



Sedimentary facies and depositional history of the Jeju Strait shelf, Korea

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The deposits of the Jeju Strait shelf can be divided into twelve sedimentary facies that are grouped into four depositional units, which formed in response to late Pleistocene to Holocene sea level changes. The deposits of the shelf can be grouped into four depositional units, each with different sedimentary facies and structures: 1) shelf sand, 2) estuarine sand/mud, 3) fluvial sand/mud, 4) shelf sand/mud. The Unit 1 shows massive to slightly bedded sandy shells with oyster fragments and is regarded as shelf sand developed under the shelf environment during the last interglacial. OSL date of the base of the unit is 124.4 ka. Unit 2 is characterized by thinly periodic parallel laminated mud, suggesting tidal signatures in tidal flats. The sediment color of this unit sediments is also characterized by moderate brownish, strongly suggesting extreme weathering trace after the depositions. OSL dates of this unit range from 81.1 to 74.2 ka. Unit 3 consists of lower cross-bedded sand and laminated mud with fining-upward successions. This unit is interpreted to be products of channel deposits in the fluvial environment. The OSL ages of Unit 3 range from 50.6 to 26.1 ka belonging to the Weichselian glacial period. The Unit 4 is composed of homogeneous mud and massive sand with molluscan shell fragments developed in the modern shelf environment. OSL and 14C-AMS age of Unit 4 ranges from 0.32 to 11.2 ka.