WORLD METEOROLOGICAL ORGANIZATION

WMO RADAR DATABASE

Joint RA II / RA VI Workshop on WIGOS

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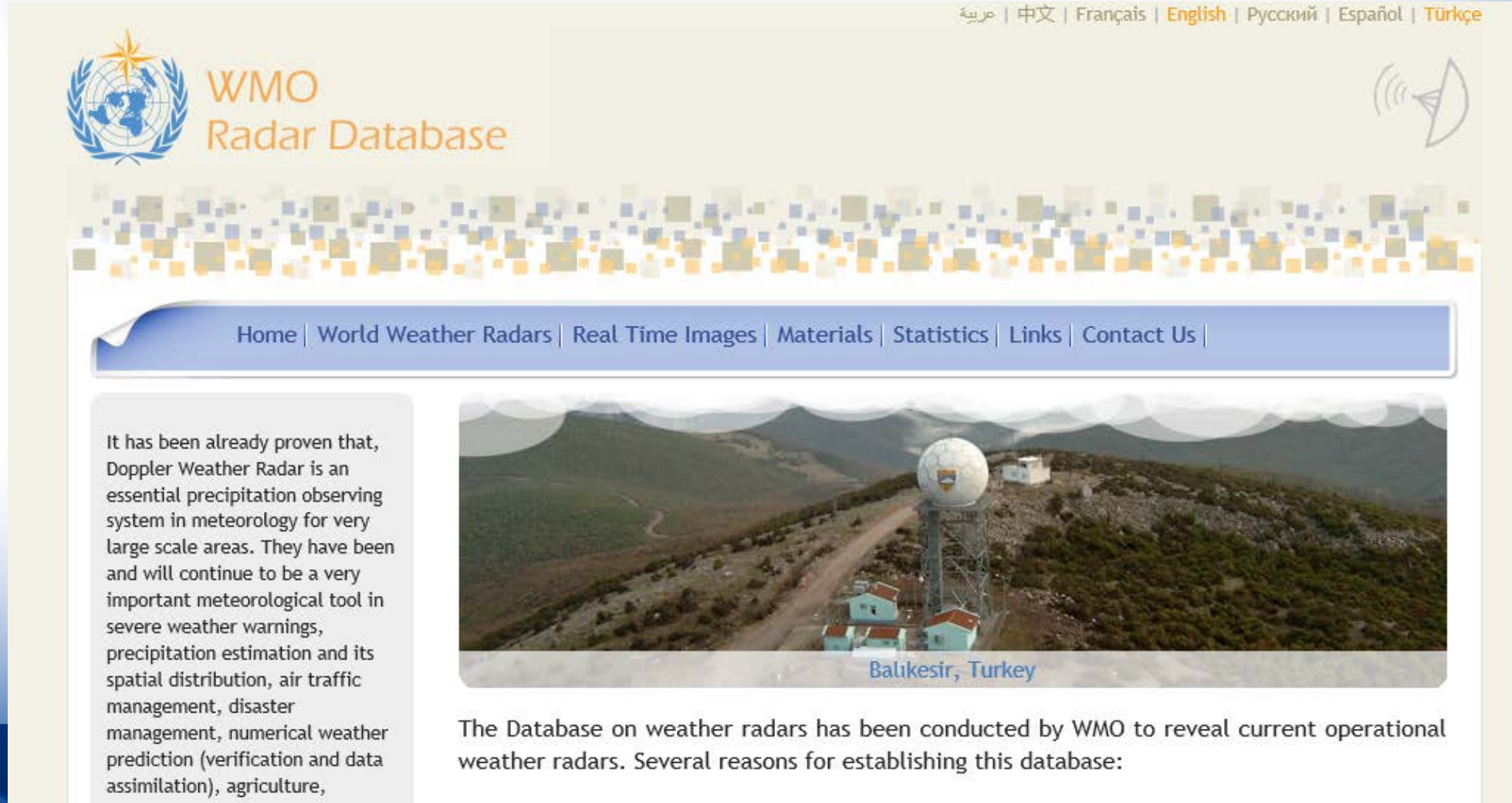
OUTLINE

- WRD History
- WRD Structure
- WRD Statistics
- WRD&OSCAR/Surface
- Conclusion

WRD History

- **Started in 2009 as a joint task of CBS and CIMO expert teams to establish a web based platform for radar metadata;**

- **to collect**
- **to archive**
- **to monitor**
- **to update**
- **to exchange**



