Integrated daily Photosynthetically Available Radiation (PAR) data from RVIB Nathaniel B. Palmer cruises NBP0103, NBP0104, NBP0202, and NBP0204 in the Southern Ocean from 2001-2002 (SOGLOBEC project)

Website: https://www.bco-dmo.org/dataset/2362
Data Type: Cruise Results
Version: 1
Version Date: 2003-09-10

Project
» U.S. GLOBEC Southern Ocean (SOGLOBEC)

Program
» U.S. GLOBal ocean ECosystems dynamics (U.S. GLOBEC)

Contributors	Affiliation	Role
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Abstract
Integrated daily Photosynthetically Available Radiation (PAR) data from RVIB Nathaniel B. Palmer cruises NBP0103, NBP0104, NBP0202, and NBP0204 in the Southern Ocean from 2001-2002 (SOGLOBEC project)

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Coverage

Spatial Extent: **N**:-61.0903 **E**:-61.7236 **S**:-70.2915 **W**:-76.7126
Temporal Extent: 2001 - 2002

Dataset Description

Photosynthetically Available Radiation (PAR) Data from broadscale cruises NBP0103, NBP0104, NBP0202 and NBP0204

Instrument Notes:
Biospherical Instruments GUV-500 is a 5-channel reference radiometer which typically measures cosine-corrected down welling irradiance at 305, 320, 340, 380nm and PAR (400-700nm). Cosine irradiance (EsPAR) sensors collect light impinging on a Teflon-coated diffuser and the response is proportional to the cosine of the angle of incidence.

Biospherical Instruments QSR250 system measures a single channel of scalar irradiance (PAR) and is appropriate for applications independent of the directionality of the light field, such as measurements of the

flux available for photosynthesis.
-- *Biospherical Instruments*

Data Notes:
1. The cosine PAR value for yrday_gmt 151 year 2001 is an estimate, based on a conversion from data recorded by the QSR240 scalar sensor package.
2. Latitude and longitude have been added to this data set by the Data Management Office. These positions are the noon (12:00 hour) positions reported in the ship's alongtrack data set.
3. Scalar PAR data was extracted from the ship's alongtrack meteorological data set. The sensor package was mounted on ship's science mast.

Methods:
For additional information on methods see the on-line cruise reports, (Primary Production Sections) nbp0103, nbp0104 , nbp0202, and nbp0204.

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Last updated: December 09, 2005; gfh

Methods & Sampling

- The cosine PAR value for yrday_gmt 151 year 2001 is an estimate, based on a conversion from data recorded by the QSR240 scalar sensor package.
- Latitude and longitude have been added to this data set by the Data Management Office. These positions are the noon (12:00 hour) positions reported in the ship's alongtrack data set.
- Scalar PAR data was extracted from the ship's alongtrack meteorological data set. The sensor package was mounted on ship's science mast.

Data Processing Description

For additional information on methods see the on-line cruise reports, (Primary Production Sections) nbp0104 .

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Data Files

File
allpar_rs.csv(Comma Separated Values (.csv), 6.42 KB) MD5:7d8391ef1a303febc796b3445b35885b Primary data file for dataset ID 2362

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Parameters

Parameter	Description	Units
year	year of cruise	
yrday_gmt	year day based on Julian Calendar	YYY
length_day	length of day (decimal hours) based on time between sunrise and sunset as indicated by sustained irradiance values above 0.0 uE/cm2/sec	HH.H
lat	noon latitude position, negative = South, extracted from ship's along track data	DD.D
lon	noon longitude position, negative = West, extracted from ship's along track data	DDD.D
par_d_day	cosine irradiance (EsPAR), integrated over time period defined by the parameter length_day. In this case units are reported as per day	uE/cm2/day
par_scalar_day	scalar irradiance (PAR), (independent of direction), integrated over time period defined by the parameter length_day. In this case units are reported as per day	uE/cm2/day

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Instruments

Dataset-specific Instrument Name	Photosynthetically Available Radiation Sensors
Generic Instrument Name	Photosynthetically Available Radiation Sensor
Dataset-specific Description	Photosynthetically Available Radiation, PAR (400-700nm). Cosine irradiance (EsPAR) sensors collect light impinging on a Teflon-coated diffuser and the response is proportional to the cosine of the angle of incidence.
Generic Instrument Description	A PAR sensor measures photosynthetically available (or active) radiation. The sensor measures photon flux density (photons per second per square meter) within the visible wavelength range (typically 400 to 700 nanometers). PAR gives an indication of the total energy available to plants for photosynthesis. This instrument name is used when specific type, make and model are not known.

Dataset-specific Instrument Name	Radiometer
Generic Instrument Name	Radiometer
Dataset-specific Description	Biospherical Instruments GUV-500 is a 5-channel reference radiometer which typically measures cosine-corrected down welling irradiance at 305, 320, 340, 380nm. Biospherical Instruments QSR250 system measures a single channel of scalar irradiance (PAR) and is appropriate for applications independent of the directionality of the light field, such as measurements of the flux available for photosynthesis.
Generic Instrument Description	Radiometer is a generic term for a range of instruments used to measure electromagnetic radiation (radiance and irradiance) in the atmosphere or the water column. For example, this instrument category includes free-fall spectral radiometer (SPMR/SMSR System, Satlantic, Inc), profiling or deck cosine PAR units (PUV-500 and 510, Biospherical Instruments, Inc). This is a generic term used when specific type, make and model were not specified.

