

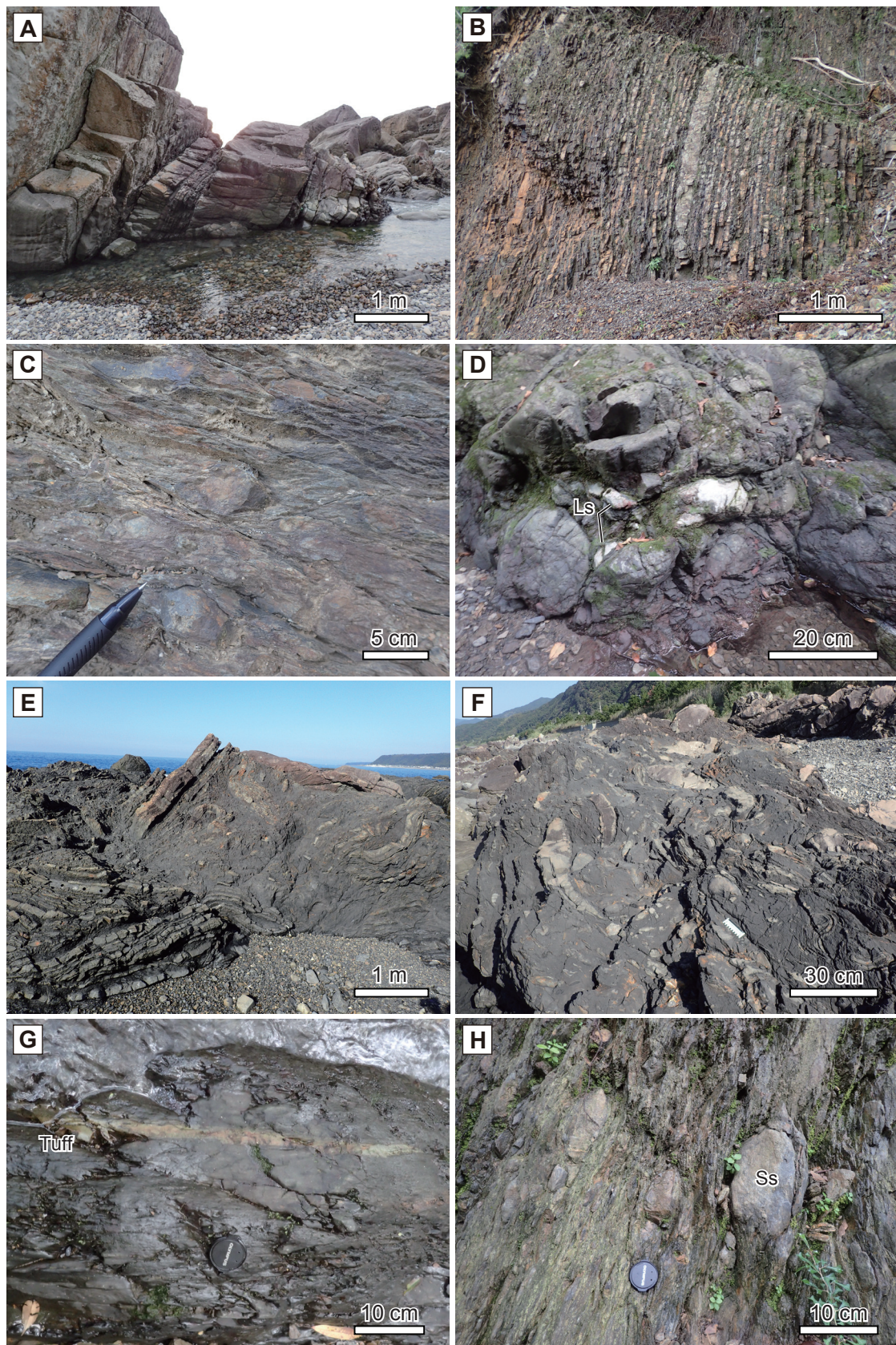


Fig. S1 Outcrop photographs of the Murotohanito Group. **A** Thick bedded sandstone of the Naharigawa Formation. **B** Interbedded sandstone and mudstone of the Naharigawa Formation. **C** Sandstone blocks within muddy matrix of the Sakihama Mélange. **D** Pillow lava with inter-pillow limestone of the Sakihama Mélange. **E** Slump fold of the Muroto Formation (A Member). **F** Rootless fold of the Muroto Formation (A Member). **G** Mudstone with felsic tuff layer of the Muroto Formation (B Member). **H** Sandstone blocks within muddy matrix of the Muroto Formation (B Member). Ls: limestone, Ss: sandstone.

