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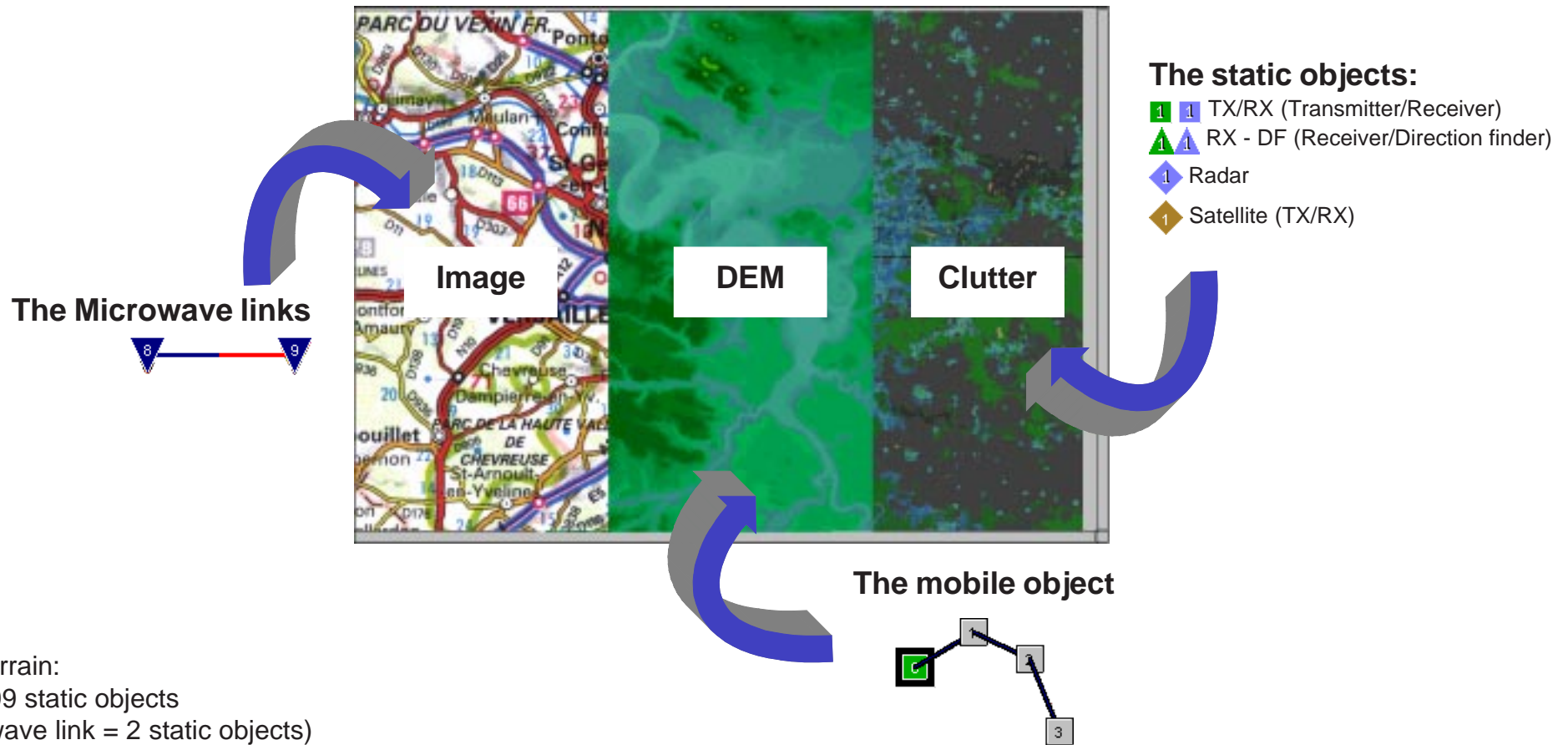
The Objects

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TYPES OF OBJECTS

THE TERRAIN



On the terrain:

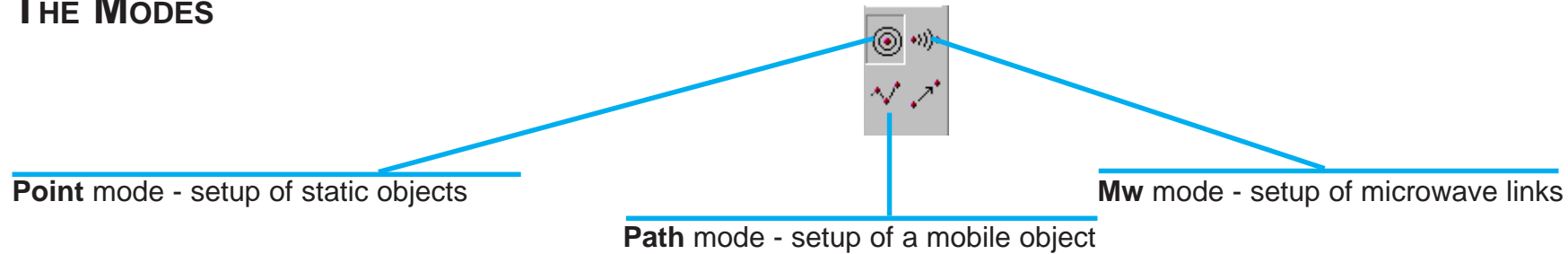
- up to 999 static objects
(1 microwave link = 2 static objects)
- a path trajectory with up to 49 nodal points (way points)

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SETUP OF OBJECTS

THE MODES



TO SET UP A STATIC OBJECT USING THE MOUSE CURSOR:

- 1- Click left on the mode corresponding to the object to be set up (Point or MW mode)
- 2- Move the cursor on the terrain using the mouse, or by pressing the  keys
- 3- In the Coordinates zone, control the coordinates of the point touched by the cursor:



The coordinates are in real time given according to the location of the cursor on the map.

- 4- Click left when the coordinates of the point are correct.
- 5- The parameters box is open (**Tx/Rx parameters** box for a static object, **Microwave link parameters** box for a microwave link). Enter the parameters, then confirm and close the parameters box via the Close button. The object is set up on the terrain and its icon is displayed at the chosen location.

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SETUP OF OBJECTS

SETUP OF OBJECTS ACCORDING TO X, Y AND Z COORDINATES:

The input of coordinates is done in a specific dialogue box: The Site coordinates box.

