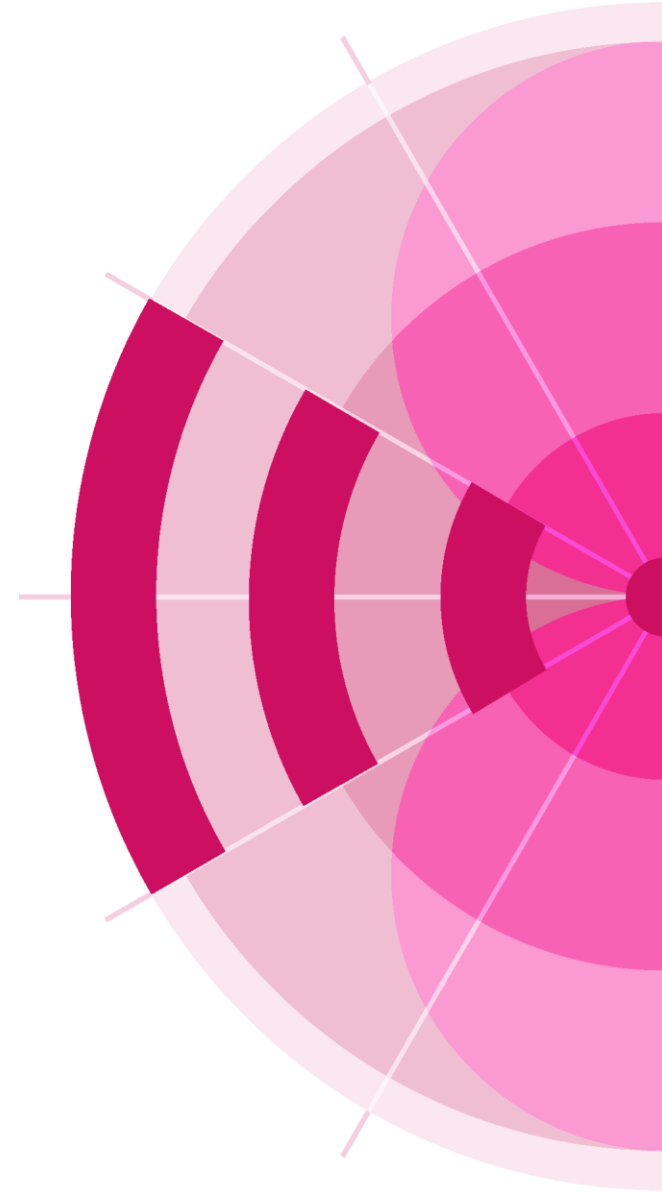
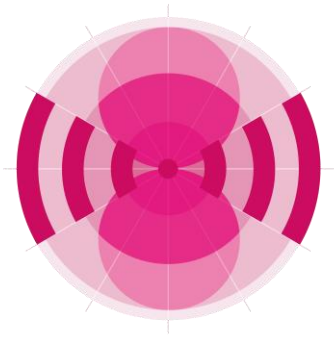


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Graphical Interference Management System