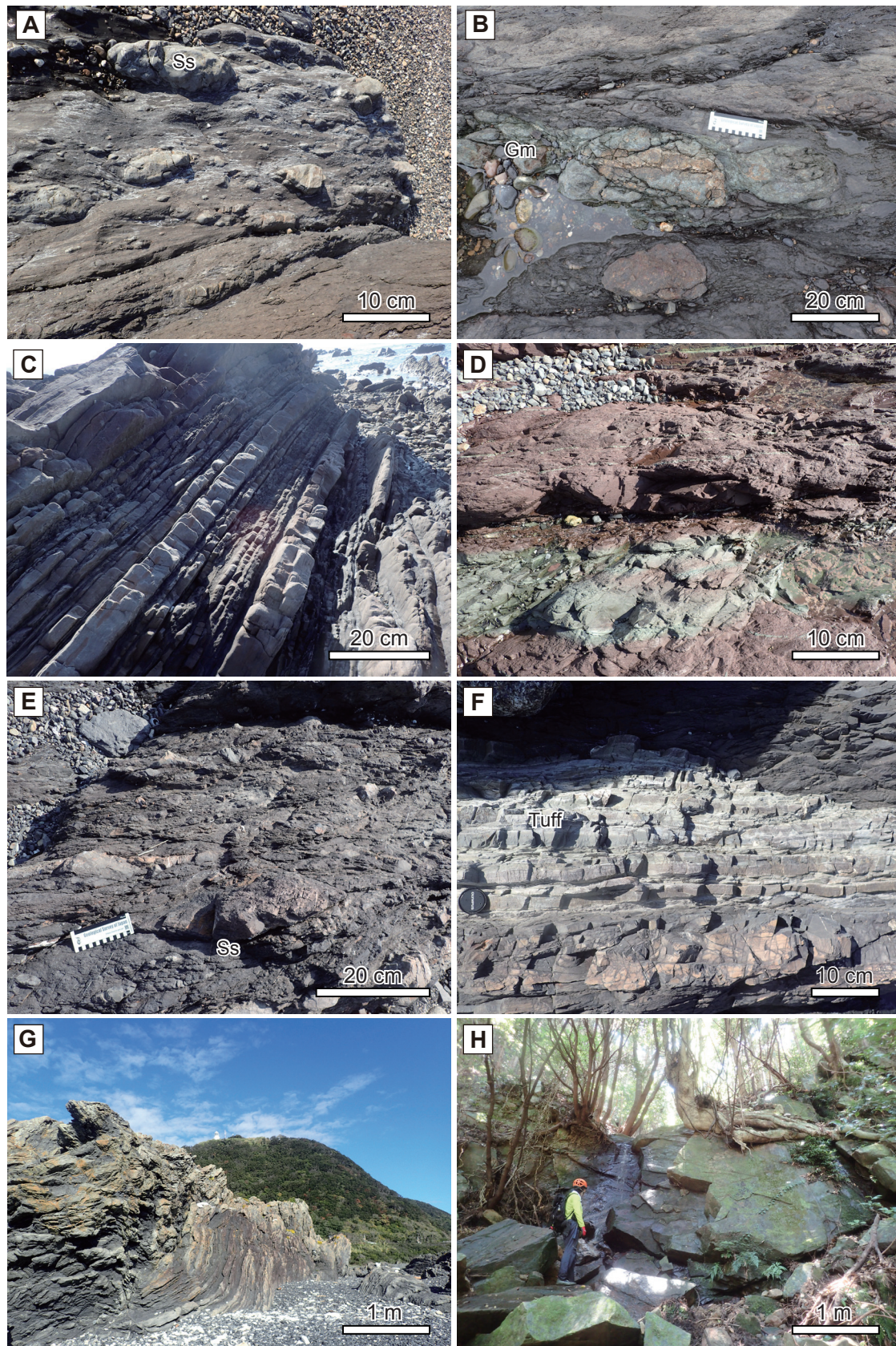


Fig. S2 Outcrop photographs of the Nabae Group. **A** Sandstone blocks within muddy matrix of the Hioki Mélange. **B** Green mudstone blocks within muddy matrix of the Hioki Mélange. **C** Interbedded sandstone and mudstone of the Tsuru Formation. **D** Red and green mudstone of the Tsuru Formation. **E** Sandstone blocks within muddy matrix of the Sakamoto Mélange. **F** Felsic tuff of the Sakamoto Mélange (Sk-T). **G** Slump fold of the Misaki Formation. **H** Massive sandstone of the Shijujiyama Formation. Gm: green mudstone, Ss: sandstone.

