Aarhus Geophysics

# Report # 2011_17 A

# Processing and inversion of SkyTEM data

## Client: USGS

## Colorado. Area "Paradox"

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# 1. Introduction

This report is composed on the basis of data delivered by SkyTEM Surveys Aps on behalf of USGS, processed and inverted by Aarhus Geophysics Aps. The data is from an airborne electromagnetic geophysical survey carried out in Colorado, USA, in autumn 2011.

This report contains results from a series of flight lines acquired over few days, all located within the “Paradox” area (1200 line km). Another report contains the results from the flight lines located within the “St. Luis” area. Apart from the actual survey, repeat testlines were also processed and inverted.

Refer to figure 1 for a view of the location of the dataset processed.

All coordinates are in WGS 84, UTM 12 unless otherwise stated.

This report has been prepared by Ph.D. Andrea Viezzoli and MSc. Bjarke Roth from Aarhus Geophysics ApS.

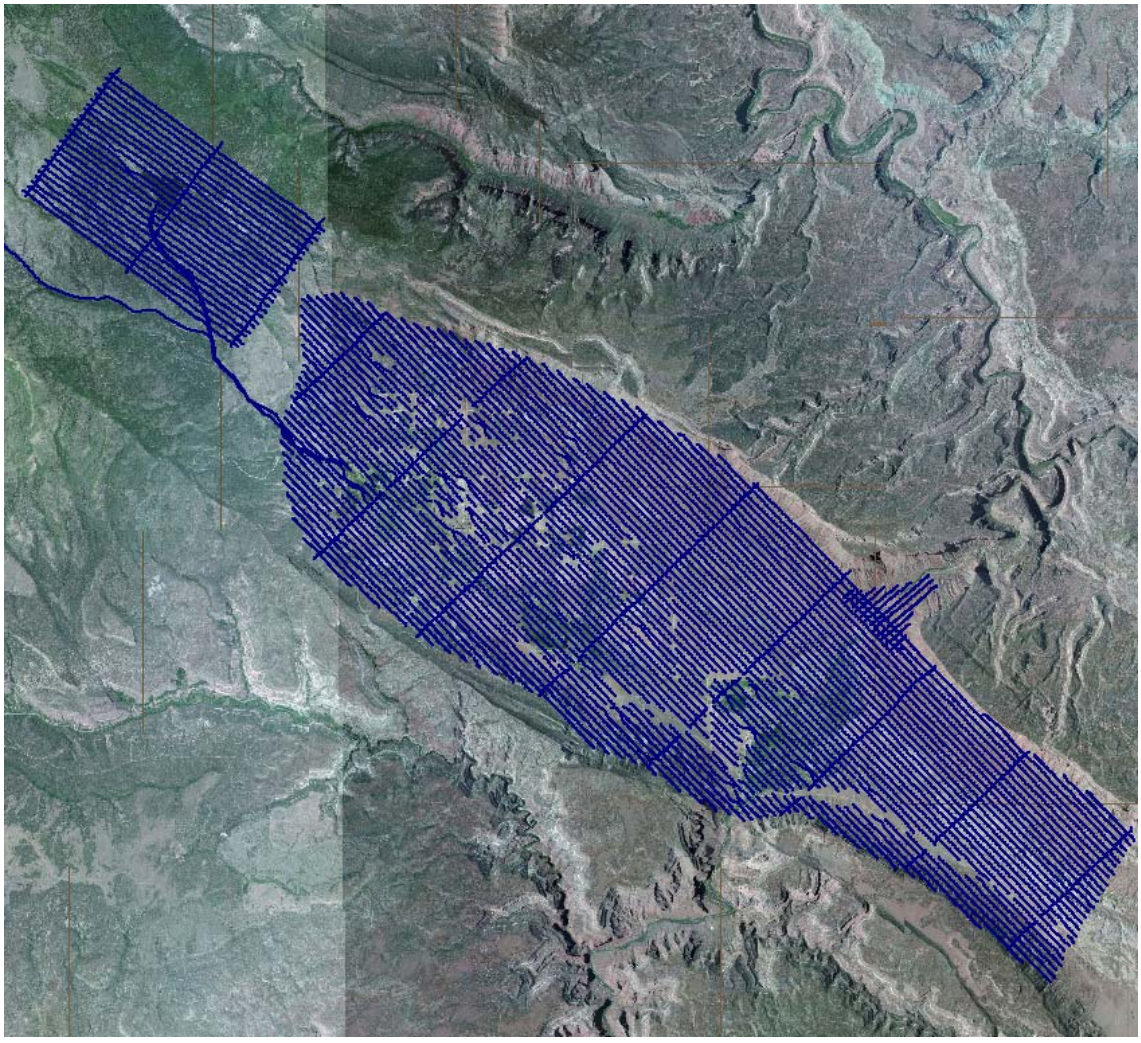


Figure 1. Location of survey with satellite imagery

## 2. The SkyTEM system

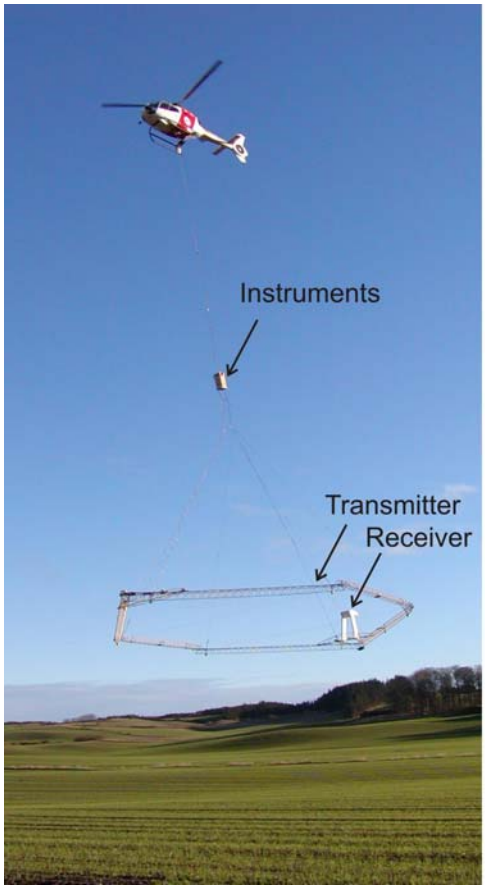



Figure 2 The SkyTEM System

SkyTEM is a time-domain helicopter electromagnetic system designed for hydrogeophysical, environmental and mineral investigations. The system is shown in operation in Figure 2. The SkyTEM system is carried as an external sling load independent of the helicopter. The transmitter, mounted on a lightweight wooden lattice frame in an eight-sided polygon configuration, is a four-turn 314 $m^2$ eight-sided loop divided into segments for transmitting a super low moment (SLM) in one turn and a high moment (HM) in all four turns. The LM is about 10 A with a turn-off time of about 4 μs; the HM transmits approximately 100 A and has a turn-off time of about 53.0 μs. This yields a maximum magnetic moment of approximately 120000 $Am^2$.

The z-component receiver loop is placed approximately 2 m above the frame in what is practically a central loop configuration with a vertical offset. Two lasers placed on the frame measure the distance to terrain continuously and an inclinometer measures the tilt of the frame. Power is supplied by a generator placed between the helicopter and the frame.

Measurements are carried out continuously while flying. Every single transient is stored in a binary format, and pre-stacked. The stack size is LM = 160 transients/stack and HM = 64 transients/stack. Measurements cover the time span of 14 μs to approx. 8.84 ms from beginning of ramp down.

Apart from GPS-, altitude- and TEM data, a number of instrument parameters are monitored and stored digitally so that they can be used for quality control when processing the data.

## 3. Processing

The aim of processing is to prepare data for the data inversion. This includes data import, data corrections, filtering and culling and discarding of distorted or noise-filled data. The data left are then averaged spatially using trapezoid filters of the optimum size that allows increasing signal to noise level without compromising lateral resolution. Figure 3 shows the schematic workflow of the processing and inversion process. The processing is done using the SkyTEM module if the Aarhus Workbench program package.

