Released courtesy of Cameco Corporation, the following document pertains to 3D inversion of a transient AMT (TAMT) data-set (tipper only) collected in the summer of 2002 near Slush Lake over the Millenium deposit (Figure's 1 and 2).

Figure 1: Regional Area Map

Shown in Figure's 3 to 8 are plan view map's of the 3D TAMT inverted results using the T_x, T_y components of the tipper alone with a uniform 1000 $\Omega - m$ earth as the initial and prior.Volumetric plots of conductive material in the 3D cube are shown in Figure's 10 to 12. Plots of vertical slices out of the 3D cube down the survey lines are shown in Figure's 13 to 17. Some general comments follow;
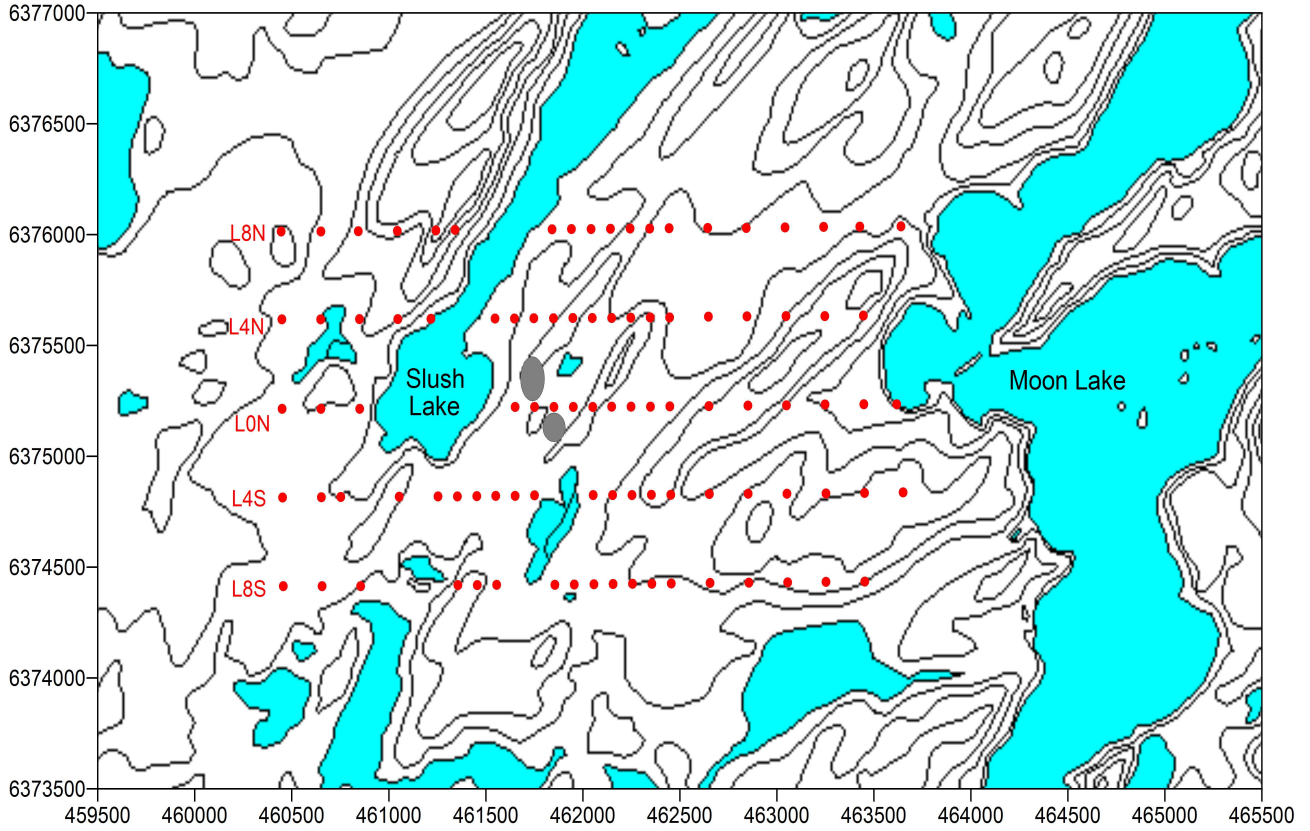
Figure 2: Local Area Map

- An east dipping conductive basement structure is seen (Figure's 10 and 13 to 17).

- Moderately conductive sandstone is seen to the west of the conductive basement structure (up dip), beginning at approximately 300 m depth (Figure's 3, 4 and 5).

- The "heart" of the conductive basement structure lies in the depth range 750 m to 950 m, being shallowest on L0N, L4N and deepest on L8N, L4S and L8S (Figure's 8, 11 and 13 to 17). Therefore, as much as 200 m vertical relief is noted on the conductive basement structure in the vicinity of L0N/L4N, possibly indicating the presence of an anticline type structure (Figure 11).

- There also appears to be a horizontal offset on the conductive basement structure in the vicinity of L0N. The conductive basement trend is offset as much as 100 m East-West at 1000 m depth when comparing it's centroid on L8S/L4S/L8N at 9E to that seen L0N/L4N at 8E (Figure's 7 and 12).

