AnyMOOR.TERMSIM

aNyMOOR.TERMSIM has the following capabilities:

Easy setup

- Each run is composed of prepared components
- Main components are easily generated by the program
- Each component can be easily copied in and outside the program
- Copy/paste of complete tables from excel into the program
- Check of input by plots

Databases

- Hydrodynamic databases
- OCIMF current coefficients
- OCIMF wind coefficients
- Line material
    - Chains
        - Grade 2
        - Grade 3
        - RQ3
        - R3
        - R3S
        - RQ4
        - User defined
    - Steel wires
        - ISO 2408, 6 strand, grade 180, fibre core
        - ISO 2408, 6 strand, grade 180, steel core
        - ISO 2408, 6 strand, grade 200, steel core
        - ISO 2408, 8 strand, grade 180, steel core
        - ISO 2408, 8 strand, grade 200, steel core
        - American, 6 strand, grade 190, fibre core
        - American, 6 strand, grade 190, steel core
        - American, 6 strand, grade 210, steel core
        - User defined
    - Synthetic ropes
        - Polypropylene, 3-8 strand
        - Polyester, 3-8 strand
        - Nylon, 3 strand
        - Nylon, 8 strand
        - Nylon, double braid
        - Dyneema, 8 plait
        - Dyneema wire rope
        - Dyneema, super line
        - Dyneema double braid
        - User defined
- Fenders
    - PI Type
    - Air block
    - Floating pneumatic
    - Cell
    - Trapezoidal
    - Radial cylindrical

Hydrodynamic floating objects

- Scaling
  - Based on displacement
  - User defined
- Damping data
  - Scale damping data
  - Import damping file
  - Apply Wichers damping
  - Use Aranha approximation
- Positions
  - Fairleads including length on deck
  - Reference points
- Wind coefficients
  - From database (single segment)
  - User defined (multiple segments)
  - Shielding
- Current coefficients
  - From database (single segment)
  - User defined (multiple segments)
  - Shielding

Mooring systems

- Supported mooring systems:
  - Spread mooring
  - SPM (buoy as hydrodynamic floating object)
  - MBM
  - Jetty
- Mooring system is composed of:
  - Multiple legs (static properties)
    - From database
      - Composed of combined lines
    - User defined
      - By leg load elongation curve based on:
        - Horizontal distance
        - Tension at fairlead
        - Angle at fairlead
    - Check of leg characteristics
  - With one buoy or clump per leg
    - Vertical cylinder
    - Perpendicular horizontal cylinder
    - Parallel horizontal cylinder
    - Sphere
- Configuration
  - Design parameters
  - Design method
    - Earth fixed coordinates
    - Pre-tension force
    - Pre tension angle
    - Catenary span
  - Multiple configurations per vessel allowed
  - Seabed slope (local or general)
  - Simulation mode

Lines

- From database
- User defined
- Including hawser or grommet
- Check load-elongation curve of combined materials

Fenders

- From database
- User defined
- Friction coefficients (longitudinal and vertical)
- Check load-deflection curve of selected fender based on type, specification and height of the selected fender

Environment

- Waves
  - Theoretical wave spectrum
    - Random seed
    - Fixed or progression in time
      - JONSWAP
      - Pierson-Moskowitz
      - Regular wave

        - Gaussian
        - Torsethaugen
    - User defined wave spectrum
        - Random seed
        - Fixed or progression in time
    - Wave time trace
- Winds
    - Theoretical wind speed spectrum
        - Random seed
        - Fixed or progression in time
            - NPD
            - API
            - Ochi-Shin
            - Wills
            - Harris
    - User defined wind spectrum
        - Random seed
        - Fixed or progression in time
    - Wind time trace
    - Constant wind
        - Fixed or progression in time
- Currents
    - Fixed: multiple layers
    - Progression in time: single layer

Configurations

- Composing the run with the prepared components
    - max 2 objects
    - Connecting (mooring) lines to fairleads with pre-tension or defined length
    - Fender compression
    - External forces per object (eg passing ships)
        - Earth-fixed
        - Object fixed
    - Failures of (mooring) lines with the following tresholds
        - Elapsed time
        - Break load level
- Check if configuration matches the design parameters of selected components

Runs

- Run list
- Run definition
    - Configuration
    - Environment
        - Two wave definitions
        - One wind definition
        - One current definition
    - Simulation time step
    - Logging skip factor
    - Time sequence
    - Signal selection
- Statistics
- Multiple time traces
- Visualizer including exporting as movie
- ASCII output files for own post processing

Anticipated future developments

- Provide online databases which customers can share (no validation by MARIN)
- Batch functionality for creating runs with multiple environment scenarios including random seed generation
- Multiple buoys/clumps in one mooring line
- Progression in time for multiple current layers
- More objects combined in one run
- ...

If you have suggestions or feature requests, please contact us on support@marin.nl