



EDAS for added value applications



25/09/2019

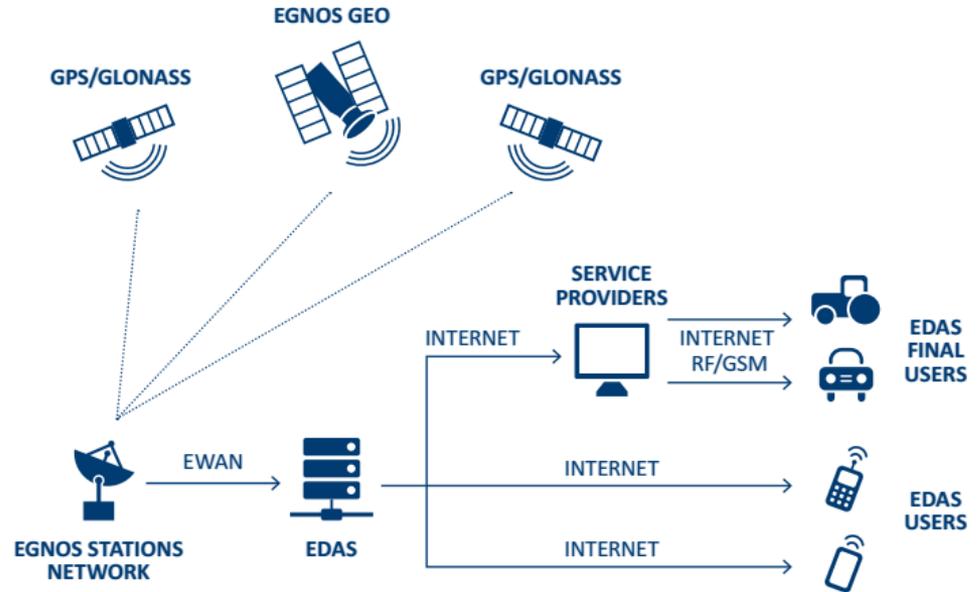


EGNOS Workshop 2019

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-  EDAS Overview
-  Current EDAS use cases
-  What's next?
-  Conclusions

EDAS Overview



EDAS provides **free-of-charge** access to the **GNSS data** generated and gathered by **EGNOS infrastructure** over the internet.

EDAS Services

	EDAS Service	Type of Data				Service Description	
		OBS & NAV	EGNOS MSG	RTK MSG	DGNSS COR	FORMAT	PROTOCOL
Real Time	Service Level 0						
	Data Filtering SLO	×	×			ASN.1	EDAS
	Service Level 2						
	Data Filtering SL2	×	×			RTCM3.1	EDAS
	SISNET		×			RTCA	SISNet
	Ntrip	×		×	×	RTCM 2.x RTCM 3.1	Ntrip (v1, v2)
Archive	FTP	×	×			RINEX, EMS, IONEX...	FTP

EGNOS Message consolidated from all RIMS → Robustness

Other position techniques enabled by EDAS → DGNSS, RTK

EDAS Proprietary protocol based on SSL → Enhanced Security

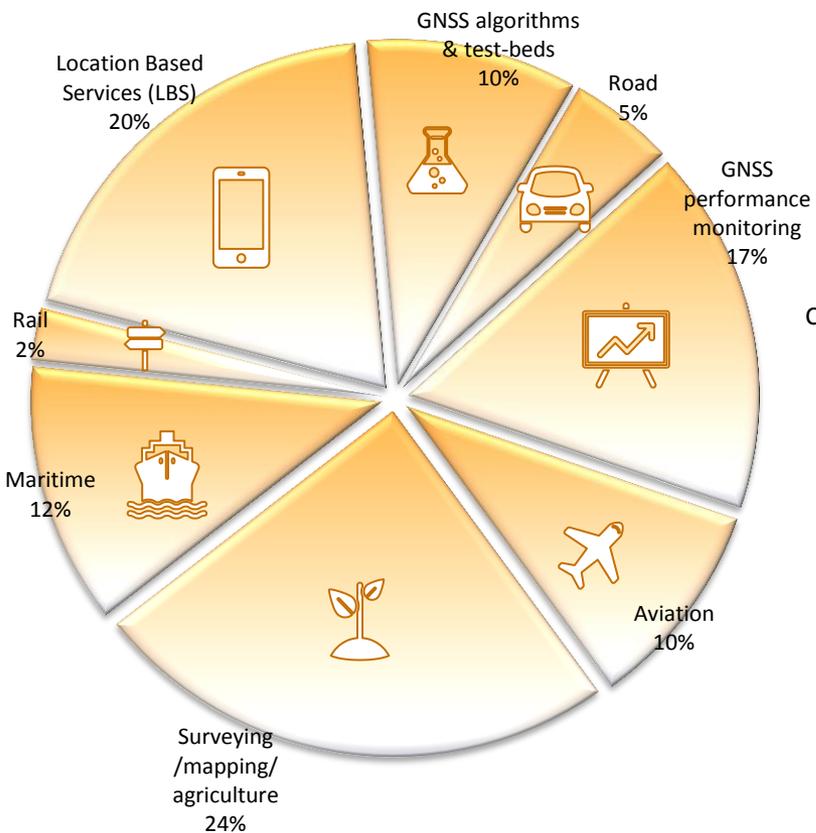
Ephemeris and EGNOS Messages request → TTFF (A-GNSS)