By Olivier EVRARD
Space Software Division
ITU-R





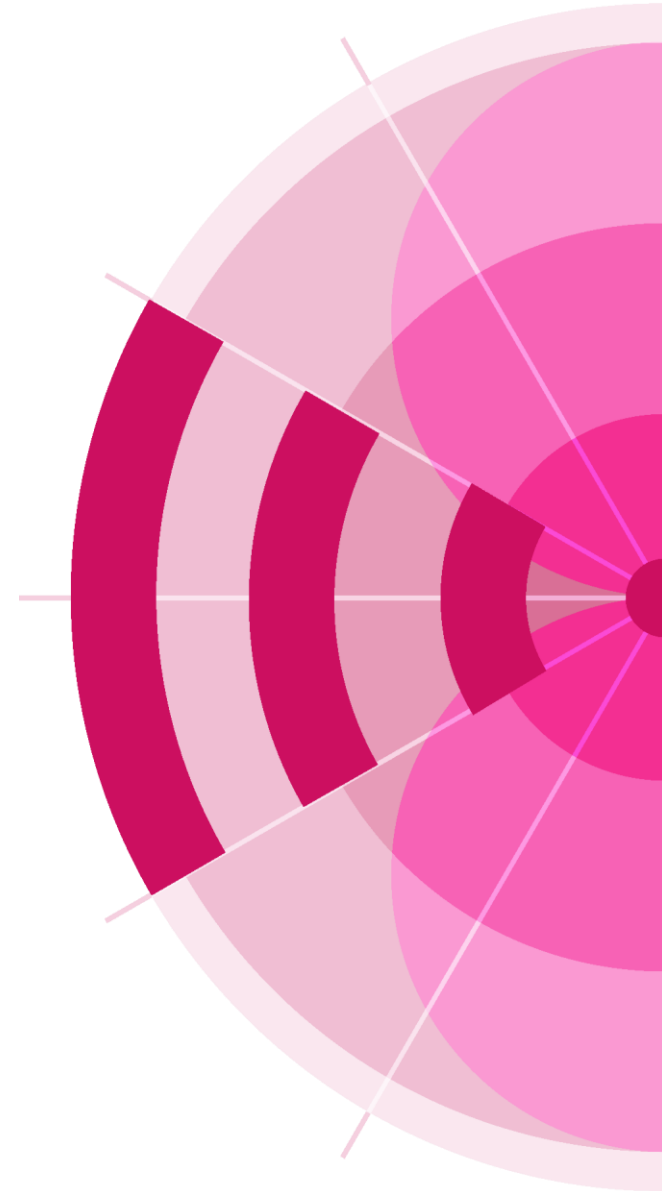
Content

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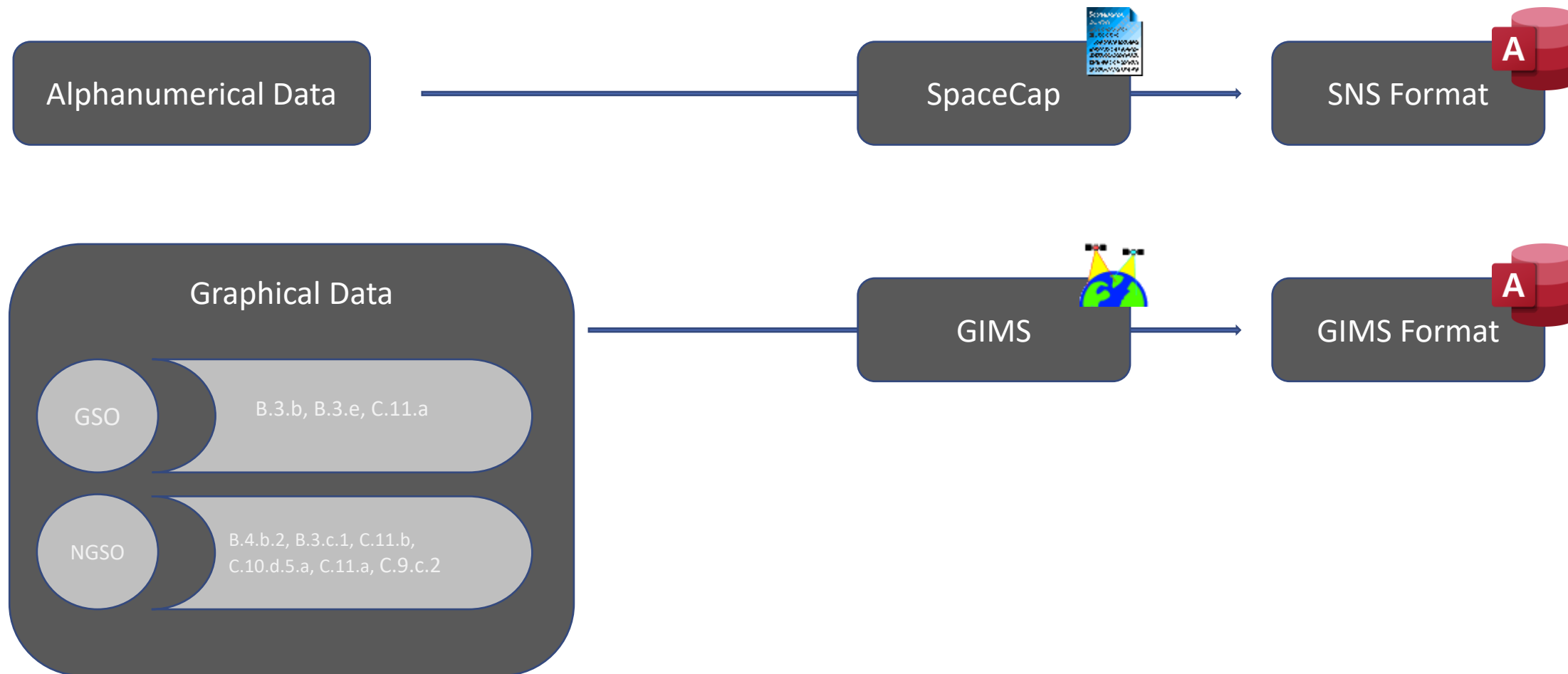
GIMS is a software package which allows the capture and modification of graphical data relating to the electronic notification of satellite networks.

- Discover GIMS functionalities
- Understand GIMS interactions with other BR Space Software

Longer presentation with exercises available on GIMS Web Page



Appendix 4



GIMS Databases

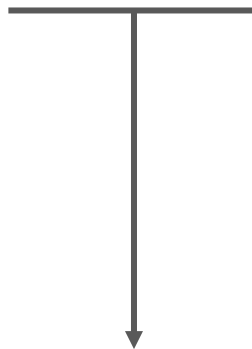
- MS Access Database
- Separate from SNS-v9 database
- All diagrams database only on BRIFIC

Before GIMS v12

- Requires username/password to open with MS Access
 - Only read-only with MS Access
 - Requires GIMS to modify
- On BRIFIC grefdbnnnn.mdb is read-only
 - Even if opened with GIMS

Since GIMS v12

- Open with MS Access without username/password
 - Modify some data items with MS Access
- On BRIFIC grefdbnnnn.mdb is not read-only
- User experience like SNS-v9 databases

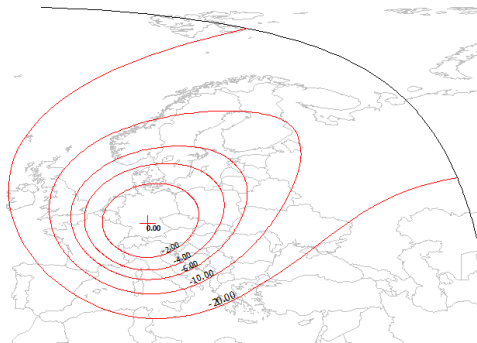


Need GIMS/GIMAPI to view/modify diagram data

GSO Diagrams

Antenna Gain Contours (B3b)

Describe Antenna Gain



Service Area (C11a)

Define where service
is to be provided (protection)

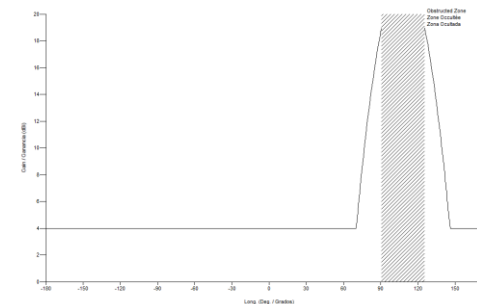
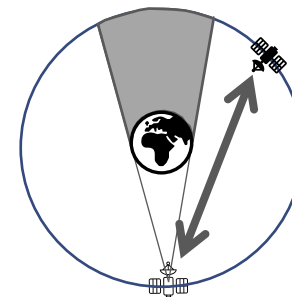


Antenna Gain towards GSO (B3e)

Used for AP8 ($\Delta T/T$) calculation

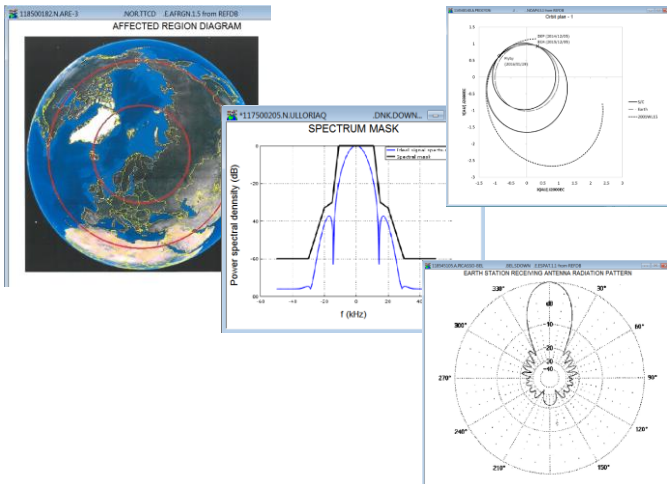
Only required for bi-directional bands

(see Appendix 4 in Satellites Validation Rules document - BRSIS)



