Exercise 10: Use of Gain Interpolation Tools

Goal

Learn how to use the gain interpolation tools.

Task 1 : Evaluate the gain at points on the Earth

You can use the gain calculation tool to obtain an estimate of the antenna gain at any point on the Earth.

- Open, import or use an opened gain contour diagram

- Activate this tool by clicking on the corresponding button in the main toolbar,

- and then click on the diagram.

The value of the gain as well as the location of the point are displayed on the right-hand side of the status bar at the bottom of the window.

If you wish to find out the gain at a specific point,

- Select the **Tools | Interpolate** menu.

- Enter the longitude and latitude of the point

- Click Calculate

Task 2: Create an elliptical beam

Let us see now how one can create an elliptical beam that we will then use in the next task.

- Create a new gain contour diagram
- Accept the default satellite position
- Select the **Capture | –3dB Ellipse** menu.
- Capture an ellipse

    o that is centered on the position (5E, 45N)

    o with a major axis of 3 degrees and

    o a minor axis of 1 degree.

    o Click on OK

Task 3 : Generate a contour of a given gain

Using the gain interpolation algorithm, GIMS can generate contours with a user-specified gain value. This function is particularly useful in the case of elliptical beams, since a precise calculation is then effected using the antenna pattern. In the case of shaped beams, the result is highly dependent on the complexity of the pattern.

- Open, import or used an opened elliptical beam diagram (the one created in Task 2 for instance)

- Select the **Tools | Create Contour** menu and,

- without changing the gain values proposed, click on OK.