FACULTY OF ELECTRONICS

COMPUTER ENGINEERING AND TELECOMMUNICATIONS DEPARTMENT

LABORATORY WORK #8

Modeling 4G Mobile Coverage Optimisation

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Teacher: Artūras Medeišis

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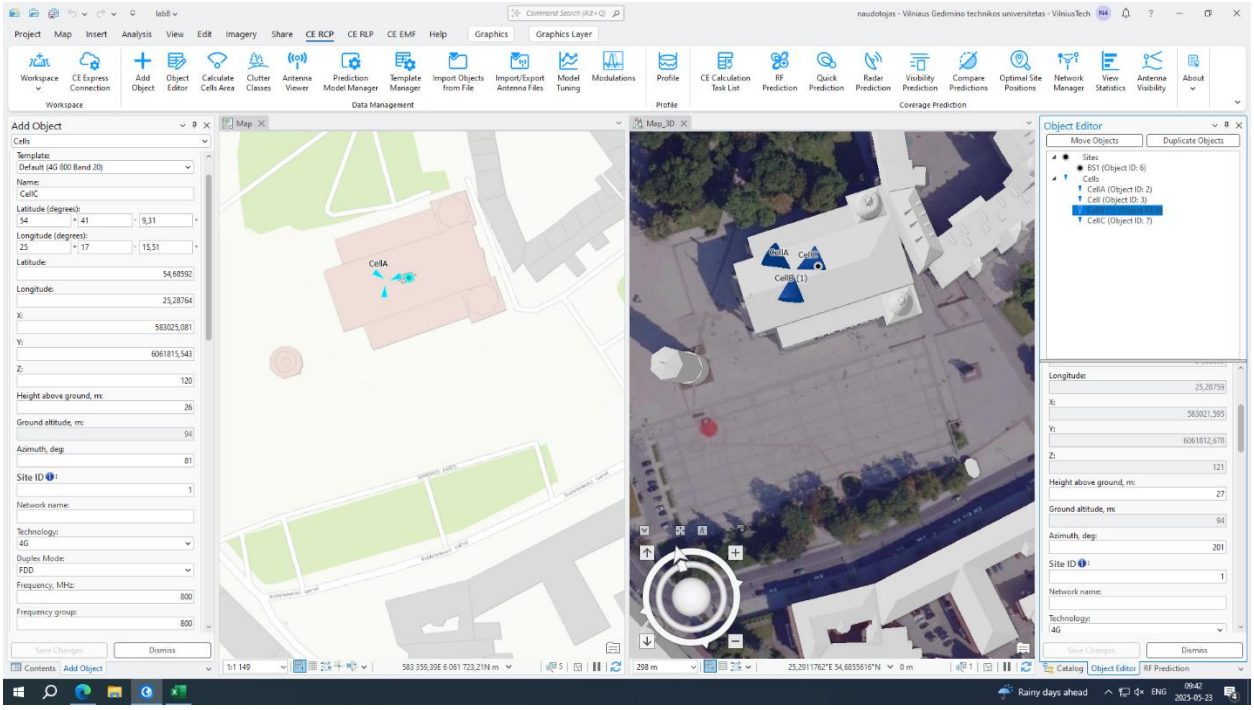
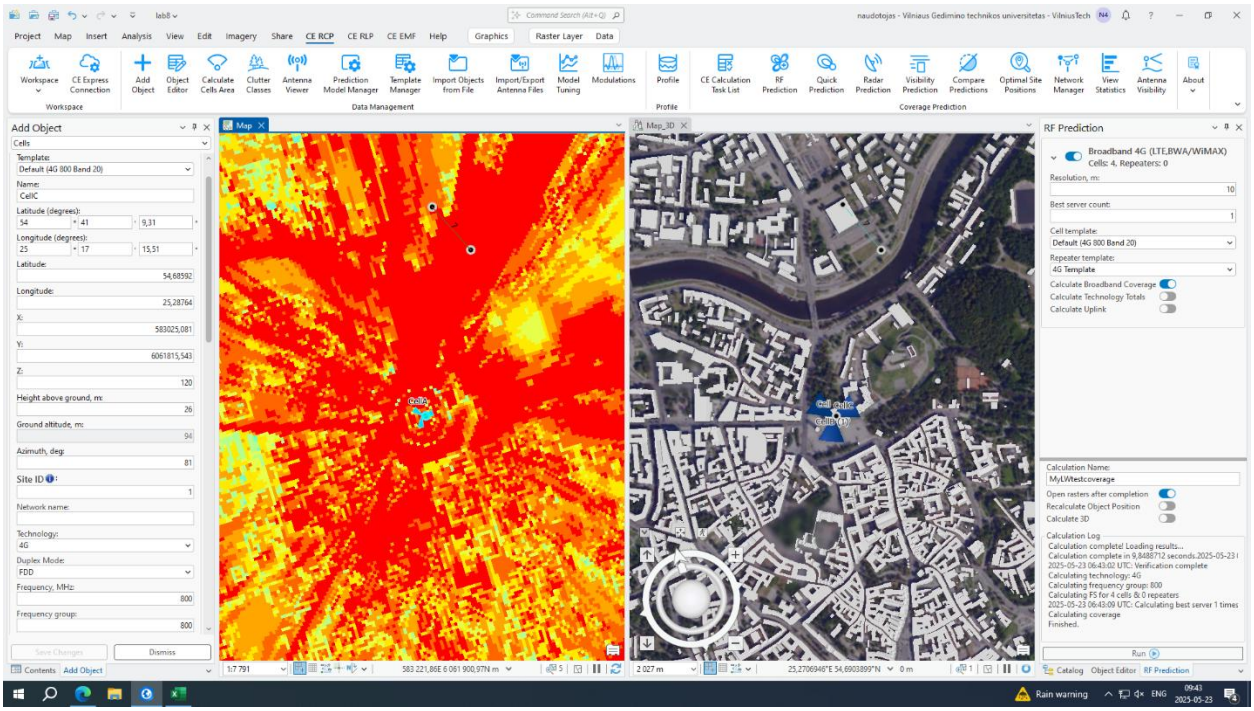
Objective: This lab involves modeling 4G mobile coverage using ArcGIS. It provides insight into cell tower installation planning

