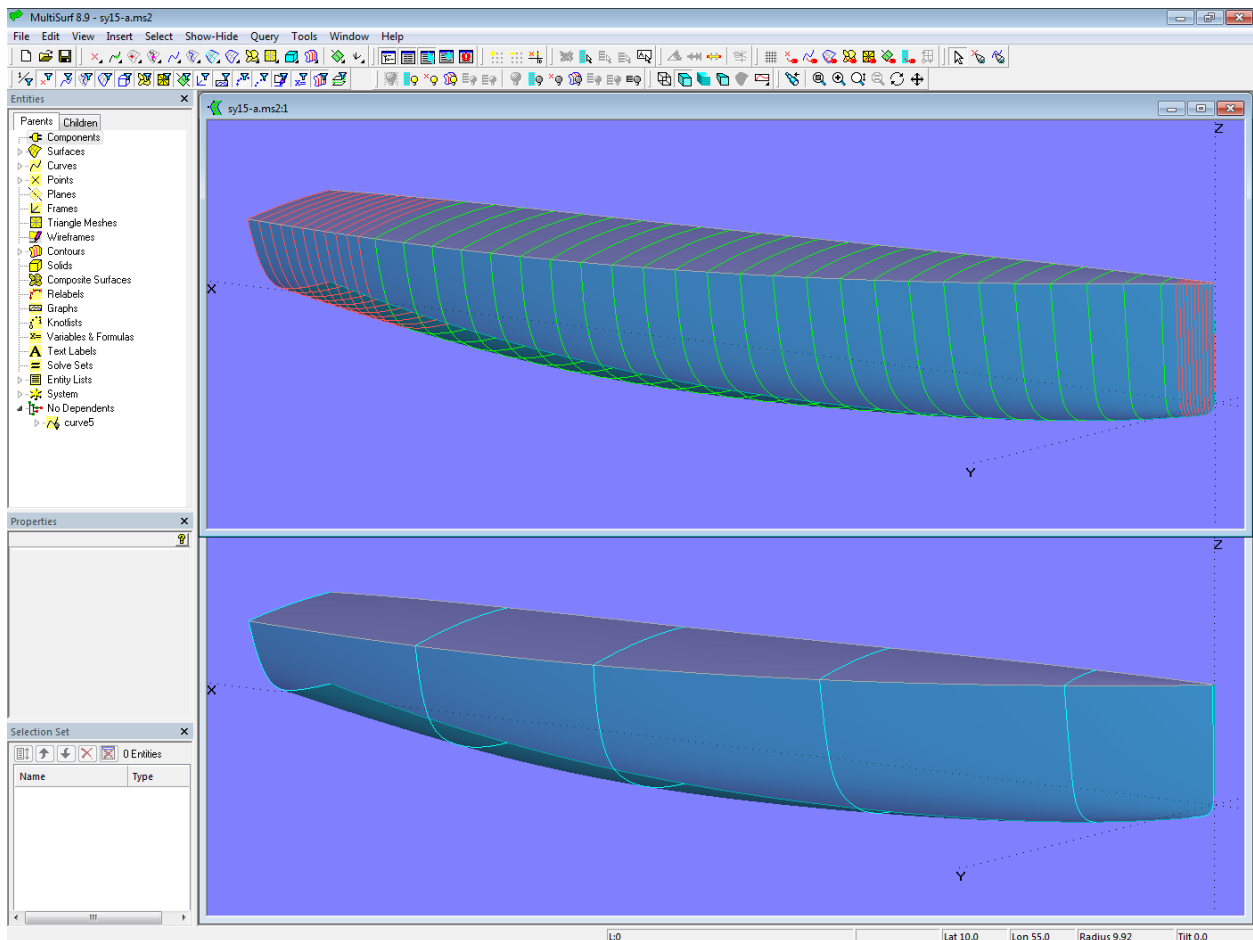# Hull-Deck Gap

by Reinhard Siegel

A model showed a problem with View/ Offsets The default "Gap" value worked fine, but was considered to big to take into account details of the keel bulb. A reduction of "Gap" caused stations loops with