

# Inland AIS Requirements and Potential

Stefan Bober

German Federal Waterways and Shipping Administration  
Traffic Technologies Centre, Germany

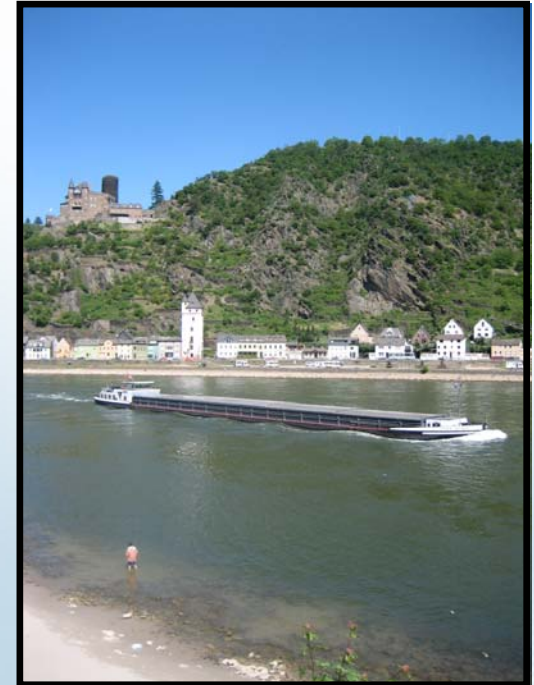
[Stefan.Bober@wsv.bund.de](mailto:Stefan.Bober@wsv.bund.de)





# Scope

- AIS Idea
- Inland AIS features
- System overview
- Inland AIS – information
- Application of Inland AIS
- Standardisation
- Summary





# The AIS Idea

## AIS Idea

### Inland AIS features

### AIS functionality

### Inland AIS - information

### Applications

### Standardisation

### Summary

The Automatic Identification System was developed by IMO to enhance:

- safety of life at sea,
  - safety and efficiency of navigation
  - the protection of the environment
- by exchanging relevant information automatically and continuously
- between equipped vessels
  - between vessels and shore-based facilities.