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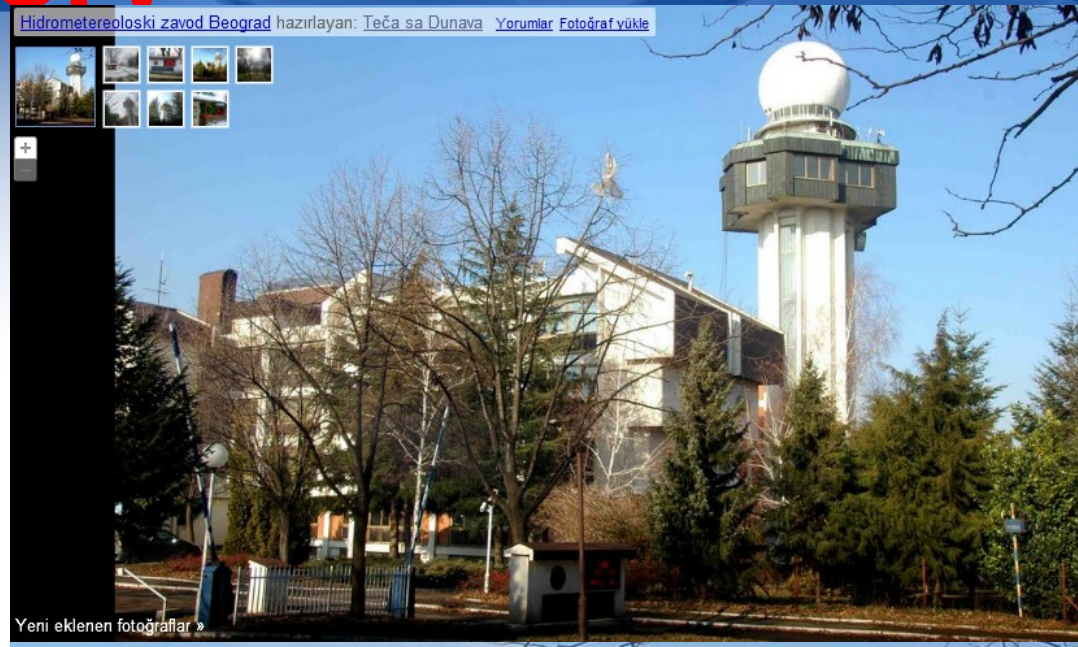
WRD History

The purpose of the project for the development of WRD is;

- to establish a platform for weather radars metadata
- to provide a tool for the Members to access the required metadata
- to assist the improvement of radar data quality
- to present a comprehensive web-based database for radar network planning information and resource allocation for all members
- to assist a wide spread international exchange of radar data
- to gather radar information to protect radio-frequency spectrum allocation
- to analyze the threats (e.g. wind turbines) for radar operations to get necessary precautions
- to share the basic radar information among the Members



WRD History

After development process by TSMS in cooperation with WMO,
WRD is operational since 2011 for the use of Members with the information on;

- owner
- manufacturer
- location
- operational principles
- technical features
- link for radar images

WRD Structure

Tables	Content
Radars	Table contains detailed information regarding with all radars
Radar History	Table almost same as “Radars” table. This table keeps registry of updates of “Radars” table.
Radar History (Manual inputs)	Manual inputs by focal points to the “Radar History” like radar calibration etc.
Countries	Official names of all countries, status in WRD
Country borders	Contains data for vectorial map

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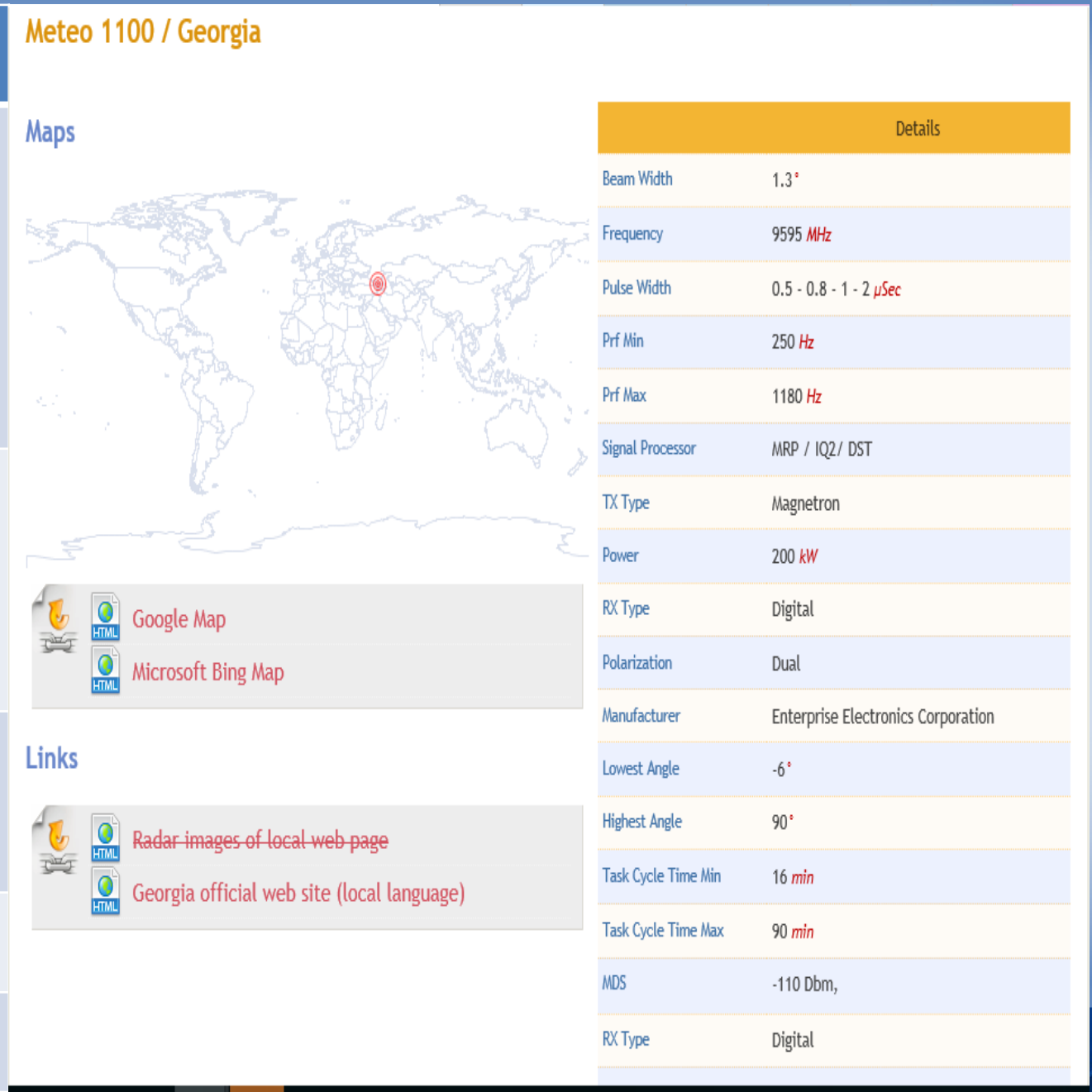
WRD Structure

