



Pleistocene origin of the shore platforms defined by cosmogenic ^{10}Be exposure dating, west coast of Korea

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Shore platforms are one of the most common features that occur at the base of coastal cliffs in rocky shores. It is generally appreciated that they are developed by the retreat of coastal cliffs through wave actions and weathering processes. Although there has been some pioneering works to directly constrain the rate of shore platform development for years to decades scale, there is little consensus on the rate of the long-term (>millennial) evolution of the shore platform due to complex shielding processes in parallel with undulating sea levels. Some platforms show contemporary features but there is always the possibility of inheritance that they originated from the last interglacial or earlier stages. The occurrence of wide shore platforms in resistant rocks is often regarded as the evidence for this inheritance, because features in resistant rocks develop very slowly and thus, they seem apparently very difficult to develop during the short stillstands of the Holocene. This study focuses on the origin of the wide shore platforms, which are common in headlands along the west coast of the Korean peninsula, based on cosmogenic ^{10}Be abundances. The coast was dominated by tidal processes and is classified into a macrotidal coast with tidal ranges up to 6 m. The shore platform we studied was mainly composed of sand stones, and very gentle as low as 2° , and thus, exposed as much as 150 m from the coast during low tide. Samples for cosmogenic ^{10}Be surface exposure dating were collected along two profiles which run perpendicular to the cliff line. The apparent surface exposure ages of the samples range from the Holocene (~ 4 ka) to the Pleistocene (~ 148 ka), increasing consistently with the increasing distance from the sea cliff along both profiles. Given the apparent old surface exposure ages of the shore platforms and their wide configuration, it is likely that they originated from the Pleistocene when the sea reached its present level, and that the present shore platform is being cut into the interglacial platforms.