

# The Effect of Local Environmental Condition on the Ship Construction Design Standard

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**Abstract.** This study was aimed to clarify the classification rules requirements for the ship hull structure. The main focus is on the effect of environment conditions to that of rules formula variable. Generally, the classification rules is assumed that the requirements is determined and formulated based on the worst ocean environmental in the world, 'North Atlantic Ocean condition' (IACS rec.34). This assumption was recommended by IACS rec.34 for the worldwide shipping voyage. Kurniawan et al (2016) and Prasetyo et al (2018) presented the comparison of environmental condition between the North Atlantic Ocean and non – North Atlantic Ocean (Indonesian water and Australian water). It was founded that the largest ratio of significant wave height between North Atlantic Ocean and the target ocean was up to 700%. Since that the classification society assumed that ship structure be designed on the basis of  $10^{-8}$  long term exceedance of probability of scatter spectrum of environmental condition, this condition might give the substantial deterioration on the design standard that is used specially only in specific area, i.e Indonesian waterways. In this study, the effect of ocean environment of specific area (Indonesian waterways) is compared with that of North Atlantic Ocean on the structural assessment of vessel that might be operated at Indonesian waterways. The characteristics of results are analyzed and examined. The classification rules requirement is reviewed and discussed based on the comparative results.

**Keywords:** Indonesian waterways, North Atlantic Ocean, Classification society rules, Service area.

## 1 Introduction

The recent development of major classification society (CS) rules are should based on IMO regulatory framework on goal based standard of rules development and making process [1] since that the SOLAS regulation has adopted and amended by the IMO [2]. Here, IMO as the International maritime organization and the part of the United Nation organization has the role to create the regulation for the shipping industry and