



WESTERN MEDITERRANEAN REGIONAL (WMR01RE13) PRE-STACK KIRCHHOFF TIME & DEPTH MIGRATION

MULTI-CLIENT 2-D SURVEY - 931 km

ACQUISITION PARAMETERS

Source: 2940 cubic inch air-gun array (2000psi)
 Shot Point Interval (SPI): 37.5m
 Gun Depth: 6m +/-1m
 Streamer Separation & Length: 1 x 6000m
 Number of Channels: 480
 Group Interval: 12.5m
 Streamer Type: Sytrak RDA
 Streamer Depth: 8m +/-1m
 Record Length: 12286ms
 Sample Interval: 2ms
 Fold: 80 fold at 6.25m CMP interval
 Shooting Direction: 136°/316°
 Projection: UTM Zone 32, CM: 9 deg East, Datum: ED50
 Acquired By: M.V Zephyr 1
 Acquisition date: October to December 2001

TIME PROCESSING SEQUENCE

TGS-Imaging; Bedford, UK, 2013

- Input SEG-Y – (FIELD)
- Merge navigation with seismic trace headers – (NAVMERGE)
- Designature (debubble & zero phasing)
- Bandwidth enhancement with Clari-Fi Amplio
- Resample from 2ms to 4ms
- Acquisition denoise and noise editing
- Surface Related Multiple Elimination, SRME
- 2km Kirchhoff pre-stack time migration (PSTM) velocity analysis
- Radon demultiple
- Diffraction Multiple Attenuation, DMA – (PREMIGDEMULT)
- Inverse Q correction (phase & amplitude)
- CMP and Offset Domain denoise
- Output gathers for Depth Domain Processing
- Curved Ray Kirchhoff Pre Stack Time Migration
- 2km Kirchhoff PSTM velocity analysis – (STKVEL, MVLTRCVOLRMS & MIGVEL)
- 50m Automated residual velocity analysis – (SVELTRCVOL)
- Anisotropy scan (ETAINTERP)
- Final Anisotropic Kirchhoff Pre Stack Time Migration – (PSTMGATHER)
- Radon demultiple – (PSTMGTHRNM)
- Stack – (RAWMIG & RAWANGSTKSET)
- Post stack processing – (PRCMIG)

AVAILABLE TIME DOMAIN PRODUCTS

PRODUCT	LAYOUT	FORMAT
FIELD - Field data at 2ms sampling	480 fold SHOT	SEG-Y
SCRVPRNAV - Processed source-receiver navigation	Source & Receiver	P190
POSTKNAV2D - Post stack navigation	Bin centre	UKOOA
NAVMERGE - Field data with navigation in trace headers	480 fold SHOT	SEG-Y
PREMIGDEMULT - Pre-migration final demultiple data	80 fold CMP	SEG-Y
PSTMGATHER - Pre-stack time migrated CDP gathers without NMO correction	80 fold CMP	SEG-Y
PSTMGTHRNM - Pre-stack time migrated CDP gathers with NMO correction	80 fold CMP	SEG-Y
RAWANGSTKSET - (7-18,18-29,29-40,40-51) Near, mid, far, & ultra-far angle stacks	STACK	SEG-Y
RAWMIG - Raw Migration	STACK	SEG-Y
PRCMIG - Processed Migration	STACK	SEG-Y
MVLTRCVOLRMS - Migration RMS velocity trace volume	Smoothed	SEG-Y
SVELTRCVOL - Stacking RMS velocity trace volume	Interpolated	SEG-Y
STKVEL & MIGVEL – Stack & Migration RMS velocity text files	Picked	ASCII/ESSOV2
ETAINTERP - Anisotropy eta values - interpolated – trace volume	Interpolated	SEG-Y
DPFNL RPT - Data Processing Final Report	Report	PDF



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PLANNED DEPTH PROCESSING SEQUENCE

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- Input time domain CMP gathers after pre-migration denoise
- Water Bottom Interpretation (WATERBOT)
- Tomographic Velocity Update #1 (post salt)
- Tomographic Velocity Update #2 (post salt)
- Focusing Analysis (FAN)
- Sediment model Kirchhoff and Reverse Time Migration (RTM) Pre-stack Depth Migrations (PSDM)
- Top Salt Interpretation (TOPSALT)
- Salt Flood Model Kirchhoff and RTM PSDM
- Base Salt Interpretation (BASESALT)
- Tomographic Velocity Update #3 (base salt)
- Tomographic Velocity Update #4 (base salt) (MIGVELSYD, DELTAFLD, EPSILONFLD)
- Reverse Time Migration Delayed Image Time scan
- Final TTI RTM PSDM (RTMRAWMIG, RTMPRCMIG)
- Final Tilted Transverse Isotropic (TTI) Kirchhoff PSDM
- Depth Residual Moveout
- Depth to Time Conversion
- Radon demultiple
- Final gather conditioning –(KIRGTHNORM, KIRDMGTHRM)
- Final Stack – (KIRDMMIG)
- Post-stack processing– (KIRDMPMIG, KIRFTMPMIG)