NGSO Diagrams

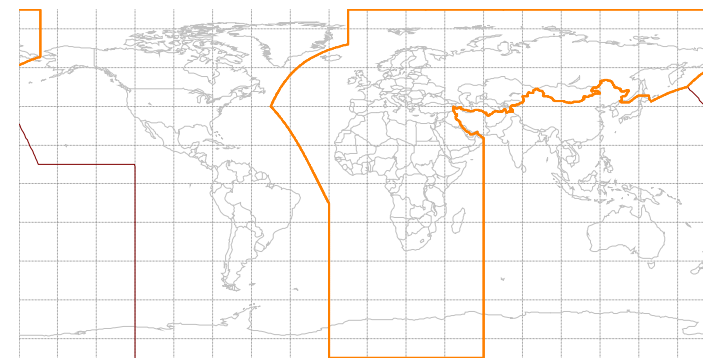
Stored as pictures



- Publication automation
- But not useable by other software

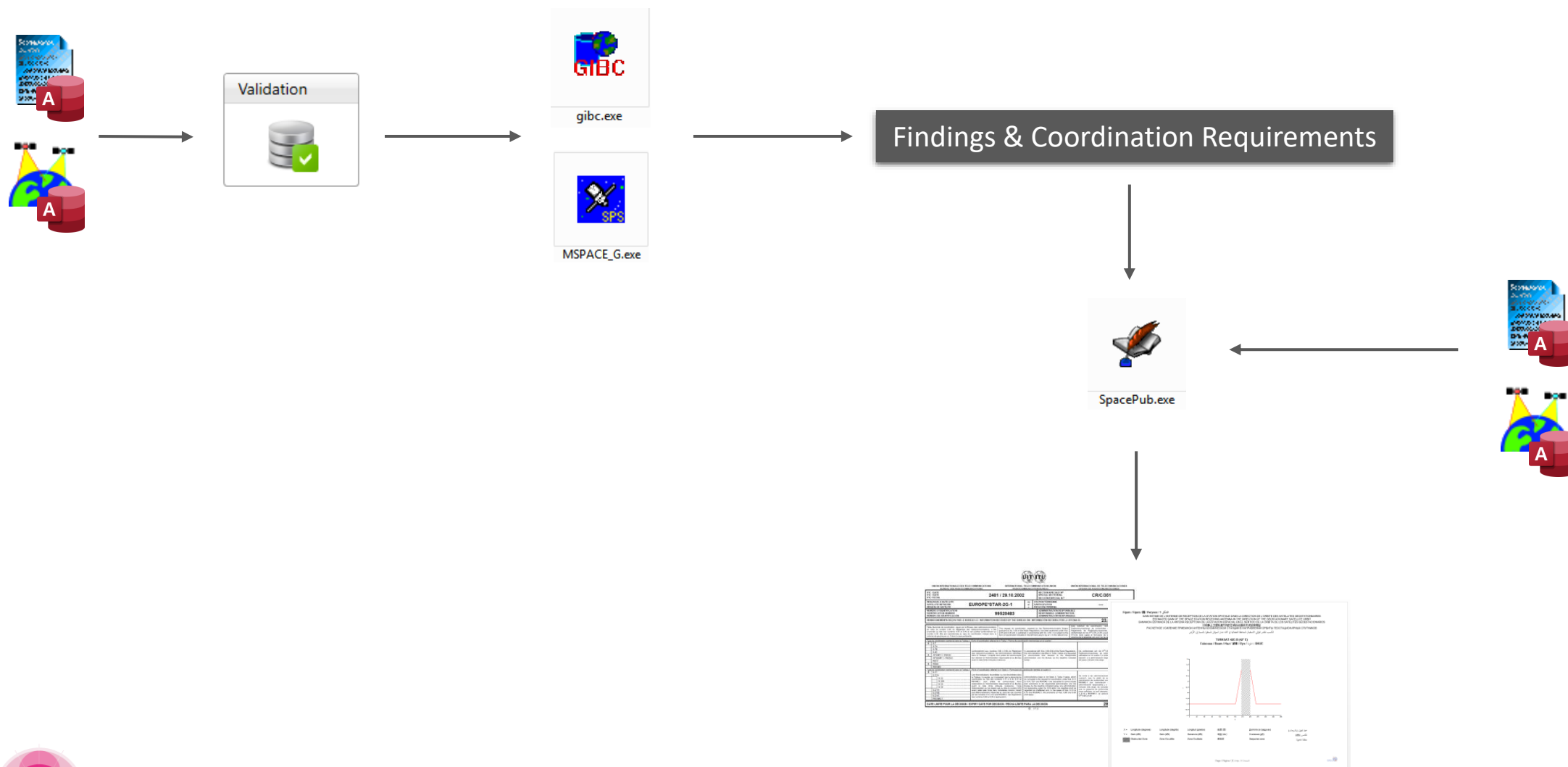
In GIMS 13

Service areas
defined by
geographical areas
may be captured

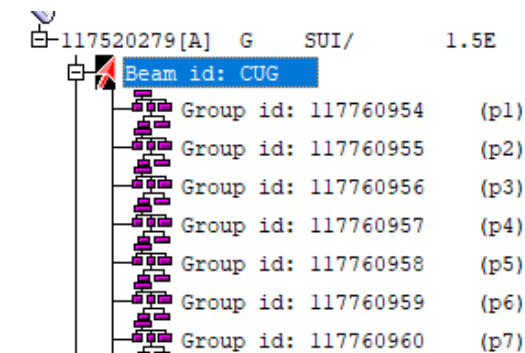
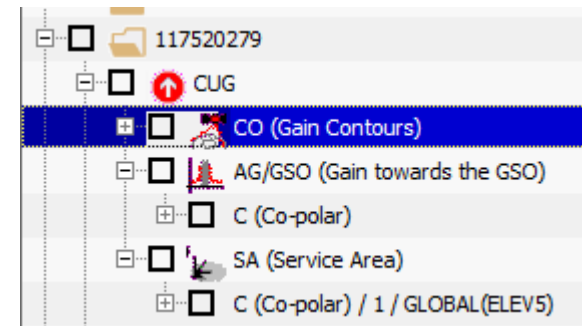
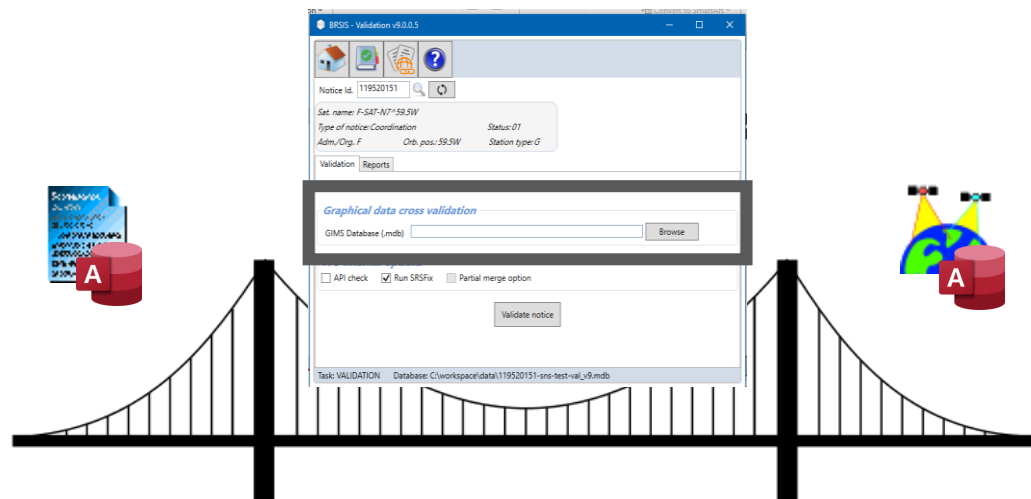


- Space Station Radiation Pattern (B3c1)
- Earth Station Radiation Pattern (C10d5a)
- Antenna Gain vs Elevation Angle (B4b2)
- Service Area (C11a)
- Spectrum Mask Diagram (C9c2)
- Affected Region (C11b)

GIMS & BR Space Software



GIMS & SpaceVal



- Missing diagrams
 - AG/GSO ?
 - Typo ?

Diagram key - Save to gims_sample_work

Enter the key elements and a comment. Then click OK to save.

Notice ID	1
Notification Reason	C (Coordination)
Administration	SUI
Satellite Name	SUISAT-50E
Beam Name	TK3
Emission / Reception	E (Emission = Down Link)
Polarization	C (Co-polar)
Service Area Number	1
Service Area Name	
Comment	

Group Level
Check service area numbers
Check NGSO diagram number

GeoStationary Notice:1

Coordination Attachments Notice | Special Section Station | Assoc Earth Station Beam | Assoc Space Station Group

Notice: 1 Satellite Network: SUISAT-50E Beam Id: TK3 E

3. Observed Frequencies and Related Characteristics

Add Mod Sup of the group BR Identification of the Group to be modified/suppressed