The 3D TAMT model comprised forty-one 100 m wide cells in the N-S direction by sixty-one 100 m wide cells E-W and 36 cells vertically for 90,036 model parameters. The data at all 96 stations was simultaneously inverted at 15 frequencies for as many as 11,520 data parameters (Z_{xy}, Z_{yx}, T_x, T_y). Only 15 frequencies were used in this case as the H_z data below 30 Hz were generally quite wind-noise contaminated. This inversion consumed slighty less than 15 GBytes of RAM and required less than 6 hrs to complete 5 iterations on our new Intel based cluster consisting of a dual processor, penta-core Xeon server with 96 GBytes of RAM with 6 quad core, core-i7 "slaves" for 36 cores total.
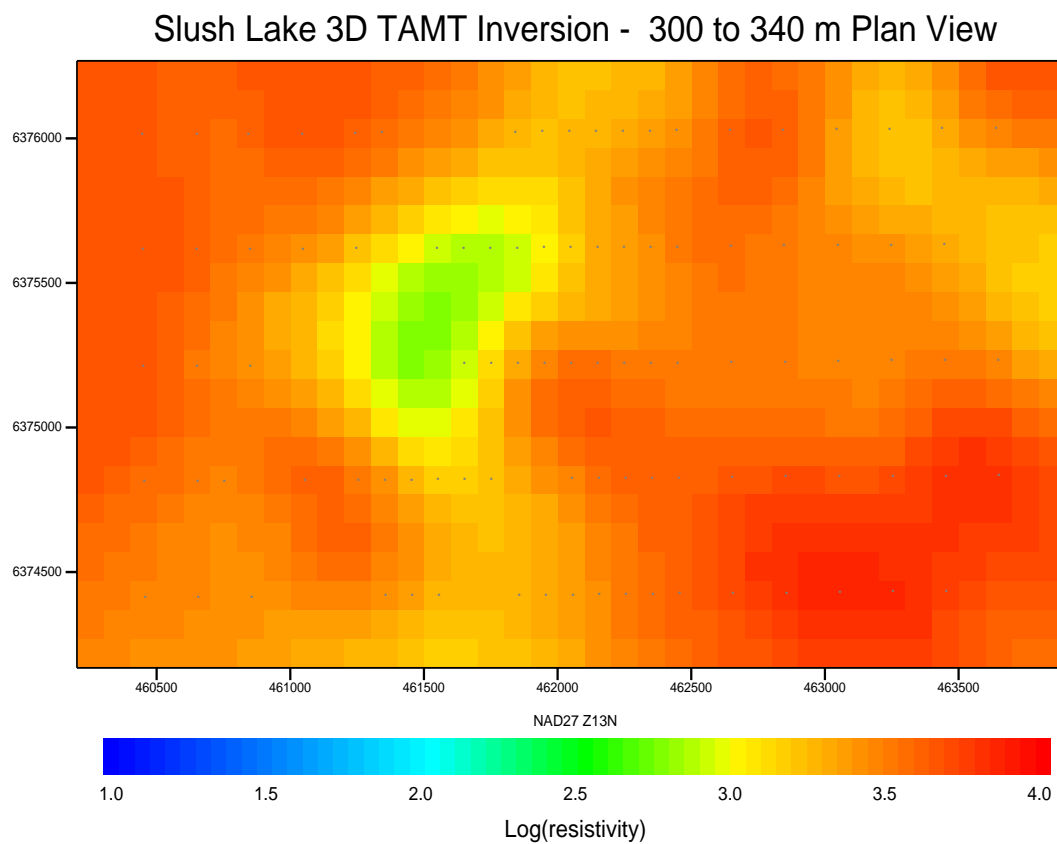
Slush Lake 3D TAMT Inversion - 300 to 340 m Plan View

Figure 3: Horizontal slice out of tipper 3D inverted model

Slush Lake 3D TAMT Inversion - 380 to 420 m Plan View
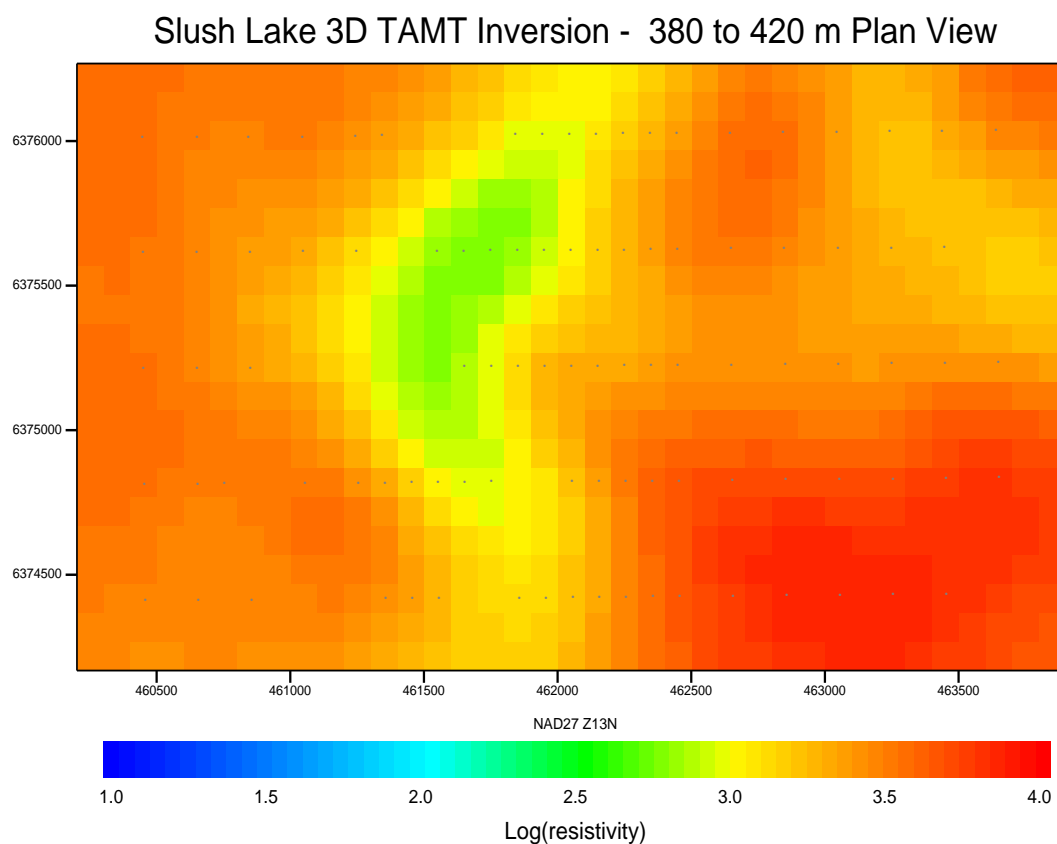
Figure 4: Horizontal slice out of tipper 3D inverted model

