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HOW DOES VESSEL TRACKING DATA (AIS) ASSIST WITH MARITIME LITIGATION?

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AIS is an automatic ship tracking system used onboard ships as well as onshore VTS (Vessel Traffic Service) systems to monitor vessel movements around the world.

An AIS signal is sent from a transponder onboard a vessel to a receiver located onshore or on another vessel or a satellite. AIS was originally created to supplement marine radar tracking for collision avoidance and safety efforts on the waterway.

Since then, AIS data has evolved into a vital tool for a number of different maritime stakeholders, including: ship-owners, cargo owners, vessel operators, cargo dispatchers, marine service providers, terminal operators, charters, traders, maritime law firms, and many more.

History of AIS

AIS was developed in the 1990s as a high intensity, short-range identification and tracking network. The United States began developing AIS in response to the Exxon Valdez oil spill in Alaska.

Congress passed the Oil Pollution Act, which called for the USCG to "develop a vessel tracking system for tankers going to Alaska".

The new system had to be autonomous, continuous, and digital - something that could automatically communicate and portray a ship's location to other ships and to shore-based Vessel Traffic Services without the risk of human error.

The USCG decided to use VHF radio whiles, while simultaneously the

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British were testing a VHS-based tracking system. Shortly thereafter, in the mid-1990s, the IMO and ITU decided to work together on a single system that could be used worldwide.

In 2000, the IMO (International Maritime Organization) adopted a new requirement to Regulation 19 of SOLAS (Safety of Life at Sea) Chapter 5.

This required all vessels of 300 gross tonnage and upwards engaged on international voyages, cargo ships of 500 gross tonnage and upwards not engaged in on international voyages and all passenger ships irrespective of size to carry AIS tracking transceivers onboard.

In December 2004, it became a requirement for all ships, irrespective of size. Different countries have since adopted different rules, including the US.

