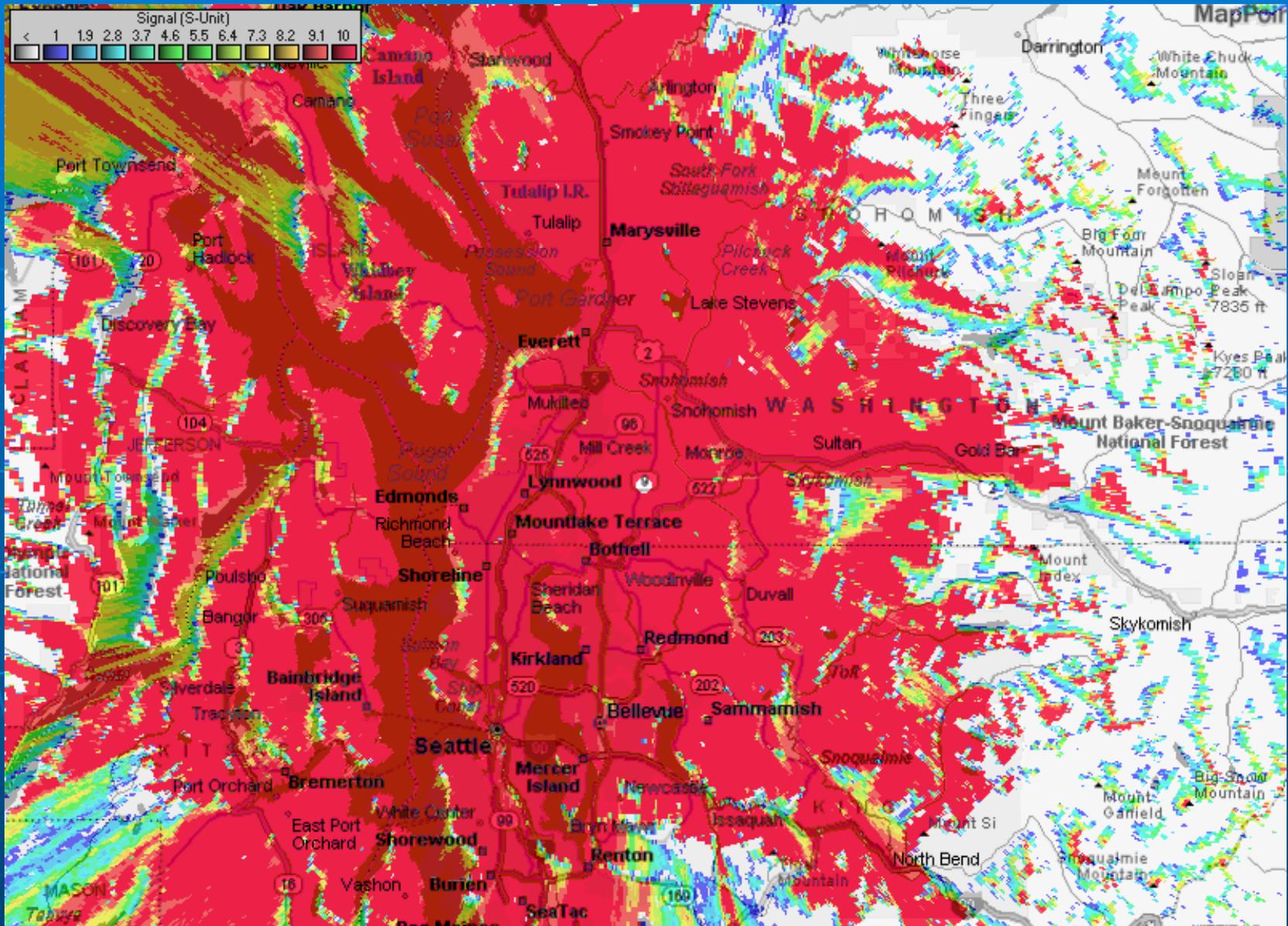


Radio Mobile

Scott Honaker – N7SS

Introduction to Radio Mobile

- VHF/UHF/Microwave Propagation
 - Point to point (network) link quality
 - Coverage maps
 - Interference maps
 - HAAT
- Visual Horizon
- Limited APRS Support via AGWPE
- Many (UI-View Compatible) Maps

