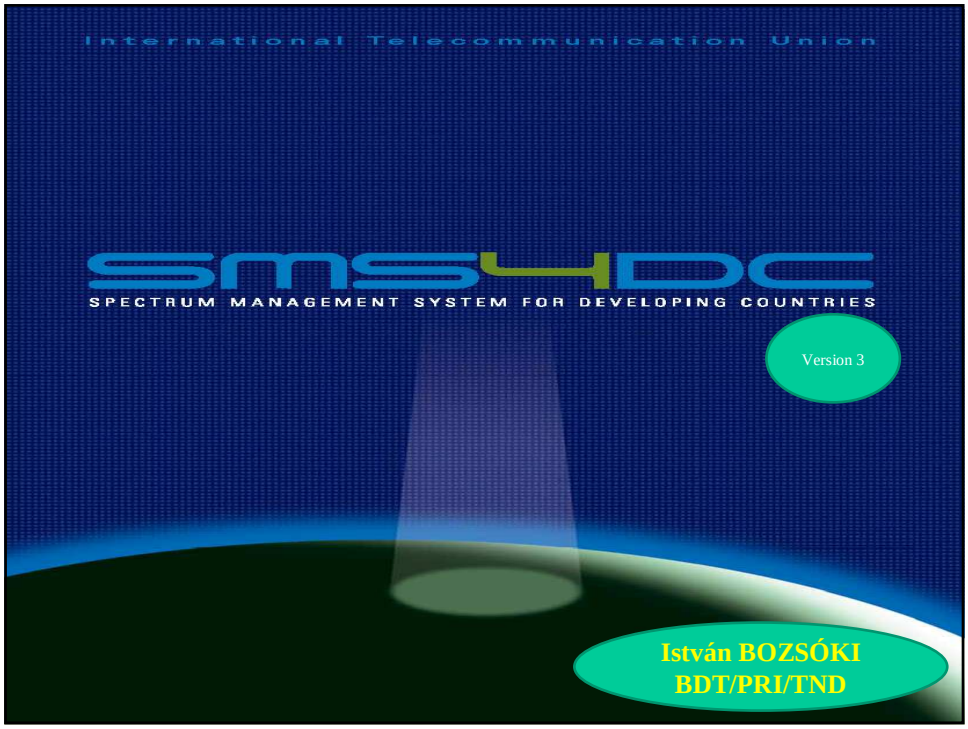


Content of the presentation

- History of SMS4DC
- Main Functions of SMS4DC
  - Administrative Functions
  - Engineering Functions
  - Geographic Map Display functions
- Samples for the different functions
- How to obtain SMS4DC
- Future developments

History

- ITU-R and ITU-D cooperation
- 1995 BASMS (FoxPro)
- 1997 WinBASMS
- WTDC March 2002: further developments
- 2002 ITU-R SG1: Rec. ITU-R SM.1604
- Consolidated technical specification: 2004
- 2007 first quarter: Version 1
- 2008 first quarter: Version 2
- 2009 third quarter: Version 3

Main Functions of SMS4DC/1

Administrative Functions

- Relational database management
- Recording frequency application, frequency assignment, licensing, coordination data, import data from BRIFIC & SRS
- Producing electronic notices, print license, invoice & spectrum fee
- Security features: Multi level access enables system administrator to define users and groups with different access levels

Main Functions of SMS4DC/2

Engineering Analysis Functions

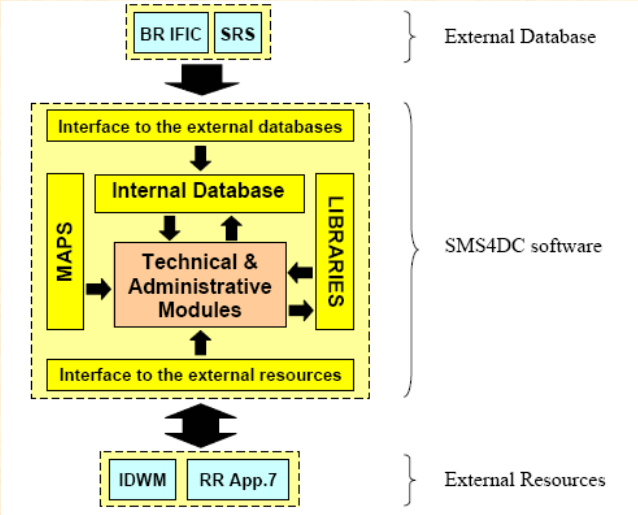
- Enhanced analysis tools for frequency arrangement, assignment, coordination and interference calculation
- Propagation models based on ITU-R latest recommendations available at the time of development
- Coverage area, field strength, field strength contour, microwave link calculations, network coverage and best server calculation
- Azimuth, elevation and horizon elevation for earth stations
- Link to monitoring software

Main Functions of SMS4DC/3

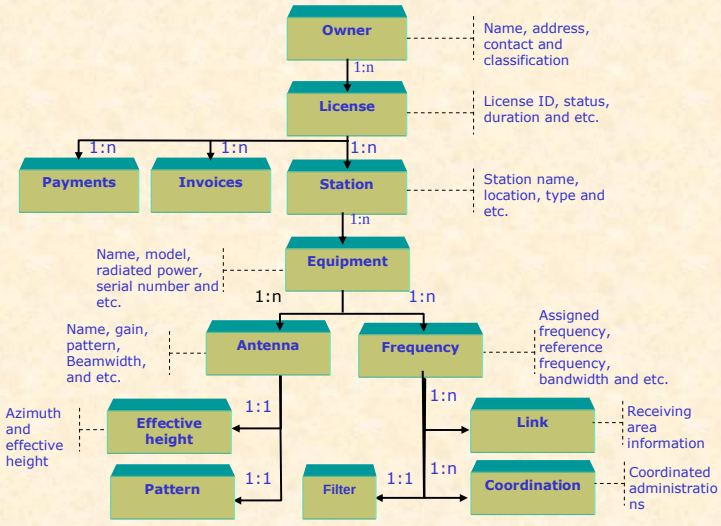
Geographic Map Display Function

- User friendly interface, displaying of DTM, capability of importing standard mapping formats including Globe map, displaying of other higher resolution maps and export to Google Earth
- Online latitude, longitude and altitude presentation, overlaying, Scrolling and Zooming functionality capability of handling vectors,
- Providing multiple entry functions, menu items, assigning new stations on map and searching and displaying a station or group of stations on map.

