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Thickness of talus deposits on Fugleberget hillside (SW Spitsbergen) in the light of the theories of slope development in periglacial areas

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Periglacial areas are very sensitive to contemporary climate change. Rate of morphogenetic processes depends on numerous factors, including the most important: warming of air and ground, increase of precipitation (extreme rainfalls in particular) and shortening of snow cover duration. The dynamics of above mentioned processes may effectively modify conventional slope development models. The paper shows structure of selected talus slopes on Fugleberget hillside based on field observations and radar (GPR) sounding. Then the results have been compared to the classical slope models. The radar survey in April and May 2014 used RAMAC CU II Malå GeoScience system equipped with 30 MHz RTA antenna (Rough Terrain Antenna). Six GPR profiles of various length have been collected along the talus axes and transversally on Fugleberget hillside and partly on Hansbreen lateral moraine. According to the radar sounding maximum thickness of the debris deposits is 2530 m. Weathered material is getting thicker towards terminal part of the screes and debris deposits overlap marine sediments. The morphometry of the talus slopes shows that their current forms differ from conventional slope models, what can result from significant acceleration of geomorphic processes due to climate change