

# Data collected daily along the ship track in JGOFS format from ARSV Laurence M. Gould and RVIB Nathaniel B. Palmer cruises to the Southern Ocean from 2001-2003 as part of the Southern Ocean GLOBEC project.

**Website:** <https://www.bco-dmo.org/dataset/2345>

**Data Type:** Cruise Results

**Version:** 1

**Version Date:** 2003-07-15

## Project

» [U.S. GLOBEC Southern Ocean](#) (SOGLOBEC)

## Program

» [U.S. GLOBal ocean ECosystems dynamics](#) (U.S. GLOBEC)

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## Abstract

Data collected daily along the ship track in JGOFS format from ARSV Laurence M. Gould and RVIB Nathaniel B. Palmer cruises to the Southern Ocean from 2001-2003 as part of the Southern Ocean GLOBEC project

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## Table of Contents

- [Coverage](#)
- [Dataset Description](#)
  - [Acquisition Description](#)
  - [Processing Description](#)
- [Parameters](#)
- [Instruments](#)
- [Deployments](#)
- [Project Information](#)
- [Program Information](#)
- [Funding](#)

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## Coverage

**Spatial Extent:** N:0 E:0 S:-70.6348 W:-77.7756

**Temporal Extent:** 2001-03-18 - 2002-09-16

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## Dataset Description

## **Environmental and Navigational Data from the Ship's Monitoring Systems, Reported along the Ship's Track**

This along track (JGOFS) data set was obtained primarily by applying calibrations to raw data and decimating to whole minute intervals. Several fields are derived measurements from more than an single raw input. For example, Course Made Good (cmg) and Speed Over Ground (sog) are calculated from gyro and GPS inputs.

Cruises often used "9.99" or "9999" to indicate bad data. Those numbers were changed to 'nd'. Not all bad data were flagged in this way however. Users of these data are encouraged to read the Data Report (found at the Directory Level of this system under "Inventory" then under "project/cruise id", and then under "data report") in order to be aware of bad data points that are not indicated by "9"s and therefore remain in the dataset.

### **Questions regarding this data set should be directed to:**

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*Last updated March 15, 2006*

## **Acquisition Description**

Along track data, including CTD, MET and navigation information.

## **Processing Description**

This along track (JGOFS) data set was obtained primarily by applying calibrations to raw data and decimating to whole minute intervals. Several fields are derived measurements from more than an single raw input. For example, Course Made Good (cmg) and Speed Over Ground (sog) are calculated from gyro and GPS inputs. Cruises often used '9.99' or '9999' to indicate bad data. Those numbers were changed to 'nd'. Not all bad data were flagged in this way however.

## Parameters

Parameter	Description	Units
cruiseid	Cruise id, e.g. NBP0202, for Nathaniel B. Palmer cruise 0202	
date_gmt	month, day, year (GMT time) e.g. mar18 2002, format: MMMdd_yyyy	
time_gmt	time GMT, 24 hour clock	decimal hours
lat	Latitude, negative = South	decimal degrees
lon	Longitude, negative = West	decimal degrees
sog	Speed over ground	knots
gps_hdop	Horizontal Dilution of Position is an indicator of the precision of the GPS measurement. The lower the number, the more precise the position.	-
head	The ship's heading, measured by the Gyroscope.	Degrees(azimuth)
cmg	Course made good: the course actually achieved on the chart (map), after making allowances for wind direction and currents.	Degrees(azimuth)
PAR	downwelled Photosynthetically Available Radiation 400-700nm (PAR), sensor package mounted on ship's science mast.	uE/m2/sec
temp_ss	Sea surface temperature	degrees C
cond_ss	Sea surface conductivity	siemens/meter
sal_ss	Sea surface salinity	dimensionless
depth_w	Depth of water, uncorrected	meters
wind_speed_c	Wind speed (true, corrected for ship motion)	meters/sec
wind_dir_c	Wind direction (true, corrected for ship motion)	degrees(azimuth)
temp_air	Air temperature	degrees C
humidity	Relative humidity	percent
press_bar	Barometric pressure	milliBars
flvolt	Sea surface fluorometer readings in voltages, (range 0-5)	volts
radiation_l	long wave radiation, using a Precision Infrared Radiometer	watts/meters2
radiation_s	short wave radiation, using a Precision Spectral Pyranometer	watts/meters2
yday_gmt	Jan. 1 = yday 0. GMT day and decimal time, as 325.5 for the 326th day of the year, or November 22 at 1200 hours (noon).	
year	year in format yyyy	unitless

## Instruments

<b>Dataset-specific Instrument Name</b>	Photosynthetically Available Radiation Sensors
<b>Generic Instrument Name</b>	Photosynthetically Available Radiation Sensor
<b>Dataset-specific Description</b>	Photosynthetically Available Radiation 400-700nm (PAR), sensor package mounted on ship's science mast.BSI QSR-240
<b>Generic Instrument Description</b>	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.

