EK60 DATA SET – VOCALS Peru Cruise Documentation file

TITLE:

Scientific echo sounder EK60 data recorded during the VOCALS REx Peru, Cruise 2008-10 of R/V Jose Olaya Balandra

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1.0 DATA SET OVERVIEW:

Introduction or abstract:
This data set consist of continuous records of EK60 data obtained during the VOCALS REx Peru cruise carried out in October 2008 in southern Peru. Data at 120 Hz frequency is presented, 30 and 200 kHz data is available on request.

Time period covered by the data:
START: 20081002193120; STOP: 20081017135122

Physical location (including lat/lon/elev) of the measurement or platform:
RV Jose Olaya, mobile, inside an area limited by longitudes 80W-75W, latitudes 17.5S-12S

Data source if applicable (e.g., for operational data include agency):
N/C

Any World Wide Web address references:
http://www.met.igp.gob.pe/proyectos/vocals_rex

2.0 INSTRUMENT DESCRIPTION:

Brief text (i.e., 1-2 paragraphs) describing the instrument with references:

The EK60 provides facilities for accurate echo sounding, data storage and analysis. The sounder can operate three frequencies (38, 120 and 200 kHz) simultaneously for comparisons of fish reflectivity.

Figures (or links), if applicable:
http://www.simrad.com

Table of specifications (i.e., accuracy, precision, frequency, resolution, etc.):
Specifications are given in:
http://www.simrad.com/www/01/nokbg0240.nsf/AllWeb/A25148D8E9F00D0DC12570DE0050A7C
B?OpenDocument

3.0 DATA COLLECTION AND PROCESSING:

Description of data collection:
The EK60 was interfaced to a GPS receiver type JRC-6800 and a workstation for processing. An external synchronizing device (IFREMER OSEA) was used to reduce interference with the vessek mounted ADCP.
The EK60's transducer depth was 4m under the surface, and data at frequencies (38, 120, 200 Hz) was recorded for the upper 500m on the vertical. Ping rate was 0.5 s^{-1} raw data.

Description of derived parameters and processing techniques used:
Raw data was processed using the Echoview v4.3 processing software, which includes modules for detecting shoals and other virtual echogram which facilitate the extraction of information for the schools of the species studied (*Higgimbottom et al.,* 2000). Echotraces identification is performed according to records and the typical results of the catch in each haul. This system is calibrated according to the procedure described by its manufacturer (*SIMRAD,* 1992) which follows ICES recommendations (*Foote et al.,* 1987) for quantitative acoustic measurements.

Data intercomparisons, if applicable:
N/C

4.0 DATA FORMAT:

Data file structure and file naming conventions:
The unique data file provided here for the cruise is in ASCII format (*.txt) with space delimited column, with a UTC date/time stamp at the beginning of each data record.

Data format and layout specifications:
First data record consists of parameters identifying each column.
Second data record begins actual data and consists of a track, interval, date and NASC species.
Date format is: YYYYMMDD and
Time format is: HH:mm:ss.ss where:
YYYY= Year
MM = Month (00-12)
DD = Day (01-31)
HH = Hour (00-23)
mm = Minute (00-59)
ss = Second (00-59)
.ss= Decimal Second (00-59)
Position coordinates are expressed in decimal degrees for each data point, with negative South latitudes and West longitudes.

Time and positions are given for the end and start of each elementary sampling distance unit (ESDU). The ESDU average interval is 1 nm.

List of parameters with units, sampling intervals, frequency, range:
All the data was exported by Echoview.
Column 1: **Trans** (track-geographic variable)
Column 2: **Interval** (Sampling Basic Unit = 1 nautical mile, NUMBER)
Column 3: **Date** (Average Data, start and end of ESDU)
Column 4: **Time** (Time, start and end of ESDU, in UTC)
Column 5: **Lat** (Latitude, start and end of ESDU, in Deg)
Column 6: **Lon** (Longitude, start and end of ESDU, in Deg)
Column 7: **ANC** (Integration value of anchovy, in $nm^2\ m^{-2}$)
Column 8: **Nanc** (Detected fish schools, NUMBER)
Column 9: **Panc** (Average depth of detected fish schools, in meters)

Data version number and date:
Final (11 October 2010)

5.0 DATA REMARKS:

PI's assessment of the data:
Calibrations were realized according to (Foote, 1987).

Missing data periods:
The EK-60 was turned off only during oceanographic stations.

Software compatibility (i.e., list of existing software to view/manipulate the data):
Simrad BI60, Movies+.

6.0 REFERENCES:

Higgimbottom, I.R., Pauly, T.J. and Heatley D.C. (2000) Virtual echograms for visualization and post processing multiple-frequency echosounder data. Proceedings of Fifth European Conference on Underwater Acoustic, ECUA 2000(Ed. M.E. Zakharia), 1497-1502.

Foote, K. H. Knutsen, G.Vestnes, D. MacLennan and J. Simmonds. 1987. Calibration of acoustic instruments for fish density estimation: a practical guide. (Cooperative Research Report. ICES No.144.

Simrad EK 500. 1992. Instruction manual simrad EK 500 scientific echo sounder. p2172e. Calibration of the ek 500 p2260e. Simrad Norge as. Norway.

EXAMPLE:

Beginning of data file:

TRANS	INTERVAL	DATE/TIME		LAT	LONG	ANC	NANC	PANC
	Number		UTC	Deg	Deg	nm2/m2	NUMBER	m
A	1	20081002	19:34:26.27	-12.04088503	-77.23507754	2.795465000	2	7.049617752
A	2	20081002	19:40:43.59	-12.04790192	-77.25097050	43.598215	20	9.497103046
A	3	20081002	19:47:00.88	-12.05466667	-77.26713976	144.2233080	33	13.47582262
A	4	20081002	19:53:18.88	-12.06134779	-77.28321005	204.3021230	35	10.09393894