Data collected daily along the ship track in from the LMG0602 cruise on ARSV Laurence M. Gould in the Southern Ocean from February to March 2006 (SouthernSalps project)

Website: https://www.bco-dmo.org/dataset/3034
Version:
Version Date: 2012-08-03

Project
» Salpa Thompsoni in the Southern Ocean: Bioenergetics, Population Dynamics and Biogeochemical Impact (SouthernSalps)

Contributors	Affiliation	Role
Madin, Laurence P.	Woods Hole Oceanographic Institution (WHOI)	Chief Scientist
Kremer, Patricia	University of Connecticut (UConn)	Co-Principal Investigator
Allison, Dicky	Woods Hole Oceanographic Institution (WHOI)	BCO-DMO Data Manager

Table of Contents

- Dataset Description
  - Methods & Sampling
  - Data Processing Description
- Data Files
- Parameters
- Instruments
- Deployments
- Project Information
- Funding

Dataset Description

Data collected daily along the ship track in JGOFS format from the LMG0602 cruise.

Methods & Sampling

A single file was produced each day containing columnar fields in text format. The JGOFS data format is obtained primarily by applying calibrations to raw data and decimating to whole minute intervals. Several fields are derived measurements from more than one raw input.

Data Processing Description

Parameter names were modified to conform with BCO-DMO conventions.

[table of contents | back to top]

Data Files

File
alongtrack.csv(Comma Separated Values (.csv), 6.07 MB) MD5:9cc9bf96ec2adbf061b86a102b34b7b2 Primary data file for dataset ID 3034

[table of contents | back to top]

Parameters

Parameter	Description	Units
cruiseid	Cruise id.	unitless
date_gmt	Month, day, year (GMT time) e.g. mar16 2006.	mon dd yyy
time_gmt	Time GMT, 24 hour clock, hours and decimal minutes.	HHMM.mm
lat	Latitude, negative = South	decimal degrees
lon	Longitude, negative = West	decimal degrees
sog	Ship's speed over ground.	knots
hdop	Horizontal Dilution of Position is an indicator of the precision of the GPS measurement. The lower the number, the more precise the position.	unitless
head	The ship's heading, measured by the gyro.	Degrees (azimuth)
cog	Course over ground.	Degrees(azimuth)
par_d	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
sal_ss	Sea surface salinity	PSU
depth_w	Depth of water.	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	Ambient air temperature.	degrees C
humidity	Relative humidity.	%
press_bar	Barometric pressure	milliBars
flvolt	Sea surface fluorometer readings in voltages, (range 0-5 FSO).	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
yrday_gmt	Jan. 1 = yrday 0. GMT day and decimal time, as 325.5 for the 326th day of the year, or November 22 at 1200 hours (noon).	
year	4-digit year.	YYYY

[table of contents | back to top]

Instruments

Dataset-specific Instrument Name	Barometer
Generic Instrument Name	Barometer
Dataset-specific Description	Barometer model: R.M. Young 61201.
Generic Instrument Description	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.

Dataset-specific Instrument Name	Gyro
Generic Instrument Name	Gyro
Dataset-specific Description	Anschutz Gyro.
Generic Instrument Description	Compass with a motorized gyroscope that tracks true north (heading).

Dataset-specific Instrument Name	Knudsen 320 BR deepwater echosounder
Generic Instrument Name	Knudsen 320 BR deepwater echosounder
Dataset-specific Description	Model: Knudsen 320B/R
Generic Instrument Description	The Knudsen 320 B/R deepwater echosounder is a digital data logging system used to measure water depth (e.g. depth of the seafloor). The system is configured to work with different frequency transducers. For example, the Edo 323 B is a 12 kHz High Frequency (HF) transducer or it can be configured to work with an array of 3.5 kHz Low Frequency (LF) transducers mounted in the hull of a vessel.