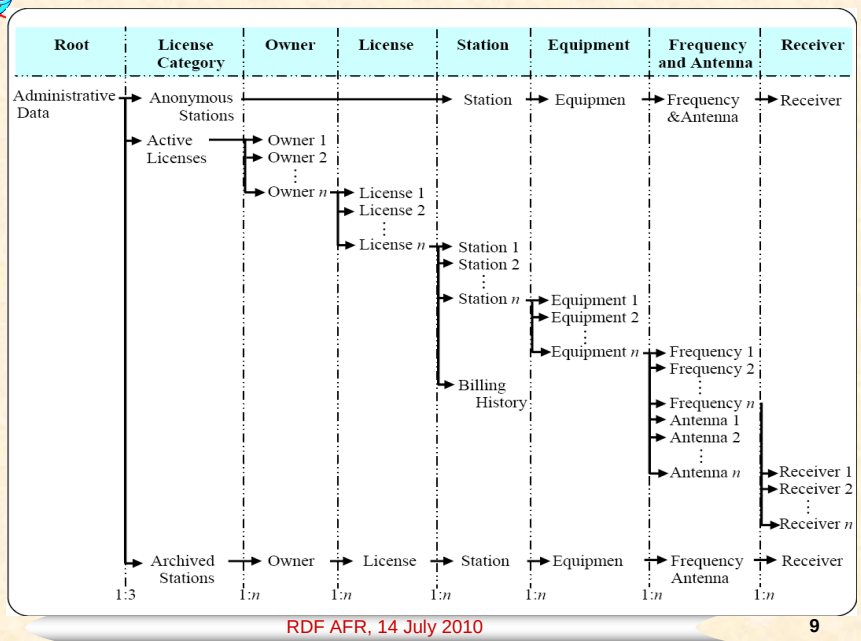
STRUCTURE OF SMS4DC



DATABASE STRUCTURE (terrestrial)



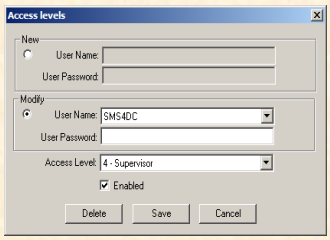
Flow of Data Entry

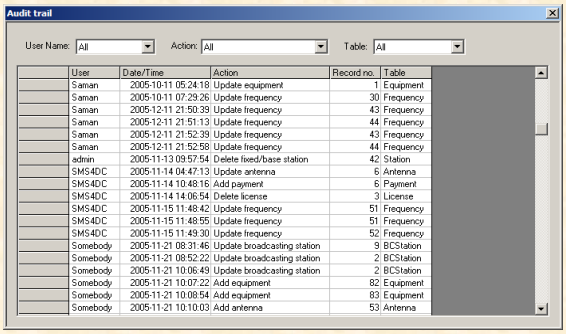


SMS4DC's Administrative Functions

Supervisory tasks

- User access →
- Backup/Restore
- Audit control





SMS4DC's Administrative Functions

Data capture screens

Owner information

Modify | Cancel | Save

	Value
Owner Name	Admin2
Owner Address	Enghelab Ave.
City	Tehran
Country	IRN
Telephone	3243541
Telex	
Fax	5123451
Email	x@c.com
Remarks	
Security Category	Y
Address Code	A
Code of Operating Agency	001
Billing	
Billing Name	Admin2
Billing Address	Tehran

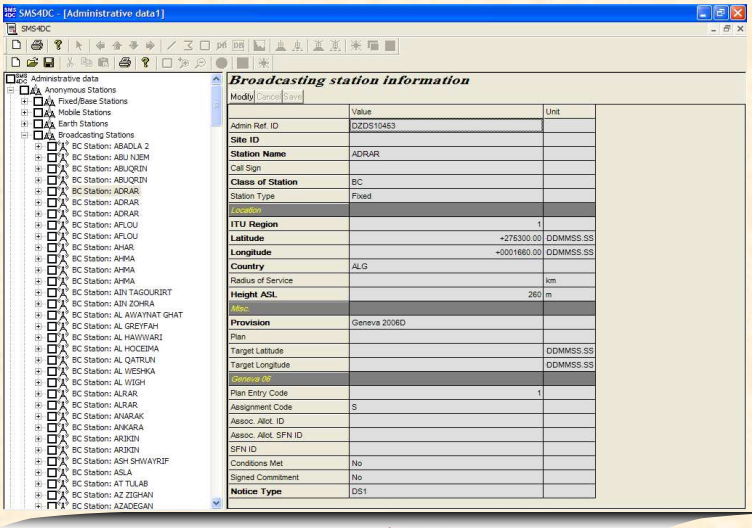
Owner information

Modify | Cancel | Save

	Value
Nom du propriétaire	Admin2
Adresse du propriétaire	Enghelab Ave.
Ville	Tehran
Pays	IRN
Téléphone	3243541
Télex	
Fax	5123451
Email	x@c.com
Remarques	
Niveau de sécurité	Y
Code d'adresse	A
Code de la compagnie exploitante	001
Billing	
Facturation au nom de	Admin2
Adresse de facturation	Tehran

SMS4DC's Administrative Functions

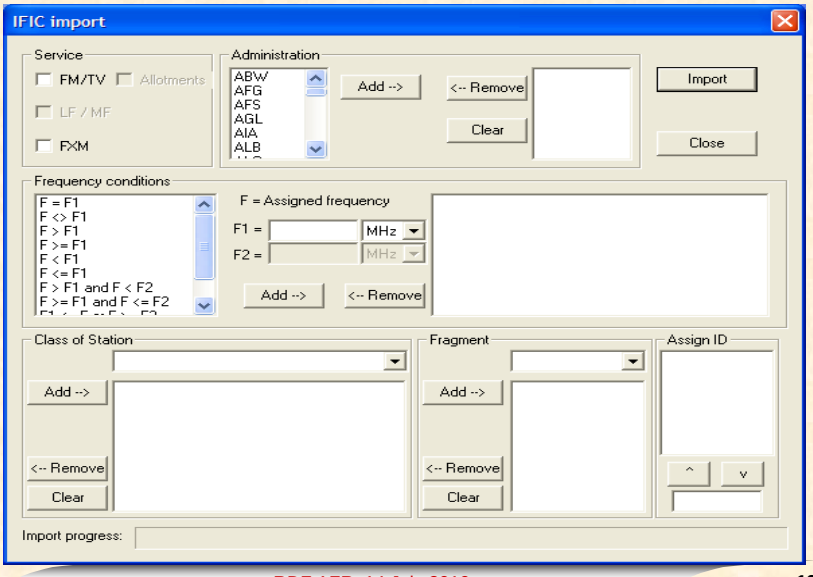
Broadcasting Station Information
Data Entry Table



Ex2

SMS4DC's Administrative Functions

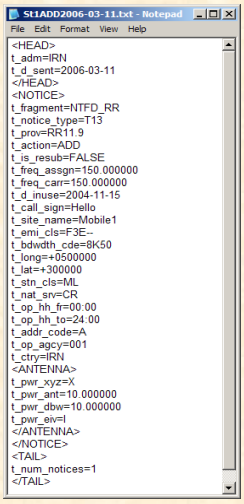
Dialog box for importing data from BRIFIC (Terrestrial)



