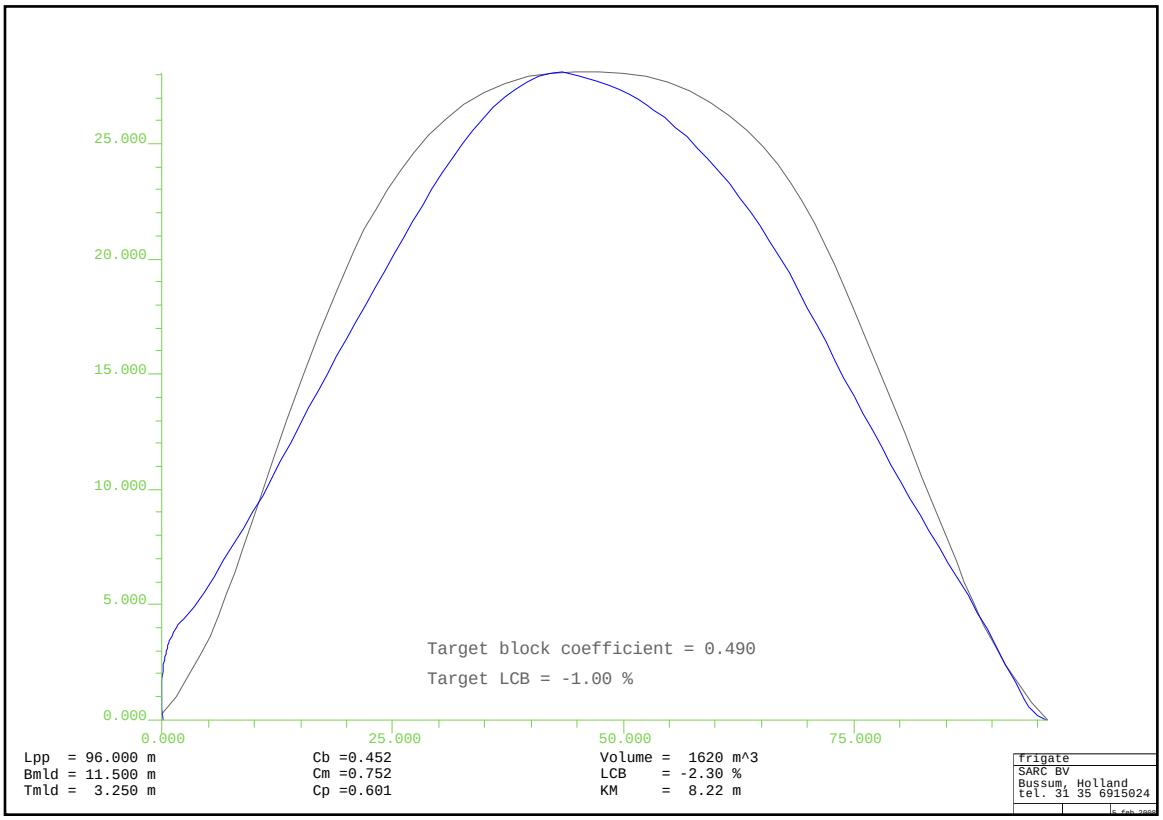
Almost one year has passed since we have published our latest newsletter. During this year we have improved our software substantially. We would like to clarify a number of improvements in this newsletter:

Fairway: support of multiple Sectional Area Curves

The design process can be supported with Fairway by using the Sectional Area Curve (SAC), with which one can work intentionally up to desired hull shape coefficients, such as block coefficient and longitudinal centre of buoyancy. Here the SAC could be generated, processed and printed, but it was somewhat confusing that there was only **one** SAC for two different goals, namely as a representation of the present shape of the ship and as a goal for a changed one. In order to stop that confusion, **two SAC**s are consequently used; one of the present ship shape (which cannot be manipulated further, because it is deduced from the shape directly and continuously) and one 'target SAC', which indicates the direction of the design.



Fairway: scaling and rotating

Fairway had already been equipped with the more or less traditional hull form transformation methods, with which a so-called daughter hull form can be deduced from a mother hull form with other main dimensions or hull form coefficients. This function will remain, but it is also possible to change the ship in a more general sense. The first possibility is a simple linear transformation. This possibility already existed, but was entirely focused on the main dimensions (length, breadth and draught), whereas this new option works with an 'ordinary' multiplication factor and is therefore apart from these main dimensions. Furthermore, a ship can now be rotated around a (random) axis which has to be indicated. We use this last possibility, for example, in combination with photogrammetry (when the ship has not been measured in its finally desired orientation), but it can also be used to give, for example, beams or cylinders (which can be established in Fairway as separate solids) the correct orientation in space.

