

Contents

1	Acoustic Coring—The Rationale	1
1.1	The Need for Accurate Assessments of Sub-seabed Sediments	1
1.2	Importance to Present Maritime Operations	5
1.3	The Technology Gap	9
1.4	Filling the Gaps—The Case for “Acoustic Coring”	13
	References.	16
2	Imaging of the Near-Surface	19
2.1	Capturing the Relevant Characteristics of Near-Surface Sediments.	19
2.2	Buried Objects and Benthic Habitats	22
2.3	Significance and Value—Moving Toward an Answer Product	29
	References.	31
3	Imaging into the Seabed	33
3.1	Creating a Prototype.	33
3.2	Formulating the First Product	35
3.3	The Next Generation: The <i>Acoustic Corer</i>	37
3.4	Data Processing—Coherent Summation and Flow Diagram	41
3.5	Processing <i>Acoustic Corer</i> Data	46
3.5.1	Data and Acquisition.	46
3.5.2	JYG-Cross Processing	48
3.5.3	Synthetic Aperture—Rendering and Processing	57
3.5.4	Combining Low-Frequency and High-Frequency Datasets.	61
3.6	Conclusions	62
	References.	63
4	Acoustic Seabed Interrogation	65
4.1	Using the Low-Frequency (LF) JYG-Cross Data	65
4.2	High-Frequency (HF) Identification of Non-specular Returns	68

4.3	Sizing and Identifying Individual Targets	70
4.4	Acoustic Textures and Substrate Variations	74
4.5	Combining with Other Measurements.	81
4.5.1	Traditional Tools.	81
4.5.2	Investigations of Sites with Complex Geology	82
4.5.3	Gassy Sediments	83
4.6	Interpretations—Reporting	86
4.7	Conclusions	91
	References.	92
5	The Future of Acoustic Seabed Interrogation	93
5.1	Filling the Technology Gap	93
5.2	Moving to New Platforms	95
5.3	New Environments—New Applications	98
5.4	Conclusions	103
	References.	105
	Index	107

Acoustic Investigation of Complex Seabeds

Guigné, J.Y.; Blondel, P.

2017, XIV, 108 p. 84 illus., 72 illus. in color., Softcover

ISBN: 978-3-319-02578-0