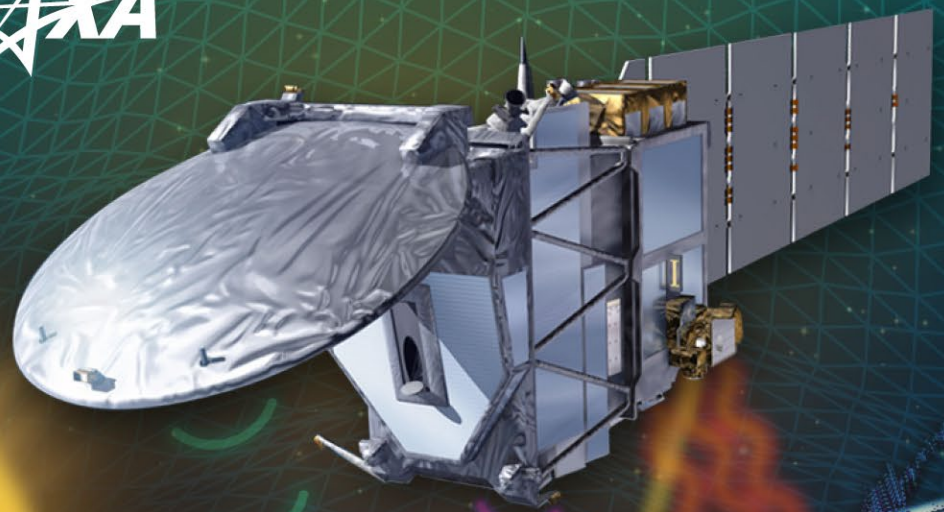

ESA-JAXA Pre-Launch EarthCARE Science and Validation Workshop

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Development and Validation of the Japanese EarthCARE 4-sensor standard algorithm for radiation fluxes

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JAXA AOID 5 : EarthCARE 4-sensor products validation
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4-sensor algorithm flow

We develop standard product using A-Train as a test bed for EarthCARE

Input

Cloud
CPR/ATLID
(CloudSat/CALIPSO)
・CER
・LWC/IWC

Cloud
MSI
(MODIS)
・COT(Ice/water)

Aerosol
ATLIID
(CALIPSO)
・Aerosol type
・Extinction coefficient

ECMWF-AUX
・Meteorological data

RT calculation

MSTRN-X(1D)

Output

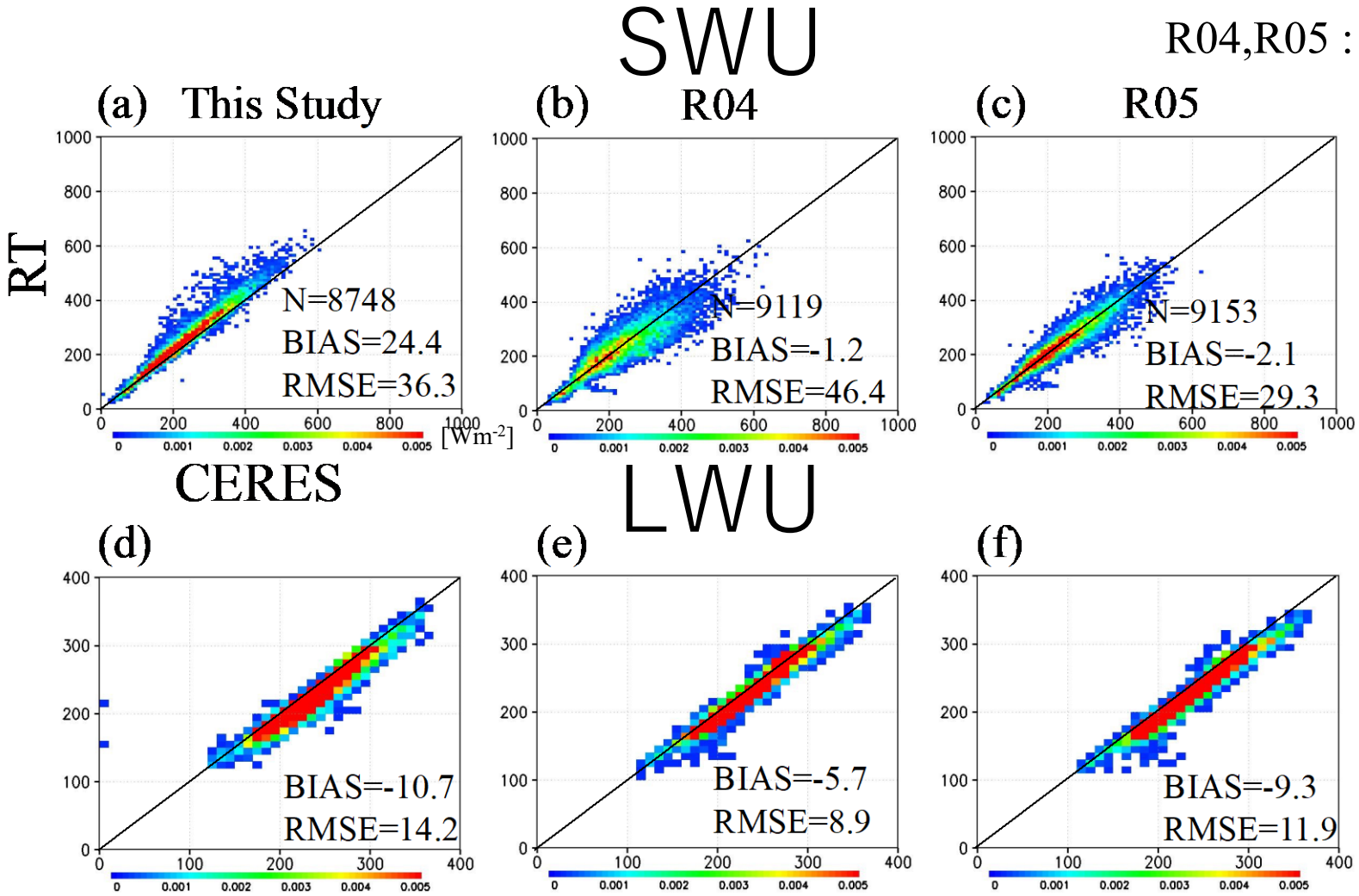
4-sensor products
・SW fluxes (TOA・BOA/upward・downward)
・LW fluxes (TOA・BOA/upward・downward)
・Haeting rate (SW・LW)
・Radiative forcing (ARF・CRF)