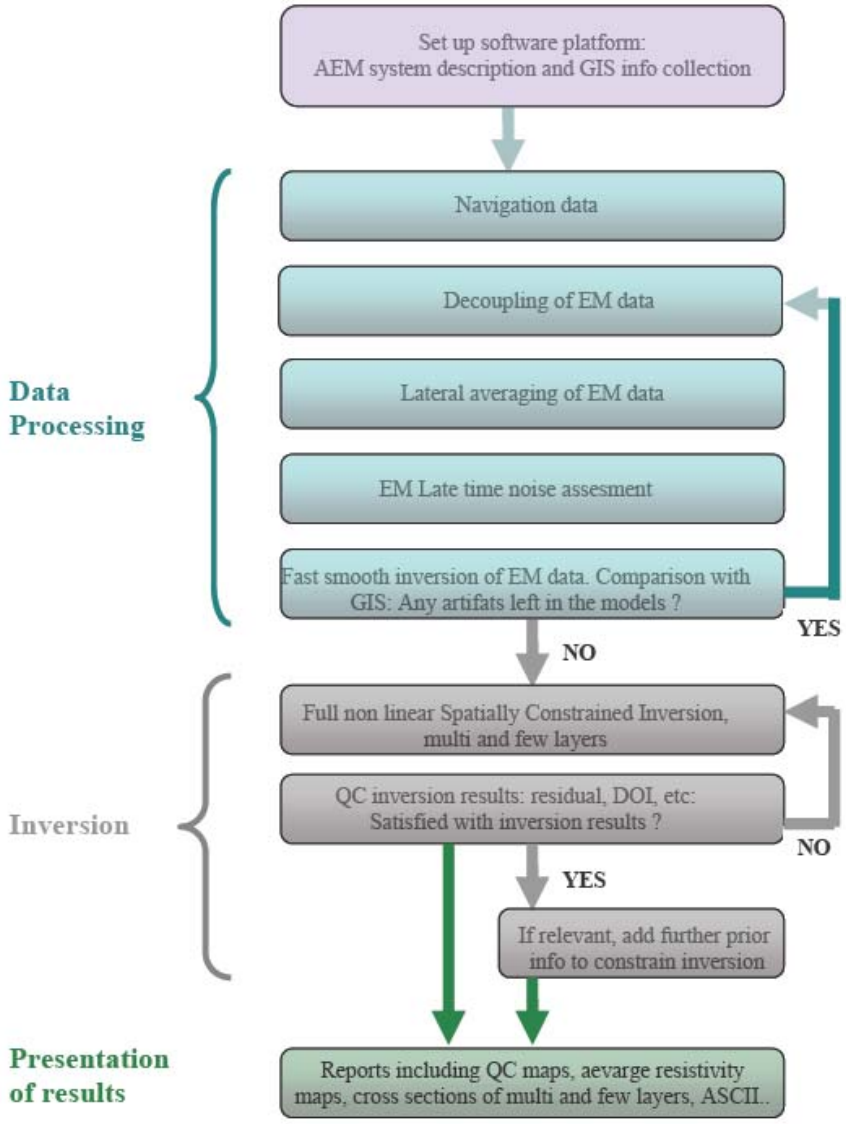



Figure 3. Schematic of the workflow for the data processing and inversion of SkyTEM data carried out with the Aarhus Workbench.

All data are marked with a time stamp which is the key to bind information about current, altitude, GPS coordinates etc. During the processing a running mean is calculated separately for the X- and Y direction tilt data while

algorithms are used to automatically filter out bad altitude data - typically reflections from tree or bush tops.

In this survey, the first usable time gate used for the low moment is around 14 µs after TX has started to ramp down. Comparisons with high altitude tests prove that data from this gate are surely unbiased in the vast majority of the area. The first usable gate for the high moment is no earlier than 180 µs after ramp down.

The processing of voltage data is done in a two step system: an automatic and a manual. In the former data is corrected for the transmitter/receiver tilt and a number of filters designed to cull coupled or noise influenced data is deployed.

After that automatic processed raw soundings are inspected visually using a number of different data plots. At this stage it is accessed whether the filters have removed the right amount of data coupled to man-made infrastructures. It usually necessary to intervene manually to fine tune the outcome of the filters and obtain the most reliable results. Figure 4 shows a view of the data processing module of the Aarhus workbench, over a section of SkyTEM data from another survey, with data culled due to coupling with man-made structures.

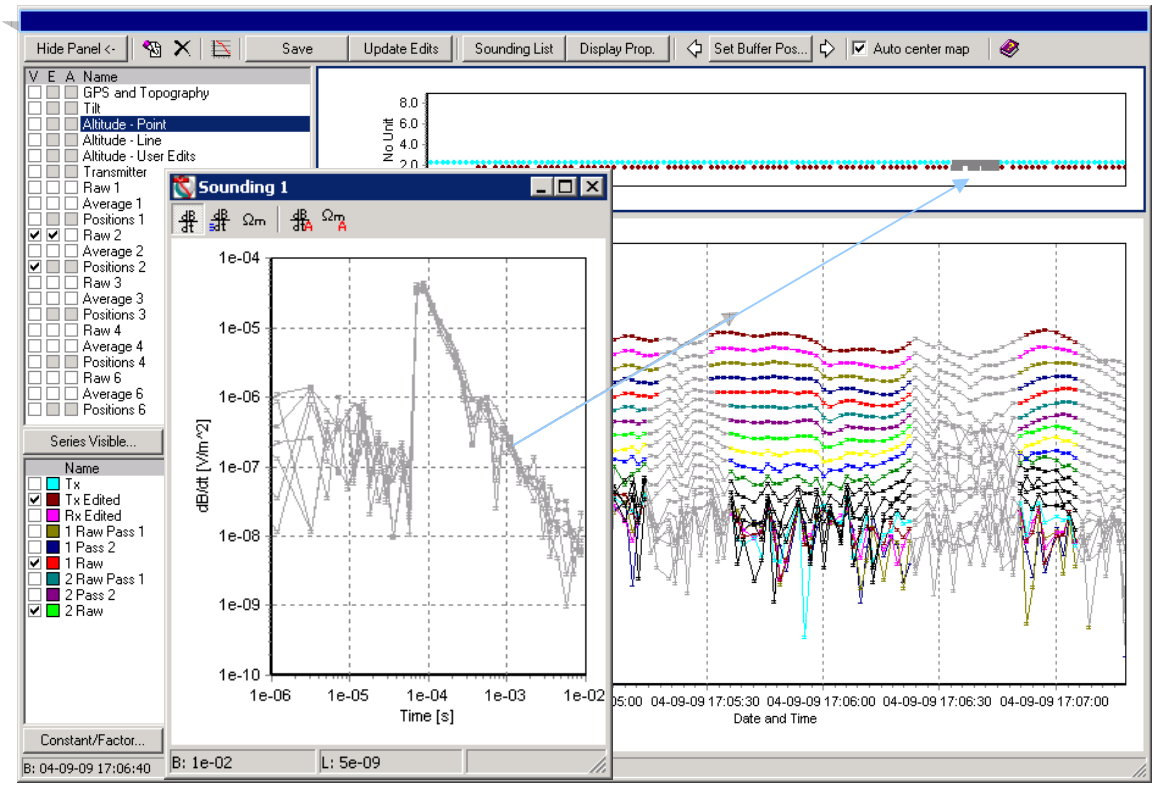



Figure 4. The data processing window of the Aarhus Workbench, showing portions of data deleted because of coupling with man-made structures. The insert shows the corresponding transient in dB/dT.

An indication of this data optimization is given in one of the QC maps in Appendix1.2, which provides an overview of the number of gates retained after all processing steps, for the whole survey.

Data are then averaged to increase the signal to noise ratio data using a trapezoid shaped averaging core, where the averaging width of late time data is larger than that of early time data, as seen in Figure 5.

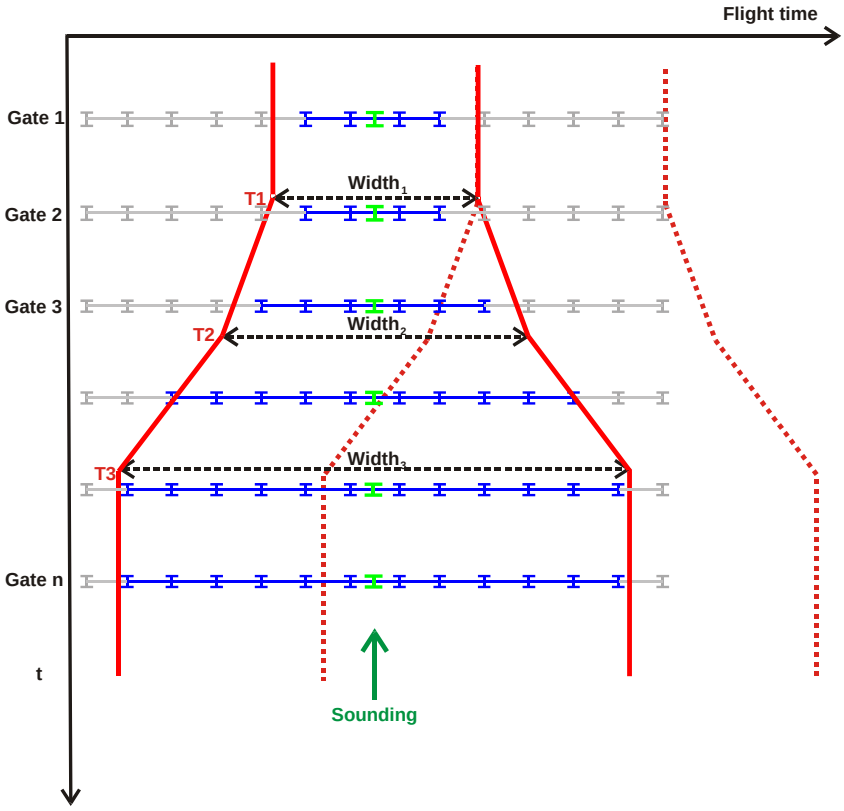
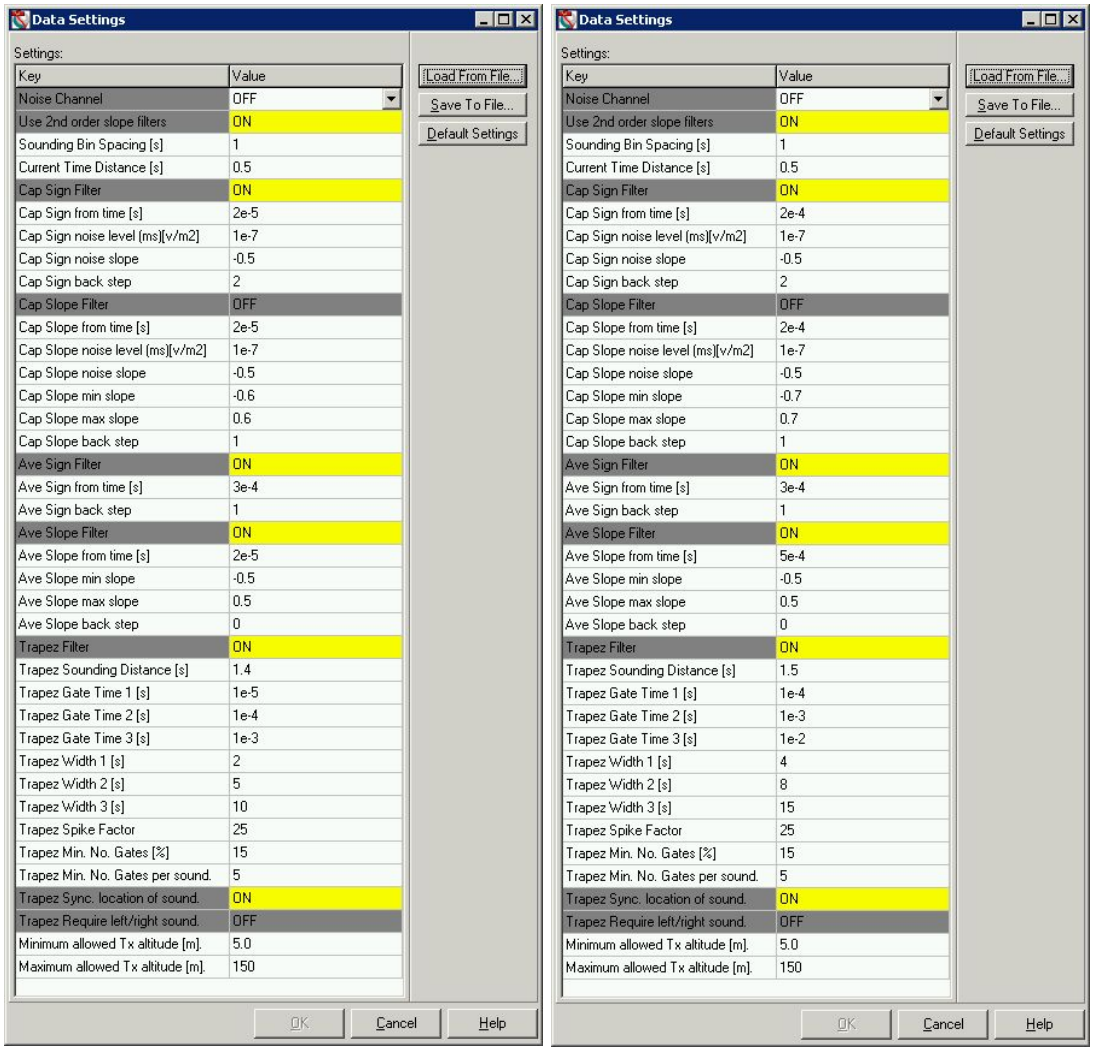



