MIRAI MR08-02 Temperature measured by infrared radiometer

Last Modified: 2012-10-27

ReadMe | Observation Data

Cruise ID: MR08-02
Temperature measured by infrared radiometer: Processed (PI)
Data Policy: JAMSTEC
Observation Items:
Science Keywords:

Data Information

The data was obtained during MR08-02 cruise. The data by the infrared radioeter is brightness temperature at 10 micro-m region. The data is anaized at 1 second. The analysis is also done at the same temporal resolution.IR instrument directly provides broadband infrared temperature (9.6-10.5µm).
General specifications of IR system (KT 19II, HEITRONICS)
This is converted to the broadband radiance around the wavelength region. This is further combined with the lidar and/or radar for the retrieval of cloud microphysics such as optical thickness at visible wavelength, effective particle size. The applicability of the retrieval technique of the synergetic use of radar/IR or lidar/IR is so far limited to ice clouds. It is also worth to mention that the water cloud bottom can be accurately detected by the instrument. The information is very useful to identify the existence of water particles in clouds. The microphysics of clouds from these techniques will be compared with other retrieval technique such as radar/lidar one or radar with multi-parameter.
When the rain is observed by the rain sensor installed in the IR observing system, the radiometer is automatically rotated and stops at the downward position in order to prevent from the rain drops attached on the lens surface.

Cruise Report
http://www.godac.jamstec.go.jp/catalog/data/doc_catalog/media/MR08-02_all.pdf

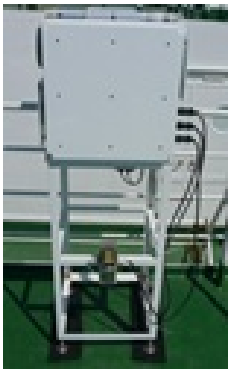
For Using Data

Principal Investigator
Hajime Okamoto (Research Institute for Applied Mechanics, Kyushu univeristy)

Use Constraints
The authors who will write the paper or articles by using our data should write acknowledgement.

Data Citation
None

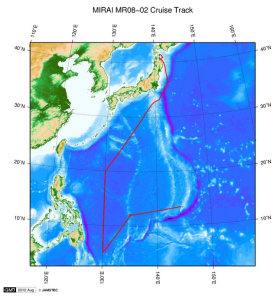
Instrument
Instrument:
Infreared radiometer
Instrument Information:
Refer to following.



Data Format
The data is formatted in ascii. The format is as follows; the redord number-1, date, time, record number, temperature [in dgree C]

Instrument Information
The infrared radiometer (hereafter IR) is used to derive the temperature of the cloud base and emissivity of the thin ice clouds. Main objectives are to study clouds and climate system in tropics by the combination of IR with active sensors such as lidar and 95GHz cloud radar with Doppler function. From these integrated approach, it is expected to extend our knowledge of clouds and climate system. We also improved a part of our instrument for the protection of precipitation.
Special emphasis is made to retrieve cloud microphysics in upper part of clouds, including sub-visual clouds that are recognized to be a key component for the exchange of water amount between troposphere and stratosphere. Since June 2006, spaceborn radar and lidar systems, CloudSat and CALIPSO are providing vertical and global distribution of clouds and aerosols. One important aim is to observe the same clouds and aerosols by the observational systems on R/V Mirai. Combination of space-based and ship based observations should provide the unique opportunity to study the complete system of theses clouds and aerosols in relation to its environments. These data will be also used to develop the retrieval algorithms for the new satellite mission, EarthCARE, that will currently be launched in 2013 and will carry Doppler CPR, high spectral resolution lidar, and imager.

Related Information



Enlarge Image

MR08-02
Ship Name: MIRAI
Period: 2008-05-26 - 2008-06-30
Chief Scientist: Kunio Yoneyama (JAMSTEC)
Project Name: [MJO Research]
Proposal Title: ▶ Observational Study on the Air-Sea Interaction in the Tropical Western Pacific Ocean

Update History

2012-10-27	An observation data was registerd.

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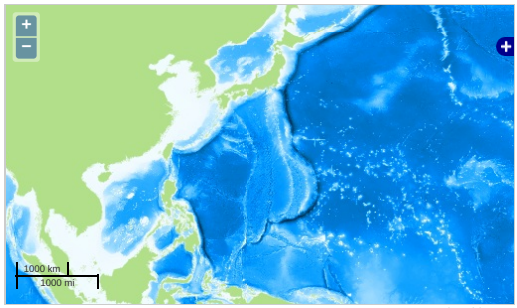
Observation Map



Imagery reproduced from ...

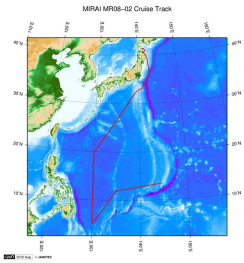
... Observation Line ... Navigation ... Observation, Dive Point, Hole

Data List

Add to Basket

File names
MR08-02_IRF.zip

Related Information



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