# Requirements for Inland AIS

AIS Idea

Inland AIS features

AIS functionality

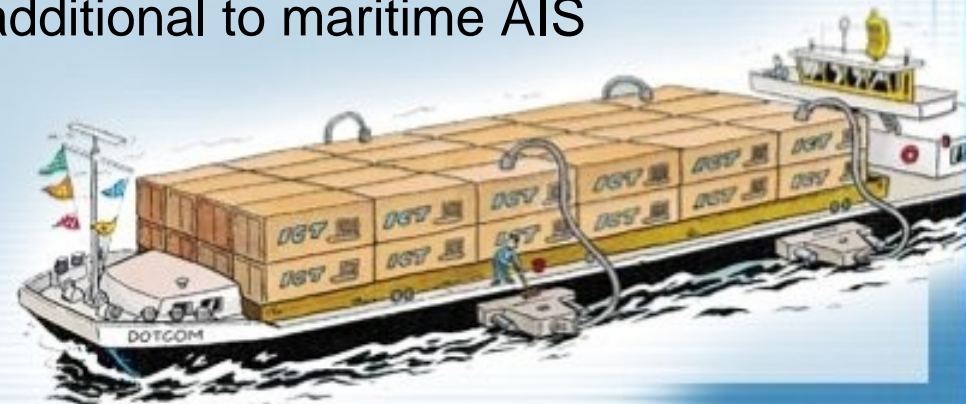
Inland AIS -  
information

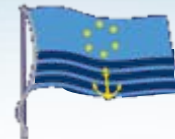
Applications

Standardisation

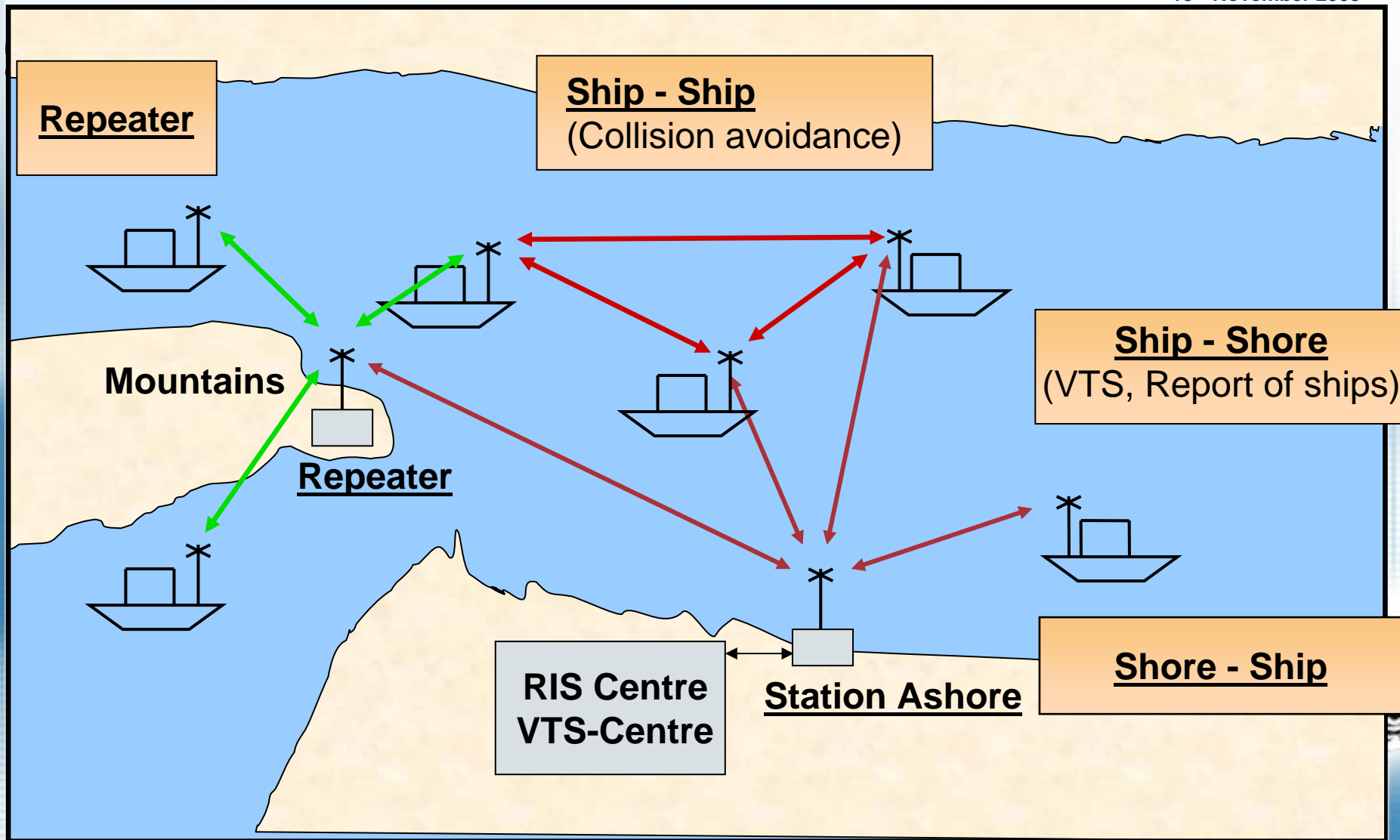
Summary

- serves specific requirements for Inland Navigation
- based on the maritime AIS
- interoperable to maritime AIS by maintaining its functionality
- direct data exchange between seagoing and inland vessels in mixed traffic areas
- specific requirements for inland navigation are complementary or additional to maritime AIS





# AIS System Overview





# Reporting Interval

## Ships dynamic information

### Reporting Interval for dynamic ship information

Ship status "at anchor" and speed not above 3 knots	3 min
Ship status "at anchor" and speed exceeding 3 knots	10 sec
Ship with speed 0 - 14 knots	10 sec
Ship with speed 0 - 14 knots and changing course	3 1/3 sec
Ship with speed 14 - 23 knots	6 sec
Ship with speed 14 - 23 knots and changing course	2 sec
Ship with speed exceeding 23 knots	2 sec
Ship with speed exceeding 23 knots and changing course	2 sec
Ship with inland navigation reporting rate	assigned between 2 - 10 sec

**Static and voyage related information**      **6 minutes**

**Safety related information**      **as required**

**Application specific information**      **as required**



AIS Idea

Inland AIS features

**AIS functionality**

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# Inland AIS - Information

AIS Idea

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## Static Ship Data

- ⊖ Name of ship
- ⊖ Type of ship \*
- ⊖ Call sign
- ⊖ Navigational status
- ⊖ Length \*, Beam \*
- ⊖ IMO number
- ⊖ MMSI
- ⊖ Official ship number
- ⊖ Type of combination
- ⊖ Length and beam of combination

