

The Geology of Japan

EDITED BY

TERESA MORENO

Institute of Environmental Assessment and Water Research (IDÆA),
Spanish National Research Council (CSIC), Barcelona, Spain

SIMON WALLIS

Department of Earth and Planetary Sciences, Graduate School of
Environmental Studies, Nagoya University, Japan

TOMOKO KOJIMA

Department of Earth and Environmental Sciences, Graduate School of
Science and Technology, Kumamoto University, Japan

and

WES GIBBONS

WPS, 08870 Sitges, Barcelona, Spain

2016
Published by
The Geological Society
London

Contents

Preface	vii
Contributors	ix
Foreword	xiii
1. Geological evolution of Japan: an overview A. Taira, Y. Ohara, S. R. Wallis, A. Ishiwatari & Y. Iryu	1
2. Regional tectonostratigraphy	
2a. Palaeozoic basement and associated cover M. Ehiro, T. Tsujimori, K. Tsukada & M. Nuramkhaan	25
2b. Pre-Cretaceous accretionary complexes S. Kojima, Y. Hayasaka, Y. Hiroi, A. Matsuoka, H. Sano, Y. Sugamori, N. Suzuki, S. Takemura, T. Tsujimori & T. Uchino	61
2c. Paired metamorphic belts of SW Japan: the geology of the Sanbagawa and Ryoke metamorphic belts and the Median Tectonic Line S. R. Wallis & T. Okudaira	101
2d. Cretaceous–Neogene accretionary units: Shimanto Belt G. Kimura, Y. Hashimoto, A. Yamaguchi, Y. Kitamura & K. Ujiie	125
2e. The Kyushu–Ryukyu Arc K. Miyazaki, M. Ozaki, M. Saito & S. Toshimitsu	139
2f. Izu–Bonin Arc Y. Tatsumi, Y. Tamura, A. R. L. Nichols, O. Ishizuka, N. Takahashi & K. Tani	175
2g. Hokkaido H. Ueda	201
3. Ophiolites and ultramafic rocks A. Ishiwatari, K. Ozawa, S. Arai, S. Ishimaru, N. Abe & M. Takeuchi	223
4. Granitic rocks T. Nakajima, M. Takahashi, T. Imaoka & T. Shimura	251
5. Miocene–Holocene volcanism S. Nakada, T. Yamamoto & F. Maeno	273
6. Neogene–Quaternary sedimentary successions M. Ito, K. Kameo, Y. Satoguchi, F. Masuda, Y. Hiroki, O. Takano, T. Nakajima & N. Suzuki	309
7. Deep seismic structure A. Hasegawa, J. Nakajima & D. Zhao	339
8. Crustal earthquakes S. Toda	371
9. Coastal geology and oceanography Y. Saito, K. Ikehara & T. Tamura	409
10. Mineral and hydrocarbon resources Y. Watanabe, T. Takagi, N. Kaneko & Y. Suzuki	431
11. Engineering geology M. Chigira, Y. Kanaori, Y. Wakizaka, H. Yoshida & Y. Miyata	457
12. Field geotraverse, geoparks and geomuseums W. Gibbons, T. Moreno & T. Kojima	485
Index	509