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EDAS Users/Service Providers



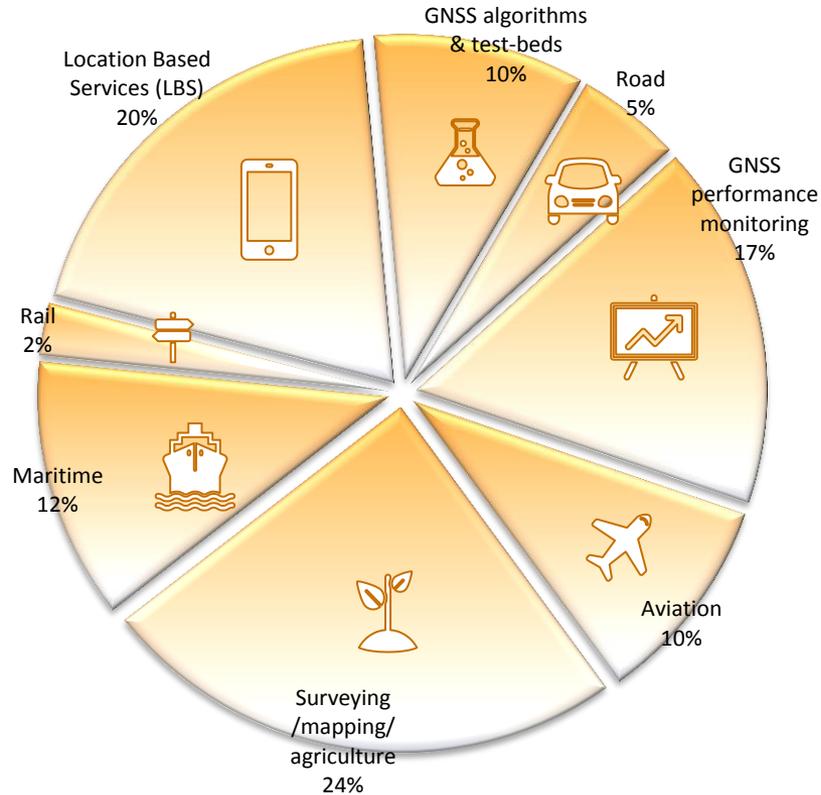
! > 50% of active users are Commercial/Professional

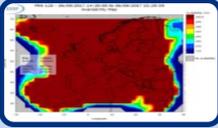
! EDAS end users > 25,000

*Statistics refer to direct EDAS users or service/application providers (end users not included)



Commercial & Professional EDAS use cases

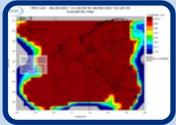


- 
 GNSS Performance Monitoring & Testbeds
- 
 Tracking of assets/fleet management
- 
 Maritime navigation services
- 
 Improved accuracy for professional applications

*Numbers refer to direct EDAS users or service/application providers (end users not included)



Commercial & Professional EDAS use cases



GNSS Performance Monitoring & Testbeds

- Real-time and historical GNSS data.
- Multiple formats/protocols supported.
- Access to additional GNSS real-time inputs.