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Deployments

NBP0103

Website	https://www.bco-dmo.org/deployment/57636
Platform	RVIB Nathaniel B. Palmer
Report	http://globec.whoi.edu/so-dir/reports/nbp0103/nbp0103.html
Start Date	2001-04-24
End Date	2001-06-05
Description	**Methods & Sampling** The cosine PAR value for yrday_gmt 151 year 2001 is an estimate, based on a conversion from data recorded by the QSR240 scalar sensor package. Latitude and longitude have been added to this data set by the Data Management Office. These positions are the noon (12:00 hour) positions reported in the ship's alongtrack data set. Scalar PAR data was extracted from the ship's alongtrack meteorological data set. The sensor package was mounted on ship's science mast. **Processing Description** For additional information on methods see the on-line cruise reports, (Primary Production Sections) http://globec.whoi.edu/so-dir/reports/nbp0103/nbp0103.html">nbp0103.

NBP0104

Website	https://www.bco-dmo.org/deployment/57638
Platform	RVIB Nathaniel B. Palmer
Report	http://www.ccpo.odu.edu/Research/globec/cruises01/nbp0104_menu.html
Start Date	2001-07-22
End Date	2001-08-31
Description	**Methods & Sampling** The cosine PAR value for yrday_gmt 151 year 2001 is an estimate, based on a conversion from data recorded by the QSR240 scalar sensor package. Latitude and longitude have been added to this data set by the Data Management Office. These positions are the noon (12:00 hour) positions reported in the ship's alongtrack data set. Scalar PAR data was extracted from the ship's alongtrack meteorological data set. The sensor package was mounted on ship's science mast. **Processing Description** For additional information on methods see the on-line cruise reports, (Primary Production Sections) http://globec.whoi.edu/jg/serv/globec/soglobec/inventory.html2%7Bdir=glo... .

NBP0202

Website	https://www.bco-dmo.org/deployment/57641
Platform	RVIB Nathaniel B. Palmer
Report	http://globec.whoi.edu/so-dir/reports/nbp0202/nbp0202b.html
Start Date	2002-04-09
End Date	2002-05-21
Description	**Methods & Sampling** The cosine PAR value for yrday_gmt 151 year 2001 is an estimate, based on a conversion from data recorded by the QSR240 scalar sensor package. Latitude and longitude have been added to this data set by the Data Management Office. These positions are the noon (12:00 hour) positions reported in the ship's alongtrack data set. Scalar PAR data was extracted from the ship's alongtrack meteorological data set. The sensor package was mounted on ship's science mast. **Processing Description** For additional information on methods see the on-line cruise reports, (Primary Production Sections) http://globec.whoi.edu/so-dir/reports/nbp0202/nbp0202b.html#TOC1_6">nbp0....

NBP0204

Website	https://www.bco-dmo.org/deployment/57643
Platform	RVIB Nathaniel B. Palmer
Report	http://globec.whoi.edu/so-dir/reports/nbp0204/nbp0204b.html
Start Date	2002-07-31
End Date	2002-09-18
Description	Also see NBP0204 Cruise Data Report **Methods & Sampling** The cosine PAR value for yrday_gmt 151 year 2001 is an estimate, based on a conversion from data recorded by the QSR240 scalar sensor package. Latitude and longitude have been added to this data set by the Data Management Office. These positions are the noon (12:00 hour) positions reported in the ship's alongtrack data set. Scalar PAR data was extracted from the ship's alongtrack meteorological data set. The sensor package was mounted on ship's science mast. **Processing Description** For additional information on methods see the on-line cruise reports, (Primary Production Sections)http://globec.whoi.edu/so-dir/reports/nbp0204/nbp0204b.html#TOC1_8">nbp0....

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Project Information

U.S. GLOBEC Southern Ocean (SOGLOBEC)

Website: http://www.ccpo.odu.edu/Research/globec_menu.html

Coverage: Southern Ocean

The fundamental objectives of United States Global Ocean Ecosystems Dynamics (U.S. GLOBEC) Program are dependent upon the cooperation of scientists from several disciplines. Physicists, biologists, and chemists must make use of data collected during U.S. GLOBEC field programs to further our understanding of the

interplay of physics, biology, and chemistry. Our objectives require quantitative analysis of interdisciplinary data sets and, therefore, data must be exchanged between researchers. To extract the full scientific value, data must be made available to the scientific community on a timely basis.

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Program Information

U.S. GLOBal ocean ECosystems dynamics (U.S. GLOBEC)

Website: http://www.usglobec.org/

Coverage: Global

U.S. GLOBEC (GLOBal ocean ECosystems dynamics) is a research program organized by oceanographers and fisheries scientists to address the question of how global climate change may affect the abundance and production of animals in the sea.

The U.S. GLOBEC Program currently had major research efforts underway in the Georges Bank / Northwest Atlantic Region, and the Northeast Pacific (with components in the California Current and in the Coastal Gulf of Alaska). U.S. GLOBEC was a major contributor to International GLOBEC efforts in the Southern Ocean and Western Antarctic Peninsula (WAP).

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Funding

Funding Source	Award
NSF Antarctic Sciences (NSF ANT)	ANT-9910175

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