Whitmarsh, R.B., Sawyer, D.S., Klaus, A., and Masson, D.G. (Eds.), 1996
Proceedings of the Ocean Drilling Program, Scientific Results, Vol. 149

48. *DATA REPORT:* SEISMIC LINE LG12 IN THE IBERIA ABYSSAL PLAIN[1]

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INTRODUCTION

Sites 898, 900, and 901 of Ocean Drilling Program Leg 149 are located on seismic line LG12, and Sites 897 and 899 are located just to the north of the line (Fig. 1). This paper presents the acquisition and processing parameters of the seismic data, as well as line LG12 (Fig. 2, in text and in back-pocket foldout).

METHODS

Seismic line LG12 was shot in 1990 during the *Lusigal* cruise, managed by the "Groupe d'Etude de la Marge Continentale" of Villefranche-sur-Mer (chief scientist: Gilbert Boillot). The sound source was a two-line array of 8 water guns (1.28 L, or 80 in^3 each), shooting every 50 m. The data were acquired with a 96-channel, 2400-m-long AMG digital streamer with 25-m groups. The maximum offset was 2700 m. The data were recorded in SEG-D demultiplexed format with a 4-ms sampling rate and a recording window of 8 s.

Standard processing of the seismic data was performed on a Perkin Elmer computer using the GEOMAX software, and included the following steps:

1. Reformat the SEG-D data to GEOMAX format.
2. Edit the data in order to eliminate bad traces and noisy records.
3. Select every fourth trace from each shot gather.
4. Number the common midpoints (CMP) from acquisition system geometry.
5. Equalize amplitude to achieve spatial balance.
6. First break mute.
7. Sort to CMP gather.
8. Velocity analysis (coherency semblance and constant velocity stack).
9. Normal moveout correction.
10. 24-fold stack (CMP interval of 50 m).
11. F-K filter.
12. F-K time migration.
13. Time-varying bandpass filter (SP = shotpoints, TWT = two-way traveltime; bsf = below seafloor):

SP 2–1622	7–8.8 s TWT	14–60 Hz
	9.2–11 s TWT	14–40 Hz
	>11 s TWT	13–25 Hz
SP 1623–5931	0–2 s TWT bsf	14–60 Hz
	>3.3 s TWT bsf	14–30 Hz

Linear interpolation of the filter is applied between each window limit.

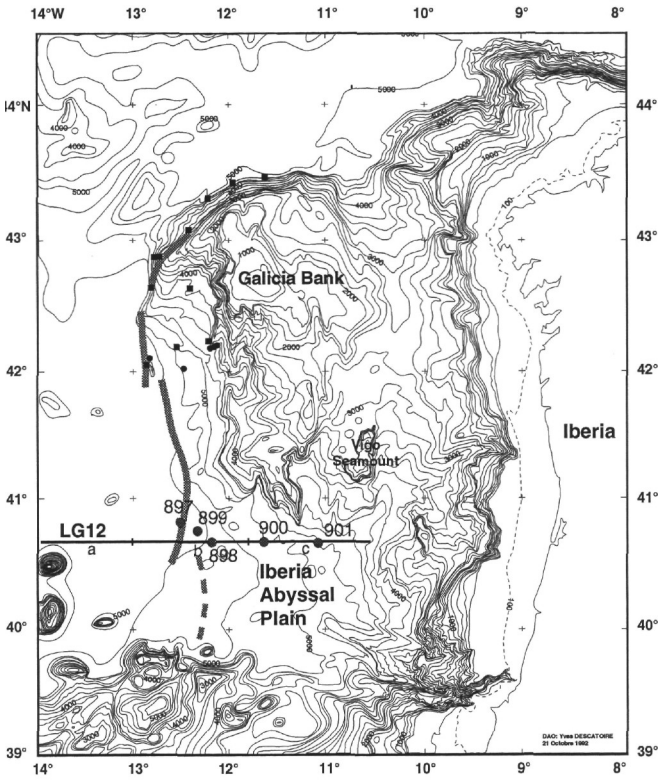

Figure 1. Location of seismic line LG12 in the Iberia Abyssal Plain on a bathymetric map of the West Iberia Margin (bathymetry from Lallemand et al., 1985). Sections a, b, and c are presented in Figure 2 in text and in the foldout included in the back pocket of this volume. The peridotite ridge is outlined by a gray shaded line, and locations of Sites 897-901 of Leg 149 are shown. On the Galicia deep margin, solid circles are ODP Leg 103 sites, and solid squares are diving sites of the Galinaute cruise.