Figure 5. The principle behind the trapezoid shaped averaging core where data are averaged over larger time spans at later times to maintain as much lateral resolution as possible at early times while keeping a high penetration depth.

The data uncertainty for these stacked (averaged) soundings is calculated from the data stack. Furthermore, a minimum small uniform data uncertainty is assigned to all data. This uncertainty has been set to 3%.

Soundings were taken out for every 1.5 s corresponding to approximately 30 m. The good signal levels at early times recorded in large portions of the survey, which are due to general low resistivity of the near surface layers, allowed to use filters as narrow as 2 s at 15 μs. Their width then it increases with depth reaching 15 s at 10 ms. Figure 6 summarizes the filters settings employed in the automated processing, before the manual editing, for low and high moment.



Data Settings

Settings:

| Key | Value |
|---|---|
| Noise Channel | OFF |
| Use 2nd order slope filters | ON |
| Sounding Bin Spacing [s] | 1 |
| Current Time Distance [s] | 0.5 |
| Cap Sign Filter | ON |
| Cap Sign from time [s] | 2e-5 |
| Cap Sign noise level (ms)[v/m2] | 1e-7 |
| Cap Sign noise slope | -0.5 |
| Cap Sign back step | 2 |
| Cap Slope Filter | OFF |
| Cap Slope from time [s] | 2e-5 |
| Cap Slope noise level (ms)[v/m2] | 1e-7 |
| Cap Slope noise slope | -0.5 |
| Cap Slope min slope | -0.6 |
| Cap Slope max slope | 0.6 |
| Cap Slope back step | 1 |
| Ave Sign Filter | ON |
| Ave Sign from time [s] | 3e-4 |
| Ave Sign back step | 1 |
| Ave Slope Filter | ON |
| Ave Slope from time [s] | 2e-5 |
| Ave Slope min slope | -0.5 |
| Ave Slope max slope | 0.5 |
| Ave Slope back step | 0 |
| Trapez Filter | ON |
| Trapez Sounding Distance [s] | 1.4 |
| Trapez Gate Time 1 [s] | 1e-5 |
| Trapez Gate Time 2 [s] | 1e-4 |
| Trapez Gate Time 3 [s] | 1e-3 |
| Trapez Width 1 [s] | 2 |
| Trapez Width 2 [s] | 5 |
| Trapez Width 3 [s] | 10 |
| Trapez Spike Factor | 25 |
| Trapez Min. No. Gates [%] | 15 |
| Trapez Min. No. Gates per sound. | 5 |
| Trapez Sync. location of sound. | ON |
| Trapez Require left/right sound. | OFF |
| Minimum allowed Tx altitude [m]. | 5.0 |
| Maximum allowed Tx altitude [m]. | 150 |

Load From File... Save To File... Default Settings

OK Cancel Help

Data Settings

Settings:

| Key | Value |
|---|---|
| Noise Channel | OFF |
| Use 2nd order slope filters | ON |
| Sounding Bin Spacing [s] | 1 |
| Current Time Distance [s] | 0.5 |
| Cap Sign Filter | ON |
| Cap Sign from time [s] | 2e-4 |
| Cap Sign noise level (ms)[v/m2] | 1e-7 |
| Cap Sign noise slope | -0.5 |
| Cap Sign back step | 2 |
| Cap Slope Filter | OFF |
| Cap Slope from time [s] | 2e-4 |
| Cap Slope noise level (ms)[v/m2] | 1e-7 |
| Cap Slope noise slope | -0.5 |
| Cap Slope min slope | -0.7 |
| Cap Slope max slope | 0.7 |
| Cap Slope back step | 1 |
| Ave Sign Filter | ON |
| Ave Sign from time [s] | 3e-4 |
| Ave Sign back step | 1 |
| Ave Slope Filter | ON |
| Ave Slope from time [s] | 5e-4 |
| Ave Slope min slope | -0.5 |
| Ave Slope max slope | 0.5 |
| Ave Slope back step | 0 |
| Trapez Filter | ON |
| Trapez Sounding Distance [s] | 1.5 |
| Trapez Gate Time 1 [s] | 1e-4 |
| Trapez Gate Time 2 [s] | 1e-3 |
| Trapez Gate Time 3 [s] | 1e-2 |
| Trapez Width 1 [s] | 4 |
| Trapez Width 2 [s] | 8 |
| Trapez Width 3 [s] | 15 |
| Trapez Spike Factor | 25 |
| Trapez Min. No. Gates [%] | 15 |
| Trapez Min. No. Gates per sound. | 5 |
| Trapez Sync. location of sound. | ON |
| Trapez Require left/right sound. | OFF |
| Minimum allowed Tx altitude [m]. | 5.0 |
| Maximum allowed Tx altitude [m]. | 150 |

Load From File... Save To File... Default Settings

OK Cancel Help

Figure 6. Summary of automated filters settings employed in the first part (automatic filtering) of the processing, for the low (left) and high (right) moment of the SkyTEM system.

After the automatic stacking, soundings are inspected visually using a number of different data plots. At this stage it is accessed whether data points at late times should be ascribed a higher uncertainty or removed entirely. It is custom to cull data when the background noise level reaches the level of the earth response. Assessing when data is unusable is done by looking at the decay curves, the noise measurements, and the distance to potential noise sources. This process is necessary to gain reliable model parameters in all parts of the data sections. Figure 7 shows one averaged sounding (transformed into late time apparent resistivity), with different time gates displaying different noise levels, for low (red) and high (green) moment.

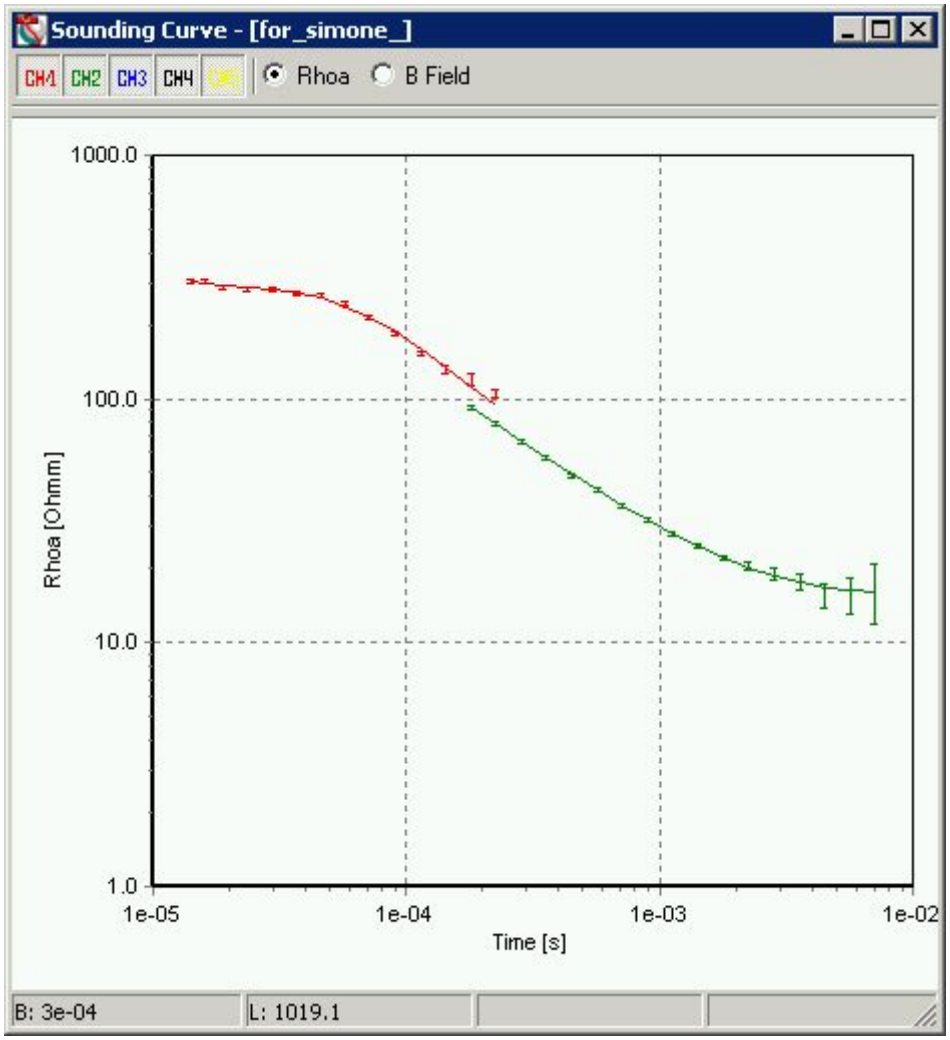



Figure 7. Example of averaged sounding (transformed into late time apparent resistivity), with different time gates displaying different noise levels, for low (red) and high (green) moment.

