

Let's add ship's rudder angle to AIS dynamic information for the MASS

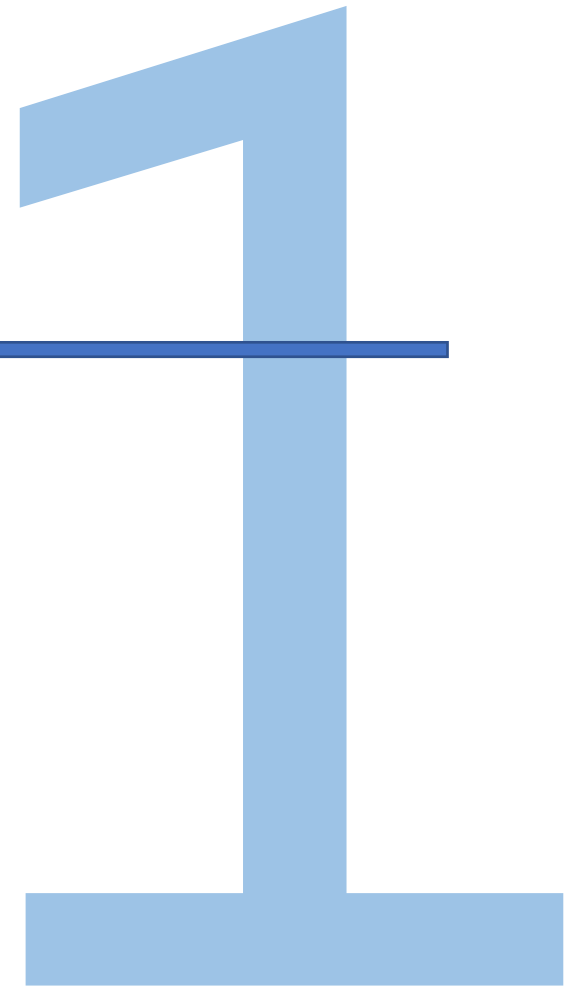


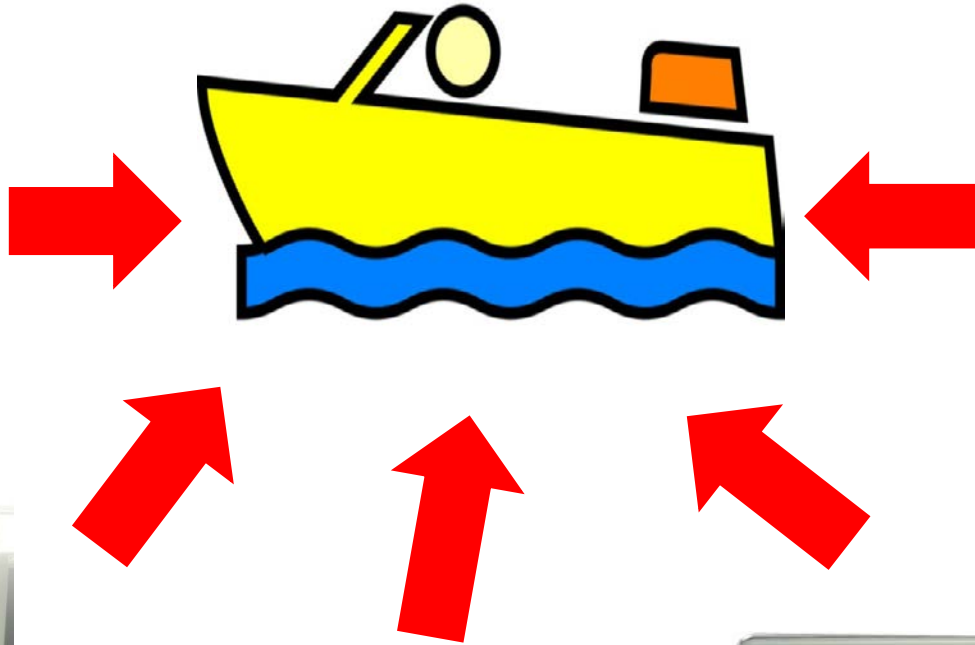
Team. avengers

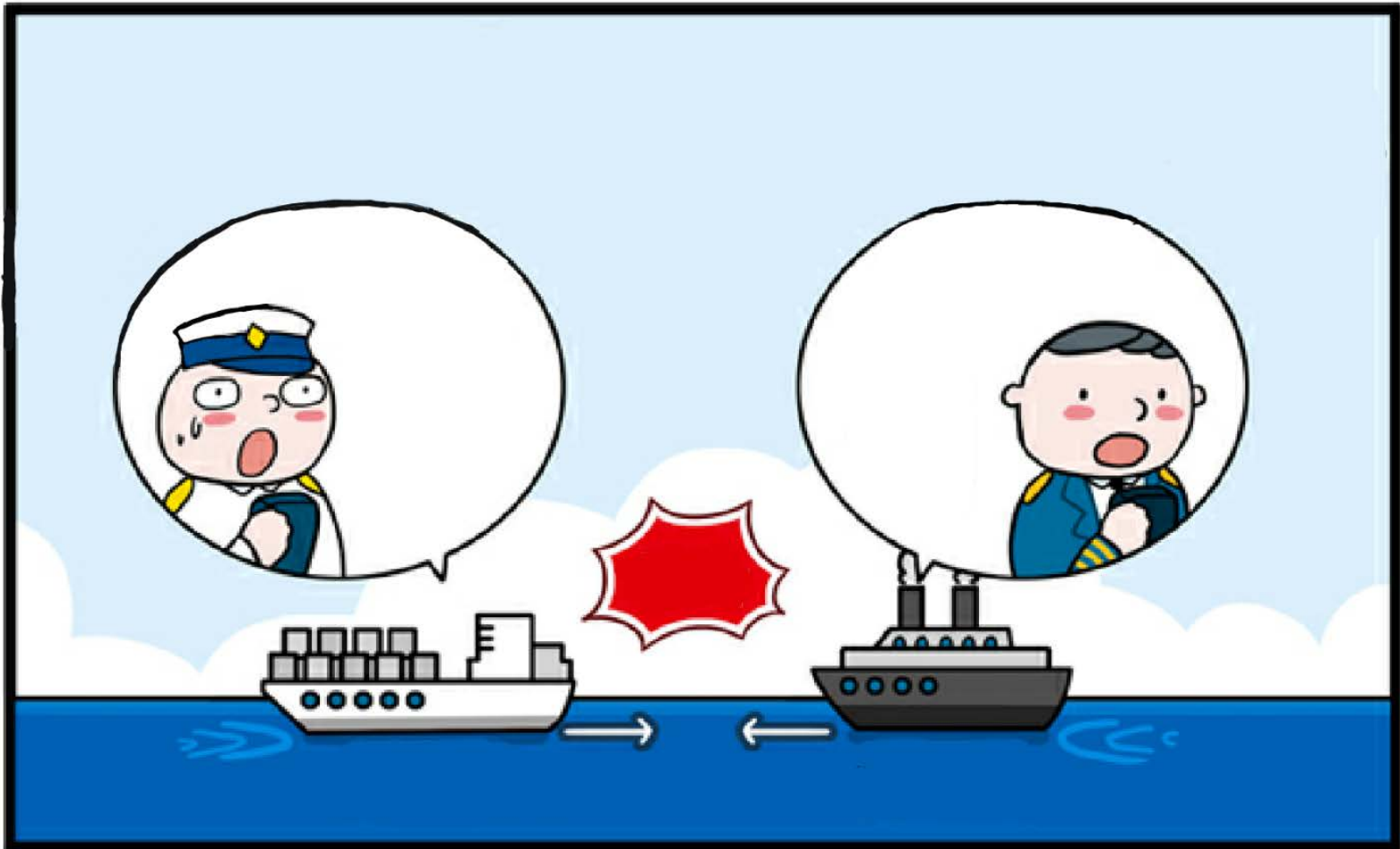
CONTENTS

- 01 • Background
- 02 • Problem & Solution
- 03 • Conclusion

Background







AIS (Automatic Identification System)

- Equipment that automatically displays navigation information, such as ship's name, course, location, etc.
- Used for simple text communication.
- IMO prepared the Performance Standard Plan for AIS in July 1997 and inserted the requirements for AIS mounting in September 1999, into SOLAS Chapter 5, Regulation 19, Paragraph 1.5.
- Passenger ships of 300 tons or more engaged in international navigation, and cargo ships over 500 tons not engaged in international navigation are loaded with AIS.

