SeaSoft® Version 6.6 Release Notes

The SeaSoft upper limit of lines/segments was expanded from 49/10 to 149/25 at version 6.0. As of v6.6, the 49-line code base has been retired. Data files (i.e., *DAT) from the 49-line era, version 5.20 and later, will automatically be converted to the 149 line format when loaded by v6.6. Earlier *DAT files (pre v5.2) will need to first be imported into SeaSoft v5.20-5.99 for an intermediate update before importing into v6.6.

Version 6.6 of the SeaSoft Library also introduces a robust time-domain capability for the "Comprehensive" SeaSoft mooring applications; this capability is currently limited to Moorsim® and SPMsim®, although beta releases for Sparsim® and TLPsim® are in development. We are calling the stand-alone runtime component "SquallSim™ ", or SqualSim™ .

SquallSim/SqualSim is an add-on module that implements a fully nonlinear time-domain simulation of low-frequency vessel motions and mooring loads in transient environmental settings. Because Moorsim and SPMsim were specifically designed for reporting statistical load measures in statistically uniform long-term environments (e.g., a three-hour storm event), they are ill-suited for determining the actual track and orientation time history arising from a specified *transient* environmental excitation, such as a variable wind speed and direction history of a squall event, or the advection of a current eddy past a spatially fixed location.

Originally targeted at analysis of analytically problematic wind squall events impacting drilling and development projects off of West Africa, SquallSim has expanded in scope over time to encompass more complex environmental scenarios with arbitrary time-dependent wind, waves, current, and transient external forcings produced by attached support vessels.

By leveraging the comprehensive system damping and mooring capabilities of Moorsim and SPMsim, SquallSim is able to carry out time domain simulations, including complex mooring and riser configurations with up to 149 lines, in a fraction of the time required by existing time domain solutions. Runtimes on consumer-grade computer platforms are measured in seconds rather than hours for most scenarios, regardless of environmental or mooring complexity.

The user-supplied input parameters required by SquallSim have been fully integrated into SeaSoft's editor routines (e.g., MoorEdit); the SquallSim data requirements are a superset of those supplied by SPMDAT (SPMsim) or MOORDAT (Moorsim). Each Squallsim invocation begins with all the data required for an SPMsim or Moorsim analysis, supplemented by a single page of time-domain-specific parameters.

As always, details and discussions of recent changes (as yet unavailable in the user manuals) can be found in [1] each individual program's online help, and [2] the comprehensive "FAQ Library" at http://seasoftsys.com (also available at a lower-bandwidth backup site, http://seasoft.org).

SeaSoft Archived Release Notes

A cumulative list of previous release notes (all available from the SeaSoft website "Documentation" area) follows:

Release_Notes [v 6.60]
Release_Notes [v 6.00]
Release_Notes [v 5.2x]
Release_Notes [v 5.05]
Release_Notes [v 4.32]
Release_Notes [v 4.20]
Release_Notes [v 4.14]
Release_Notes [v 4.07]
Release_Notes [v 3.95]
Release_Notes [v 3.90]
Release_Notes [v 3.60-3.89]

Web Site Developments

If you have not checked out the web site (http://seasoftsys.com), you should make a point to do so. Free access to website-hosted simulations is available to anyone with a support license, simply by requesting an on-line account. The FAQs have recently been updated; a large collection of Squallsim FAQs have been added; in conjunction with the on-line help, these now form an integral part of the Squallsim documentation: http://www.seasoftsys.com/FaqFrame1.html#9108.

All FAQs are downloadable and can be searched locally for keywords, using search tools of your choice. (The full Technical FAQ document can be found at http://seasoftsys.com/FAQframe2.html).

"Batch" submission guidelines have been updated; they are here: http://seasoftsys.com/batch_intro.html. Some useful website-interface FAQs are here: http://seasoftsys.com/Web_FAQ.html.

Improvements and Partial Bug Extermination List

- Added a CG-to-Midship distance to vessel properties.
- Catsim®: Improvements to moment center reporting capabilities (stiffness matrices, etc.).
- Catsim: Improved handling of locked turrets.
- Double precision improvements for hinge analysis; overhauled hinge data presentation; bug fix in handling of a second swell (third independent wave system).
- Eliminated extraneous, confusing hinge analysis error messages.
- Improvements to added mass modeling for semisubmersible members.
- Improvements to L.F. catenary damping estimates from lines/risers.
- Improvements to online help items.
- Improved handling of very stiff (highly or wholly inelastic) mooring/riser elements.
- Improved yaw added mass estimates for shipshapes.
- Bug fix in modal effective masses for low-frequency analyses (LOWOUT).
- Improvements to error checking and reporting of "energy-offset synchronization errors."
- Improvements in handling of edge conditions such as zero surge, sway or yaw in highly symmetric situations.
- Workaround a benign NAN issue at zero vessel offset for TLPsim.
- Improved handling of one-line systems in SPMsim.
- Expanded run-time checking and error reporting identification flags.
- Sparsim Bug fix for an error producing a small, but impossible, asymmetry.
- Elimination of archaic plotting code.
- Expand high-frequency reach of LF force spectra to 0.1 HZ.
- Bug fix in swell wave-drag evaluation.
- Bug fixes to Slowsim® output stream for wave drift/drag force spectra.