Core Logger Physical Properties for Palau Lakes Sediment Cores collected from small boats from September to October 2013

Website: https://www.bco-dmo.org/dataset/771957
Data Type: Cruise Results, Other Field Results
Version: 1
Version Date: 2019-06-27

Project
» Do Parallel Patterns Arise from Parallel Processes? (PaPaPro)

Program
» Dimensions of Biodiversity (Dimensions of Biodiversity)

Contributors	Affiliation	Role
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Abstract
Core Logger Physical Properties for Palau Lakes Sediment Cores collected from small boats from September to October 2013.

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Coverage

Spatial Extent: **N**:7.3218 **E**:134.5061 **S**:7.1506 **W**:134.3486
Temporal Extent: 2013-09-11 - 2013-10-06

Methods & Sampling

Un-split core sections were received at the National Lacustrine Core Repository (LaCore) facility and analyzed via Geotek MSCL core logger. Gamma ray attenuation density, non-contacting electrical resistivity, p-wave velocity, and magnetic susceptibility were measured via LaCore's standard procedures. Acoustical impedance and fractional porosity are calculated properties.

Data Processing Description

There has been no data processing. This is raw data output.

BCO-DMO Processing:

- Modified parameter names (replaced spaces with underscores; renamed "Lan" to "Lat");
- replaced spaces with underscores in the "Lake_Name" and "Device" columns (to allow for sorting);
- re-formatted date to yyyy-mm-dd.

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Data Files

File
Palau_Lakes_Core_Properties.csv (Comma Separated Values (.csv), 1.65 MB) MD5:1b9263dc2a6b732f0682b79edf13e2a3 Primary data file for dataset ID 771957

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Parameters

Parameter	Description	Units
Lake_Name	Lake name	unitless
Core	Core name	unitless
Lat	Latitude	degrees North
Lon	Longitude	degrees East
Device	Type of core	unitless
Date_collected	Date collected; format: yyyy-mm-dd	unitless
Logger_depth	Logger track position	meters (m)
LacCore_Section_ID	LaCore section code	unitless
Section_Depth	Depth in section	centimeters (cm)
MSCL_Sediment_Thickness	Thickness of cross section	centimeters (cm)
MSCL_pWave_Amplitude	Ultrasonic P wave amplitude	

MSCL_pWave_Velocity	Ultrasonic P wave velocity	meters per second (m s-1)
MSCL_Gamma_Density	Sediment wet density via GRA	grams per cubic centimeter (g cm-3)
MSCL_MS_Loop	Magnetic susceptibility	SI * 10-5
MSCL_Impedance	Calculated acoustic impedance	meters per second (m/s) times grams per cubic centimeter (g/cm^3) (or: m g s-1 cm-3)
MSCL_Fractional_Porosity	Acoustic-calculated porosity	
MSCL_Electrical_Resistivity	Calculated induced-current resistivity	Ohm-meters (Ohm*m)
MSCL_Temperature_Logging_Room	Temperature during logging	degress Celsius
Original_Section_ID	Field ID; original core section name	unitless

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Instruments

Dataset-specific Instrument Name	MSCL-S
Generic Instrument Name	Multi-Sensor Core Logger
Dataset-specific Description	Multi-Sensor Core Logger (Geotek Ltd., Daventry, Northamptonshire, UK). Automated core scanning suite.
Generic Instrument Description	The Geotek Standard Multi-Sensor Core Logger (MSCL-S) is a commercially available tool for gathering both physical and chemical properties from core samples in an automated and quality controlled way. See more info from the manufracturer: https://www.geotek.co.uk/products/mscl-s/