Use of EDAS for professional performance monitoring through available COTS SW



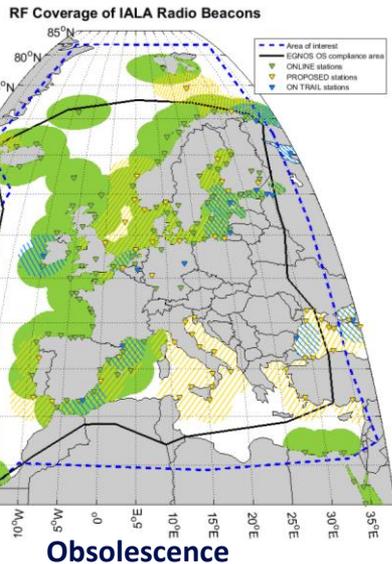
Tracking of assets/fleet management

- Continuous access to EGNOS message.
- Reduction of Time-To-First-Fix (TTFF).
- Increased confidence.
- Homogeneous augmented solution.



Fleet management solutions supported by EDAS

Maritime navigation services (I)



Obsolescence
Few Manufacturers
High Costs (OPEX & CAPEX)

**Situation is country specific*



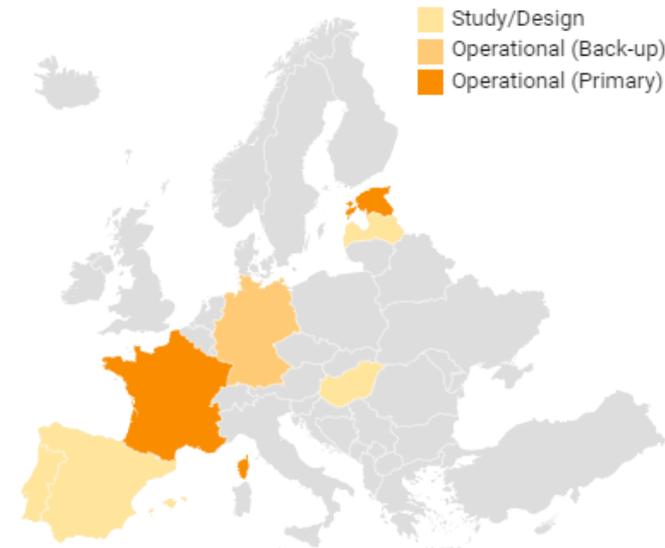
Option 1: EGNOS-based Virtual Reference Stations



Option 2: EDAS DGPS Corrections

- ✓ Spoofing and jamming resilience
- ✓ Flexibility and scalability
- ✓ Transparent for users.
- ✓ Reduced infrastructure (→CAPEX/OPEX)

Implementation status



User Need*

Design & Feasibility

Implementation

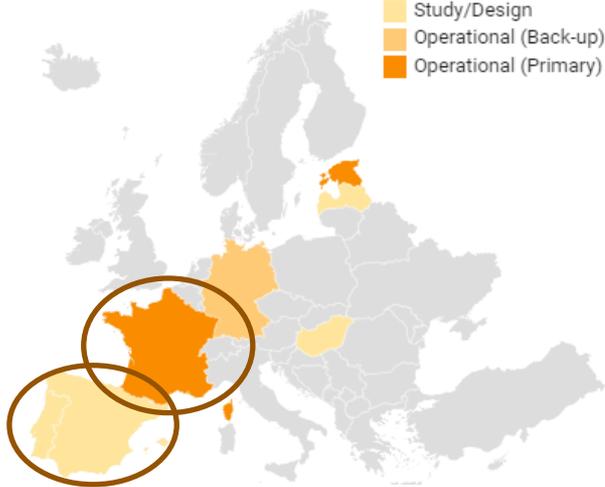


Maritime navigation services (II)

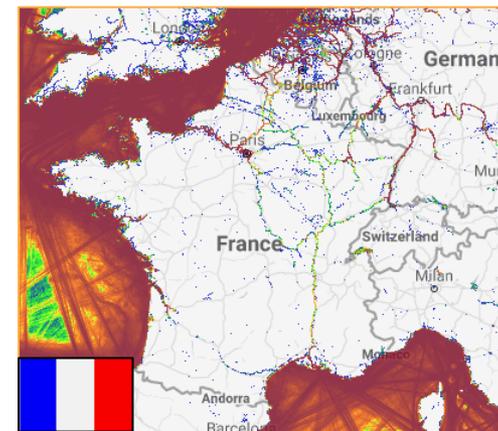
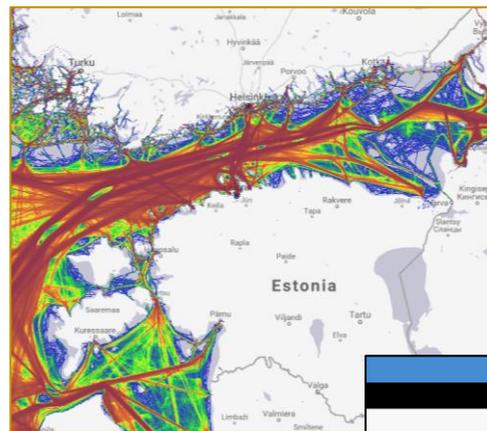
Maritime navigation in high traffic density areas powered by EDAS

