IWETT Project - EGNOS for inland waterways

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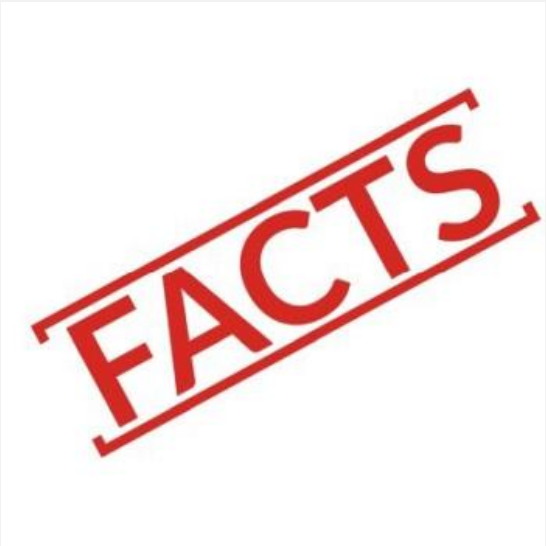
EGNOS Workshop 2024

Dublin, 14.03.2024

BASIC PROJECT FACTS

- Duration: 24 Months

  October 2022 - September 2024
- Grant awarded: 536.250,71 EUR (60% of total budget)
- Funded by EUSPA - European Union Agency the Space Programme
- Coordinated by RSOE, Hungary
- 4 partners from 3 countries
- 2 observers
- Pilot areas in Hungary, Germany, Spain



IWETT CONSORTIUM

Project Coordinator:

RSOE

Project Partners:

Alberding GmbH

WSV.de
Wasser- und Schifffahrtsverwaltung des Bundes

Port of Seville

Project Observers:

