

**Figure F1.** Bathymetric map with locations of Site U1521, other Expedition 374 sites, Deep Sea Drilling Project (DSDP) Leg 28 Sites 270–273, ANDRILL Cores AND-1 and AND-2, and Cape Roberts Project (from McKay et al., 2019).

**Figure F2.** Photomicrographs of the main gravel-sized clast lithologies from Site U1521 core. A. Quartz-arenite, plane polarized light (PPL), magnification 2.5× (355.72 m CSF-A). B. Carbonate conglomerate, PPL, 1.6× (386.46 m CSF-A). C. Limestone, PPL, 2.5× (610.17 m CSF-A). D. Granite, PPL, 2.5× (326.27 m CSF-A). E. Basalt, PPL, 2.5× (279.34 m CSF-A). F. Biotite metagraywacke, PPL, 2.5× (577.18 m CSF-A). G. Phyllite with quartz boudins, PPL, 1.6× (559.14 m CSF-A). H. Biotite schist, cross polarized light (XPL), 2.5× (636.10 m CSF-A). I. Biotite ± white mica gneiss, XPL, 1.6× (579.95 m CSF-A).

**Figure F3.** Biotite composition in terms of  $Al^{IV}$  versus  $X_{Fe} [Fe/(Fe + Mg)]$  for Site U1521 clasts. Compositional end-members are shown at the edges of the diagram.

**Figure F4.** Site U1521 stratigraphic log (from McKay et al., 2019). A. Number of clasts per meter. B. Occurrence in percentage of each lithologic group all along the core. Percentage is calculated for each logged core; squares in the legend identify rock lithologies (modified after Marschalek et al., 2021). C. Position of sampled pebbles and cobbles and classification on the basis of thin section analysis (diamonds). See THINSECT in Supplementary material for detailed petrographic descriptions and mineral assemblage.