Implementation status

- Study/Design
- Operational (Back-up)
- Operational (Primary)



Maritime navigation in high traffic density areas powered by EDAS



Source: <https://www.marinetraffic.com/>.

Presentations coming next...

Implementation



Improved accuracy for professional applications (I)

SBAS solution

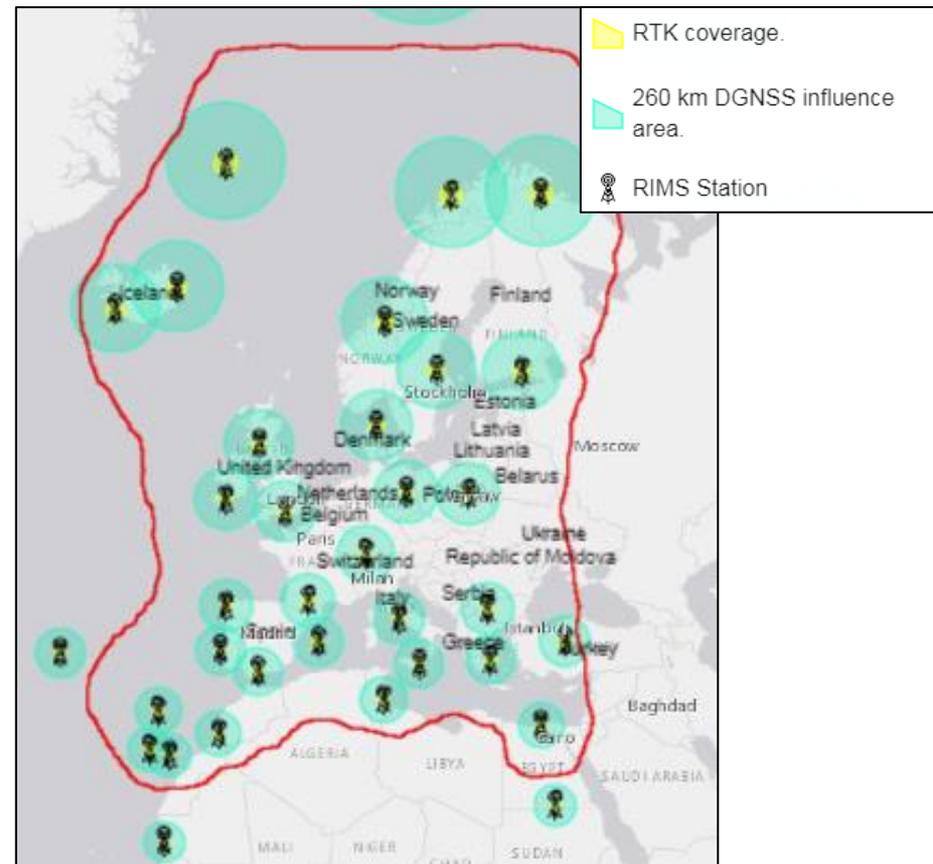
- Consolidated EGNOS corrections in real-time
- Expected accuracy level: 1m (horizontal, 95%)
- Coverage: ~ Europe (**EGNOS OS**)

DGNSS solution

- DGNSS corrections provided for all EGNOS stations in real-time
- Expected accuracy level: 0.5m-1m (horizontal, 95%)
- Coverage: ~ up to 260 km from EGNOS station

RTK solution

- L1/L2 GPS Code&Phase measurements provided for all EGNOS stations in real-time
- Expected accuracy level: < 0.1m (horizontal, 95%)
- Coverage: ~ up to 50 km from EGNOS station