Slush Lake 3D TAMT Inversion - 500 to 550 m Plan View
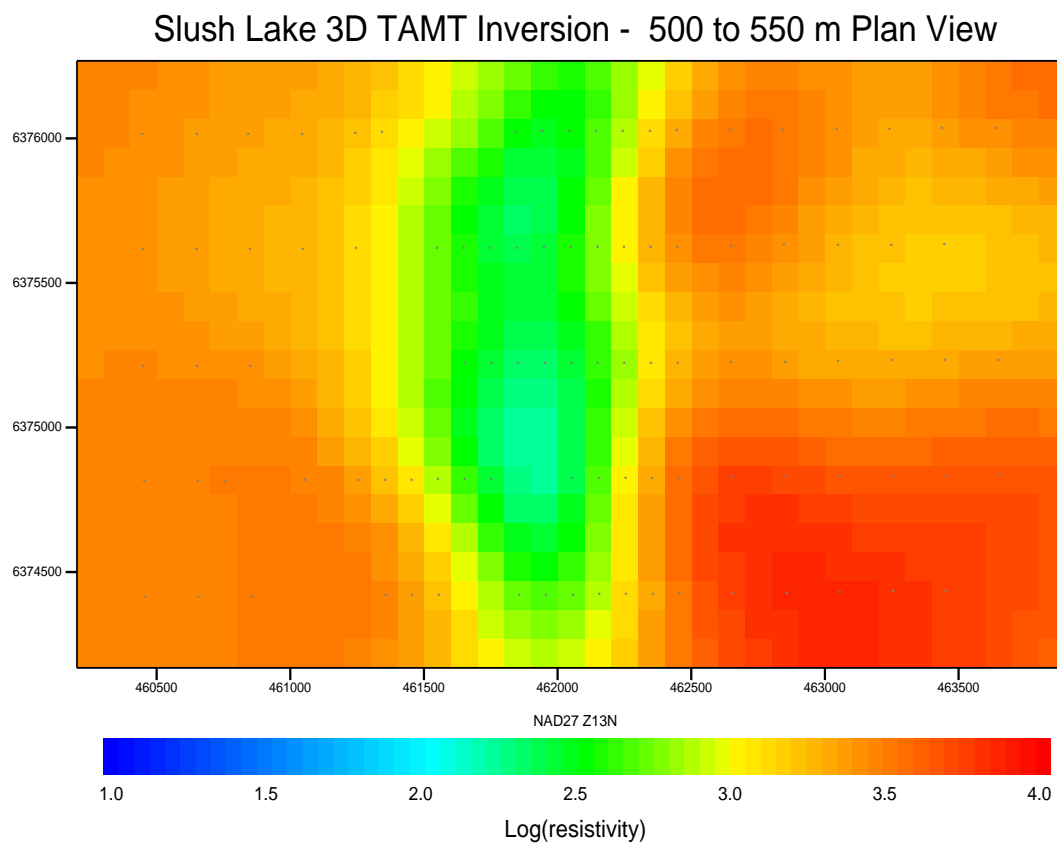
Figure 5: Horizontal slice out of tipper 3D inverted model

Slush Lake 3D TAMT Inversion - 700 to 760 m Plan View
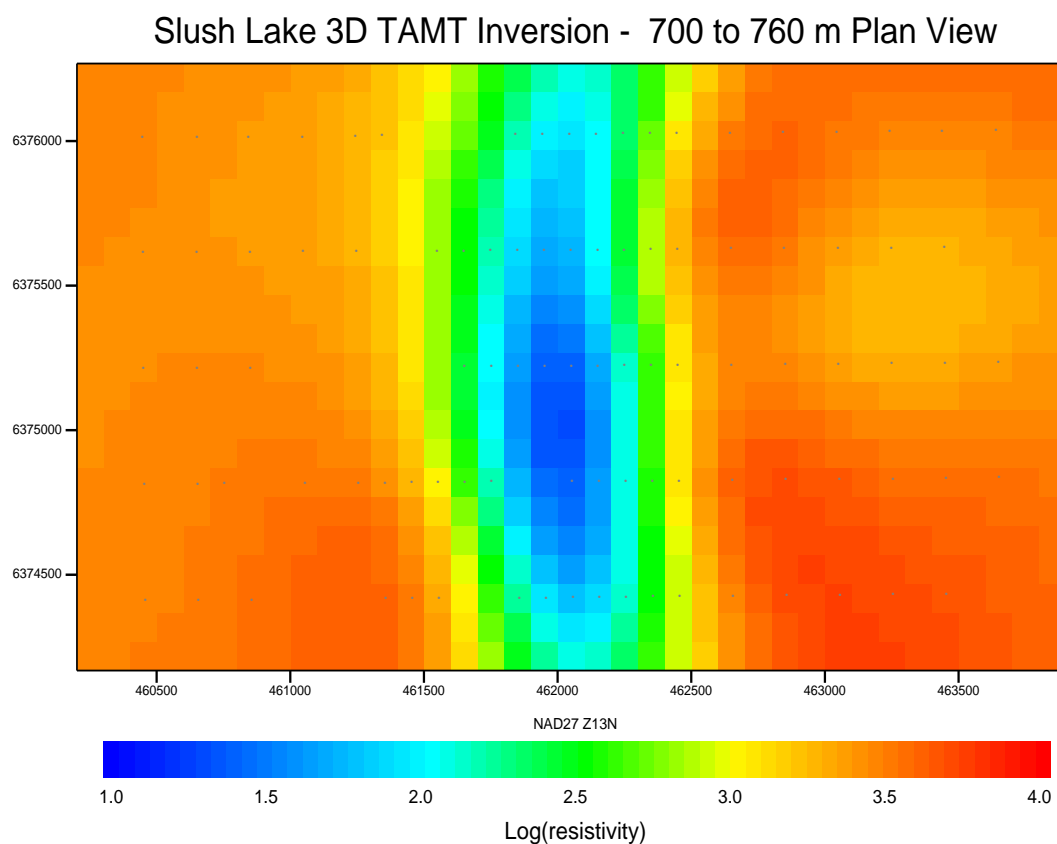
Figure 6: Horizontal slice out of tipper 3D inverted model