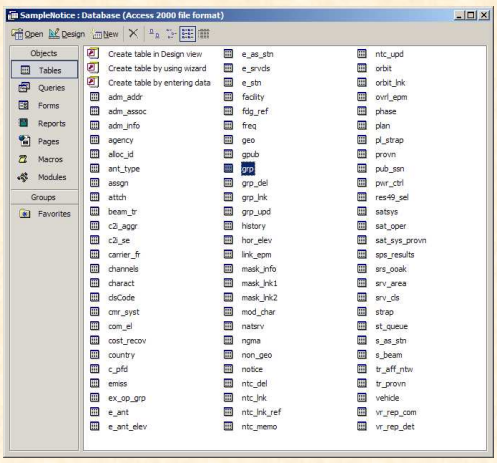
SMS4DC's Administrative Functions

Electronic notices to BR

Fixed, Land mobile, Broadcasting

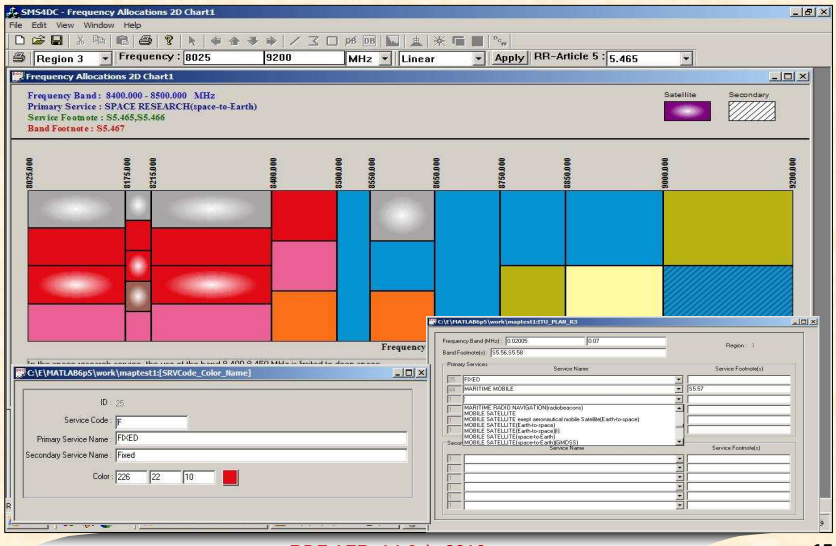


Earth station



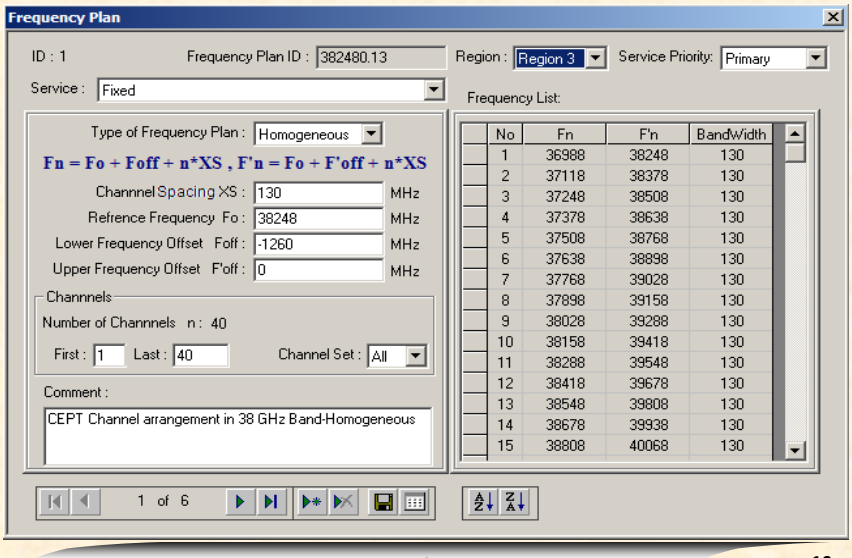
SMS4DC's Engineering Functions

International & National frequency allocations table (chart)



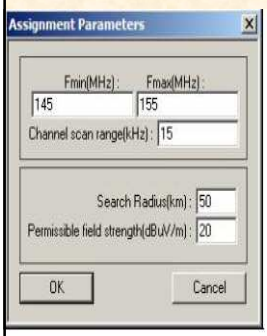
SMS4DC's Engineering Functions

Frequency arrangement (Homogeneous)

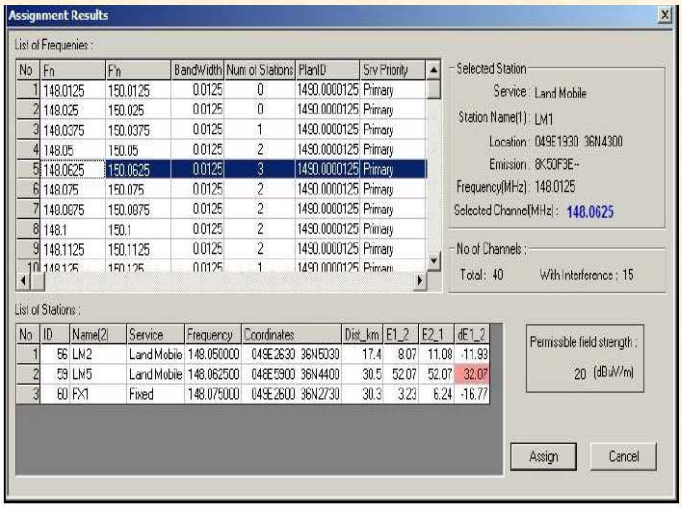


SMS4DC's Engineering Functions

Frequency assignment parameters & EMC analysis results



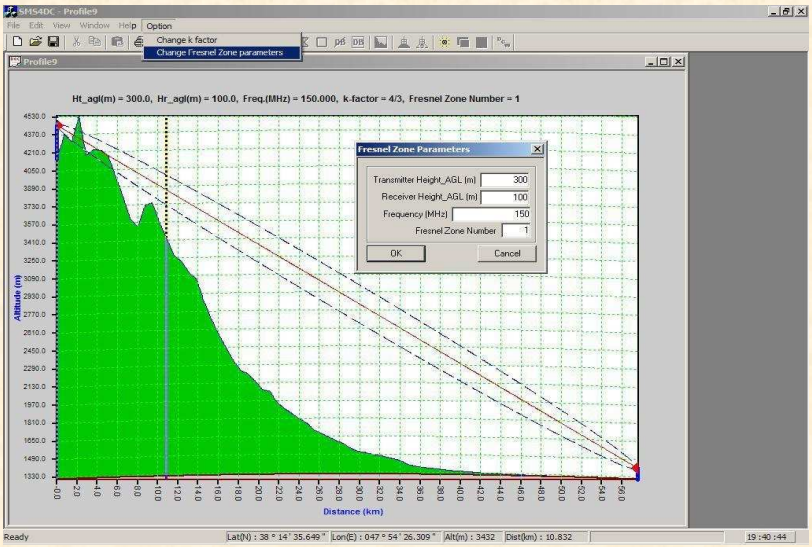
(a) Frequency assignment parameters



(b) EMC analysis result for assigning available planned frequencies to a concerned station