Access to Site Coordinates box

Point mode

- 1- Click left on **Point** mode
- 2- Move the cursor on a point of the terrain
- 3- Press p key (small letter)
- 4- The Site coordinates box is open.

MW mode

- 1- Click left on **MW** mode
- 2- Move the cursor on a point of the terrain
- 3- Press p key (small letter)
- 4- The Microwave link parameters box is open. Click left on one of the site coordinates buttons:
- 5- The Site coordinates box is open.

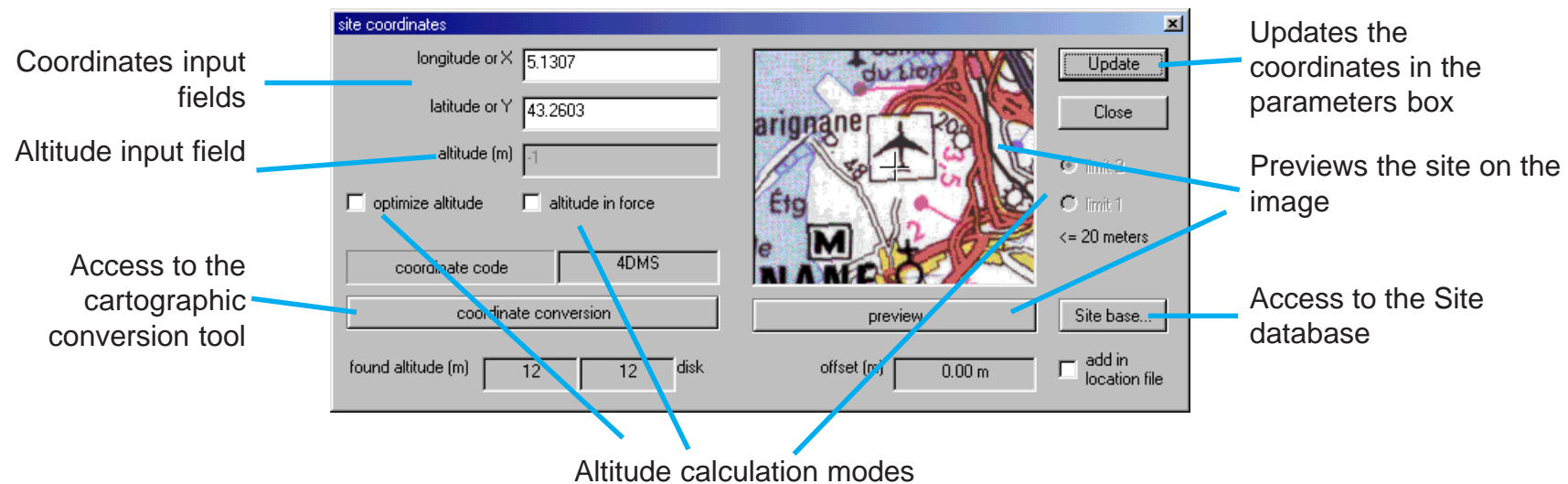
2.1733 49.1251 121

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SETUP OF OBJECTS

The Site Coordinates box



The Site coordinates box allows not only to input the site coordinates, but also to verify the site location on the Image, to verify the altitude given with the one found on the DEM file, and to access the Site database.

1- Enter the X and Y coordinates in the corresponding input fields

2- You can use the altitude calculation modes:

- **optimise altitude** : takes into account the altitude entered, and searches around the location on the DEM file (1 or 2 pixels around), the point which altitude is the nearest

- **altitude in force** : keeps the entered altitude and modifies the DEM file

Then enter the altitude. You can also not entered an altitude ; the system will take into account only the X and Y coordinates and will keep the altitude found on the DEM file for this location.


3- Click left on the **Preview** button. The Image shows the location of the site. Confirm by clicking on the **Update** button.

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SETUP OF OBJECTS


SETUP OF A MOBILE OBJECT:

- 1- Click left on the **Path** mode
- 2- Move the cursor on the terrain using the mouse or press the arrows keys 
- 3- Control the coordinates of the point touched by the cursor in the Coordinates zone:

long	5.1237	lat	43.2336	alt	25	clut	0	S:	-1	dBμV/m	0	cx	0	P	210.227	D	000.00 km	Az°	0.0°
------	--------	-----	---------	-----	----	------	---	----	----	--------	---	----	---	---	---------	---	-----------	-----	------

The coordinates are in real time updated according to the point touched by the cursor.

- 4- Click left when the cursor is correctly located. The first nodal point, Wp 0 is setup. This nodal point 0 is not taken into account in the calculation. It is used to display the type of mobile object that is simulated on the path.
 - 5- Move the cursor to the point where the nodal point n°1 must be installed, and click left to confirm the position.
 - 6- Repeat the action for all nodal points to be installed (maximum 49 nodal points).
 - 7- To modify the position of one nodal point, click right on the nodal point to be moved, then move the cursor to the new position, and click right. The nodal point has been moved.
- To delete one nodal point, click left on the nodal point. A message prompts the user to confirm the action. Answer Yes to delete the point, answer No to keep the point.

Note : the parameters of a mobile are input in a specific dialogue box, the **Mobile Report** box that can be access via the **objects list**  - choose **Way point list**.


The mobile is parametered like a static object. But it can have a different power and altitude at each nodal point (variable height and variable power options).

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SETUP OF OBJECTS

SETUP OF ONE SUBSCRIBER ON THE TERRAIN:

- 1- Create or load the Subscriber database that will store the subscriber to be created
- 2- Click left on the **Point** mode
- 3- Move the cursor on the terrain using the mouse, or press the arrows keys 
- 4- Control the coordinates of the point touched by the cursor in the Coordinates zone:



long	5.1237	lat	43.2336	alt	25	slat	0	S:	-1	dBpV/m	0	cx	0	P	210.227	D	000.00 km	Az°	0.0°
------	--------	-----	---------	-----	----	------	---	----	----	--------	---	----	---	---	---------	---	-----------	-----	------

The coordinates are in real time updated according to the point touched by the cursor.