Slush Lake 3D TAMT Inversion - 960 to 1040 m Plan View

Log(resistivity)
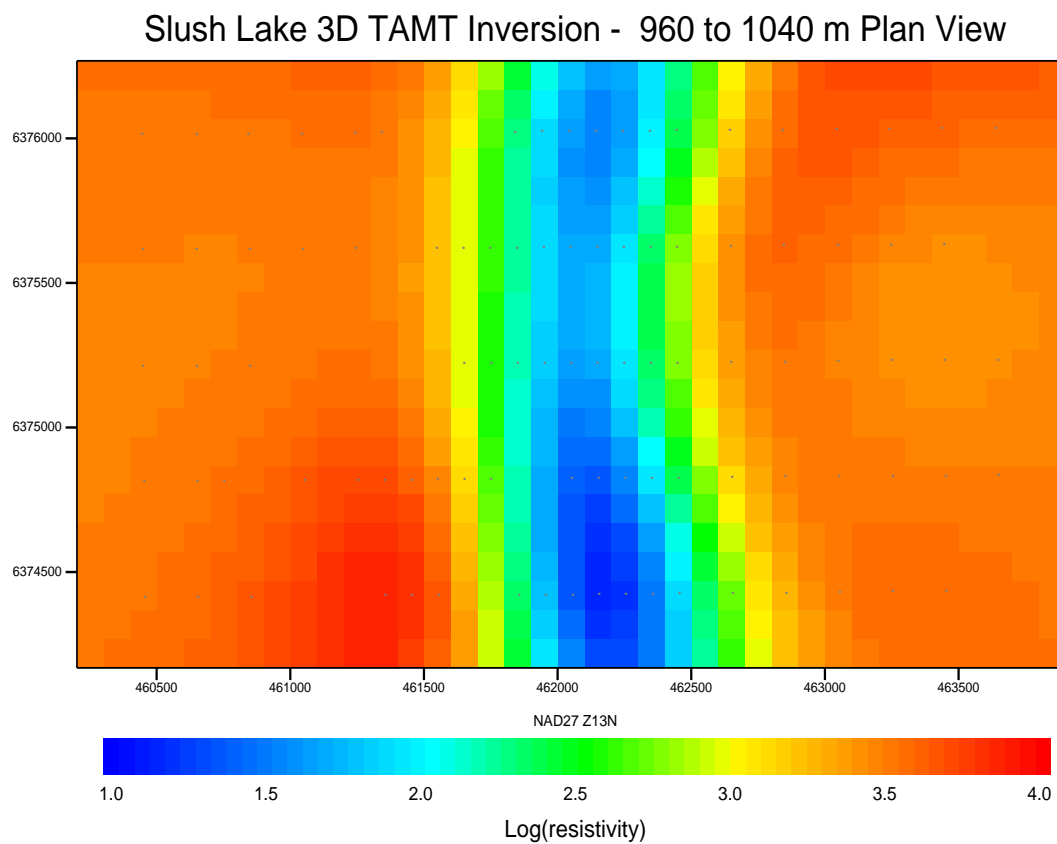
Figure 7: Horizontal slice out of tipper 3D inverted model