zero enclosed area. In model *sy15-a.ms2* the problem is imitated.
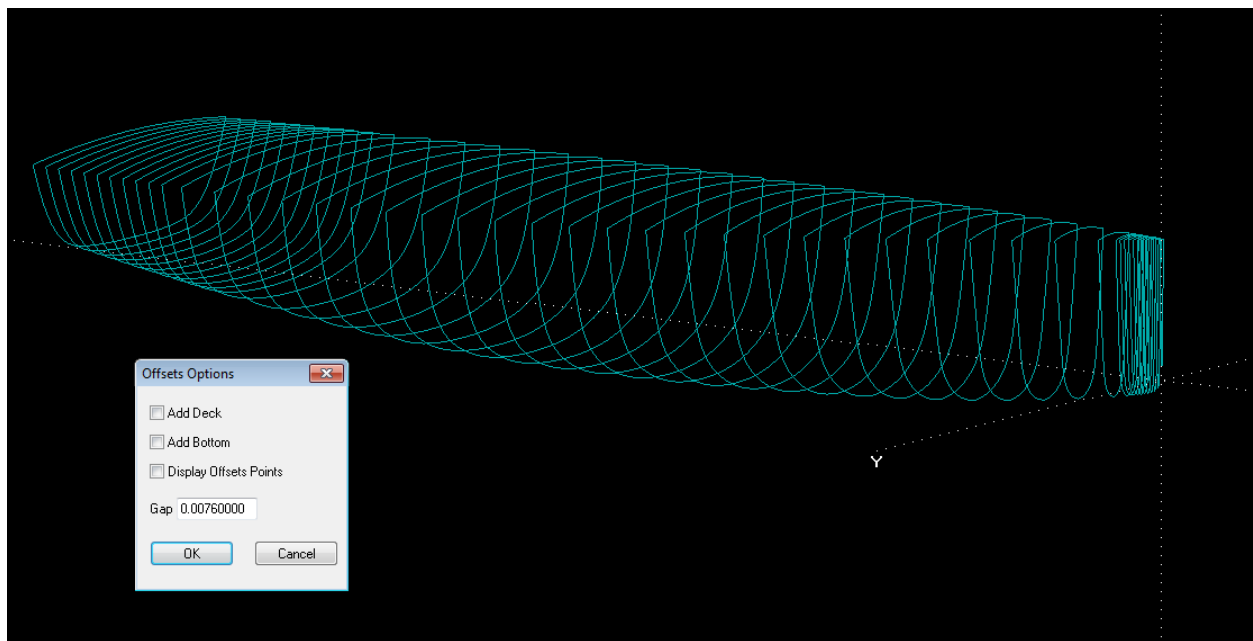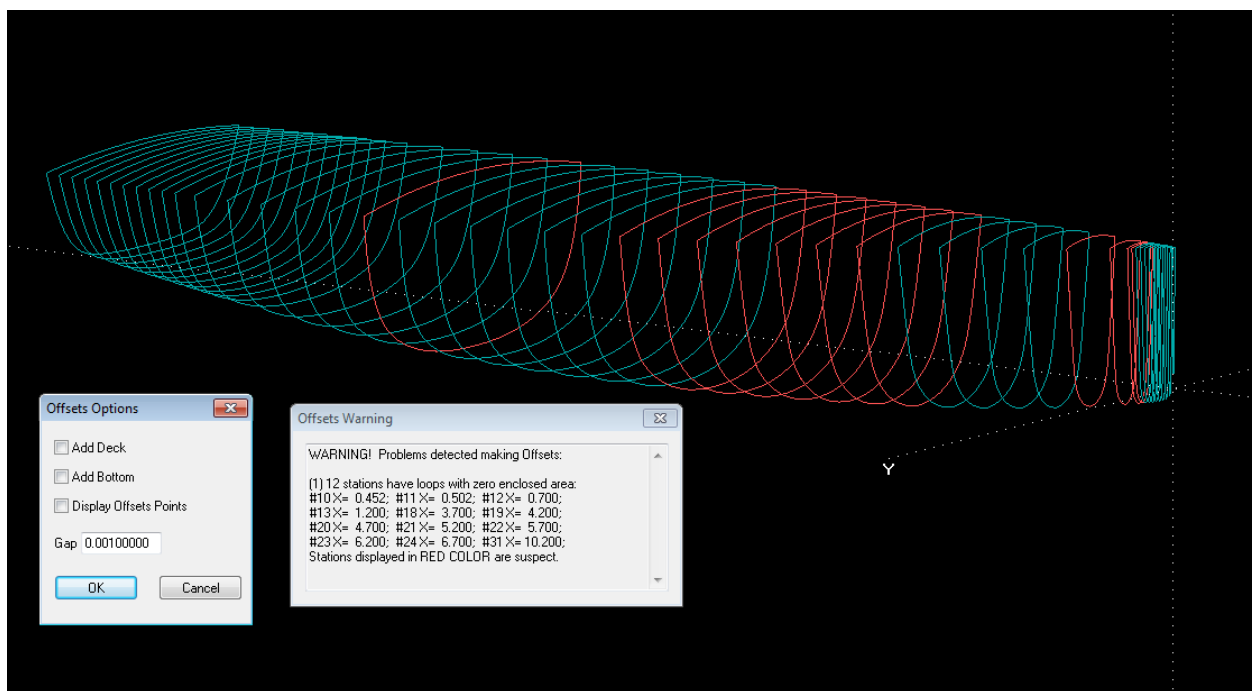
Model sy15-a.ms2

Model sy15-a.ms2 - top: station contours for hydrostatics; below: hull and deck are both supported by 6 mcs.

