

MIRAI MR19-02 FRR fluorometer data

Last Modified: 2021-09-30

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Cruise ID: [MR19-02](#)

FRR fluorometer data: Processed (PI)

Data Policy: [JAMSTEC](#)

Observation Items:

Science Keywords:

Data Information

We deployed a fast repetition rate (FRR) fluorometer together with a scalar irradiance sensor at stations A1, A3, A5, A7 and A9 using a ship winch, and measured vertical profiles of phytoplankton fluorescence and irradiance by lowering the instrument packages gently through the water column to a depth of ~100 m.

Cruise Report

http://www.godac.jamstec.go.jp/catalog/data/doc_catalog/media/MR19-02_all.pdf

For Using Data

Principal Investigator

Tetsuichi Fujiki (JAMSTEC)

Use Constraints

Please contact PI (Tetsuichi Fujiki: tfujiki@jamstec.go.jp)

Data Citation

Please contact PI (Tetsuichi Fujiki: tfujiki@jamstec.go.jp)

Instrument

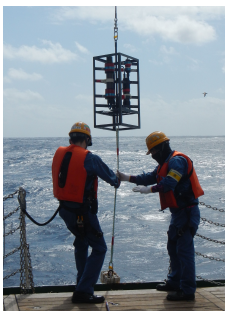
Instrument:

Diving Flash-14, Kimoto Electric

Instrument Information:

To generate single-turnover fluorescence induction curves relative to photosynthesis from phytoplankton community, the FRR fluorometer emitted them a series of blue-light excitation flashes of 30 mmol photons $m^{-2} s^{-1}$ at a repetition rate of about 500 kHz. We derived the photosystem (PS) II parameters from the fluorescence induction curve by using the numerical fitting procedure described by Kolber et al. (1998): these parameters included the minimum fluorescence (F_0), maximum fluorescence (F_m), and effective absorption cross-section of PSII (σ_{PSII}). F_v is defined as ($F_m - F_0$). The F_v/F_m ratio is generally used as an index of photochemical efficiency in PSII. A high value of F_v/F_m means that energy losses (as heat and fluorescence) are low, and that absorbed light energy is being efficiently utilized in photosynthesis. The σ_{PSII} is an index of the efficiency of energy transfer from the light-harvesting antenna systems to the PSII reaction centers, and the capability of the absorbed energy to promote a photochemical reaction.

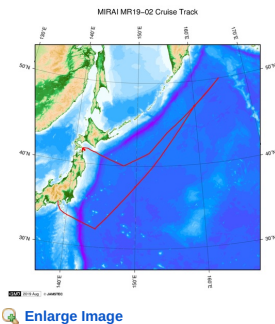
Kolber ZS, Prášil O, Falkowski PG (1998) Measurements of variable chlorophyll fluorescence using fast repetition rate techniques: defining methodology and experimental protocols. *Biochim Biophys Acta* 1367:88–106. doi:10.1016/S0005-2728(98)00135-2



Data Format

Excel

Related Information



MR19-02

Ship Name: MIRAI

Period: 2019-05-24 - 2019-06-14

Chief Scientist: Tetsuichi Fujiki (JAMSTEC)

Project Name: [Station K2, Station KEO, Station KNOT]

Proposal The observational study to construct and to extend the western Pacific super site network

Title:

Update History

2021-09-30	An observation data was registerd.
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Feeds

Lists

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Data

Map Search

Data Tree

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YOKOSUKA

MIRAI

KAIREI

CHIKYU

KAIMEI

SHINSEI MARU

HAKUHO MARU

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KAIKO

SHINKAI 2000

SHINKAI 6500

DEEP TOW

HYPER-DOLPHIN

URASHIMA

YOKOSUKA DEEP TOW

6K Camera DEEP TOW

6K Sonar DEEP TOW

KM-ROV

POWER GRAB SAMPLER

(SHELL)

POWER GRAB SAMPLER

(CLOW)

BMS

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Dive ID:

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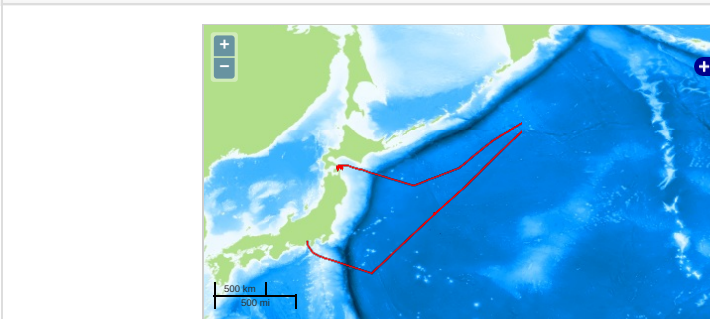
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Science Keywords:

Observation Map



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

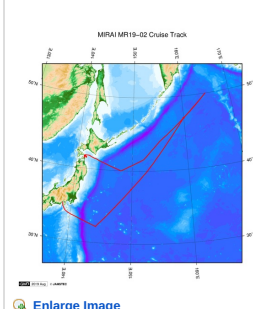
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File names

☐ MR1902-frrf-1.xlsx
☐ MR1902-frrf-10.xlsx
☐ MR1902-frrf-11.xlsx
☐ MR1902-frrf-12.xlsx
☐ MR1902-frrf-13.xlsx
☐ MR1902-frrf-2.xlsx
☐ MR1902-frrf-3.xlsx
☐ MR1902-frrf-4.xlsx
☐ MR1902-frrf-5.xlsx
☐ MR1902-frrf-6.xlsx
☐ MR1902-frrf-7.xlsx
☐ MR1902-frrf-8.xlsx
☐ MR1902-frrf-9.xlsx
☐ start time of observation (MR19-02 FRR fluorometer).xlsx

Related Information



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MR19-02

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