

Radio Mobile Little History

Roger Coudé Ing
VE2DBE

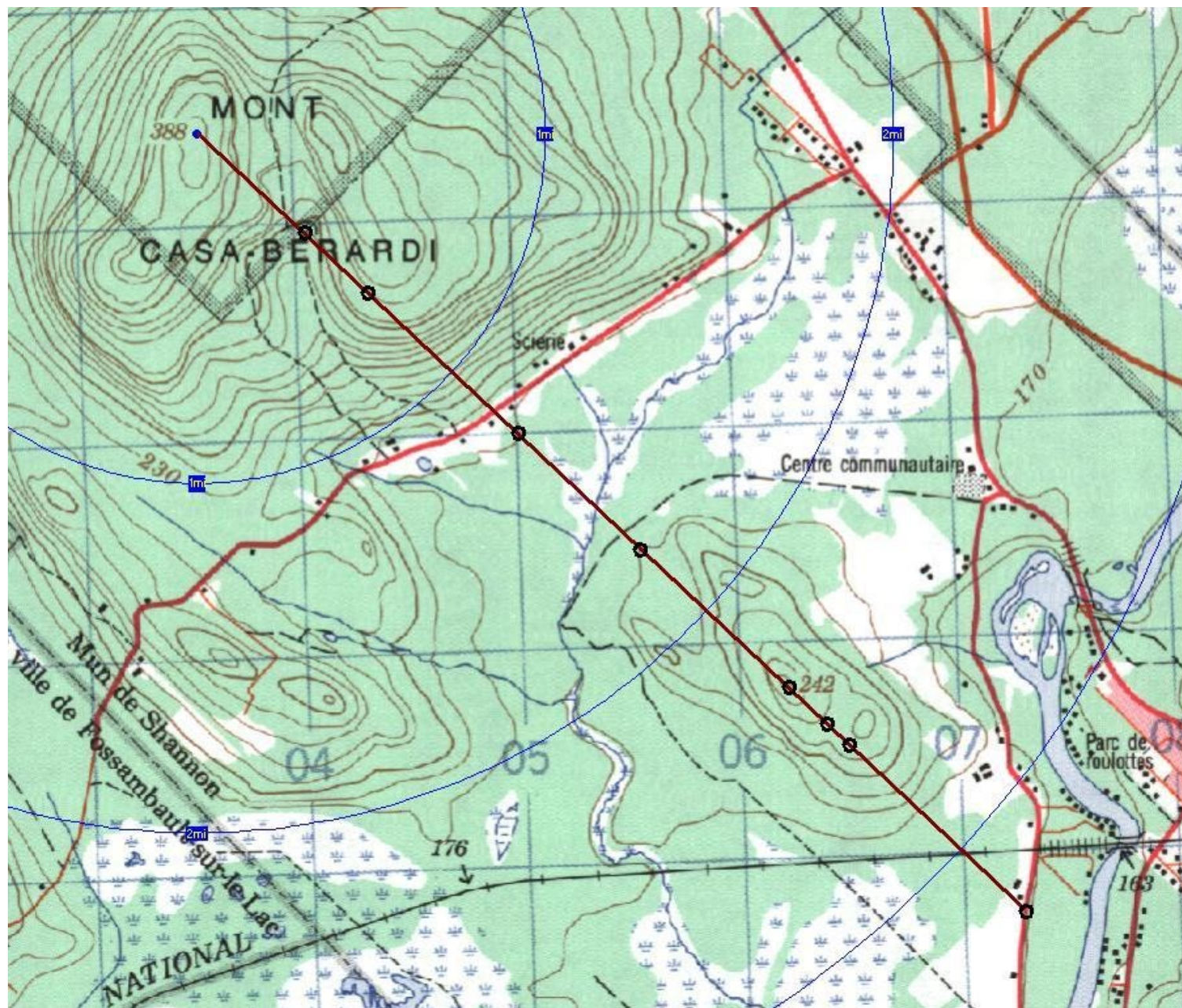
Quebec city 1973



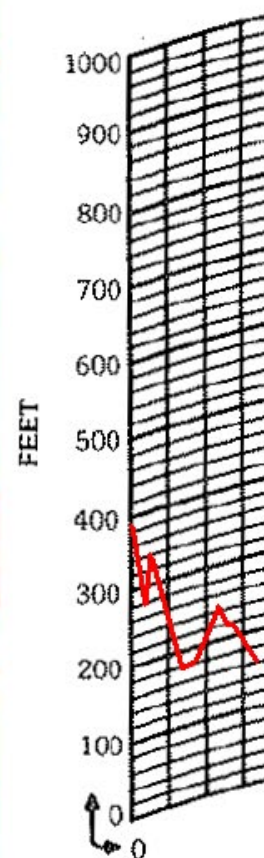
- Coop student University of Sherbrooke
- Work for Quebec Government
- Communication Department
- VHF and UHF coverage studies

