

# Preface

The Precambrian (4560–541 Ma) covers almost 90 % of the planet Earth's history. Precambrian continents experienced complex geological evolution, and carry important records of the secular changes in tectonics and metallogeny, including, at least, three important tectonic events that are the Neoproterozoic enormous crustal growth, the tectonic regime inversion from pre-plate tectonics to plate tectonics, and the Paleoproterozoic great oxygen event (GOE). Precambrian rocks are extensively distributed in China, not only in cratons, but also in Phanerozoic orogenic belts. The Chinese continent consists of several cratons, i.e., the North China Craton, the South China Craton and the Tarim Craton, and several Phanerozoic orogenic belts. These three cratons have different tectonic evolving history, and carry important records of crustal generation-growth-cratonization and interaction with circumjacent terrains. Some residual Precambrian rocks or micro-continental blocks also occur in Phanerozoic orogenic belts, such as in the Himalaya and Xing'an-Mongolia orogenic belts. There are abundant mineral resources in these cratons and micro-blocks, which were formed in different geological periods and recorded a common change in the pattern of metallogeny, mineral deposit character, spatial distribution, and genetic mechanisms that match well with the timings and styles of the major tectonic events. The assembly of the Chinese unified continent is considered to be amalgamated by several Triassic orogenic belts. Therefore, study of the three old lands in China will surely help deepen our understanding of China geology, as much as global continental tectonics and continental dynamics.

This book, *Precambrian Geology of China*, contains five parts and 12 chapters. Part I has only one chapter and is about the general Precambrian geology of China (by Mingguo Zhai and Yanyan Zhou; [General Precambrian Geology in China](#)). It summarizes the geology division of China, the general geology in the three cratons/blocks, and the assembly of the Chinese landmass.

Part II focuses on the Precambrian geology of the North China Craton. It contains three chapters. [Formation and Evolution of Archean Continental Crust of the North China Craton](#) (by Yusheng Wan) is about the Archean geology of the craton,

and it mainly focuses on the Archean geological record of the craton back to >3.8 Ga, as well as the formation of the Archean basement. [Paleoproterozoic Granulites in the North China Craton and their Geological Implications](#) (by Jinghui Guo and others) concentrates on the Paleoproterozoic granulites and tectonic evolution of the craton. [Late Paleoproterozoic–Neoproterozoic \(1800–541 Ma\) Mafic Dyke Swarms and Rifts in North China](#) (by Peng Peng) narrates the late Paleoproterozoic to Neoproterozoic igneous records, sedimentation, and rift evolution in the craton.

Part III (by Yuan-sheng Geng) is about the Precambrian geology of the South China Craton. It has three chapters. [Early Precambrian Geological Signatures in South China Craton](#) focuses on the Archean geological records and their features, and the basement evolution during Paleoproterozoic; [Mesoproterozoic Era of South China Craton](#) is about the Mesoproterozoic magmatic events of the Yangtze and Cathaysian blocks/subcratons, and the tectonic evolution of the Jiangnan orogenic belt; and [Neoproterozoic Era of South China Craton](#) is dealing with the Neoproterozoic orogenic and rifting events in South China.

Part IV (by Bei Xu) summarizes the Precambrian Geology of the Tarim Craton. It divides into three chapters: [Late Archean: Mesoproterozoic Geology of the Tarim Craton](#) about the Archean to Mesoproterozoic formations and records; [The Neoproterozoic Geology of the Tarim Craton](#) about the Neoproterozoic formations and records; and [The Precambrian Tectonic Evolution of the Tarim Craton](#) about the Precambrian tectonic evolution of the Tarim Craton.

Part V is about the geology of micro-blocks in the Phanerozoic orogens, mainly concentrating on the Tibetan Plateau in the Himalaya Orogen ([The Precambrian Geology of the Tibetan Plateau](#) by Fulai Liu et al.) and the paleo-continent in the Xing'an-Mongolia orogenic Belt ([Paleocontinents in Xing'an-Mongolia orogenic belt \(XMOB\)](#) by Bei Xu).

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