Dataset-specific Instrument Name	Photosynthetically Available Radiation Sensor
Generic Instrument Name	Photosynthetically Available Radiation Sensor
Dataset-specific Description	Mast PAR sensor model: BSI QSR-240P
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	Turner Designs Fluorometer -10-AU
Generic Instrument Name	Turner Designs Fluorometer 10-AU
Dataset-specific Description	Fluorometer model: Turner 10-AU-005
Generic Instrument Description	The Turner Designs 10-AU Field Fluorometer is used to measure Chlorophyll fluorescence. The 10AU Fluorometer can be set up for continuous-flow monitoring or discrete sample analyses. A variety of compounds can be measured using application-specific optical filters available from the manufacturer (read more from Turner Designs, turnerdesigns.com, Sunnyvale, CA, USA).

Dataset-specific Instrument Name	Wet Labs CSTAR Transmissometer
Generic Instrument Name	WET Labs {Sea-Bird WETLabs} C-Star transmissometer
Dataset-specific Description	Transmissometer model: WET Labs C-Star 25 cm
Generic Instrument Description	The C-Star transmissometer has a novel monolithic housing with a highly integrated opto-electronic design to provide a low cost, compact solution for underwater measurements of beam transmittance. The C-Star is capable of free space measurements or flow-through sampling when used with a pump and optical flow tubes. The sensor can be used in profiling, moored, or underway applications. Available with a 6000 m depth rating. More information on Sea-Bird website: https://www.seabird.com/c-star-transmissometer/product?id=60762467717

[table of contents | back to top]

Deployments

LMG0602

Website	https://www.bco-dmo.org/deployment/57843
Platform	ARSV Laurence M. Gould
Start Date	2006-02-14
End Date	2006-03-16
Description	The goal of the LMG06-02 cruise was to continue the studies begun in 2004 (LMG04-14) on the population biology, feeding, and energetics of Salpa thompsoni in the waters near the Antarctic Peninsula.

[table of contents | back to top]

Project Information

Salpa Thompsoni in the Southern Ocean: Bioenergetics, Population Dynamics and Biogeochemical Impact (SouthernSalps)

Coverage: Southern Ocean

This project is also referred to as "B-307: Salpa thompsoni in the Southern Ocean". (B-307 was the USAP project/event number).

NSF Award Abstract:
Salps are planktonic grazers that have a life history, feeding biology and population dynamic strikingly different from krill, copepods or other crustacean zooplankton. Salps can occur in very dense population blooms that cover large areas and have been shown to have major impacts due to the their grazing and the production of fast-sinking fecal pellets. Although commonly acknowledged as a major component of the Southern Ocean zooplankton community, often comparable in biomass and distribution to krill, salps have received relatively little attention. Although extensive sampling has documented the seasonal abundance of salps in the Southern Ocean, there is a paucity of data on important rates that determine population growth and the role of this species in grazing and vertical flux of particulates. This proposed study will include: measurements of respiration and excretion rates for solitary and aggregate salps of all sizes; measurements of ingestion rates,

including experiments to determine the size or concentration of particulates that can reduce ingestion; and determination of growth rates of solitaries and aggregates. In addition to the various rate measurements, this study will include quantitative surveys of salp horizontal and vertical distribution to determine their biomass and spatial distribution, and to allow a regional assessment of their effects. Measurements of the physical characteristics of the water column and the quantity and quality of particulate food available for the salps at each location will also be made. Satellite imagery and information on sea-ice cover will be used to test hypotheses about conditions that result in high densities of salps. Results will be used to construct a model of salp population dynamics, and both experimental and modeling results will be interpreted within the context of the physical and nutritional conditions to which the salps are exposed. This integrated approach will provide a good basis for understanding the growth dynamics of salp blooms in the Southern Ocean. Two graduate students will be trained on this project, and cruise and research experience will be provided for two undergraduate students. A portion of a website allowing students to be a virtual participant in the research will be created to strengthen students' quantitative skills. Both PI's will participate in teacher-researcher workshops, and collaboration with a regional aquarium will be developed in support of public education.

[table of contents | back to top]

Funding

Funding Source	Award
NSF Antarctic Sciences (NSF ANT)	ANT-0338090

[table of contents | back to top]