Cerema
CLIMAT & TERRITOIRES DE DEMAIN

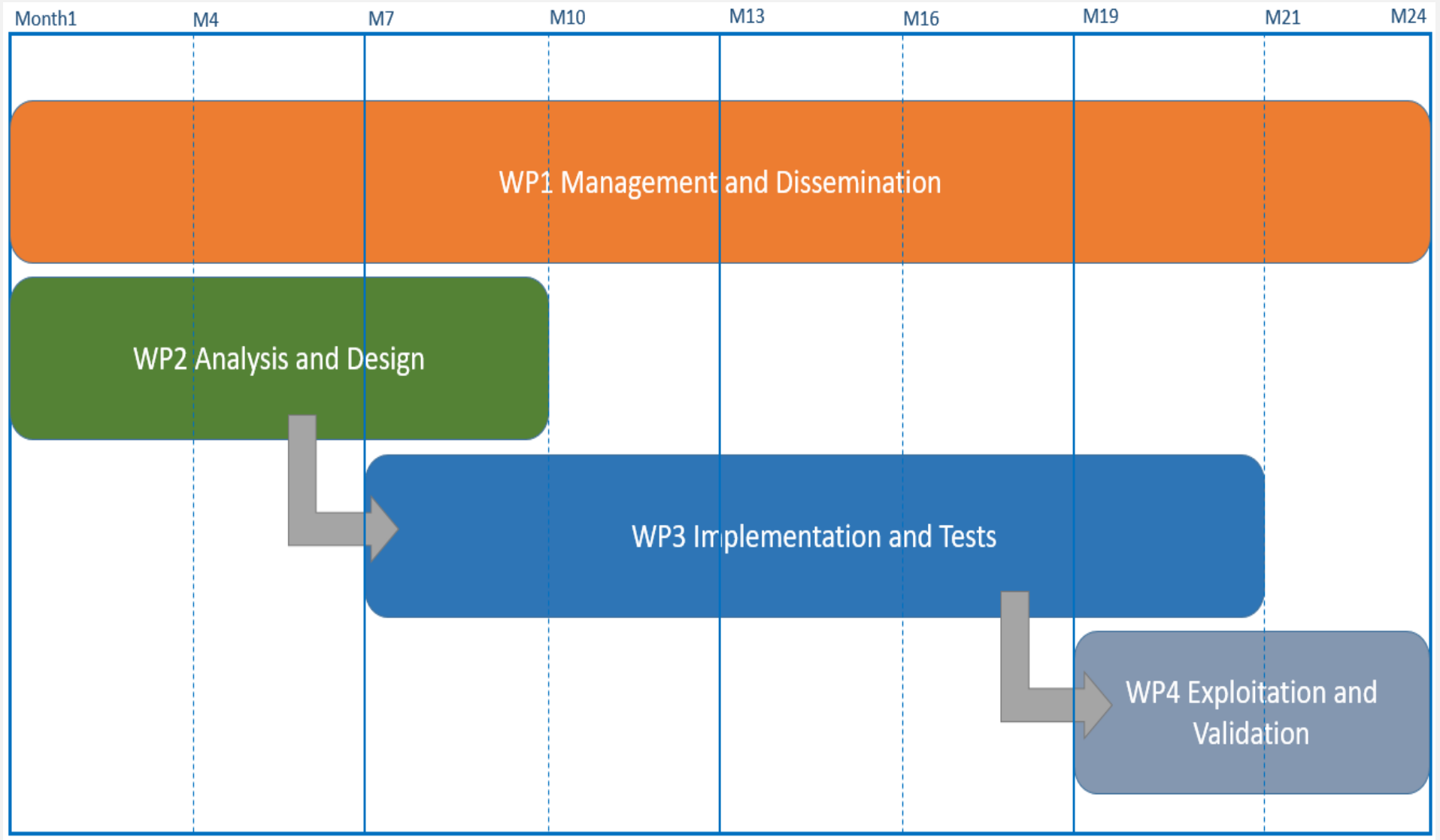
Puertos del Estado

PROJECT AIMS

The IWETT project aims to achieve significant ***adoption of EGNOS based service in the inland waterway transport*** sector, namely on the ***Danube in Hungary***, on the ***Spree-Oder Waterway in Germany*** and on the ***Guadalquivir river in Spain***. In these three countries the authorities and organisations responsible for inland waterway information systems and services decided to execute ***final pilot tests*** and after validation ***use EGNOS based service as important part of their RIS system***.

PROJECT PILOT AREAS

- Hungary, Budapest
- Berlin – Spree-Oder Waterway
- Guadalquivir Sevilla-Chipiona