PLANNED AVAILABLE DEPTH DOMAIN PRODUCTS

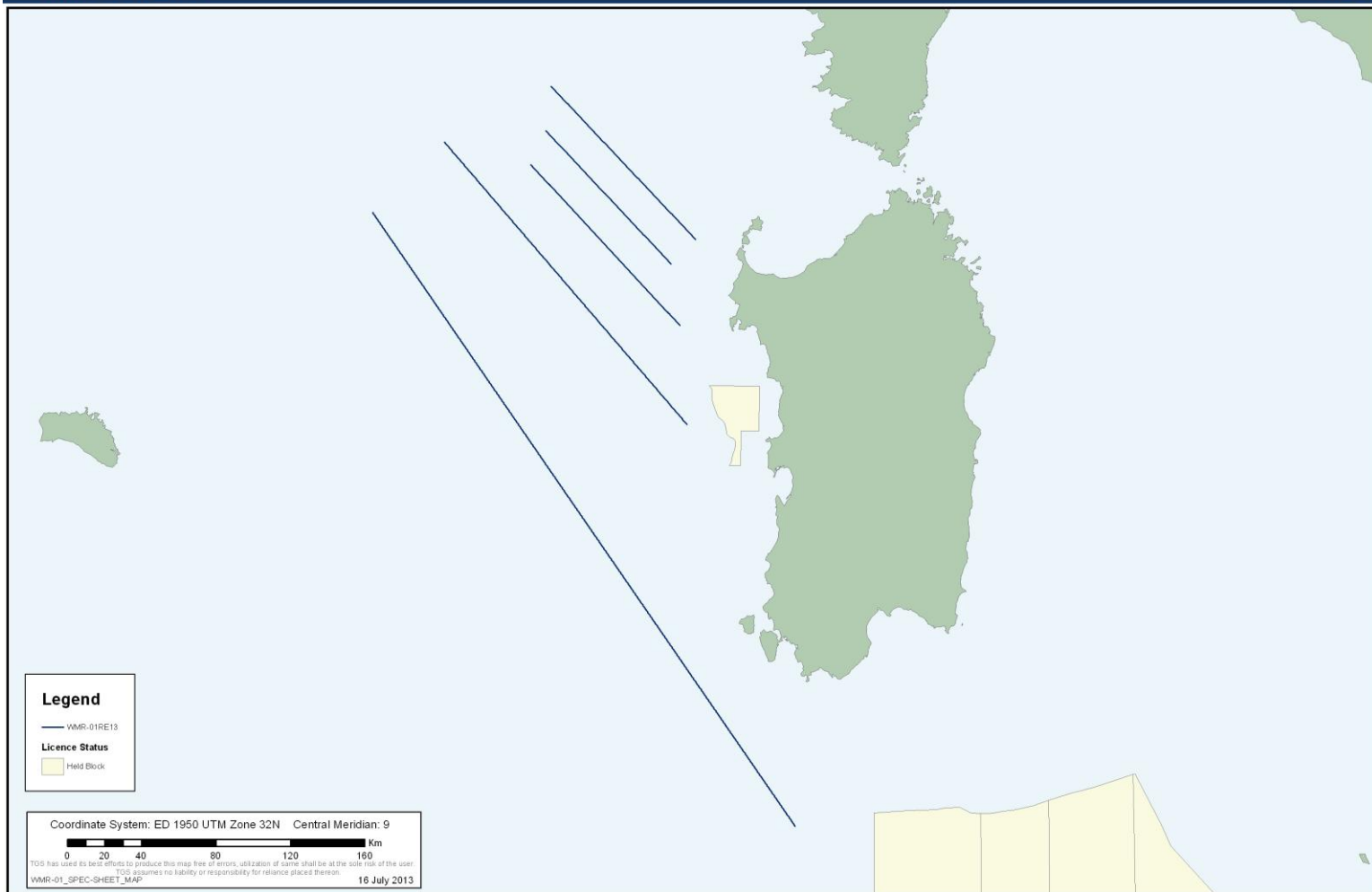
PRODUCT	TYPE	FORMAT
KIRGTHNORM - Kirchhoff PSDM gathers without residual NMO (Final - in depth)	80 fold CMP	SEG-Y
KIRDMGTHRM - Kirchhoff PSDM gathers with residual NMO (Final - in depth)	80 fold CMP	SEG-Y
KIRDMMIG - Kirchhoff pre stack depth migrated stack - raw (Final - in depth)	STACK	SEG-Y
KIRDMPMIG- Kirchhoff pre stack depth migrated stack - processed (Final - in depth)	STACK	SEG-Y
KIRFTMPMIG- Kirchhoff PSDM processed - (converted to time w/ MIGVELSYD)	STACK	SEG-Y
RTMRAWMIG-Reverse time migration - raw (in depth)	STACK	SEG-Y
RTMPRCMIG-Reverse time migration - processed (in depth)	STACK	SEG-Y
MIGVELSYD - Final velocity volume - unsmoothed (interval velocities in depth)	Interpolated	SEG-Y
DELTAFLD - Final Anisotropy Delta Field - SEG-Y	Interpolated	SEG-Y
EPSILONFLD - Final Anisotropy Delta Field - SEG-Y	Interpolated	SEG-Y
BASESALT - Interpreted base of salt horizon in depth	Picked	ASCII
TOPSALT - Interpreted TOP of salt horizon in depth	Picked	ASCII
WATERBOT - Interpreted water bottom horizon (ASCII) in depth	Picked	ASCII
DPFNLRPT - Data Processing Final Report	Report	PDF



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The processing flow and parameters published herein are the anticipated flow and parameters for the survey and TGS will use commercially reasonable efforts to follow this flow and parameterization. However, the foregoing notwithstanding, TGS reserves the right to modify the processing flow and parameters as needed to adjust for timing, testing, and new technologies.