

Cambrian paleontology in North Greenland and the early animal evolution

Tae-Yoon S. Park, Ji-Hoon Kihm, Jusun Woo, Jakob Vinther, Arne Nielsen,

North Greenland, paleontology, geology, Sirius Passet

Peary Land of North Greenland is a land of the highest latitude in the northern hemisphere, but has received limited attention due to its extreme remoteness. Nevertheless, this area holds a celebrated Cambrian fossil locality, Sirius Passet ($82^{\circ} 47.603' N$, $42^{\circ} 13.394' W$), which is a conservation Lagerstätte, producing soft-bodied marine animal fossils of ca. 520 Ma. Since the first discovery of Sirius Passet in 1984, there have been only seven times of palaeontological expeditions to the area. In 2016 and 2017 seasons, expeditions led by Korea Polar Research Institute collected ca. 1.5 tons of fossil slabs from the outcrop and the scree of the Lower Cambrian Buen Formation. The fossils include various metazoans, such as sponges, arthropods, stem-group arthropods, primitive mollusks, annelids, cycloneuralians including priapulids and loriciferans, primitive deuterostomes, and possible chordates, which would help reveal the aspect of the 'Cambrian explosion' of the animals. This area is part of the Northeast Greenland National Park which is the world's largest protected land area with almost no permanent human settlement. North Greenland needs to be more understood in terms not only of geology, but also of ecology and other research fields. Korea Polar Research Institute is planning to visit the area for the next two years, which would bring more information on the paleontology, geology, and ecology of this remote part of the world.