Tables	Content
Materials – Movies	Registry of all movies regarding with radars. There are fields for all official languages for document names and explanations
Users	User(Focal point) communication information, user name and password, authorizations
Users – actions	Logs of actions of users (adding, updating radar etc.)
Users – logins	Logs of user logins to the WRD
Announcements	Announcements through WRD



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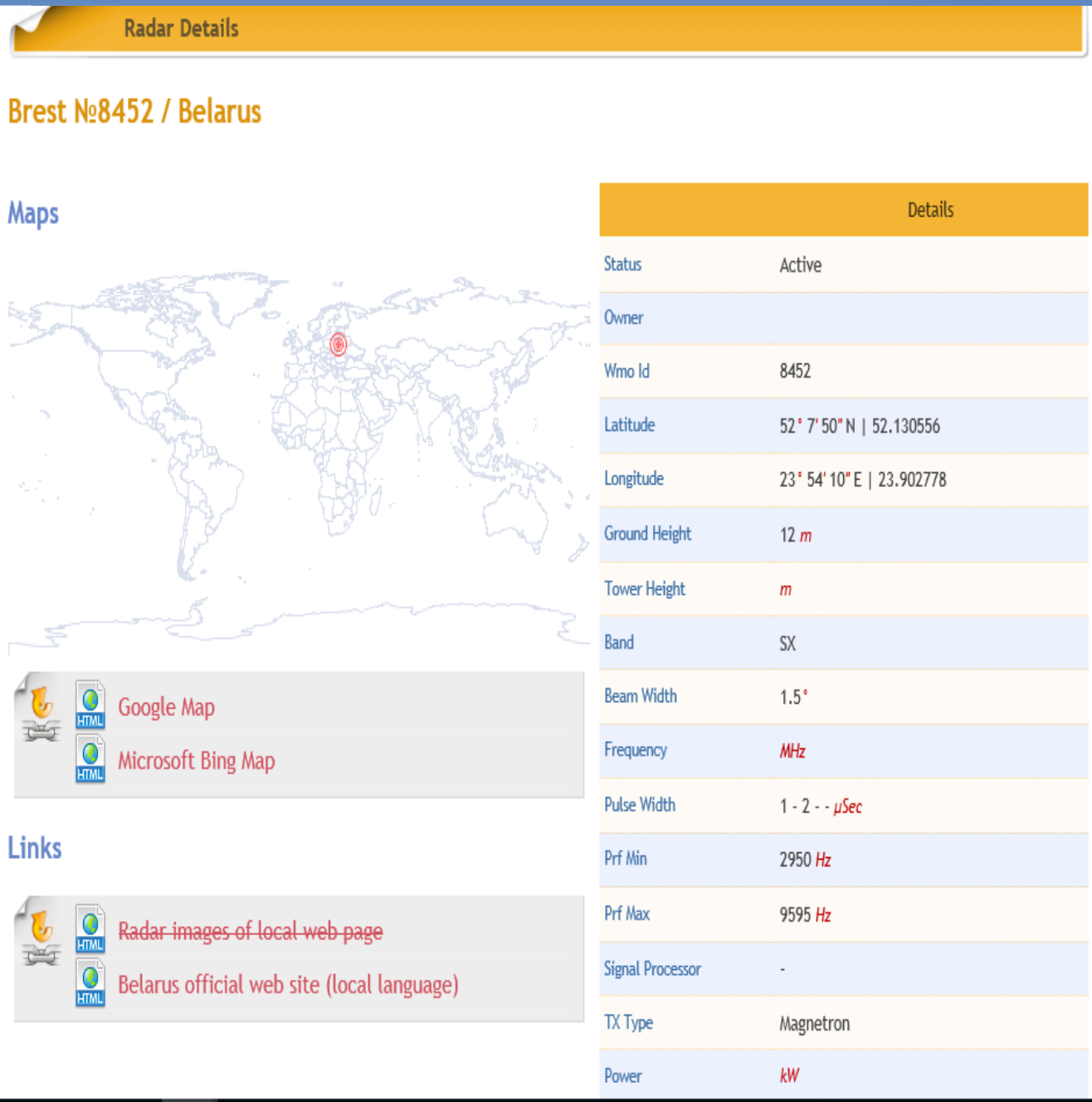
WRD Structure