- 5- Click right when the cursor is correctly positioned.
- 6- A Popup menu is open. Choose option **Add subscriber**.
- 7- The Subscriber parameters dialogue box is open. Enter the parameters of the subscriber, then confirm and close the parameters box via the **Close** button.
- 8- One subscriber has been set up on the terrain at the chosen location and has been inserted in the current Subscribers database.

SETUP OF MANY SUBSCRIBERS ON THE TERRAIN:

The setup of many subscribers can be done using the **Area selection** tool (a clutter file linked to the project is required) or the **Polygon selection** tool

- 1- Create or load the Subscriber database that will store the subscribers to be created
- 2- Click left on the **Area selection** tool  or on the **Polygon selection** tool 
- 3- Draw the rectangular or the polygonal area where the subscribers have to be setup : click left on the terrain to draw the shape, and click right to finish the shape
- 4- For a polygonal area, choose continue option of the first Popup menu
- 5- A Popup menu offers various options - choose option **Generate subscriber**
- 6- A specific dialogue box 'Distribution filter' is open. Choose the possibly filters to be applied to the terrain or to the clutter, enter the maximum number of subscribers to be created in the area, and choose the rule : inside area or outside area. Click on Parameters button to access the Subscriber parameters box.
- 7- Run the action by pressing **Start** button. The subscribers are created inside or outside the selected area and are automatically saved into the current Subscriber Database.

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THE SETTINGS OF OBJECTS

THE SETTINGS OF STATIC OBJECTS

The settings of static objects are chosen and are input into the **Tx/Rx parameters** dialogue box.

- **General tab**: general settings of the object

- **Patterns tab**: settings of antenna patterns, access to the Antenna database, to the RPE antenna database, 2D and 3D mode, tilt, azimuth, polarisation, parabolic antennas

- **Channels tab**: multi-channels setting, access to the Group base

- **Site tab**: site location setting, effective heights, constraints areas setting, object display properties (icon, extend radius, polygon, site colour)

- **Advanced tab**: expert setting (carrier, KTB, TIL, E_c/I_0 , E_b/N_0 , bit rate, launch delay, activity), specific TV setting, traffic parameters, DF parameters, and receiver rejections

- **Radar tab**: specific settings dedicated to the Radar object.

The screenshot shows the 'Tx/Rx parameters' dialog box with the following fields and controls:

- General tab** (selected):
 - Type: Tx/Rx A
 - Signal: radiocom
 - No: No 4
 - activated:
 - Nominal power (W): 50.0000
 - Dynamic (dB): 50
 - Tx ant gain (dBi): 0.00
 - Rx ant gain (dBi): 0.00
 - Losses (dB): tx 0.00 rx 0.00
 - E.I.R.P (W): 50
 - Frequency (MHz): 100.00000
 - Antenna height (m): 15.00
 - Tx bandwidth (KHz): 25.00
 - Rx bandwidth (KHz): 25.00
 - equipment base:
 - Load: Save:
- Patterns tab**:
- Channels tab**: Coverage:
- Site tab**: Status:
 - variable power
 - fixed power
 - fixed frequency
 - freqhop/wide band
 - variable elevation
 - fixed elevation
- Radar tab**: Info:
 - Call-sign: c368663
 - address: c368663
 - date: 20000228
 - info (1): * type: C
 - info (2): F3E link: LS
 - region: * code dif: ICS
 - user: * call number: 0
 - Report... Multimedia...
 - OK Annuler

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THE SETTINGS OF OBJECTS

THE SETTINGS OF THE MICROWAVE LINKS

The settings of microwave links are defined in the **Microwave link parameters** dialogue box.

- **General tab**: general settings of the microwave link

- **Patterns tab**: settings of antenna patterns, access to the Antenna database, to the RPE antenna database, 2D and 3D mode, tilt, azimuth, polarisation, parabolic antennas

- **Site tab**: site location setting, constraints areas setting, site and link colour, path validity checking

- **Equipment tab**: choice of equipments in the respective data bases: microwave link, feeder, connection, antennas, multiplexor

The screenshot shows the 'Microwave link parameters' dialog box with the following settings:

- General tab:** Ident: [.....], Date: 20000428, User: [.....], Base: [.....], NFD: [.....], bi-directional, Passive..., Reflector: 0.0 dB, Param: [.....]
- Station A:** Site name: item 1, info (1): item 3, info (2): item 2, Freq (MHz): 100.00000, F2 MHz: 2000.00000, 1st antenna: 15.00 m, 2nd ant: 20.00 divers, Gain (dB): 20.00, Losses (dB): 2.00 tx 2.00 rx, Power (dBm): 50.00, EIRP A (W): 6309.5734
- Station B:** Site name: item 1, info (1): item 3, info (2): item 2, Freq (MHz): 100.00000, F2 MHz: 2000.00000, 1st antenna: 15.00 m, 2nd ant: 20.00 divers, Gain (dB): 20.00, Losses (dB): 2.00 tx 2.00 rx, Power (dBm): 50.00, EIRP B (W): 6309.5734
- Common:** Bandwidth (KHz): 25.00, Mbit/s: 2.00, Thresh. (dBm) -6/-3: -83.00 / -88.00, KTBF (dBm): -97, PSK: 0, Modulation: undefined
- Receiver rejection (dB) +:**

N=0	0	<input checked="" type="checkbox"/>	N=5	0	<input checked="" type="checkbox"/>
N=1	0	<input checked="" type="checkbox"/>	N=6	0	<input checked="" type="checkbox"/>
N=2	0	<input checked="" type="checkbox"/>	N=7	0	<input checked="" type="checkbox"/>
N=3	0	<input checked="" type="checkbox"/>	N=8	0	<input checked="" type="checkbox"/>
N=4	0	<input checked="" type="checkbox"/>			