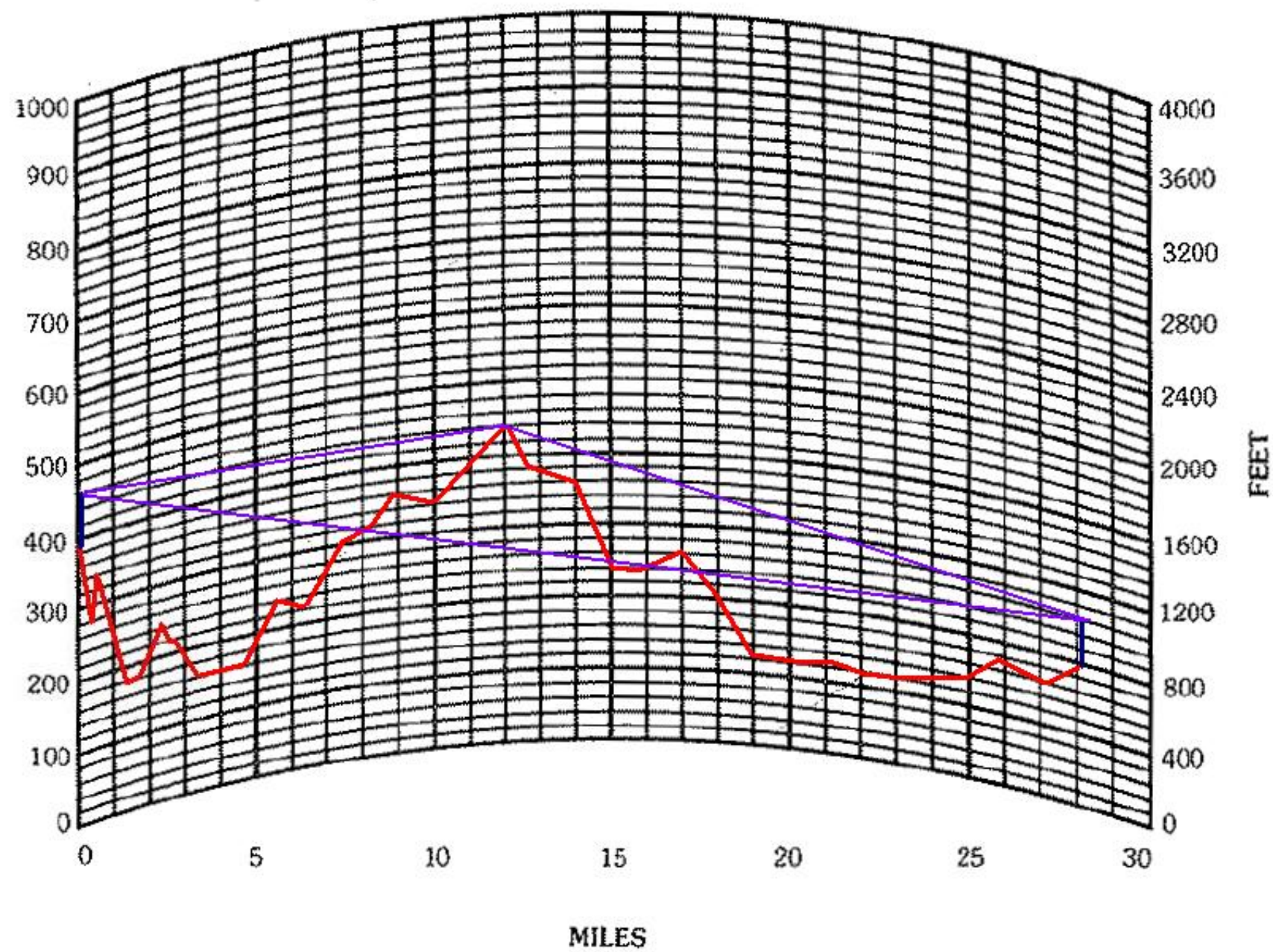
Quebec city 1973

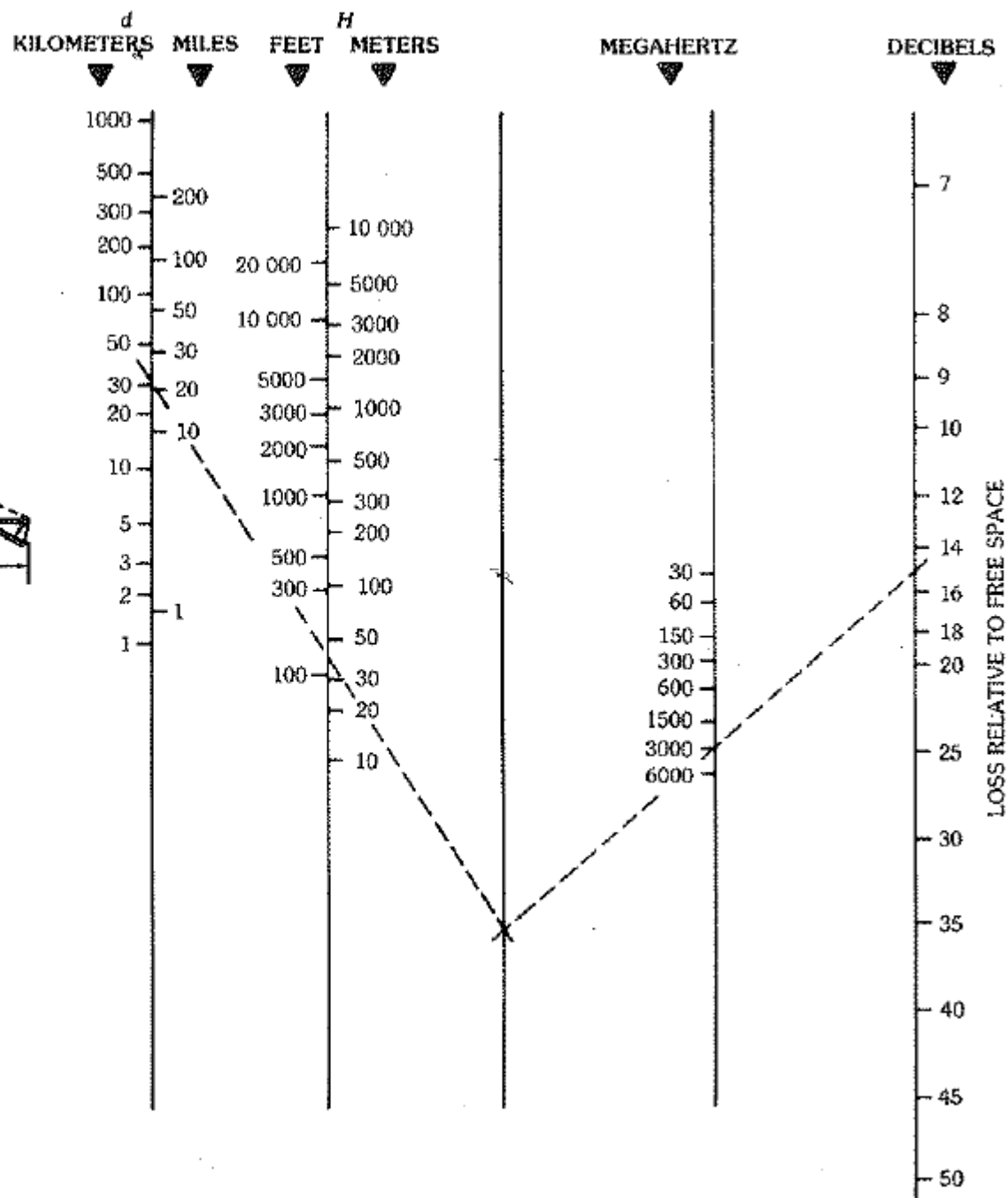
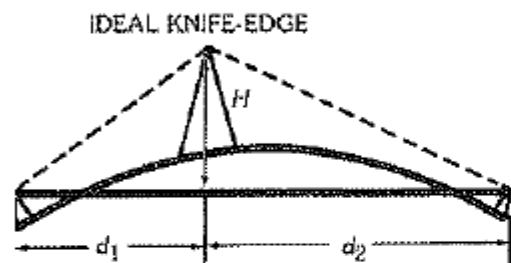
- Bullington method
 - Put maps on the wall
 - Extract path profile in various directions
 - Read elevation from map contour lines
 - Use Bullington templates to calculate
 - Free space path loss
 - Obstruction loss