Damage stability

In view of the new regulations for probabilistic damage stability, which will enter into force on 1 January 2009, we have developed a completely new probabilistic damage stability module, which includes the old and the new regulations, but also four different calculation methods, namely :

- On the basis of compartments, this method was already available in the old damage stability module of PIAS .
- On the basis of sub-compartments, with which one calculates a finer subdivision and is therefore more accurate.
- On the basis of 'numerical integration', which works even more accurately on a fundamental basis and which is almost indifferent to all kinds of interpretation issues which play a role with the other methods.
- On the basis of zones, a method which is much rougher than the others indeed, yet is used by many others. So when it is important to achieve compatibility with those others, then the zone method can be used.

For a more extensive clarification we refer to the paper published in *Ship Technology Research* Vol.53/2006. Of course you can always contact us for further background information.

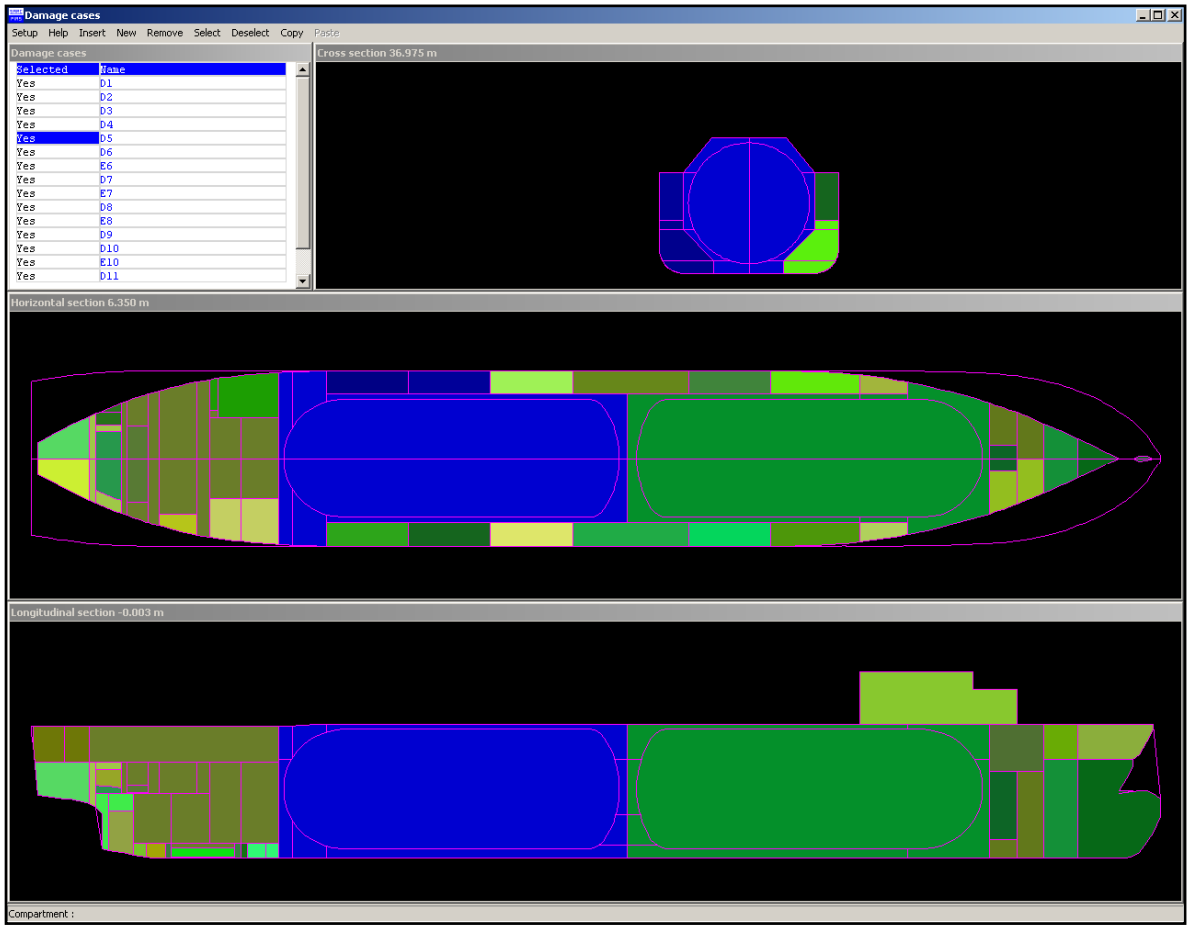
In February 2006 we have informed the users of the probabilistic damage stability modules of PIAS through a newsletter of this new module. Since the other PIAS modules have also changed because of this, we think it is important to inform all PIAS users of this. These changes become evident in two fields:

a) Permeabilities of compartments

Historically, the permeability of spaces can be given as a fixed value (i.e. several fixed values, for example a different permeability for tank volumes and for damage stability). According to the new probabilistic damage stability regulations, however, the permeability depends on the draught of the ship and on the type or use of the space. The latter is the reason for an extension of the PIAS compartments program with a field where the space or cargo type (for example container loading, timber, Ro-Ro) can be indicated.

b) Damage definition menu

The new probabilistic damage stability module has been provided with a new type of damage definition menu, which meanwhile also has been incorporated in all other damage stability modules of PIAS. With this menu, damages can be checked and entered also graphically. The picture below gives an impression of the appearance of this menu.



[1] Or the publication in *Ship Technology Research* vol.53/2006

Preparing of RTF files

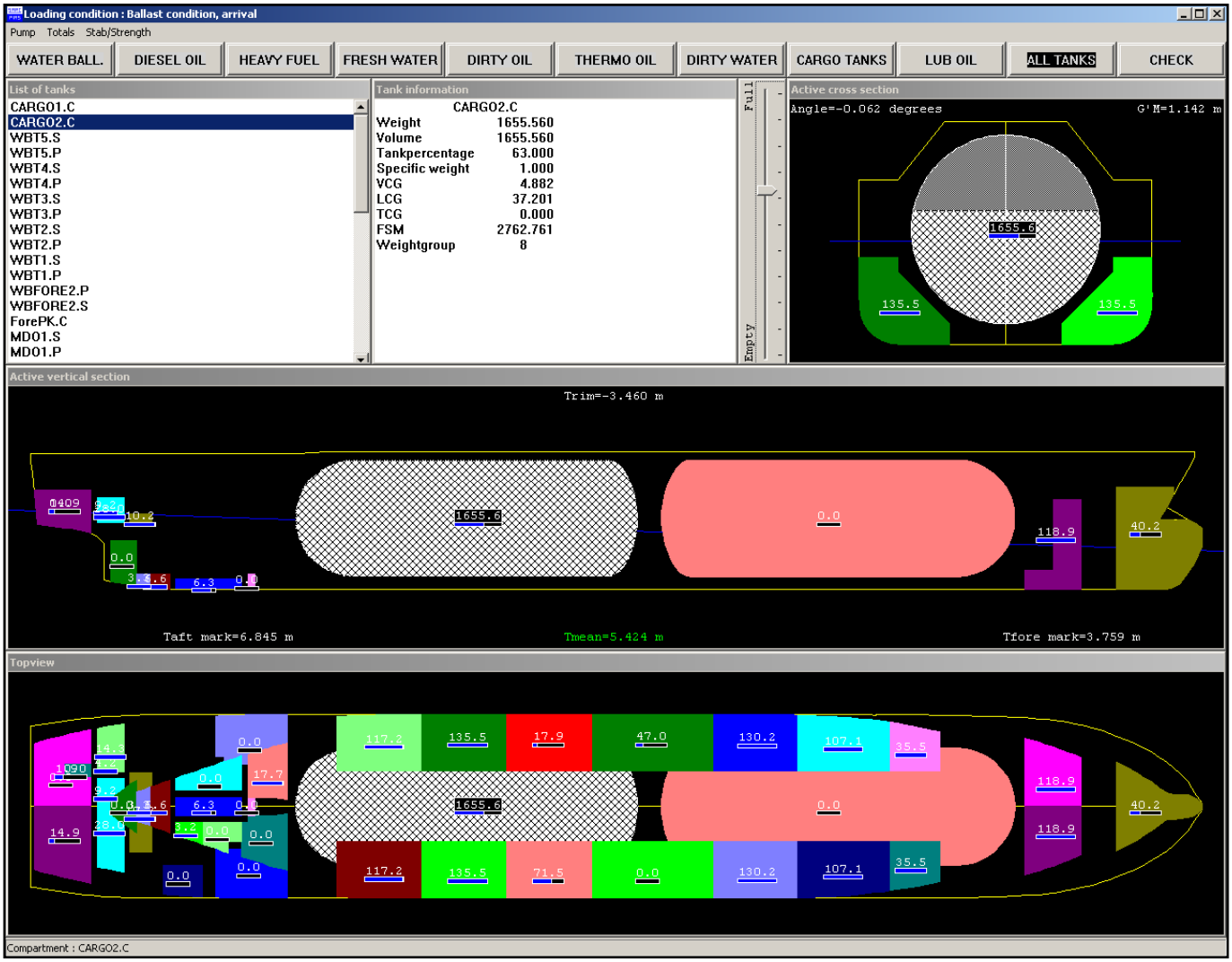
When preparing RTF (=Rich Text Format) files, it appeared that the ratio of character breadth and character height played an important role when filling the paper. When there is a great difference in this ratio between the (Windows) character type which has been chosen for the screen and the final character type which is used in the word processor, then this could result in the paper being filled too little or too much. In order to give the user some influence on this phenomenon, an external variable has been added to PIAS, which can be given a value by the user. In chapter 10 (file general.pdf) one can get more background information about this with the name of this variable, *pias_preview_character_hb_ratio*.