<b>Dataset-specific Instrument Name</b>	Thermosalinograph
<b>Generic Instrument Name</b>	Thermosalinograph
<b>Dataset-specific Description</b>	Thermosalinograph used to obtain a continuous record of sea surface temperature and salinity.
<b>Generic Instrument Description</b>	A thermosalinograph (TSG) is used to obtain a continuous record of sea surface temperature and salinity. On many research vessels the TSG is integrated into the ship's underway seawater sampling system and reported with the underway or alongtrack data.

<b>Dataset-specific Instrument Name</b>	Anemometer
<b>Generic Instrument Name</b>	Anemometer
<b>Dataset-specific Description</b>	An anemometer is a device for measuring the velocity or the pressure of the wind. Belfort (NBP0103) R.M. Young (LMG0103, LMG0104, LMG0106, LMG0201A, LMG0203, LMG0205, LMG0302, NBP0104, NBP0202, NBP0204)
<b>Generic Instrument Description</b>	An anemometer is a device for measuring the velocity or the pressure of the wind. It is commonly used to measure wind speed. Aboard research vessels, it is often mounted with other meteorological instruments and sensors.

<b>Dataset-specific Instrument Name</b>	Barometer
<b>Generic Instrument Name</b>	Barometer
<b>Dataset-specific Description</b>	A barometer is an instrument used to measure atmospheric pressure. R.M. Young (LMG0103, LMG0104, LMG0106, LMG0201, LMG0203, LMG0205, LMG0302, NBP0104, NBP0202, NBP0204) Atmospheric (NBP0103)
<b>Generic Instrument Description</b>	A barometer is an instrument used to measure atmospheric pressure. There are many types of barometers identified by make and model and method of measurement.

<b>Dataset-specific Instrument Name</b>	Precision Spectral Pyranometer
<b>Generic Instrument Name</b>	Precision Spectral Pyranometer
<b>Dataset-specific Description</b>	Used to measure long wave radiation.Eppley PSP
<b>Generic Instrument Description</b>	<p>This radiometer measures sun and sky irradiance in the range of wavelengths 0.285 to 2.8 microns, including most of the solar spectrum. The PSP is intended to weight the energy flux in all wavelengths equally. It is a "hemispheric receiver" intended to approximate the cosine response for oblique rays. The Eppley Precision Spectral Pyranometer (PSP) is primarily used where high accuracy is required or where it is used to calibrate other pyranometers. The PSP outputs a low level voltage ranging from 0 to a maximum of about 12mV depending on sensor calibration and radiation level. An instruction manual provided by Eppley contains the sensor calibration constant and serial number. The Precision Spectral Pyranometer is a World Meteorological Organization First Class Radiometer and comes with a calibration certificate traceable to the World Radiation Reference and a temperature compensation curve. More information is available from Eppley Labs.</p>

<b>Dataset-specific Instrument Name</b>	Fluorometer
<b>Generic Instrument Name</b>	Fluorometer
<b>Dataset-specific Description</b>	Sea surface fluorometer readings in voltages, (range 0-5) Chelsea model Mk III Aquatracka SN 088080 (NBP0103) Turner 10-AU-005 Lamp: daylight 10-045, reference filter: 10-052, emission filter: 10-051, excitation filter: 10-050 (LMG0103, LMG0104, LMG0201, LMG0203, LMG0205, NBP0104, NBP0202, NBP0204)
<b>Generic Instrument Description</b>	<p>A fluorometer or fluorimeter is a device used to measure parameters of fluorescence: its intensity and wavelength distribution of emission spectrum after excitation by a certain spectrum of light. The instrument is designed to measure the amount of stimulated electromagnetic radiation produced by pulses of electromagnetic radiation emitted into a water sample or in situ.</p>



<b>Dataset-specific Instrument Name</b>	Hygrometer
<b>Generic Instrument Name</b>	Hygrometer
<b>Dataset-specific Description</b>	used to measure relative humidity and/or wet temperature. Rotronics MP-101A-C4 (NBP0103) R.M. Young (LMG0104, LMG0106, LMG0201, LMG0203, LMG0205, LMG0302, NBP0104, NBP0202, NBP0204)
<b>Generic Instrument Description</b>	Hygrometers are used for measuring relative humidity. This term is used when details of the make, model number and measurement principle are not known.