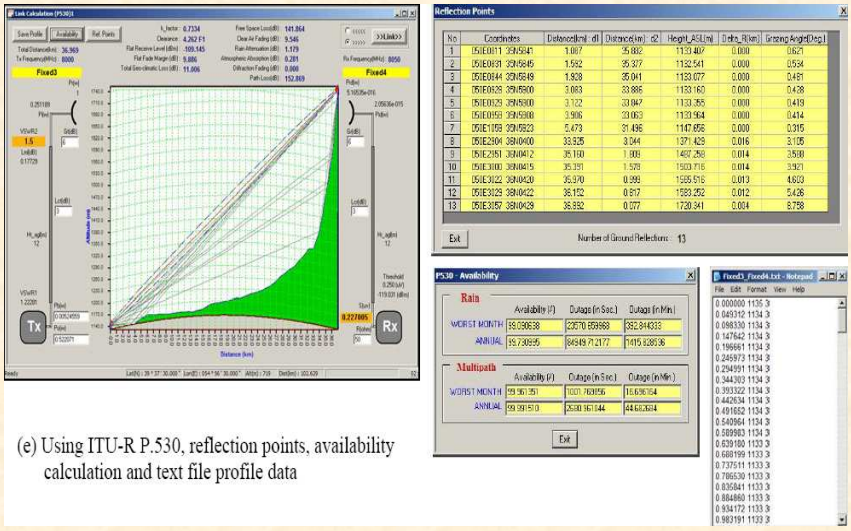
SMS4DC's Engineering Functions

Path profile with Fresnel Zone



SMS4DC's Engineering Functions

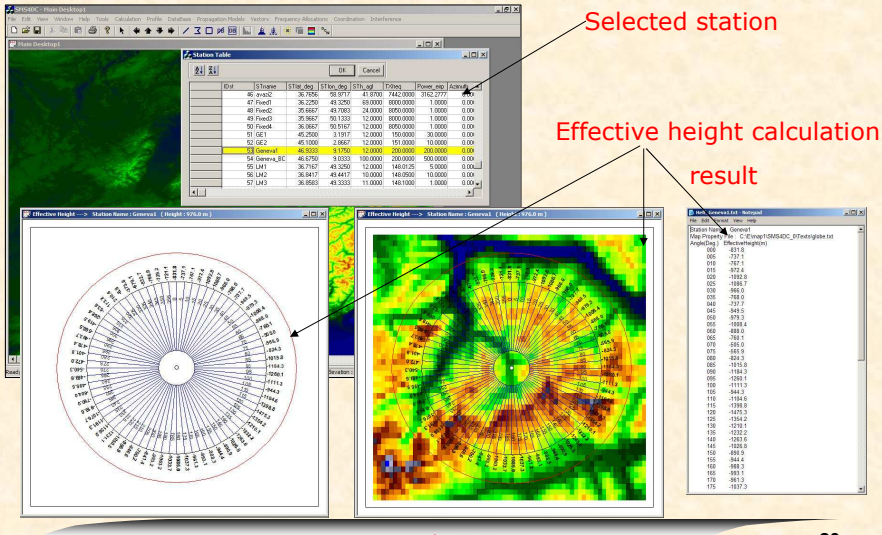
Link Calculation Dialog box using different propagation models



(e) Using ITU-R P.530, reflection points, availability calculation and text file profile data