## 4. Inversion

Inversions are carried out using the quasi 3-D Spatially Constrained Inversion (SCI). SCI is a full non-linear damped least squares solution in which the transfer function of the instrumentation is modelled. This includes, among the others, current turn-on and -off ramps, and front gate, low pass filters system altitude, etc...

The figure (Fig. 8) below shows an example of one of the geometry files, describing the SkyTEM system used at Paradox.

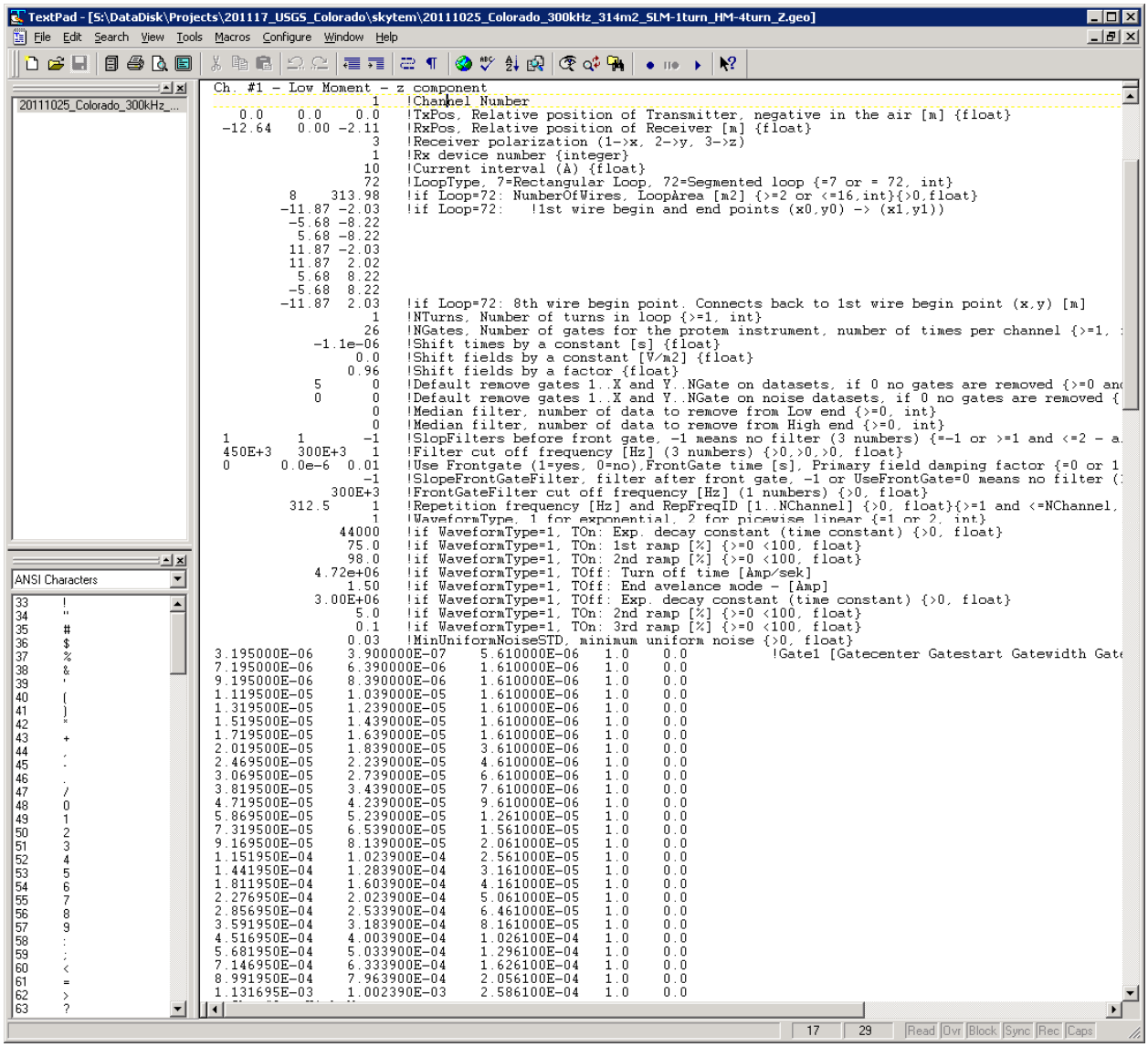



Figure 8. Example of geometry file produced to describe the SkyTEM system deployed in Colorado. These files, which are flight specific, were used in the inversions for modelling the system transfer function.

In the SCI scheme the model parameters are tied together spatially with a spatially dependent covariance which is scaled according to the distance

between neighbouring models. Constraining the parameters tends to enhance the resolution of resistivities and layer interfaces which are not well resolved in an independent inversion of the soundings. The flight altitude is included as an inversion parameter with a prior value calculated form the tilt corrected laser altitudes. The standard deviation on this parameter is set to 1 m.

The SCI inversion scheme is developed for parameterized inversion with normally 4 layers or 5 layers and smooth inversion with e.g. 19 layers each having a fixed thickness, but a free resistivity (with vertical constraints). Both schemes have advantages. Layer interfaces, resistivities and the depth of penetration are best determined from the parameterized inversion. On the other hand, smooth inversion is more independent of the starting model and gradual transitions in resistivities are more conspicuous facilitating the delineation of complex geological structures. Inversion and inversion evaluation is done using the Aarhus Workbench program package. The vertical constraints used in the smooth models are applied to stabilize the inversion, e.g. to remove fictitious layers especially in models based on few data points. No a priori constraints on layers parameters have been used. The inversion was started with a homogeneous half space where the resistivity was calculated from the mean apparent resistivity of the sounding. The underlying inversion code is developed by the HydroGeophysics Group, University of Aarhus, Denmark.

The smooth model uses fixed thickness discretized with 19 layers, but free resistivities. Again the resistivities were scaled according to apparent resistivity. Using smooth models enhances complex geological structures and are as such a powerful tool evaluating the complexity of the subsurface. The smooth model was discretized down to about 300m, with layers of logarithmically increasing thickness, starting from 3m. The inversion was started with a homogeneous half space of 50 Ohm m.

Based on the analysis of the results of the smooth models inversion, and on multiple tests with different number of layers, we chose to present results from a 4 layers model. We use a conservative approach, having the least number of layers that fit the data for the entire survey satisfactorily. This ensures maximum sensitivity of each one of the model parameters modelled to the data, and therefore maximum reliability of the models. Also the few layers inversion was started with a homogeneous half space of 50 Ohm m.

The depth of investigation (DOI), based on an analysis of the Jacobian matrix, was also calculated for the output models. This DOI, is presented in a dedicated horizontal map, as well as superimposed to crop the average resistivity horizontal maps, and as a fading of colours below the DOI on the vertical cross sections. The DOI represents the maximum depth below surface to which there is sensitivity to the model parameters. Any model parameter resting much below the DOI should be disregarded. For example, the DOI often rests at, or close to, an interface between a conductive overburden and a resistive deeper layer. In this case we can conclude that the conductive layer does end at that interface, and it rests above a significantly more resistive layer, whose absolute resistive value is poorly determined.

Both in the smooth and few layered inversion the data fit is very good, with large majority of the forward responses fitting the measured data well below noise levels.

In the Appendix 1 we present a number of QC geo-referenced maps of inversion results.

The maps of average resistivity at different vertical intervals are given both in depth below ground surface and elevation above sea level. We believe that in a setting like this one, where topographical variations are significant, inspecting results only in depth below ground surface can be misleading. The maps are produced from the results of the smooth (19 L) inversion only. However, maps from the results of the 4 L inversion can be made by the client from the Aarhus Workbench Workspace, which can be delivered upon request (see section 7).

Results from 4 L are however given as profiles, together with those from the 19 L), in order to illustrate their potential usefulness.

## 5. General comments on the data processing and inversion results

The signal level in the survey area is rather variable, reflecting the significant geological variability, which required delicate fine tuning of the width of the trapezoid filters. The amount of coupling to man-made structures in the area is limited, and the ancillary information provided in terms of GIS was adequate to carry out the work effectively. Fine editing of the filters characteristics was required to reduce the noise.

The dataset, in some areas, contains some unusual and unexpected features in the high moment. There is a clear indication of external coherent noise signals that is not stacked out with the synchronous detection, superimposed to the ground response. We can identify, on the “raw” data two different effects, which are possibly correlated.

