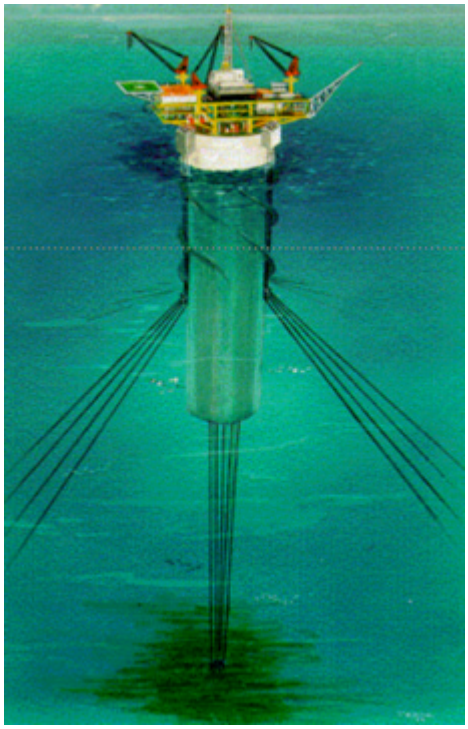
SESAM

Mimosa

A market leader in mooring analysis

Helping to keep vessels on station and reduce down time

Mimosa is a program for analysis of mooring systems of moored vessels. The program offers a variety of options such as calculation of the vessel's wave-frequency and low-frequency motions and mooring line tensions. Several options are available for analysis of the properties of the mooring system and individual mooring lines. Mimosa is up-to-date with respect to all calculations required by the Norwegian Maritime Directorate (NMD) and the American Petroleum Institute (API) for approval of positioning systems.



Mimosa covers:

- Static and dynamic environmental forces due to waves, wind and current
- Wave induced motions
- Slow drift motions
- Static and dynamic mooring system analysis
- Composite mooring lines
- Transient motions after line breakage
- Non-Gaussian statistics
- Dynamic positioning (DP) with thrusters
- Stability analysis of turret-moored ships
- Long term simulation.
- Rayleigh based calculation of extreme response
- API wind gust spectrum

Mimosa is interfaced with the SESAM programs Wadam and Waveship to ease the input of frequency dependent transfer functions and wave drift coefficients.

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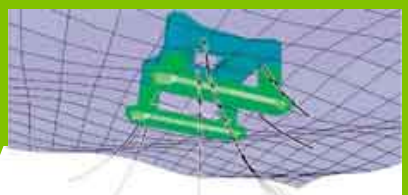

The results computed by Mimosa are:

- Environmental forces due to wind, current and waves
- Equilibrium position in which the mooring and thruster forces balance the static components of the environmental forces
- Represented by standard deviation, mean oscillation period, significant value and expected maxima, results are available for:

  Motion of any point in the vessel for:

  - Wave frequency motion for all six degrees of freedom
  - Wave frequency and low frequency motion in the horizontal plane

  Mooring tension:

  - Static mooring tension for the equilibrium position or for any position and heading
  - Dynamic mooring tension for the combined wave frequency and slow drift motion in the chosen weather condition
  - Maximum slow drift motion and maximum dynamic mooring tension based on non-Gaussian statistics.
- Static and dynamic forces from thrusters under dynamic positioning control
- Optimum distribution of tension based on either minimising the maximum tension in the mooring system, or least squares minimisation including thrusters
- Run length of winches required to move the vessel to a new position or to obtain optimum tension distribution
- Stability of the vessel in single-point mooring or turret mooring checked by eigenvalue analysis
- Transient motion after a line breakage or thruster failure in terms of time traces of motion and tension, motion trajectory, maximum excursion of any given point on the vessel, and maximum mooring tension. This also includes free drift (DP blackout)
- Tension and displacement characteristics, line profile, clearance to other lines and objects in the vicinity. Various relevant data for any mooring line and user-specified conditions like upper end tension or distance to anchor
- Safety factors for mooring lines including the effect of dynamic tension
- Long term simulation results based on using a macro command facility for running a set of environmental conditions and producing corresponding sets of results, covering e.g. 5-20 years of operation

Mimosa is owned, developed and maintained by MARINTEK.

MARINTEK SINTEF

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