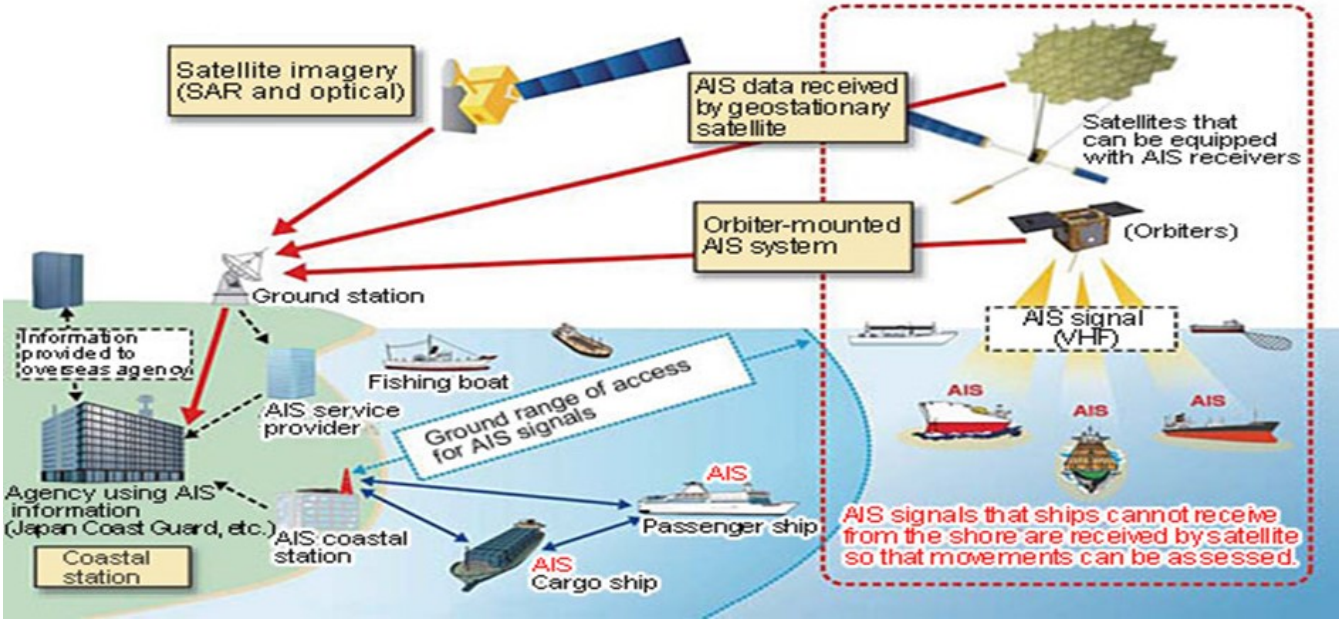
How AIS works

AIS transceivers automatically broadcast positional data via VHF radio transmissions. The transceivers are connected to the ships navigational sensors, such as GNSS (global navigation satellite system) and a gyrocompass. This allows for nearly real-time updates of positional information including: Latitude/Longitude, Rate of Turn, Speed Over Ground (SOG), Course of Ground (COG), and True Heading. This positional data is sent out at regular intervals, between 2 and 10 seconds while underway and every 3 minutes while at anchor.

The second types of information sent via AIS messages are Static and Voyage Data. This information is sent out every 6 minutes and is manually entered and updated by the vessel operator. The additional set of data values are: IMO number, call sign, vessel name, vessel type, cargo type, activity, navigational status, ETA, destination, draught, length, beam, and country (flag).

The average AIS tracking unit has a range of about 20 nautical miles. However, this range can be increased by positioning the transceiver on a platform high in the air. With a high enough location, on a clear day, with no huge land mass in the way, the range can double to 40 nmi.

Thanks to dramatic improvements in technology, AIS transceivers have been placed on low-orbit satellites, allowing for AIS tracking in the middle of the ocean and remote areas around the world.



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The final step in utilizing AIS information is plotting the positional data on an ECDIS (Electronic Chart Display and Information System) or visual mapping platform of choice.

This allows for the various different maritime stakeholders to get a clear picture of what is happening on the waterway. Initially intended for use onboard the vessels and their shore-base facilities, AIS data is now available publicly online with the only requirement being an internet browser.

Data aggregators combine both terrestrial AIS data and Satellite AIS to provide a global view of real-time and historical marine traffic.

AIS technology and Court litigation

In many collision cases, the availability of electronic track data can greatly aid the quick and efficient disposal of disputes over liability for the collision.

Therefore, the normal procedure in collision claims might in appropriate cases be modified, and some requirements dispensed with entirely, where electronic track data is available.
Instead, the parties to an anticipated collision claim now have a duty to take all reasonable steps to promptly obtain and/or preserve any original or copy electronic track data in their control.

This cover:

(i) data that is in a party's physical possession and/or

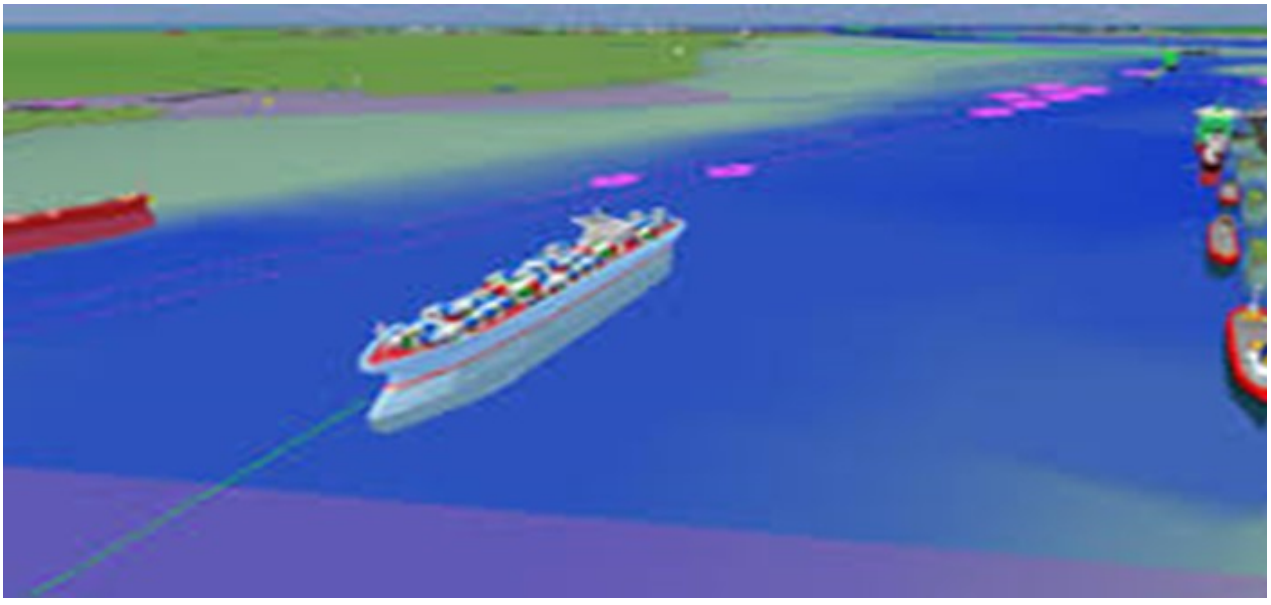
(ii) data the party has a right to possession of and/or

(iii) data that a party has a right to inspect or take copies of.

