

INTERTANKO

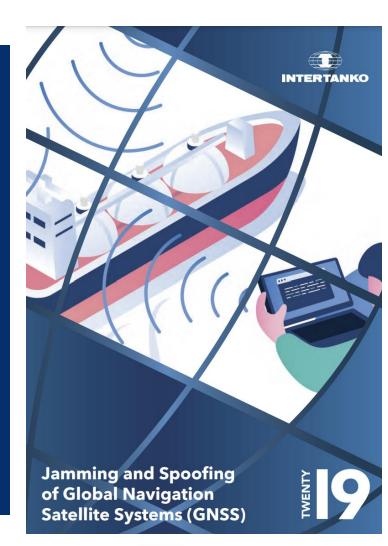


Members lead the continuous improvement of the tanker industry's performance and strive to achieve the goals of:

ZERO fatalities ZERO pollution ZERO detentions

Deliver highest quality services to meet stakeholders' expectations

Promote availability and use of personnel with best marine skills and competencies





GNSS Man-made Interference: Jamming and Spoofing

Jamming causes the receiver to die JRC No1 GPS DISP AU 31 JAN, 24 09:11:16 L 29°38.388'N 45 69.7 kn COG 96.9

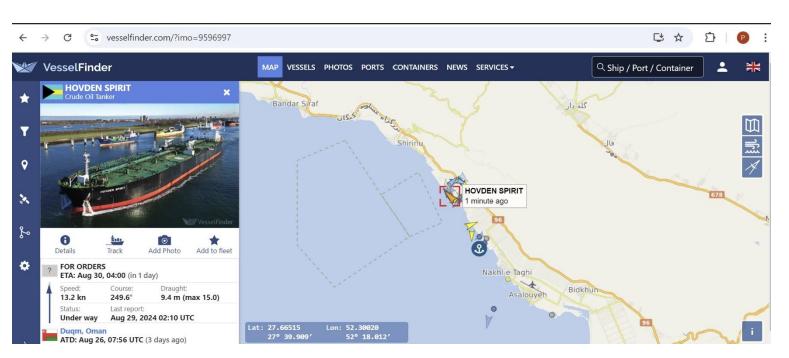
Spoofing causes the receiver to lie

- Sudden placement of fake AIS target
- AIS target without radar image and no visual
- AIS target behaved and moved like a ship
- Forcing collision avoidance and entrance into Iranian waters
- Countered by lack of radar echo and binoculars





GNSS (AIS) Spoofing: Hijacking a signal



- Passage from Mombasa to Kuwait
 - Uneventful voyage
- New charterers rejected vessel as vesselfinder.com had it breaching sanctions by calling in Iran
- It had not called there
- Commercial implications
- But imagine if the faked signal had placed it in Israel
- Ship had no idea that this had occurred





- **1.** Preventative Action (Regulators):
 - INTERTANKO submission: New STCW Competency for OOW
 - IMO Mandatory use of MMSI numbers
- 2. Corrective Actions (Manufacturers)
 - Multiple dual-frequency GNSS-receivers needed
 - RFI-resilient GNSS receivers (adaptive antenna arrays).
- 3. Corrective Actions (Coastal States):
 - SOLAS requires signatory governments to have adequate aids to navigation to meet a defined degree of risk for the volume of traffic (Chapter V Regulation 13)
- 4. Corrective Actions (Seafarers):
 - Use radar overlay
 - Trust your eyes and use them!







Thank you and Questions?

Dr Phillip Belcher Marine Director

phillip.belcher@intertanko.com