Improved accuracy for professional applications (II) - Agriculture

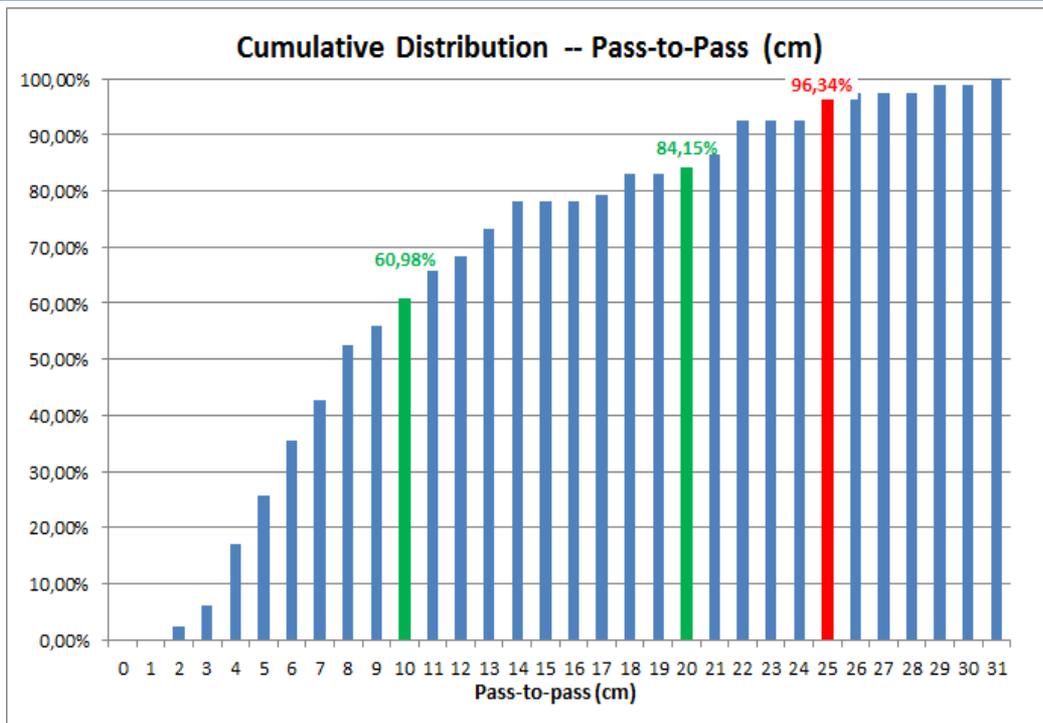
PASS-TO-PASS



EDAS DGPS corrections
(EDAS Ntrip service)



Improved accuracy for professional applications (III) - Agriculture



More information:

The World's Largest Technical Meeting and Showcase of GNSS Technology, Products and Services

GNSS POSITION NAVIGATION TIMING

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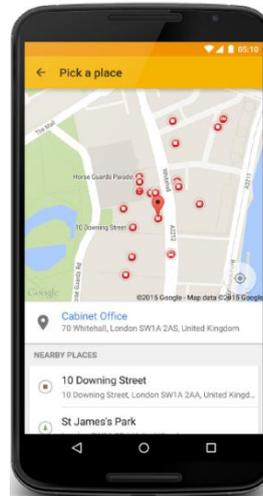
EDAS in tablets and smartphones (I)



External GPS receiver

GPS raw measurements

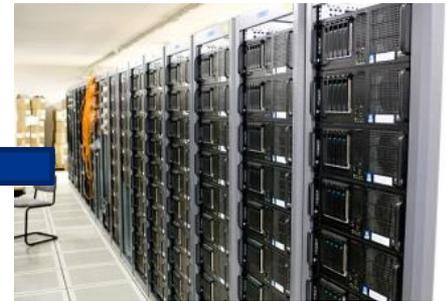
Bluetooth



EDAS data:

- GPS nav data
- EGNOS messages...

Internet



EDAS

Since Android 7 (Nougat), access to the satellite pseudo-ranges received by the embedded smartphone receiver is available at application level.