Field	Type	Range
radar id	int(11)	Primary key, Identity
wmo id	varchar(12)	String
country	char(2)	String
owner id	varchar(4)	String
owner	nvarchar(64)	String
radar name	nvarchar(50)	String
lat degree	tinyint(2)	0 - 90
lat minute	tinyint(2)	0 - 59
lat second	tinyint(2)	0 - 59
lat direction	char(1)	“N” or “S”
lon degree	tinyint(3)	0 - 180
lon minute	tinyint(2)	0 - 59
lon second	tinyint(2)	0 - 59
lon direction	char(1)	“E” or “W”



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WRD Structure

Field	Type	Range
ground height	float	0 - 5000
tower height	Float	0 - 100
Bands	varchar(2)	String
beamwidth	Float	0 - 3
frequency	Float	0 - 10000
pulse width 1	Float	0 - 50
pulse width 2	Float	0 - 50
pulse width 3	Float	0 - 50
pulse width 4	Float	0 - 50
prf min	smallint(4)	0 - 5000
prf max	smallint(4)	0 - 5000
Power	Float	0 - 1500
signal processor	nvarchar(36)	String
tx type	nvarchar(16)	String
rx type	char(1)	“A” or “D”

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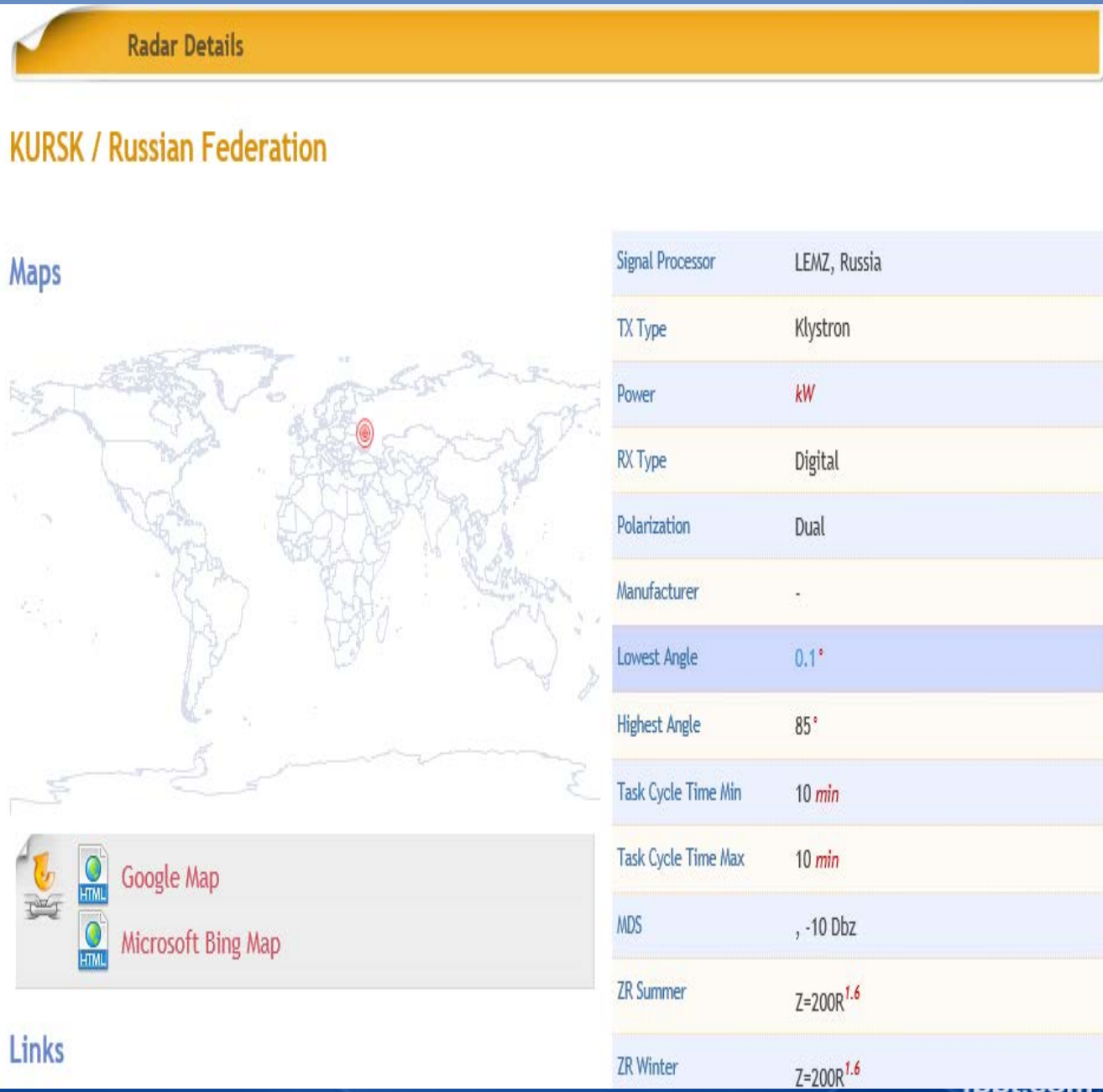
WRD Structure

Field	Type	Range
polarization	char(1)	“S” or “D”
manufacturer	nvarchar(48)	String
lowest angle	Float	(-6) – (+10)
highest angle	Float	0 – 185
cycle time min	Float	0 – 600
cycle time max	Float	0 – 600
mds dbm	smallint(4)	(-130) – (-90)
mds dbz	smallint(3)	(-90) – (+5)
zr summer	varchar(180)	String
zr winter	varchar(180)	String
zr others	varchar(180)	String
image link	varchar(180)	String
install year	smallint(4)	1900 - 2100
transaction date	bigint(12)	
notes	nvarchar(MAX)	-