Slush Lake 3D TAMT Inversion - 1260 to 1400 m Plan View

Log(resistivity)
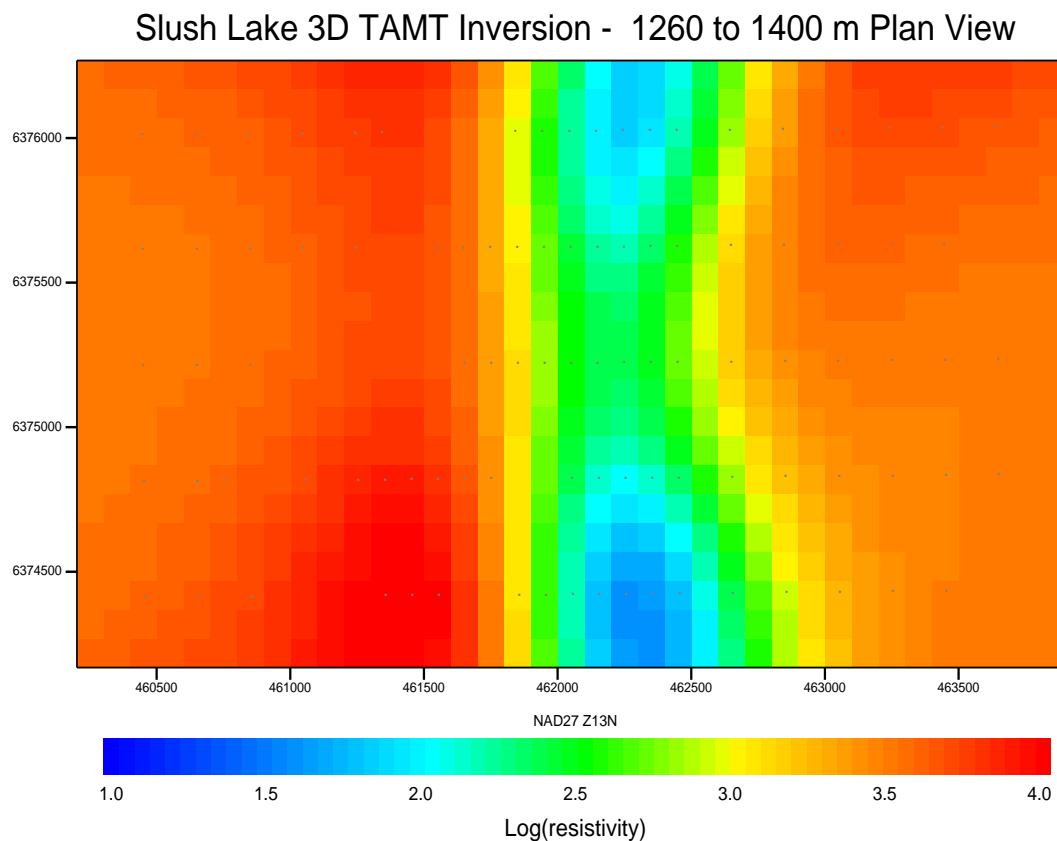
Figure 8: Horizontal slice out of tipper 3D inverted model
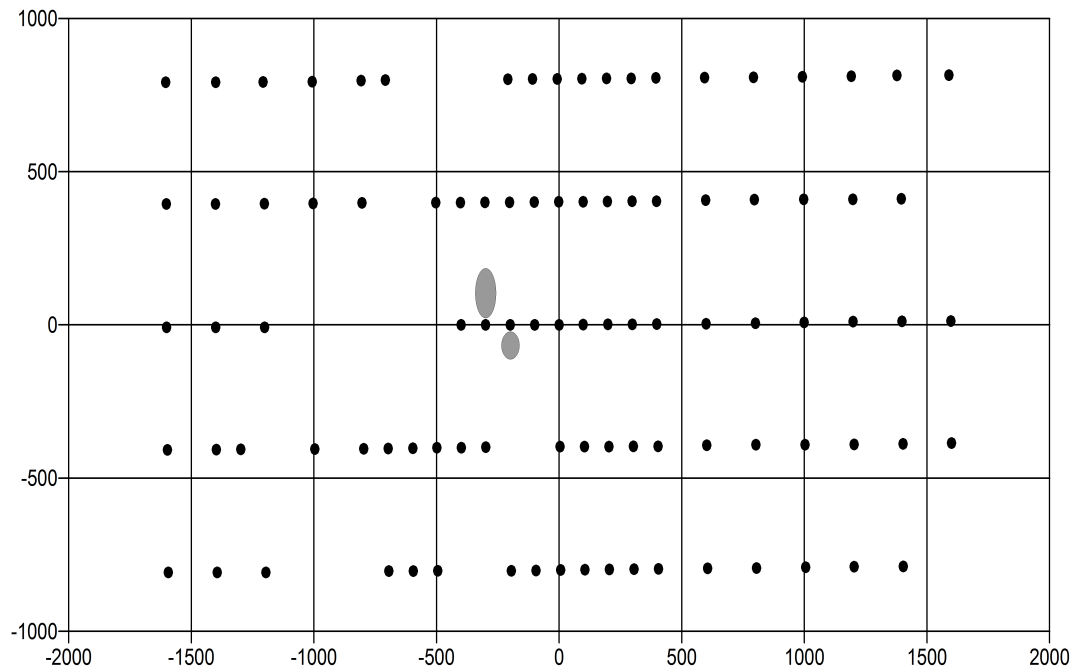
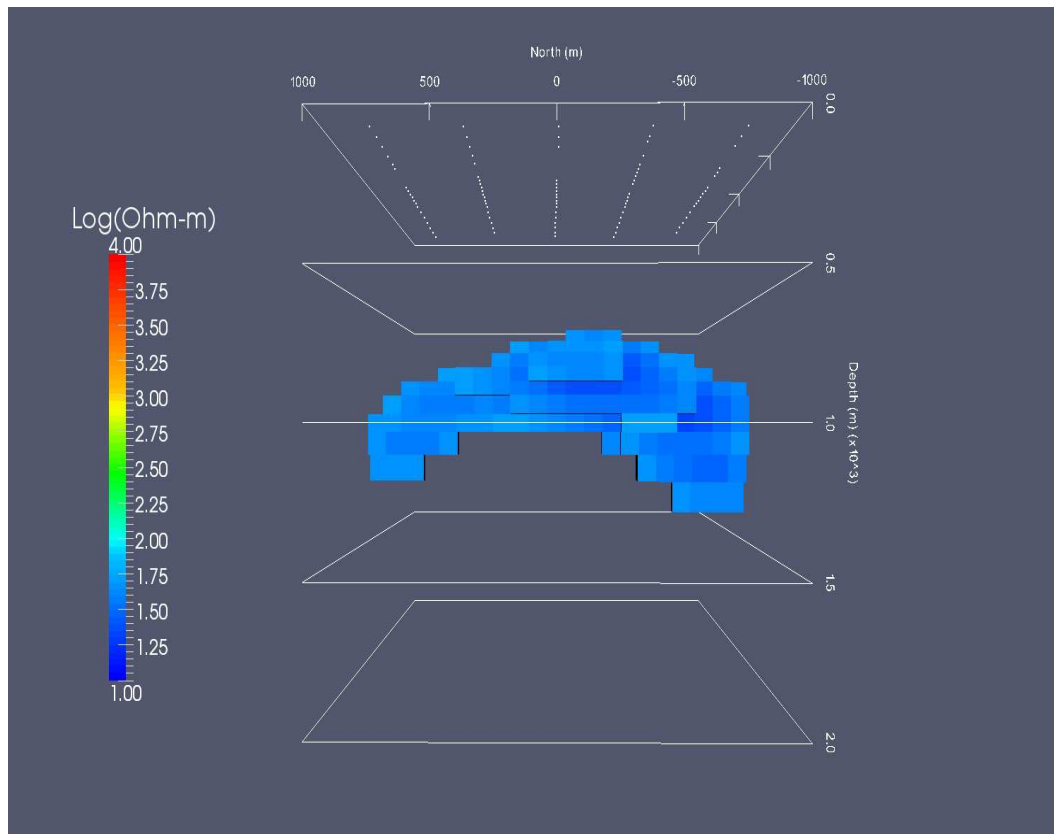Figure 9: 3D TAMT Model Co-ordinates
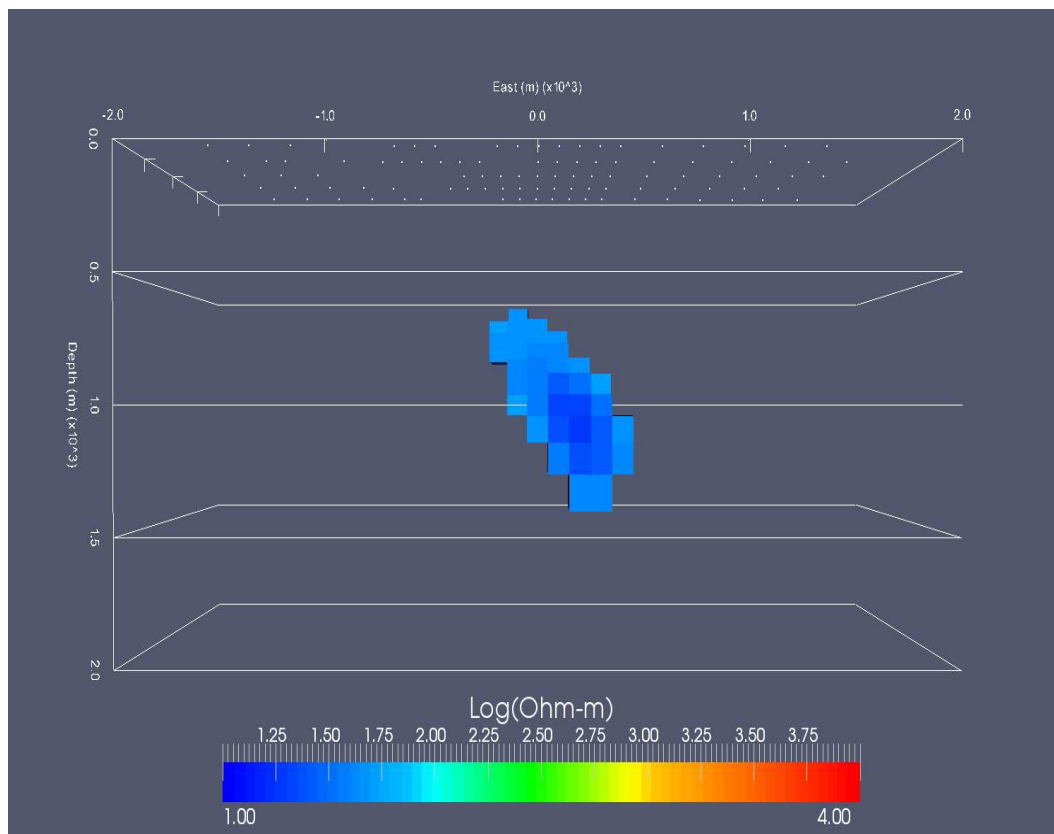
Figure 10: 3D Volumetric plot, looking North
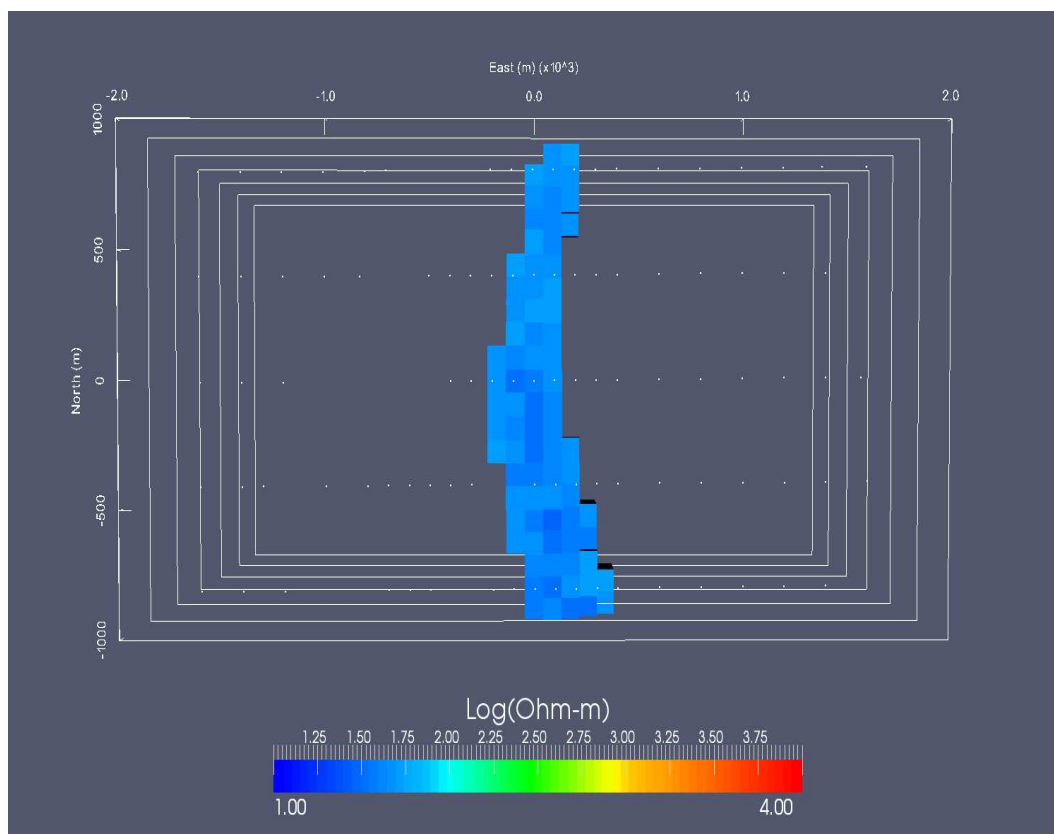
Figure 11: 3D Volumetric plot, looking East