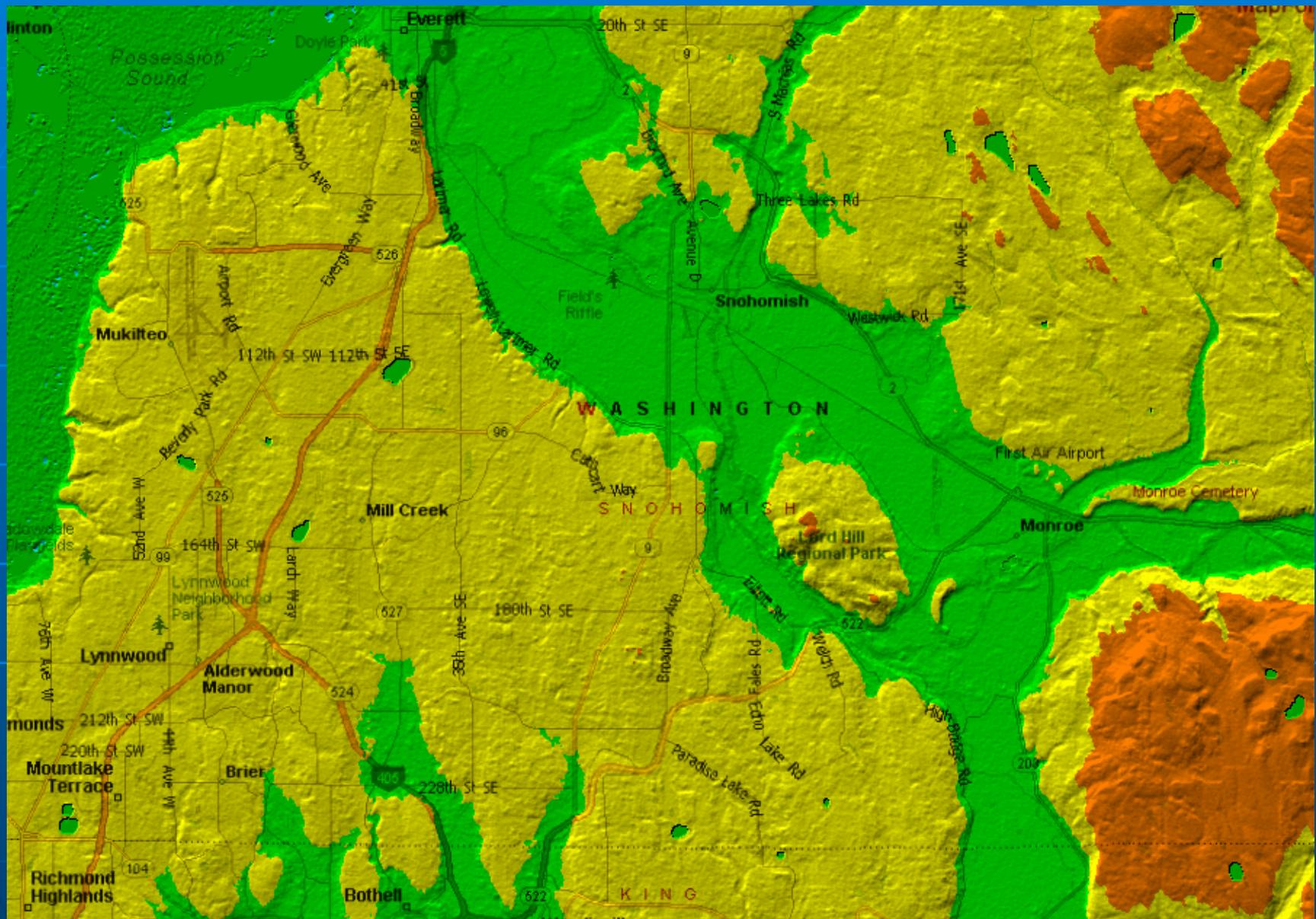


Clearview 70cm repeater coverage over B/W MapPoint map

Scott Honaker - N7SS

Multiple Map Data Sources

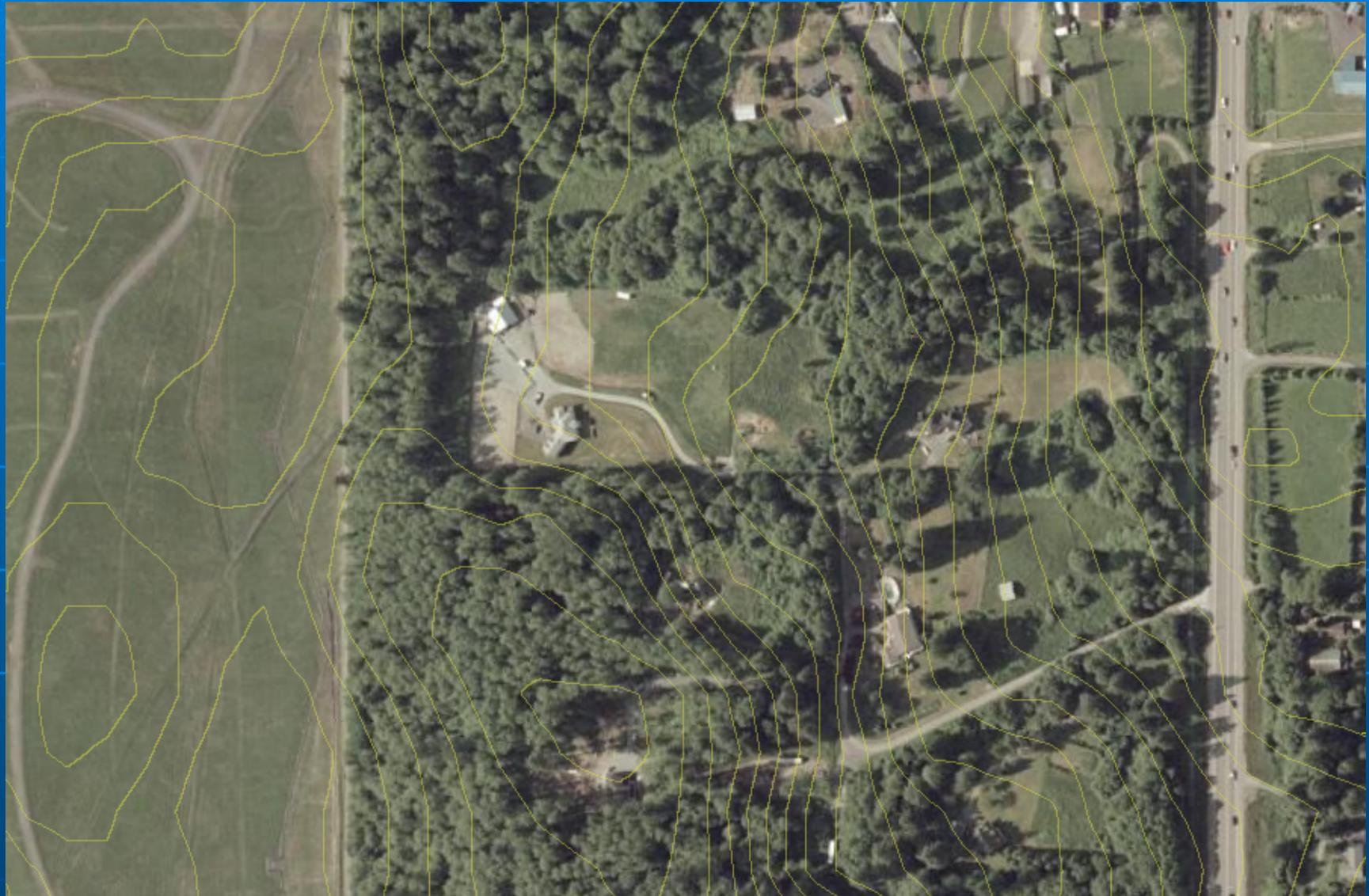
- Shuttle Terrain data
- MapPoint/MapQuest/Tiger
- GoogleMaps/YahooMaps
- TerraServer/LandSat Aerial photos
- Terraserver/Toporama topo maps
- More...



