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# Tohoku University high-resolution global analytical sea surface temperature (SST) dataset

## 1. IDENTIFICATION INFORMATION

Name	Tohoku University high-resolution global analytical sea surface temperature (SST) dataset
Abbreviation	MSST
Metadata Identifier	MSST20230727075448-DIAS20221121113753-en

## 2. CONTACT

### 2.1 CONTACT on DATASET

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### 2.2 CONTACT on PROJECT

#### 2.2.1 Data Integration and Analysis System

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## 4. DATASET CREATOR

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## 5. DATE OF THIS DOCUMENT

2023-07-27

## 6. DATE OF DATASET

publication : 2006-05-01

## 7. DATASET OVERVIEW

### 7.1 Abstract

A research group mainly from Tohoku University have made a unprecedented high-resolution global analytical sea surface temperature (SST) dataset from January 1990 by merging various satellite data. They are daily and 0.1grid (about 10 km) data. Conventional analytical SST data for climate research were weekly or monthly 1 $\times$  gridded (about 100 km), and it was very difficult to detect eddies in the ocean and the current axis of Kuroshio, for example. This new high-resolution SST has a much finer grid size, and we have also attempted to suppress spatial smoothing when producing this SST. This enables us to detect small-scale variations easily and to analyze the heat budget and dynamics of the ocean and atmosphere. Heat transport due to oceanic eddies or Kuroshio, and heat exchange between the ocean and atmosphere are very important phenomena that control the climate on earth. Our SST data will enable us to understand the basin- or globe-scale heat budget and water circulation better than before. Hence they may also serve to the improvement of the prediction accuracy of the global warming using high-resolution global climate models running on the Earth Simulator. The group has developed a technique to merge different kinds of satellite SST data with a high resolution using optimum interpolation. It is one of the new features that the SST observed with microwave satellite sensors, which have enabled the observation through clouds, is utilized in addition to the thermal infrared SST that have been used widely for a long time. The microwave sensors to observe the globe have been developed, produced, and operated by the Japan Aerospace Exploration Agency (JAXA). The new SST data have been produced on a developed computer system which enables us to process the large-amount global long-term SST data with high speed.

### 7.2 Topic Category(IS019139)

oceans

### 7.3 Temporal Extent

Begin Date	1990-01-01
End Date	2005-03-31
Temporal Characteristics	Daily

### 7.4 Geographic Bounding Box

North latitude bound	85
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West longitude bound	-180
Eastbound longitude	180
South latitude bound	-85

## 7.5 Grid

Dimension Name	Dimension Size (slice number of the dimension)	Resolution Unit
row	3600	0.1 (deg)
column	1700	0.1 (deg)

## 7.6 Geographic Description

global

## 7.7 Keywords

### 7.7.1 Keywords on Dataset

Keyword Type	Keyword	Keyword thesaurus Name
theme	ocean, satellite, OISST, Kyosei-7	

### 7.7.2 Keywords on Project

#### 7.7.2.1 Data Integration and Analysis System

Keyword Type	Keyword	Keyword thesaurus Name
theme	DIAS &gt; Data Integration and Analysis System	No_Dictionary

## 7.8 Online Resource

: <http://www.jamstec.go.jp/frcgc/k7-dbase2/eng/datadoc/ghrsst.html>

## 7.9 Data Environmental Information

## 7.10 Distribution Information

name	version	specification
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# 8. DATA PROCESSING

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## 8.1 Data Processing (1)

8.1.1 General Explanation of the data producer's knowledge about the lineage of a dataset

8.1.2 Data Source

Data Source Citation Name	Description of derived parameters and processing techniques used
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## 9. DATA REMARKS

## 10. DATA POLICY

### 10.1 Data Policy by the Data Provider

These global high-resolution analytical SST data have been produced by the Center for Atmospheric and Oceanic Studies, Graduate School of Science, Tohoku University, and sponsored by the Category 7 of MEXT (Ministry of Education, Culture, Sports, Science and Technology) RR2002 Project for Sustainable Coexistence of Humans, Nature and the Earth.

Permission is granted to use these data in research and publications when accompanied by the above statement. The use of these data is limited to research and education.

### 10.2 Data Policy by the Project

#### 10.2.1 Data Integration and Analysis System

If data provider does not have data policy, DIAS Terms of Service (<https://diasjp.net/en/terms/>) and DIAS Privacy Policy (<https://diasjp.net/en/privacy/>) apply.

If there is a conflict between DIAS Terms of Service and data provider's policy, the data provider's policy shall prevail.

## 11. LICENSE

## 12. DATA SOURCE ACKNOWLEDGEMENT

### 12.1 Acknowledge the Data Provider

### 12.2 Acknowledge the Project

#### 12.2.1 Data Integration and Analysis System

If you plan to use this dataset for a conference presentation, paper, journal article, or report etc., please include acknowledgments referred to following examples. If the data provider describes examples of acknowledgments, include them as well.

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” In this study, [Name of Dataset] provided by [Name of Data Provider] was utilized. This dataset was also collected and provided under the Data Integration and Analysis System (DIAS), which was developed and operated by a project supported by the Ministry of Education, Culture, Sports, Science and Technology. ”

## 13. REFERENCES

Kawai, Y., H. Kawamura, S. Takahashi, K. Hosoda, H. Murakami, M. Kachi, and L. Guan (2006) : Satellite-based high-resolution global optimum interpolation sea surface temperature data. *Journal of Geophysical Research*. 111, C06016, doi:10.1029/2005JC003313.