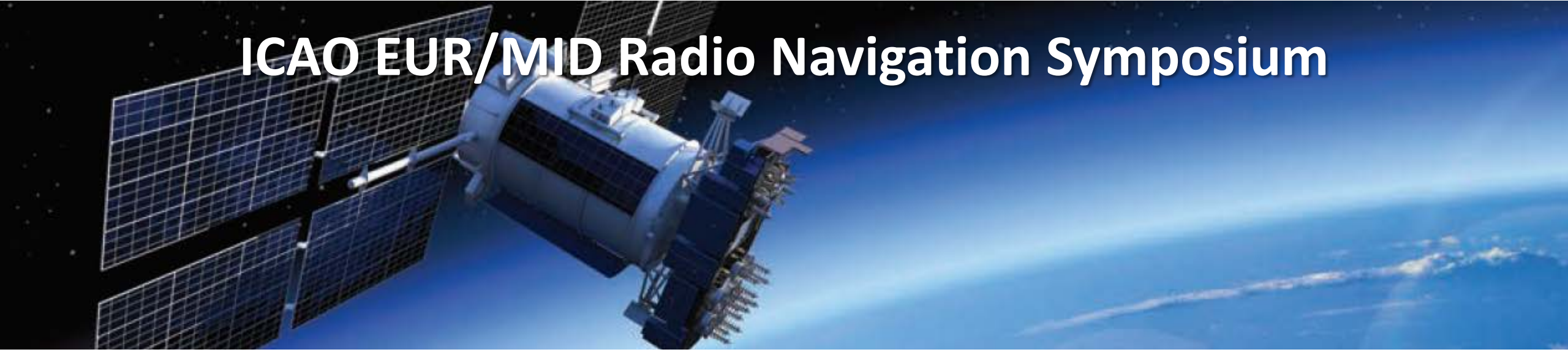

ICAO EUR/MID Radio Navigation Symposium

GBAS Implementation in Germany

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DFS Germany

Antalya, Turkiye
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GBAS Implementation in Germany

1 **GBAS History in Germany**

More than 10 years GLS in Germany

2 **GBAS Benefits**

Why does DFS support GBAS activities

3 **Approaching GBAS Cat III**

The logically next step

4 **What happened ???**

The missed chance

5 **What to do next …**

We still need the next generation precise landing system

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GBAS History in Germany

GBAS GAST-C Installation

- Prototype CAT I ground station at Frankfurt from 2000-2013
- Pilot Programme for GBAS CAT I in Bremen 2008-2012
  -> certification and public use in 2012
- GBAS CAT I operational at Frankfurt since 2014
- Upgrade of GAST-C ground station at Frankfurt to support CAT II operation in 2022
  (SESAR VLD DREAMS)*

GBAS GAST-D Installation

- Prototype CAT III ground station at Frankfurt from 2013
  (SESAR PJ 15.3.6 / PJ 14.3.6)*

* Co-funded by European Commission

GBAS Benefits

GBAS Technical Benefits

- Digital follow-on system to replace conventional ILS systems
- configurable to support different approach procedures
- Reduced maintenance effort compared to ILS (less system maintenance, no periodic flight inspection)

GBAS Operational Benefits

- no critical and sensitive areas
  → no reduced final approach capacity during low visibility operation
- higher intermediate altitudes
- variable glideslope

Approaching GBAS Cat III

Approaching pioneer GBAS GAST-D Implementation

- Establishment of groups to support GBAS evolution
  - European GBAS Alliance 2019
  - Pioneer Project Group EGG1 ("Enabling GBAS Growth Project 1")
- Mission:
  - Overcome blocking situation:
    - Airborne users requesting adequate GAST D ground infrastructure
    - ANSPs requesting adequate aircraft equipage rate
  - Obtain critical mass for certification of ground equipment by industry
- Fall 2023: European Commission published call for proposals for Digital Sky Demonstrator Project
  - Minimum: 6 airports, 20 aircraft, 100 demonstration flights, GAST D with E-GNSS
  - EGG1 partners (+ additional organisations) tried to design a proposal
  - In the end, only a few number of partners being able to join the consortium

What happened ???

European GBAS Alliance EGG1 group

- Ground subsystem manufacturer requested public co-funding to reduce commercial risks for high certification effort
- Manufacturer Organisations either be project partner or external supplier. Suppliers have to be subcontracted by ANSPs to cover effort for certification tasks.
- High project risks: short 4-year GS certification period
- No commercial benefits for ANSP to join project, because public funding eroded by high ground subsystem certification effort and high project risk
- Evolution plans for next generation precision approach systems still not manifested to allow stable implementation planning for ANSPs

What to do next …

- **GAST D standard should be used for first GBAS Cat III implementation**
  - Applicability of next ICAO standard >2030
  - Potential loss of interest by industry
- **European GBAS Alliance / EGG1 team needs to be empowered to overcome the blocking situation (chicken-egg-problem)**
  - Additional partners interested to join the group
  - Co-operation with Non-European partners beneficial
- **Support of European Commission still required**
  - Facilitation of the cooperation between partners by coordination of support activities, for instance through the CNS Programme Manager

Thank You!

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