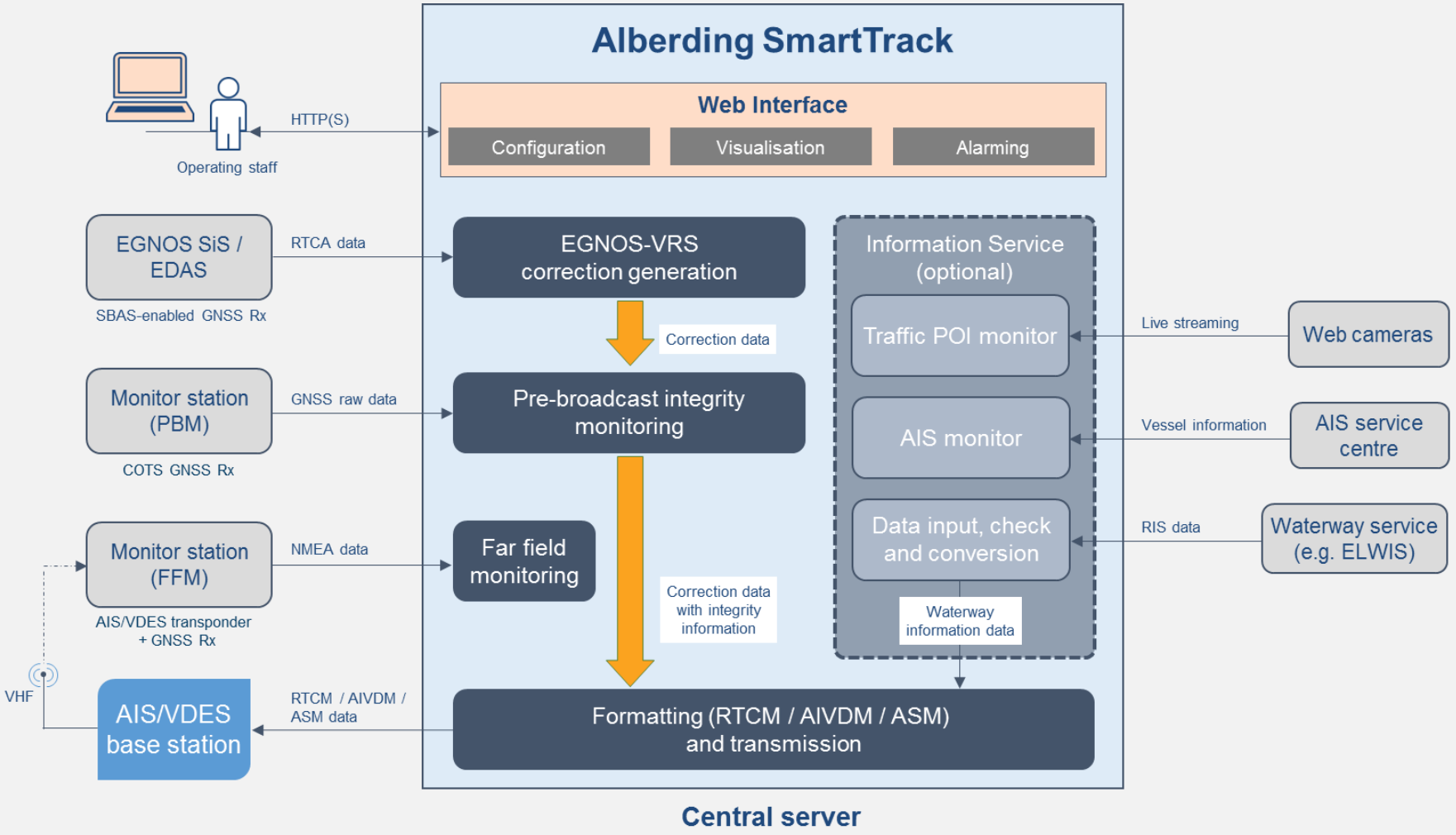

Month1
M4
M7
M10
M13
M16
M19
M21
M24
WP1 Management and Dissemination
WP2 Analysis and Design
WP3 Implementation and Tests
WP4 Exploitation and Validation

WBS

Work Breakdown Structure

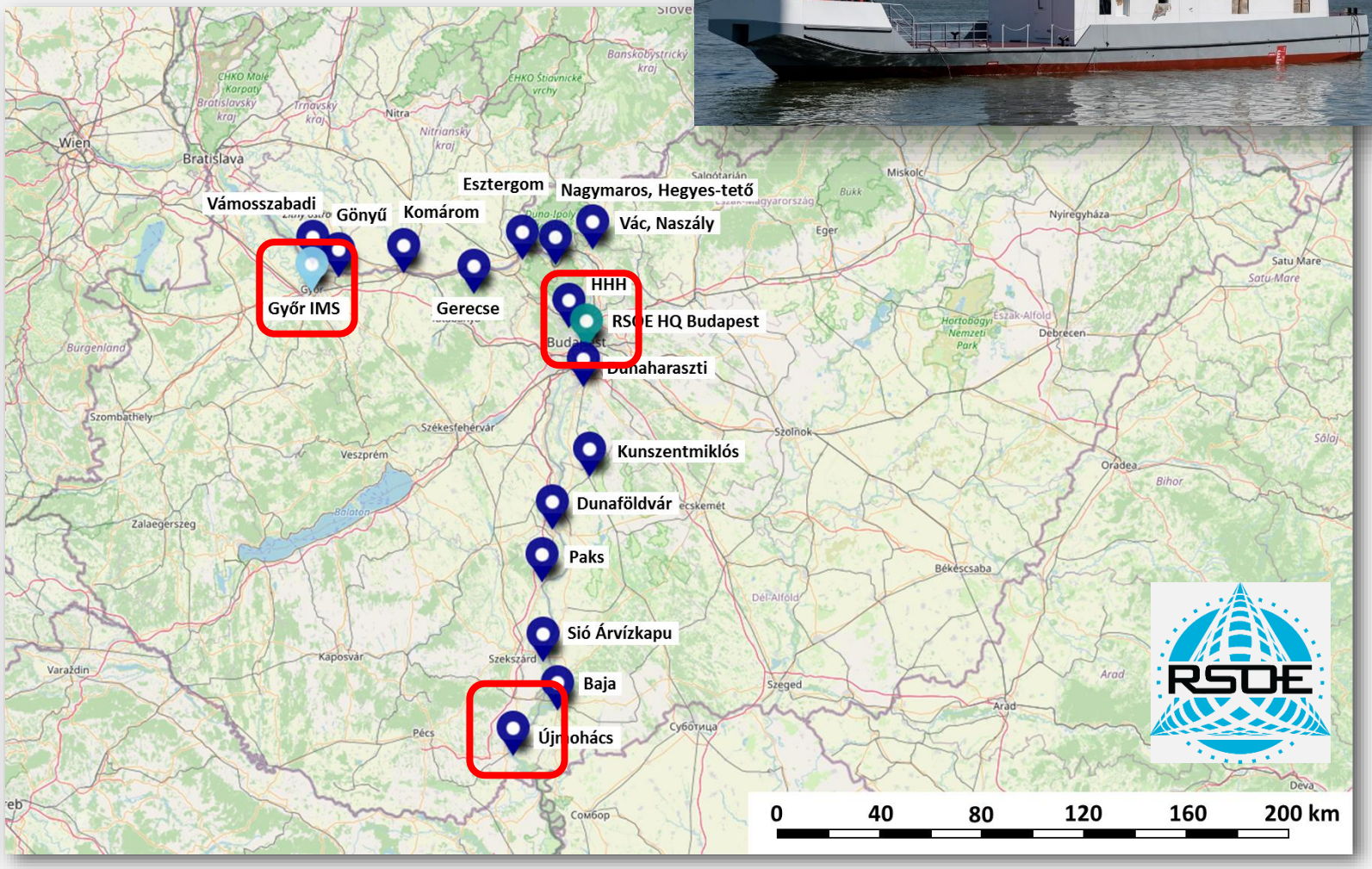
WP1 Management and Dissemination	WP2 Analysis and Design	WP3 Implementation and Tests	WP4 Exploitation and Validation
1.1 Project and financial management	2.1 Analysis of previous EGNOS IWW project results and present systems ✓	3.1 Software development ✓	4.1 Validation of pilot results, user forums
1.2 Project dissemination, synergies with projects	2.2 Analysis of IWW user requirements ✓	3.2 Upgrade of the land based EGNSS service infrastructure ✓	4.2 Standardisation and GNSS requirements
	2.3 Design of land based EGNSS service infrastructure upgrade ✓	3.3 Execution of pilot tests	4.3 Exploitation and Final Report
	2.4 Elaboration of EGNOS based user terminal concept ✓	3.4 Evaluation of test results, pilot conclusions	