The model holds a hull and a deck, both are C-spline Lofted Surfaces. Three Countours entities cut hull and deck in transeverse direction for the calculation of hydrostatics.

The default Gap of 0.0076 (equivalent to 7.6 mm, model in meters) results in no errors in View/ Offsets:
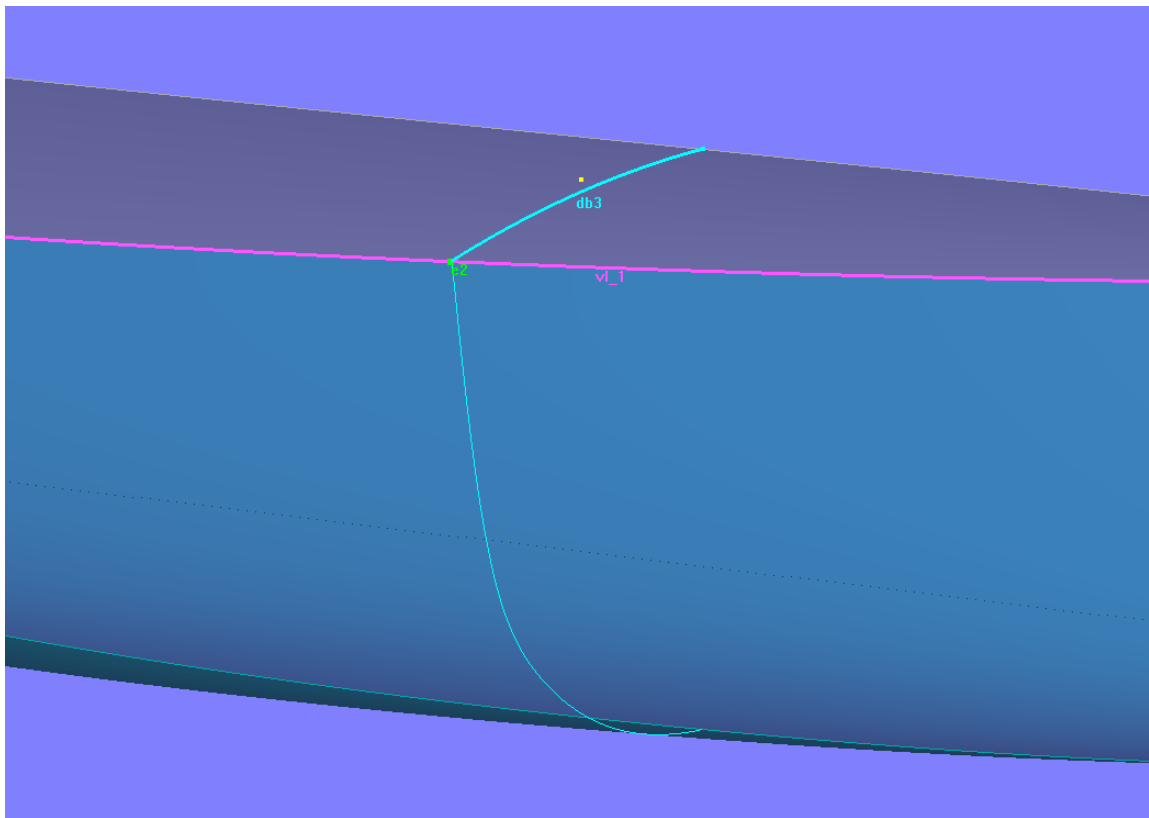
But if Gap is set to the value 0.001 (ie 1 mm), numerous offset frames are displayed in red:
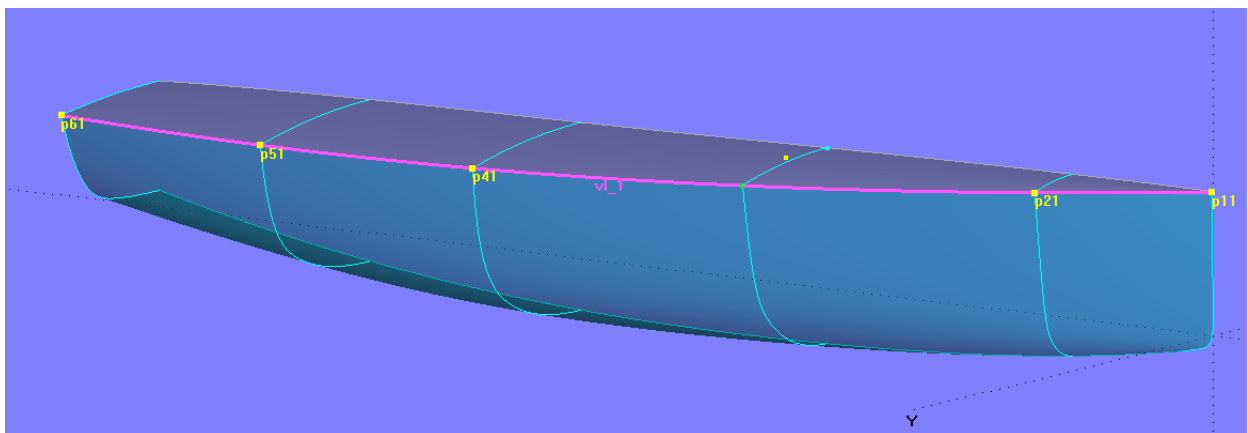