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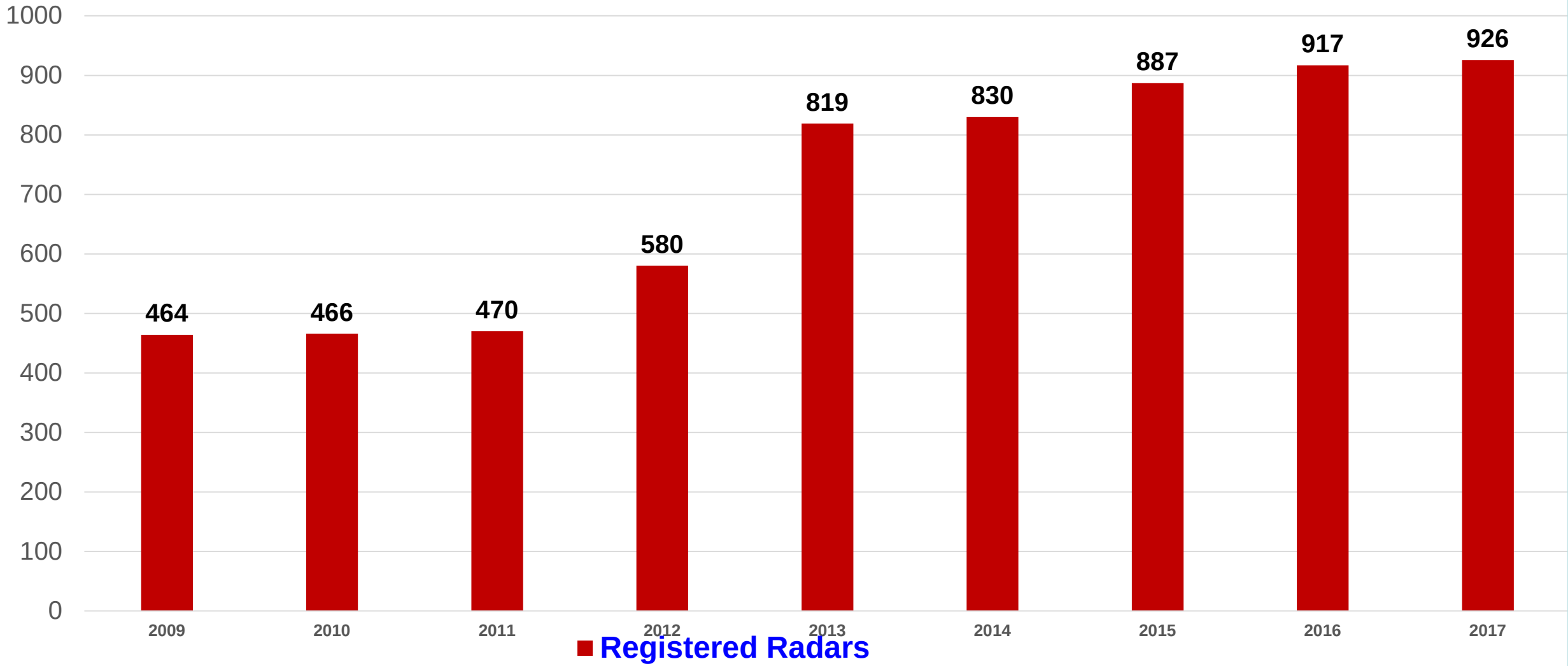
WRD Statistics

