

Geodiversity of Island-type tidal flat of Korea: Their uniqueness and potential to be inscribed as a World Heritage site

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Over one thousand rocky islands are distributed along the coast of the Korean Peninsula. Many of these islands form are covered by muddy sediments as tidal flats. These 'Island-type Tidal Flats' (ITF) have developed due to the decreasing accommodation space during the slow Late Holocene sea-level rise on the broad epicontinental shelf. Sedimentation and evolution show a variety of quite distinctive tidal flat patterns with intertidal and subtidal drainage systems depending upon the location and orientation of rocky shores. They are constantly influenced by the seasonal reversals of monsoonal winds, and are characterized by distinctive depositional settings such as of archipelago type (Shinan Archipelago), estuary type (Yuboodo Island, Seocheon), open bay type (Gochang) and semi-closed bay type (Boseong and Suncheon). Upper intertidal zone dips gently seaward with numerous intertidal creeks. The sediments progressively coarsen seaward from almost pure mud near shores, through mixed-flats (sandy mud and muddy sand) to sand flats with numerous tidal channels towards sea. The dominant sedimentary facies of upper tidal flats consist of homogeneous mud (highly bioturbated) and thinly interlaminated sand/mud to coarsely interlaminated sand/mud (wavy and lenticular bedding) showing seasonal stratification. Surface topography of lower intertidal flats shows landward migrating sand-bar complexes. The ITF is the only place in the world where tide-controlled sedimentation processes have produced special tidal flats surrounding numerous rocky islands on a broad epicontinental shelf. Macrotidal currents combined with waves and typhoons in this semi-closed oceanographic setting have provided unique geological and oceanographic conditions for their formation. We strongly believe that the ITF has great potential to be inscribed on a World Heritage List for the criteria (vii), (viii), (ix) and (x).