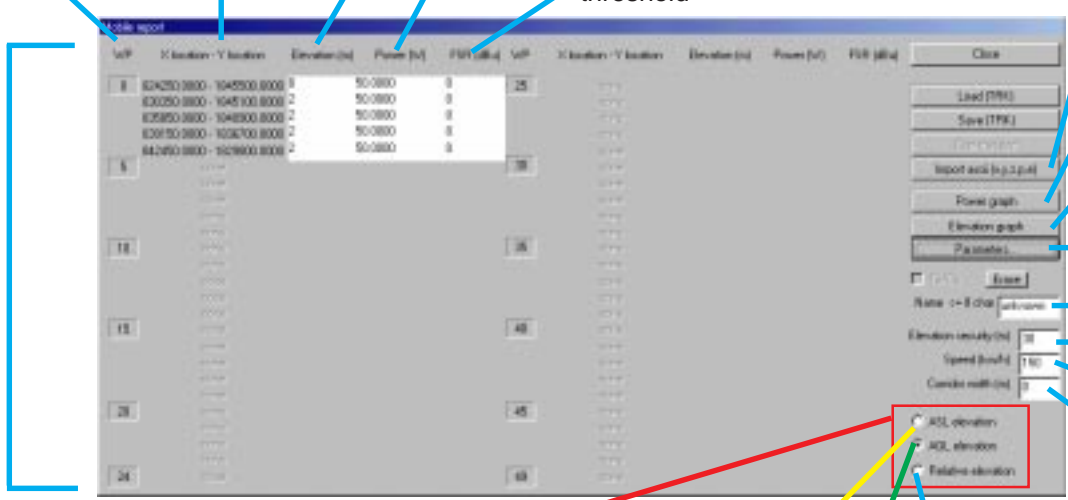
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THE SETTINGS OF OBJECTS

THE SETTINGS OF A MOBILE OBJECT

The parameters of the mobile object are defined in the **Mobile report** dialogue box (access via the Path button  Path).



Number of the Way point

X and Y coordinates

Altitude

Power

Receiving threshold

Parameters at each nodal point (Way Point) of the trajectory

WP	X location	Y location	Elevation (m)	Power (W)	FSR (dB)	WP	X location	Y location	Elevation (m)	Power (W)	FSR (dB)
1	624250.8800	1042500.8000	3	50.0800	3	25					
2	620250.8800	1042100.8000	2	50.0800	3						
3	625950.8800	1042800.8000	2	50.0800	3						
4	629150.8800	1026700.8000	2	50.0800	3						
5	642950.8800	1029800.8000	2	50.0800	3	30					

Import of an ascii file containing the characteristics of a trajectory

Display of the power graph calculated along the path trajectory

Display of the elevation graph calculated along the path trajectory

Opens a Com parameters box to define the mobile parameters

Name of the trajectory (8 characters)

Security altitude of the mobile

Speed of the mobile

Corridor width along the path trajectory

Elevation modes

elevation above sea level

relative elevation

elevation above ground

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THE SETTINGS OF OBJECTS

THE SETTINGS OF THE SUBSCRIBER

The settings of the subscriber are chosen in the **Subscriber parameters** dialogue box.

The screenshot shows the 'Subscriber parameters' dialog box with the following sections and labels:

- Call sign of the parent base station:** Points to the 'Call sign' field.
- Access to the Site coordinates box:** Points to the 'Location' field.
- Coordinates of the site:** Points to the 'X' and 'Y' coordinate fields.
- Site location file:** Points to the 'Site code' field.
- Utilities:** Points to the 'Utilities' button.
- General parameters:** Points to the 'Basic parameters' section.
- Parameters used in the Interference calculations:** Points to the 'Interference parameters' section.
- Antenna configuration:** Points to the 'Antenna' section.
- Interference rejection factors and Net filter discrimination (NFD) mask:** Points to the 'Interference rejection (dB)' section.
- Parent base station frequencies:** Points to the 'Parent base station frequencies' section.
- Traffic calculation parameters:** Points to the 'Traffic calculation parameters' section.
- Access to the Multimedia database:** Points to the 'Multimedia' button.
- Saving / loading of a file containing the subscriber parameters:** Points to the 'Load' and 'Save' buttons.
- Access to data bases:** Points to the 'Access to data bases' section.

Note: threshold, polarization, frequencies, azimuths and call sign are those of the parent base station

DISPLAY OF OBJECTS ON THE TERRAIN

STANDARD ICONS

ICS-telecom uses standard icons to represent the objects on the terrain. The black colour is used to show that one static object is deactivated. Some simulations will consider the objects according to their activity status. The numbering is automatic and depends on the arrival order of objects on the terrain. Default colours are defined for the standard icons and microwave links. These colours may be modified in the Parameters box of the object (**Tx/Rx parameters** box and **Microwave link parameters** box - **Site** tab) and be applied using the **User defined color** mode (**Display object properties** box).

Static objects (Point mode)

 Tx/Rx A  Tx/Rx B (Transmitter/Receiver)

 DF A  DF B (Receiver/Direction finder)

For both types, two colours (green and blue) are used to differentiate two networks : network A and network B.

 Radar

 Earth station


Microwave links (Mw mode)


 unidirectional link

 bidirectional link

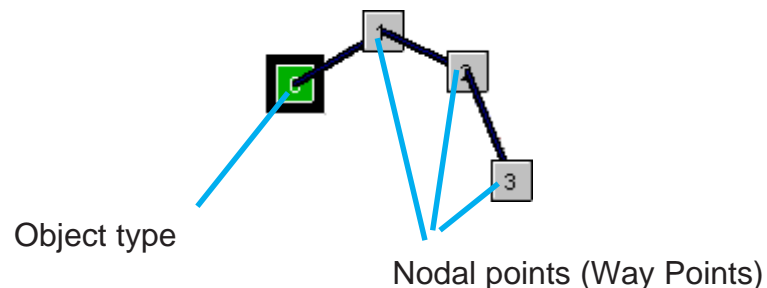
 unidirectional link with margin < to 2

 bidirectional link with margin < to 2

 unidirectional link with threshold impairment

 bidirectional link with threshold impairment

Mobile object (Path mode)



Any type of object can be configured on the path trajectory. The corresponding icon is displayed on Way point 0. This way point 0 is not taken into account in calculations. Nodal points are located on the sites where the mobile will be simulated.



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DISPLAY OF OBJECTS ON THE TERRAIN

USER ICONS

The user may use other icons than the standard icons, and may define one single icon for all objects, or a different icon for each object. The icon must be stored in a 16 colours bitmap file.

A specific data base is dedicated to the graphic icons. This database is already filled with some graphic icons and can be filled in by the user.

The **Icon** button find in the parameters dialogue box gives access to this database.