Number of Weather Radars in WRD



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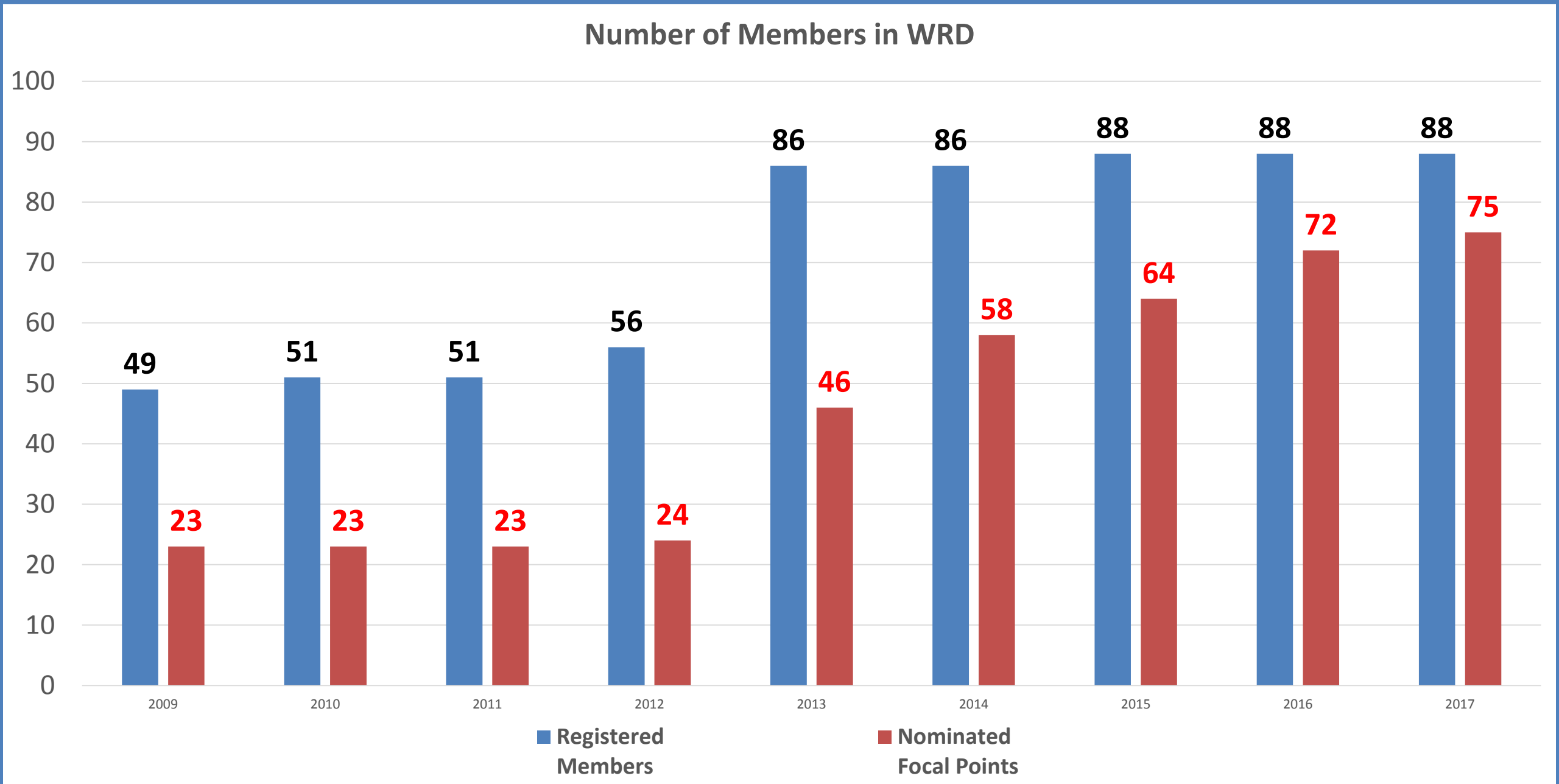
WRD Statistics



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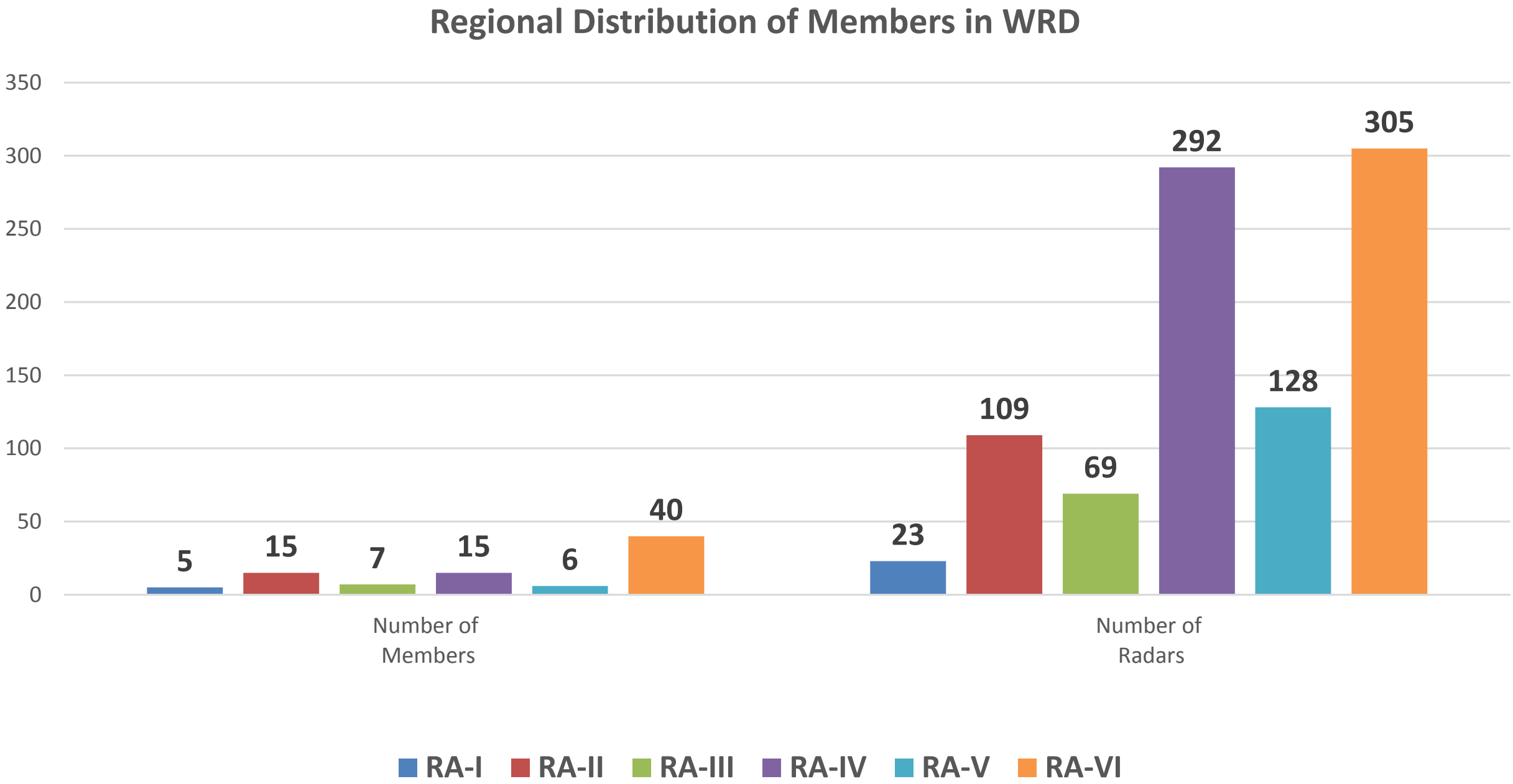
WRD Statistics



