

PAPUA NEW GUINEA CRUISE REPORT
HIGH RESOLUTION SINGLE CHANNEL SEISMIC SURVEY
CRUISE ON THE R/V FRANKLIN
13 February 2000 to 22 February 2000

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The following is a technical summary for the Papua New Guinea (PNG) cruise aboard the R/V *Franklin* beginning on 2/13/00 and ending on 2/22/00. The PNG single channel high resolution survey was a joint project between the Virginia Institute of Marine Science (VIMS) of William and Mary, Australian Institute of Marine Science (AIMS), Stony Brook University of New York (SUNY), University of Washington, and Stanford University. The cruise incorporated the use of single channel equipment to cover the western portion of the Gulf of Papua.

Seismic acquisition was digital using the Elics digital acquisition system, D2x hand carried from Stanford University. A 17" 1280 x 1024 resolution monitor was borrowed from the R/V *Franklin* in order to reduce excess baggage and potential problems with PNG Customs. Seismic data collected in compressed Elics format and stored on 2.3 GB Exabyte tapes. Navigation was GPS acquired every shot (1 to 5 seconds) and input directly to the Elics system through the RS232 serial port. Energy source was an SIG-100 sparker in conjunction with a Benthos 10 hydrophone single channel 3m streamer. Hunttec 540 J power supply was used to supply energy to the sparker however the energy levels used were 240J and 375J at 4kV and 5kV, respectively. Analog seismic was also performed using TSS TVG/amplifier, Khon-Hite bandpass filter and EPC1600 recorder. GeoPulse 5210 unit used to control Hunttec system with Delph2x set as master. On this cruise 12 seismic lines were collected in the western Gulf of Papua located on the south side of PNG.

Departed SFO at 2315 on 2/9/00 via UA arrive in Sydney, Australia at 0840 on 2/11/00. Departed Sydney for Cairns on Qantas and arrive at 1330. Accommodations in Cairns were at the Royal Harbour Tradewinds. Departed Cairns at 1355 on 2/12/00 and arrived in Port Moresby, PNG, at 1520 on 2/12/00. Accommodations in Port Moresby were at the Park Royal. The R/V *Franklin* (CSIRO) arrived at 0700 on 2/13/00, boarded vessel at 0900 to unpack science cargo in aft cargo hold and departed at 1030 to begin Leg 10. All seismic gear arrived in good order, equipment setup commenced upon departure with the first seismic line beginning at 2309 on 2/13/00.

Leg 10 cruise objectives: obtain grab samples, Kastin cores, hydro-casts, and seismic in the western Gulf of Papua. AIMS, SUNY, and UW were responsible for the grab sample, hydro-cast, Kastin core and box core operations, VIMS and Stanford were responsible for the seismic. Seismic consisted of a single multi-element sparker source (SIG 100) with a Hunttec Boomer as backup.

Last seismic line ended at 0900 on 2/20/00 to begin transit to Cairns, Australia. During transit all seismic gear was packed and secured for transit across the Coral Sea and for shipment back to the US. Arrived in Cairns at 0730 on 2/22/00. Accommodations in Cairns for 2/22 – 23/00 were at the Royal Harbour Tradewinds. Departed Cairns at 0600 on 2/24/00 and arrived in Sydney, Australia at 1000. Departed Sydney at 1300 on 2/24/00 for SFO, arrived at 0720 on 2/24/00.

Seismic acquisition:

<u>Parameters</u>	<u>SIG-100</u>
Shooting Interval =	2000 – 5000 ms
Sampling Frequency =	5000 Hz
Recording Length =	256 - 512 ms
Energy at 4kV and 5kV =	240 - 375 J
High Pass Filter Digital =	150 Hz
Low Pass Filter Digital =	1000 Hz
Source distance from ship =	20 m
Source depth =	0.3 m
Distance to 1st phone from ship =	25 m

Total Seismic Statistics: 6066 minutes (101.1 hr.) of seismic data collected
143.92 MB of data on Tape 1 in Index 1 – 3 and Tape 2 (archive) in Index 1.
110,303 shots using the SIG-100 sparker.
455 nm. of track lines estimated (5 kts. @ 2.57 m/s)

Equipment repairs: SIG-100 multi-element sparker needed trimming approximately every 7 to 8 hours to run at 5kV.
Benthos 3m streamer needs new liner. On PNG0011C debris in water cut liner or streamer near termination. Repaired with electrical tape, minimal fluid loss.
Axial fans need on both Hunttec power supply and capacitor unit to keep cool.
TSS TVG/amplifier needed leads on power supply soldered.
EPC1600 required numerous stylus replacements