AIS (Automatic Identification System)

Static information

- ✓ MMSI
- ✓ Call sign and name
- ✓ IMO Number
- ✓ Length and beam
- ✓ Type of ship
- ✓ Location of position-fixing antenna



Dynamic information

- ✓ Ship's position with accuracy indication and integrity status
- ✓ Position Time stamp in UTC
- ✓ Course over ground (COG)
- ✓ Speed over ground (SOG)
- ✓ Heading
- ✓ Navigational status
- ✓ Rate of turn (ROT)

Short safety-related messages

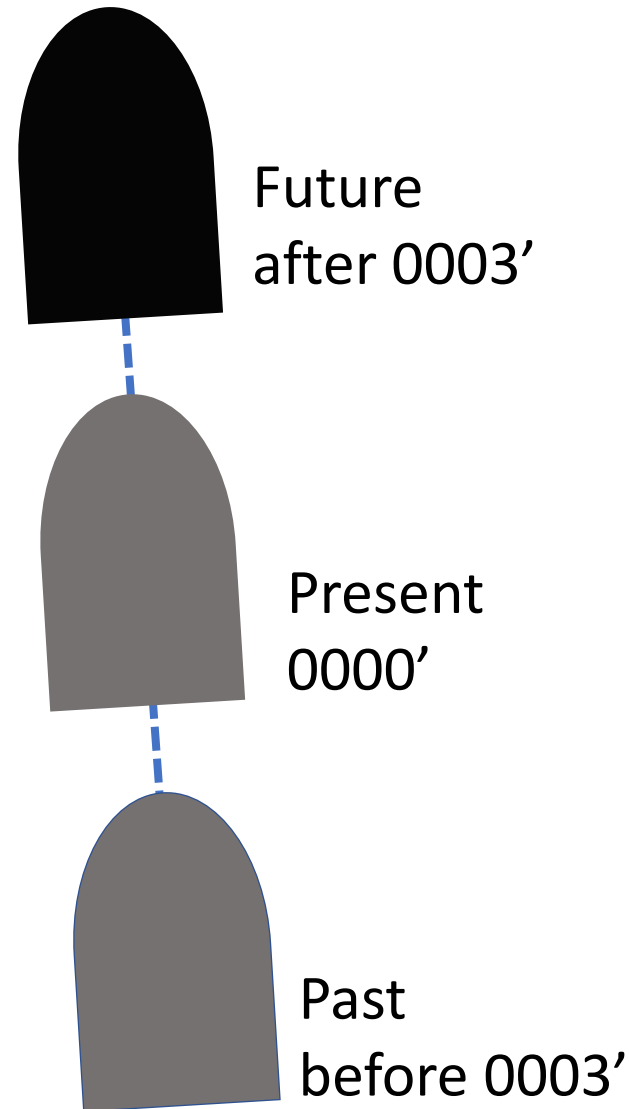
Voyage-related information

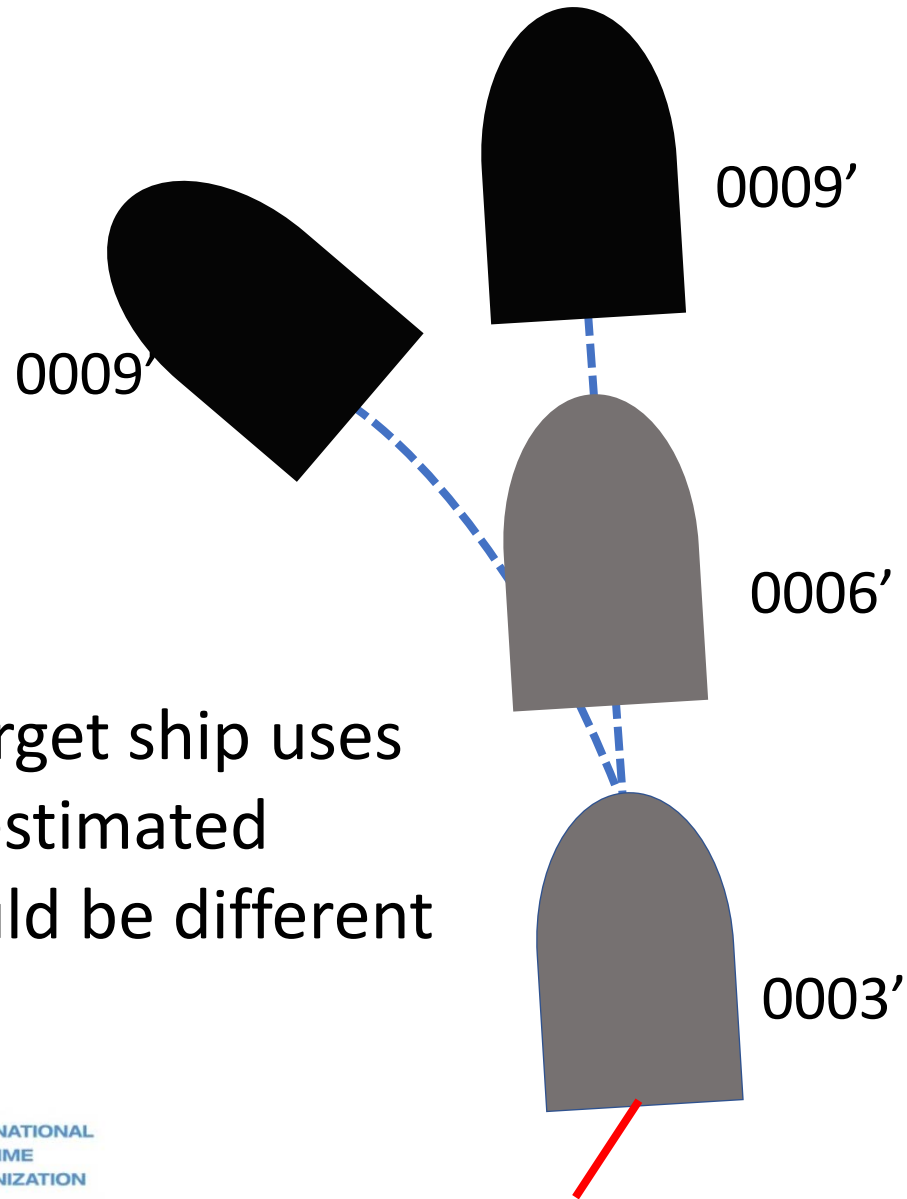
- ✓ Ship's draught
- ✓ Hazardous cargo (type)
- ✓ Destination and ETA
- ✓ Route plan (waypoints)