The first one (see Figure 9, top panel) is a sinusoidal signal with period of about 4-6 s, present in middle to late time gates. The second one (Figure 10, top panel) has a more peculiar shape and erratic pattern, but in general terms it can be described as low frequency (period ranging from about 10 s up to several tens of s) build up and depletion of signal late times. In areas where the external signal adds to the ground response, the data seems not fall into background uncoherent noise. After different analysis that, in our opinion, prove that such features have no geological source, are not due to 3D effects, and to rule out that they could be due to variations in attitude of the frame, which, to a degree could have been corrected for, it was concluded that they probably relate to some modulation of the external signal. These 2 types of features, which sometimes occur over some areas, sometimes not, are apparent in areas of lower ground conductivity.

Failure to remove such effects can create significant artifacts in the inversion output. The second one, in particular, creates an alternation of strong conductors and resistors at depth, which, even though may have a degree of spatially coherency, is not realistic in this type of geological setting.

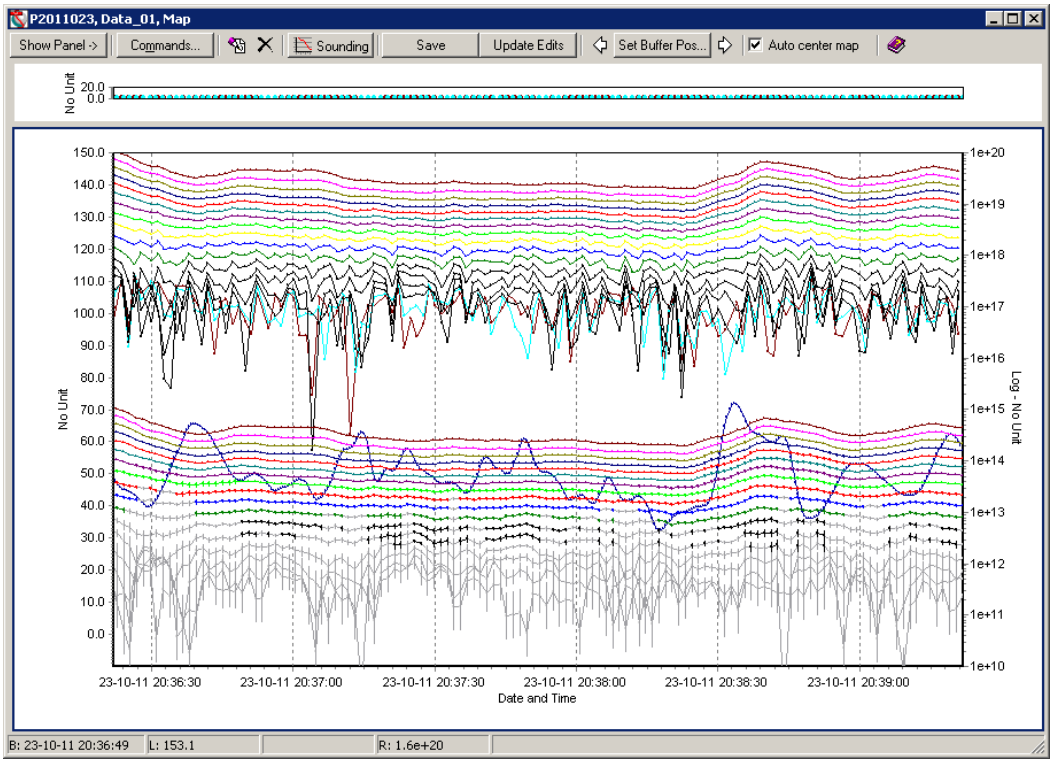



Figure 9. Example of sinusoidal-like signal in the raw HM data (top panel) superimposed to ground response, present in some areas of the dataset. This effect is eliminated in the averaged soundings (lower panel).

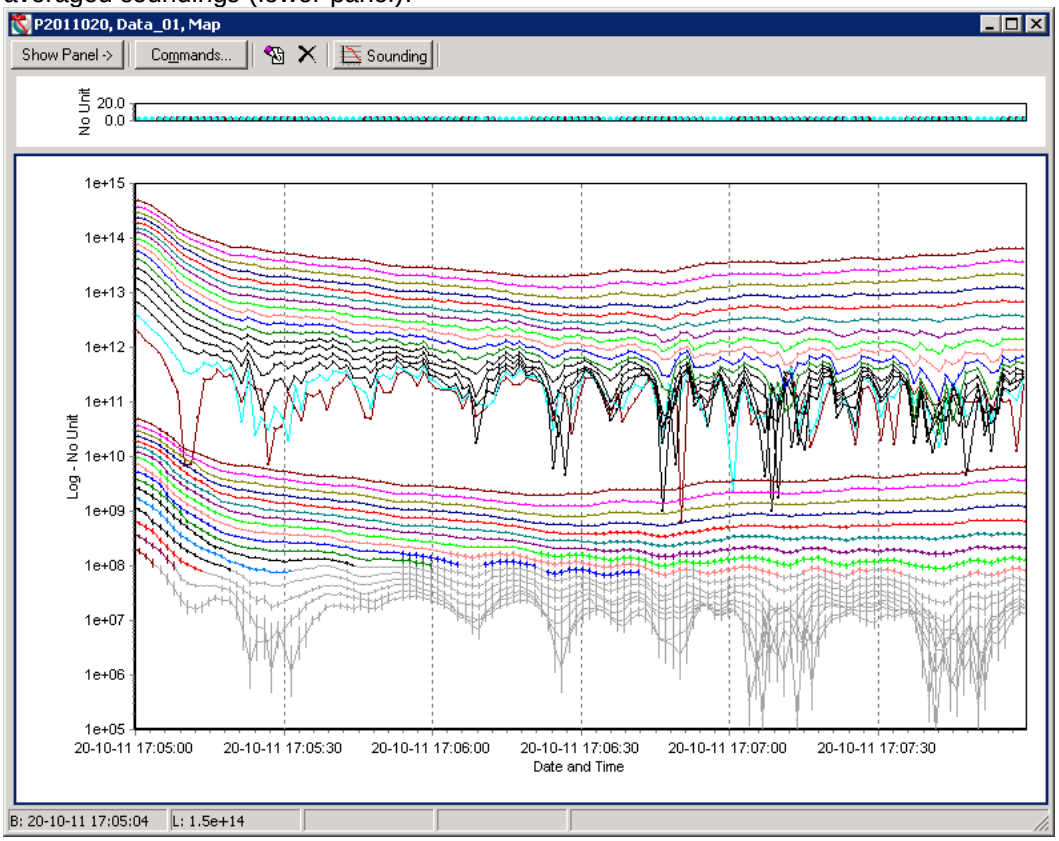



Figure 10. Example of low frequency external signal affecting the late to middle gates of the HM raw data (top panel). In the lower panel the average data, where the effect was removed by deleting affected gates recursively.

We tried different approaches to reduce, if not eliminate, such effects on the data, and in the model space, including retrieving the unstacked data, i.e., the really raw data. The first effect can be reduced significantly by using the trapezoid filters, leaving negligible effect on the outcome models, and producing no net loss of lateral resolution (see Figure 9, lower panel). The second one, due to its characteristics – high level, low, variable frequency, variability of affected gates, spatial variability - can't be stacked or filtered out. Hence we opted for a customized removal of gates, both horizontally and vertically, in those stretches of the dataset where the erratic signatures were present (see Figure 10, lower panel). This was done with a conservative approach, deleting data, inverting, analysing resulting models, repeating the process a few times, until we were satisfied there were no significant features left in the models that could be linked to the above mentioned effect. This effect, which entailed deleting many HM late time gates, in places up to the middle times, caused a decrease in the DOI. See the QC map in Appendix 1.2 reporting the number of HM gates used in the inversion for a qualitative indication of areas most affected by this effect.

The results of the inversions are overall, satisfactory, with low residual, and significant lateral and vertical variations resolved. The few layers (4L) inversion, whose results are presented for illustrative purposes as cross sections, produced, locally, a misfit higher than desirable. This is due to strong lateral variations in the geology (i.e., fast dipping layers, or fast varying number of electrical layer than can be resolved). In order to avoid misleading geological interpretations, a line showing the data residual was superimposed to the cross sections.

The average resistivity maps show, in the NW portion of the survey, some elongated features that may seem to follow individual flight lines. A close inspection of the data, inversion results and maps results gave convincing evidence that such features are not due to any problems with the data, processing or inversion. In fact, they straddle more than one line and seem to follow general geological trends. We therefore conclude that they follow real geological units that happen to have that orientation. Inspection of satellite images also seems to confirm it.

The results obtained from the inversion of the repeat test line acquired at different height show a high degree of coherency and consistency.

## 6. Thematic maps and sections

To visualize the processing and inversion results in the survey area, a number of theme maps and vertical sections have been made using the Aarhus Workbench. The colour scale for both average resistivity maps and vertical cross sections is a rainbow colour scale with blue as conductive and red as resistive.

Theme maps include

1. GIS maps (Appenidix 1.1)
    a. location of vertical cross sections delivered in this report
    b. topography used for processing and inversion
2. Processing maps (Appenidix 1.2)
    a. data processed entering the inversion after decoupling
    b. number of gates used in the inversions after noise assessment
    c. number of moments used for inversion
3. Inversion QC maps (Appenidix 1.3)
    a. inversion misfit (residual normalized to noise)
    b. depth of investigation
    c. depth of investigation (elevation)
    d. altitude variation in inversion
4. Inversion results (Appenidix 1.4)
    a. average resistivity maps at 10 or 15 m elevation intervals
    b. average resistivity maps at varying depth intervals

All these maps, except when stated otherwise in the legend, have been made using the Kriging method with a search radius of 500 m and 50 m node spacing, which were then smoothed to about 15 m per pixel.