Alberding SmartTrack software

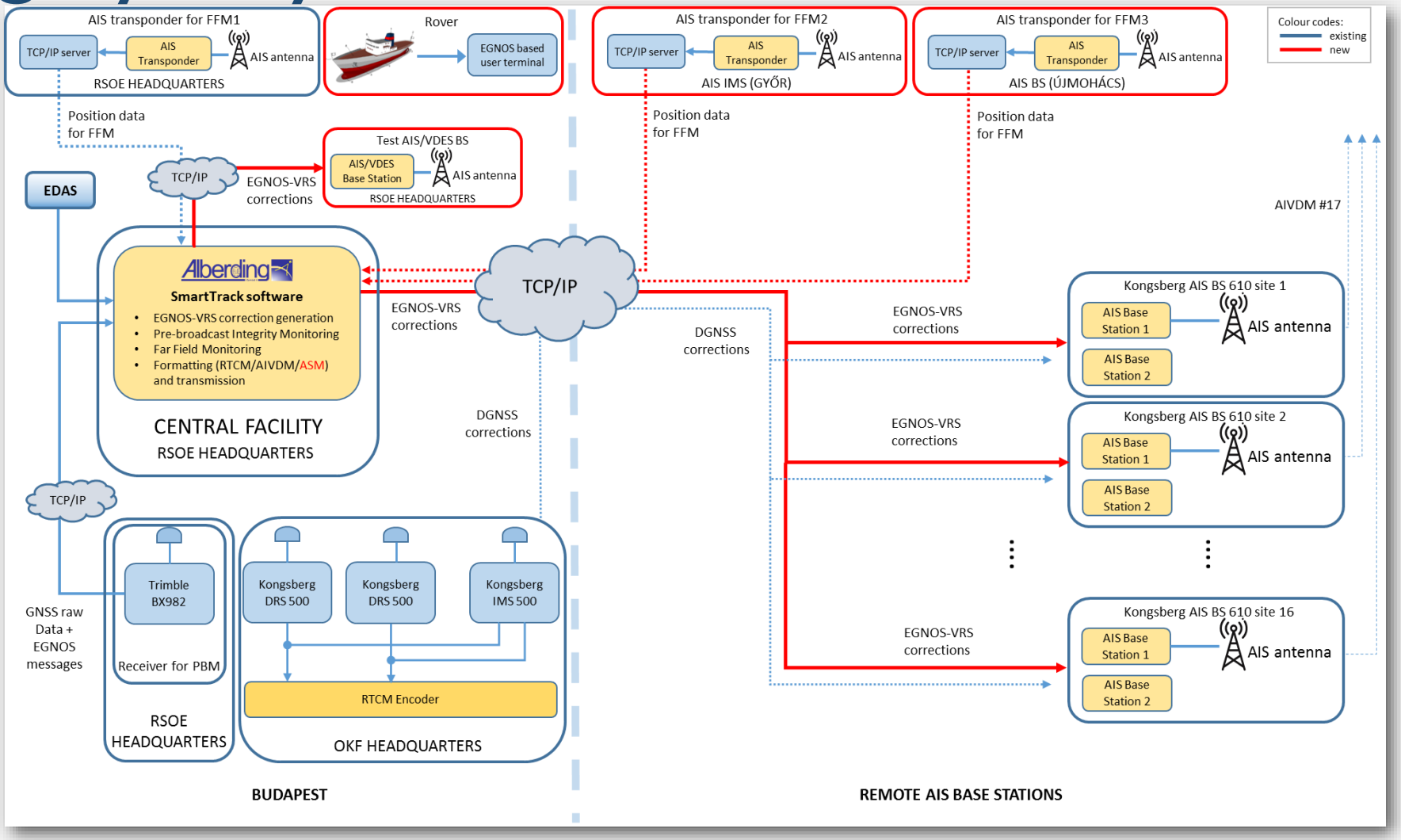


Hungary - locations

- Danube river
- 400 km stretch
- 16 AIS BS
- AIS centre in Budapest
- EGNOS-VRS for 16 sites
- 3 FFM stations
- VDES transmission test
- 3-month static test
- Dynamic on-board test



Hungary – system architecture



EGNOS EDAS BASED CORRECTION FOR IWW TRACKING AND TRACING

iWETT | SUMMARY | MONITORING | SATELLITE SETTINGS | SETUP - SYSTEM | GET EURONET.CFG | SETUP - INTERFACE | LOG AND OUTPUT FILES

EuroNet Process
Beacon.net Cron
HDD available 1672.8 GB (99 %)

Detailed status
System time : 2023-09-26T12:39:57 (UTC)

00:00:56 Stop

Monitored Correction Outputs (PBM) Display all

Name	Last available	Monitor	Δ 2D [m]	RefSt ID	Reference Position (Latitude | Longitude | Up)	Message Type	Satellites in corrections
Berlin_out	2023-09-26T12:39:56	Wildau	-	-	52 25'43.79" | 13 34'25.14" | 80.000	-	G04 G05 G06 G07 G09 G11 G16 G20 G30
Fuerstenwalde_out	2023-09-26T12:39:56	Wildau	-	-	52 21'16.01" | 14 3'57.51" | 80.000	-	G04 G05 G06 G07 G09 G11 G16 G20 G30
Wernsdorf_out	2023-09-26T12:39:56	Wildau	-	-	52 22'17.93" | 13 42'33.10" | 80.000	-	G04 G05 G06 G07 G09 G11 G16 G20 G30

SBAS VRS Correction Outputs Display all

Name	Last available	RefSt ID	Reference Position (Latitude | Longitude | Up)	Message Type	Satellites in corrections
Berlin	2023-09-26T12:39:56	-	52 25'43.79" | 13 34'25.14" | 80.000	-	G04 G05 G06 G07 G09 G11 G16 G20 G30
Fuerstenwalde	2023-09-26T12:39:56	-	52 21'16.01" | 14 3'57.51" | 80.000	-	G04 G05 G06 G07 G09 G11 G16 G20 G30
Wernsdorf	2023-09-26T12:39:56	-	52 22'17.93" | 13 42'33.10" | 80.000	-	G04 G05 G06 G07 G09 G11 G16 G20 G30

FFM Inputs (AIS) Display all

Name	Data Format	Last available	Δ N [m]	Δ E [m]	Δ 2D [m]	Δ H [m]	Sat. in fix [#]	Pos. mode	Data age [s]	FS [dBµV/m]	SNR [dB]	Satellites in fix
Wernsdorf<-W...sdorf	-	-	-	-	-	-	-	-	-	-	-	

Raw Inputs Display all

Name	Data Format	Last available	Δ N [m]	Δ E [m]	Δ 2D [m]	Δ H [m]	Sat. in fix [#]	Pos. mode	VDOP	HDOP	PDOP	Satellites in fix
Wildau	RTCM3	2023-09-26T12:39:50	-1.251	0.482	1.341	-1.145	9	Standalone	1.8	1.0	2.0	G04 G05 G06 G07 G09 G11 G16 G20 G30

Others Display all

Name	Data Format	Last available
RTCA123	SISNeT	2023-09-26T12:38:42
RTCA136	SISNeT	2023-09-26T12:38:42
RTCM3EPH	RTCM3	2023-09-26T12:38:42

