NASA Airborne Oceanographic Lidar (AOL) data from NASA P-3B aircraft from the Arabian Sea in 1995 (U.S. JGOFS Arabian Sea project)

Website: https://www.bco-dmo.org/dataset/2586
Version: July 2, 1997
Version Date: 1997-07-02

Project
» U.S. JGOFS Arabian Sea (Arabian Sea)

Program
» U.S. Joint Global Ocean Flux Study (U.S. JGOFS)

Contributors	Affiliation	Role
Hoge, Frank E.	National Aeronautics and Space Administration (NASA)	Principal Investigator
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Dataset Description

NASA Airborne Oceanographic Lidar (AOL)

Methods & Sampling

PI: Frank Hoge
of: NASA
dates: July 06, 1995 to July 21, 1995
location: N: 23.5286 S: 15.44155 W: 54.24402 E: 65.85029
dataset: NASA Airborne Oceanographic Lidar (AOL)
project: Arabian Sea, July 1995, NASA P-3B aircraft

The originating PI provided a link to the NASA Airborne Oceanographic Lidar (AOL) Homepage (http://aol.wff.nasa.gov/) but this site is no longer available.

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Data Files

File
NASA_overflights.csv (Comma Separated Values (.csv), 9.68 MB) MD5:17d9f54ffa17b820824e415fd727040e Primary data file for dataset ID 2586

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Parameters

Parameter	Description	Units
year	year of flight	YYYY
flight_day	day flight occurred	MMDD
flight_segment	different legs of the flight	hhmmss
time	seconds of the day since midnight	
lat	latitude (negative = south)	decimal degrees
lon	longitude (negative = west)	decimal degrees
temp_SST	temperature from infrared radiometer	decimal degrees C
fluor_CDOM	dissolved organic matter stimulated by UV (355 nm) laser. Emission is measured at 450 nm and normalized to the water Raman emission at 404 nm. This is a relative measurement.	
fluor_PUB	phycoerythrin-phycouribilin complex stimulated by green (532 nm) laser. Emission is measured at 570 nm and normalized to the water Raman signal at 650 nm. This is a relative measurement.	
fluor_PEB	phycoerythrin fluorescence stimulated by green (532 nm) laser. Emission is measured at 585 nm and normalized to the water Raman signal at 650 nm. This is a relative measurement.	
chl	chlorophyll concentration converted from chlorophyll fluorescence. The chlorophyll fluorescence was stimulated with a 532 nm laser and emission measured at 685 nm. The emission was normalized to the water Raman signal at 650 nm and the relative measurement converted to chlorophyll concentration. This is a good faith final calibration.	micrograms/liter

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Instruments

Dataset-specific Instrument Name	Light Detection and Ranging System
Generic Instrument Name	Light Detection and Ranging System
Dataset-specific Description	NASA Airborne Oceanographic Lidar(AOL). The Light Detection and Ranging (LIDAR) system is a laser sounder located on the Lander deck. It is composed of a sensor and electronics assembly. The LIDAR transmitter uses a Galium-Aluminum-Arsenic laser which emits energy in pulses at a constant rate and wavelength. The LIDAR has two sounding modes: active and acoustic.
Generic Instrument Description	The Light Detection and Ranging (LIDAR) system is an active remote sensing system that can be operated in either a profiling or scanning mode using pulses of light to illuminate the terrain. LIDAR data collection involves mounting an airborne laser scanning system onboard an aircraft along with a kinematic Global Positioning System (GPS) receiver to locate an x, y, z position and an inertial navigation system to monitor the pitch, roll, and heading of the aircraft. By accurately measuring the round trip travel time of the laser pulse from the aircraft to the ground, a highly accurate spot elevation can be calculated. Depending upon the altitude and speed of the aircraft along with the laser repetition rate it is possible to obtain point densities that would likely take months to collect using traditional ground survey methods (June 2010 definition from: http://www.ngs.noaa.gov/RESEARCH/RSD/main/lidar/lidar.shtml).The LIDAR transmitter uses a Galium-Aluminum-Arsenic laser which emits energy in pulses at a constant rate and wavelength. The LIDAR has two sounding modes: active and acoustic. Note: A LIDAR system was used during US JGOFS Arabian Sea cruises to acquire SST, DOM and fluorometric pigment data, but there are also bathymetric LIDAR systems.

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Deployments

NASA_P-3B

Website	https://www.bco-dmo.org/deployment/57743
Platform	NASA P-3B aircraft
Start Date	1995-07-06
End Date	1995-07-21

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Project Information

U.S. JGOFS Arabian Sea (Arabian Sea)

Website: http://usjgofs.whoi.edu/research/arabian.html

Coverage: Arabian Sea

The U.S. Arabian Sea Expedition which began in September 1994 and ended in January 1996, had three major components: a U.S. JGOFS Process Study, supported by the National Science Foundation (NSF); Forced Upper Ocean Dynamics, an Office of Naval Research (ONR) initiative; and shipboard and aircraft measurements supported by the National Aeronautics and Space Administration (NASA). The Expedition consisted of 17 cruises aboard the R/V Thomas Thompson, year-long moored deployments of five instrumented surface buoys

and five sediment-trap arrays, aircraft overflights and satellite observations. Of the seventeen ship cruises, six were allocated to repeat process survey cruises, four to SeaSoar mapping cruises, six to mooring and benthic work, and a single calibration cruise which was essentially conducted in transit to the Arabian Sea.

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Program Information

U.S. Joint Global Ocean Flux Study (U.S. JGOFS)

Website: http://usjgofs.whoi.edu/

Coverage: Global

The United States Joint Global Ocean Flux Study was a national component of international JGOFS and an integral part of global climate change research.

The U.S. launched the Joint Global Ocean Flux Study (JGOFS) in the late 1980s to study the ocean carbon cycle. An ambitious goal was set to understand the controls on the concentrations and fluxes of carbon and associated nutrients in the ocean. A new field of ocean biogeochemistry emerged with an emphasis on quality measurements of carbon system parameters and interdisciplinary field studies of the biological, chemical and physical process which control the ocean carbon cycle. As we studied ocean biogeochemistry, we learned that our simple views of carbon uptake and transport were severely limited, and a new "wave" of ocean science was born. U.S. JGOFS has been supported primarily by the U.S. National Science Foundation in collaboration with the National Oceanic and Atmospheric Administration, the National Aeronautics and Space Administration, the Department of Energy and the Office of Naval Research. U.S. JGOFS, ended in 2005 with the conclusion of the Synthesis and Modeling Project (SMP).

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Funding

Funding Source	Award
National Aeronautics & Space Administration (NASA)	unknown Arabian Sea NASA

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