We now present a brief explanation of the key maps mentioned above, and their use.

Refer to figure 1 in section 1 of the report for an overview of the location of the flight lines, superimposed to the satellite imagery available.

Map 1a allows locating the geographical position of the vertical cross section, or profiles, presented in Appendix 2.

Map 1b displays the topography used in the processing and inversions.

Map 2a shows the difference between the SKyTEM soundings that entered the processing, and those that were used for the inversion, after the processing,

due to infrastructures. It is useful to appreciate how much of the EM data was culled during the processing due to coupling with infrastructure.

Map 2b shows, colour-coded, the number of time gates used for the inversion of individual soundings. The maximum number of gates possible in this case, if there had been no noise on any of them, was 38 gates. However, when the averaged late time gates fell into noise and contain no signal, they are deleted and do not enter the inversion in order not to produce artefacts in the output models. Also galvanic coupling can affect some of the late times of both moments, which are deleted. Hence the spatial variability of this map.

Map 2c shows, color-coded, the number of moments entering the inversion, after data processing, for each sounding. It varies from Low moment only, High Moment only, to both moments. The spatial variability of this theme is due to differences in coupling to man-made structures, and to geological variations near surface or at depth that, locally, may cause all the gates of a given moment to be below noise level.

Map 3a shows, colour-coded, the spatial variation of the absolute value of the misfit between forward modelled data and measured data, normalized to the data noise for each time gate. Values lower than 1 mean that the modelled data fit the measured one within noise level, i.e., that the inversion fitted the data. Values higher than one can be due either to strong 3D effects, or to noisier or less accurate data.

Maps 3b and 3c, shows colour-coded the spatial variability of the model-dependent DOI, presented in depth below surface and elevation above sea level. Refer to section 4 for a detailed discussion on the DOI. The colourscale maximum is only indicative, and does not imply that that value was expected to be reached in the entire area.

Map 3d shows the variation between inversion input and output altitude. The higher variability of this inversion parameter in areas of more resistive cover is due to the lack of low moment, which determined lower sensitivity to this parameter. In the rest of the survey area the value is low, as expected.

Maps 4a and 4b were masked with the Depth of Investigation, or Elevation of Investigation. That is, results below these surfaces where not presented and made transparent.

Maps 4a present the lateral variations of resistivity, in 10 or 15 m vertical elevation intervals, in elevation, from proximity of topographic high down to the Elevation of Investigation. Maps in elevation render a clearer picture of the geology in those settings where the topographical variations do not match the deposition patterns of the underlying layers, which might have been laid out almost horizontally.

Maps 4b present the lateral variations of resistivity, in vertical depth intervals of increasing thickness, in depth, from the surface down to the Depth of Investigation. Maps in depth render a clearer picture of the geology in those settings where the topographical variations match the deposition patterns of the underlying layers.

A number of vertical cross sections (see Appendix 2) are also shown in the report. They represent the projection onto a given profile of the models falling within a search radius of 75 m from it. The abrupt topographical variations in the area can determine a purely graphical incoherency in the models when cross cutting tie lines. Refer to Appendix 1 for their location. A copy showing smooth models (19 layers) and one showing parameterized models (4 layers) are found along with the colour scale. The cross sections are in elevation (m above sea level). Please note the different horizontal and vertical scales of the sections.

Like for the average resistivity maps, the models have been masked with the DOI, which should be regarded as an indication of the depth below the sensitivity to the model parameters becomes too low. See section 4 for more thorough discussion on the DOI.

Please refer also to the grey line representing the data misfit (residual), normalized against noise, to be read against the right axis. Values below 1 mean that the measured data were fitted within noise levels. This theme is given to facilitate the interpretation of the results. As mentioned in section 5, the few layers inversion did not fit satisfactorily all the areas, due to some very rapid vertical variations in the 1D model (e.g., rapidly decreasing or increasing number of resolvable electrical layers). This produces sometimes a rapid localized increase in the residual in the few layers model. The models displayed by the 4L are then not consistent with the measured data, and should be disregarded.

Appendix 3 contains the cross sections of the inversion results obtained from the repeat test line, flown at different heights.

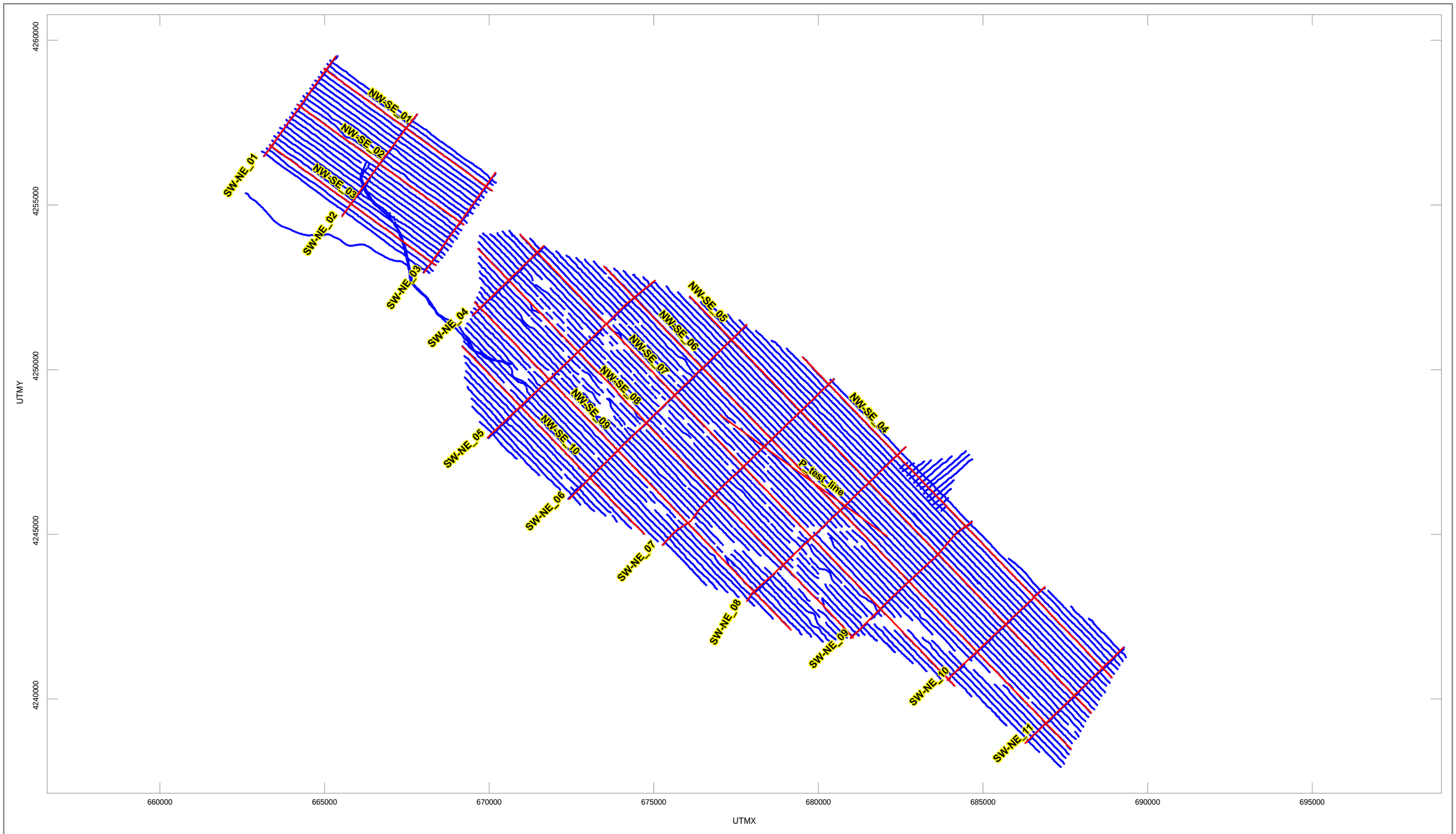
## 7. The Aarhus Workbench Workspace

Upon request, it is possible to obtain also the Workspace of the Aarhus Workbench which contains all the raw, edited and inverted data, the maps and profiles. This would allow the client to produce extra maps and profiles, and to inspect the entire workflow of the processing.

Contact Aarhus Geophysics (info@aarhusgeo.com) for a copy of the Workspace.

## Appendix 1.1

The next pages contain all the horizontal maps at point 1 (GIS maps) of section 6. Refer to section 6 for a detailed description of the different maps.