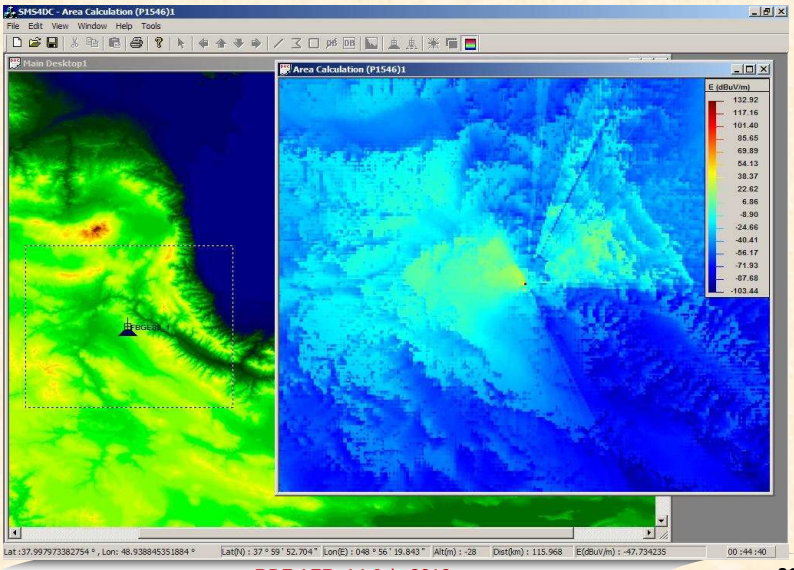
SMS4DC's Engineering Functions

Spreadsheet of stations and h_{eff} calculation



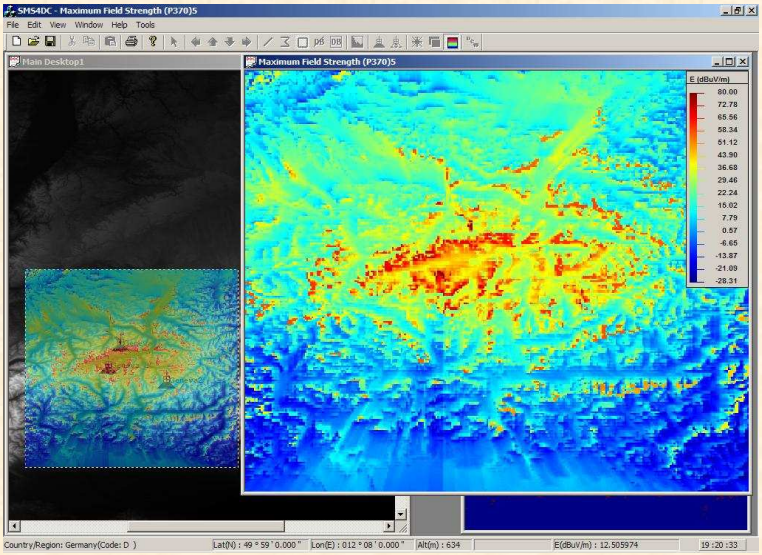
SMS4DC's Engineering Functions

Area calculation using ITU-R P.1546 propagation model



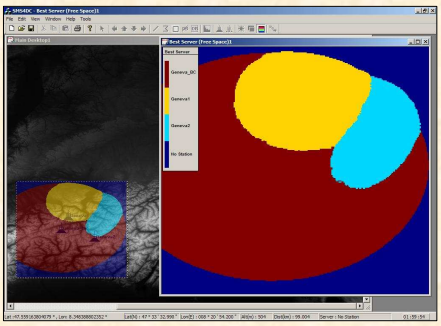
SMS4DC's Engineering Functions

Network Processor : Maximum Field Strength

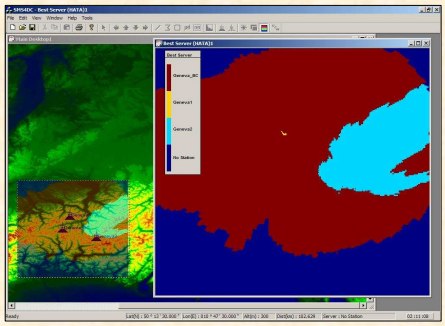


SMS4DC's Engineering Functions

Network Processor : Best Server



(a) Free-Space propagation model



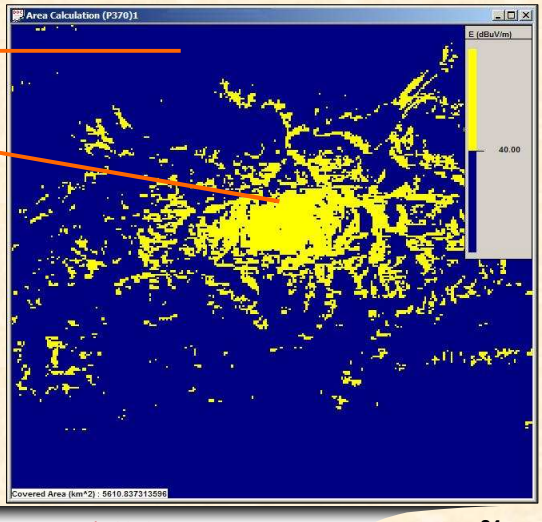
(b) Okumura-Hata propagation model

SMS4DC's Engineering Functions

Coverage Area calculation

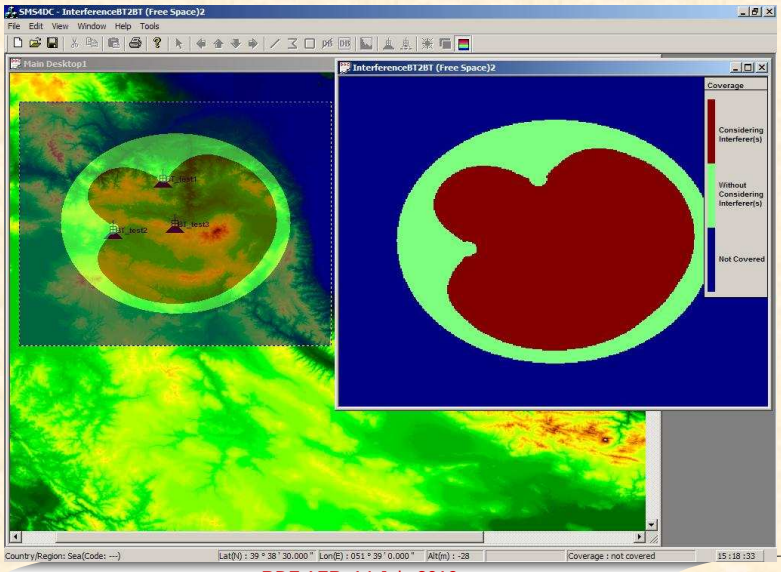
E < Threshold Value

E > Threshold Value



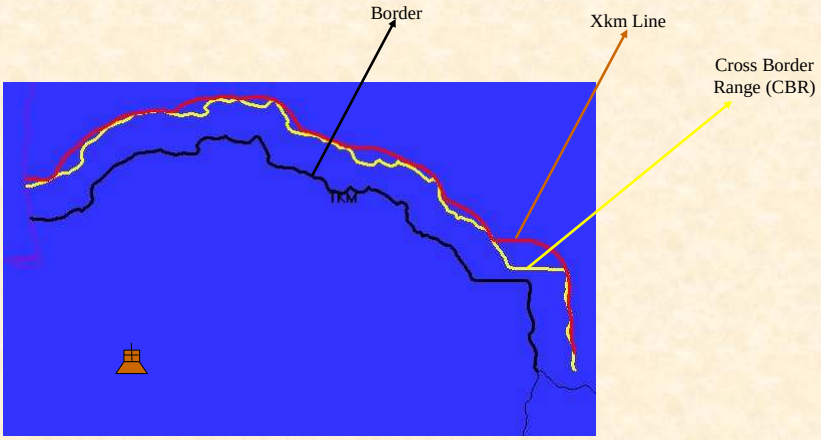
SMS4DC's Engineering Functions

Interference calculation BT to BT



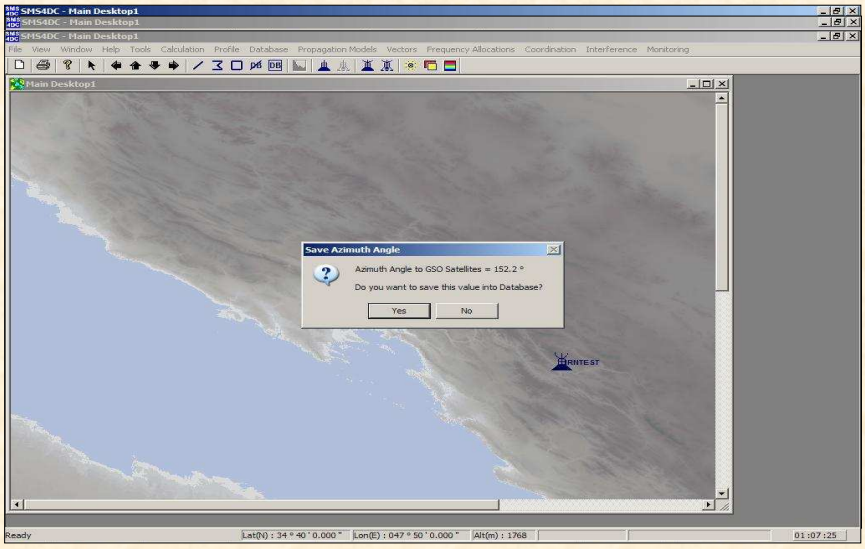
SMS4DC's Engineering Functions

Borderline frequency coordination



SMS4DC's Engineering Functions

ES horizon elevation, azimuth, elevation



SMS4DC's Engineering Functions

Calculations according to the Final Acts of the GE06 Plan

Coverage and service area calculation

Stage 1 – Calculation of noise-limited coverage area
Stage 2 – Identification of interferers
Stage 3 – Calculation of the test points for the interference-limited coverage

