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Sommario/riassunto	The development of sustainable supplies of critical minerals and metals is required if society is to succeed in the decarbonisation of the global economy. While the discovery of critical metal deposits is urgent, of equal importance is understanding the life cycle of critical metals that are already in the economy. This book includes ten empirical studies on both the discovery and investigations of the life cycle of critical metals. A wide range of critical metals in the hydrothermal system, including Co, Ga, Ge, Re, REEs, In, Sb, Sn and W, were investigated by researchers from China, Australia, North America and Europe. These studies present an advanced understanding of the genesis of global critical metal resources, by utilising traditional and non-traditional analytical approaches. This book also promotes the green mining concept. Innovative technological development that allows extracting additional critical metals from current production and from historic mine wastes is reported. Academics and practitioners will find, in this book, very recent case studies of geochemistry, mineralogy, geometallurgy and the exploration of critical metals in various hydrothermal systems, as well as the major challenges and opportunities facing academic research and industrial mineral exploration.