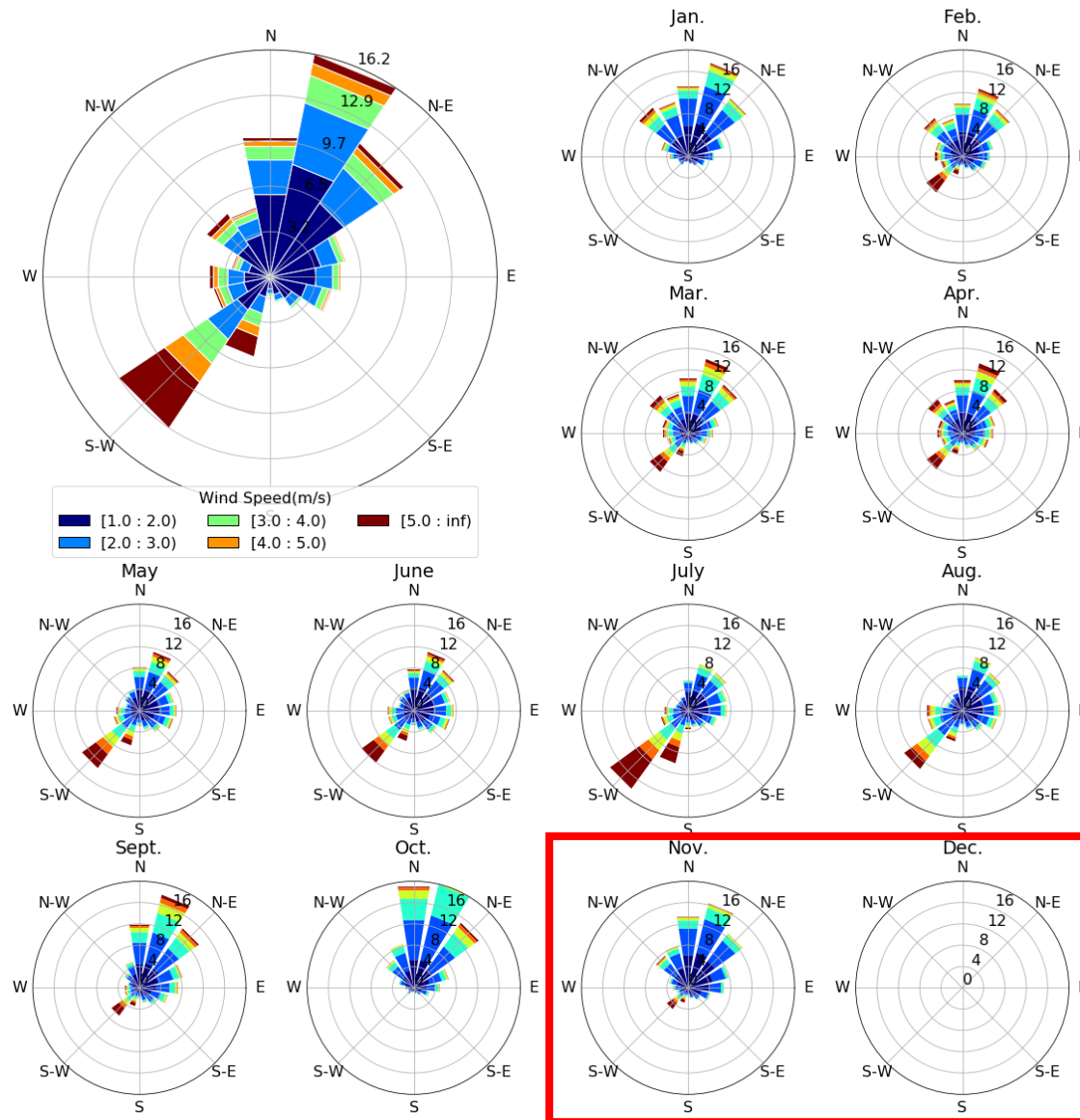


AOD, SSA, AE (Monthly, 2010—2020) (Sky radiometer)

Chiba Campaign 2020



Wind Direction and Wind Speed(2020)



Chiba Campaign 2020

Cirrus(巻雲^{けんうん}), Altocumulus(高積雲)

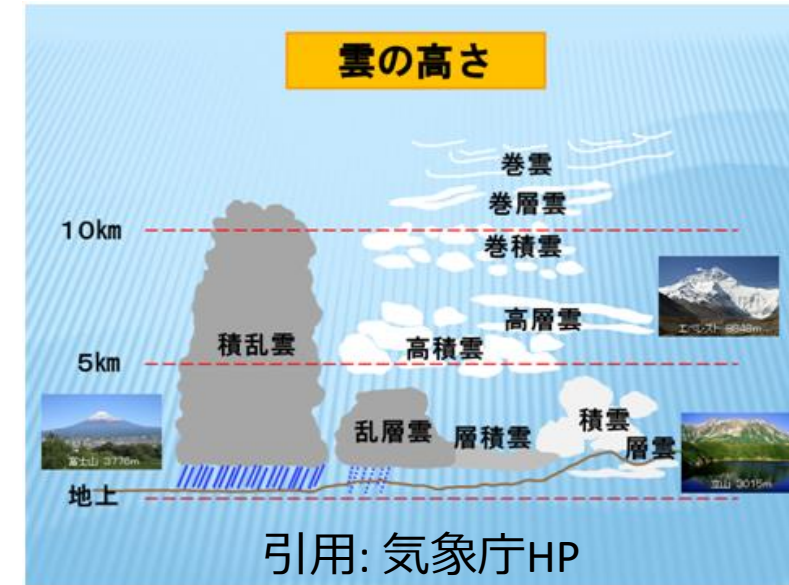
Cirrus

- 上層雲 5~13 km
- 氷の雲で形成される
- 光学的厚さが小さい



Altocumulus

- 中層雲 2~7 km
- 水滴、氷晶で構成
- Sheep Cloud



Reference

- 入江仁士ら:[ひまわり8号エアロゾルプロダクトのエネルギーマネジメントシステムにおける重要性](#). 2017
- Google Earth <https://earth.google.com/web/>
- 気象庁HP 津地方気象台 防災教育素材集 雲の高さ
https://www.jma-net.go.jp/tsu/bosai_edu/cloud.html
- Takashima et al: Atmospheric aerosol variations at Okinawa Island in Japan observed by MAX-DOAS using a new cloud-screening method, 2009
<https://doi.org/10.1029/2009JD011939>