Validation

BBR
(CERES)
・TOA fluxes(SW・LW)
BSRN
・BOA fluxes(SW・LW)

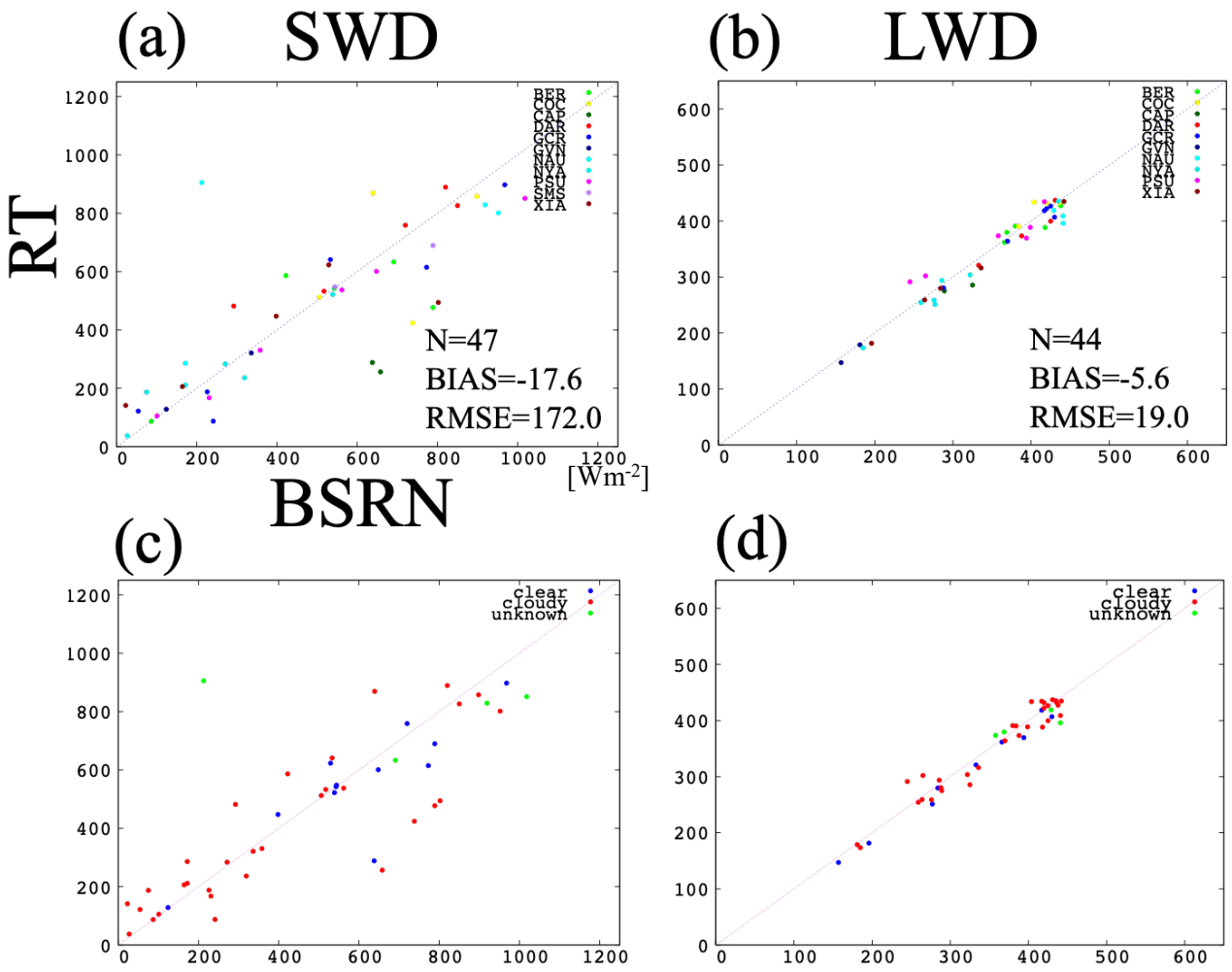
Comparison to CERES Fluxes at TOA (5° ,monthly)