## Voyage Related Data

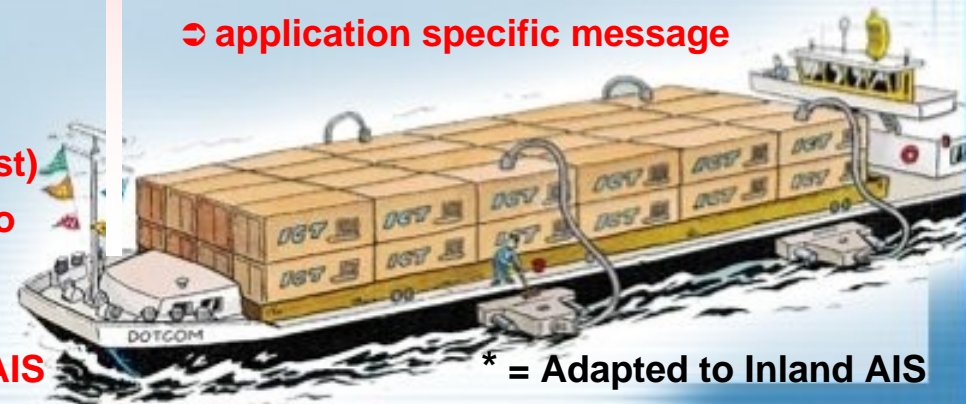
- ⊖ Destination
- ⊖ ETA
- ⊖ Draught
- ⊖ Persons on board (on request)
- ⊖ Category of dangerous cargo
- ⊖ Loaded/unloaded

## Dynamic Ship Data

- ⊖ Position
- ⊖ Speed SOG
- ⊖ Course COG
- ⊖ Heading HDG
- ⊖ Rate of turn ROT
- ⊖ Position accuracy (GPS/DGPS)
- ⊖ Blue Board set

## Safety Related Information

- ⊖ Addressed or broadcast
- ⊖ Safety related text message
- ⊖ application specific message







# Inland AIS - Information

## Application Specific Inland AIS Messages

- Inland ship static and voyage related data
- Inland number of persons on board
- ETA at lock/bridge/terminal
- RTA at lock/bridge/terminal
- Water level
- Signal status
- EMMA weather warning



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# Use of Inland AIS

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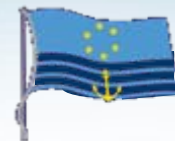
Standardisation

Summary

- Improves the tactical and strategic traffic image
- Identifies ships unambiguously
- Supplements radar by complementary information
- Provides dynamic, static and voyage related data
- Provides additional information as dangerous cargo, blue board set

AIS will enhance the quality of the information available on board or on shore





# Navigational Ship Equipment

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# From Radar to AIS

AIS Idea

Inland AIS features

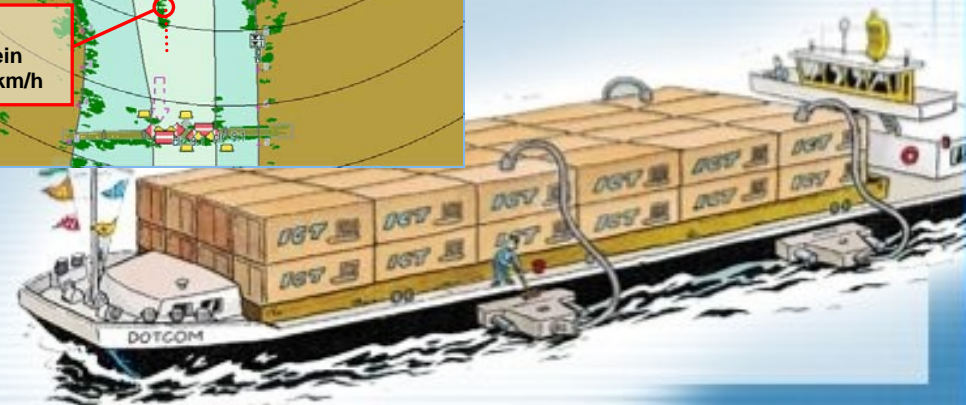
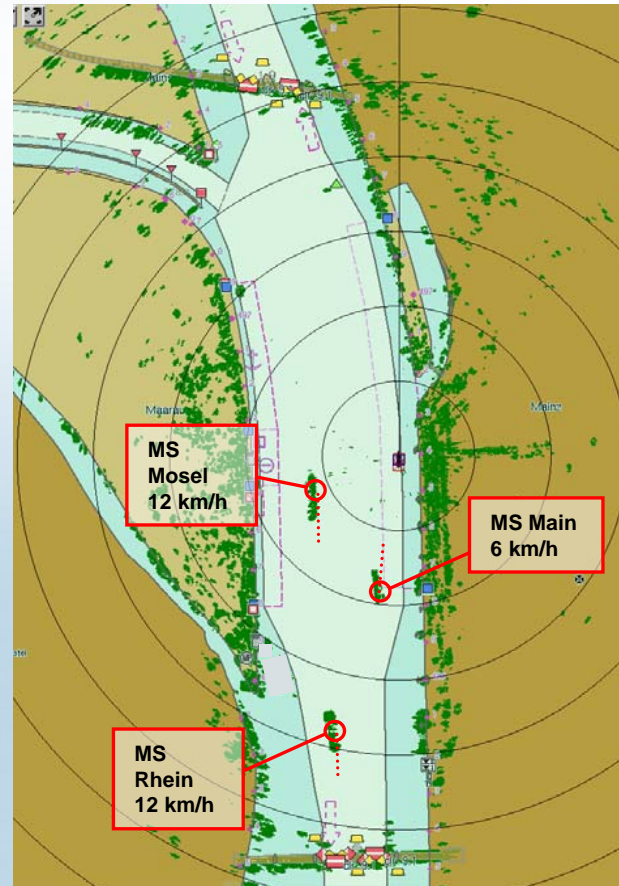
AIS functionality