Stability requirements

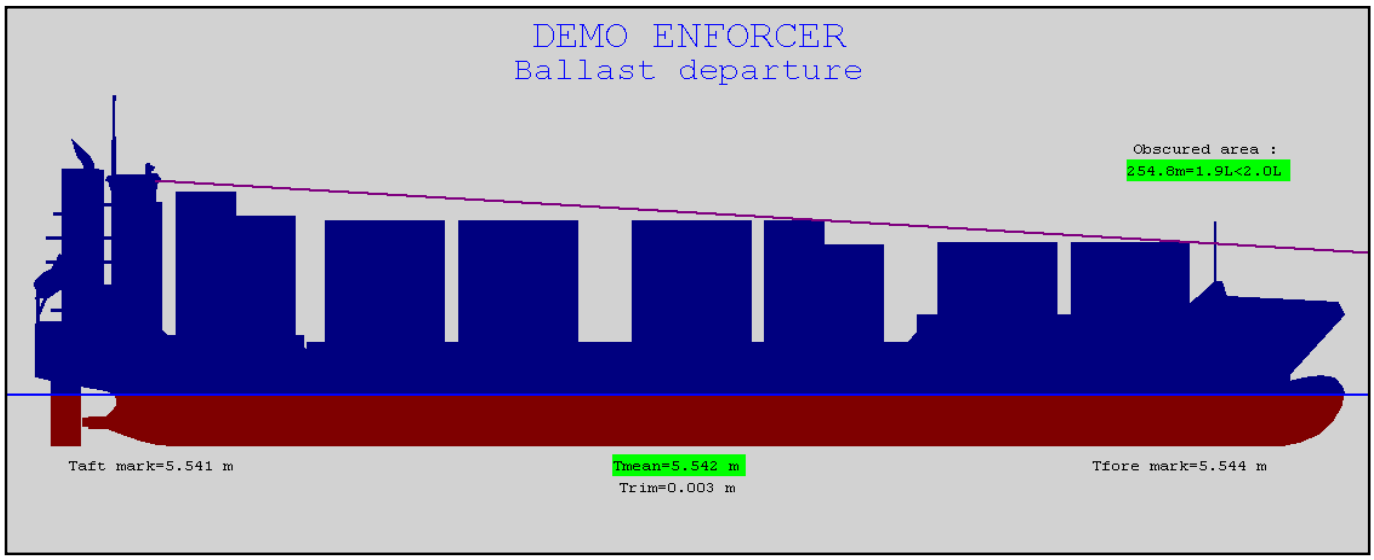
It has appeared that users want to manipulate sets of (damage) stability requirements. Therefore the stability definition modules have got options for importing, exporting and combining of sets of requirements.

Loading conditions

Users have expressed their desire to rearrange loading conditions. That's why we have created an option to shift a loading condition. Besides, many LOCOPIAS extensions get through to the loading conditions module of PIAS. The tank screen, for example, is largely focused on use of LOCOPIAS, but is also open to users of PIAS:

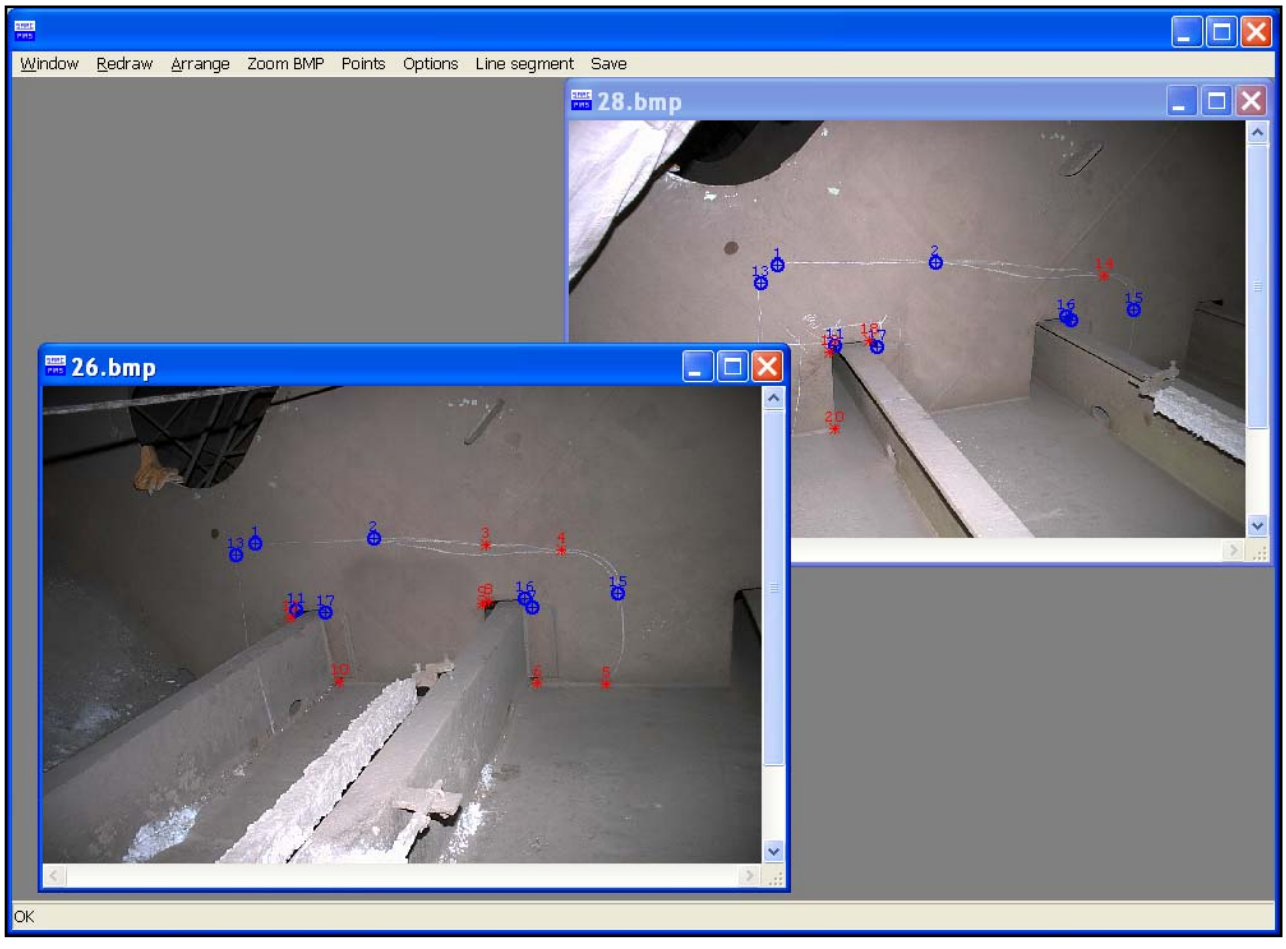


On the other hand, there are also extensions in LOCOPIAS which are not visible in the PIAS mode, like, for example, the representation of the line of vision as shown below. Another example is the calculation of the wind collector on the basis of the *actual* container loading (therefore not on the basis of an outlined wind collection per layer containers), when the container loading has been indicated by means of the LOCOPIAS container module. Whenever desired, such issues can also be included in the PIAS modules.



Photoship

Photoship is meant for the photogrammetric measurement and reconstruction of the 3D shape of a ship's hull or of parts of it. It is regularly used for this, but a ship-repair yard asked us recently whether this technique could also be applied to the measurement of *flat* parts, like brackets and bulkheads. Although the present Photoship program would fit for this purpose, it was because of its 3D orientation a bit laborious for this 2D problem. That's why Photoship has been provided with separate options with which can be measured efficiently, making use of the assumption that the object is flat. The pictures below give an impression of the working method, with as result a 2D DXF-file with the shape of the plate.



Deadweight scale

For a considerable time PIAS disposes of the possibility to print deadweight tables. Occasionally we were asked whether this could be done also graphically, in a deadweight scale. Since this question occurred seldomly, it was not opportune to develop anything. But since a user of PIAS actually wanted to order it, we have developed this functionality. You can see the result in the picture below.