The icon is chosen in a specific dialogue box the **icon selection** box, and each icon can be edited using an Icon editor (**Icon editor** box).

Use of the icons contained in the database

- 1- The **Point** mode has to be activated
- 2- Click left on the terrain at the site location of the object, or move the cursor on the object icon and select the object.
- 3- The **Tx/Rx parameters** is open. Go to the **Site tab** then click left on the **Icon** button.
- 4- The **Icon selection** box is open. Click left on one icon in the list. This icon is assigned to the object.

Filling up of the icons database

- 1- Draw the 16 colours icon in any graphic application, and save it in a .bmp bitmap file
- 2- Through the Windows™ Explorer™, copy the file in the c:\ics\images directory

Creation of an icon using the Icon editor

- 1- Open the **Icon selection** box via the **Icon** button of the **Tx/Rx parameters** box
- 2- In the *Enter name* field, enter the name of the new icon
- 3- Click left on the **Edit** button
- 4- The **Icon editor** box is open. A new icon can be drawn using the Brush tool. This icon can also be copied from a 16-colours icon file loaded in a graphic application, then it can be pasted into the Icon editor box using the **Paste** button. Close the Icon editor box via the **OK** button.
- 5- In the **Icon selection** box, the new icon has been added to the list and can selected and assigned to an object.

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DISPLAY OF OBJECTS ON THE TERRAIN

THE OBJECT DISPLAY OPTIONS

The object is represented on the terrain by either the standard ICS-telecom icon, or the user icon, or a cross.

Complementary information regarding the object can be displayed: labels that may contain text information (call sign, frequency, coordinates, bit rate); the azimuth displayed as a red arrow; the constraints areas, the specific areas (ILS...); the vector polygon associated with the object. All display options are offered in the **Object display properties** box, that can be access via the **Object properties** function of the **Tools** menu.

The image shows the 'Object display properties' dialog box with several sections and options:

- Site color:** Radio buttons for 'User defined color' and 'Default color'.
- Labels:** Radio buttons for 'Display limited labels' (with sub-options for call-sign, frequency, address), 'Display extended labels (*)', and 'No label'.
- Vector files:** Checkboxes for 'Display vectors...', 'Display population...', and 'Display population...'. A note below states '(*) not printable'.
- Subscribers:** Radio buttons for 'Location' and 'Address*'. A note below states '(***) Use Interference/Down links functions to update subscriber C/I'.
- Tx/Rx directivity:** Checkboxes for 'Display horizontal pattern (*)', 'Display azimuth', and 'User palette'.
- Icon:** Radio buttons for 'All standard', 'All BMP 16x16', 'All BMP 32x32', 'All cross', and 'From Tx/Rx parameters'.
- Zone around Tx/Rx:** Radio buttons for 'Display extended radius', 'Display constraint', and 'None'. Checkboxes for 'Polygon' and 'Special area'.
- Min C/I for interference display:** A text field with '20 dB**'.

Color-coded lines connect these options to various map examples on the right:

- Red lines connect 'Display limited labels' (call-sign, frequency, address) to maps showing call signs, frequencies, and addresses.
- Yellow lines connect 'Display extended labels (*)' to maps showing extended labels like coordinates and bit rates.
- Blue lines connect 'Display vectors...' to maps showing vector polygons.
- Green lines connect 'Display population...' to maps showing population data.
- Black lines connect 'Display azimuth' to maps showing red arrows.
- Black lines connect 'Display horizontal pattern (*)' to maps showing horizontal patterns.
- Black lines connect 'User palette' to maps showing user-defined icons.
- Black lines connect 'All standard' to maps showing standard ICS-telecom icons.
- Black lines connect 'All BMP 16x32' to maps showing BMP icons.
- Black lines connect 'All cross' to maps showing cross icons.
- Black lines connect 'From Tx/Rx parameters' to maps showing icons derived from parameters.
- Black lines connect 'Display extended radius' to maps showing extended radius zones.
- Black lines connect 'Display constraint' to maps showing constraint zones.
- Black lines connect 'None' to maps showing no zone.
- Black lines connect 'Polygon' to maps showing polygon zones.
- Black lines connect 'Special area' to maps showing special area zones.

DISPLAY OF OBJECTS ON THE TERRAIN

DISPLAY OF OTHER OBJECTS

The path trajectory display can not be modified.

The Subscribers are displayed specifically. Only subscribers that have been selected in the current Subscribers database are displayed on the terrain and are taken into account in the calculations. Specific display options are dedicated to the subscribers: the **Subscriber** options of the **Object display properties** box.

Two types of subscribers: the parented subscribers, e.g. that are parented to a base station; and the orphan subscribers (connected to no station).

Display:

- parented subscriber: 


- orphan subscriber: 

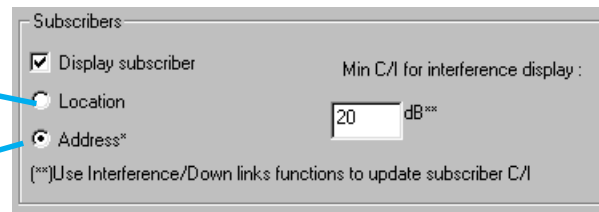
In the Object display properties box:

standard display of the subscribers

display of the subscribers addresses

 (parented subscriber)

 (orphan subscriber)



Subscribers

Display subscriber Min C/I for interference display :

Location dB**

Address*

(**) Use Interference/Down links functions to update subscriber C/I

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MANAGEMENT OF OBJECTS

THE SITE SELECTION TABLE

This table is open by pressing the Tab key.

All fixed object icons are displayed.