Characteristics Common to a Group of Frequencies

C3a. Assigned Frequency Bandwidth: 50000 (kHz)

No Sensors
Active Sensors
Passive Sensors

C4a. CIs Str: EB C4b. Net Srv: CP

C2c. Frequency assignments are filed under No.4.4
BR98 For use in accordance with Resolution 163/164

C11a. Service Area as List of Countries or Geographic designations

Service Area Number: 1

Remarks

GIMS & Technical Examinations

GIBC

The image shows three separate windows from the GIBC software. Each window has a 'Start' button and various input fields for configuration. The first window is titled 'Appendix 1', the second 'PTD (Detailed view)', and the third 'PTD with respect to other service services'. They contain fields for Network, Examination Date, Power Control (dBm), and other technical parameters.

SPS

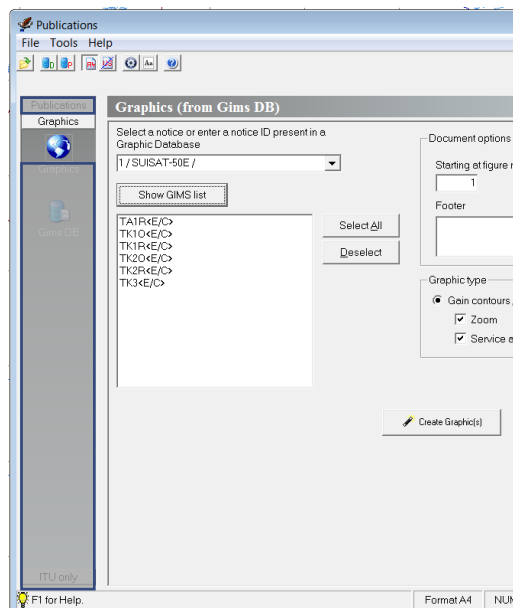
The image shows the SPS version 9.0.0.8 software window. It has a menu bar (File, Query, Help) and several tabs (Input/Output, Run-time Information, Compressed Report, Graphical Report). The 'Input/Output' tab is active, showing fields for Input File Name, Output File Names, and Level of Detail for Output Report. There are also checkboxes for 'Study One Beam?' and 'Analyse Complete Plan (all beams)'. A red arrow points to the 'Add GIMS Database(s)' button, which opens a table with columns 'DB Name' and 'DB Path'. The table is currently empty.

