

## **How Much Data Was Collected Over a Target & What Percentage of the Target Was Covered.**

For the Qualification Round of StellarXplorers IV, teams will be required to collect data over a target area on the ground. Additionally, they will be required to determine what percentage of the target area was coverage by a satellite's sensor. This exercise will help prepare the teams to accomplish these tasks.

Calculating the amount of data collected can be performed using the standard STK version. However to calculate the percentage covered, teams will need to have the STK Education License (EAP) loaded into the computers.

Using the steps outlined below, teams should learn how to accomplish these two functions. The STK VDF file, Map\_Area\_Test.vdf, is provided to assist with this lesson.

### Data Collection: Total Coverage Time

Use the "Analysis – Access" function.

1. Select Object: "Map\_Sat – Map\_Scanner"
2. Target to Access: "Map\_Area"
3. "Compute"
4. Reports: Access
5. For this example: 552.353 minutes.

This data is available to download into an Excel spreadsheet.

### Data Collection: Percentage of an Area Covered

This is a new task and requires having the Education License (EAP) for STK.

1. Select "Map\_Coverage\_Area" from the Object Browser on the left side of the screen
2. Select "CoverageDefinition" from the top line tool bar
3. Select "Grid Inspector" from the CoverageDefinition drop down menu
4. Verify "Map\_Coverage\_Area" is in the "Inspect:" box
5. In the "Action" Box select "Select Region" from the drop down menu
6. In the "2D Graphics 1 – Earth" display window, click the mouse pointer anywhere inside the coverage area – "Map\_Area"
7. The "Percentage of Region Covered" should be displayed in the Grid Inspector's Message window
8. For this example: 10.66%

These tasks look complicated, but after a few attempts the process should become easy to run.

Teams should modify the orbit of the Map\_Sat and/or change the Half Come Angle of the Map\_Scanner to observe the change in the data collected and the percentage covered by the satellite.