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# Inland AIS on Inland ECDIS in Navigation Mode



CCNR RIS workshop  
13<sup>th</sup> November 2008

AIS Idea

Inland AIS features

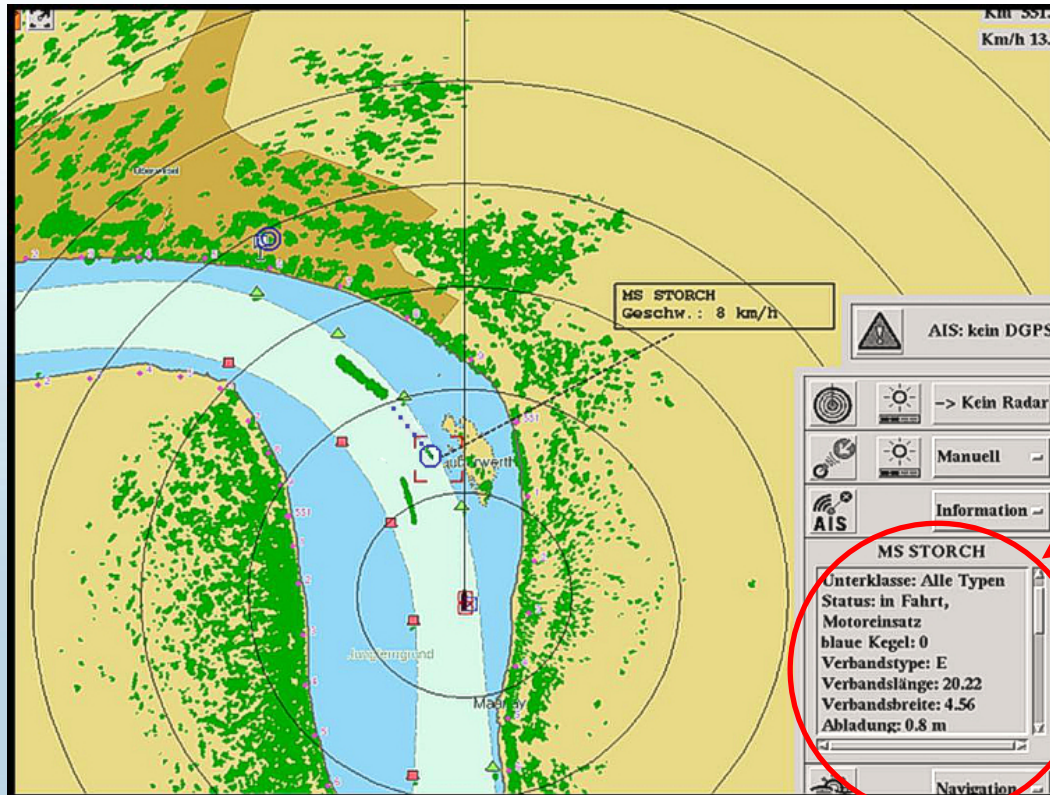
AIS functionality

Inland AIS -  
information

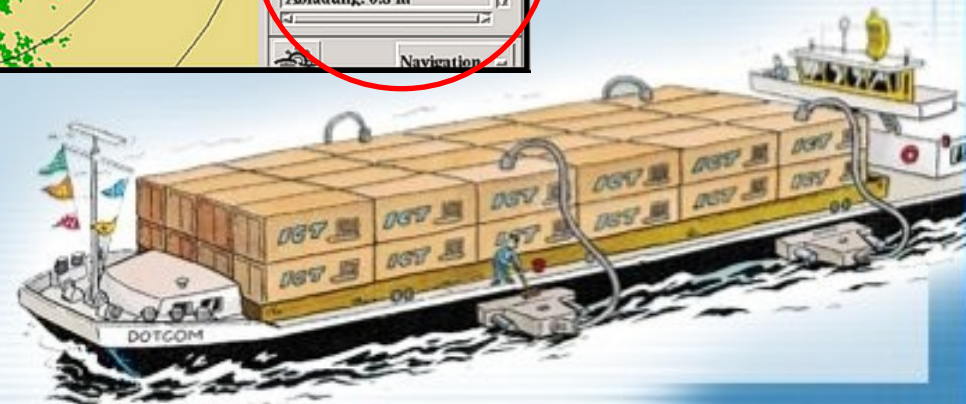
Applications

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AIS  
Data



# Inland AIS on Inland ECDIS in Information Mode



CCNR RIS workshop  
13<sup>th</sup> November 2008