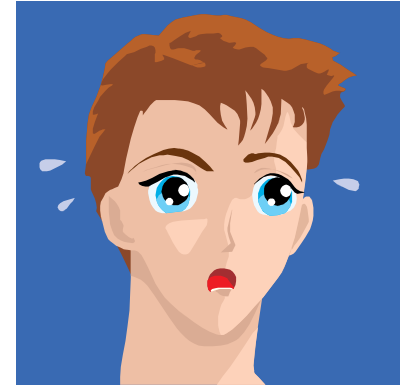
Distance	Elevation
0.0	388
0.4	290
0.5	320
1.3	180
1.7	180
2.4	242
2.5	220
2.6	220
3.3	160
mi	ft







Quebec city 1973



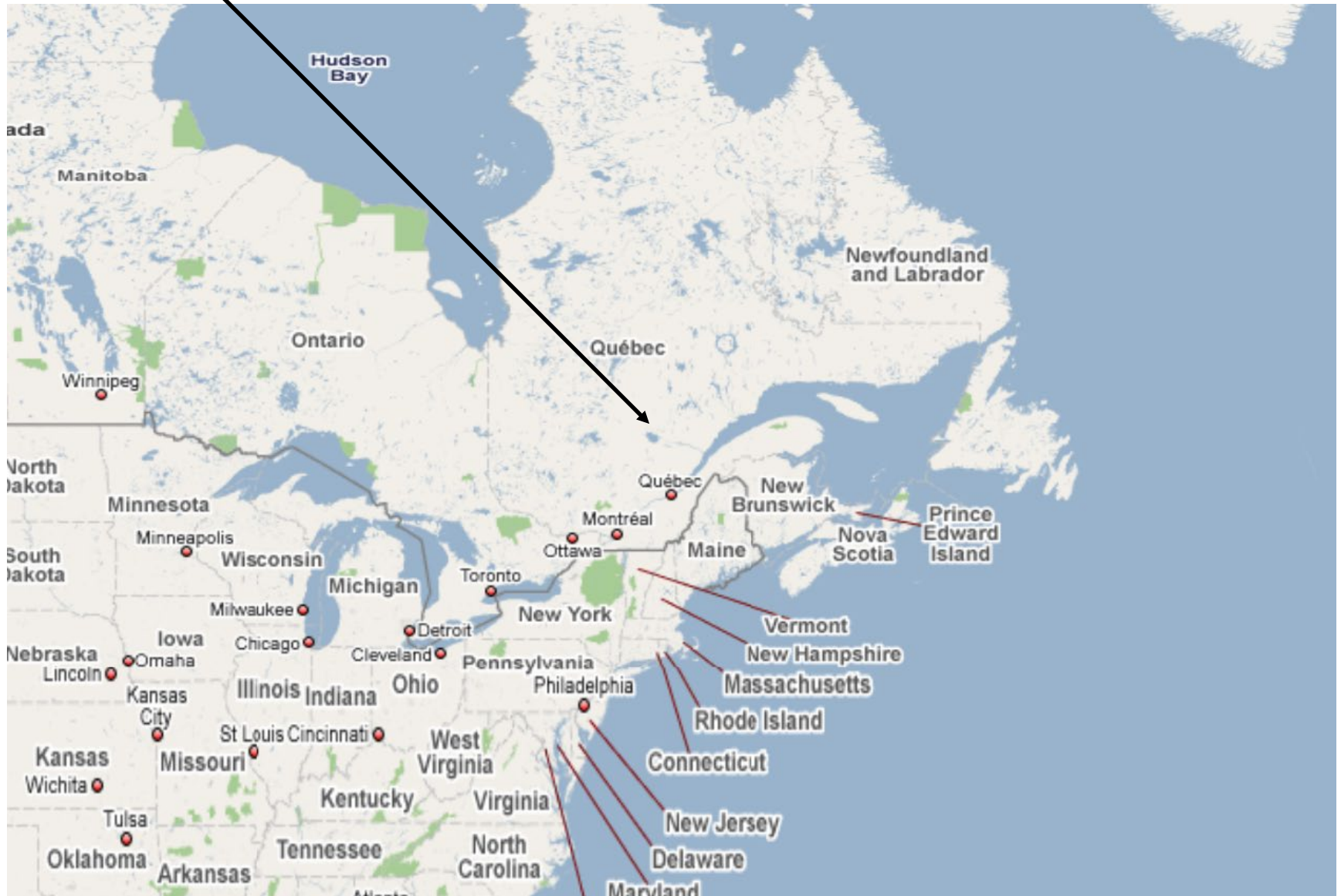
One week of tedious work
to perform the coverage analysis
of a single site!