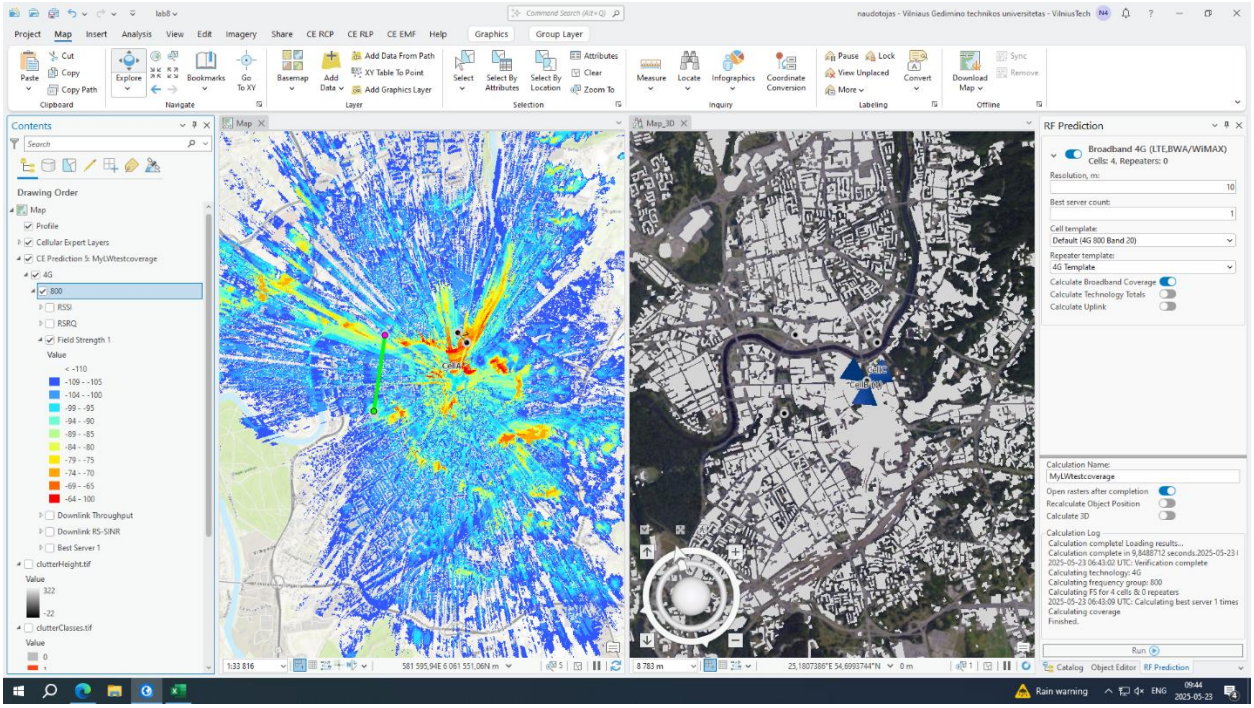
Tools Used: ArcGIS

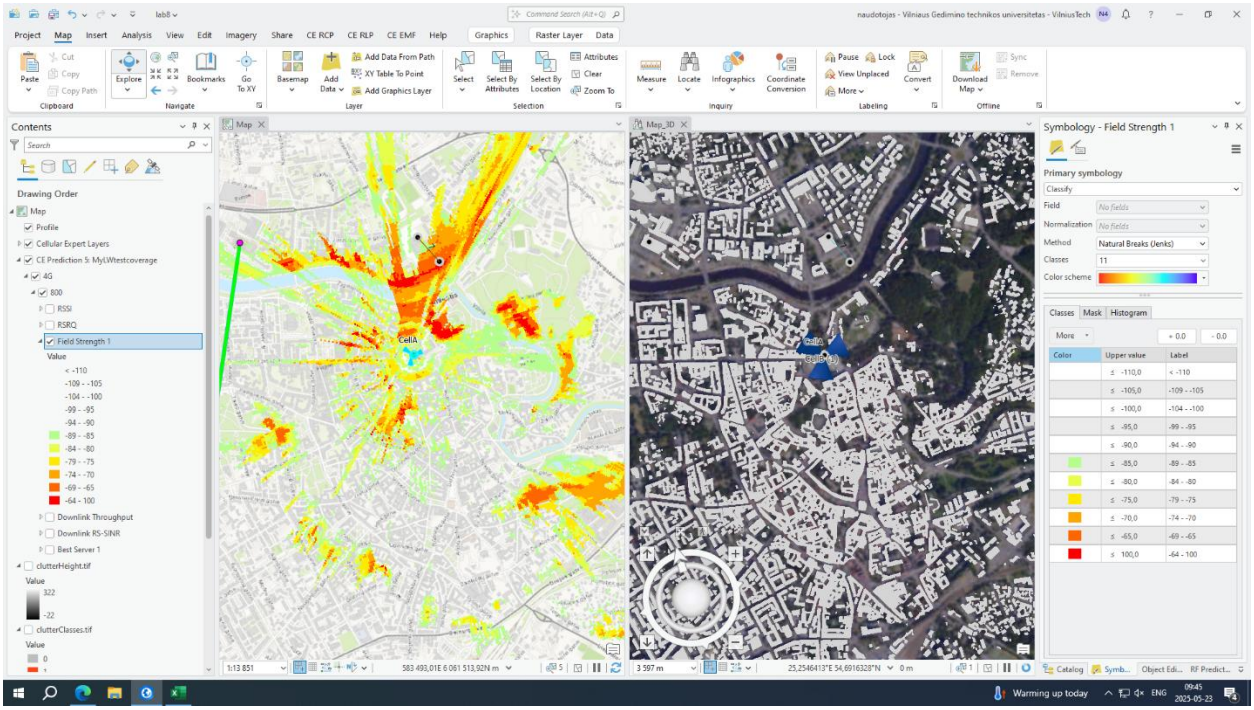
The lab utilizes a previous project (Lab 7) for the working environment

First, we create cells, see their signal coverage, modify the view. After seeing problems with coverage, we create a second cell, which will improve it.