Problem & Solution

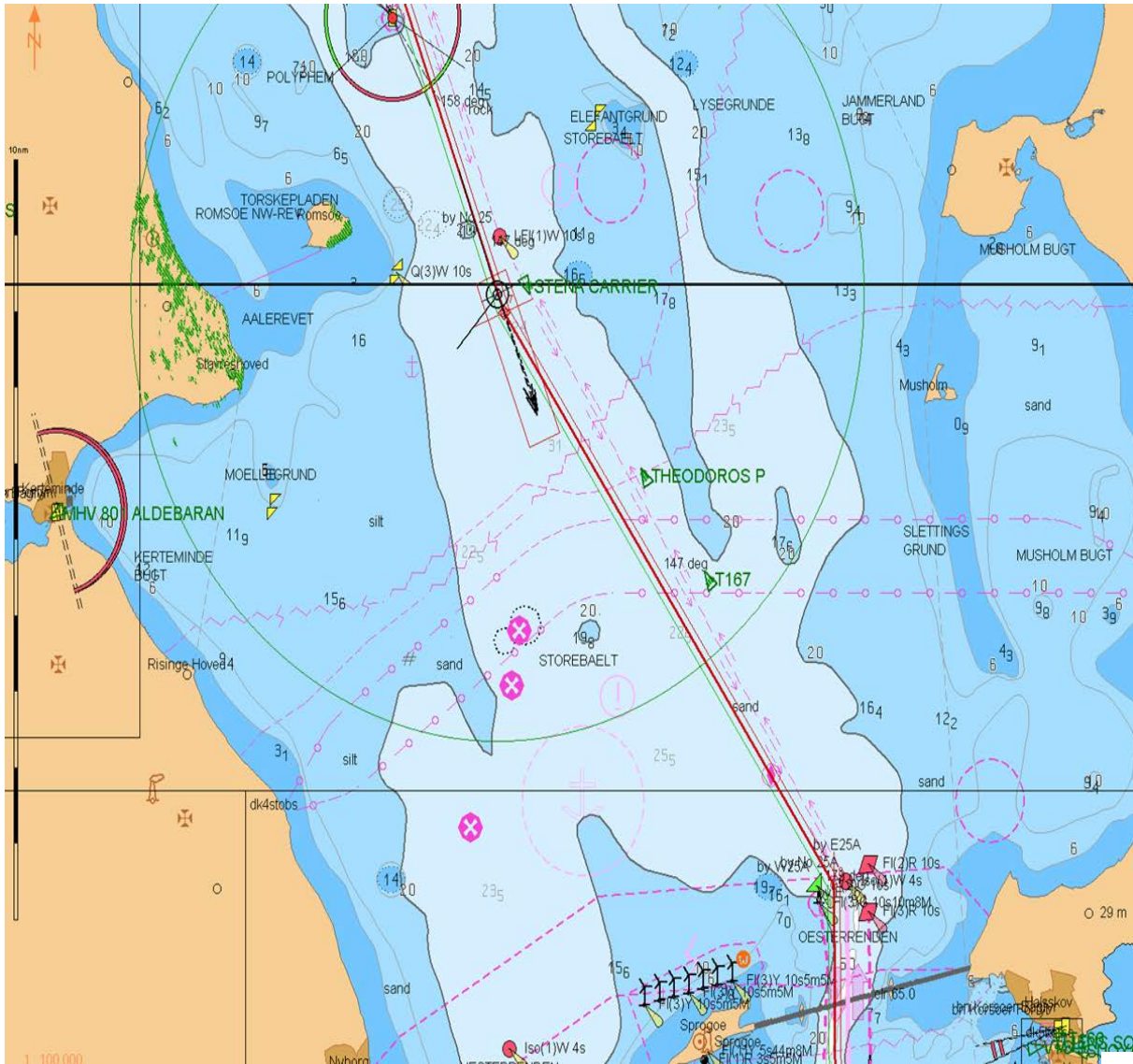


Plotting:
Estimated position of a
target ship is based on its
past position and speed





When the target ship uses rudder, the estimated position would be different



NAME: 12345678901234567890
 MMSI: 123456789
 CALL SIGN: I002139
 IMO NO.: 987654321
 CPA : 4.5NM
 TCPA : 28.9MIN
 BEARING: 123.4'
 RANGE : 4.95NM
 NAVIGATIONAL STATUS:
 RESERVED FOR HSC
 POSITION (POS) SENSOR:
 INTEGRATED
 POSITION ACCURACY :HIGH
 ▼

▲
 POS :N: 45° 25.743'
 E: 123° 34.765'
 COG : 25.2'
 SOG : 102.2KN OR HIGHER
 HDG : 25.1'
 ROT : 0.5' /MIN
 DESTINATION:
 ABCDEFGHIJKLMNOPQRST
 ETA : 12/31 12:59
 LENGTH : 1022M OR GREATER
 BEAM : 126M OR GREATER
 DRAUGHT: 25.5M OR GREATER
+RUDDER ANGLE: 5°(P)