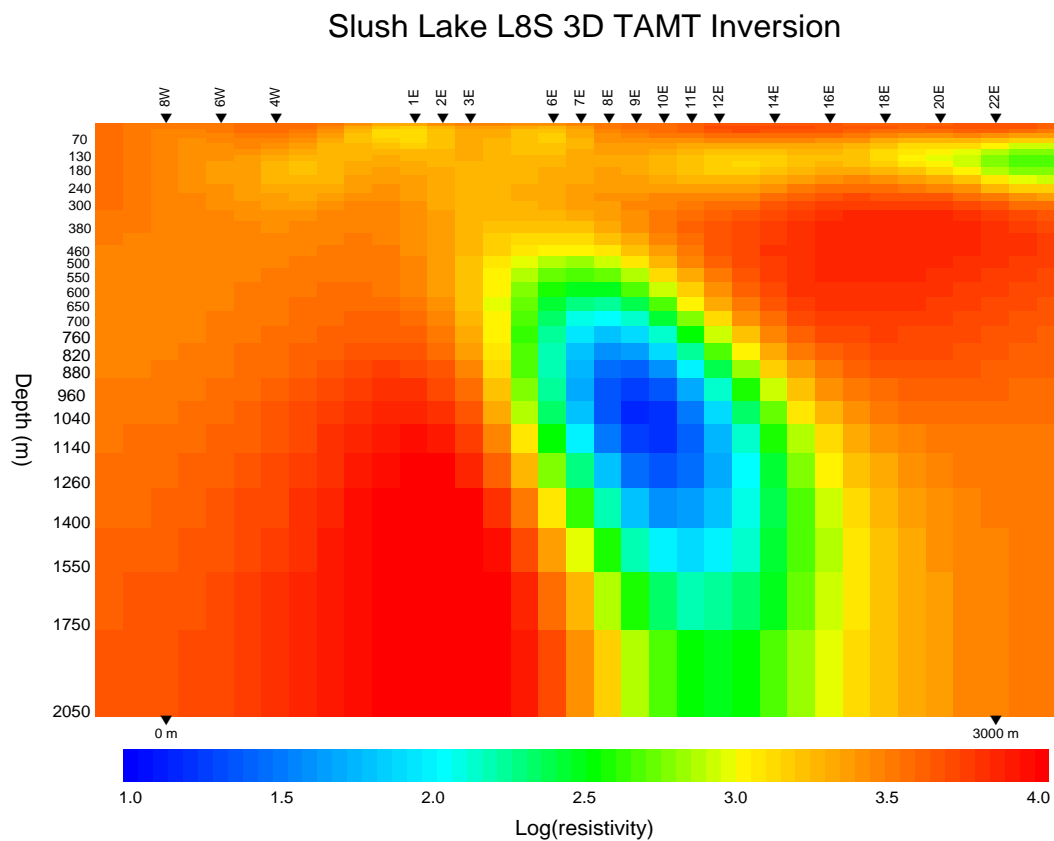
Figure 12: 3D Volumetric plot, looking down