Several GIMS databases may be specified



Provide your own diagrams when
grefdbnnnn.mdb is read-only

GIMS & SpacePub

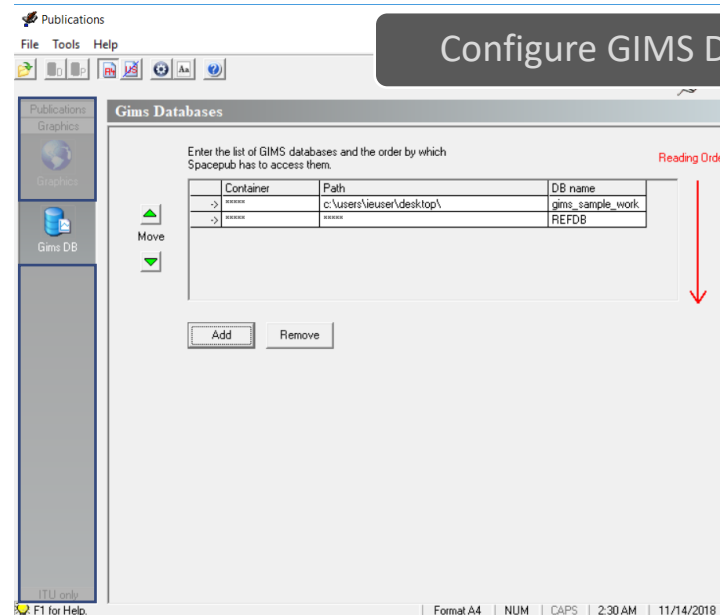


Graphics Tab

- Print selected diagrams

Publications Tab

- Option to include graphics



Configure GIMS Databases

Resulting RTF document

Figure / Figure / 图 / Рисунок / 1

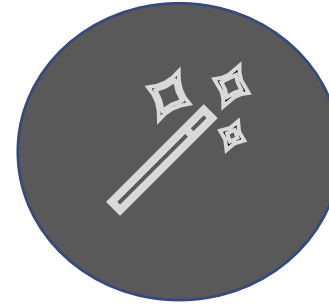
ZONE DE SERVICE ET CONTOURS DE GAIN DE L'ANTENNE D'ÉMISSION DE LA STATION SPATIALE
SPACE STATION TRANSMITTING ANTENNA GAIN CONTOURS AND SERVICE AREA
ZONA DE SERVICIO Y CONTOURNOS DE GANANCIA DE LA ANTENA TRANSMISORA DE LA ESTACION ESPACIAL
ЗОНА ОБСЛУЖИВАНИЯ И КОНТУРЫ УСИЛЕНИЯ ПЕРЕДАЮЩЕЙ АНТЕННЫ КОСМИЧЕСКОЙ СТАНЦИИ
مناطق الخدمة وأعداد الكسب هوائي الإرسال لمحطة الفضاء



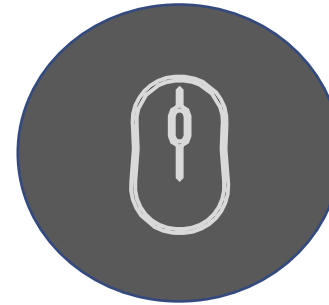
Zone de service / Service area / Zona de servicio / 服务区 / Зона обслуживания / منطقة الخدمة : TA1R(XR3) (No. 01)

Data Capture

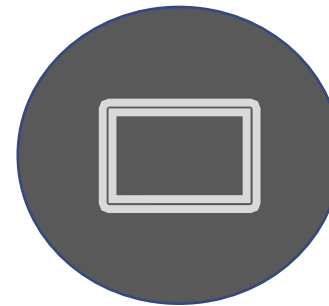
Generated



With mouse

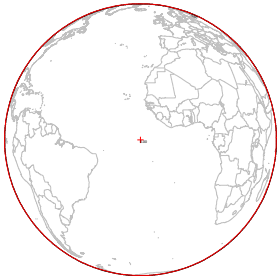


With digitizer

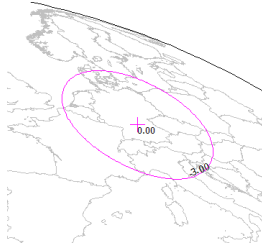


GSO Data Capture

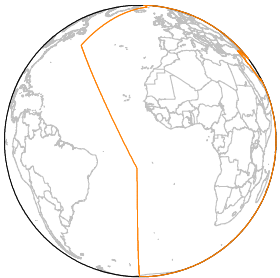
Gain contour
by elevation



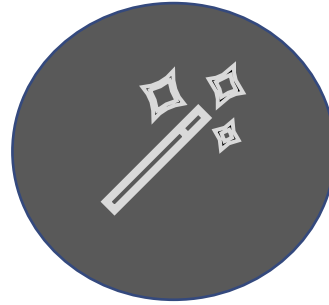
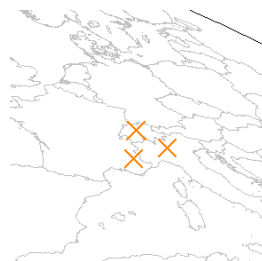
Gain contour
as elliptical beam



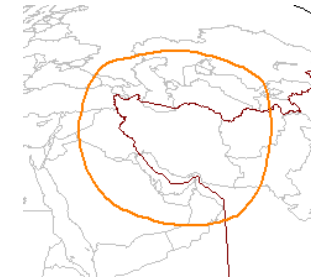
Service Area
as ITU region



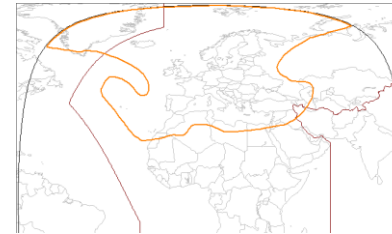
Service Area
as ITU region



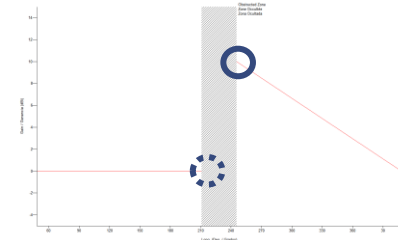
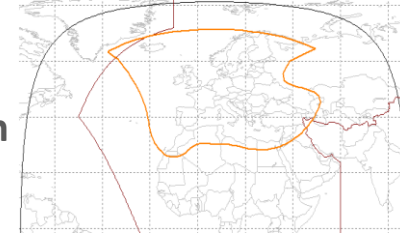
Limit service area coverage



