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Paper No. 90-2
Presentation Time: 9:00 AM-5:30 PM

NEOPROTEROZOIC STRATIGRAPHY AND PROVENANCE OF WEDEL JARLSBERG LAND, SVALBARD: NEW INSIGHTS INTO THE ORIGIN AND TRANSPORT HISTORY OF THE SOUTHWESTERN PROVINCE

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The pre-Devonian basement rocks of Svalbard are divisible into three distinct tectonic basement provinces. During the Silurian-Devonian Caledonian Orogeny, these crustal fragments were brought together by large-scale, north-south-trending strike-slip faults. Previous workers have correlated the Neoproterozoic–Paleozoic rocks of the Southwestern Province to equivalent units on Pearya, an exotic terrane in northern Ellesmere Island, providing a critical piercing point for tectonic reconstructions of the Caledonian Orogeny; however, the tectono-stratigraphic framework of these Neoproterozoic successions and the origin of the Southwestern Province remain poorly understood. Neoproterozoic metasedimentary rocks on Wedel Jarlsberg Land of the Southwestern Province consist largely of glacially-influenced siliciclastic rocks with minor carbonates and mafic volcanics. Here, we present new geological mapping, measured stratigraphic sections, carbon isotope chemostratigraphy, and detrital zircon U-Pb geochronology from the Deilegga Formation and overlying Sofiebogen and Kapp Lyell groups to refine Neoproterozoic stratigraphic correlations in southwestern Svalbard. We document previously undescribed carbon isotope excursions in the Höferpynten Formation of the Sofiebogen Group, which lie directly above glacial deposits that are most likely correlative with the global ca. 640-635 Ma Marinoan snowball Earth glaciation. New detrital zircon U-Pb data from Wedel Jarlsberg Land metasedimentary units yield polymodal age populations that range from ca. 1000-1100, 1250-1300, 1330-1430, 1600-1700, 2500-2600, and 2700-2900 Ma. These age populations and the new stratigraphic correlations proposed herein are consistent with provenance datasets from both the Pearya terrane and age-equivalent strata in the Greenland and Scandinavian Caledonides.

Session No. 90--Booth# 502

T221. Circum-Arctic Structural Events: Tectonic Evolution of the Arctic Margins and Trans-Arctic Links with Adjacent Orogens (Posters)
Sunday, 22 October 2017: 9:00 AM-5:30 PM

Halls 4EF (Washington State Convention Center)

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