I said to myself « Never again »

1974-1987

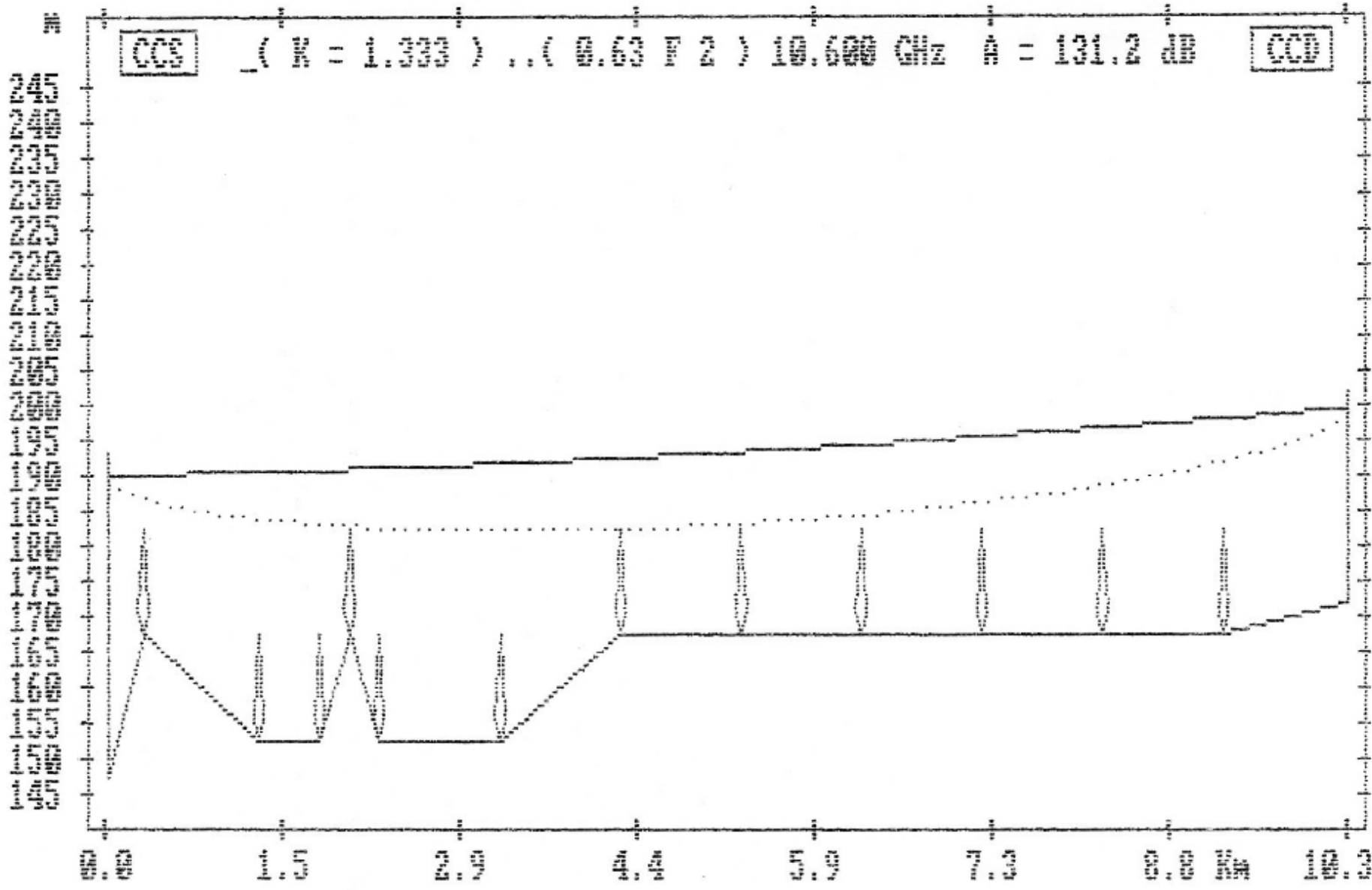
- Graduates Electrical Engineering in 1976
- 1976-1987 Teaches Physics in a college
- 1987 Begins a Mastery in robotics

Lac St-Jean 1988



Lac St-Jean 1988

- Hired as an industrial trainer
- First prototype of Radio Mobile as hobby
- 8088 MS-DOS computer - Turbo Basic
- Elevation Database Tiles
 - Created manually from topo maps
 - Resolution 1 min of an arc
- Propagation model
 - Inspired from Bullington
 - Supplemental height added from type of terrain

