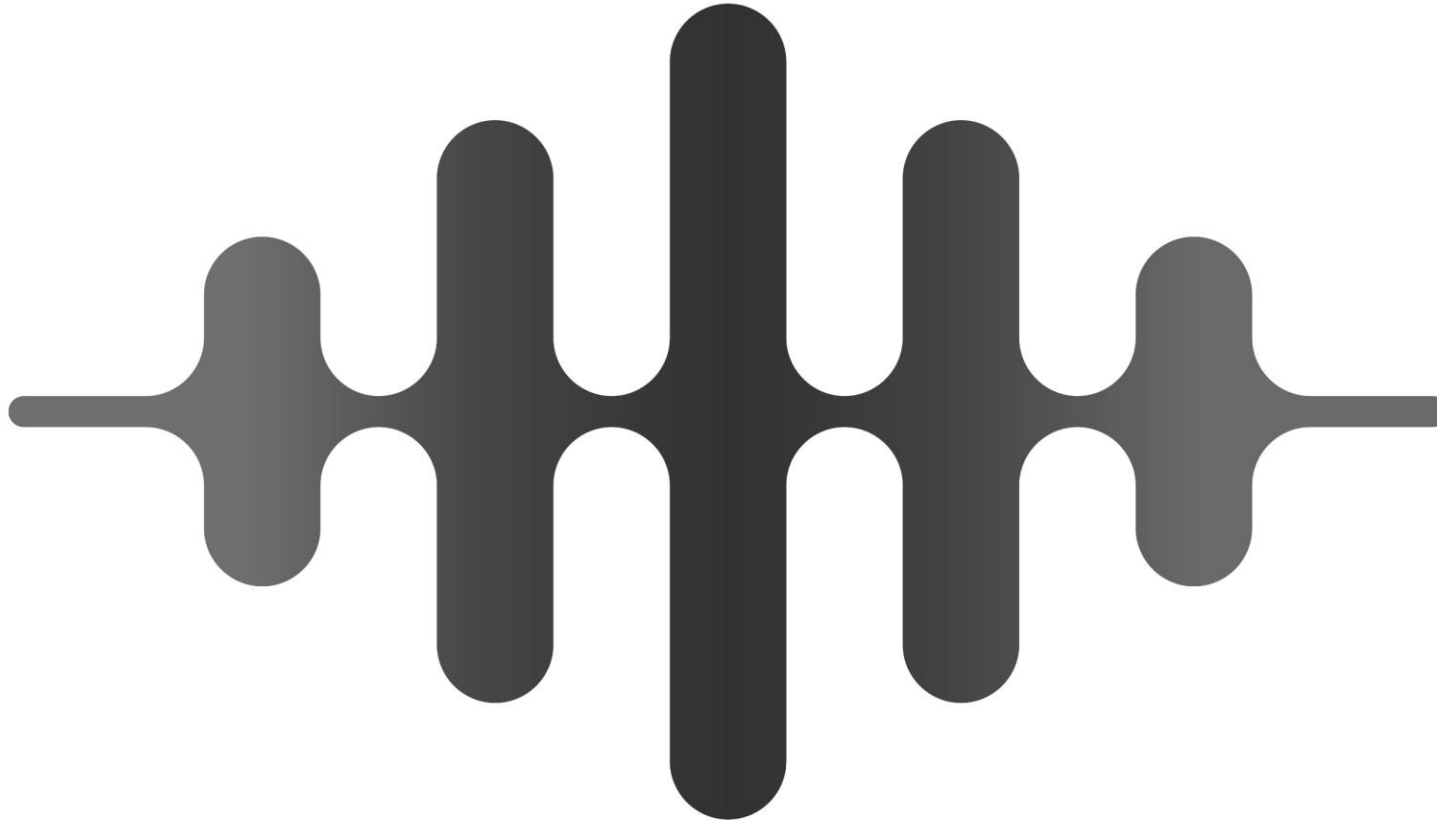
32ND ITU WORLD
RADIOCOMMUNICATION SEMINAR

ITUWRS GENEVA2026

7–11 December 2026
Geneva, Switzerland

itu.int/go/ITU-R/WRS-26
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ITU World Radiocommunication Seminar