The parties are also expected to have mutual disclosure and exchange of any electronic track data during the course of pre-action correspondence and, in any case, are required to disclose it within 21 days after the defendant files its acknowledgment of service.

Where both parties have electronic track data in their control, they must exchange this data within seven days of a request by one of the parties to do so.

Where electronic track data has been disclosed by the parties, the court can adopt fast track procedures to determine issues of liability as part of its case management powers.



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Among other directions the court can make, it may:

- Limit further disclosure to contemporaneous documents made shortly before or after the collision;
- Limit or exclude expert evidence;
- Limit witnesses to those most closely connected with the collision;
- Dispense with oral evidence;
- Dispense with an oral hearing, deciding issues of liability on an agreed bundle of evidence and written submissions; and
- Make a costs-capping order .

How Courts view Electronic Navigation Evidence

By 2004, AIS and VDRs were in common usage on most vessels. Thus, by 2007, a US court commented that AIS was a "notable development" that may affect the way vessels communicate in the future.

Since the case in 2007, although one court found that AIS data was "not conclusive evidence of individual vessel movements," the trend is for courts to increasingly rely on navigation data from AIS and VDRs.

In a case in 2010, a court noted that the "authenticity and accuracy of the VTS/AIS recording was not disputed." In 2012, six cases presented AIS/ECDIS/VDR recordings as evidence of vessel positions and movements. In each case, the court accepted electronically recorded evidence without dispute.

In large part, courts have accepted the reliability of electronic navigation data largely because the carriage requirements for electronic navigation systems are well established; their use is widely accepted by the maritime industry and the systems are generally seen as an extension of existing technology.

Why Use Electronic Navigation Data Accident Investigation and Litigation?

Maritime cases were traditionally presented through paper logbooks and mariners' eyewitness testimony.

There are inherent limitations, however, in the reliability of the testimony of even the most truthful eyewitness.

Witnesses often give conflicting versions of events. In the confusion that usually attends a maritime accident, it is not expected that witnesses will exactly concur in their descriptions of what they observed.

Thus, it is not uncommon for mariners - said to be traditionally loyal to their vessel - to give irreconcilable testimony with respect to the courses and speeds their vessels were on during the navigational manoeuvres preceding every collision at sea or other maritime accident.

Data from electronic navigation systems, however, can foreclose these typical disputes and resolve the so-called "irreconcilable testimony," often resulting in early and/or favourable resolution while avoiding litigation costs. Producing data from electronic navigation systems may also be critical to meeting a party's obligation to preserve evidence.

Potential problems

- The most fundamental problem is data preservation. Some systems automatically preserve all data, and in others, it is retained only until it is overwritten with new data. Counsel and the vessel owner must often work cooperatively at the earliest point in the investigation to preserve critical evidence.
- Another problem is preserving the data's chain of custody. It may often be necessary to hire electronic technicians to retrieve data who may not be familiar with the legal

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requirements for preserving evidence. Thus, the electronics technician and computer forensics expert may need to work together to avoid later questions about the data's reliability and accuracy.

- Finally, it may be necessary to correlate data sources and find an adequate explanation for anomalies. Different sensors may record the same data with differing accuracy and often will be running on different time standards. Reconciling these differences is necessary to satisfy the court that the data is reliable.

How Does Electronic Navigation Evidence Influence Judges?

The use of computer animations in the courtroom remains one of the most controversial issues in the law of evidence.
While some courts accept computer animations without question, others are wary that computer animations are more likely to pervert the fact-finding process than they are to enhance it.

Electronic navigation evidence, however, is mostly immune from these criticisms. It is generally not simply a computer "animation" in the sense that it attempts to recreate what a witness thinks he remembers seeing, but rather that actual data recorded on board the vessel at the time of the accident and, thus, a true visual representation of what the witness experienced.

Properly presented, electronic navigation evidence can be an extremely powerful persuasive tool that can make the difference between winning and losing a case.