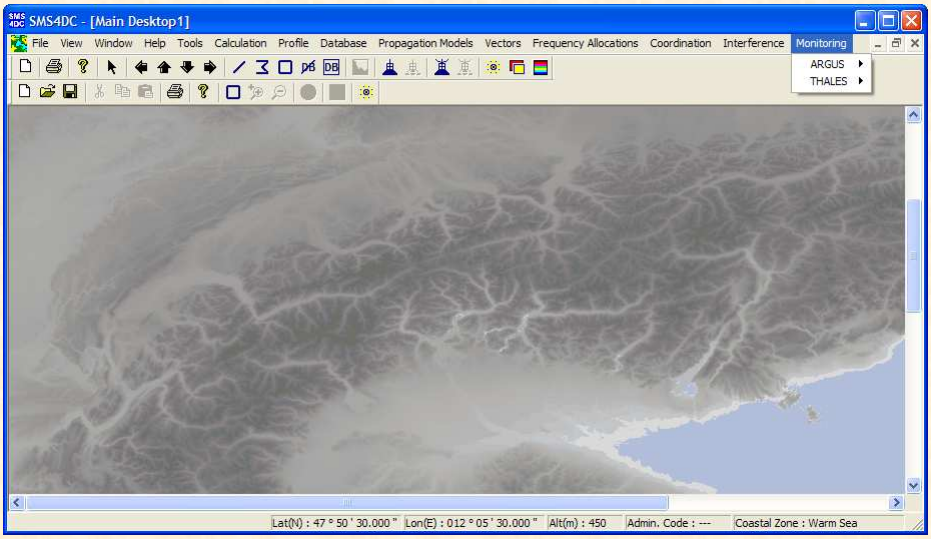
Calculation of interference caused by Interferer Station/ Assignment/Allotment to Victim Stations/Assignments/ Allotments

- BCBT to Digital BCBT or to Analogue BT;
- FXM to Digital BCBT or to Analogue BT;
- BCBT to FXM

Official results from the BR !

SMS4DC's Engineering Functions

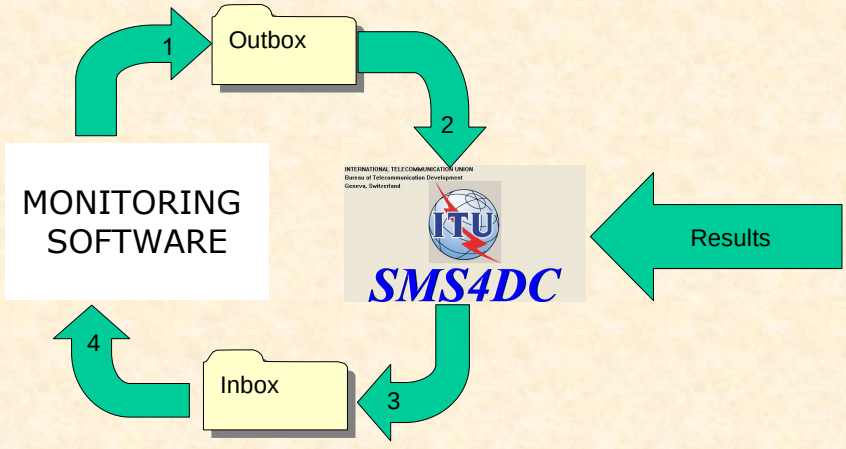
SMS4DC and monitoring software interface