<b>Dataset-specific Instrument Name</b>	Echo Sounder
<b>Generic Instrument Name</b>	Echo sounder - single-beam
<b>Dataset-specific Description</b>	Used to measure the water depth. ODEC Bathy 2000 (NBP0103, NBP0104, NBP0202) Simrad EK200 Sonar (NBP0103, NBP0104, NBP0202) Knudsen 320B/R (LMG0104, LMG0201, LMG0203, LMG0205, LMG0302, NBP0204)
<b>Generic Instrument Description</b>	A single-beam echo sounder is an instrument that measures water depth at a single point below the platform by timing pulses of sound reflected on the seafloor. The echo sounder transmits and receives sound, accurately measuring the time it takes to leave the sounder, reach the bottom and return to the sounder. It then converts this information into digital or graphic representations of the bottom depth and relief. The average echo sounder consists of a transmission and reception unit that sends sound signals through the water, receives and decodes information and converts that information into either a graphic or visual form. Attached to the receiver is a transducer that acts as a microphone and a speaker under the water. Sound waves travel at approximately 1500 m/s through the water dependent on water temperature". more from LMS Technologies

<b>Dataset-specific Instrument Name</b>	Eppley Longwave Radiometer
<b>Generic Instrument Name</b>	Eppley Longwave Radiometer
<b>Generic Instrument Description</b>	<p>The Eppley Precision Infrared Radiometer (PIR) pyrgeometer measures longwave (infrared) radiation. It is housed in a weatherproof titanium canister that has been painted with a very flat black paint that absorbs radiation. A small glass dome at the top of the instrument is covered with an 'interference coating' which allows only infrared radiation to come through. Light levels are detected as temperature changes creating voltages in fine wire coil detectors. more from Eppley Labs</p>

## Deployments

### LMG0103

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57635">https://www.bco-dmo.org/deployment/57635</a>
<b>Platform</b>	ARSV Laurence M. Gould
<b>Report</b>	<a href="http://www.ccpo.odu.edu/Research/globec/cruises01/mooringcruise/lmg0103_menu.html">http://www.ccpo.odu.edu/Research/globec/cruises01/mooringcruise/lmg0103_menu.html</a>
<b>Start Date</b>	2001-03-18
<b>End Date</b>	2001-04-13
<b>Description</b>	<p><b>Acquisition Description</b> Along track data, including CTD, MET and navigation information.</p> <p><b>Processing Description</b> This along track (JGOFS) data set was obtained primarily by applying calibrations to raw data and decimating to whole minute intervals. Several fields are derived measurements from more than an single raw input. For example, Course Made Good (cmg) and Speed Over Ground (sog) are calculated from gyro and GPS inputs. Cruises often used '9.99' or '9999' to indicate bad data. Those numbers were changed to 'nd'. Not all bad data were flagged in this way however.</p>

### LMG0104

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57637">https://www.bco-dmo.org/deployment/57637</a>
<b>Platform</b>	ARSV Laurence M. Gould
<b>Report</b>	<a href="http://www.ccpo.odu.edu/Research/globec/cruises/gould0103_0104.doc">http://www.ccpo.odu.edu/Research/globec/cruises/gould0103_0104.doc</a>
<b>Start Date</b>	2001-04-20
<b>End Date</b>	2001-06-05
<b>Description</b>	<p><b>Acquisition Description</b> Along track data, including CTD, MET and navigation information.</p> <p><b>Processing Description</b> This along track (JGOFS) data set was obtained primarily by applying calibrations to raw data and decimating to whole minute intervals. Several fields are derived measurements from more than an single raw input. For example, Course Made Good (cmg) and Speed Over Ground (sog) are calculated from gyro and GPS inputs. Cruises often used '9.99' or '9999' to indicate bad data. Those numbers were changed to 'nd'. Not all bad data were flagged in this way however.</p>

#### LMG0106

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57639">https://www.bco-dmo.org/deployment/57639</a>
<b>Platform</b>	ARSV Laurence M. Gould
<b>Report</b>	<a href="http://www.ccpo.odu.edu/Research/globec/cruises01/lmg0106_menu.html">http://www.ccpo.odu.edu/Research/globec/cruises01/lmg0106_menu.html</a>
<b>Start Date</b>	2001-07-21
<b>End Date</b>	2001-09-01
<b>Description</b>	<p><b>Acquisition Description</b> Along track data, including CTD, MET and navigation information.</p> <p><b>Processing Description</b> This along track (JGOFS) data set was obtained primarily by applying calibrations to raw data and decimating to whole minute intervals. Several fields are derived measurements from more than an single raw input. For example, Course Made Good (cmg) and Speed Over Ground (sog) are calculated from gyro and GPS inputs. Cruises often used '9.99' or '9999' to indicate bad data. Those numbers were changed to 'nd'. Not all bad data were flagged in this way however.</p>