Color relief merged with MapPoint map

Multiple Map Views

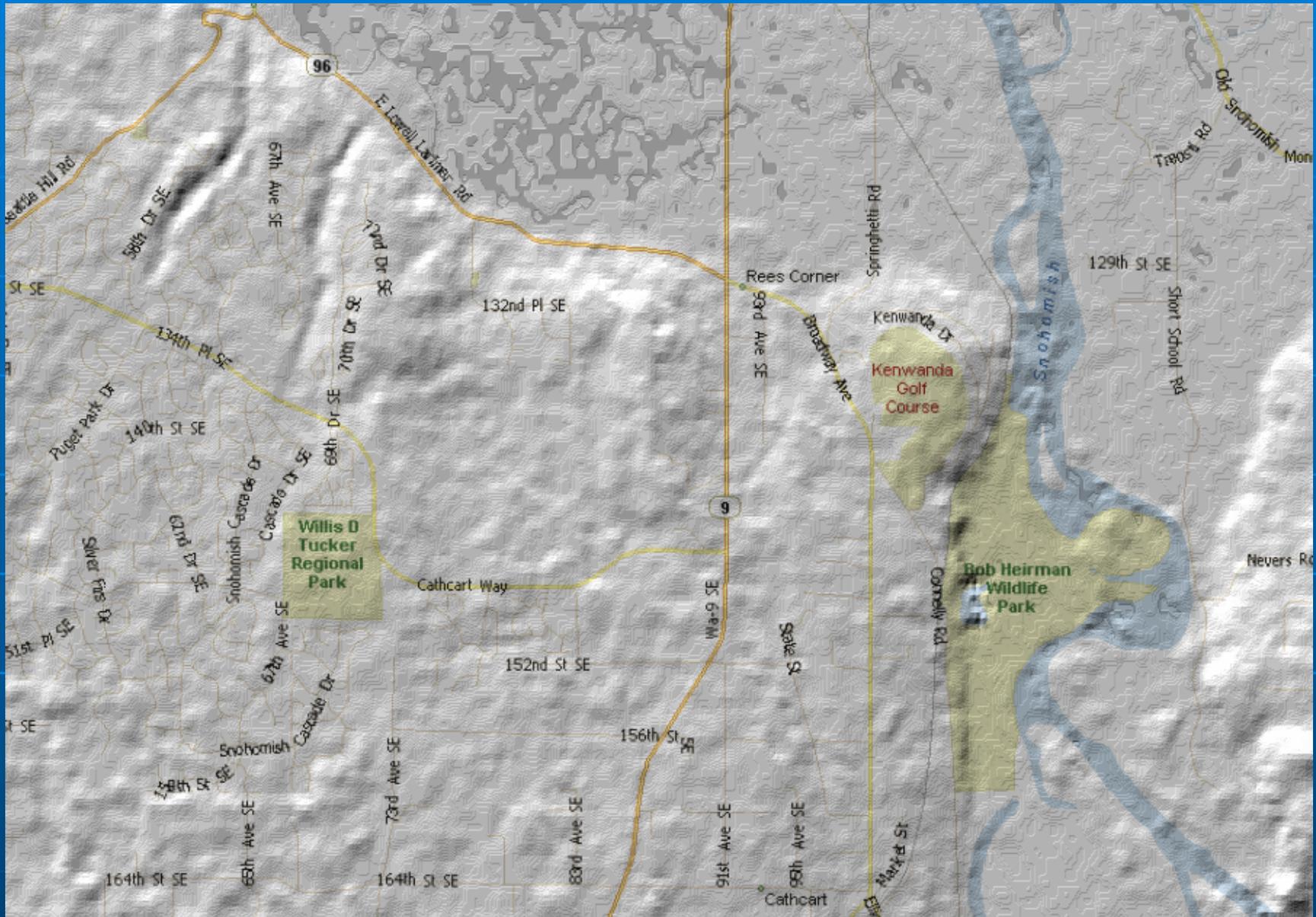
- Possible to merge mapping products
 - Several types of color or B/W Relief
 - Adjustable 3D terrain view
 - “Stereo” view (3D glasses required)
- Internal features
 - Draw contour lines or flood
 - Draw grid or rings
 - Show text, “city” or “unit” labels
 - Force gray scale



TerraServer aerial view of N7SS QTH with 10' elevation contours

Space Shuttle Data

- Shuttle Radar Topography Mission
 - STS-99
- Different resolutions available
- Use highest for best accuracy
- 1 arcSecond (30m) resolution default
- 1/3 arcSecond (10m) now available



B/W relief merged with MapPoint map

Map Properties

..default.map properties

Centre
47°52'09.0"N 122°06'52.9"W
CN87WU
Latitude: 47.86918 Longitude: -122.1147
Use cursor position
World map
Select a city name
Enter LAT LON or QRA
N7SS

Size (pixel)
Width(pixels): 900 Height (pixels): 630

Size (km)
Width(km): 5.71 Height (km): 4.00

Elevation data source

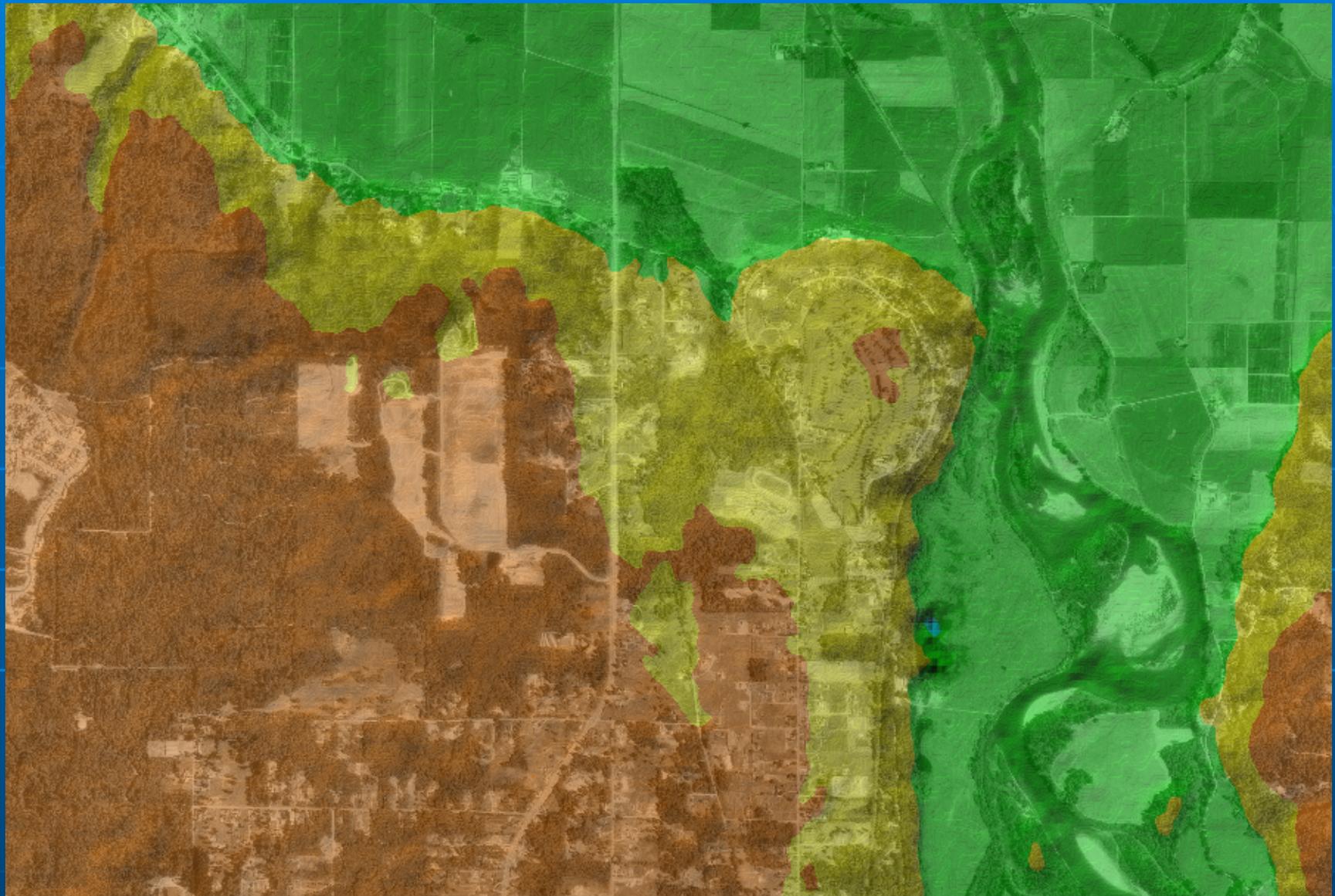
	Drive or path	Top layer
None	c	Browse
SRTM	ham\radio mobile\srtm	Browse
None	c	Browse
None	c	Browse
None	c	Browse