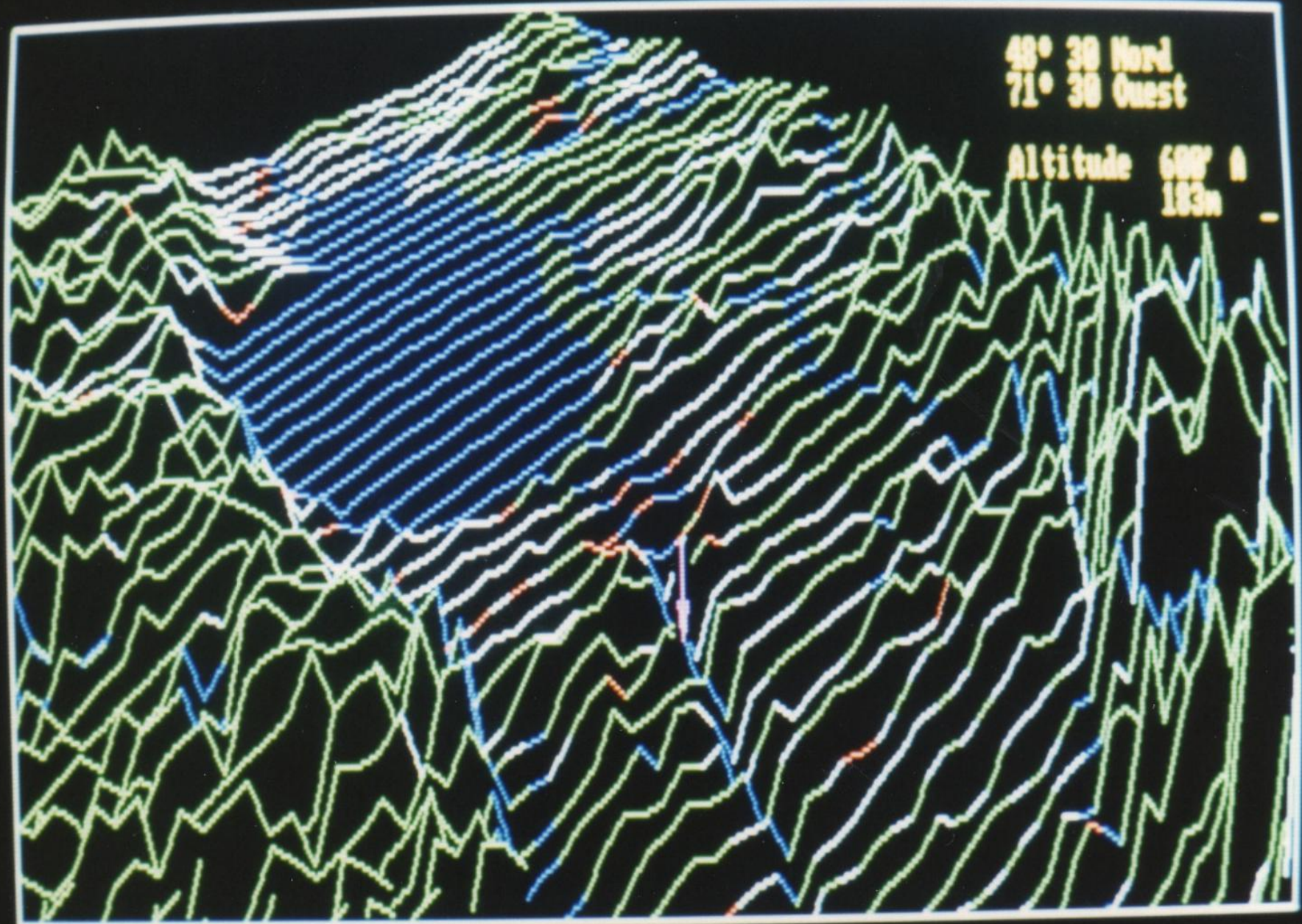


Lac St-Jean 1990

- Work as consultant professional engineer
- Radio Mobile is now a mature product
- Cost 1000\$
- In use by some 30 companies
 - Forest industry
 - Hydro power remote control
 - Mobile communications providers

48° 30 Nord
71° 30 Ouest

Altitude 600' A
183m -



AOÛT 1990
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PLAN

LE MENSUEL DU GÉNIE QUÉBÉCOIS



Ordre des ingénieurs du Québec
2020 University, 41^e étage
Montréal (Québec) H3A 2A5

August 1990
Special engineering
publication
about emerging
telecommunications
technologies