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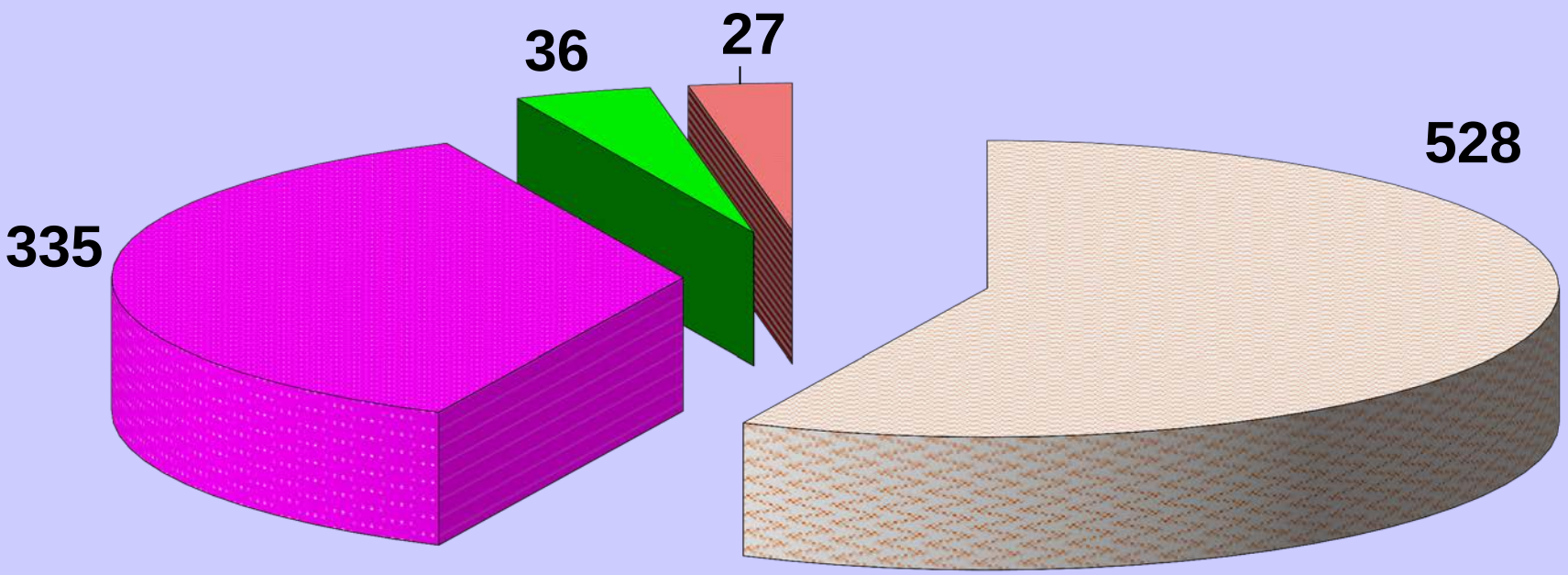
WRD Statistics