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

**Location of Profiles**

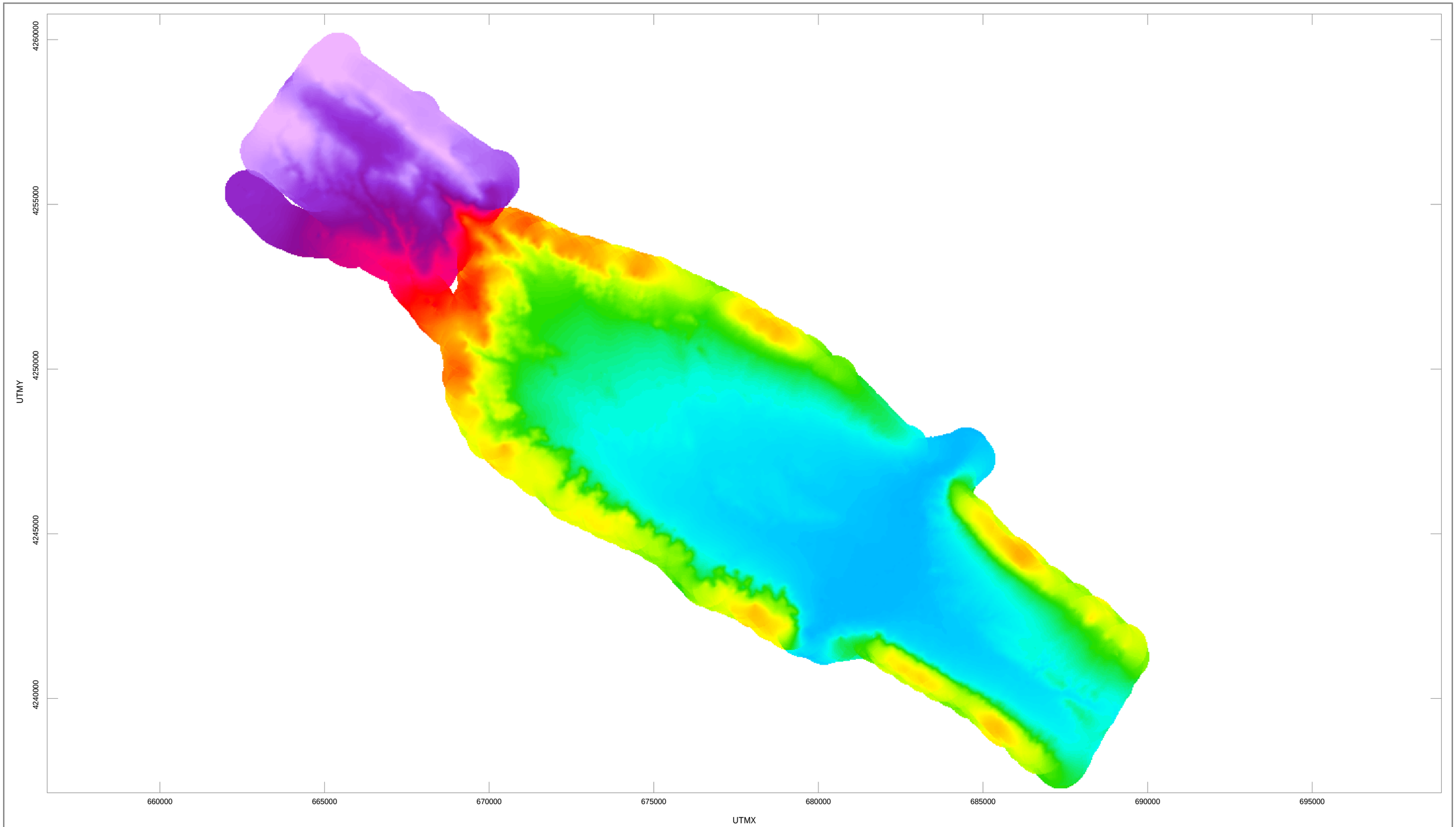
Aarhus Geophysics

**Client: USGS**

Profile locations on top of model positions.

1D models

Profiles




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

**Topography**

Aarhus Geophysics

**Client: USGS**

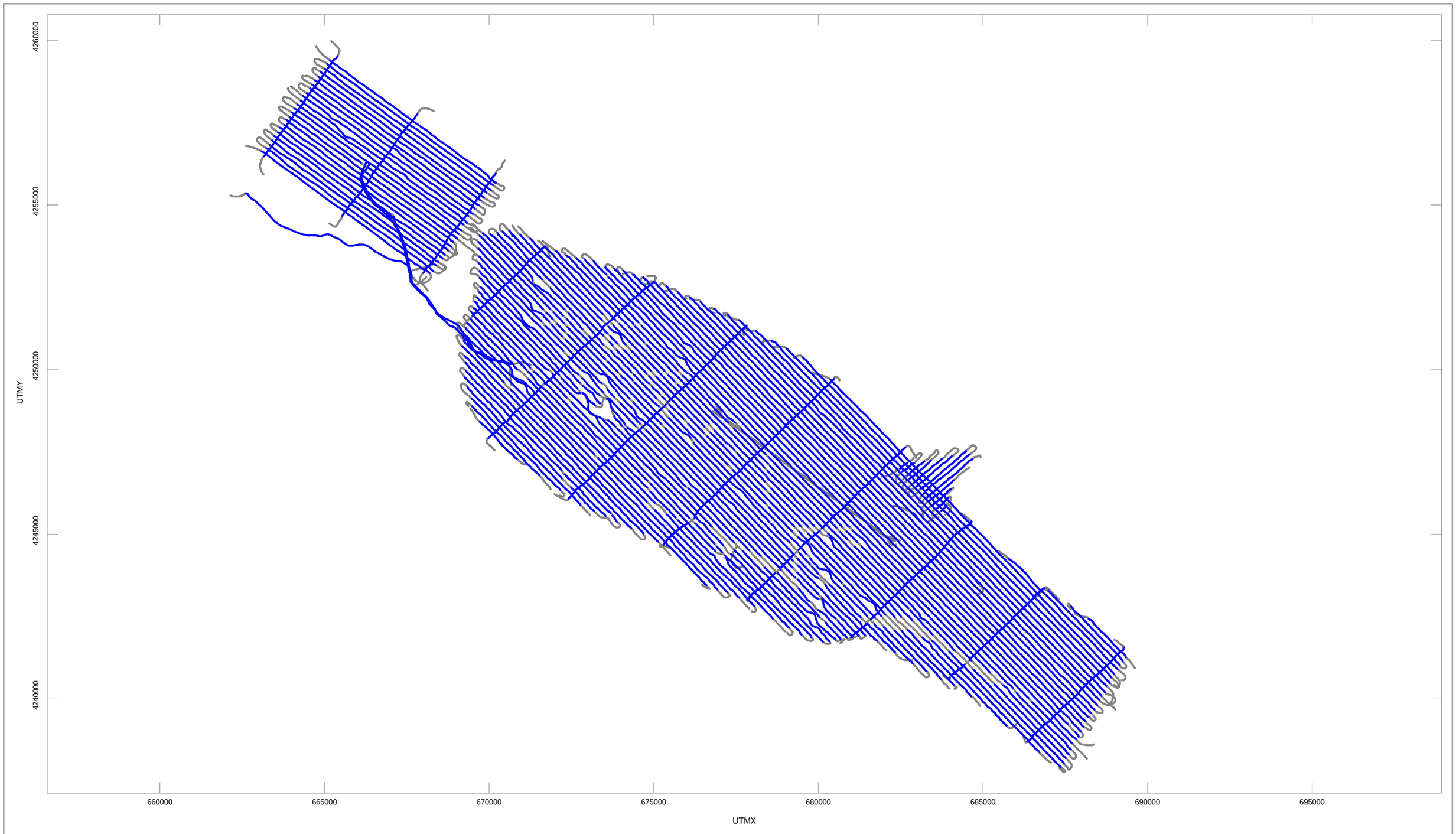
Theme gridded from SkyTEM Surveys data using Kriging with a search radius of 700 m and cell size of 50 m.

1,200 1,400 1,600 1,800 2,000 2,200 2,400 2,600

Elevation [m.a.s.l.]

## Appendix 1.2

The next pages contain all the horizontal maps at point 2 (Processing maps) of section 6. Refer to section 6 for a detailed description of the different maps.




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

**Location of Flight Lines and Models**

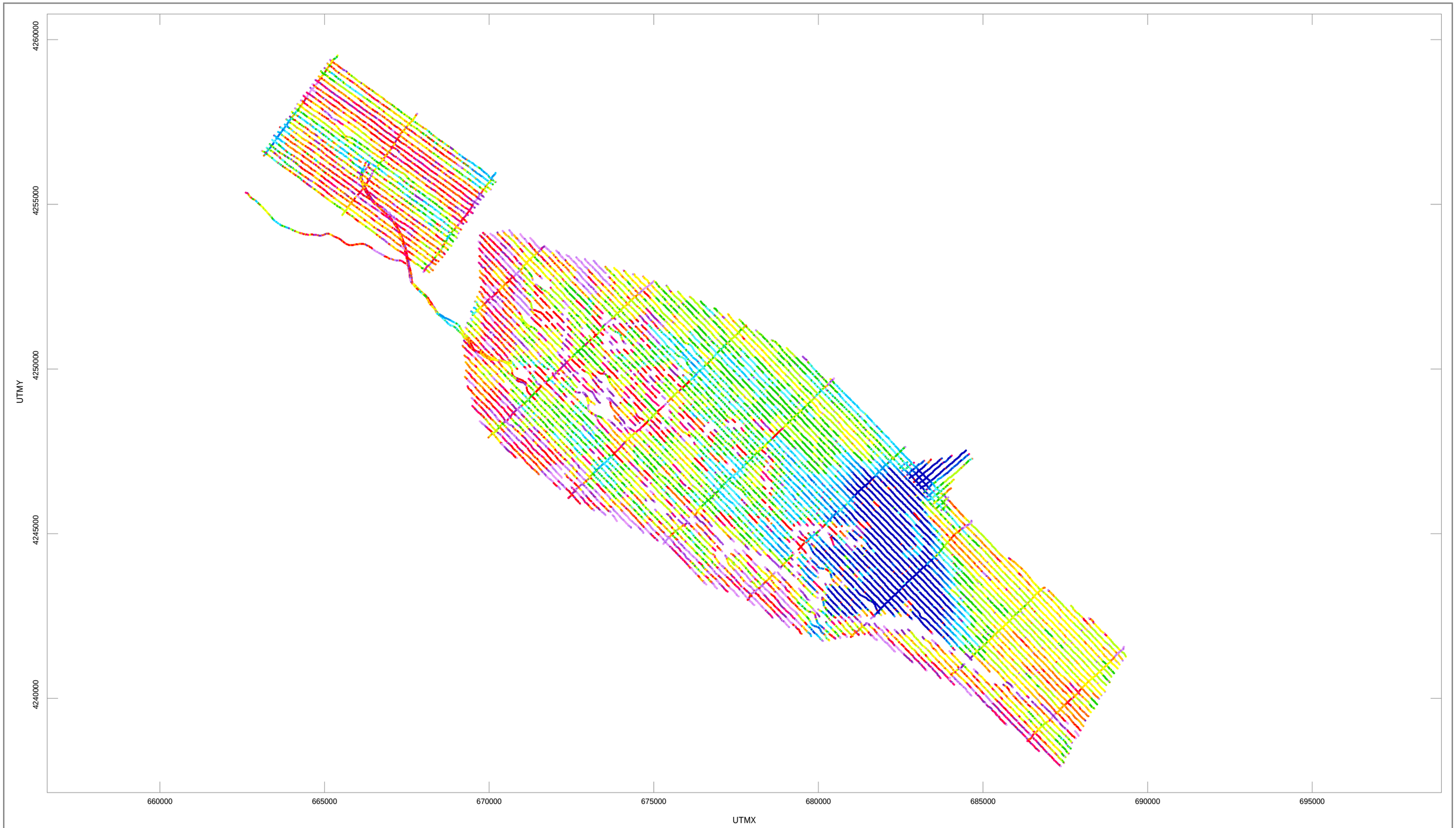
Aarhus Geophysics

**Client: USGS**

Point theme where each model position either indicate discarded data or a model.

