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To: Legal Representatives, Masters, Owners/Operators of Vanuatu Flagged Vessels and Recognized Organizations.

Subject: Alternate methods of Navigation to serve as a back-up to ECDIS

Due to the growing concern over navigation practices and incidents worldwide this Administration would like to remind owners of the following:

SOLAS Chapter V, Regulation 19 states:
All ships, irrespective of size, shall have:

.1 a properly adjusted standard magnetic compass, or other means, independent of any power supply, to determine the ship's heading and display the reading at the main steering position;

.2 a pelorus or compass bearing device, or other means, independent of any power supply, to take bearings over an arc of the horizon of 360°;

.3 means of correcting heading and bearings to true at all times;

.4 nautical charts and nautical publications to plan and display the ship's route for the intended voyage and to plot and monitor positions throughout the voyage. An electronic chart display and information system (ECDIS) is also accepted as meeting the chart carriage requirements of this subparagraph. Ships to which paragraph 2.10 applies shall comply with the carriage requirements for ECDIS detailed therein;

.5 back-up arrangements to meet the functional requirements of subparagraph .4, if this function is partly or fully fulfilled by electronic means;**

.6 a receiver for a global navigation satellite system or a terrestrial radio navigation system, or other means, suitable for use at all times throughout the intended voyage to establish and update the ship's position by automatic means;

Meanwhile IMO Resolution MSC.232 (82) goes on to say:

BACK-UP ARRANGEMENTS

Adequate back-up arrangements should be provided to ensure safe navigation in case of an ECDIS failure;

.1 Facilities enabling a safe take-over of the ECDIS functions should be provided in order to ensure that an ECDIS failure does not develop into a critical situation.

.2 A back-up arrangement should provide means of safe navigation for the remaining part of a voyage in the case of an ECDIS failure.

The consideration of backup systems is not solely a function of cost. Vessels at all times must navigate with caution and due regard for their surroundings. As such, a complete failure of a vessel's navigational system is not acceptable at any time. Therefore, this Administration has considered alternate suitable back up arrangements for owners to consider.

1. Secondary ECDIS unit

The secondary ECDIS unit must meet SOLAS requirements for being stand alone. However it is recommended that the secondary ECDIS unit be of a different make than the primary unit. The reason being that in the cases where corrupted updates have been sent to a primary unit they have also effected the secondary unit if of the same make and model.

Owners are reminded however that type specific training for ECDIS units is required to be provided in order for Navigation officers to fulfill their STCW requirements. It is important to remember that ECDIS systems are fed off of GPS, which itself is vulnerable, and if that vulnerability is exploited, the ECDIS systems will fail. Additionally ECDIS systems, being computer based, are vulnerable to malware and computer viruses if not properly monitored.

2. Alternate Satellite Navigation Systems

Although the Global Positioning System (GPS) is the norm, there are other available, but limited, satellite navigation systems out there. Both the *BeiDou Navigation Satellite System (BDS) and GLONASS* are available, however they are only available in limited geographic regions. If operating within these regions a vessel will have a secondary system that is not as susceptible to GPS spoofing, which has recently become a major concern to Administrations, Security experts, and insurance companies.

3. E-Loran

Radio navigation is a system that is not susceptible to spoofing and which is making a comeback regionally in certain areas of the world. Use of this system in these regions would constitute a backup means of navigation when they become available.

4. Paper charts with Piloting and Celestial Navigation

The use of paper charts in conjunction with traditional piloting techniques, i.e. visual bearings and the use of RADAR for near shore and in shore navigation, and celestial navigation while at sea, are a well-founded and reliable forms of navigation. These methods rely on simplistic equipment (except RADAR), but practice is needed to ensure that reliable positions are recorded. These methods are required training under STCW Table A II/1 and Table A II/2 for both navigation officers as well as management level officers.

No owner, operator, or Master is excused from using any means necessary to determine the position of a vessel as well as the safe transit of a vessel. It is important to remember that whatever means of navigation and backup navigation is used officers must be familiar with the equipment to be used and proficient in its use. Please remember that the prudent mariner will not rely solely upon any single means of navigation.

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by the direction of the
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