Project Map Insert Analysis View Edit Imagery Share CE RCP CE RLP CE EMF Help Graphics Group Layer
Contents
Drawing Order
Map
Profile
Cellular Expert Layers
CE Prediction 5: MyLWtestcoverage
4G
800
RSSI
RSRQ
Field Strength 1
Value
< -110
-109 - -105
-104 - -100
-99 - -95
-94 - -90
-89 - -85
-84 - -80
-79 - -75
-74 - -70
-69 - -65
-64 - 100
Downlink Throughput
Downlink RS-SINR
Best Server 1
clutterHeight.tif
322
-22
clutterClasses.tif
0
Map
Map_3D
RF Prediction
Broadband 4G (LTE,BWA/WiMAX)
Cells: 4, Repeaters: 0
Resolution, m:
10
Best server count:
1
Cell template:
Default (4G 800 Band 20)
Repeater template:
4G Template
Calculate Broadband Coverage
Calculate Technology Totals
Calculate Uplink
Calculation Name:
MyLWtestcoverage
Open rasters after completion
Recalculate Object Position
Calculate 3D
Calculation Log
Run
Catalog Object Editor RF Prediction
Rain warning
ENG
09:44
2025-05-23


Project Map Insert Analysis View Edit Imagery Share CE RCP CE RLP CE EMF Help Graphics Raster Layer Data
Contents
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Value
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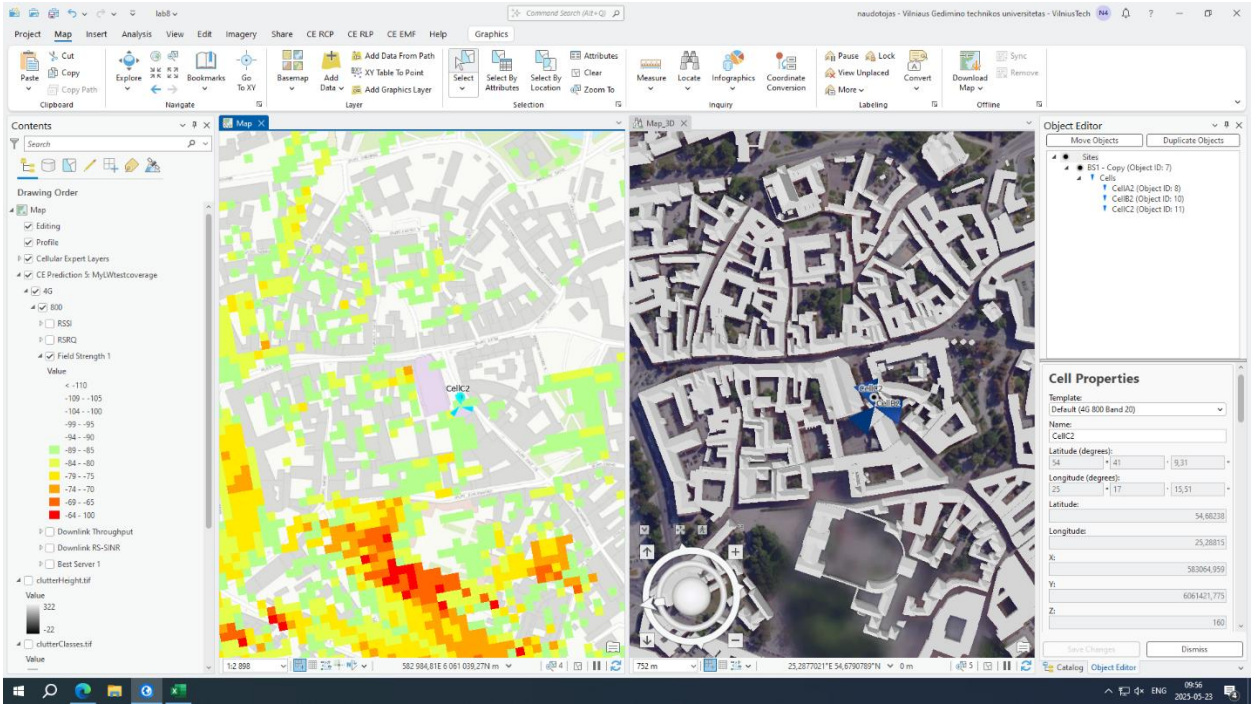
-109 - -105
-104 - -100
-99 - -95
-94 - -90
-89 - -85
-84 - -80
-79 - -75
-74 - -70
-69 - -65
-64 - 100
Downlink Throughput
Downlink RS-SINR
Best Server 1
clutterHeight.tif
322
-22
clutterClasses.tif
0
Map
Map_3D
Symbology - Field Strength 1
Primary symbology
Classify
Field
Normalization
Method
Natural Breaks (Jenks)
Classes
11
Color scheme
Classes Mask Histogram
More
Color
Upper value
Label
≤ -110,0 < -110
≤ -105,0 -109 - -105
≤ -100,0 -104 - -100
≤ -95,0 -99 - -95
≤ -90,0 -94 - -90
≤ -85,0 -89 - -85
≤ -80,0 -84 - -80
≤ -75,0 -79 - -75
≤ -70,0 -74 - -70
≤ -65,0 -69 - -65
≤ 100,0 -64 - 100
Warming up today
ENG
09:45
2025-05-23


