

Announcement of the Thruster Assisted Mooring Joint Industry Project – TAM JIP



TAM JIP

Motivation

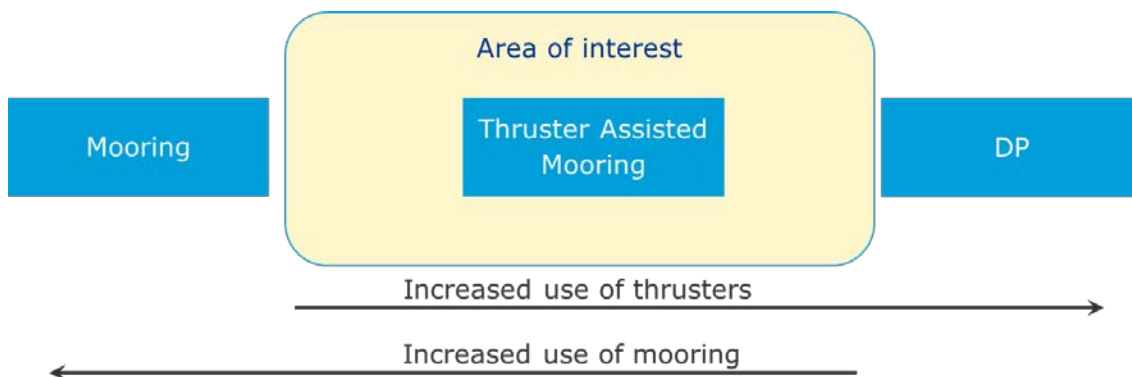
While the size of new built semi-submersibles is steadily increasing, their mooring systems are not experiencing a similar change. Most of the sixth-generation drilling units rely heavily on thruster assisted mooring (TAM) to increase their operability.

When these units are used in shallow water, the requirement to motions is strict, and it is not desirable to operate on DP only due to the risks of drive off. This results in a TAM operation with high pretension in the lines, a challenging situation for the TAM control system.

Experience from Norway and UK show that non-optimal use of thrusters is believed to be a contributing factor to recent mooring line failures. Triggered by these events, DNV GL has performed a pilot study on how to obtain a realistic prediction of the performance of a TAM system.

However, further studies are necessary, both on how TAM systems should be safely operated in such challenging conditions, and how to adjust the design requirements accordingly. It is vital that the design analyses reflect how the TAM system will be operated offshore – this is not the case today...

For this to be a success the mooring industry need to contribute so that we together can close the gap and find out how TAM systems should be operated cost-effectively and safely in the future.



Objective

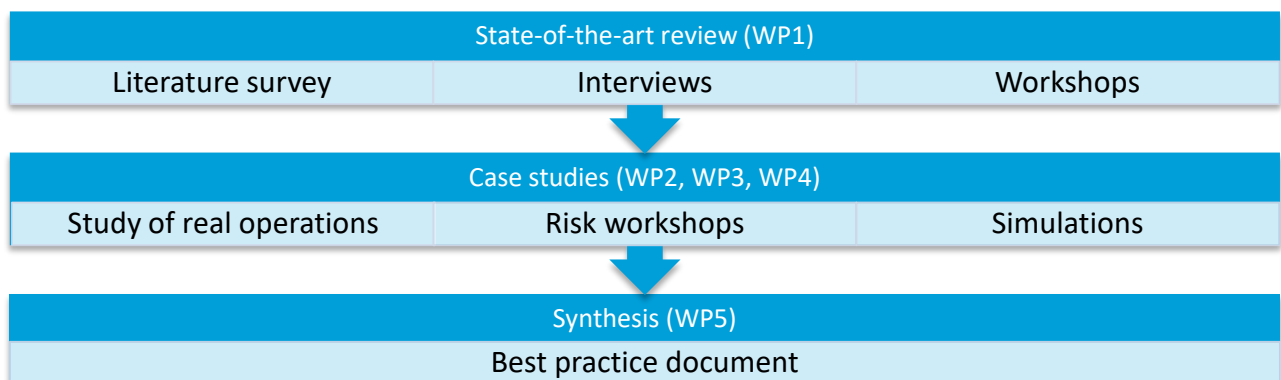
The overall objective of the JIP is to provide guidance on how to perform cost-effective TAM operations with an acceptable risk, and it includes:

- To give guidance on defining relevant requirements to TAM operation.
- To give guidance on how to identify the best strategy for station keeping; taking into account the unit type, intended operation, water depth and environmental conditions
- To give guidance on analysis strategies, strategies that will give realistic prediction of performance
- To improve consistency between assumptions made in design and how the unit is operated.

Scope

The work is split into 5 work packages as listed below. A workshop with important stake holders and possible participants was arranged in May 2019 to agree on the content and focus areas.

- WP1 – State-of-the-art review.
In addition to literature survey, this WP will rely heavily on input from the JIP participants during workshops and interviews. Different stakeholders will present their involvement in the various aspects of TAM. What are the needs for thruster assisted mooring in the industry? This is a key question we want to explore.
WP1 will provide the basis for detailed planning of WP's 2, 3 and 4, which then can be run in parallel.
- WP2 – Analysis of real operations.
Relevant data from TAM operations (logged data) will be made available to the project by the participants. The logged data will be studied and compared to SIMO analyses carried out for the same conditions.
- WP3 – Risk.
An initial risk workshop and one follow up workshop will be arranged with the participants. The workshops will identify and assess risks related to TAM, and how these risks can be managed.
- WP4- Simulations.
Parametric studies of system performance will be carried out for a range of water depths, mooring system stiffnesses, metocean conditions and operation modes. This will provide input for guidance on cost-effective operation.
- WP5 – Best practice document
The findings from the JIP will be summarized in a best practice document, where the requirements to design analyses are aligned with the recommendations given for safe TAM operation.



Deliverables

Each work package will be documented in a separate report. Further, the work will be summarized in a best practice document.

Although not part of the scope in the TAM JIP, the results from the JIP will be used in forthcoming updates of DNV GL's position mooring standard, DNVGL-OS-E301.

Participation and fees

The fee for participation is:

- Oil and gas companies: 1 MNOK payable over 3 financial years
- Rig owners: 500 kNOK payable over 3 financial years
- Others 300 kNOK payable over 3 financial years
- Regulators free of charge as observers (without vote in steering committee)

Participants

The mooring industry seem to acknowledge the need for initiating a JIP on thruster assisted mooring now. So far, the following companies have confirmed participation:

- Operators: Equinor, Lundin & Aker BP
- Rig owners: COSL Drilling, Transocean, Stena Offshore & Seadrill
- Designers: Deep Sea Mooring, InterMoor, GustoMSC & Global Maritime
- Suppliers: Kongsberg Maritime
- Authorities: PSA, HSE & NMA
- This gives a funding of 6.5 MNOK including work in kind from Kongsberg Maritime

Kongsberg Maritime will work closely with DNV GL in the TAM JIP on some of the project tasks. With their vast experience with control systems they are an important contributor in the JIP.

Time schedule

The TAM JIP will be carried out over a period of 2-3 years, with the following preliminary schedule:

- Spring 2019 - marketing of the JIP
- May 22nd, 2019 - workshop in Stavanger with the mooring industry to adjust/decide scope
- May-June 2019 - finalize and distribute proposal
- September 19th 2019 - kick-off at DNV GL Høvik
- 2019-2022 - Workshops & steering committee meetings 3-4 per year
- Primo 2022 - close out meeting

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