SMS4DC's Engineering Functions

SMS4DC and monitoring software interface

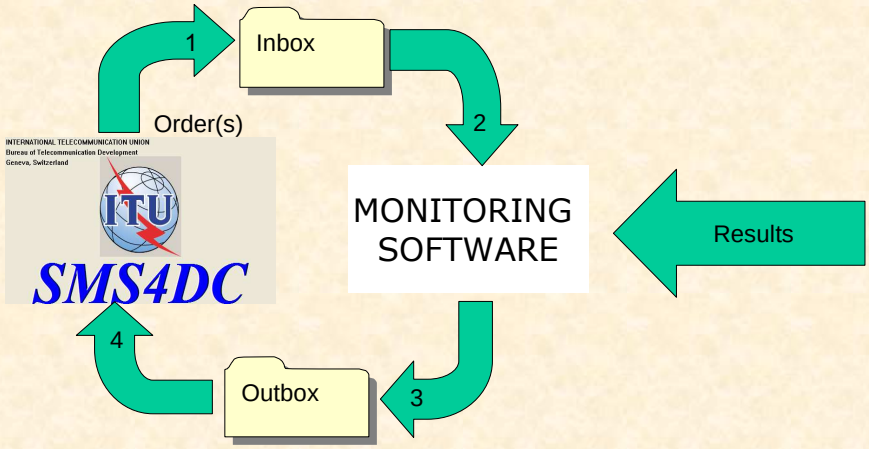
Monitoring request to SMS4DC



SMS4DC's Engineering Functions

SMS4DC and monitoring software interface

SMS4DC order to monitoring



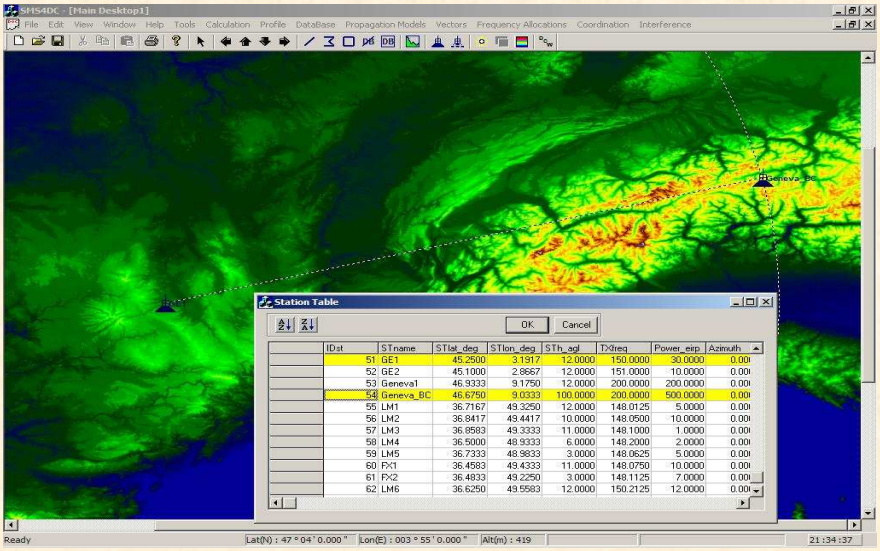
SMS4DC's Engineering Functions

SMS4DC and monitoring software interface
Output examples

See during the demonstrations

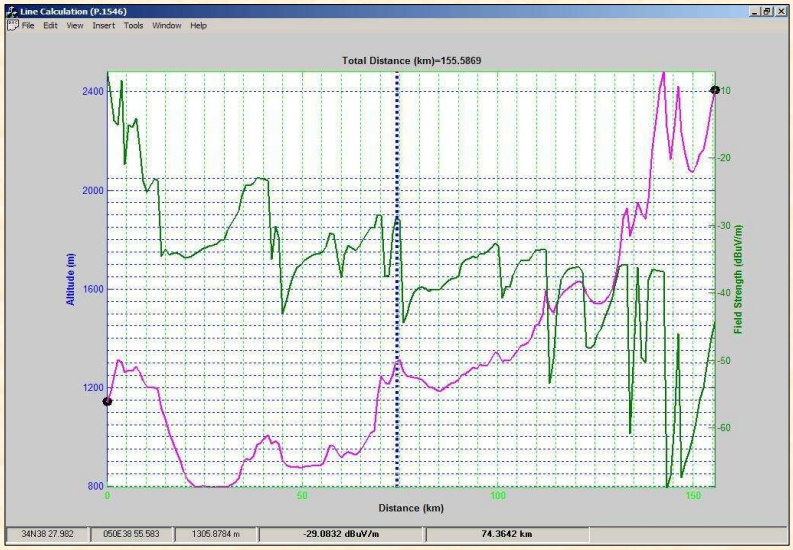
Geographic Map Display functions

Drawing line from database



Geographic Map Display functions

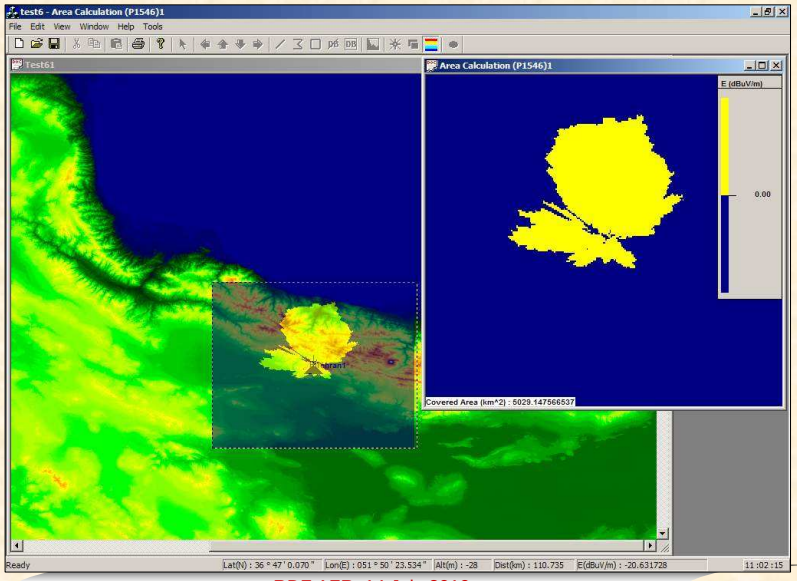
Field-strength along a line



Ex8

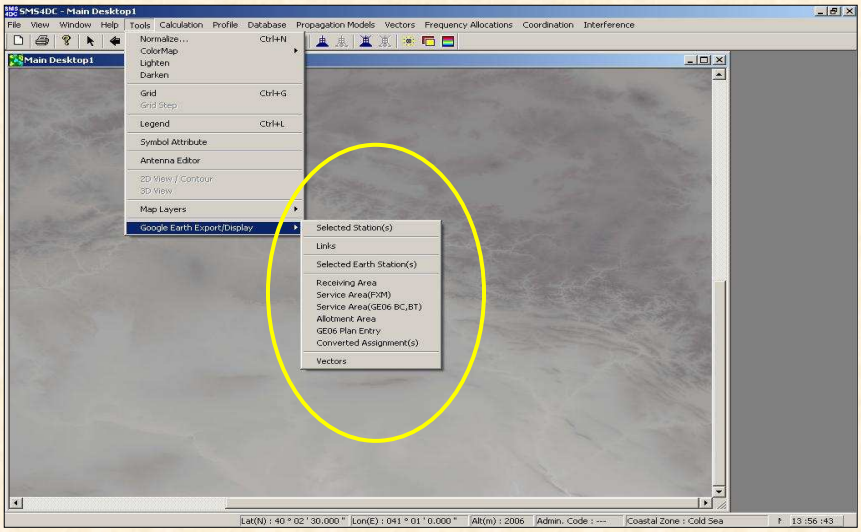
Geographic Map Display functions

Overlay possibility



Geographic Map Display functions

Google Earth export



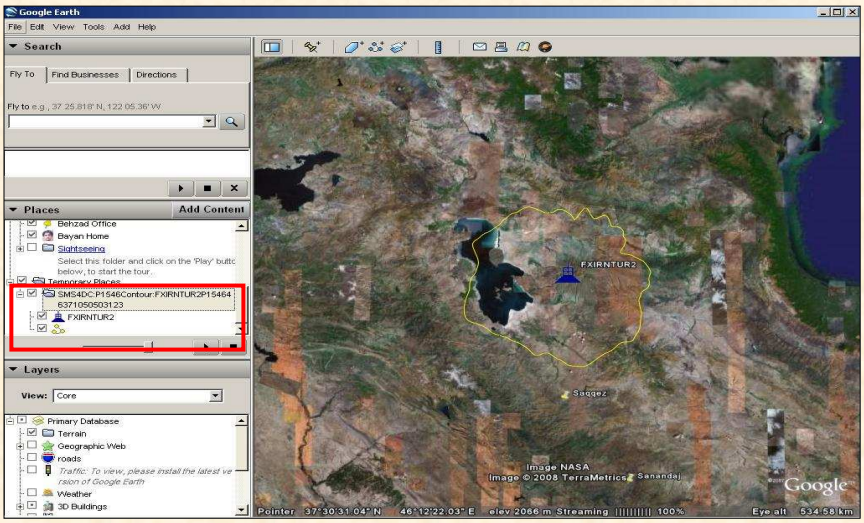
Geographic Map Display functions

Google Earth – results to export

- Selected Stations (Including Earth Stations)
- Selected Links
- Receiving Area
- Service Area
- Allotment Area
- GE06 Plan Entry
- GE06 Converted Assignments
- Vectors
- Area Propagation Calculation
- Maximum Field Strength Calculation,
- Best Server Calculation
- Field Strength Contour