R04,R05 : 2B-FLXHR-Lidar



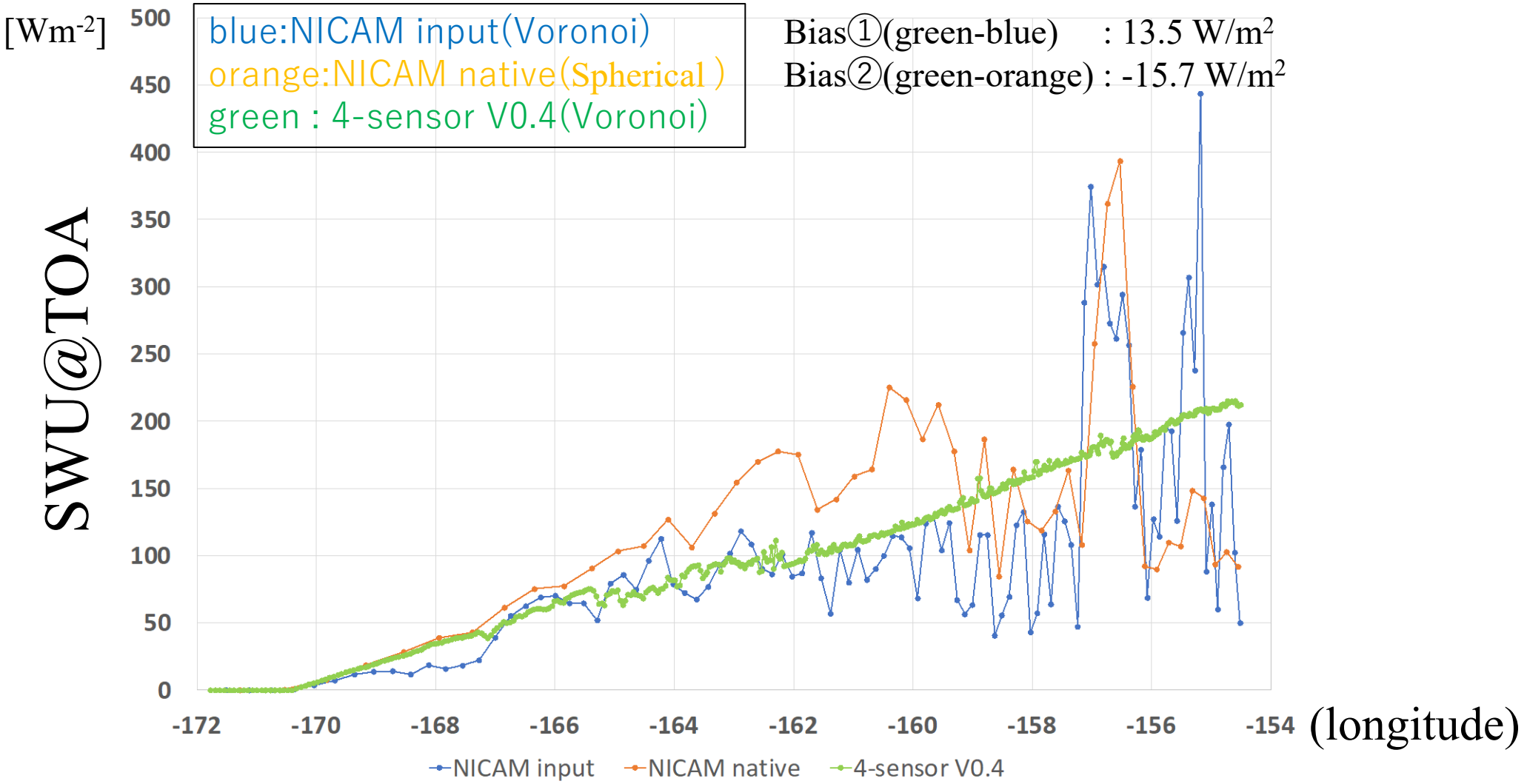
The TOA compares the data with CERES observations and NASA radiation flux products.

Comparison to BSRN Fluxes at surface



Comparisons are made not only with TOA but also with ground-based observations.

Confirmation of the effect of retrieval error



NICAM assumes ice to be spherical, whereas the 4-sensor input and NICAM's calculations use Voronoi. The four sensors produce output at an average of 10 km resolution due to data capacity constraints.

Conclusions

- We are developing a standard radiative flux product using the A-Train as a testbed for EarthCARE.

- Verification of accuracy of standard products.
  - **TOA and surface are compared to the observed values.**
  - **Comparison with NASA products.**
  - **Confirmation of the effect of retrieval error**
  - Verification at different spatial and temporal scales.
  - Verification of classified cloud phases.

I am wating for you coming my poster P47