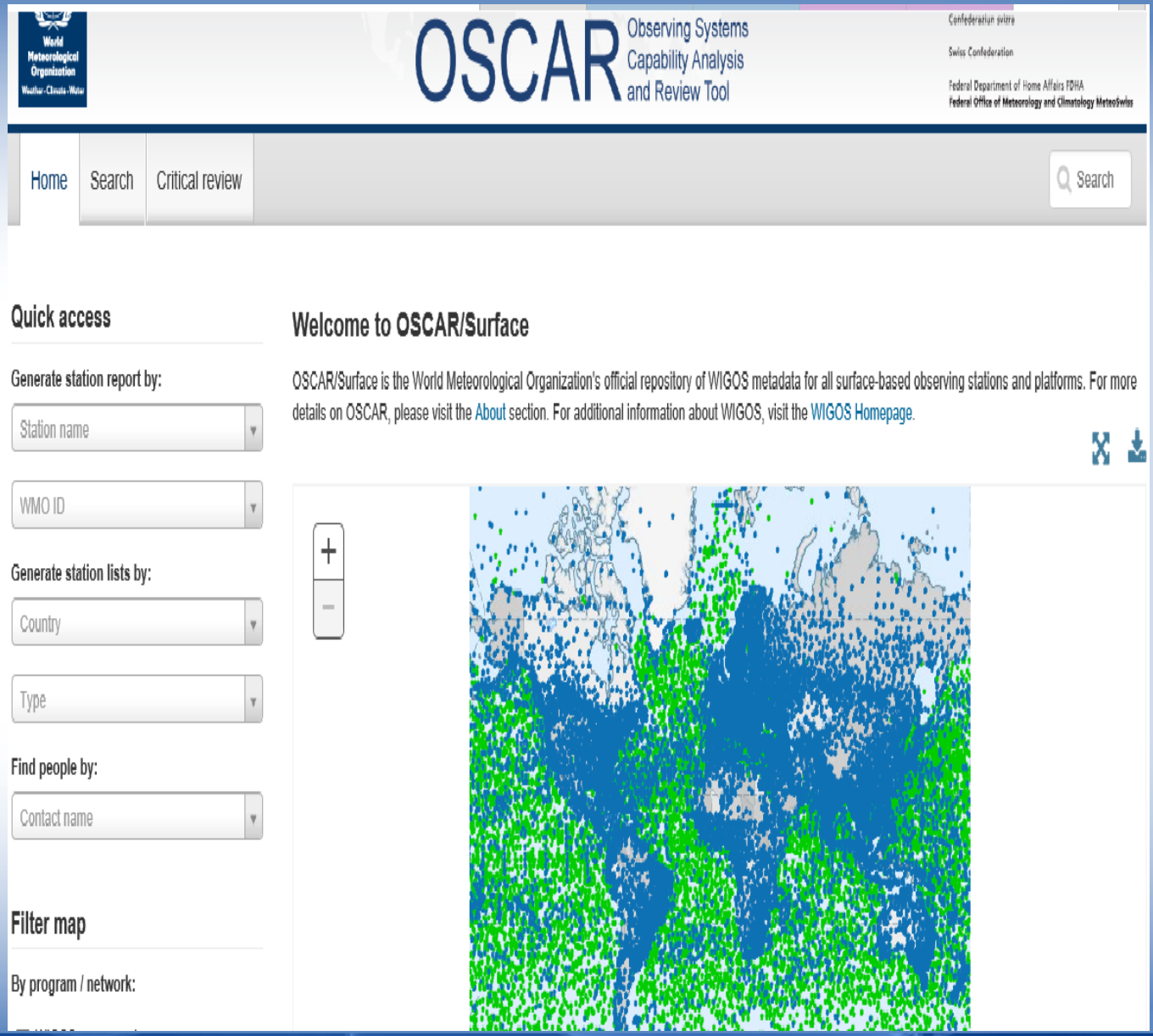
Distribution of Radar Frequencies



- C Band 57%
- S Band 36%
- X Band 4%
- SX Band 3%

WRD & OSCAR/Surface

- **Developed by MeteoSwiss and WMO, as one of the components of the WIGOS Information Resources (WIR).**
- **Officially in operation since May 2, 2016.**
- **Replaces WMO Publication No. 9, Volume A.**
- **A primary national stations database for the Members to store and record WIGOS metadata.**
- **Metadata from a number of co-sponsored observing systems are also maintained in OSCAR/Surface.**



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Station name:

Search using advanced criteria

Criteria matching: All Any

Search term:

Near Real Time only:

Station type:

Air (fixed) | Sea (fixed)
Air (mobile) | Sea (mobile)
Lake/River (fixed) | Sea (ice)
Lake/River (mobile) | Space-based

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OSCAR Observing Systems Capability Analysis and Review Tool

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Confederaziun svizra

Swiss Confederation

Federal Department of Home Affairs FDHA
Federal Office of Meteorology and Climatology MeteoSwiss

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RADAR Brest №8452 (Belarus)

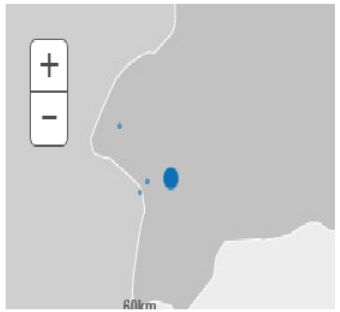
in WMO Region VI - Europe

Last updated: 2016-04-29

Station characteristics

Station name:	RADAR Brest №8452
Station alias:	
Date established:	
Station type:	Land (fixed)
Station class(es):	

Class	From	To
RADAR (Weather radar)		



WMO region:	VI - Europe
Country / Territory:	Belarus
Coordinates:	52.1305555556°N, 23.9027777778°E, 12m
Time zone:	
Climate zone:	
Station URL:	
Other link (URL):	
Predominant surface cover:	
Surface roughness:	
Topography or bathymetry:	
Population in 10km / 50km (in thousands):	
Supervising organization:	
Site information:	
Event at station / platform:	

Photo gallery

WRD & OSCAR/Surface

- Integration of WRD and OSCAR/Surface is under progress
- New features and capabilities to be added to WRD based on the recommendations by IPET-OWR
- The contribution of the WRD and OSCAR/Surface for the international radar data exchange
- The contribution of the WRD and OSCAR/Surface for the evolution and redesign of the observing networks at national, regional and global level.

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CONCLUSION

- **Members should understand the benefits of the OSCAR/Surface and WRD for them.**
- **Nomination of focal points by Members are critical to maintain up-to-date metadata of observing systems.**
- **Members should use and support OSCAR/Surface and WRD**
- **Beside the web interface for providing metadata, M-2-M interface is under consideration to be developed to submit the metadata directly to OSCAR by the Members.**
- **Training activities on OSCAR including WRD should be arranged for the Members;**
  - **to increase the awareness**
  - **to understand guidance material**
  - **to use and support OSCAR and WRD efficiently**

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THANK YOU FOR YOUR ATTENTION