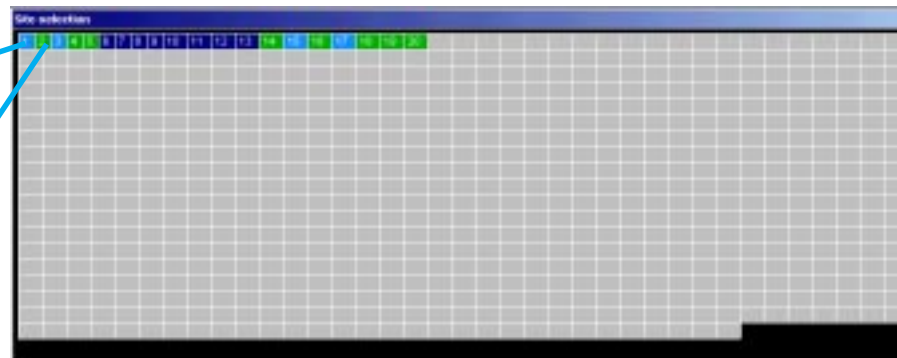
Colour code used:

- Green: Tx/Rx or DF of A type or satellite station
- Blue: Tx/Rx or DF of B type or radar
- Dark blue: microwave link

Two possible actions:

Click left: activates or deactivates the object

Click right: opens the parameters box of the object



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MANAGEMENT OF OBJECTS

THE AREA SELECTION AND THE POLYGON SELECTION TOOLS



These tools allow to select objects on the terrain, and offer various management options: activate/deactivate, delete, automatic generation of objects.

SELECTION OF OBJECTS

Area selection tool

- 1- Click left on the Area selection icon
- 2- Click left on the terrain at one end of the rectangular area
- 3- Move the cursor to the opposite end of the rectangle
- 4- A Popup menu is open and contains the management options :

generate site...	generates stations in the selected area
de-activate site	deactivates all objects selected in the area
activate site	activates all objects selected in the area
isolate site	activates all objects selected in the area and deactivates the objects located outside the area
delete site	deletes all objects selected in the area
move Tx/Rx site(s)	moves all objects selected in the area to another single site
break out Tx/Rx sectors...	moves the stations included in the defined zone to the same clutter code in the azimuth and according to a given maximum distance from the central point.
duplicate stations...	duplicates the the stations included in the selected area according to a given number of copies and to a given azimuth spacing.
rotate Tx/Rx antenna(s)	rotates the antennas of the the stations included in the selected area according to a given offset azimuth.
Tx/Rx site(s)...	lists all objects selected in the area
assign Tx/Rx sector and distance	allows to define the simulation sectors and the distance limit of each element present on the terrain towards the Selection zone in order to cover all points of the Selection zone
modify constraints	modifies the constraints setting of all activated elements included in the selected area by other parameters

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MANAGEMENT OF OBJECTS

Polygon selection tool

- 1- Click left on the Polygon selection icon
- 2- Click left at any point of the terrain
- 3- A first popup menu offers two options: **draw mask** option to draw the polygon on the terrain; **load mask** option to load a .plg file containing a polygon previously drawn and saved. Choose option **draw mask**
- 4- Click left on the terrain at each point of the polygonal shape. Click right to complete the polygonal shape.
- 5- Another popup menu is open and offers various options and the management options:

de-activate site	deactivates all objects in the selected area
activate site	activates all objects in the selected area
isolate site	activates all objects in the selected area and deactivates all objects located outside the area
delete site	deletes all objects in the selected area
move Tx/Rx site(s)	moves all objects contained in the selected area to another single site
rotate Tx/Rx antenna(s)	rotates the antennas of the the stations included in the selected area according to a given offset azimuth.
assign last polygon to...	assigns the last polygon that has been drawn to one station chosen by the user

SHORT-CUT

WITH NO TOOL ACTIVATED

- Ctrl + a: activates all objects present on the terrain
Ctrl + d: deactivates all objects present on the terrain

WITH THE AREA SELECTION TOOL ACTIVATED

- a: selects all the project area

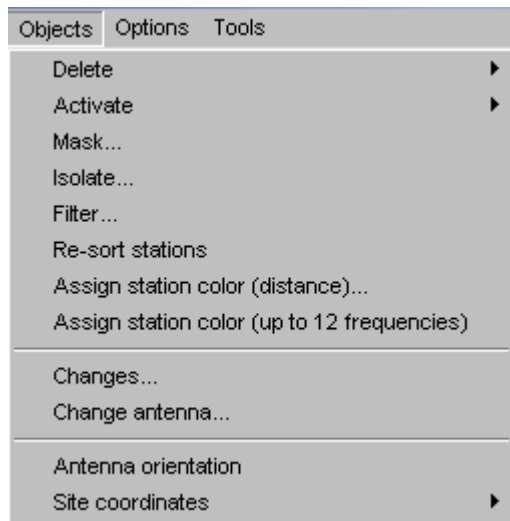
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MANAGEMENT OF OBJECTS

THE OBJECTS MENU

The functions of the **Objects** menu allow to delete, to activate, to deactivate, to mask the objects present on the terrain and sorted according to their type or to other criteria that can be defined by the user.



- **Delete** function: deletes all objects, or object of one type, or deactivated objects
- **Activate** function: activates all objects or those that correspond to selection criteria
- **Mask** function: deactivates objects that correspond to selection criteria
- **Isolate** function: activates objects that correspond to selection criteria - the other objects are deactivated
- **Filter** function: activates objects which locations correspond to the altimetric filter
- **Resort station** function: re-numbers the stations according to their site location
- **Assign station color** functions: assigns a colour to the activated stations by re-using the colour to a given distance of n metres, or assigns to each station a colour per frequency (12 colours)
- **Changes** functions: modifies the parameters or the antenna patterns of all activated objects
- **site coordinates** function: adjustment of the site coordinates according either to the altimetric file (DEM), or to the coordinates entered in the parameters box, or to the Site location file.

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MANAGEMENT OF OBJECTS

MANAGEMENT OF STATIC OBJECTS AND MICROWAVE LINKS BASES

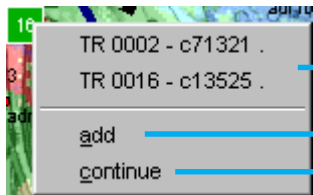
THE POINT MODE

The **Point** mode options manage the objects individually. Options are offered in a Popup menu.