AIS Idea

Inland AIS features

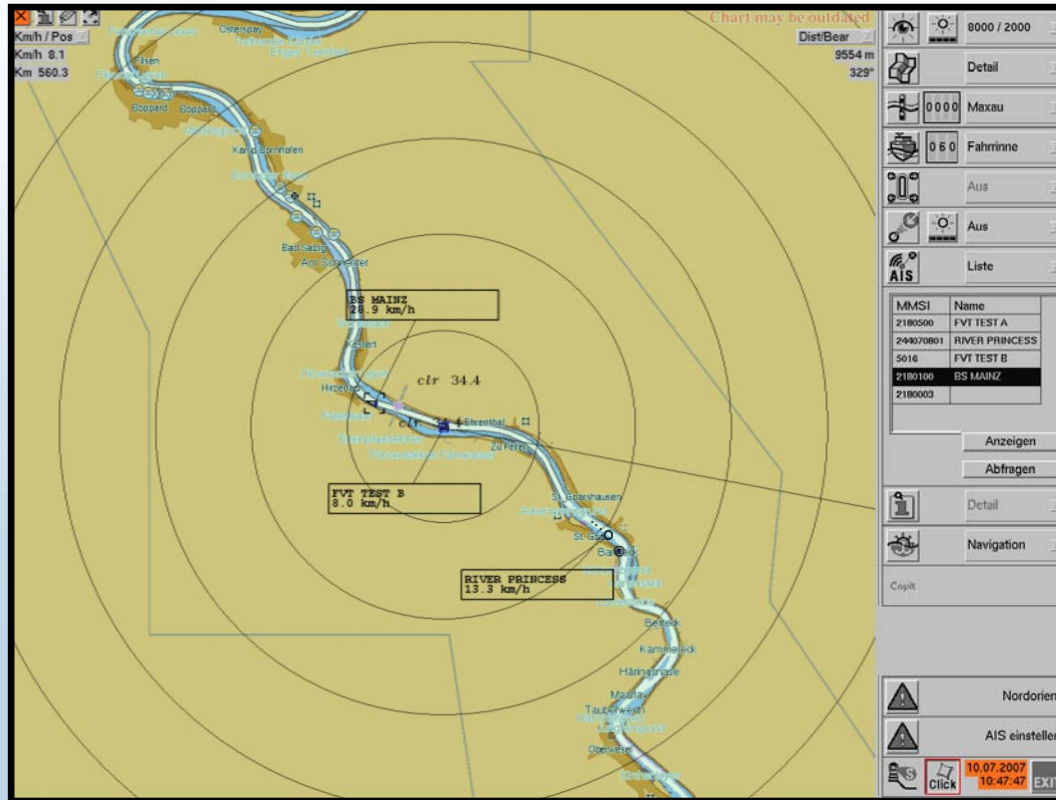
AIS functionality

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Range 8 km / 2km





# Traffic Regulations in Narrow Fairway Sections



CCNR RIS workshop  
13<sup>th</sup> November 2008

AIS Idea

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Applications

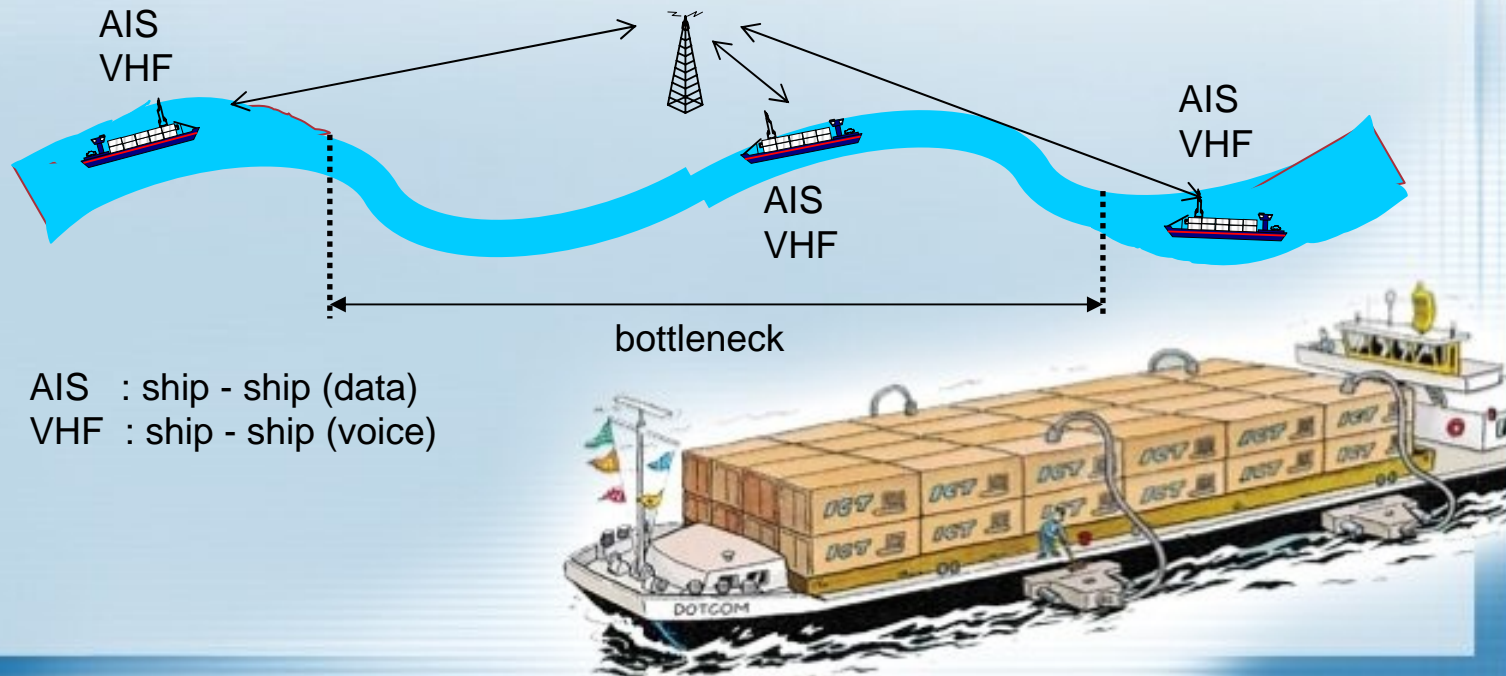
Standardisation

Summary

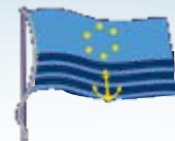