Ignore missing files
Initialize matrix with elevation (m) 0

Adjust units elevation
 Merge pictures
 Force gray scale

Apply
Cancel

Top Left: 47°53'14"N 122°09'11"W
Top Right: 47°53'14"N 122°04'35"W
Bottom Left: 47°51'04"N 122°09'11"W
Bottom Right: 47°51'04"N 122°04'35"W



Color relief merged with B/W TerraServer aerial photography

Picture Properties

..\default.bmp properties

Draw mode

Gray scaled slope
 Colored slope (absolute)
 Colored slope (relative)
 X-ray
 X-ray (inverted)
 Rainbow

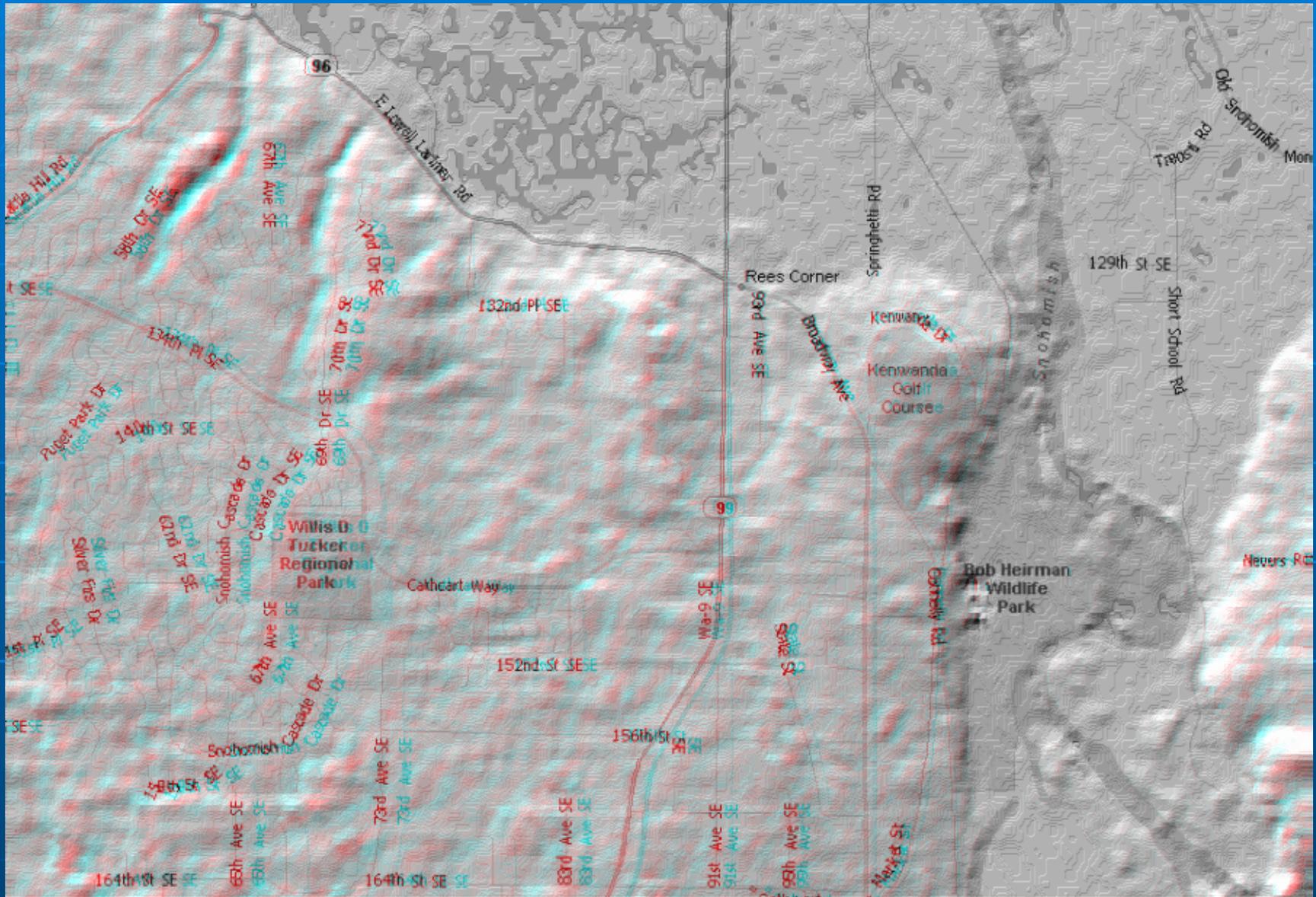
Draw objects
 Show cities
 Transparent

Bottom elevation (m)
Top elevation (m)
Contrast (%)
Brightness (%)
Light azimuth (°)

10 m contour intervals
 100 m contour intervals
 500 m contour intervals
 Other (m)