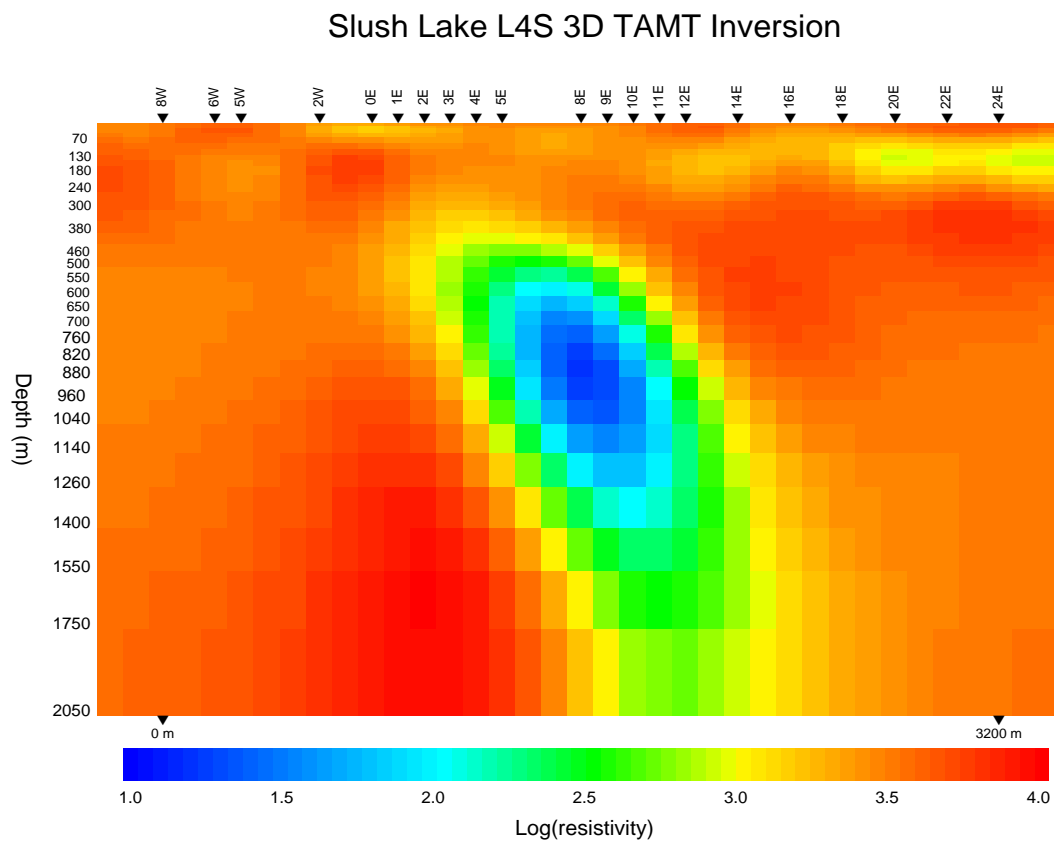Figure 13: Vertical slice out of 3D cube down L8S

Figure 14: Vertical slice out of 3D cube down L4S
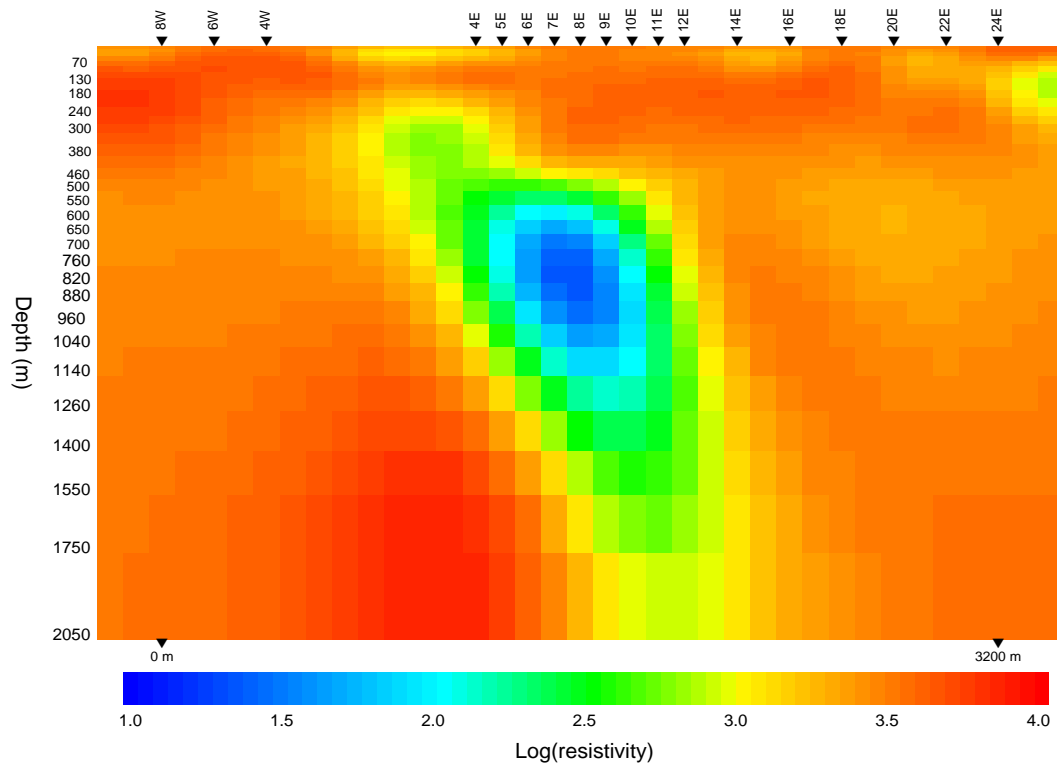
Slush Lake L0N 3D TAMT Inversion