14. Time-varying amplitude gain control (AGC):

Shotpoint	Time (s TWT bsf)	AGC window length (ms)
SP 2–1622	0–1.8	500
	>1.8	1200
SP 1623–5931	0–2.5	200
	>2.5	1500

The short section (d) shown on Figure 1 is a prestack depth migration (CMP interval of 25 m; for details on the method, see Bitri and Marthelod, in press). A prestack depth migration of a longer part of the line, covering the drilling Sites 898, 900, and 901, is presented in Krawczyk et al. (this volume).

[1]Whitmarsh, R.B., Sawyer, D.S., Klaus, A., and Masson, D.G. (Eds.), 1996. *Proc. ODP, Sci. Results,* 149: College Station, TX (Ocean Drilling Program).
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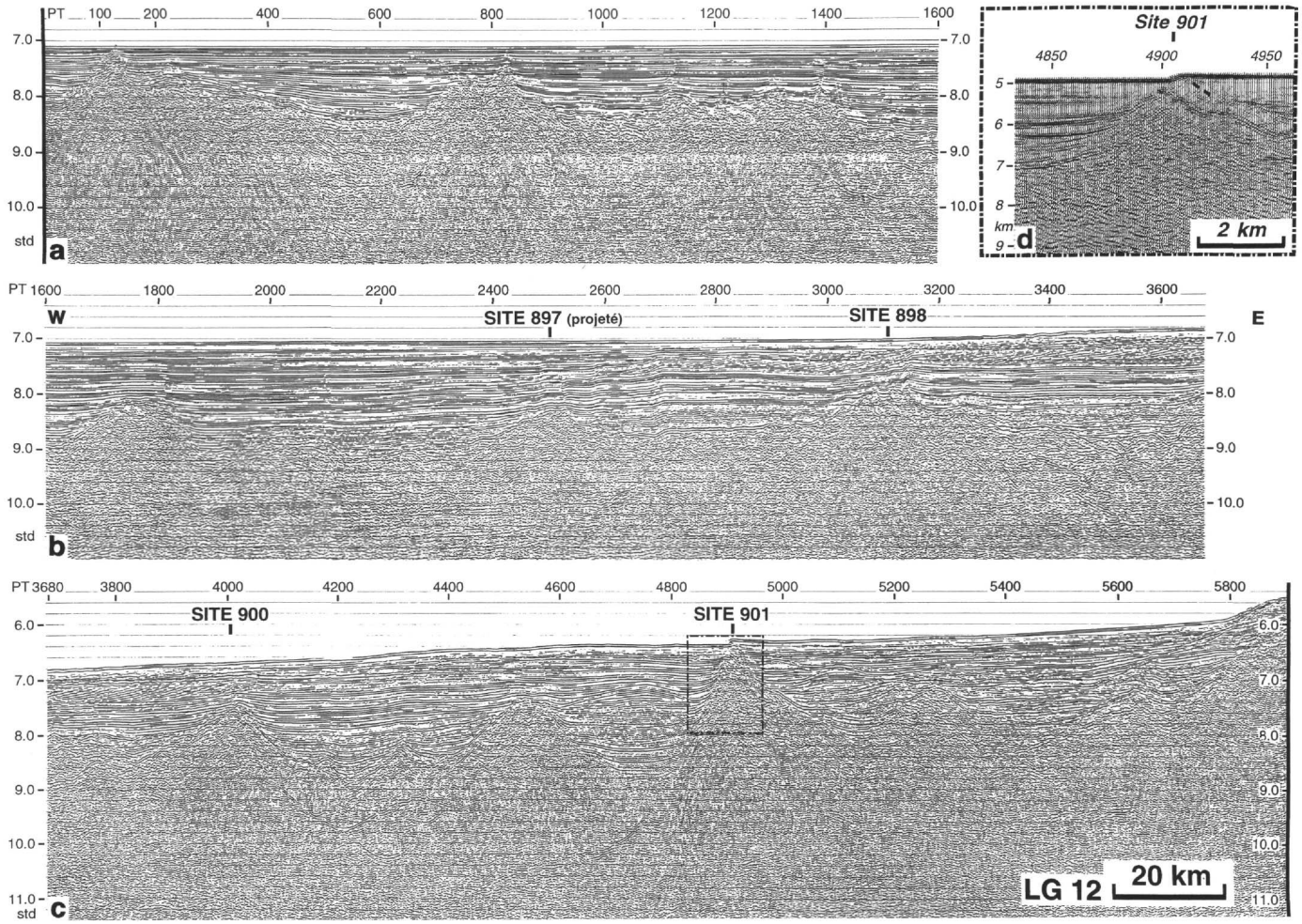