Since both the hull and deck are of the same type, have the same uv-divisions, the same number of master curves (mcs), and deck and hull mcs join at the sheer line, and even a larger Division Multiplier does not change anything, the reason for the problem is not recognizable at first glance.
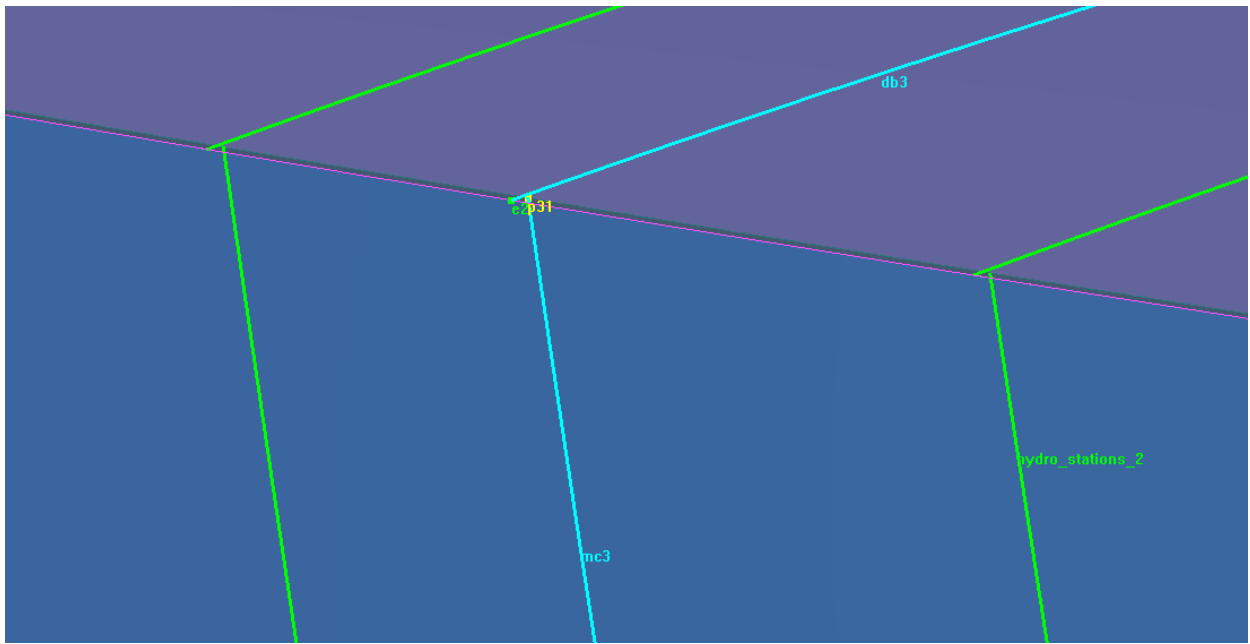
Only after some time it was found, that the third mc of the deck (db3) apparently started with the first cp of mc3 of the hull. In fact, the first cp of db3 is an XYZBead (e2) on the vertex curve vl_1.

And this vertex curve vl_1 does not pass through all cp1 of the hull master curves.

This creates a gap between cp1 of mc3 (Point p31)and the first cp e2 of the deck master curve db3 (about 8 mm). The deck edge is slightly outside the hull edge, in the bow area it is the other way around.

The solution is simple: for the deck mc db3 (Arc entity) the Point p31 must be used as support for "Point1". Then View/ Offsets will work without errors with a Gap value of 0.001.

===