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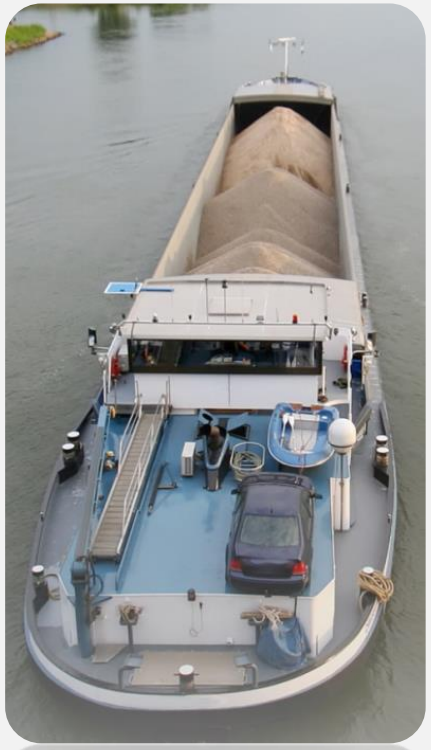


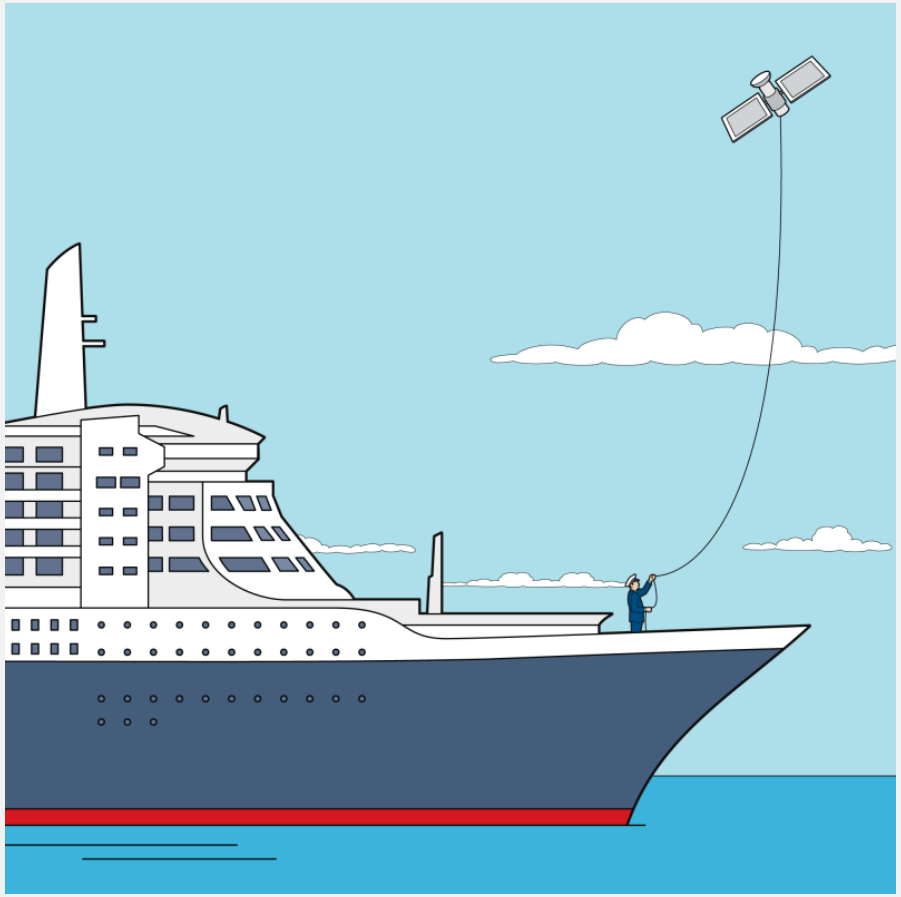
Examples for inland waterway EGNSS use cases

- Lock maneuvers,
- Port maneuvers,
- Bridge passings,
- Accident investigation.

ON-BOARD GNSS PROBLEMS

- Inland AIS transponder does not handle GNSS corrections properly. Firmware update needed.
- Not proper GNSS installations for inland AIS.
- Poor quality GNSS antenna and cables used.

- 'Guideline on on-board GNSS installation and devices'
- 'GNSS Requirements for AIS and VDES receivers'



Picture source: Trinity House

Thank you for your kind attention!

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EGNOS WOKRSHOP 2024

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