

# Preliminary result of GCOM-C/SGLI SST v2



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## Introduction

JAXA is planning to update the SGLI SST product to version 2 in 2020. In ver. 2, cloud masking is modified especially for the coastal area and inland waters. We retrieved SGLI v2 SSTs and validated by comparison with the colocated buoy data. The validation result shows the bias and RMSD of  $\sim -0.15$  K and  $\sim 0.45$  K for daytime and  $\sim -0.22$  K and  $\sim 0.59$  K for nighttime, respectively for the SSTs flagged as acceptable or higher.

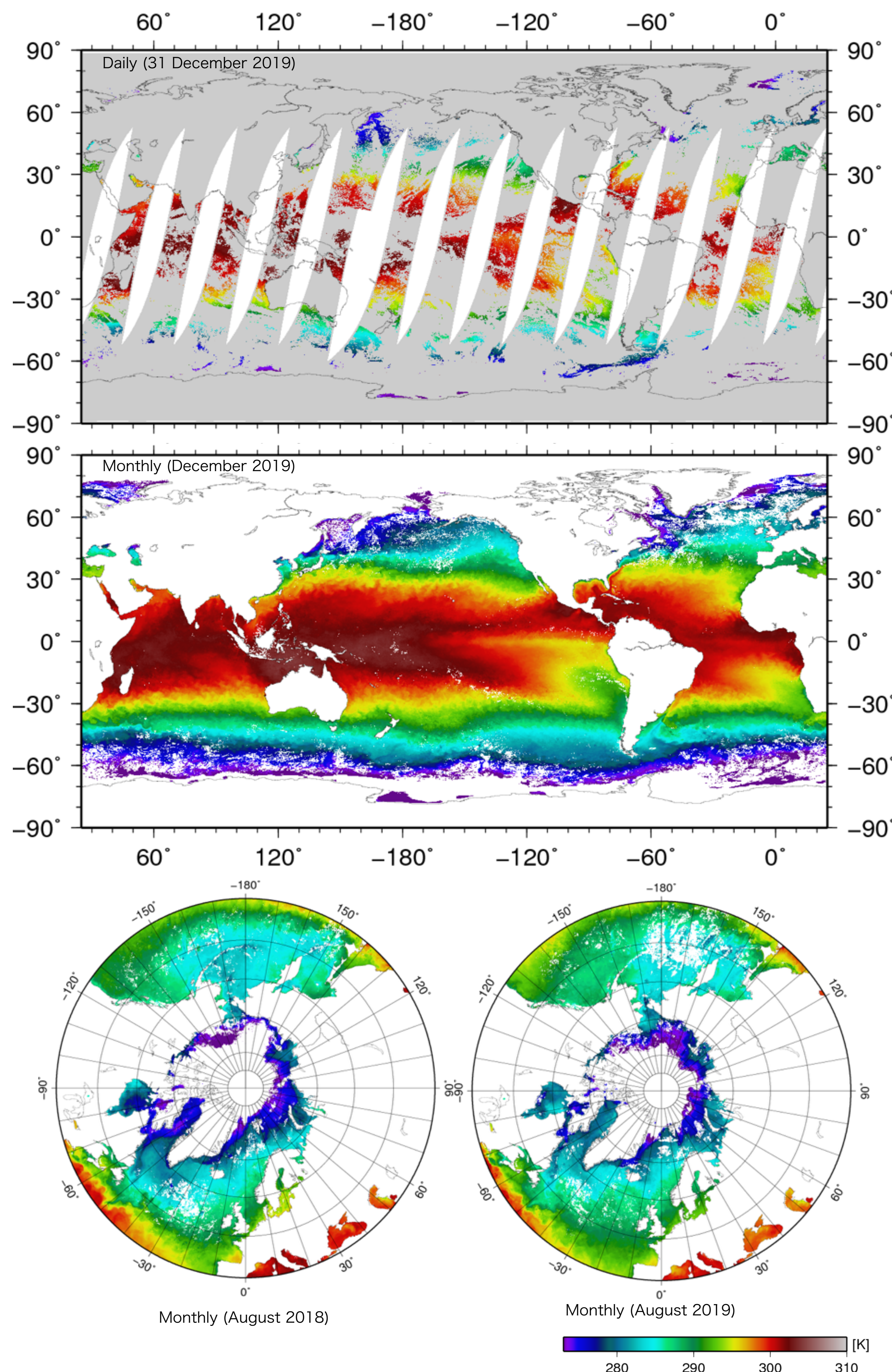


Fig. 1. SGLI SST examples

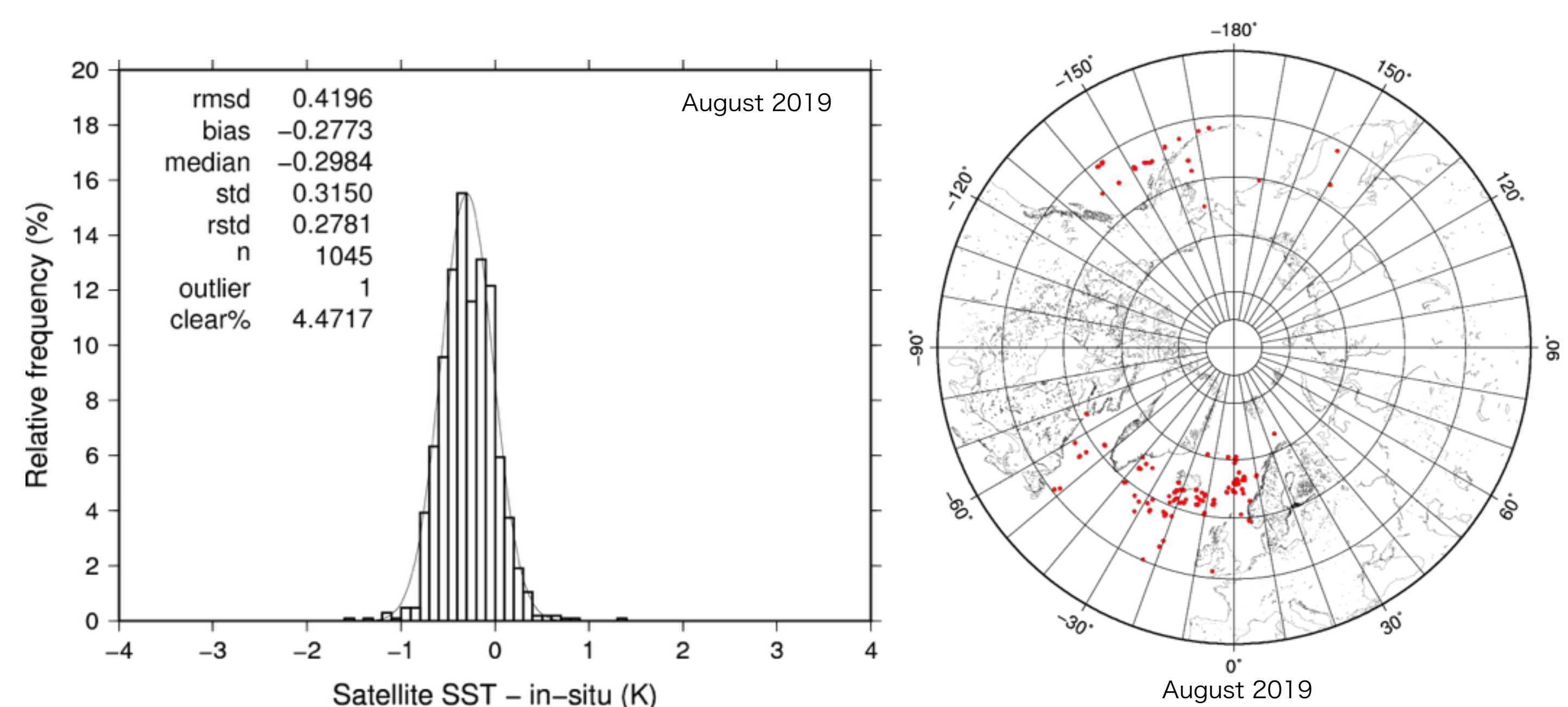
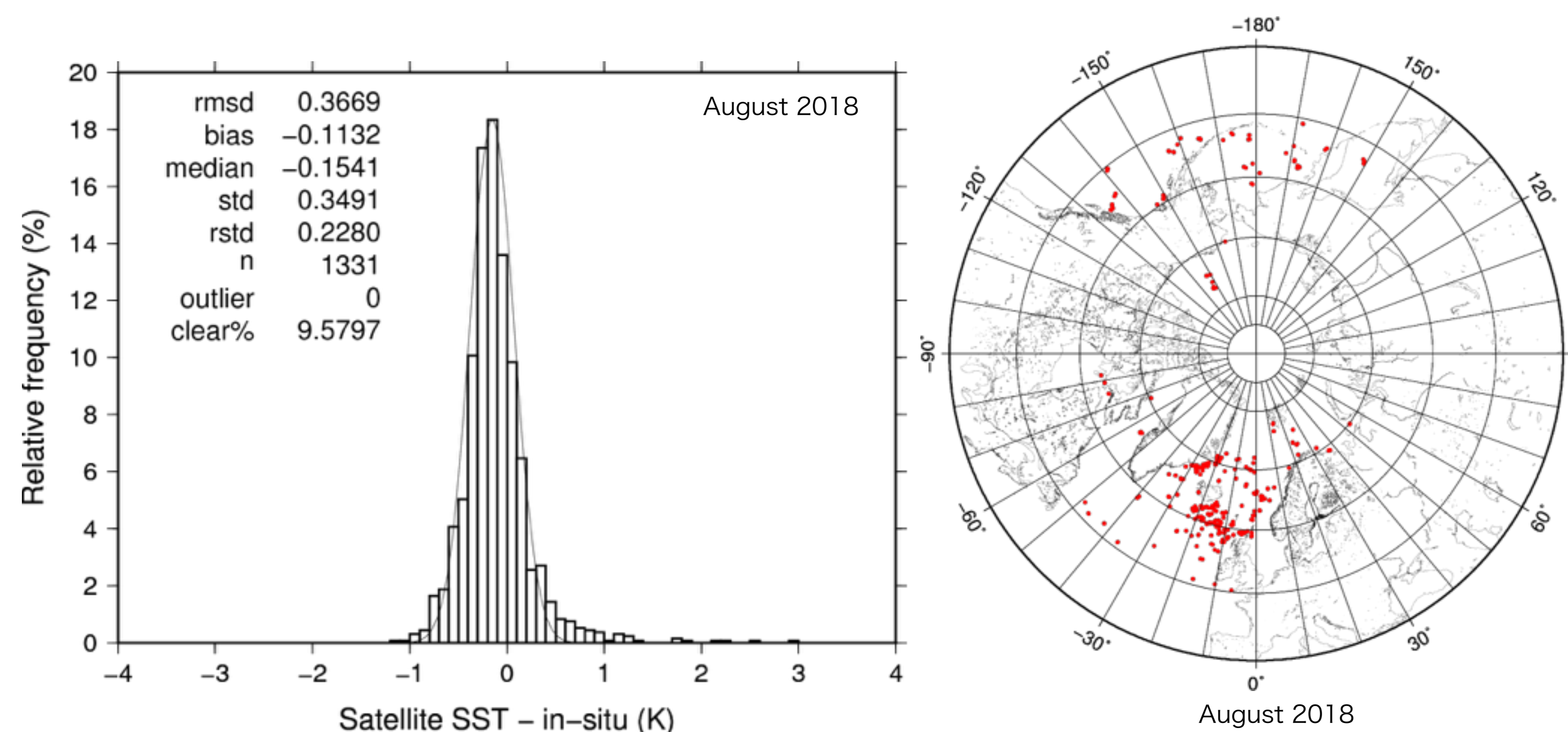