Dataset-specific Instrument Name	Universal Percussion Corer
Generic Instrument Name	Percussion Corer
Dataset-specific Description	Universal Percussion Corer (Aquatic Research Instruments, Hope, Indiana): Hand-operated sediment coring device.
Generic Instrument Description	Capable of being performed in numerous environments, percussion coring techniques are just as they sound. Similar to push coring (in which the core barrel is pushed into the sediment by hand), in percussion coring, the core is driven into the sediment by a percussion instrument such as a mallet or slide hammer. Description from: https://web.whoi.edu/coastal-group/about/how-we-work/field-methods/coring/

Dataset-specific Instrument Name	Colinvaux-Vohnout Livingstone-type rod-operated piston corer
Generic Instrument Name	Piston Corer
Dataset-specific Description	Colinvaux-Vohnout Livingstone-type rod-operated piston corer (Geocore, Columbus, Ohio): Hand-operated sediment coring device.
Generic Instrument Description	The piston corer is a type of bottom sediment sampling device. A long, heavy tube is plunged into the seafloor to extract samples of mud sediment. A piston corer uses a "free fall" of the coring rig to achieve a greater initial force on impact than gravity coring. A sliding piston inside the core barrel reduces inside wall friction with the sediment and helps to evacuate displaced water from the top of the corer. A piston corer is capable of extracting core samples up to 90 feet in length.

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Deployments

Palau_lakes

Website	https://www.bco-dmo.org/deployment/542180
Platform	Small boats - CRRF
Start Date	2010-08-21
End Date	2016-06-14
Description	Palau marine lakes

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Project Information

Do Parallel Patterns Arise from Parallel Processes? (PaPaPro)

Website: http://marinelakes.ucmerced.edu/

Coverage: Western Pacific; Palau; Indonesia (West Papua)

This project will survey the taxonomic, genetic, and functional diversity of the organisms found in marine lakes, and investigate the processes that cause gains and losses in this biodiversity. Marine lakes formed as melting ice sheets raised sea level after the last glacial maximum and flooded hundreds of inland valleys around the world. Inoculated with marine life from the surrounding sea and then isolated to varying degrees for the next 6,000 to 15,000 years, these marine lakes provide multiple, independent examples of how environments and interactions between species can drive extinction and speciation. Researchers will survey the microbes, algae, invertebrates, and fishes present in 40 marine lakes in Palau and Papua, and study how diversity has changed over time by retrieving the remains of organisms preserved in sediments on the lake bottoms. The project will test whether the number of species, the diversity of functional roles played by organisms, and the genetic diversity within species increase and decrease in parallel; whether certain species can greatly curtail diversity by changing the environment; whether the size of a lake determines its biodiversity; and whether the processes that control diversity in marine organisms are similar to those that operate on land.

Because biodiversity underlies the ecosystem services on which society depends, society has a great interest in understanding the processes that generate and retain biodiversity in nature. This project will also help conserve areas of economic importance. Marine lakes in the study region are important for tourism, and researchers will work closely with governmental and non-governmental conservation and education groups and with diving and tourism businesses to raise awareness of the value and threats to marine lakes in Indonesia and Palau.

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Program Information

Dimensions of Biodiversity (Dimensions of Biodiversity)

Website: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503446

Coverage: global

(adapted from the NSF Synopsis of Program)
Dimensions of Biodiversity is a program solicitation from the NSF Directorate for Biological Sciences. FY 2010 was year one of the program. [MORE from NSF]

The NSF Dimensions of Biodiversity program seeks to characterize biodiversity on Earth by using integrative, innovative approaches to fill rapidly the most substantial gaps in our understanding. The program will take a broad view of biodiversity, and in its initial phase will focus on the integration of genetic, taxonomic, and functional dimensions of biodiversity. Project investigators are encouraged to integrate these three dimensions to understand the interactions and feedbacks among them. While this focus complements several core NSF programs, it differs by requiring that multiple dimensions of biodiversity be addressed simultaneously, to understand the roles of biodiversity in critical ecological and evolutionary processes.

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Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-1241255
NSF Division of Ocean Sciences (NSF OCE)	OCE-1241247

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