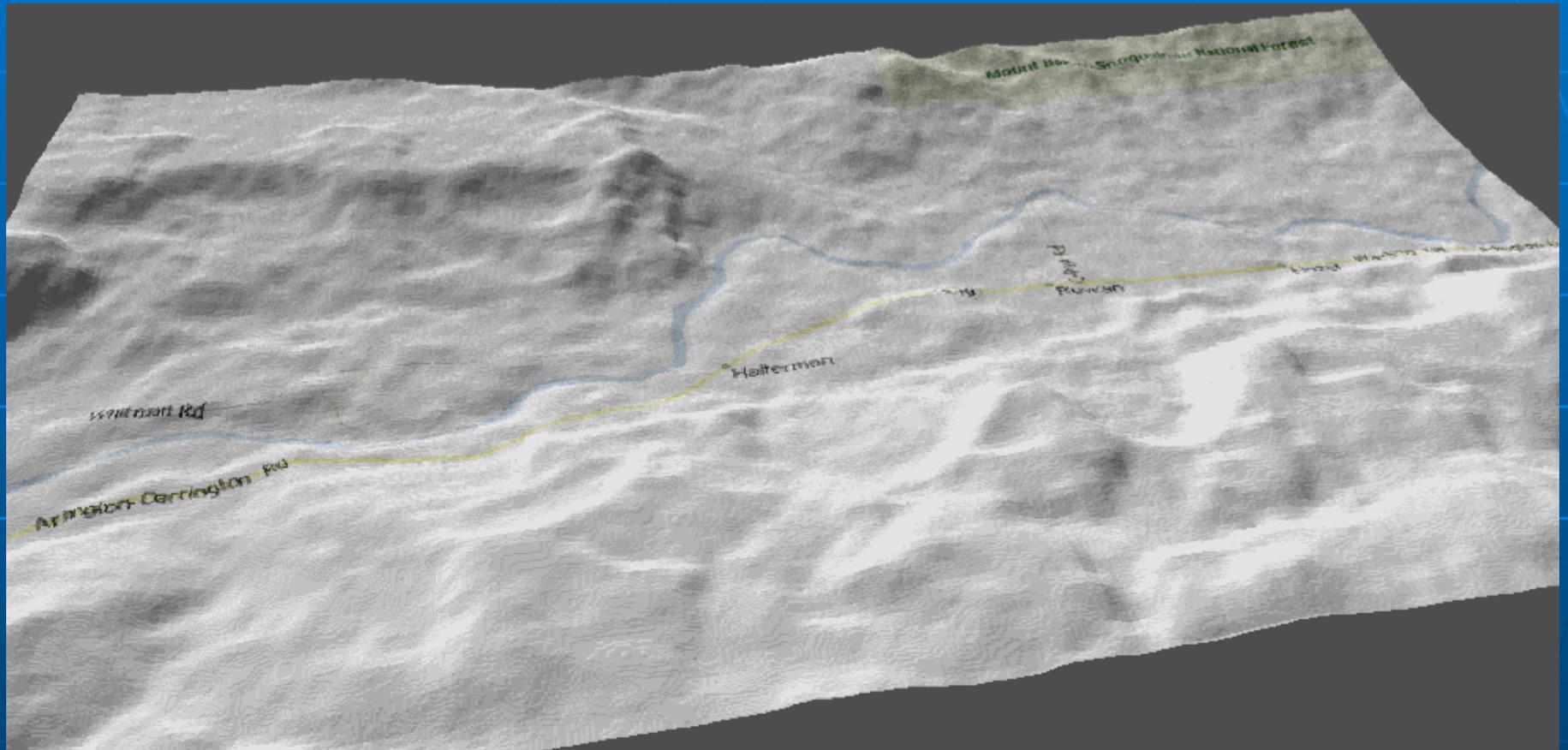
Object drive/path

Elevation data source: c:\ham\radio mobile\default.map
Map statistics: Minimum 62.0 m - Maximum 375.0 m - Average 180.1 m
Fits elevation data in memory
Width=900 Pixels Height=630 Pixels
Path: c:\ham\radio mobile\



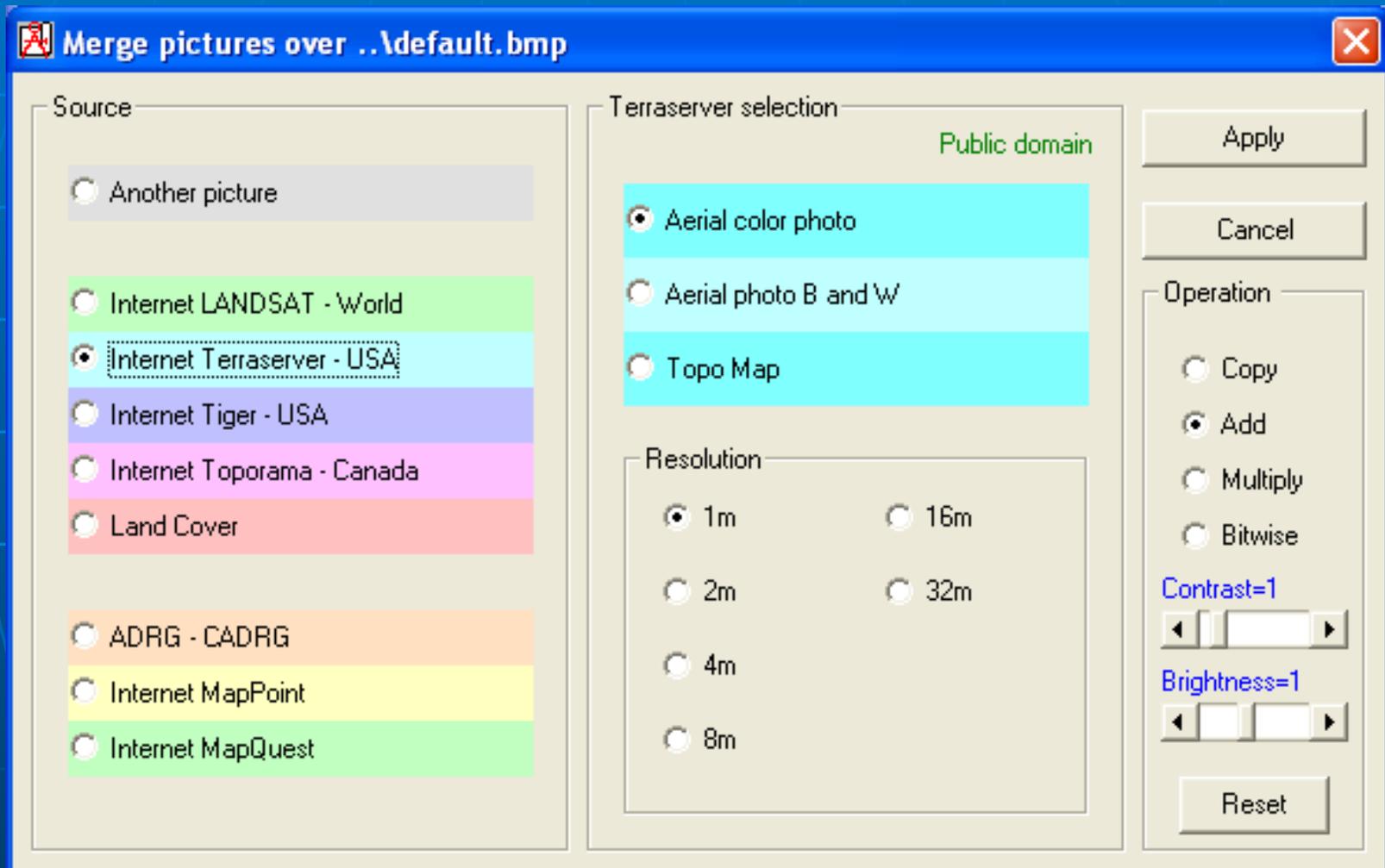
B/W stereo relief merged with MapPoint map