Access to the Popup menu

1- Move the cursor on the icon of the object to be treated - the cursor shape changes for a hand

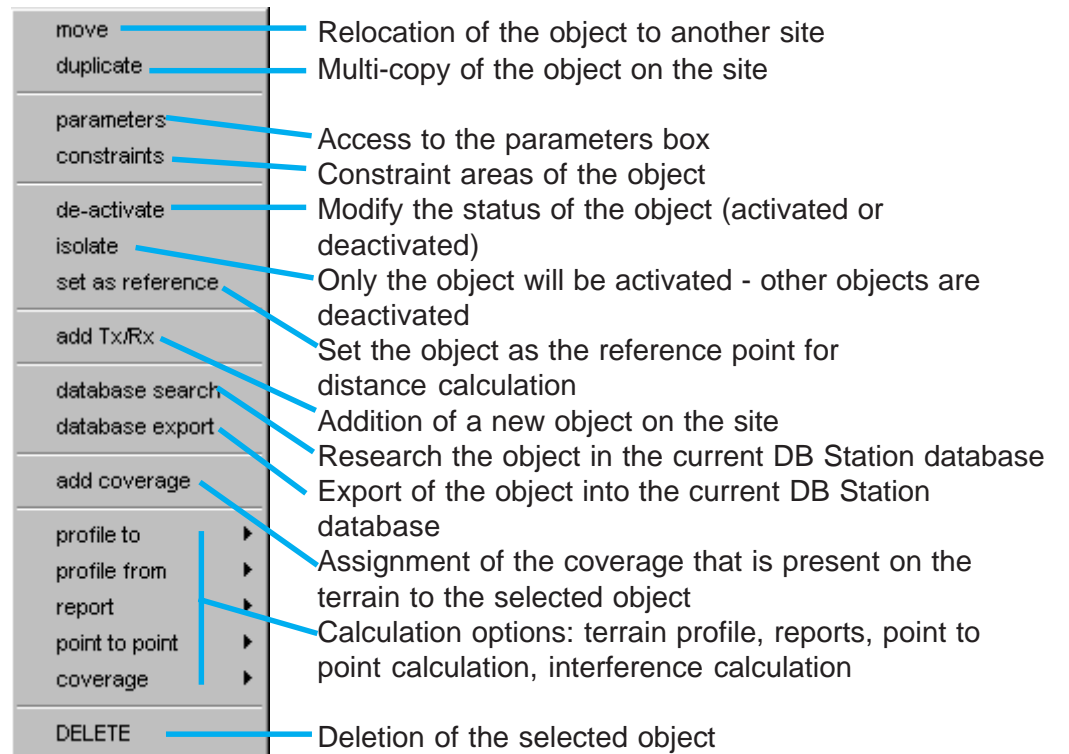
2- Click left on the icon. A first Popup menu offers two options:



- List of objects that are present on the selected site
- Addition of an object on the site
- Closing of the Popup menu without choice

3- Click left on the call sign of the object to be treated. The main Popup is open.

The left-click Popup menu



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MANAGEMENT OF OBJECTS

MANAGEMENT OF STATIC OBJECTS

THE STATIONS LIST

The **Station list** choice of the **List** button opens a list of all stations present on the terrain. Through a popup menu, this list offers multiple management options. Single or multiple selection of stations in the list is possible.

Click left = upward / downward sort of the stations

Ascii list of all selected stations with their characteristics

Access to a station with its icon number

Selected stations are activated - other stations are deactivated

Selected stations are deactivated - other stations are activated

Popup menu accessible by clicking right or double-clicking left.

Opens the parameters box

Activates the station

Deactivates the station

Isolates the station

Deletes the station

MS Excel report

Closes the Popup menu without choice

Record	Callsign	Address	Frequency (MHz)	Radiated power (W)	Antenna (m)	Type	Status	Cover	Polar
1	c915524	address	100	50	15	DF	activated	N	V
2	c328135	c731620	100	50	15	T/R	activated	C	V
3	c958036	c039033	100	50	15	T/R	activated	C	V
4	c599352	c368663	100	50	15	M-W	activated	C	V
5	c179509	c174321	100	50	15	T/R	activated	C	V
6	c135166	c222846	100	50	15	T/R	activated	C	V
7	c054261	c633442	100	250000	15	Radar	activated	C	V
8	c815210	c7316_90	100	50	15	T/R	activated	C	V
9	c848353	c7316_180	100	50	15	T/R	activated	C	V
10		parameters	100	50	15	T/R	activated	C	V
11		activate	100	50	15	M-W	activated	C	V
12		de-activate	100	50	15	T/R	activated	C	V
13		isolate	100	50	15	T/R	activated	C	V
14		delete	100	50	15	Sat	activated	C	V
15			100	50	15	T/R	activated	C	V
16			100	50	15	T/R	activated	C	V
17		XLS user report	100	50	15	DF	activated	N	V
18			6820	6309.57	11	M-W	activated	N	V
19			6820	6309.57	11	M-W	activated	N	V
20			6820	6309.57	11	M-W	activated	N	V
21	c506668	item 1	6820	6309.57	11	M-W	activated	N	V
22	c311105	item 1	6820	1 57739e+007	11	Radar	activated	N	V

Double click or right click for options

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MANAGEMENT OF OBJECTS

MANAGEMENT OF MICROWAVE LINKS

THE MICROWAVE LINK LIST

The **Microwave link list** choice of the **List** button opens a list of all microwave links present on the terrain. A popup menu offers management options. Single or multiple selection of microwave links is possible.

Click left = upward/downward sort of the microwave links

Popup menu open by a right click

Access the parameters box

Copies of the link

Activates the link

Deactivates the link

Isolates the link

Changes the frequency mode

Deletes the link

Closes the menu without choice

3

Interference wanted

Interference unwanted

Isolate

Mask

List

Goto record

Close

profile 020 -> 021

profile 021 -> 020

Threshold impairment - unwanted link

Threshold impairment - wanted link

Interference CAI

XLS user report...

continue

Terrain profile calculation

Threshold impairment and interference calculation

MS Excel™ report

Closes the menu without choice

Ascii list of all selected links characteristics

Access to a link by its icon number

Interference calculation

Isolates the selected links

Deactivates the selected links

Popup menu open by a left double-click

Record	Address A	Address B	Mode	Frequency A	Frequency B	Validity	Site A nb	Site B nb	Ident	Status
1	c543595	c689352	bi	100.1	100.1	enable	18	19	m7151305	activated
2	c348551	c873927	bi	100.2	100.2	enable	20	21	m4175817	activated
3	c911587	c089602	bi	100.3	100.3	enable	22	23	m7857436	activated

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MANAGEMENT OF OBJECTS

BACKUP OF THE OBJECTS

Objects that are setup on the terrain can be stored:

- into a **.ewf Network file**: this file stores all the characteristics of objects present on the terrain, and their possible associated coverage. With the coverage in, the file extent can be important.
- into the corresponding data base: **DB Station** or **DB MW**. The objects with their associated coverage are stored individually in files of .dat type (for the DB Station), and of .dam type (for the DB MW).