Critical bottlenecks can only be passed in one way traffic after arrangement via VHF voice communication (Selbstwahrschau)

## AIS benefits:

- ✧ exact position information of oncoming ships
- ✧ clear identification of oncoming ships
- ✧ automatic data transfer between ships







# Vessle Traffic Centre for Inland Navigation

AIS Idea

Inland AIS features

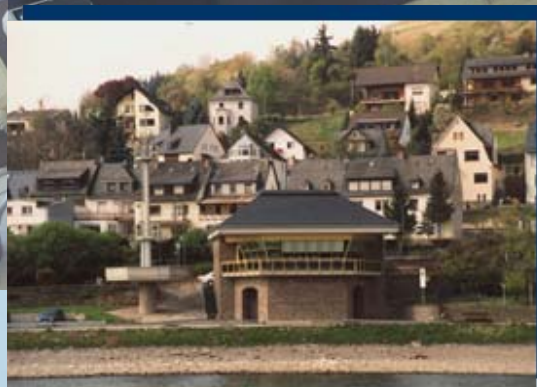
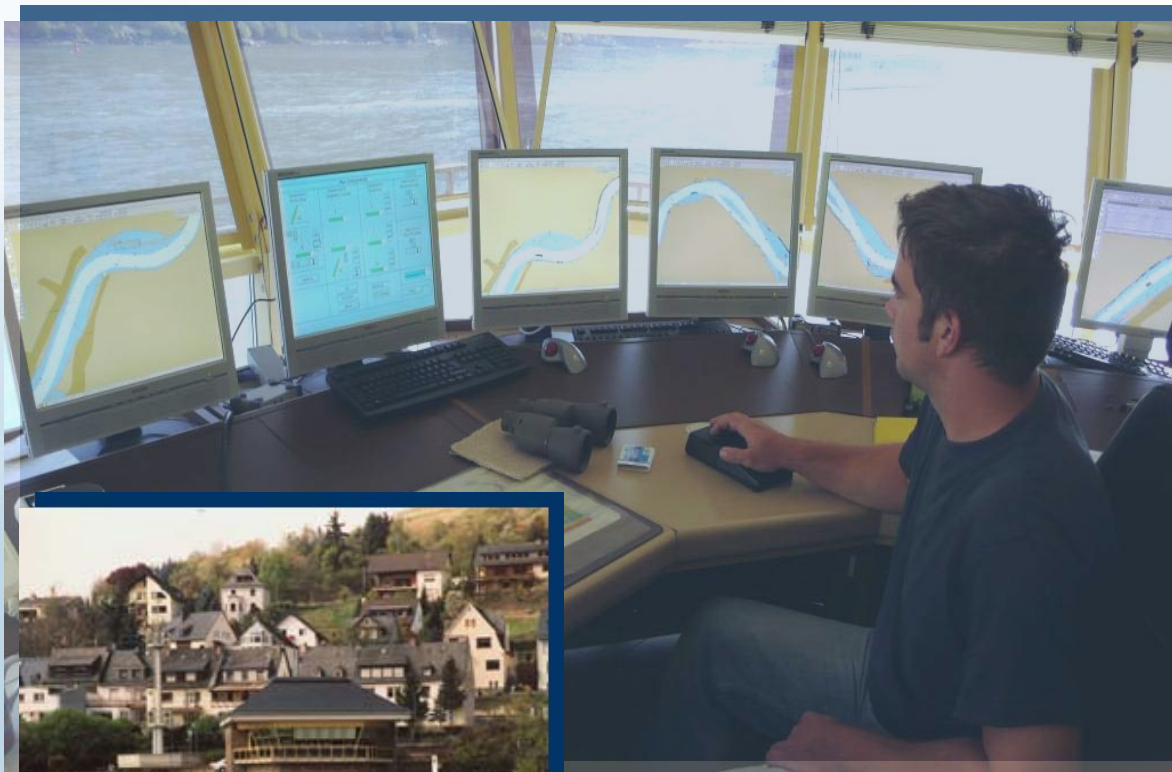
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Revierzentrale Oberwesel