to ITU Region

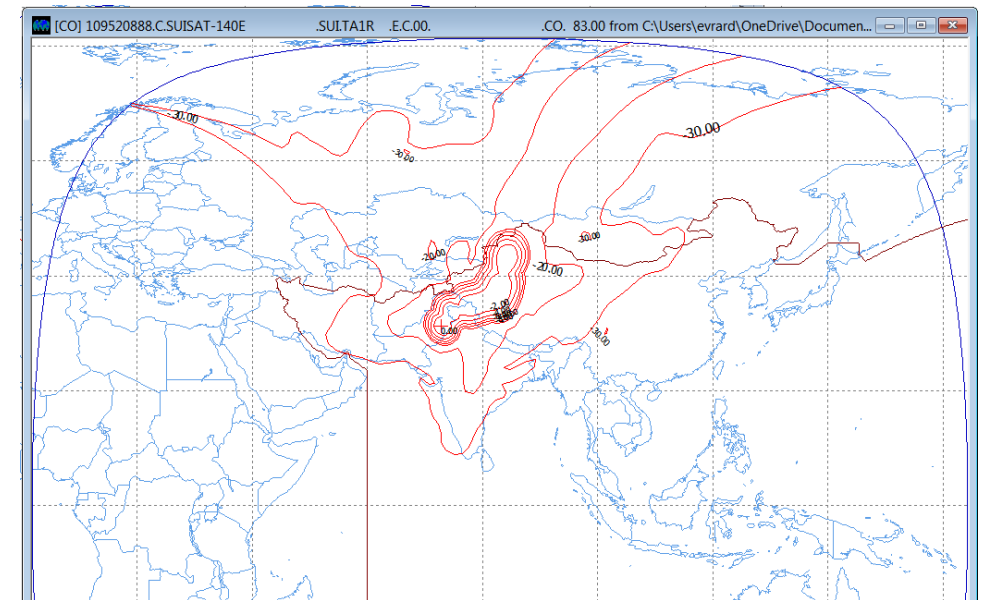
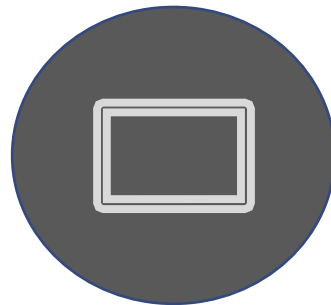
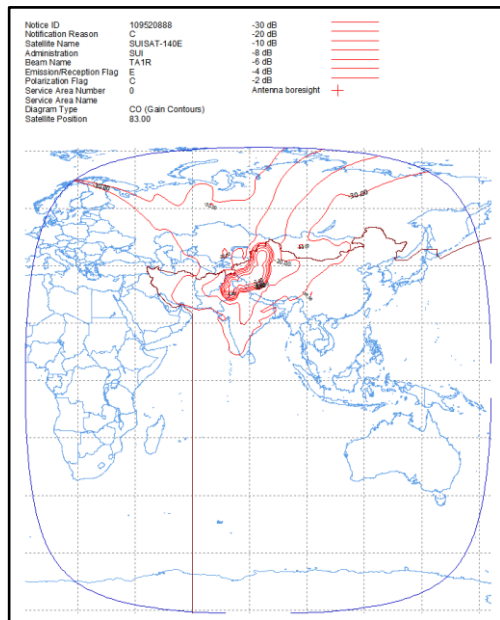


By elevation

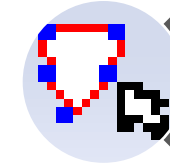
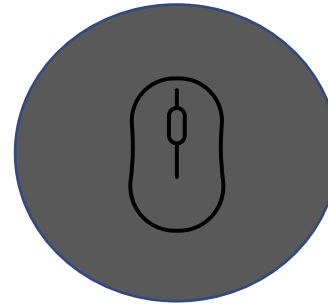
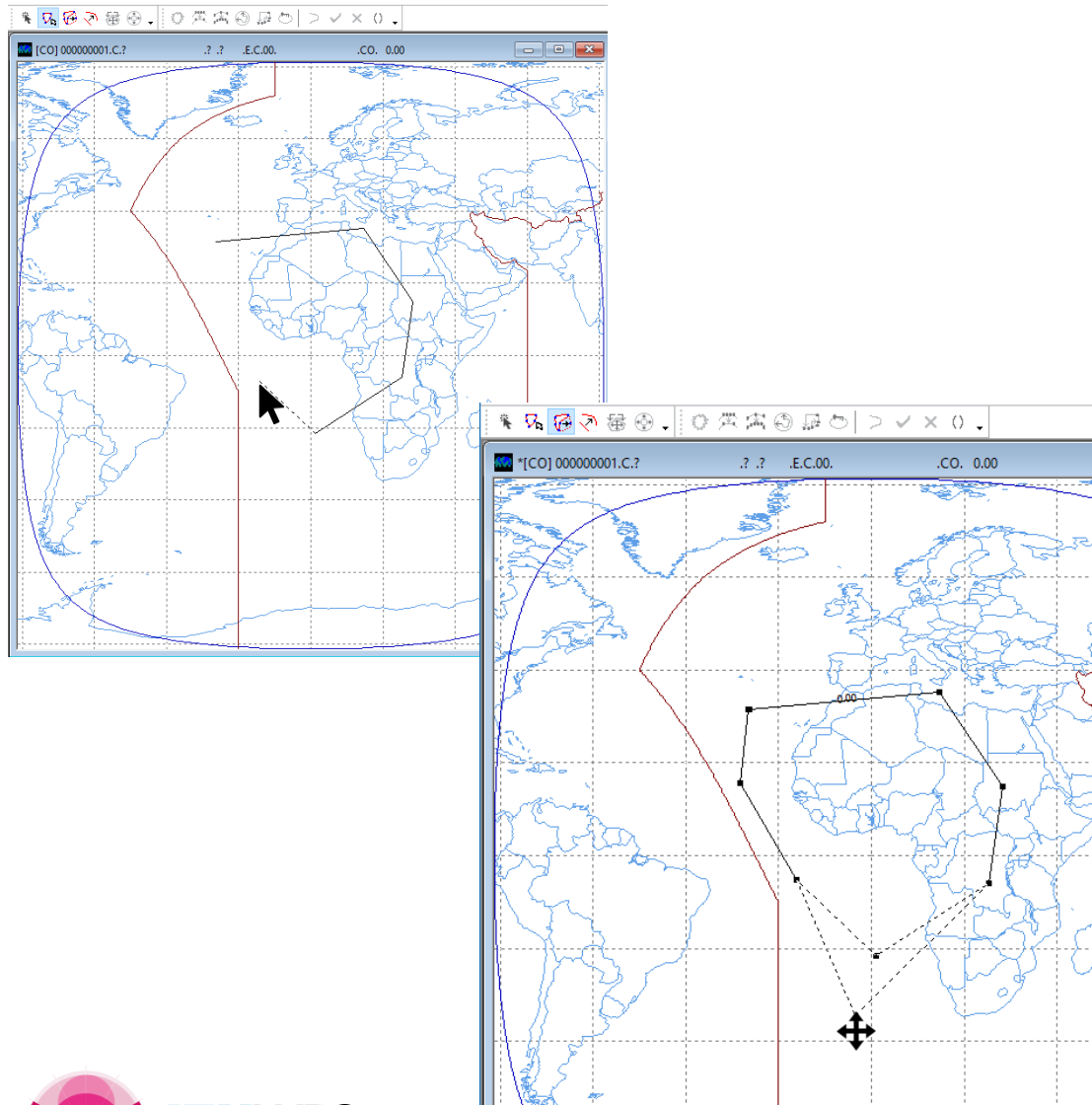