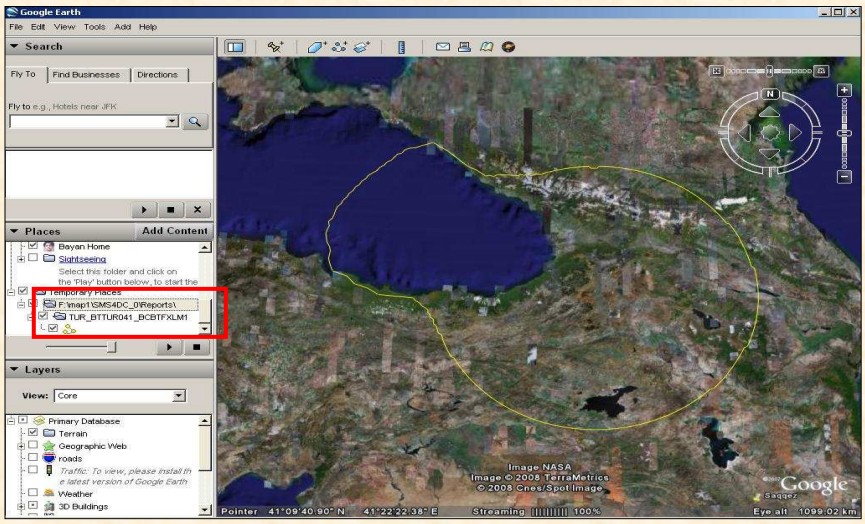
Geographic Map Display functions

Google Earth Display - Field Strength Contour (P.1546)



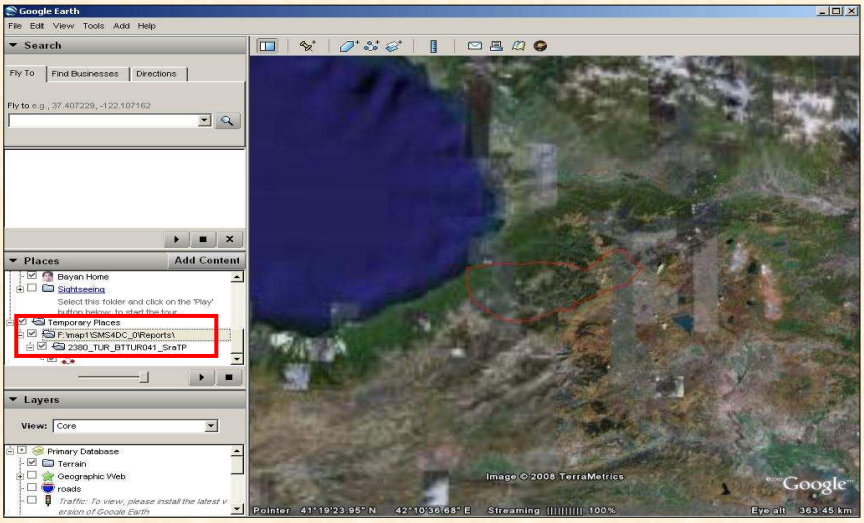
Geographic Map Display functions

Google Earth Display - GE06 (BCBT2FXLM)



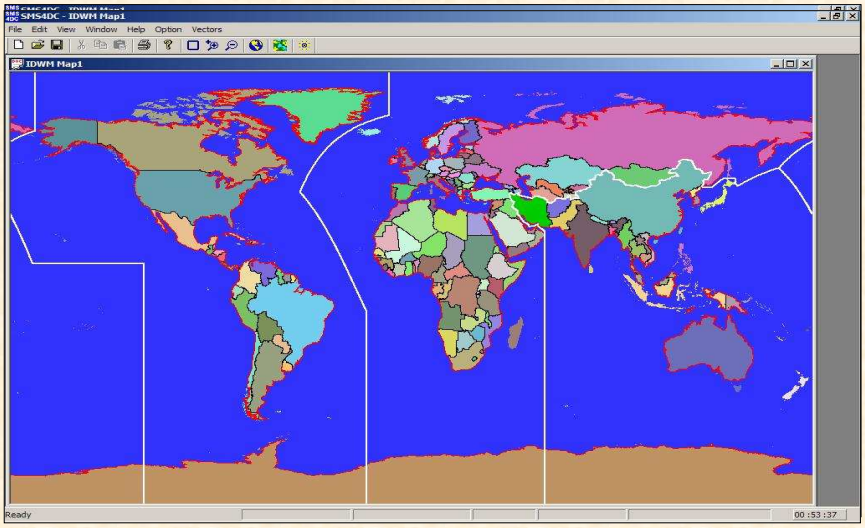
Geographic Map Display functions

Google Earth Display – GE06 Service area



Geographic Map Display functions

Fill countries



How to order SMS4DC

http://www.itu.int/publ/D-STG-SPEC-2009-V3.0/en

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Spectrum Management System for Developing Countries (SMS4DC) - Version 3.0

Edition 2009

The Telecommunication Development Bureau (BDT) of the International Telecommunication Union (ITU) has released the third version of a harmonized, efficient, automated technical and administrative tool for spectrum management in developing countries under the brand name SMS4DC (Spectrum Management System for Developing Countries). The version 3.0 contains an upgrade to display results on Google Earth; provide links between SMS4DC and the ARGUS monitoring software of Rohde & Schwarz; the frequency allocation table approved by WRC-07 and additional enhancements to the Version 2 of the software.

SMS4DC is sold as an integrated software package on CD-ROM containing the Software, a user manual and Digital Terrain Map of the world. SMS4DC software is available in English, with the user manual in English.

No facilities of services regarding data migration or specific software support or training are included in this Publication. It may be necessary for some users to obtain assistance in order to take full advantage of SMS4DC. ITU invites users having special needs to contact BDT (bdtmail@itu.int) to discuss specific assistance possibilities.

Availability: now available

Table of contents

ITEM DETAIL		ARTICLE	PRICE	CART
ENGLISH	Programme Installation Guide - Free of charge		Free of charge	DOWNLOAD
	CD	34309	4860 CHF	ADD
	Part.1 User's Guide - Free of charge		Free of charge	DOWNLOAD

Publication Notice with Order Form

How to order SMS4DC

Annual licensing fee

Annual licensing fee in Swiss francs	Catalogue Price (software) annual licensing fee: (for a single workstation)	CHF 4 860.–
	Member State Administrations and Sector Members:	–15%
	Administrations of the least developed countries:	– 80%
	Libraries of educational institutions:	– 80%

Price for software installed on one single or multiple workstation(s)

Number of workstations	1	2-3	4-5	6-10
Annual licensing fee (in Swiss francs)	4 860.–	7 290.–	8 260.–	9 720.–

Future developments

- French version
- Addition of new services (e.g. radionavigation, maritime mobile)
- SMS4DC web-site
- Purchase follow-up
- On-line training material

Thank you!

istvan.bozsoki@itu.int

http://www.itu.int/ITU-D/tech/spectrum-management/SMS4DC.html

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