A numerical experiment of 50-day resonance induced by indian ocean kelvin wave in the Sulawesi Sea

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Abstrak

A numerical ocean modeling study using spectral element method is used to simulate the Indian Ocean Kelvin wave
propagation along the Makassar Strait and the Sulawesi Sea by giving a-prescribed-50-day Kelvin wave forcing in the
northern mouth of the Lombok Strait. The least square fit analysis is employed to extract a-50-day-resonant signal from
the interface height data simulation. The results indicate that the 50-day Kelvin wave propagates northward along the
Makassar Strait. One part of this wave turns back at the Labani channel and makes southward propagation along the
eastern coast of the Makassar Strait. The rest part is going further to enter the Sulawesi Sea and makes 50-day resonance
within the basin. This finding will have important implication on the intra-seasonal time scale variability of the
Indonesian throughflow transport entering the Indonesian Seas and needs further investigation as well as comparison
with observational data.