GSO Data Capture

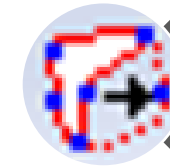
Diagram on paper



GSO Data Capture



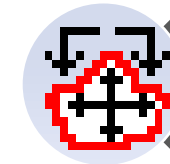
Click and create contour



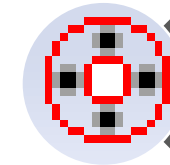
Drag & add contour points



Curve contour segments



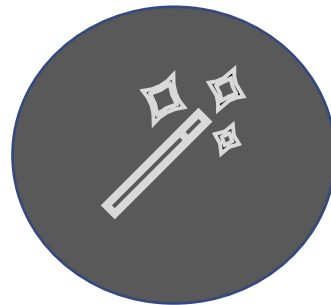
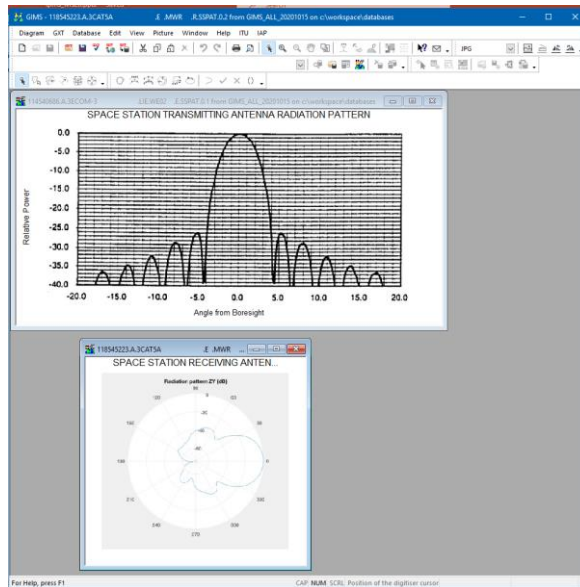
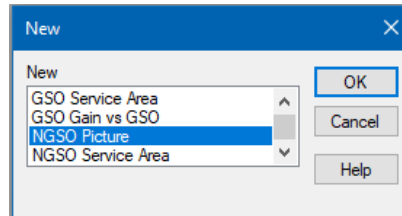
Move and rotate contours



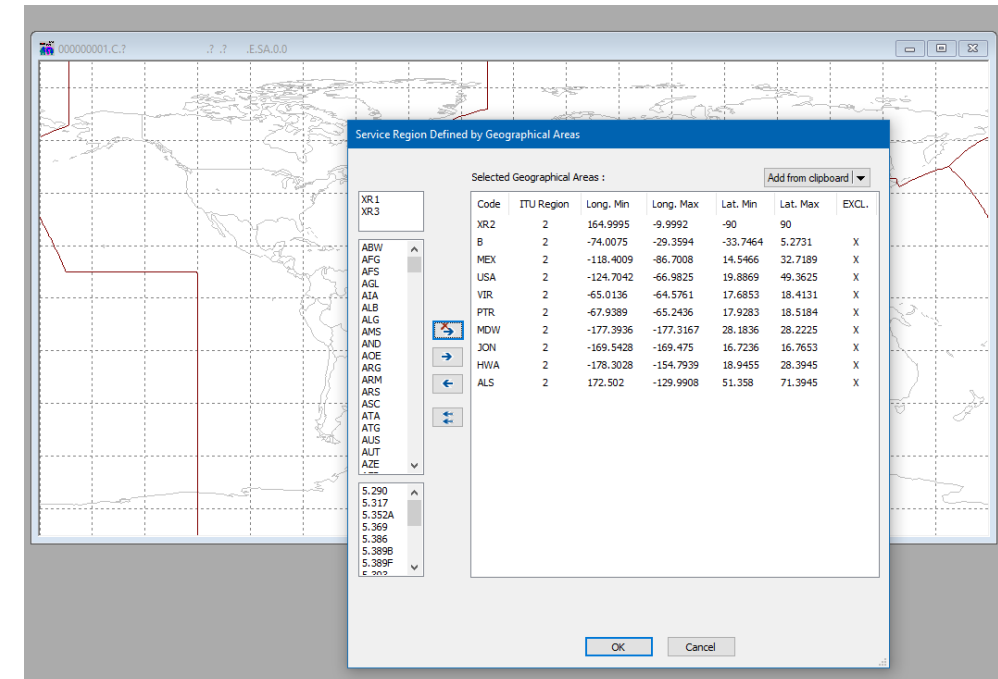
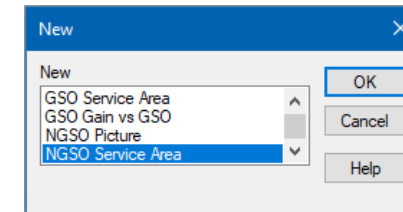
Shrink and expand contours