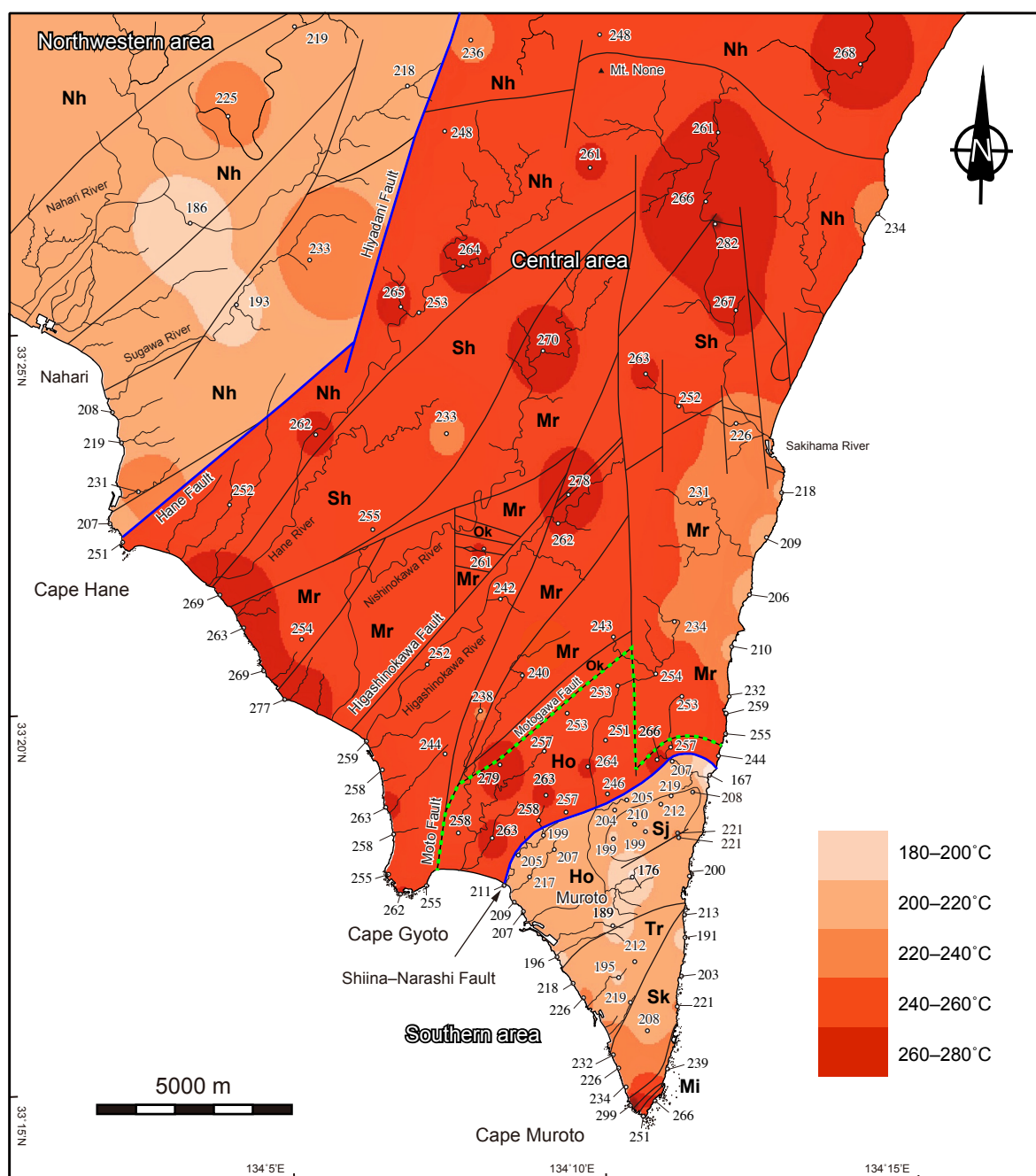


Fig. S3 Isothermal map of the Murotoanto and Nabae groups estimated by RSCM thermometry of mudstones.

Numbers show metamorphic temperature in degree Celsius. Blue line indicates a boundary of geothermal structure. Light green dotted line presents lithological boundary between the Murotoanto and Nabae groups. Nh: Naharigawa Formation, Sh: Sakihama Mélange, Mr: Muroto Formation, Ok: Oko Mélange, Ho: Hioki Mélange, Tr: Tsuru Formation, Sk: Sakamoto Mélange, Mi: Misaki Formation, and Sj: Shijujiyama Formation.