VIETNAM INSTITUTE OF METEOROLOGY, HYDROLOGY AND CLIMATE CHANGE

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INFORMATION ON NEW ACADEMIC AND THEORETICAL CONTRIBUTIONS OF THE DOCTORAL DISSERTATION

1. Dissertation title: *Study the beach changes due to effect of reducing wave structures to make compensation for Hai Hau - Nam Dinh areas.*

   Code: *62 44 02 27 ;* Specialization: *Oceanography.*

2. PhD candidate: *Doan Tien Ha.*

   Advisors: *Assoc. Prof. Dr Tran Hong Thai; Assoc. Prof. Dr Truong Van Bon.*

   Place of education: *Vietnam Institute of Meteorology, Hydrology and Climate Change.*

3. Dissertation introduction:

   A lot of protection structures for beaches and coasts have been built along the coast in Vietnam, such as: Nam Dinh, Nha Trang, Vung Tau, Tien Giang, ... However, the study of the effect of this structure to the evolution of the process nearshore geohydrodynamics have not been considered and carefully calculated.

   The thesis has applied three main study methods to solve its objectives: Statistical, analyzing methods for the data collected and the actual measurements in the study area have found some of rules of beach changes, type of beach profile characterizes (logarithmic form: $h(x)=D+1/F.ln(x/G+1)$) and determine the cause of instability in the coastal of Hai Hau areas. Physical model methods chose the parameters: crest height ($\Delta=+1.4m$), crest width ($B=3.0m \div 5.0m$), slope ($m_1=m_2=1:2$) reasonable of reduction wave of submerge dikes with the specific conditions of the coastal of Hai Hau areas. Numerical simulation method was considered to be the influence of the parameters structure: the submerge dikes length (L), the distance from the shore to the submerge dikes (X), the gap between the submerge dikes (G) to evolution hydrodynamic, morphology fields and evaluate the effectiveness of the plan proposed training structures (5 submerge dikes combined with 7 T groins) for erosion area (Hoa Hai - Hai Trieu, Hai Hau district).

   The study results of the thesis have proposed a training solution to the erosion areas of Hai Hau and contribute to solving the practical requirements, in order to improve economic-technical efficiency in construction of coastal protection structures in Vietnam.

4. New academic contributions of dissertation:

   - Initially identified some of rules of beach changes, built relationships between beach changes by wave action and nearshore currents of typical beach profiles for the study area. Identify the causes of developments shore, beach in the study area.

   - Based on simulation results of (physical model and mathematical model) the interaction between the waves and the structures the effect of the structures on morphology was identified, then the appropriate training structures for the study area was selected.

Advisors **PhD candidate**

Assoc. Prof. Dr Tran Hong Thai ***Assoc. Prof. Dr Truong Van Bon*** ***Doan Tien Ha***