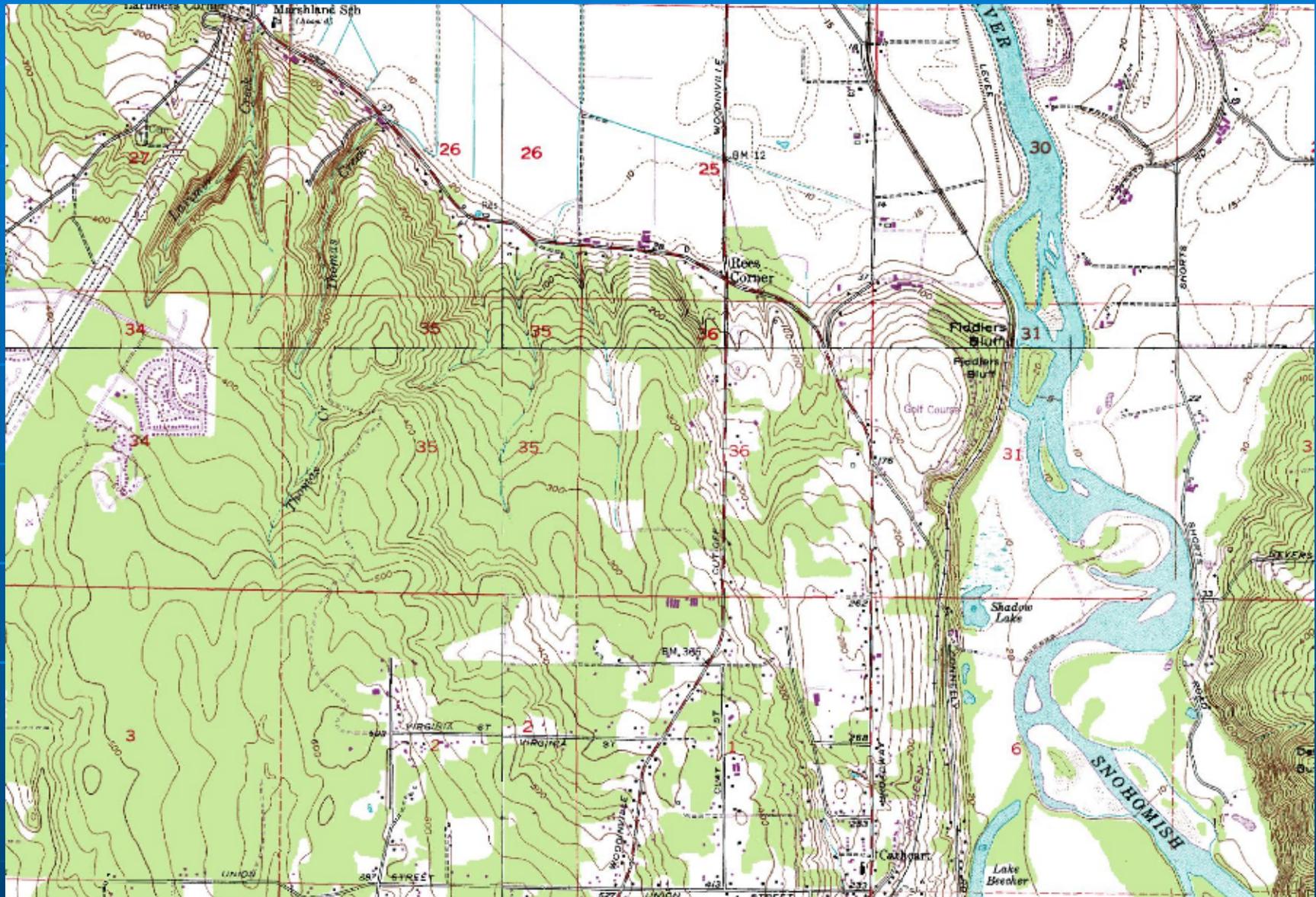
Oso Land Slide Area in 3D



Local (4km wide) relief map merged with MapPoint then rendered in 3D

Merge Picture





TerraServer topographic map (2m resolution) Hwy 9 in Cathcart



TerraServer aerial view of Hwy 9 in Cathcart

Scott Honaker - N7SS

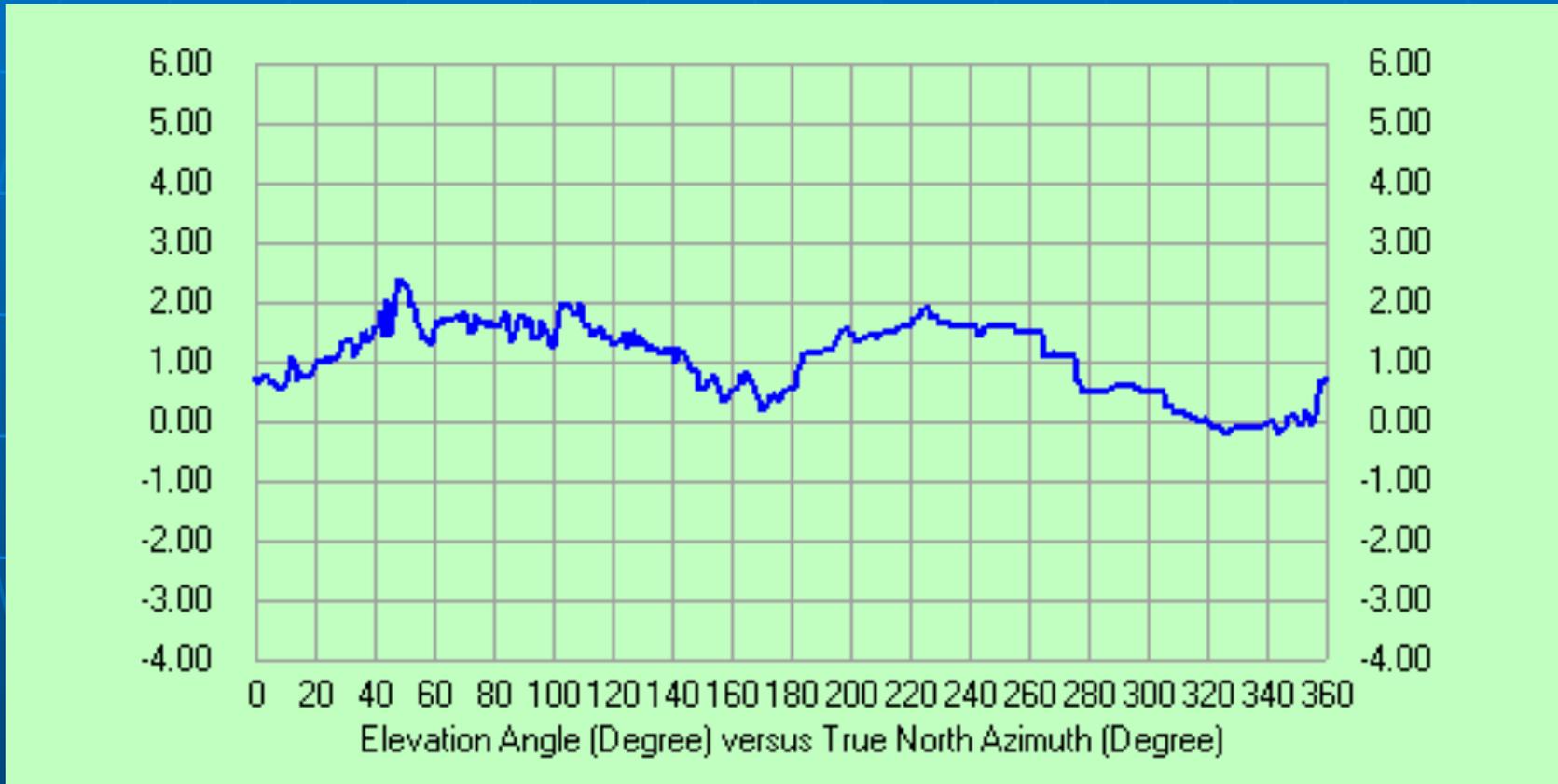
Advanced Mapping

View on take-off from Harvey Field runway 14



TerraServer color aerial photo with 3D picture view

Visual Horizon



Mt Baker at 12°, Mt Pilchuck at 49°, Clearview hill to SSE

Unit Properties

Units properties

Name	Elevation (m)
Mt Pilchuk	823

Position: 48°04'09.0"N 121°50'17.0"W
CN988B

Locked

Style

Enabled Left Centre Right

Transparent

No label

Icon 16x16 pixels

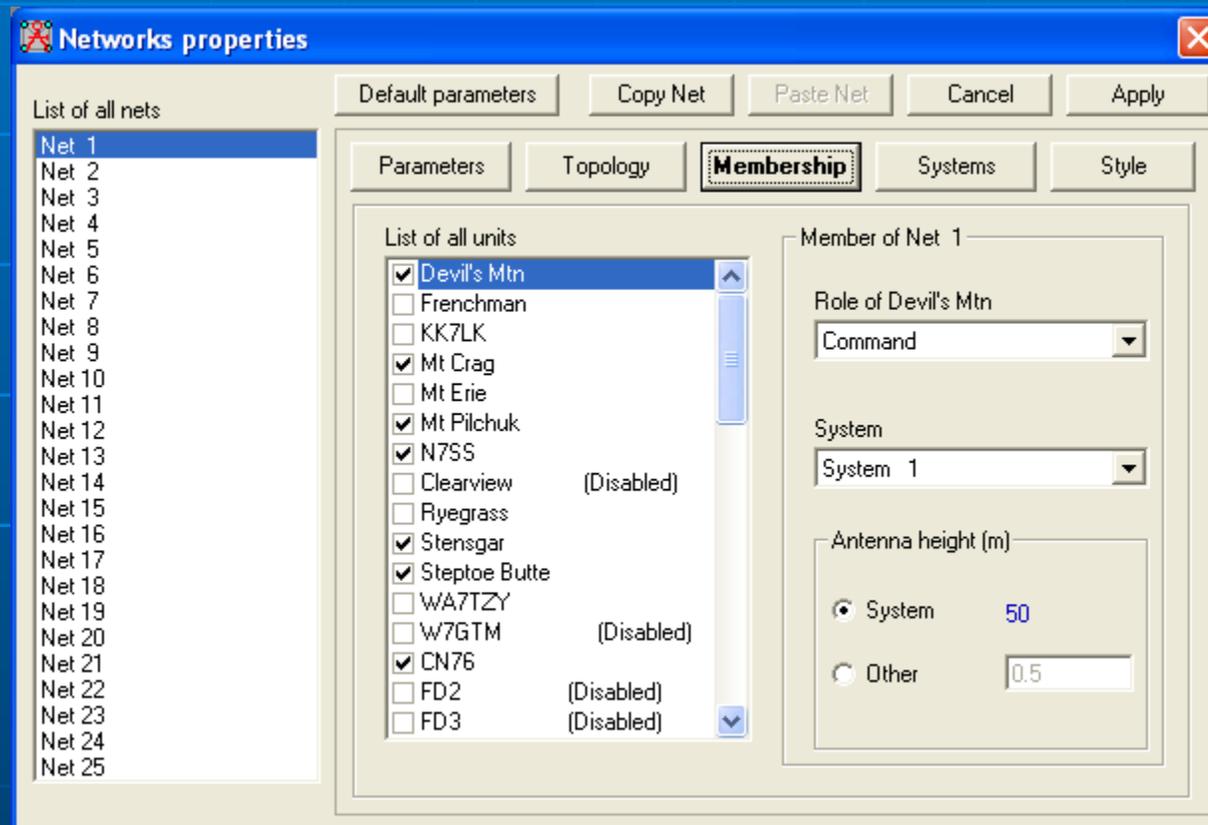
Show only units that are members of a visible network

Networks Properties

The screenshot shows a software dialog box titled "Networks properties". On the left is a list of 25 networks, with "Net 1" selected. The main area contains several tabs: "Parameters" (selected), "Topology", "Membership", "Systems", and "Style". The "Parameters" tab is active and contains the following settings:

- Net name: Net 1
- Surface refractivity (N-Units): 301
- Minimum frequency (MHz): 146
- Ground conductivity (S/m): 0.005
- Maximum frequency (MHz): 146
- Relative ground permittivity: 15
- Polarization: Vertical, Horizontal
- Mode of variability: Spot (% of time: 50), Accidental (% of locations: 50), Broadcast (% of situations: 50)
- Additional loss: City, Forest (%: 0)
- Climate: Equatorial, Continental sub-tropical, Maritime sub-tropical, Desert, Continental temperate, Maritime temperate over land, Maritime temperate over sea

Network Membership



System Properties

Networks properties

List of all systems

- System 1
- System 2
- System 3
- System 4
- System 5
- System 6
- System 7
- System 8
- System 9
- System 10
- System 11
- System 12
- System 13
- System 14
- System 15
- System 16
- System 17
- System 18
- System 19
- System 20
- System 21
- System 22
- System 23
- System 24
- System 25

Default parameters Copy Net Paste Net Cancel Apply

Parameters Topology Membership **Systems** Style

Select from Radiosys.dat

System name System 1

Transmit power (Watt) 50 (dBm) 47

Receiver threshold (µV) 1 (dBm) -107

Line loss (dB) 0.5 (Cable+cavities+connectors)