Figure 2. Three sections (a, b, and c) of seismic line LG12 (time migrated), from west to east (see location in Fig. 1). Section d is a prestack depth migration of the section framed on c (from Beslier et al., 1995). The same line is also presented as a foldout in the back pocket of this volume.

CONCLUSION AND SUMMARY

Seismic line LG12 is an east-west-trending line perpendicular to the Portuguese Margin (Fig. 1). It runs from the Atlantic oceanic domain to the west (Whitmarsh et al., 1990, 1993), to a typical continental domain to the east (Mougenot, 1989). A layer of post- and synrift, and locally pre-block-tilting sediments (Fig. 2, section d), covers the basement and is about 1 s TWT thick on the top of the basement highs and 3 s TWT thick in the basins in between (Fig. 2).

The acoustic facies of the basement and the results of drilling along the line (this volume) allow three main domains from west (oceanward) to east (toward the continent) to be distinguished:

1. An oceanic domain (SP 1-1600), where the acoustic basement is highly diffracting and free of synrift sediments. The top of the basement is shallower than in the adjacent domain to the east. The basin-and-ridge buried topography is north-south, trending parallel to the J (or M0) magnetic anomaly (Whitmarsh et al., this volume). Unfortunately, acquisition artifacts (inadvertent recording of a multiple series from a previous shot, called "multiple wrap-around" in McBride et al., 1994), appearing as horizontal "reflectors," prevent a clear imaging of the crustal structure.

2. A continental domain (SP 4900-5931), where the top of a typical crustal block of the Portuguese margin, tilted toward the continent, was drilled. Here, Site 901 sampled Tithonian limestone (Sawyer, Whitmarsh, Klaus, et al., 1994; Collins et al., this volume). Both the crustal structure and Mesozoic sediments facies suggest a continental nature of the basement (Sawyer, Whitmarsh, Klaus, et al., 1994).

3. An ocean/continent crustal transition (OCT) (SP 1600-4900), where the acoustic facies of the basement is different from adjacent domains: it is less diffracting than the oceanic basement, and crustal blocks do not present the asymmetric shape typical of the continental domain (Beslier et al., 1995; this volume). Two basement ridges were drilled during Leg 149: peridotite was sampled at Site 897, confirming that mantle rocks outcrop over more than 250 km along the West Iberia Margin (Beslier et al., 1993), and gabbro was sampled at Site 900 (for more details, see the chapters of Section 4, "Ultramafic Rocks," and Section 5, "Mafic Rocks," this volume).

ACKNOWLEDGMENTS

We thank the Captain and the crew of *Le Suroît,* the technical team responsible for the acquisition of MCS data, IFREMER and GENAVIR for technical and financial support of the *Lusigal* cruise, CNRS-INSU for providing post-cruise financial support, and IPG of Strasbourg for help in data processing. This is contribution no. 675 of the "Groupe d'Etude de la Marge Continentale et de l'Océan" (GEMCO), CNRS-URA 718 and University of Paris VI.

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Date of initial receipt: 7 December 1994
Date of acceptance: 18 July 1995
Ms 149SR-257