BACKUP OF OBJECTS INTO A .EWF NETWORK FILE

- 1- Objects are present on the terrain. Go into the **Files** menu, and choose option **Save / Save network file (.EWF)**.
- 2- Specify the disk path and enter the name of the .ewf file to be created, then confirm via the **OK** button.
- 3- The system offers to link the new network file to the current project: to the question 'Update project ?', Yes will link the file to the current project, No will ignore the action. The object file is created and is possibly linked to the current project.

IMPORT OF OBJECTS INTO THE CORRESPONDING DATABASE

DB Station database

In this database, static stations and microwave link stations can be imported.

- 1- Objects that have to be imported, must be activated (the deactivated objects are not imported). The system automatically checks the call sign of each object and imports only objects with different call signs. Control the call sign of the objects. If a call sign is used for many object, proceed to a reassignment of call signs, either manually in the **Tx/Rx parameters** box, or automatically using the function **Call sign** of the **Tools** menu (option **re-assign call signs**).
- 2- Load the DB station database in which the objects have to be imported (See the document 'The databases')
- 3- Go into the **Database** menu and choose option **Station database / Export activated elements**. After the control of call signs, the system imports all fixed com objects into the loaded DB Station.
- 4- Go into the **Database** menu, then choose option **Station database / Export microwave station**. The system verifies the call signs and imports the microwave links stations into the loaded DB station.
- 5- Open the **DB Station**. The new objects are displayed in the records list.

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MANAGEMENT OF OBJECTS

IMPORT OF OBJECT INTO THE CORRESPONDING DATABASE

DB MW database

Only microwave links can be imported into this type of database.

1- The microwave links to be imported must be activated (the deactivated microwave links are not imported). The system automatically checks the MW ident of each microwave link and imports only microwave links with different MW ident. Control the MW ident of the microwave links. If an MW ident is used several times, proceed to a reassignment of MW ident, either manually in the **Microwave link parameters** box, or automatically using the function **Call sign** of the **Tools** menu (option **re-assign MW ident**).

2- Load the DB MW database in which the microwave links must be imported (see the document 'The databases')

3- Choose option **Microwave link database / Export activated microwave links** of the **Database menu**. After checking of the identifiers of each microwave link, the system imports the active microwave links into the current DB MW database.

4- Open the Microwave link database. The database is open, the new microwave links are displayed in the record list.

Once imported, records can be sorted, deleted, simulated, modified using the tools of the database boxes.

THE OBJECTS : REPORTS AND PRINTOUTS

THE PRINTING OF OBJECTS ON THE TERRAIN

The objects may be printed overlaid on a cartographic layer: either on the Image, or on the Digital Elevation Model, or on the Clutter. Complementary information (labels with call signs or frequencies, specific areas) are also printable, except for information of extended label type, of horizontal pattern type and of subscriber address type.

- 1- Choose function **Print** of the **Files** menu.
- 2- The **print options** dialogue box is open and offers the printing options:

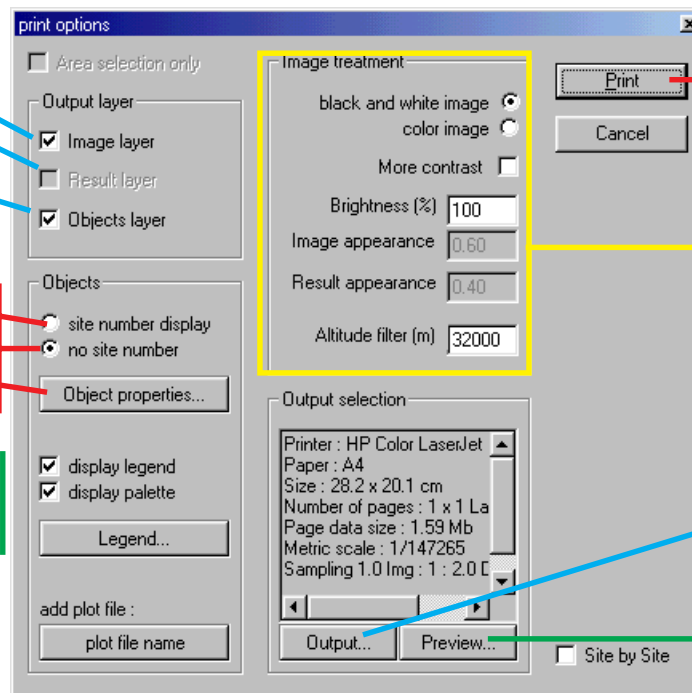
Choice of the layer to be printed

- the Image layer
- the result layer (coverage)
- the objects layer

Object printing options

- Icons (standard or user)
- not numbered coloured circles
- Access to the **Object display properties** box

Printing options and configuration of the legend



Starts the printing

Image printing options

Printing type:
file or printer

Preview before printing



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THE OBJECTS: REPORTS AND PRINTOUTS

THE REPORTS


TECHNICAL SHEETS

For each static station and each microwave link individually, technical sheets can be generated and printed.

The  button found in the **Tx/Rx parameters** box and in the **Microwave link parameters** box that generates the technical sheets. The sheet is displayed in a **Report** box. It can be printed and the object characteristics can be saved in a .txt ascii file.

THE OBJECT LIST

A list of selected objects can be generated and saved in a .txt or .csv ascii file.

In the **Station list**, and in the **Microwave link list**, the  button generates a temporary ascii file that contains the list of objects that have been selected, with their characteristics.

In the **DB Station** database, and in the **DB MW** database, the  generates a .csv file containing the characteristics of each objects that have been selected, organized in a table. The .csv file can be open using the MS Excel™ application.

THE MS EXCEL™ FORMS

For each object individually, the system generates a .csv file that contains the characteristics of the object and that can be linked with a MS Excel form created by the user. The links between the .csv file and the .xls forms are done in the MS Excel™ application.

The Popup menu of the Station list and of the Microwave link list offers the option **XLS User report** that enables such action.