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| Variation of Beach Processes and Harbor Sedimentation in an Area of Large Tide  *Gil-Dong Hong*  *†Graduate school of National University, Busan, Korea*  Corresponding author, [gdjeong@kmou.ac.kr](mailto:gdjeong@kmou.ac.kr), 051)411-4236  *Hang-Man Hong*  *\* Division of Civil and Environment, National University*  \* [gdhong@hanmail.net](mailto:gdhong@hanmail.net), 062)320-4348  ***Abstract*** *: In the past, the predictions of beach processes and harbor sedimentation were mainly relied on the hydraulic model tests and empirical methods. In recent years, however, as computers have come into wide use, more accurate models have gradually been developed and thus replaced those conventional methods. For prediction of topographical change near the coastal area, we need informations of wave and current conditions in the numerical model which should be calculated in advance. Numerical model introduced in this study combines wave refraction-diffraction, lateral mixing, and critical shear stress and thrbed‥‥‥‥‥‥. (8-10 lines with font 12, about 180 words)*  ***Key words*** *: beach processes, harbor sedimentation, breaking, bottom friction, critical shear stress, topographical change (5-10 words)* |

1. Introduction

Evaluating the risk of collision quantitatively plays a key role in developing the expert system of navigation and collision avoidance. There have been several researches into the quantitative assessment of collision risk, which still have a few problems when they are applied to the expert system. For the purpose of solving such problems a new approach to collision risk using *sech* function was introduced(James, 2003a), and the proper method of determining the gradient coefficients shown in this approach was developed(James, 2003b) and the threshold function of avoidance time was analysed and obtained(James, 2003c).

In this paper, of the two thresholds in the new evaluation of collision risk, the threshold of avoidance sector is analysed and obtained. This threshold is applied to several practical situations.

2. Method of obtaining the threshold of avoidance sector

The new evaluation of collision risk using *sech* function is given by(James, 2003a) where DRW00000f382e6ais the collision risk, DRW00000f382e6cis the closest distance and DRW00000f382e6eis the approach time. The five coefficients *p*, *q*, *r*, *a* and *b* are to determine the change rate of collision risk properly. The amplitude coefficients DRW00000f382e70are to determine the amplitude of *sech* function and the gradient coefficients DRW00000f382e72are to determine the change of *sech* function. DRW00000f382e74is a function of determining whether own ship maintains her course and speed or alters her course and/or speed according to the Collision Regulations. It is called the function of own ship's state and expressed by the bearing DRW00000f382e76and the aspect DRW00000f382e78of a target, the magnitude of which is 0 if own ship maintains and 1 if she alters.

2.1 Things to be considered when determining

There are two kinds of thresholds in the new evaluation of collision risk as mentioned in the previous paper(James, 2003c). …

Table 1. Evaluation of collision risk

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3. Application of the threshold of avoidance sector to a target or more

3.1 Application to a vessel

The application of the threshold of avoidance sector to actual avoiding action is as follows. …

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Figure 1 Application of threshold

4. Conclusion

This paper is to suggest the way of determining the threshold of avoidance sector represented in the new evaluation of collision risk using *sech* function and is to apply such threshold to a target and many targets which are approaching own ship. As a result, it was concluded as follows.se will be dealt with in the future study.

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