#### LMG0201A

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57640">https://www.bco-dmo.org/deployment/57640</a>
<b>Platform</b>	ARSV Laurence M. Gould
<b>Report</b>	<a href="http://www.ccpo.odu.edu/Research/globec/main_cruises02/lmg0201a/LMG02-01A_Report.pdf">http://www.ccpo.odu.edu/Research/globec/main_cruises02/lmg0201a/LMG02-01A_Report.pdf</a>
<b>Start Date</b>	2002-02-06
<b>End Date</b>	2002-03-03
<b>Description</b>	<p><b>Acquisition Description</b> Along track data, including CTD, MET and navigation information.</p> <p><b>Processing Description</b> This along track (JGOFS) data set was obtained primarily by applying calibrations to raw data and decimating to whole minute intervals. Several fields are derived measurements from more than an single raw input. For example, Course Made Good (cmg) and Speed Over Ground (sog) are calculated from gyro and GPS inputs. Cruises often used '9.99' or '9999' to indicate bad data. Those numbers were changed to 'nd'. Not all bad data were flagged in this way however.</p>

#### LMG0203

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57642">https://www.bco-dmo.org/deployment/57642</a>
<b>Platform</b>	ARSV Laurence M. Gould
<b>Report</b>	<a href="http://www.ccpo.odu.edu/Research/globec/main_cruises02/lmg0203/menu.html">http://www.ccpo.odu.edu/Research/globec/main_cruises02/lmg0203/menu.html</a>
<b>Start Date</b>	2002-04-07
<b>End Date</b>	2002-05-20
<b>Description</b>	<p><b>Acquisition Description</b> Along track data, including CTD, MET and navigation information.</p> <p><b>Processing Description</b> This along track (JGOFS) data set was obtained primarily by applying calibrations to raw data and decimating to whole minute intervals. Several fields are derived measurements from more than an single raw input. For example, Course Made Good (cmg) and Speed Over Ground (sog) are calculated from gyro and GPS inputs. Cruises often used '9.99' or '9999' to indicate bad data. Those numbers were changed to 'nd'. Not all bad data were flagged in this way however.</p>

#### LMG0205

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57644">https://www.bco-dmo.org/deployment/57644</a>
<b>Platform</b>	ARSV Laurence M. Gould
<b>Report</b>	<a href="http://www.ccpo.odu.edu/Research/globec/main_cruises02/lmg0205/report_img0205.pdf">http://www.ccpo.odu.edu/Research/globec/main_cruises02/lmg0205/report_img0205.pdf</a>
<b>Start Date</b>	2002-07-29
<b>End Date</b>	2002-09-18
<b>Description</b>	<p><b>Acquisition Description</b> Along track data, including CTD, MET and navigation information.</p> <p><b>Processing Description</b> This along track (JGOFS) data set was obtained primarily by applying calibrations to raw data and decimating to whole minute intervals. Several fields are derived measurements from more than an single raw input. For example, Course Made Good (cmg) and Speed Over Ground (sog) are calculated from gyro and GPS inputs. Cruises often used '9.99' or '9999' to indicate bad data. Those numbers were changed to 'nd'. Not all bad data were flagged in this way however.</p>

#### LMG0302

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57645">https://www.bco-dmo.org/deployment/57645</a>
<b>Platform</b>	ARSV Laurence M. Gould
<b>Report</b>	<a href="http://globec.whoi.edu/so-dir/reports/lmg0302/lmg0302.htm">http://globec.whoi.edu/so-dir/reports/lmg0302/lmg0302.htm</a>
<b>Start Date</b>	2003-02-13
<b>End Date</b>	2003-03-07
<b>Description</b>	<p><b>Acquisition Description</b> Along track data, including CTD, MET and navigation information.</p> <p><b>Processing Description</b> This along track (JGOFS) data set was obtained primarily by applying calibrations to raw data and decimating to whole minute intervals. Several fields are derived measurements from more than an single raw input. For example, Course Made Good (cmg) and Speed Over Ground (sog) are calculated from gyro and GPS inputs. Cruises often used '9.99' or '9999' to indicate bad data. Those numbers were changed to 'nd'. Not all bad data were flagged in this way however.</p>