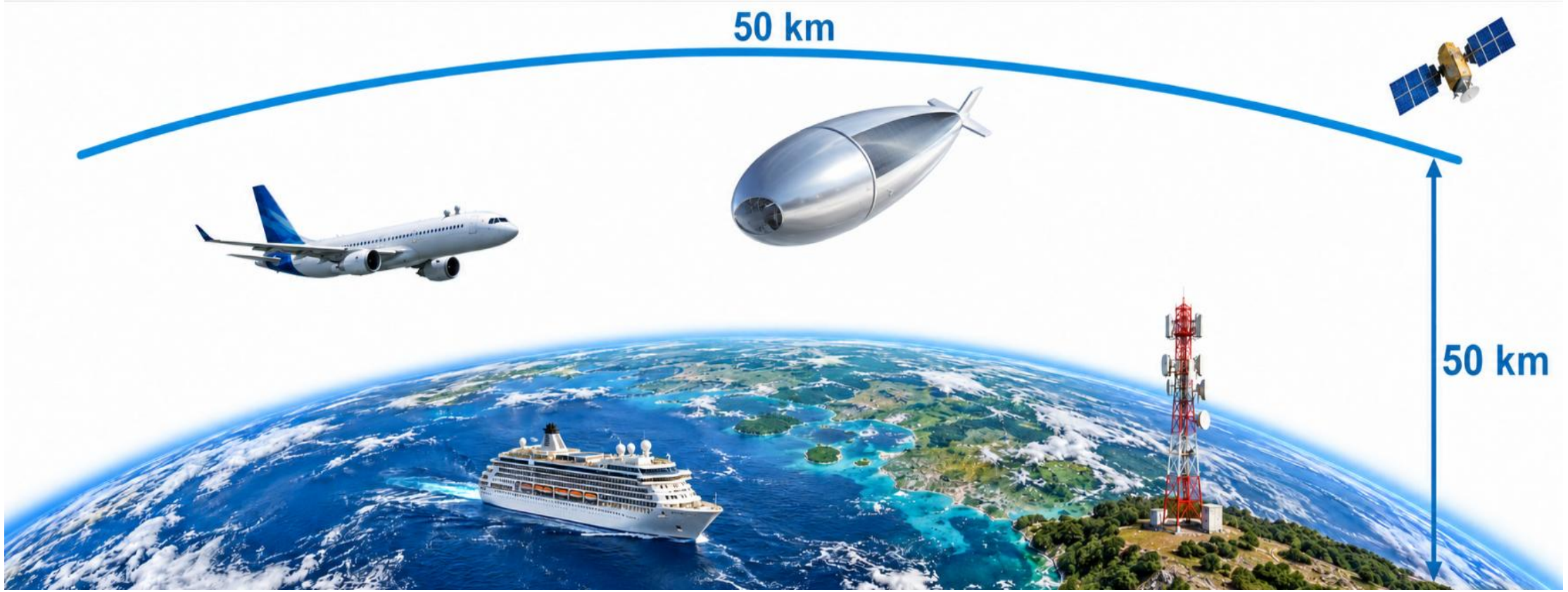
Overview of terrestrial services

Nikolai Vassiliev
Chief, Terrestrial Services Department
Radiocommunication Bureau, ITU

