



# SAMSON

**Although in the last decades a large number of platforms have been built in the North Sea, ship/platform collisions are still thankfully, a rare phenomenon. Until now, only one serious collision has occurred in the Dutch sector.**

An errant ship passes with 20 knots along a platform.

## Collision risk assessment for offshore installations

Yvonne Koldenhof  
Y.Koldenhof@marin.nl

Every five years a Safety Case has to be prepared for each platform in the Dutch sector of the North Sea to demonstrate that the platform meets safety and legal requirements. Part of this Safety Case is the quantitative assessment of the collision risk.

The Safety Assessment Models for Shipping and Offshore in the North Sea (SAMSON) have been developed, extended, validated and improved upon during the last 20 years in studies performed for the Dutch Ministry of Transport, Directorate Transport Safety and within many European projects.

One of the models contained in SAMSON can be used to assess ship/platform collision probabilities.

Two types of collisions are defined within the model:

- Ramming collision

A ship is on a collision course with a platform when a navigational error occurs. This error is undetected until the point of no return and the ship collides with the platform nearly at its service speed.

- Drifting collision

A ship in the vicinity of a platform has a failure in the propulsion engine or in the steering equipment and becomes uncontrollable and loses speed. The

combined effect of wind, waves and current, may carry the ship at low speed towards the platform.

The collision risk can be assessed for each location and for any kind of object. The collision impact, given by the size and speed of the ships involved, is an output of the model.

Depending on the outcome, additional calculations can be made to assess the consequences of the possible collisions. If the risk is unacceptable, the effect can be evaluated and measures can be taken e.g. a change of location or an increase of the resistance against a collision.

The response time can also be determined by the SAMSON model. This means the probabilities on the arrival of ships at the location of the platform within a certain time period.

In the past years the SAMSON model has been used in many varied safety assessment studies for the North Sea and elsewhere, e.g. offshore installations for among others, the NAM and for TOTAL. Recently, collision risk studies were performed for five different wind farm locations, two in the Dutch sector, one on the German part of the North Sea and two in the Baltic.