Output from
Radio Mobile
does the cover page

DOSSIER:
TÉLÉCOMMUNICATIONS
ET AÉROSPATIALE

Radio Mobile

<F>ile

<C>overage

<P>rofile

<M>aps

48 38 0 N Z= 1.58

71 0 0 0 A= 2.8

1> Parameters

2> Execute 3D picture

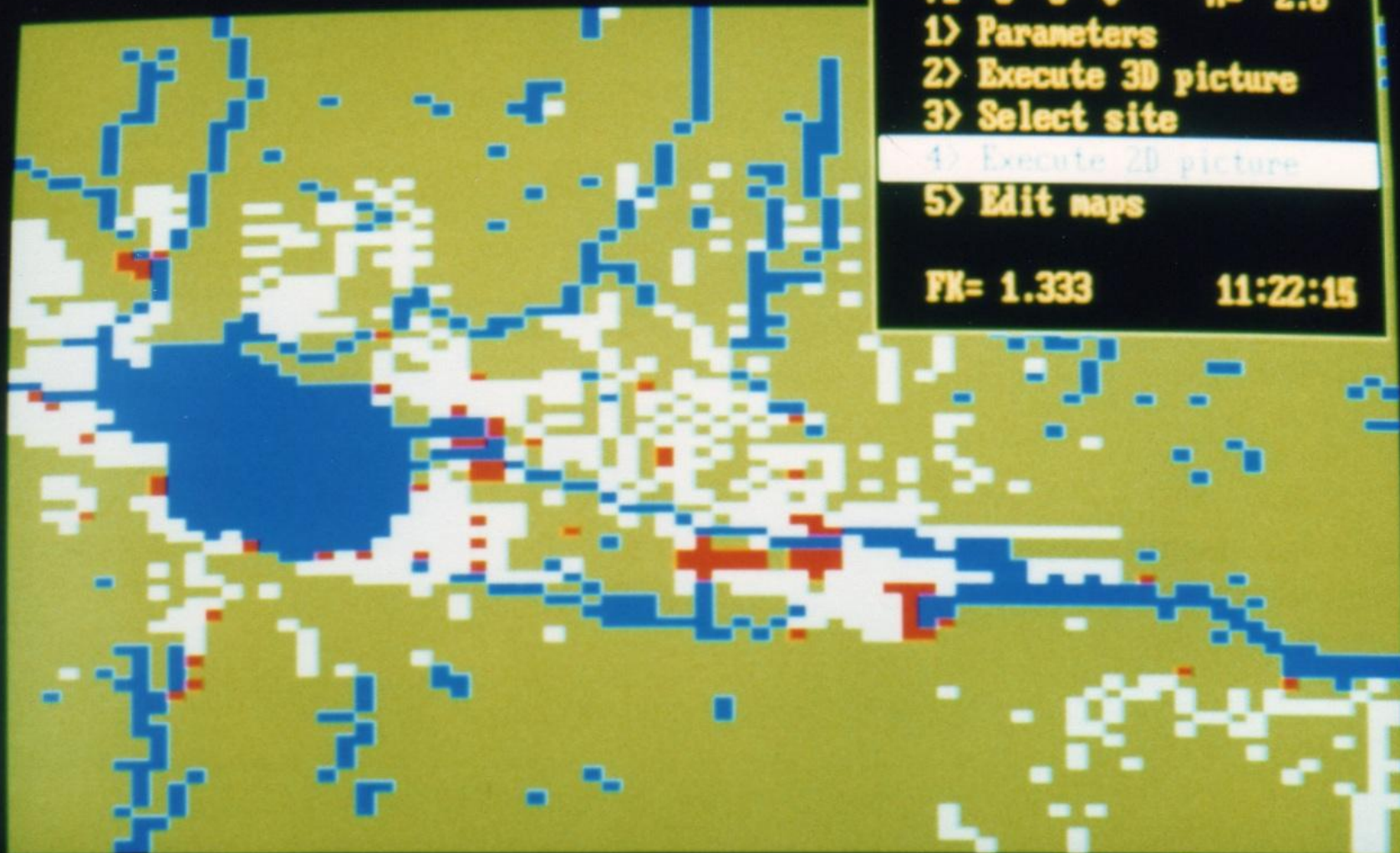
3> Select site

4> Execute 2D picture

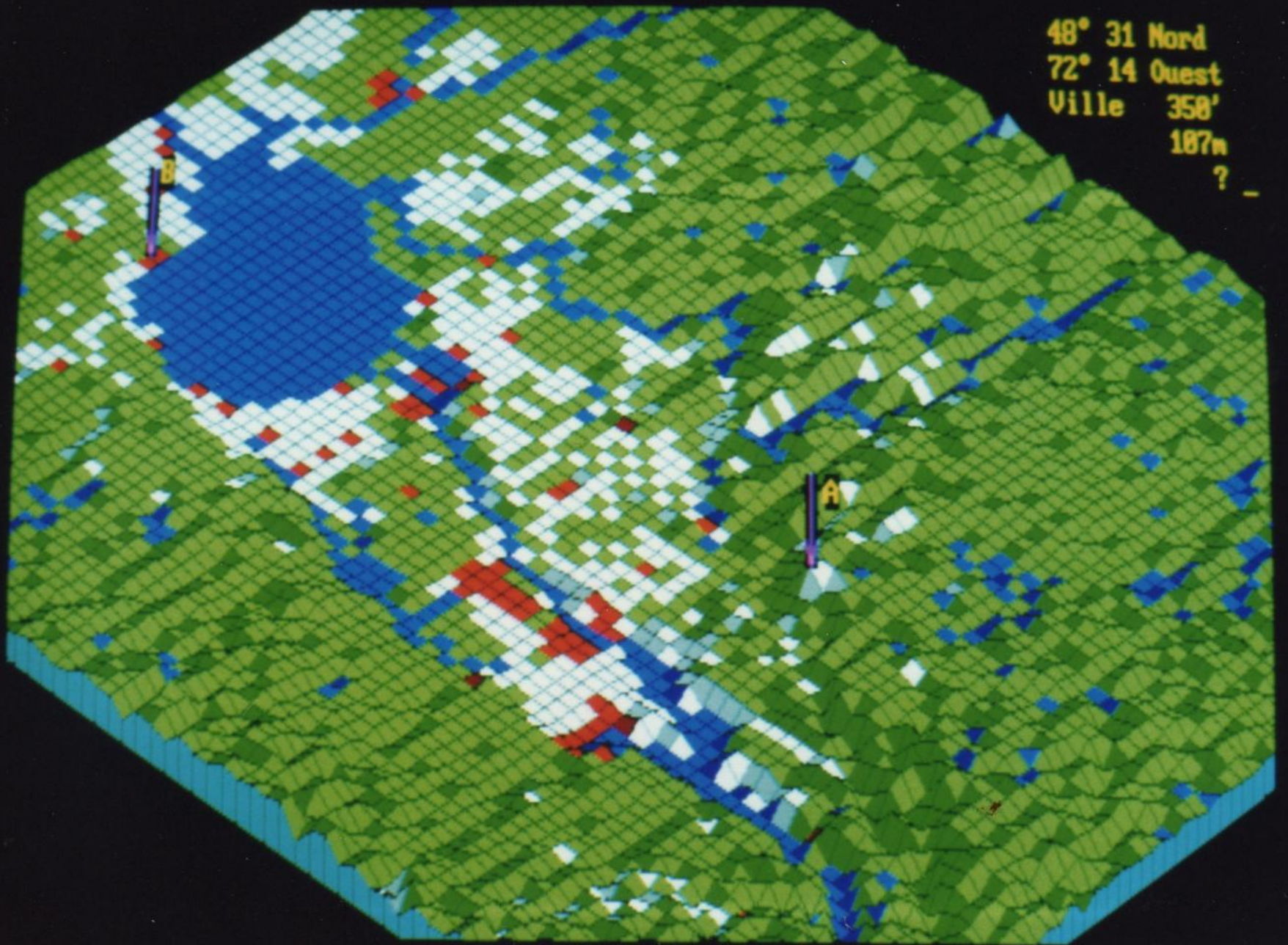
5> Edit maps

FK= 1.333

11:22:15



48° 31 Nord
72° 14 Ouest
Ville 358'
187m
? -



Site A (K= 1.333)(Freq= 450.00MHz)(0.66F 1)(Terrain=0.00)(A= 122.3dB) Site B

Fade margin = 37.52 dB

2000m
1900m
1800m
1700m
1600m
1500m
1400m
1300m
1200m
1100m
1000m
900m
800m
700m
600m
500m
400m
300m
200m
100m
0m