7-11 December 2026, Geneva, Switzerland

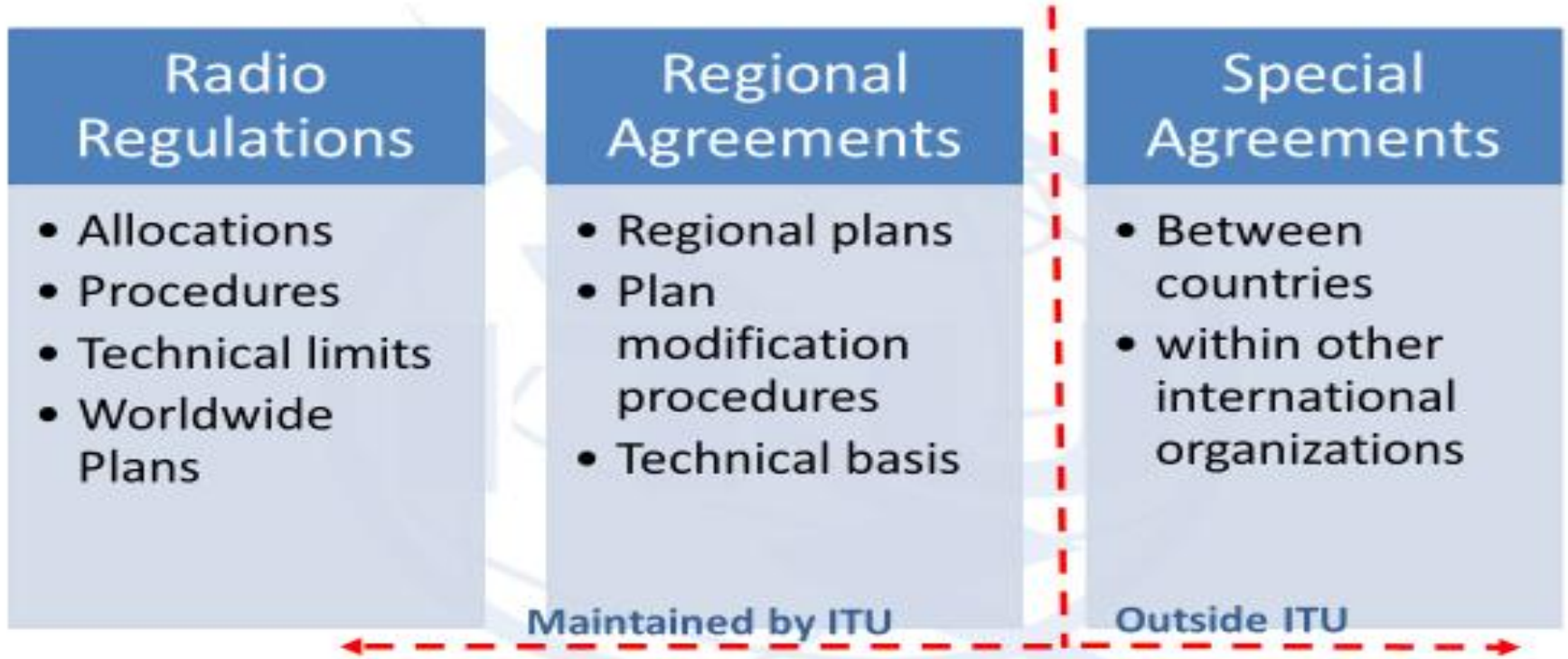
Terrestrial Radiocommunication Services

Terrestrial services: all radio stations at ground, sea, in the air, up to ≈ 50 km



Radio Regulations define the rules mainly for radiocommunication services, rather than applications, except few technologies, e.g. IMT, HIBS, RLANs

Main regulatory instruments



- Other ITU instruments:
  - Rules of Procedure that explain some difficult RR provisions
  - ITU-R Recommendations: technical standards containing system characteristics, channeling arrangements, mitigation techniques, etc.

How to share spectrum

Frequency Coordination

- Coordination of frequencies with neighbours
- Based on real frequency needs
- Flexible and efficient spectrum use
- RR coordination procedures are in Article 9

Frequency Planning

- Distribution of frequencies between countries or stations
- Objective: equitable access to spectrum
- Satisfies long term needs in frequencies
- Sometimes not ideal for efficient spectrum use

Other means of radio station coexistence:

- Power limits (e.g., Art. 21 to protect space receivers), limits on other system characteristics
- Channeling arrangements – limitation of channels to specific usage (e.g., RR AP17, 18)

Frequency plans for terrestrial services

- **3 worldwide** allotment plans for maritime mobile and aeronautical mobile service
  - RR Appendix 25 – HF maritime mobile service
  - RR Appendix 26- HF aeronautical mobile (OR) service
  - RR Appendix 27 – HF aeronautical mobile (R) service
- **9 regional/sub-regional plans** (established under the auspices of ITU)
  - LF/MF/UHF sound and TV : **GE84**, ST61, GE89, **GE06 (GE06L)**, GE75, RJ81, RJ88
  - LF/MF maritime and aeronautical services: GE85M, GE85N
- **Seasonal planning HF broadcasting**: RR Art. 12 (schedules every 6 months)
- **Plans outside ITU**: ICAO (VHF communications with aircraft), IALA (LF maritime radiobeacons)