Fig. 5. Arctic seas (August 2018,2019)

## Validation method

SGLI v2 SSTs retrieved for the latest  $\sim 2$  years were validated by comparison with colocated buoy data. The nearest SGLI SST in the match-up window (3hr. x 3 km) was chosen for each buoy data for comparison.

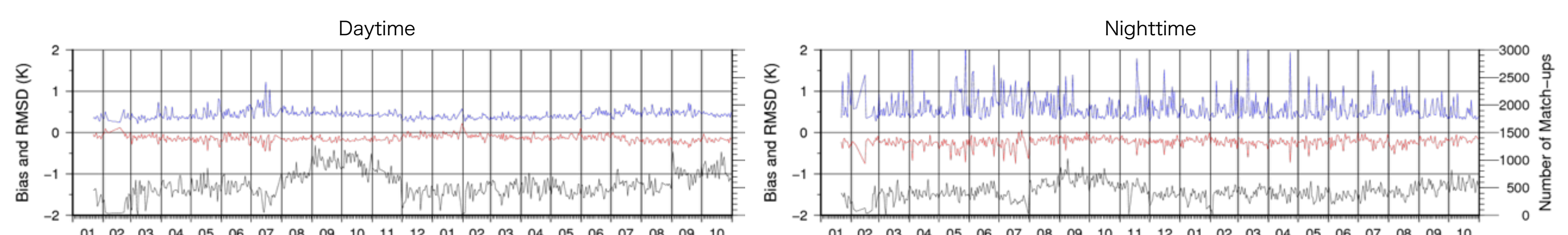


Fig. 2. Bias (red), RMSD (blue), and the total number of match-ups (black), Jan. 2018 - Oct. 2019

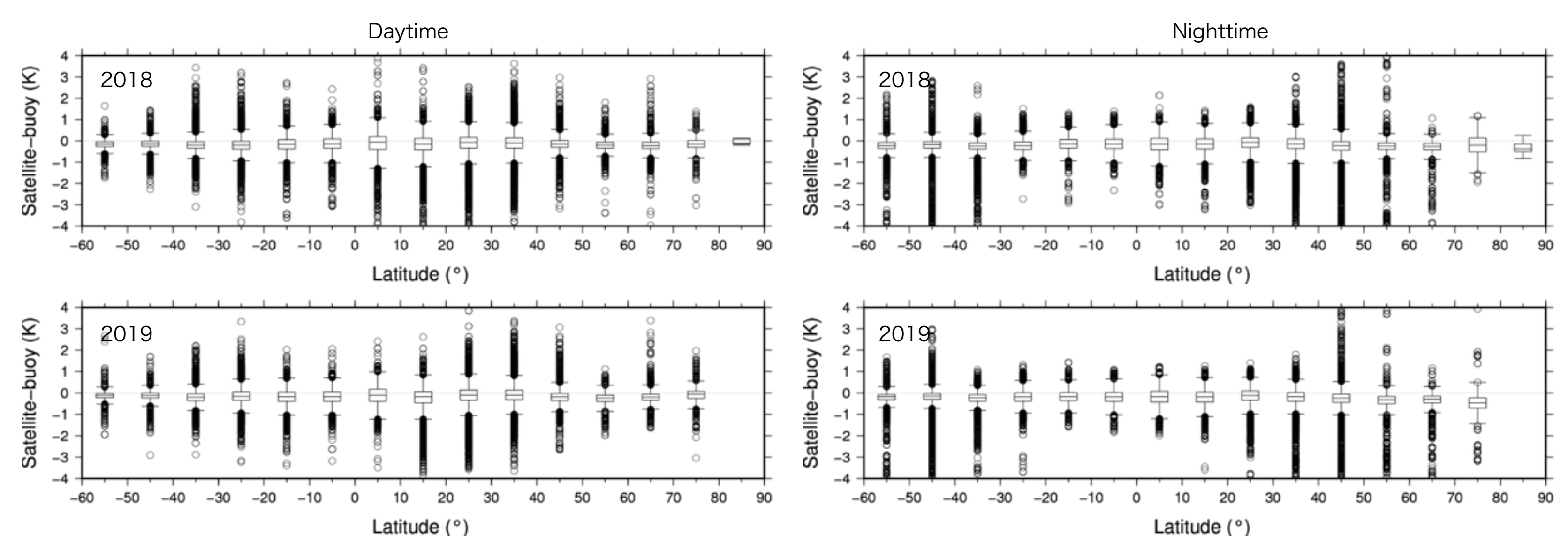


Fig. 3. Box chart (day/night-time, 2018, 2019)