0.0 Km

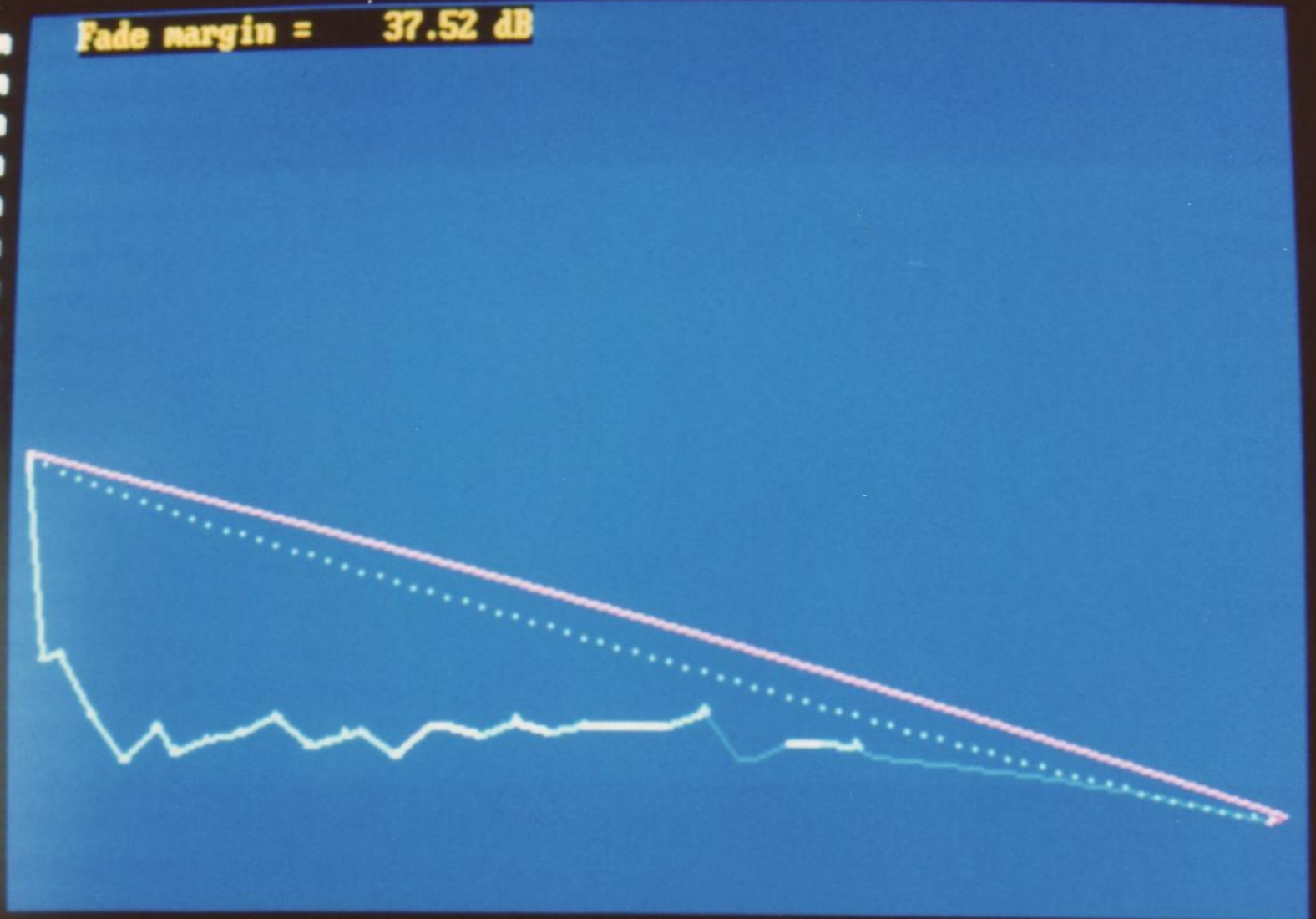
20.7 Km

41.3 Km

62.0 Km

82.7 Km

103.3 Km



DEMONSTRATION

Apparent power

: 94.86833 Watts (dipole)