# Inland AIS derived Data in VTS

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Ship reporting system

Traffic display

**MibOperator**

Ladungsarten

Verbandsname: WENGEN, Schiffname: WENGEN  
 Amtliche Schiffs-Nr: 7001529, Amtliche Schiffs-Nr: 7001529  
 Beladehafen: BASEL, Entladehafen: ANTWERPEN, Container-Nr.: JBL CU 2430074

Verlade Belegfahrt

ETA	Verbandsname	L	Bel
16:40	JABBO	73,00	
00:53	MATHIAS STIN	179,00	
01:36	AARIGAU	95,00	

Verlade Taiffahrt

ETA	Verbandsname	L	Bel
20:40	RP BIRSFELDE	105,00	
12:02	RAAB KARCHE	90,00	

**Schiffsdateneingabe**

Schiffname	Amtliche Schiffs-Nr	Funkrufzeichen	Name	Flagge	Name	Schiffsgattung	Länge	Breite	Tragfähigkeit	Eigen	Telefon Nr	Doppelwandig
WENDELIN 2	440070		D		Gütermotorschiff	77	10,14	1300		0161 / 5655602		
WEIDY BIA	2205627		NL		Gütermotorschiff	86	10,5	1032				
WENGEN	7001529		CH		Gütermotorschiff	95	11,1	1003	Fax 0171 / 4636520	0171 / 4636527		
WEPPETEST	5999999		D		Containererschiff R	110	9,5	3500 FVT				
WE RE DI	6001770		B		Gütermotorschiff	80	9,55	1399				
WE RIN	4001040		D		Gütermotorschiff	80	8,2	1150	GEBR. VATH	0171 / 2420460		
WEINIGERODE	5114610		D		Tankmotorschiff	82	9	1264				
WESERLAND	4002300		D		Tankmotorschiff	80	8,2	1137		0172 / 2495021		
WESLY	6002761		B		Tankmotorschiff	85	9,05	1297		0031653210405		
WESTLAND	2321410	PD3451	NL		Tankmotorschiff	85	9,48	1572		0171 / 6312982		
WESTRAG 102	4000540		D		Güterschubleicht	74,4	11,2	2040				
WESTROPA	320219		NL		Gütermotorschiff	39	5,00	362				
WESTSTELLINGWI	2000643		NL		Tankmotorschiff	109	10,54	2759		0171 / 6304563		
WESTTRAG 091	4032300		D		Güterschubleicht	77	11,2	2060				
WESTTRAG 095	4001210		D		Güterschubleicht	76,5	11,4	2729				
WESTTRAG 099	4001210		D		Güterschubleicht	76,5	11,4	2442				
WESTTRAG 110	4001300		D		Güterschubleicht	76,5	11,4	2445				
WHITE	2312282		NL		Güterschubleicht	76,5	11,4	3026				
WICO	2312282		NL		Gütermotorschiff	0	0	677				
WIPOR	18717506	DF12	D		Küstengütermot	81	11,4	1566				
WISKE D	1724401	V2A05	D		Küstengütermot	82	11,4	1660				
WISSADEN	4032500		D		Güterschubleicht	76,5	11,2	2193				
WUNANDA - G	2320092		NL		Gütermotorschiff	86	9,53	1613				
WIL	2316595		NL		Güterschubleicht	76,5	11,4	2095				
WILANI	6002781		B		Gütermotorschiff	73,06	8,2	1006				