NGSO Data Capture

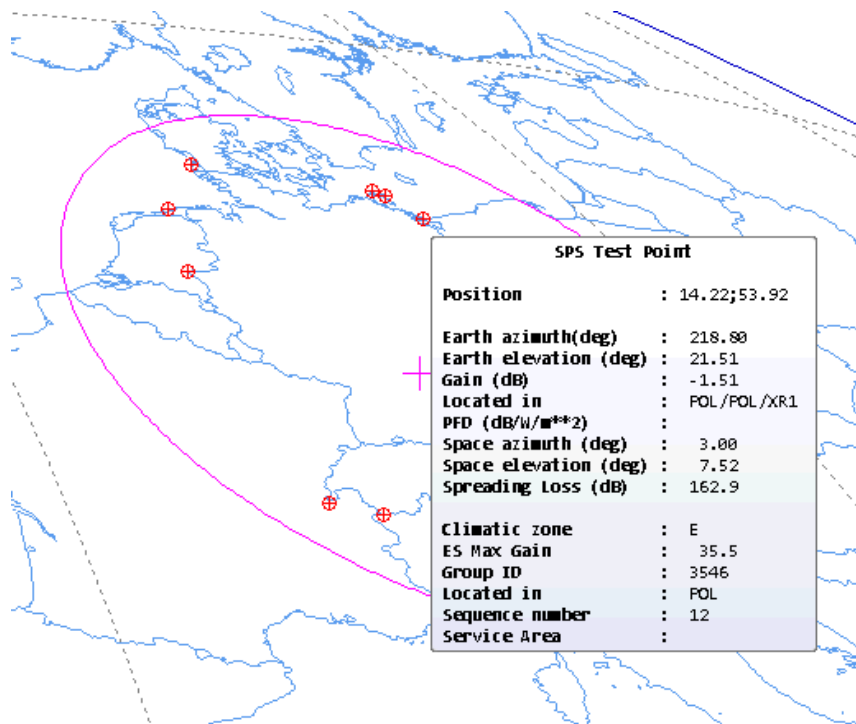
Image Files



Service areas defined by geographical areas



Information Points



Click on map



Enter characteristics

Test points from SPS
database

AP30BReport

Copy/paste from many
formats

Output DB of TEX



Save to file

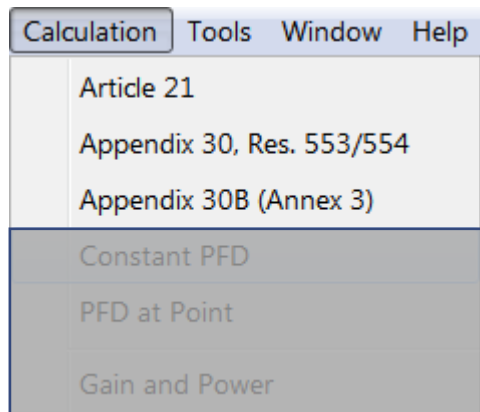


Export to spreadsheet

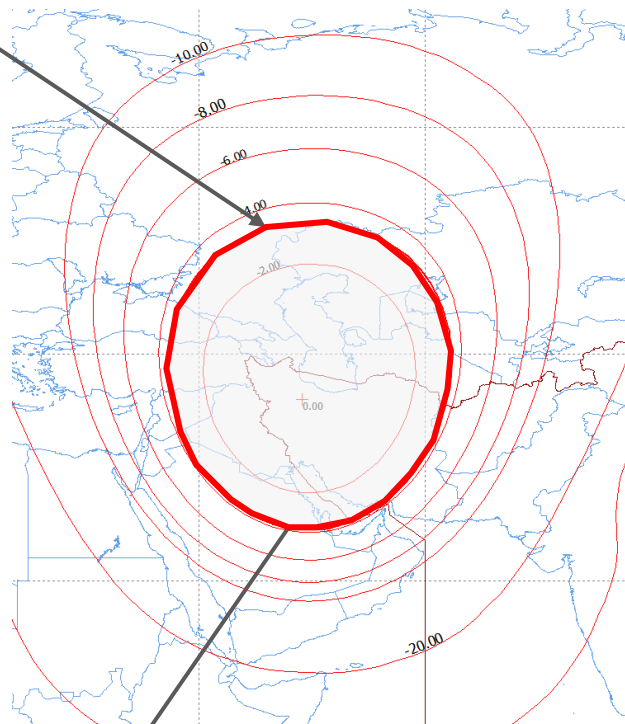


Load from file

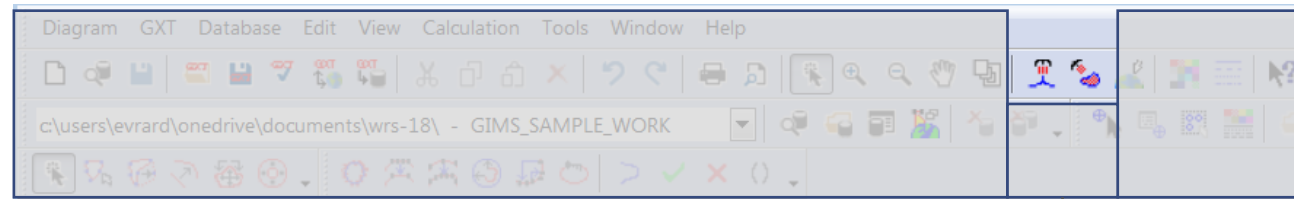
Interactive PFD



Excess area



List of covered territories



Gain & PFD Tool

Click on map

Result on Status Bar

Analysis of one emission
Vs
All networks with GIBC

(53.7472;45.3102) PFD: Value = -127.94 Limit = -128.67 dB(W/m**2) in 27MHz

(55.8573;38.3282) gain = -1.38

Programming with GIMS Data

Gimapi32.dll

- Browse REFDB
- Browse personal DBs
- Import/Export GXT files
- Save into personal DBs
- Display information points

Shapedbm.dll

- Calculate gain

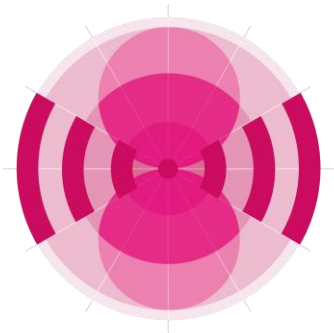
GIMS Web

- Documentation
- Code samples

Works from most languages on Windows

- C, C++, Fortran, Visual Basic, C#...

32-bit only



More information...

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- **Download**
<https://www.itu.int/en/ITU-R/software/Pages/space-network-software.aspx>
- **Tutorial**
https://www.itu.int/en/ITU-R/software/Pages/gims_tutorial.aspx
- **Presentation with Exercises**
<https://www.itu.int/en/ITU-R/software/Pages/gims.aspx>



brsas@itu.int