Frequency

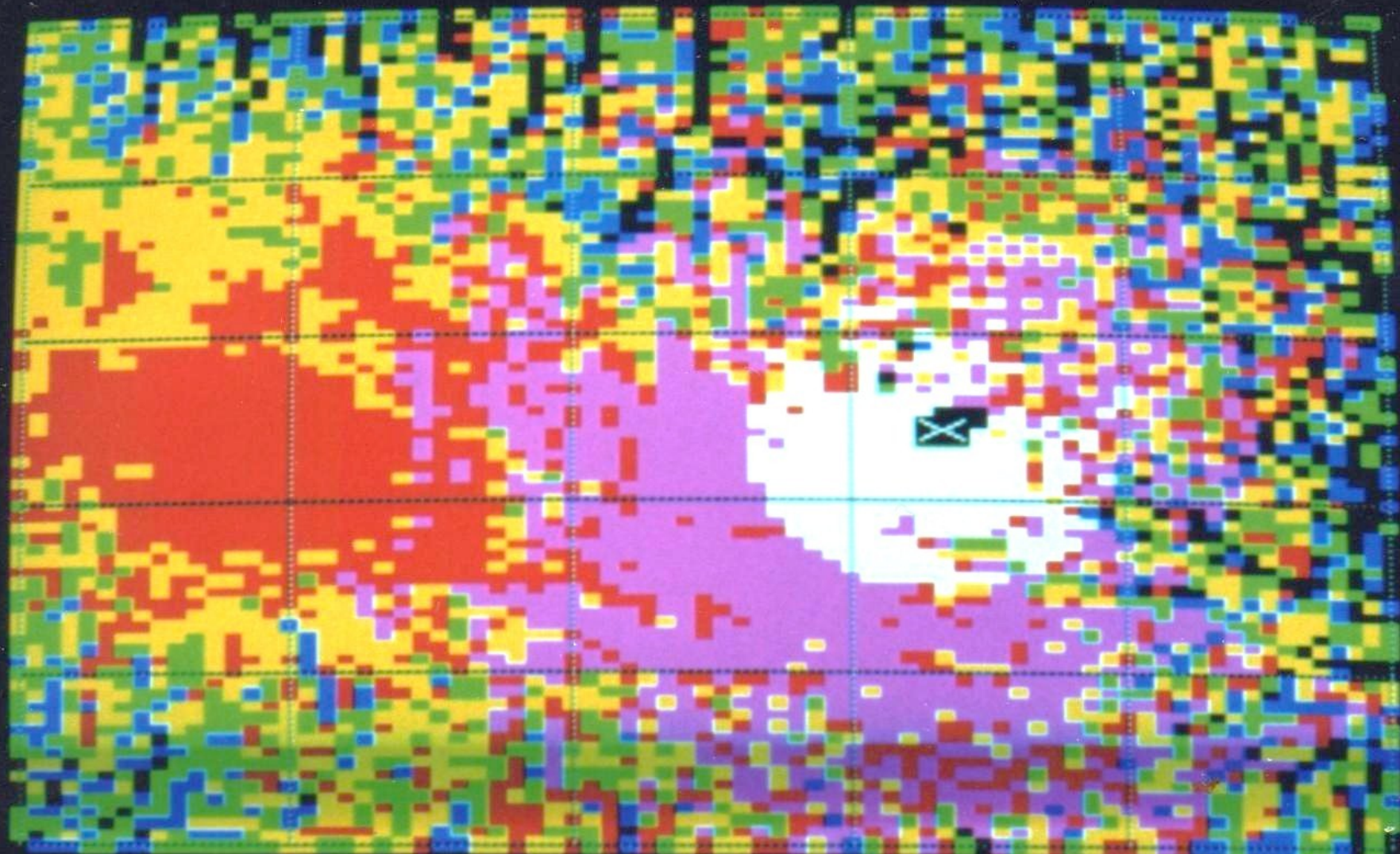
: 450.00000 MHz

Fade margin >

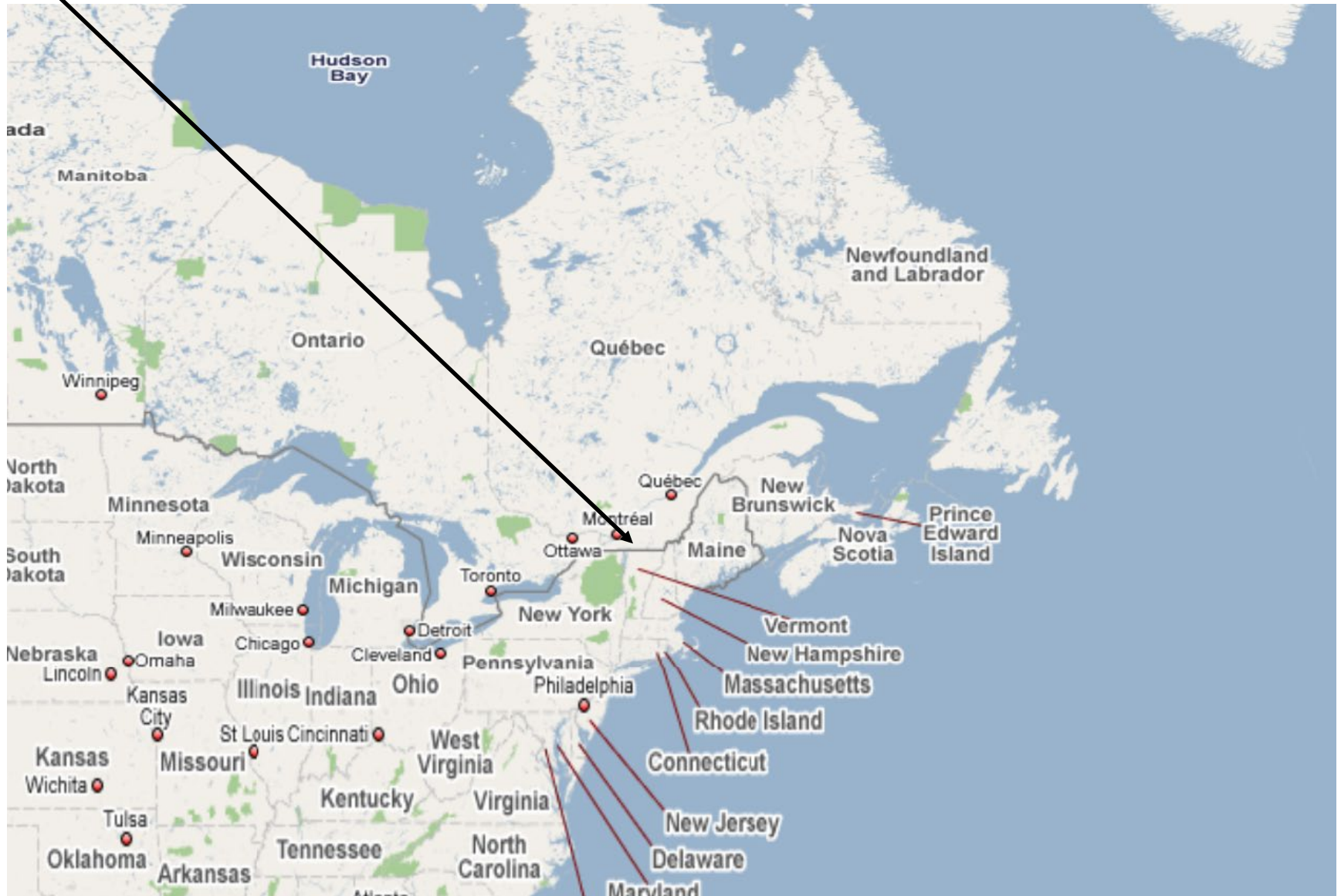
0 dB 10 dB 20 dB 30 dB 40 dB 50 dB

48° 36 0 N

70° 50 0 W



— St-Jean-sur-Richelieu 1991



St-Jean-sur-Richelieu 1991

- New job in the military industry
- New employer shows no interest in the program
- Radio Mobile is no longer available for sale
- I decide to make it available to amateur radio operators for 50\$, mostly repeater builders
- Program re-written in C

St-Jean-sur-Richelieu 1992-1996

- Program re-written with Visual Basic 3 for Windows 3.1
- Program re-written with Visual Basic 4 for Windows 3.1 and Windows 95
- Implementation of ITM model
- DLL in C++ is created to accelerate calculations
- Visual Basic 5 (32 bits version only)
- Visual Basic 6 (Huge improvement in speed)

St-Jean-sur-Richelieu 1997

- CPLUS.ORG offers me to host a site dedicated to the program
- Radio Mobile Website is created
- Radio Mobile becomes a freeware
- Users provide suggestions to improve the program
- Gtopo30 and DEM250 available at USGS

2000



- Space Shuttle Radar Topography Mission
- Radio Mobile becomes the first application to use the SRTM tiles at JPL

2002

- Radio Mobile Yahoo Group begins

2010

- Over 6000 members on the group!
- Available in 10 languages
- Used as RF planning tool by:
 - Amateur radio
 - Wireless Internet providers
 - Community FM radio
 - Red Cross
 - United Nations
 - Forest protection
 - Civil protection
 - Canadian Mountain police
 - Canadian Coast Guard