#### NBP0103

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57636">https://www.bco-dmo.org/deployment/57636</a>
<b>Platform</b>	RVIB Nathaniel B. Palmer
<b>Report</b>	<a href="http://globec.who.edu/so-dir/reports/nbp0103/nbp0103.html">http://globec.who.edu/so-dir/reports/nbp0103/nbp0103.html</a>
<b>Start Date</b>	2001-04-24
<b>End Date</b>	2001-06-05
<b>Description</b>	<p><b>Acquisition Description</b> Along track data, including CTD, MET and navigation information.</p> <p><b>Processing Description</b> This along track (JGOFS) data set was obtained primarily by applying calibrations to raw data and decimating to whole minute intervals. Several fields are derived measurements from more than an single raw input. For example, Course Made Good (cmg) and Speed Over Ground (sog) are calculated from gyro and GPS inputs. Cruises often used '9.99' or '9999' to indicate bad data. Those numbers were changed to 'nd'. Not all bad data were flagged in this way however.</p>

#### NBP0104

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57638">https://www.bco-dmo.org/deployment/57638</a>
<b>Platform</b>	RVIB Nathaniel B. Palmer
<b>Report</b>	<a href="http://www.ccpo.odu.edu/Research/globec/cruises01/nbp0104_menu.html">http://www.ccpo.odu.edu/Research/globec/cruises01/nbp0104_menu.html</a>
<b>Start Date</b>	2001-07-22
<b>End Date</b>	2001-08-31
<b>Description</b>	<p><b>Acquisition Description</b> Along track data, including CTD, MET and navigation information.</p> <p><b>Processing Description</b> This along track (JGOFS) data set was obtained primarily by applying calibrations to raw data and decimating to whole minute intervals. Several fields are derived measurements from more than an single raw input. For example, Course Made Good (cmg) and Speed Over Ground (sog) are calculated from gyro and GPS inputs. Cruises often used '9.99' or '9999' to indicate bad data. Those numbers were changed to 'nd'. Not all bad data were flagged in this way however.</p>

#### NBP0202

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57641">https://www.bco-dmo.org/deployment/57641</a>
<b>Platform</b>	RVIB Nathaniel B. Palmer
<b>Report</b>	<a href="http://globec.who.edu/so-dir/reports/nbp0202/nbp0202b.html">http://globec.who.edu/so-dir/reports/nbp0202/nbp0202b.html</a>
<b>Start Date</b>	2002-04-09
<b>End Date</b>	2002-05-21
<b>Description</b>	<p><b>Acquisition Description</b> Along track data, including CTD, MET and navigation information.</p> <p><b>Processing Description</b> This along track (JGOFS) data set was obtained primarily by applying calibrations to raw data and decimating to whole minute intervals. Several fields are derived measurements from more than an single raw input. For example, Course Made Good (cmg) and Speed Over Ground (sog) are calculated from gyro and GPS inputs. Cruises often used '9.99' or '9999' to indicate bad data. Those numbers were changed to 'nd'. Not all bad data were flagged in this way however.</p>

#### NBP0204

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57643">https://www.bco-dmo.org/deployment/57643</a>
<b>Platform</b>	RVIB Nathaniel B. Palmer
<b>Report</b>	<a href="http://globec.who.edu/so-dir/reports/nbp0204/nbp0204b.html">http://globec.who.edu/so-dir/reports/nbp0204/nbp0204b.html</a>
<b>Start Date</b>	2002-07-31
<b>End Date</b>	2002-09-18
<b>Description</b>	<p><b>Acquisition Description</b> Along track data, including CTD, MET and navigation information.</p> <p><b>Processing Description</b> This along track (JGOFS) data set was obtained primarily by applying calibrations to raw data and decimating to whole minute intervals. Several fields are derived measurements from more than an single raw input. For example, Course Made Good (cmg) and Speed Over Ground (sog) are calculated from gyro and GPS inputs. Cruises often used '9.99' or '9999' to indicate bad data. Those numbers were changed to 'nd'. Not all bad data were flagged in this way however.</p>



## Project Information

### U.S. GLOBEC Southern Ocean (SOGLOBEC)

**Website:** [http://www.ccpo.odu.edu/Research/globec\\_menu.html](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.

## 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).

[ [table of contents](#) | [back to top](#) ]

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## Funding

Funding Source	Award
<a href="#">NSF Antarctic Sciences (NSF ANT)</a>	<a href="#">ANT-9910092</a>
<a href="#">NSF Antarctic Sciences (NSF ANT)</a>	<a href="#">ANT-9910007</a>

[ [table of contents](#) | [back to top](#) ]