Figure 15: Vertical slice out of 3D cube down L0N

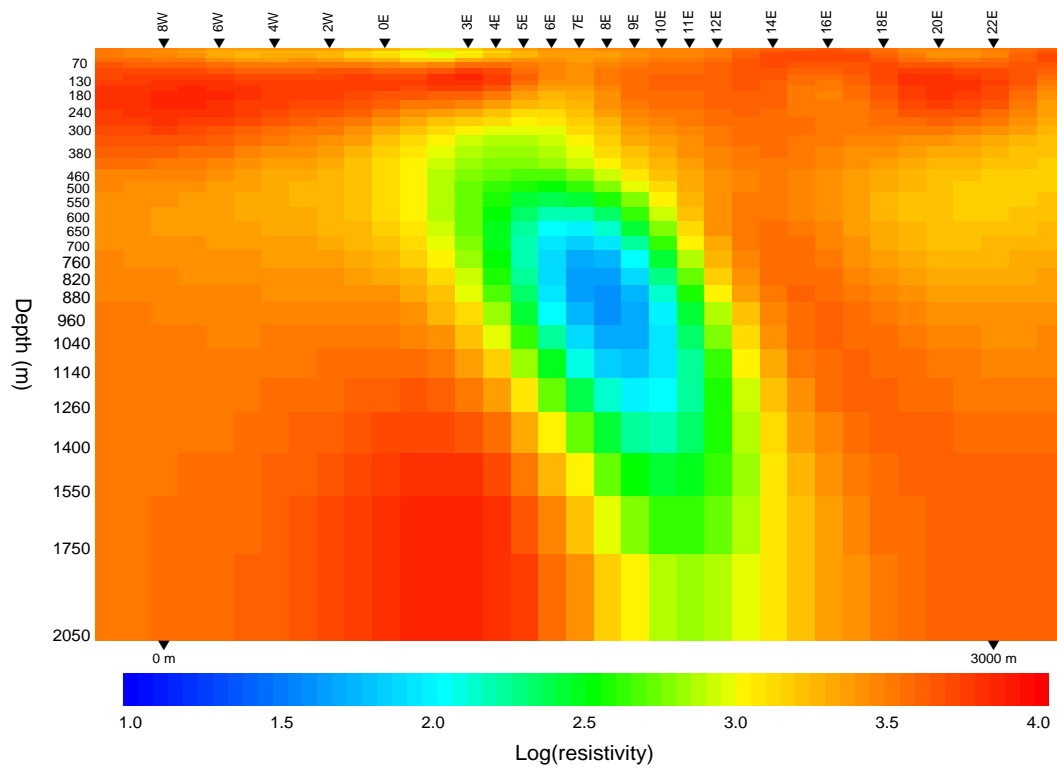## Slush Lake L4N 3D TAMT Inversion

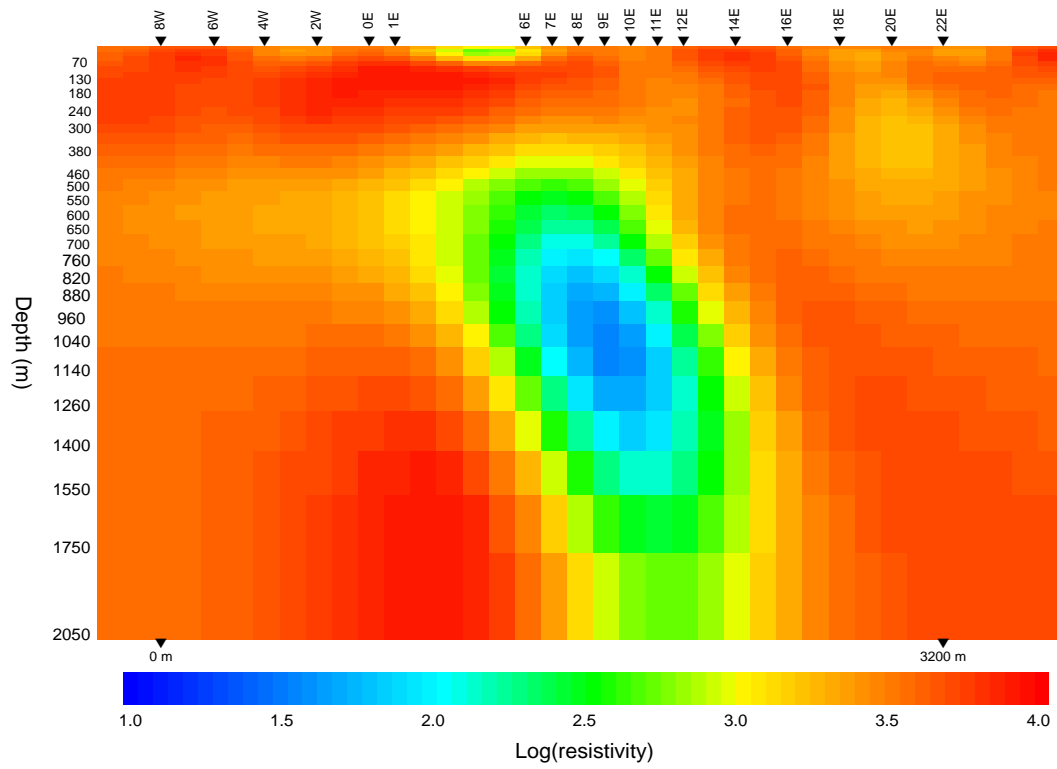Figure 16: Vertical slice out of 3D cube down L4N

Slush Lake L8N 3D TAMT Inversion

Figure 17: Vertical slice out of 3D cube down L8N