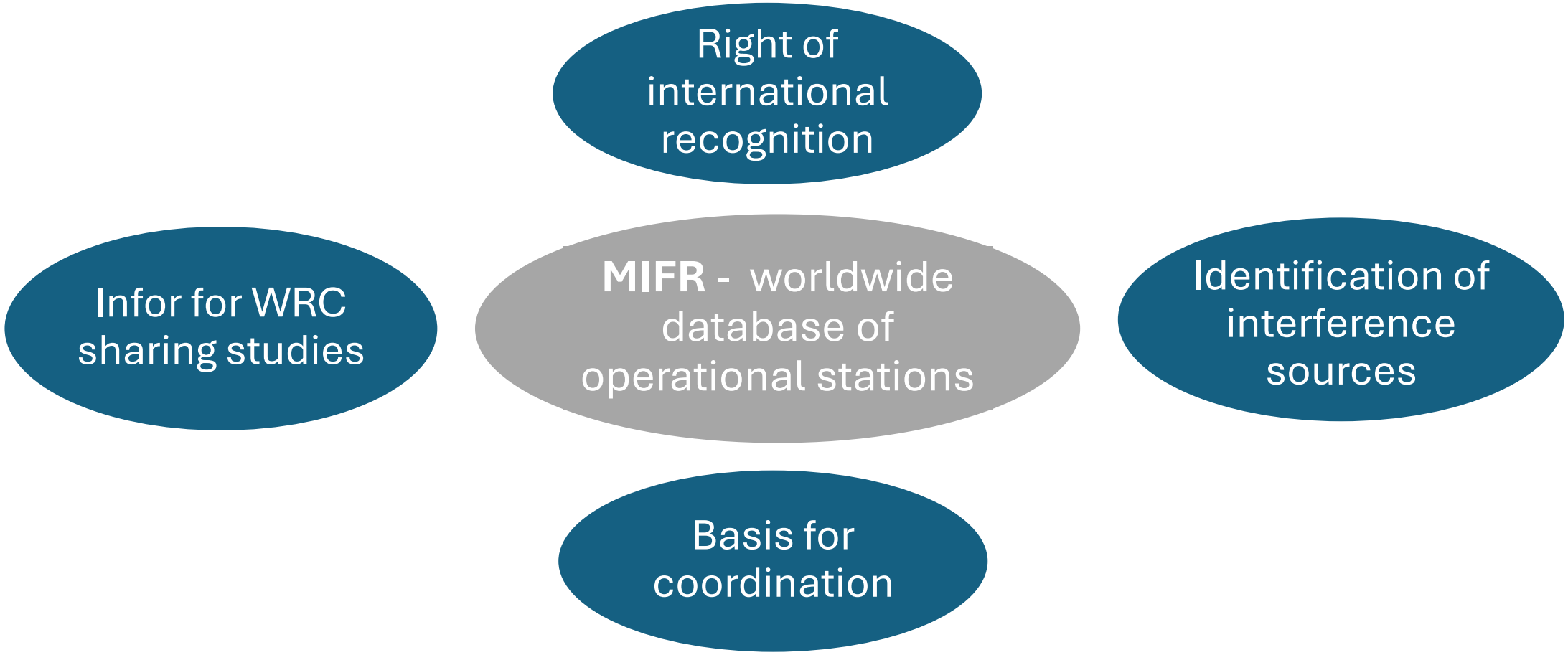




Coordination of terrestrial services

- **Coordination procedures of the Radio Regulations – Article 9**
  - No. 9.16 – coordination of terrestrial stations vs earth station of NGSO networks
  - No. 9.18 – coordination of terrestrial stations vs earth station of GSO network
  - No. 9.19 – coordination of terrestrial stations vs earth station of broadcasting satellite
  - No. 9.21 – coordination of terrestrial stations vs all services if allocation is subject to 9.21
- **Coordination procedures of the regional agreements**
  - Contained in respective regional agreements
- **Bilateral or multilateral coordination** – directly between administrations concerned

Master International Frequency Register (MIRF)