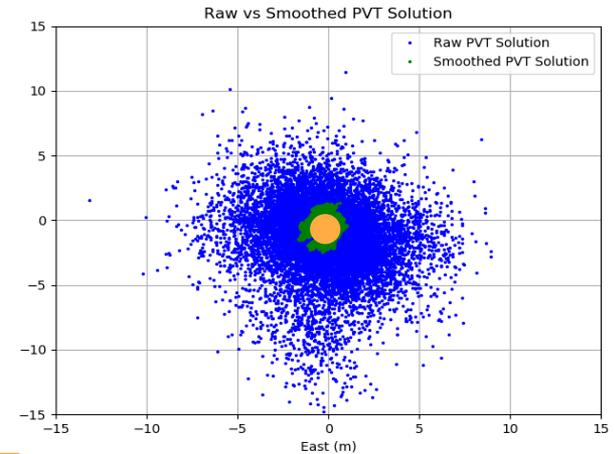
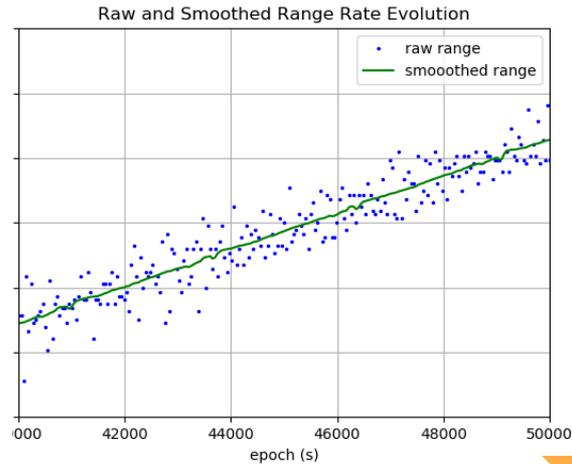
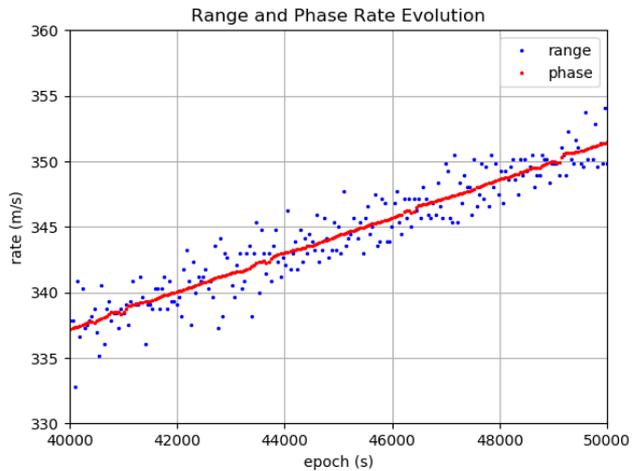


Android 7.0
NOUGAT

Potential EDAS Benefits:

- Accuracy improvement vs standalone solution.
 - Reduction of Time-To-First-Fix (TTFF).
- Increased reliability of the positioning solution.

EDAS in tablets and smartphones (II)



Raw measurements computation

Measurements smoothing

PVT solution



Can we further improve performance with EDAS corrections (EGNOS or DGPS)?

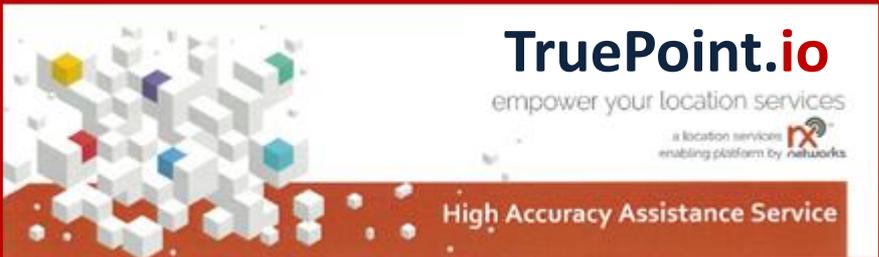
*Static test done in Madrid (Spain) in clear sky conditions, using a Xiaomi Mi 8 (Android 9.0)



EDAS contribution to High accuracy services

Benefits

- Increased network density in Europe.
- Network coverage extension.
- Additional GNSS data for better error modelling/estimation.
- Consolidated navigation data stream.



TruePoint.io
empower your location services
a location services 
enabling platform by networks

High Accuracy Assistance Service

Overview

TruePoint.io is a high accuracy assistance service consisting of **precise orbits, clocks, ionospheric and tropospheric corrections** for decimeter accuracy for **mass-market applications in open standard formats** via Rx Networks' infrastructure **supporting over a billion devices.**



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Conclusions

EDAS supports users or Service Providers in a wide range of applications.



More than 50% of current operational use cases correspond to the commercial and professional domains.

Promising initiatives under development to open new markets.



In case EDAS still does not fulfil your needs, please contact us...



Thank you!



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Corporate Video