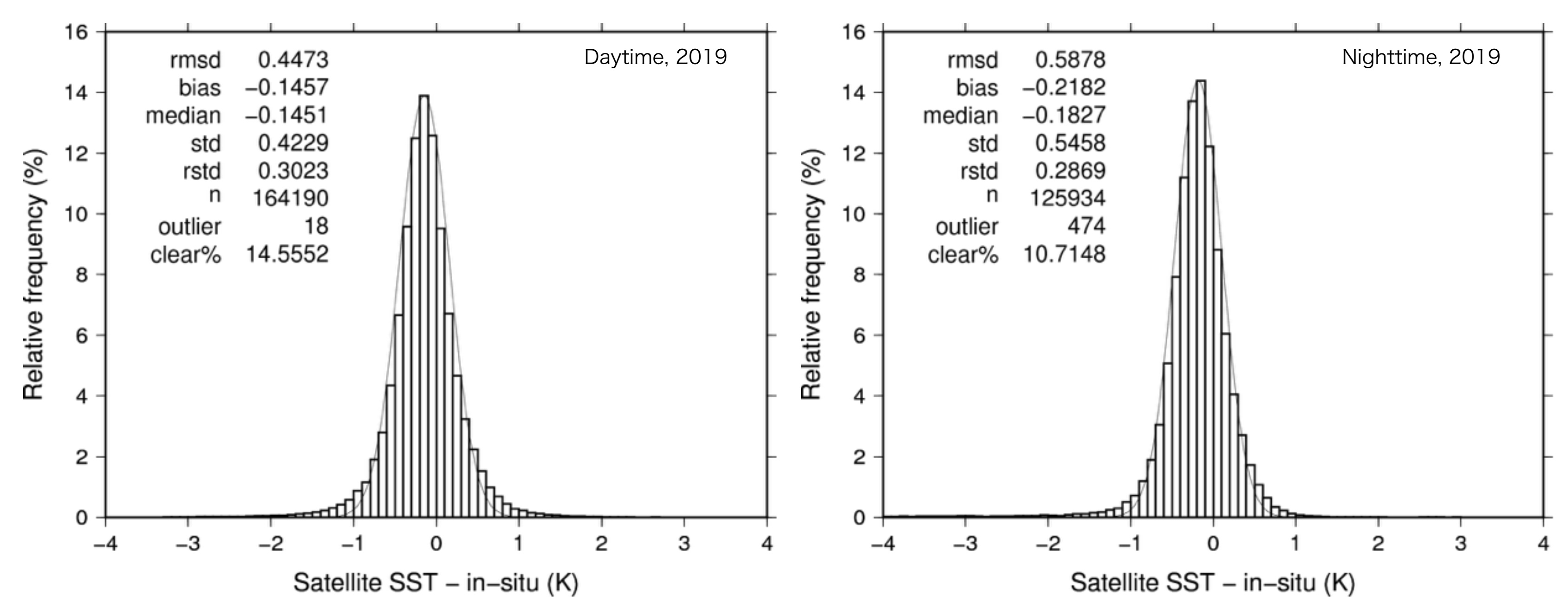


Fig. 4. Histogram (day/night-time, 2019)

Table. Statistics for each QA flag (daytime, 2019)

QA flag	Bias	RMSD	Clear %
Probably cloudy	-0.59	1.20	39.6
Acceptable	-0.15	0.45	14.6
Good	-0.12	0.40	12.5

QA flag will be modified in v2. The flag of acceptable/good denotes SSTs suitable for quantitative use and the flag of probably cloudy only for qualitative use. Details on the QA flag will be found in the documents for v2 or in each product files.

## Acknowledgment

Buoy data were downloaded from the in-situ SST quality monitor (iQuam) of NOAA[3].

## Summary

SGLI v2 SST shows good agreements with buoy data in global ocean and with buoy data in summer in arctic seas. However, improvement from the v1 SSTs is not remarkable. This is likely because the cloud masking for the coastal area and inland seas was the main focus of the update.

## References

- [1] JAXA Globe Portal System (G-Portal), URL: <https://www.gportal.jaxa.jp/gp/top.html>
- [2] JAXA Satellite Monitoring for Environment Studies, URL: <https://kuroshio.eorc.jaxa.jp/JASMES/index.html>
- [3] NOAA in-situ SST quality monitor (iQuam), URL: <https://www.star.nesdis.noaa.gov/sod/sst/iqum/>
- [4] Y.Kurihara, H. Murakami, and M. Kachi. Sea surface temperature from the new Japanese geostationary meteorological himawari-8 satellite. GRL, 2016. doi: 10.1002/2015GL067159.