Project
Map
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Share
CE RCP
CE RLP
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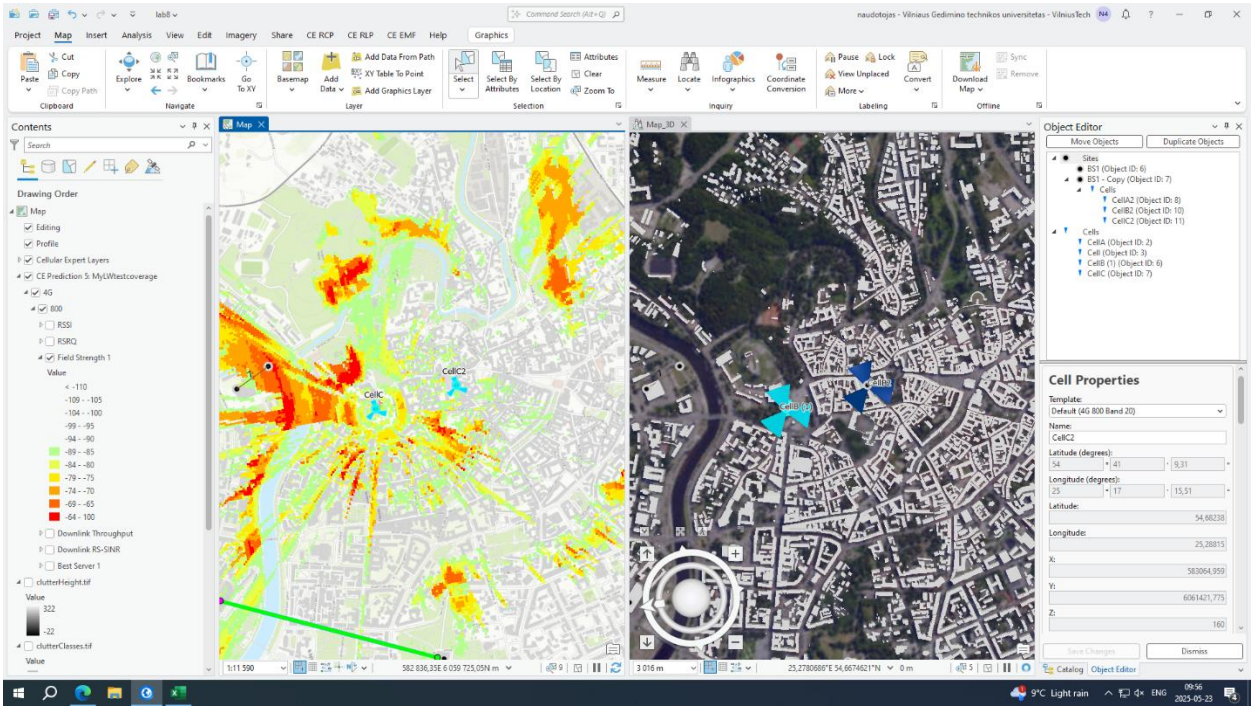
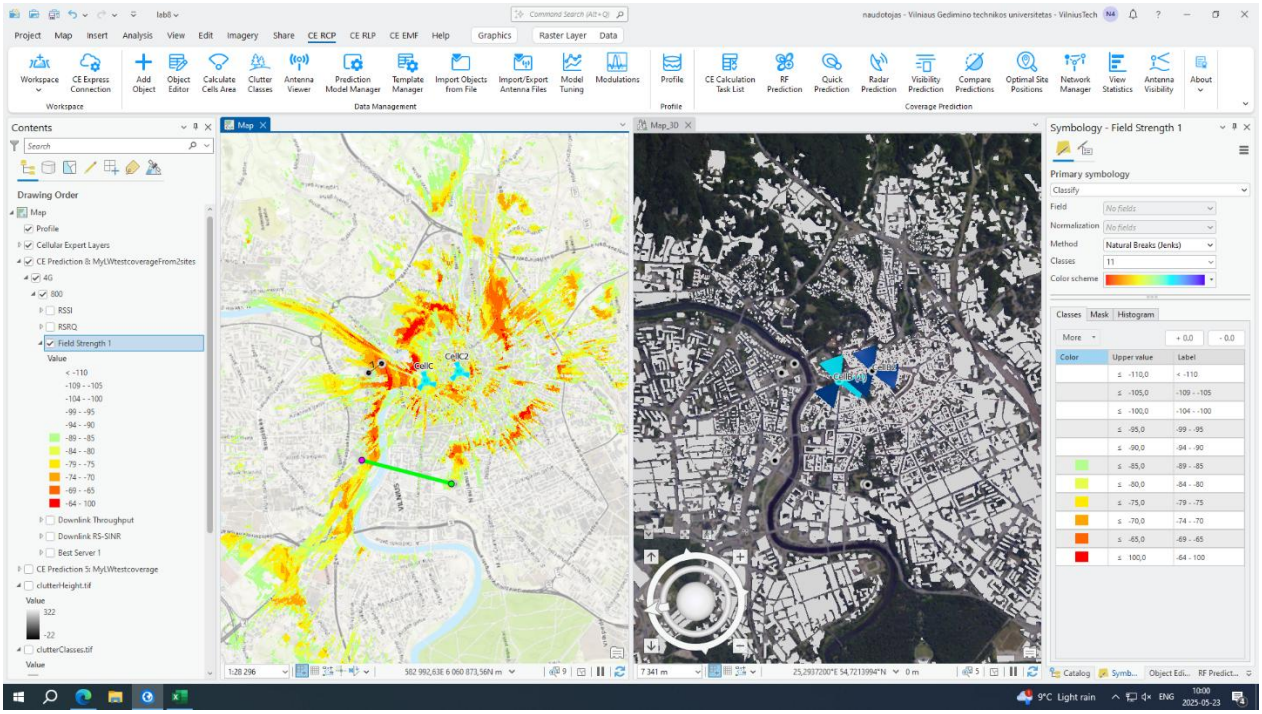
RSRQ
Field Strength 1
Value
< -110
-109 - -105
-104 - -100
-99 - -95
-94 - -90
-89 - -85
-84 - -80
-79 - -75
-74 - -70
-69 - -65
-64 - 100
Downlink Throughput
Downlink RS-SINR
Best Server 1
clutterHeight.tif
clutterClasses.tif
CellC2
Map_3D
Object Editor
Move Objects
Duplicate Objects
Sites
BS1 - Copy (Object ID: 7)
Cells
CellA2 (Object ID: 8)
CellB2 (Object ID: 10)
CellC2 (Object ID: 11)
Cell Properties
Template:
Default (4G 800 Band 20)
Name:
CellC2
Latitude (degrees):
Longitude (degrees):
Latitude:
Longitude:
X:
Y:
Z:
Save Changes
Dismiss
Catalog
Object Editor

Here, we can see difference between one cell coverage, and two cells combined coverage