

of arboreal arctic-alpine and alpine plants, *c.* 74.9% of the total number of herbaceous arctic-alpine and alpine plants and *c.* 61.7% of the total number of endemic alpine plants are present in these two regions. The particular larger-scale disjunctive distribution of three arctic-alpine plants, *i.e.* *Diapensia lapponica* subsp. *obovata* between East Asia and Cheju Island, and *Empetrum nigrum* var. *japonicum* and *Luzula rufescens* between northern Korea and Cheju Island, further implies the possibility of a previous land connection between the mainland of Korea and Cheju Island during at least some of the cold phases of the Pleistocene glaciation. Taken as a whole, the disjunctive distributions of arctic-alpine and alpine plants in Korea is likely to be due to first, the downslope and southward expansion of these species towards the Korean peninsula from the arctic region as the Pleistocene glacial phases approached, and then their subsequent isolation upslope in mountain areas as the post-Devensian climatic amelioration followed; secondly, the expansion of forest tree communities on lowland and montane areas subsequent to the end of the Pleistocene has had the effect of dividing formerly continuous arctic-alpine and alpine plants into disjunctive areas on high mountains; and thirdly, the general disappearance or restriction of available habitats for arctic-alpine and alpine plants because of the post-Devensian climatic amelioration.

## Depositional Environment and Genesis of Terrace Gravels in Reference to Gravel Shape and Base Level

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The present Naengcheon fluvial gravels can be separated from the present Yangnam and Umok-dong beach gravels on the basis of bivariate diagram between mean roundness and mean Maximum Projection Sphericity (MPS), both of which are independent variables. The fluvial gravels have consistently higher mean MPS and lower mean roundness than beach gravels. The terrace gravels in the Pohang Area were plotted on the MPS-roundness diagram. The result shows that terrace gravels derived from the Naengcheon valley are of fluvial environment, whereas those derived from Umok-dong and Yangnam coasts represent beach environment.

The Quaternary terrace gravels were formed by a cyclic fluctuation of the Quaternary base levels which had been progressively lowered down since the Neogene time. The fluvial terrace gravels generated by the morphoclimatic valley degradation and subsequent valley aggradation, while the marine terrace gravels were formed by the standstill or progradation of the Quaternary paleoshoreline in response to the repetitive marine transgressions.