MS STORCH Geschw.: 0 km/h

REMORA Geschw.: 21 km/h

REMORA  
 MMSI: 304107000  
 Rufzeichen: V20F6  
 Empfänger: GPS  
 Ziel: ROTTERDAM  
 Ankunfts: 13.00 am 26.06  
 Status: in Fahrt, Motoreinsatz







# Signal Status via Inland AIS

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# European Standardisation

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## Vessel Tracking and Tracing in Inland Navigation - Inland AIS Standard -

- approval of Inland AIS Standards by CCNR  
May 2006 (*protocol 2006-I-21*)
- approval of Inland AIS Standards by EC  
March 2007 (*Directive (EG) Nr. 415/2007*)
- approval of Test Standards for Inland AIS by CCNR  
May 2007 (*protocol 2007-I-15*)
- approval of modification of RheinSchPV and RheinSchUO  
regarding Inland AIS by CCNR in December 2007  
(*protocol 2007-II-24*)





# CCNR Regulations regarding Inland AIS

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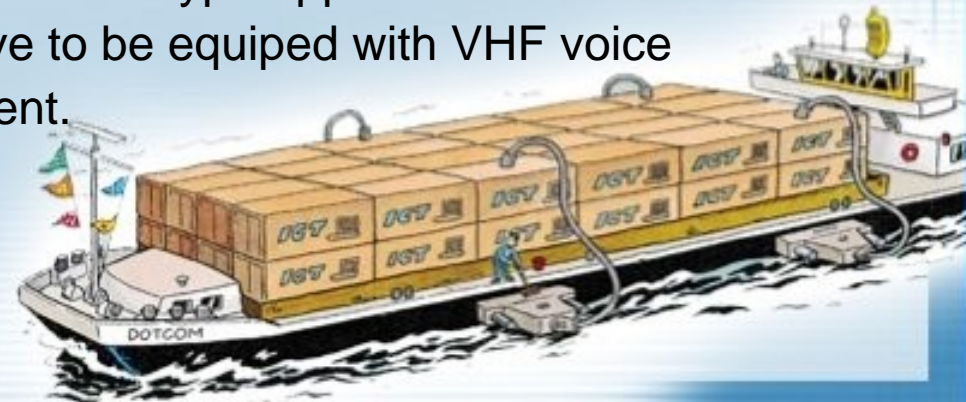
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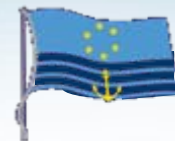
Applications

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Summary

- From 1. October 2008: vessels on the river Rhine, with the exception of seagoing vessels, may use AIS only, if they are equipped with a type approved Inland AIS mobile station.
- IMO Class A Mobile Stations installed on inland vessels before 31. March 2008 are approved until December 31<sup>th</sup> 2011.
- Installation or replacement of Inland AIS equipment are allowed by approved specialised firms only.
- Statement of installation and functional test and type approval certificate of the Inland AIS equipment needed.
- Small crafts are allowed to use type approved Inland AIS equipment only and have to be equipped with VHF voice communication equipment.





# CCNR Regulations regarding Inland AIS

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CCNR web site ([www.ccr-zkr.org](http://www.ccr-zkr.org))

- List of competent authorities for type approval of Inland equipment
  - Fachstelle der WSV für Verkehrstechniken, Germany
- List of approved Inland AIS equipment
  - R4 IAIS Transponder System; Saab TransponderTech AB
  - ProTec Inland AIS; L-3 Communications Aviation Recorders
- List of approved specialised firms for installation or replacement of Inland AIS equipment







# Summary

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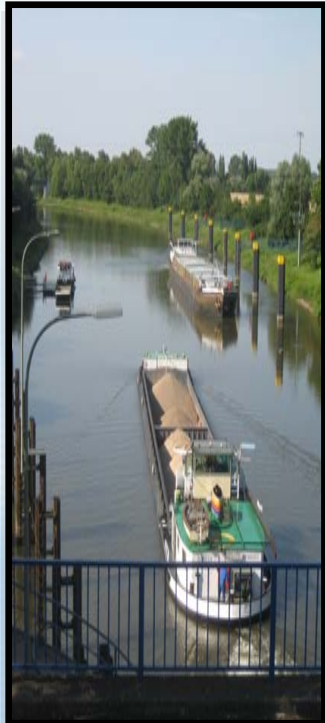
Approved technical standards for Inland AIS  
by CCNR and EC

Type approved Inland AIS equipment is available

Diversity of applications of Inland AIS

Inland AIS increases safety and efficiency in Inland  
Navigation





**Thank you very much  
for your attention!**

