

**Title:**           **Optimizing Offshore Gangway Operations on Monohull Vessels**

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**Abstract**

The task of an accommodation vessel is to supply living quarters to crew personnel that is working on an installation with a shortage of bunks and facilities, which can be the case during commissioning or when extraordinary maintenance programs or upgrades on an installation are carried out. In order to transfer personnel to the installation at hand, a gangway, a bridge between the accommodation vessel and the installation is used. These gangways often have a telescopic function to accommodate relative motion between the installation and the accommodation vessel, as one or both can be floaters. DP systems are often used for positioning of accommodation vessels and the main task for the DP system on such a vessel is to maintain the suspension point of the gangway within a limited range from the installation, to ensure that the gangway can be connected to the installation and available for transfer of personnel.

This paper presents developments which are intended to optimize DP operations for monohull accommodation vessels. There are two main contributions. The first element is an optimization of the DP system control law for operations in harsh weather to efficiently reduce gangway telescopic motion due to incoming waves or wind gusts. The other element presented in this paper is an alternative control strategy suitable for optimizing the fuel consumption of accommodation vessels by keeping the heading of the vessel into the dominating environmental direction. In total, these contributions will hopefully yield a safer and more efficient operation for monohull accommodation vessels, and a higher operability.

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