

Variation of Beach Processes and Harbor Sedimentation in an Area of Large Tide

신명조 12.5Pt, 줄간격 160%, 문단위 19.8Pt, 자간 -2

† Gil-Dong Hong · Hang-Man Hong* 신명조 10Pt, 기울임, 문단 위 간격 11.3Pt, 문단아래 간격 2.8Pt, 줄간격 160%, 자간 -6

† Student, Graduate School of National Kyushu University, Kyushu 812-8581, Japan

* Professor, Division of Civil and Environment, National Ko 기울임, 신명조 8Pt, 줄간격 130%

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..... (중략) (8-10 lines with font 8, about 180 words) 기울임, 신명조 8Pt, 문단 위 간격 28.4Pt, 줄간격 130%, 자간-4

Key words : Beach Processes, Harbor Sedimentation, Breaking, Bottom Friction, Critical Shear Stress, Topographical Change (5-10 words) 기울임, 신명조 8Pt, 문단 위 간격 8.5Pt, 줄간격 130%, 자간-4

1. Introduction 신명 태고딕 11Pt, 가운데 정렬, 문단 위 17Pt, 문단아래 11.3Pt 줄간격 160%, 자간 -6

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(Jeong, 2003a), and the proper method of determining the gradient coefficients shown in this approach was developed(Jeong, 2003b) and the threshold function of avoidance time was analysed and obtained(Jeong, 2003c). 신명조 9Pt, 들여쓰기 10Pt, 줄간격 160% 자간 -4 ..

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(Jeong, 2003a)

$$CR = p \cdot sech(a \cdot dcpx) + q \cdot sech(b \cdot t_a) + r \cdot \Phi(\theta, \alpha) \quad (1)$$

where *CR* is the collision risk, *dcpx* is the closest distance and *t_a* is 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 *p*, *q* and *r* are to determine the amplitude of *sech* function and the gradient coefficients *a* and *b* are to determine the change of *sech* function. $\Phi(\theta, \alpha)$ is 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 θ and the aspect α of a target, the magnitude of which is 0 if own ship maintains and 1 if she alters.

† Corresponding author, gdjeong@hhu.ac.kr 051)411-4236 신명조 8Pt, 줄간격 130%, 핸드폰 번호 기입 불가

* gdhong@hanmail.net 062)320-4348

Note) This paper was presented on the subject of "A Study on the Threshold of Avoidance Sector in the New Evaluation of Collision Risk" in 2010 Joint Conference KINPR proceedings(Mokpo Maritime University, 27th Apr-2nd May, 2010, pp.103-107).---In case that it was published in form of full paper in the conference proceedings.

2.1 Things to be considered when determining the threshold of avoidance sector 9Pt 문단 위 11.3Pt, 문단아래 5.7Pt 줄간격 160%

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

Table 1 Number of typhoon's occurrence in El Niño event year(E) 신명조, 9Pt, 줄간격 135%, 자간 -4 (제목, 내용 모두 영문), 왼쪽 정렬 (Unit: No.)

Event year	Number of typhoon's occurrence
1986-1987(E)	52
1988-1989(L)	63
1991-1992(E)	60
1995-1996(L)	49
1997-1998(E)	44
1999-2000(L)	45
2002-2003(E)	47

Source : Annual Economic Survey, KMOU, 2003
1)
① ...

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. ...

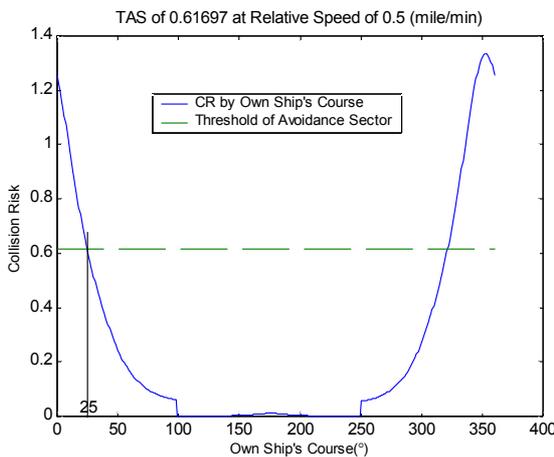


Fig. 1 Threshold of Avoidance Sector at Relative Speed of 0.5 (mile/min) 신명조, 9Pt, 줄간격 135%, 자간 -4, 왼쪽정렬

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.

Acknowledgements

This study was supported by the basic research program of(If necessary)

References

[1] Jeong, T. G.(2003a), "A New Approach to the Evaluation of Collision Risk using *Sech* Function", Journal of Korean Navigation and Port Research, Vol. 27, No. 2, pp. 103-110. 신명조, 9Pt, 내어쓰기 15.2, 자간 -4
[2] Jeong, T. G.(2003b), "A Study on Determination of Gradient Coefficients in the New Evaluation of Collision Risk", Journal of Korean Navigation and Port Research, Vol. 27, No. 3, pp. 351-358.
[3] Jeong, T. G.(2004a), "A Study on the Evaluation of Collision Risk using *Sech* Function and the Problems Involved", Journal of Korea Institute of Maritime and Fisheries Technology, Vol. 2, No. 1, pp. 41-58.
[4] Jeong, T. G.(2004b), "A Study on a New Evaluation of Collision Risk and the Problems Involved", Asia Navigation Conference 2004 Proceedings, pp. 146-154.
[5] Michelson, A. H. and Gale, G. H.(1964),"The Effect ... Light", Journal of Astrophysics, Vol. 61, p. 140.

Received 7 July 2014
Revised 19 November 2014
Accepted 21 November 2014

*** Especially, as for references please refer to how to write a paper in Korean.