▲
 SHIP TYPE :
 OTHER TYPE OF SHIP
 CARGO TYPE:
 NO ADDITIONAL INFORMATION
 CLASS :CLASS A



MAGNETIC COMPASS



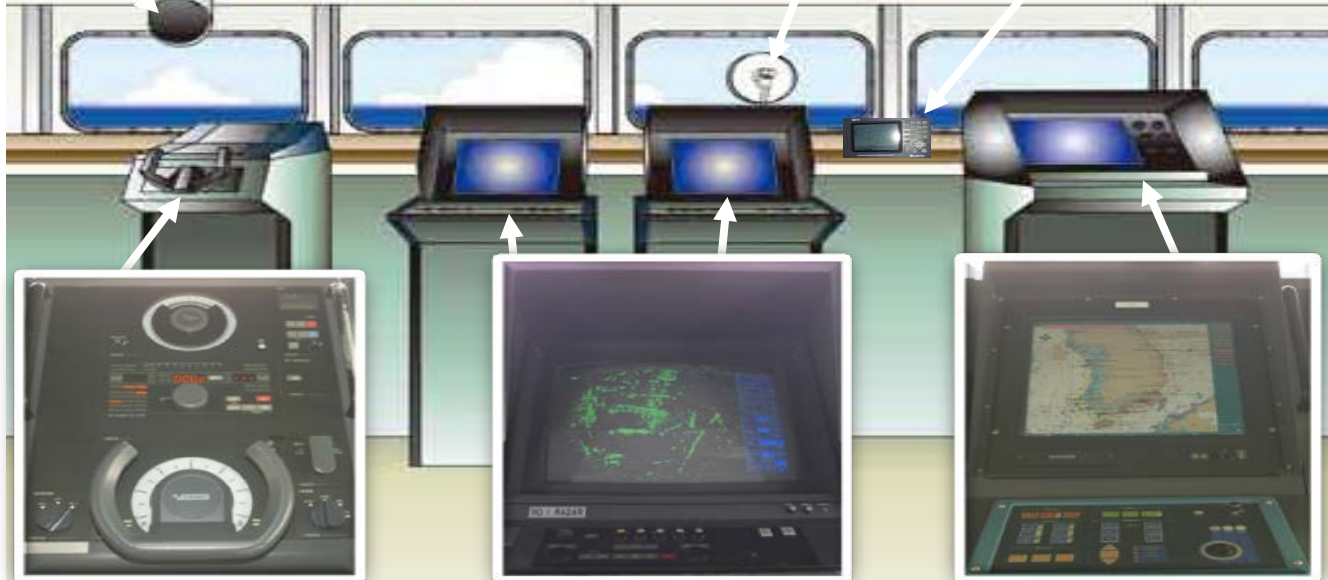
ANEMOMETER



CLEAR VIEW SCREEN



AIS



AUTO PILOT /
GYROCOMPASS



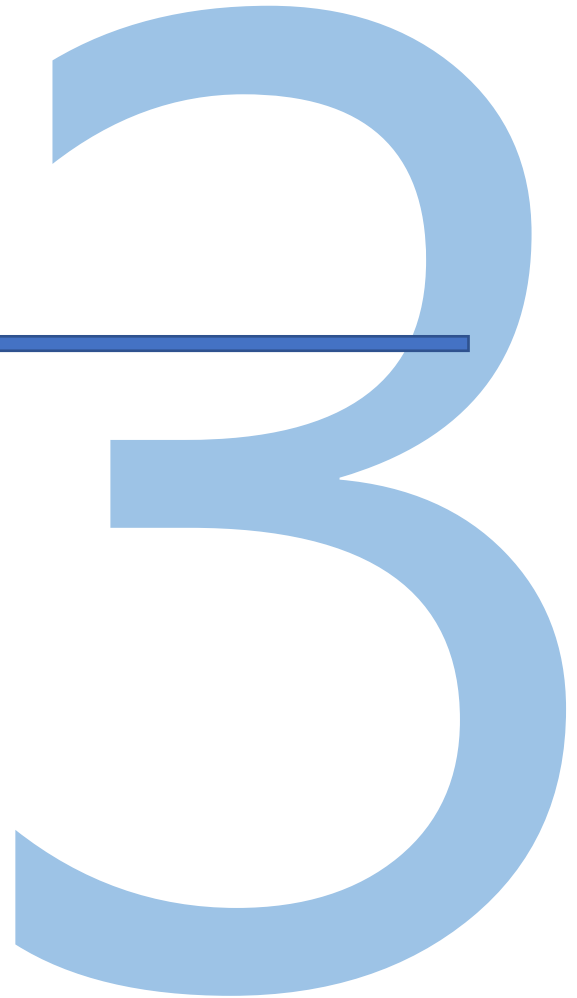
ARPA RADAR



ECDIS



Conclusion



Amendment: AIS regulation in SOLAS

AIS shall provide automatically to appropriately equipped shore stations, other ships and aircraft information, including the ship's identity, type, position, course, speed, navigational status, and other safety-related information

SOLAS Chap. V Reg. 19 2.4.5.1

Current regulation

AIS shall provide automatically to appropriately equipped shore stations, other ships and aircraft information, including the ship's identity, type, position, course, speed, navigational status, **rudder angle** and other safety-related information

SOLAS Chap. V Reg. 19 2.4.5.1 Amendment

Proposal

Expected effect

- The earlier, we identify target ship's intention, the more, we have chances to avoid collision
- Even though VHF communication is the best way to find out target ship's intention, it could lead miscommunication. Furthermore, it would be useless against MASS
- Therefore, rudder angle information would supply more accurate intention of target ships

Bon voyage