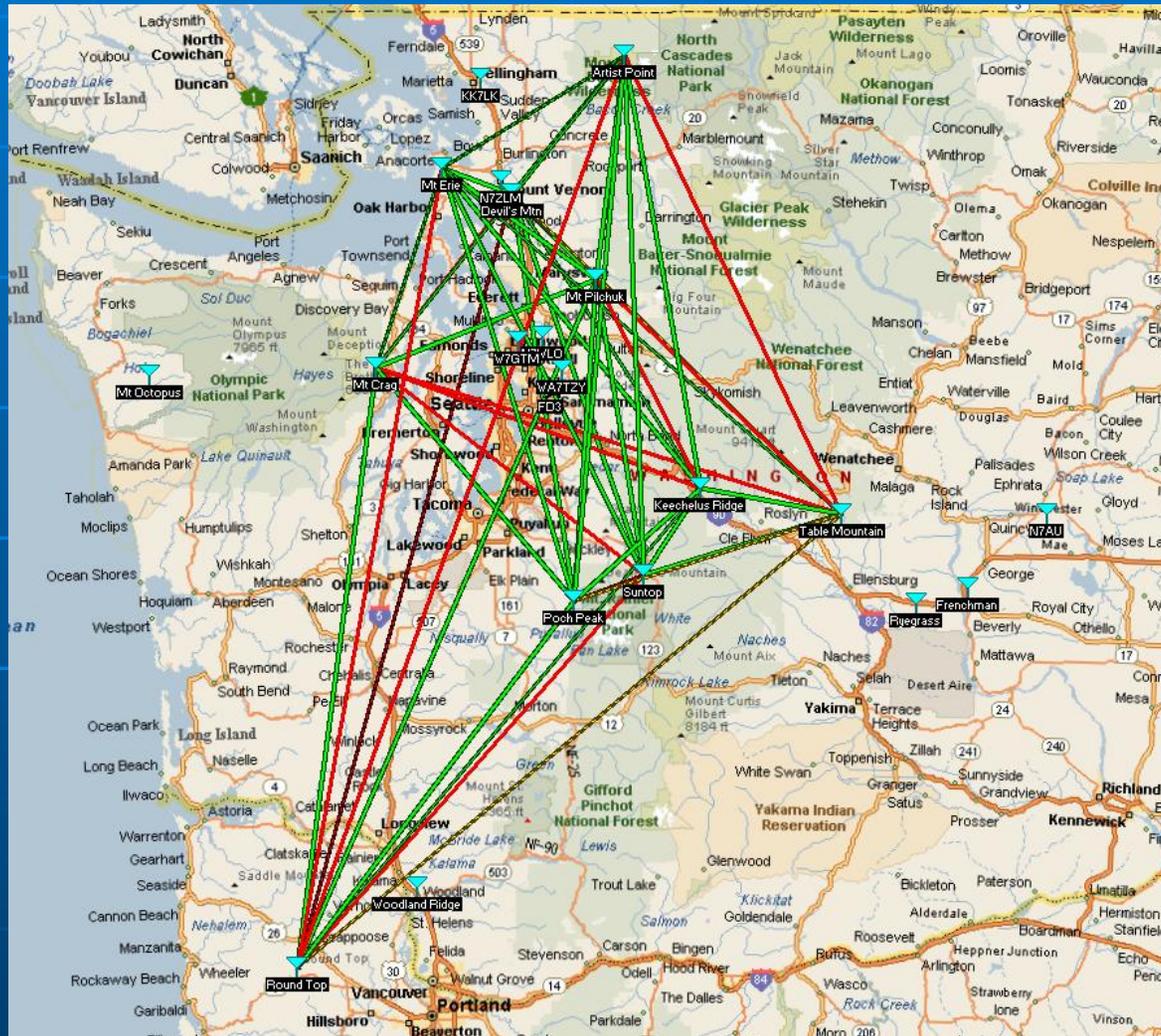
Antenna gain (dBi) 8 (dBd) 5.85

Antenna height (m) 50 (Above ground)

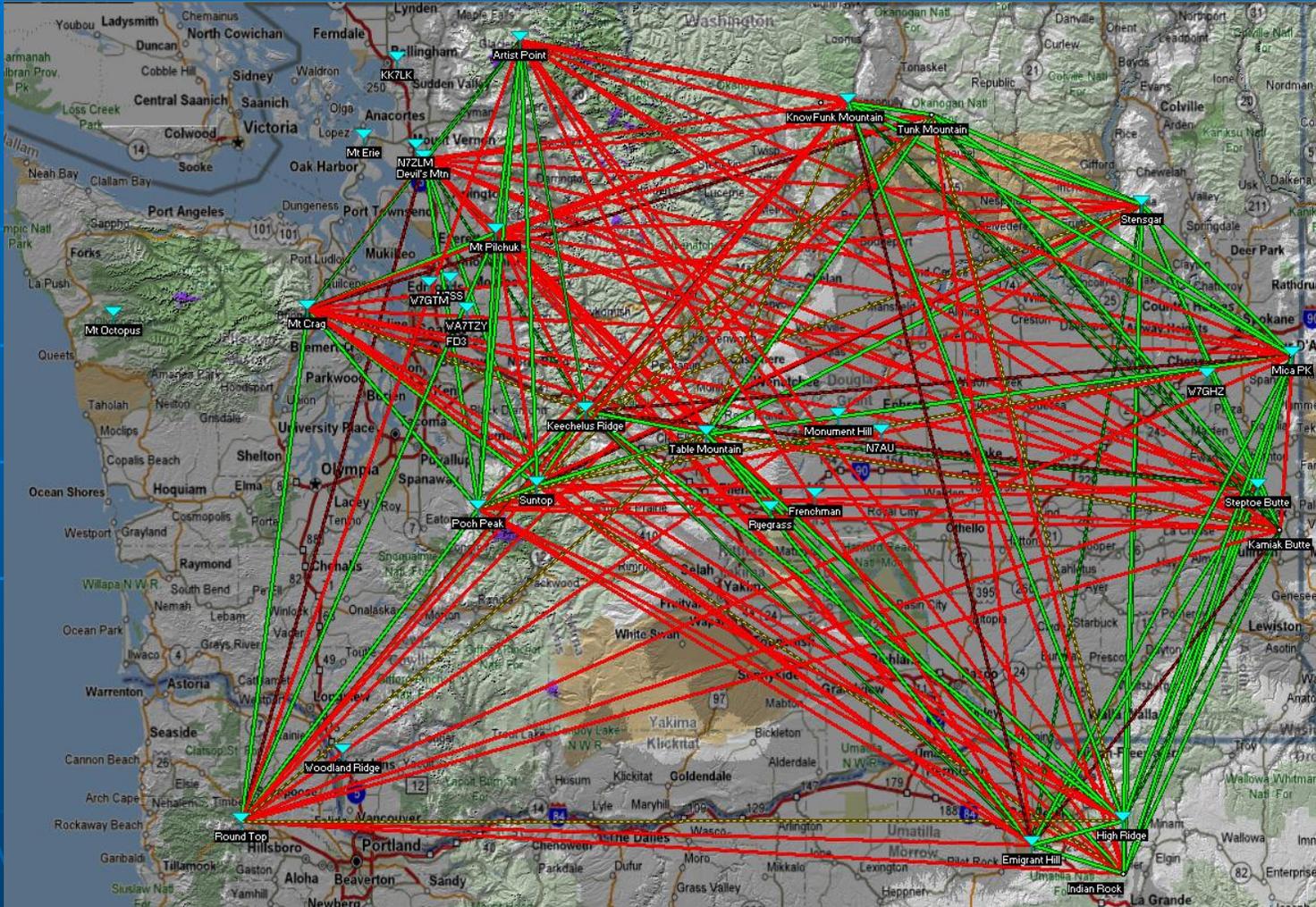
Additional cable loss (dB/m) 0 (If antenna height differs)

Add to radiosys.dat Remove from radiosys.dat

Network Map



Network Map



Try Your Own

- Download Radio Mobile
 - <http://www.cplus.org/rmw/english1.html>
- Create two “Units”
 - Yourself and someone else
- Add both units to a common “Network”
- Create map (File Map Properties)
- View Show Network