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Nota di contenuto	Low-Grade Metamorphism; Contents; List of contributors; Preface; 1: Low-temperature metamorphism: an overview; 1.1 What is it?; 1.2 A decade of progress; 1.3 Very low-grade metamorphism in a global setting; 1.4 Does low-temperature metamorphism matter?; 1.5 Mineral abbreviations; 2: Very low-grade metapelites: mineralogy, microfabrics and measuring reaction progress; 2.1 Metapelitic rock.; 2.1.1 Introduction; 2.1.2 Metapelitic zones and lithology; 2.1.3 Metastable equilibrium and clay mineral reaction progress; 2.2 Mineralogical relations; 2.2.1 Phyllosilicate reaction series 2.2.2 Smectite-I/S-illite-muscovite 2.2.3 Smectite-corrensitite-chlorite; 2.2.4 Kaolinite-pyrophyllite; 2.2.5 Berthierine; 2.3 Metapelitic microfabrics; 2.3.1 Introduction; 2.3.2 Microfabrics of the late diagenetic zone; 2.3.3 The anchizone and slaty cleavage development; 2.3.4 The anchizone-epizone transition; 2.4 Measuring reaction progress; 2.4.1 X-ray diffraction techniques; 2.4.2 Transmission electron microscope techniques; 2.4.3 Correlation of X-ray diffraction

and transmission electron microscope measurements; 2.4.4 Retrogression; 2.5 Geothermometry and geobarometry 2.5.1 Illite-smectite reaction 2.5.2 Illite and chlorite crystallinity; 2.5.3 Chlorite geothermometers; 2.5.4 Polytypism of chlorite and white mica; 2.5.5 Phengite geobarometer; 2.6 Overview of conditions of very low-grade metamorphism; 2.7 Future research; 3: Patterns of very low-grade metamorphism in metapelitic rocks; 3.1 Introduction; 3.2 Sampling and data interpretation; 3.2.1 Field sampling; 3.2.2 Methods of displaying regional metapelitic data; 3.2.3 Metapelites and basin maturity; 3.2.4 Pattern recognition; 3.3 Regional patterns of very low-grade metamorphism; 3.3.1 Geotectonic setting 3.3.2 Extensional settings 3.3.3 Accretionary settings; 3.3.4 Collisional settings; 3.3.5 High strain zones; 3.4 Low-temperature contact metamorphism; 3.4.1 Aureoles predating regional metamorphism; 3.4.2 Aureoles postdating regional metamorphism; 3.5 Regional controls on metapelitic patterns; 3.6 Conclusions; 4: Petrological methods for the study of very low-grade metabasites; 4.1 Introduction; 4.2 Field study of very low-grade metabasites; 4.3 Primary features; 4.3.1 Glass and palagonite; 4.3.2 Primary minerals; 4.3.3 Vesicles; 4.4 Secondary minerals; 4.4.1 Mafic layer silicates 4.4.2 Pumpellyite, prehnite and epidote 4.4.3 Other minerals; 4.5 Electron microprobe analysis of low-grade metabasites; 4.5.1 Analytical conditions; 4.5.2 Analytical difficulties; 4.5.3 Standards; 4.5.4 Analytical uncertainties; 4.5.5 Criteria for a good analysis; 4.6 Quantitative application of electron microprobe data; 4.6.1 Projections or low-grade mineral assemblages; 4.6.2 Projection from chlorite; 4.6.3 Projections from calcium-aluminium silicates; 4.6.4 Algebraic methods; 4.6.5 Petrogenetic grids; 4.6.6 Thermobarometry; 4.7 Summary 5: Patterns of regional low-grade metamorphism in metabasites

Sommario/riassunto

Low-Grade Metamorphism explores processes and transformations in rocks during the early stages of metamorphic recrystallization. There has been little analysis and documentation of this widespread phenomenon, especially of the substantial and exciting advances that have taken place in the subject over the last decade. This book rectifies that shortfall, building on the foundations of Low-Temperature Metamorphism by Martin Frey (1987). The editors have invited contributions from an internationally acknowledged team of experts, who have aimed the book at advanced undergraduate and