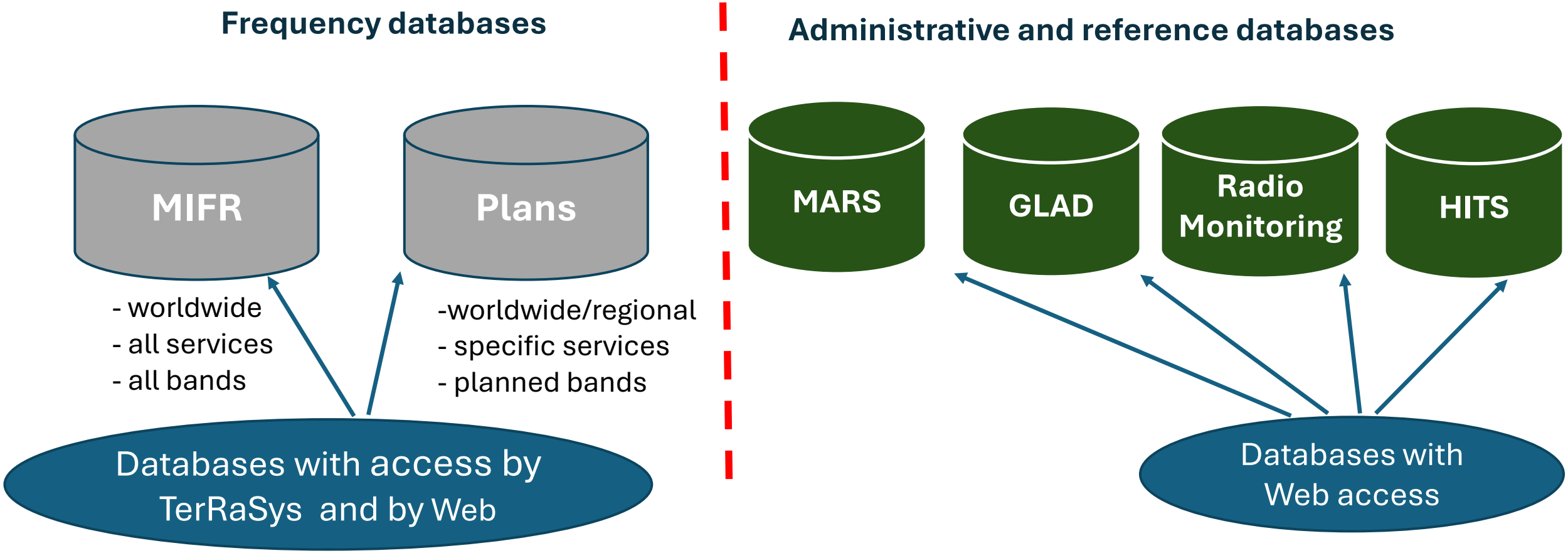
MIFR: 3.4 million terrestrial assignments

Notification to MIFR mandatory in some cases and essential in others (e.g., in border areas, in bands shared with space)

Importance of notification to the MIFR

- International recognition: other countries should take station in consideration
- Assigning frequencies: e.g. MIFR assists in finding available frequencies in HF band
- Coordination : when applying No. 9.21 coordination, in case of objections BR checks MIFR. Objections should be based only on station in use (recorded in MIFR)
- MIFR has useful data for decisions at world and regional radiocommunication conferences
  - WRC-12: protecting recorded aeronautical beacons from new amateur service
  - WRC-19: account for recorded TV stations for allocation to amateur service
  - WRC-23: MIFR parameters were used in sharing studies under several agenda items
  - WRC-31: MIFR records are used for preparatory studies on the band 470-694 MHz

Databases and software



MARS – Maritime Access and Retrieval System (ship and coast stations)

GLAD – Global Administrative Database (administrations, countries, call signs, MMSIs)

HITS – Harmful Interference Terrestrial Services

eTerrestrial platform – web tools for accessing databases and performing calculations

Common terrestrial web tools

eMIFR	To retrieve MIFR assignments of all terrestrial services
WISFAT	To submit frequency notices for terrestrial services
eValidation:	To validate frequency notices before submission via WISFAT
ePropagation	To calculate propagation prediction according to ITU-R

Broadcasting web tools

eQuery	To query broadcasting plans
ePub	To consult broadcasting Special Sections
myAdmin	To consult correspondence related to broadcasting assignments
eTools	To make various calculations under GE06, GE84, RJ81 for testing
eHFBC	To consult HFBC publications, to generate and validate HFBC

FXM web tools services

eQueryFXM	To query FXM assignments/allotments in MIFR and Plans
ePubFXM	To consult FXM Special Sections
MyAdminFXM	To consult correspondence related to FXM assignments
eToolsFXM	To make various calculations under RR and regional agreements