



Two-layer modeling of tide and continental shelf wave in the surrounding seas to Korean peninsula

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The two-layer tidal modeling was carried out in order to investigate the tidal regime change and continental shelf wave generation in the Yellow and East China Seas and East/Japan Seas (YECES). The grid resolution is $1/16^\circ$ in latitude and $1/12^\circ$ in longitude, with total grid number of about 45,000. The response of tidal propagation according to summer and winter stratification condition is examined and the general tidal feature is well simulated. In addition the model result shows that the lower layer intensification of diurnal current is revealed in the entrance shelf region of the East/Japan Sea, which is well compared with observation. The energy flux patterns of each tidal components are examined and tidal regime change according to seasons is examined. With increasing stratification condition the model result yields more realistic amplitude value in the regions of Korea/Tsusima Strait region, implying that stratification effect is important for realistic reproduction of amplitude in the Korea/Tsusima Strait region along which Tushima Current flows as a branch of the Kuroshio during nearly all seasons, with some seasonally different feature. That is, warm water mass by ocean current keeps influencing the tidal region and resulting in subtle region change in addition to seasonal stratification. The possible existence of continental shelf wave in the shelf region of the East/Japan Sea is also discussed through tidal forcing under the special bottom topography conditions and some observations are discussed.