

Title Abstract: Development of effective calculation formula for calculating adequate number of VTS operators

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Abstract:

In most countries providing Vessel Traffic Service, VTSs are operated through shifts of VTS operator for 7/24. A VTS center should have a sufficient number of VTS operator to ensure that the VTS operations can be carried out efficiently and safely under all conditions, with due regard to the safety of navigation within the VTS area. It is not possible to monitor the vessel's movement and to provide proper information just in time in case of lack of VTS operator. Also Excessive overtime will result in fatigue and its consequent implications for human errors cause by difficulty concentrating. Fatigue in VTS disrupts cognitive ability and flexibility and impairs attention, decision making and overall performance. But the fact is it is hard to calculate adequate number of VTS operator objectively and quantitatively to reduce fatigue and excessive overtime for operating VTS area.

The IALA guideline 1045, 'STAFFING LEVELS AT VTS CENTRES', represent a formula which calculates the manpower required to operate 1 VTS operation console for 1 year. 'DORATASK' technique represents the number of airplane which can be controlled by Air traffic control center(ATC) considering workload and recovery time of ATC operator. A research conducted by Korea Coast Guard in 2018 presents effective calculation formula of calculating adequate number of VTS operator by referencing related IALA guideline and 'DORATASK' from ICAO. It is available to calculate adequate number of operation console for VTS area on consideration of VTS work load, the time required, recovery time for vessel traffic based on AIS.

This study introduces a detailed model for calculating adequate number of VTS operation console and VTS field application result and is proposed to adopt as a guideline to apply this for all IALA member for interacting with maritime traffic and responding to develop traffic situations in a way to increase performance of employer and decrease human errors.