Discarded data

1D model




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

**Number of Time Gates Used**

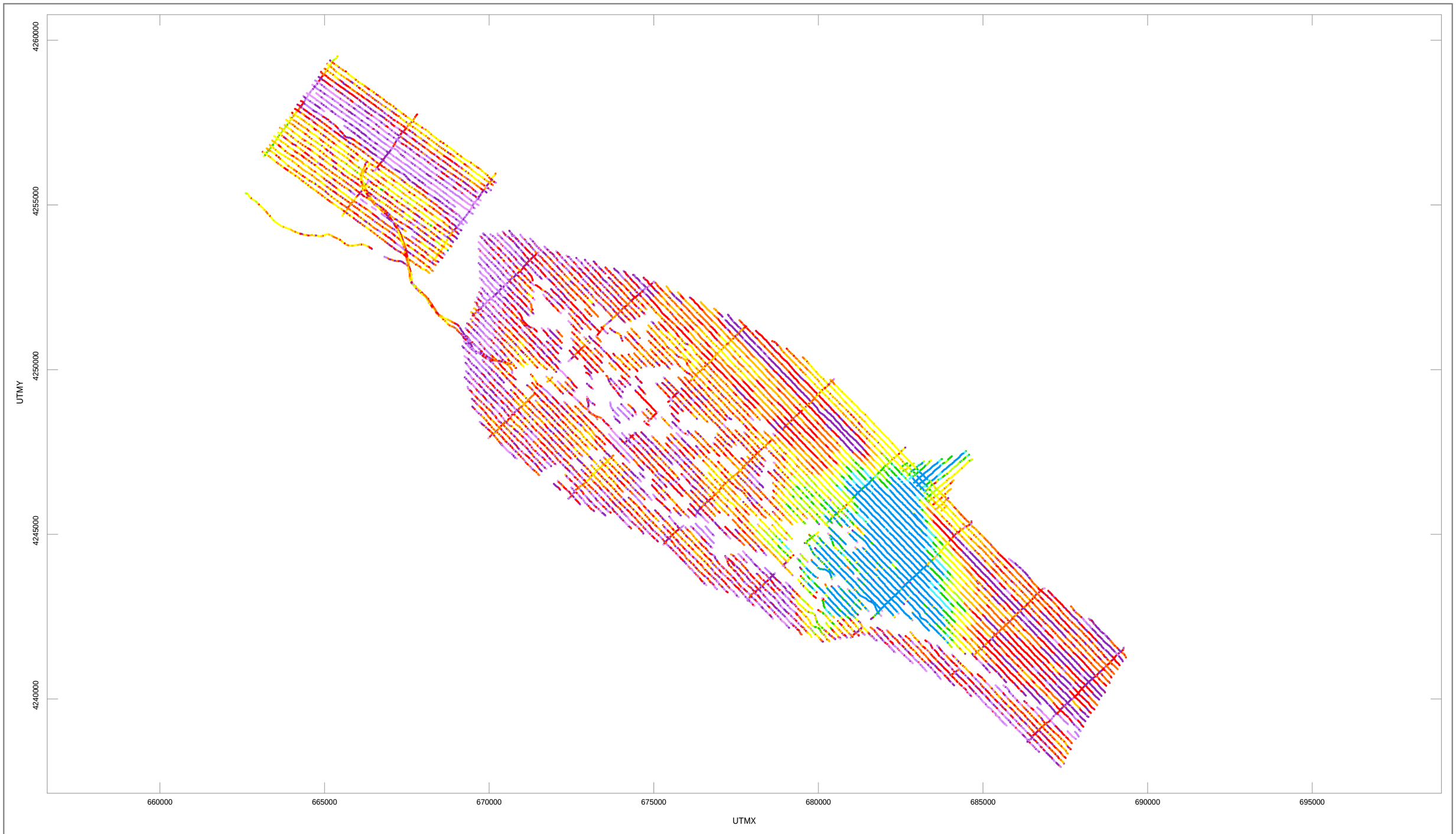
Aarhus Geophysics

**Client: USGS**

Point theme with the number of time gates used for the inversion of each model.

6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38

Gates Used




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

**Number of High Moment Time Gates Used**

Aarhus Geophysics

**Client: USGS**

Point theme with the number of high moment time gates used for the inversion of each model.

6 7 8 9 10 11 12 13 14 15 16 17 18

Gates Used




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

**Moment Indication**

Aarhus Geophysics

**Client: USGS**

Point theme with the moments used for each model.

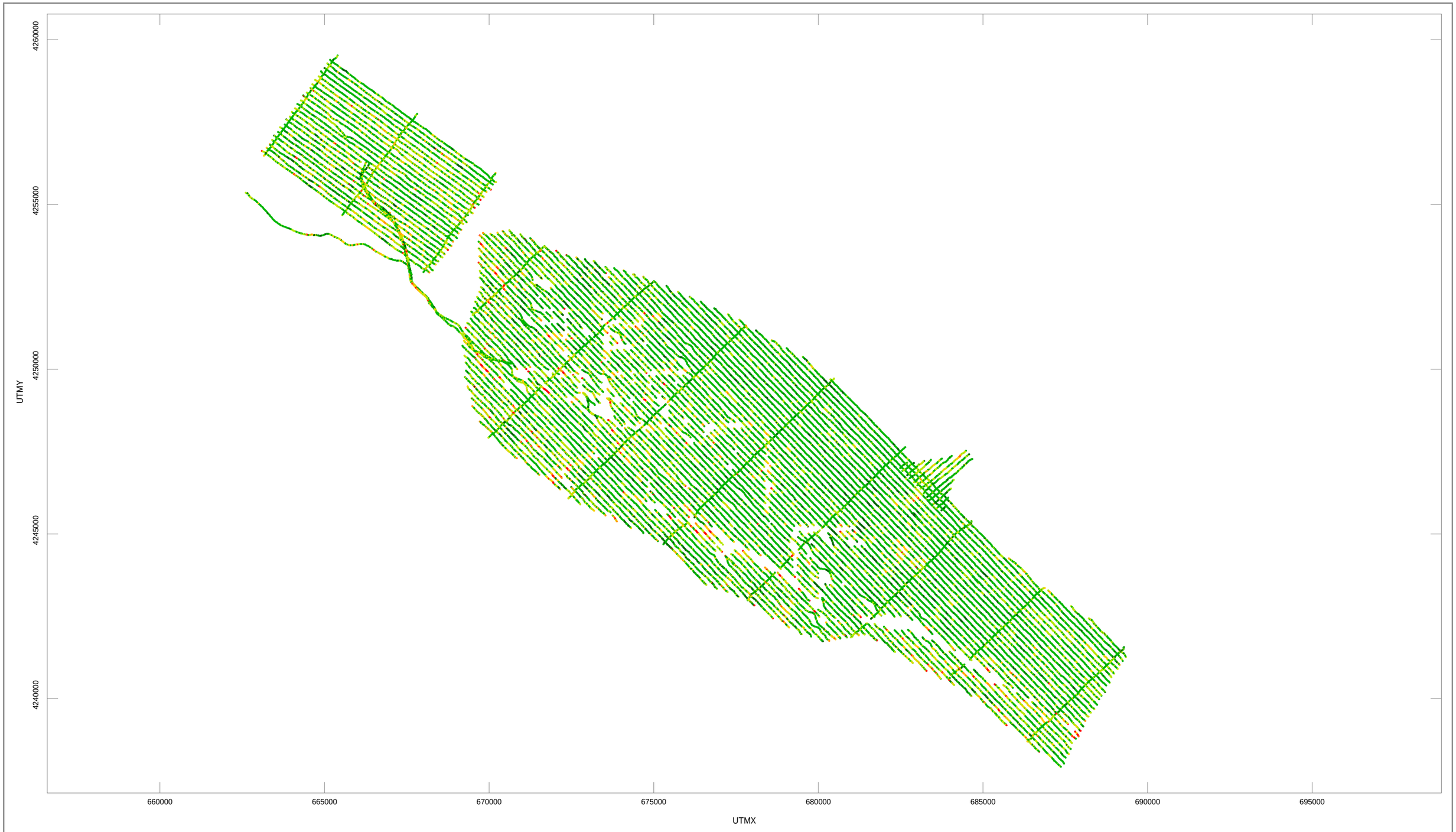
Models with both low and high moment data

Models with only high moment data

Models with only low moment data

## Appendix 1.3

The next pages contain all the horizontal maps at point 3 (Inversion QC maps) of section 6. Refer to section 6 for a detailed description of the different maps.




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

**Data Residual**

Aarhus Geophysics

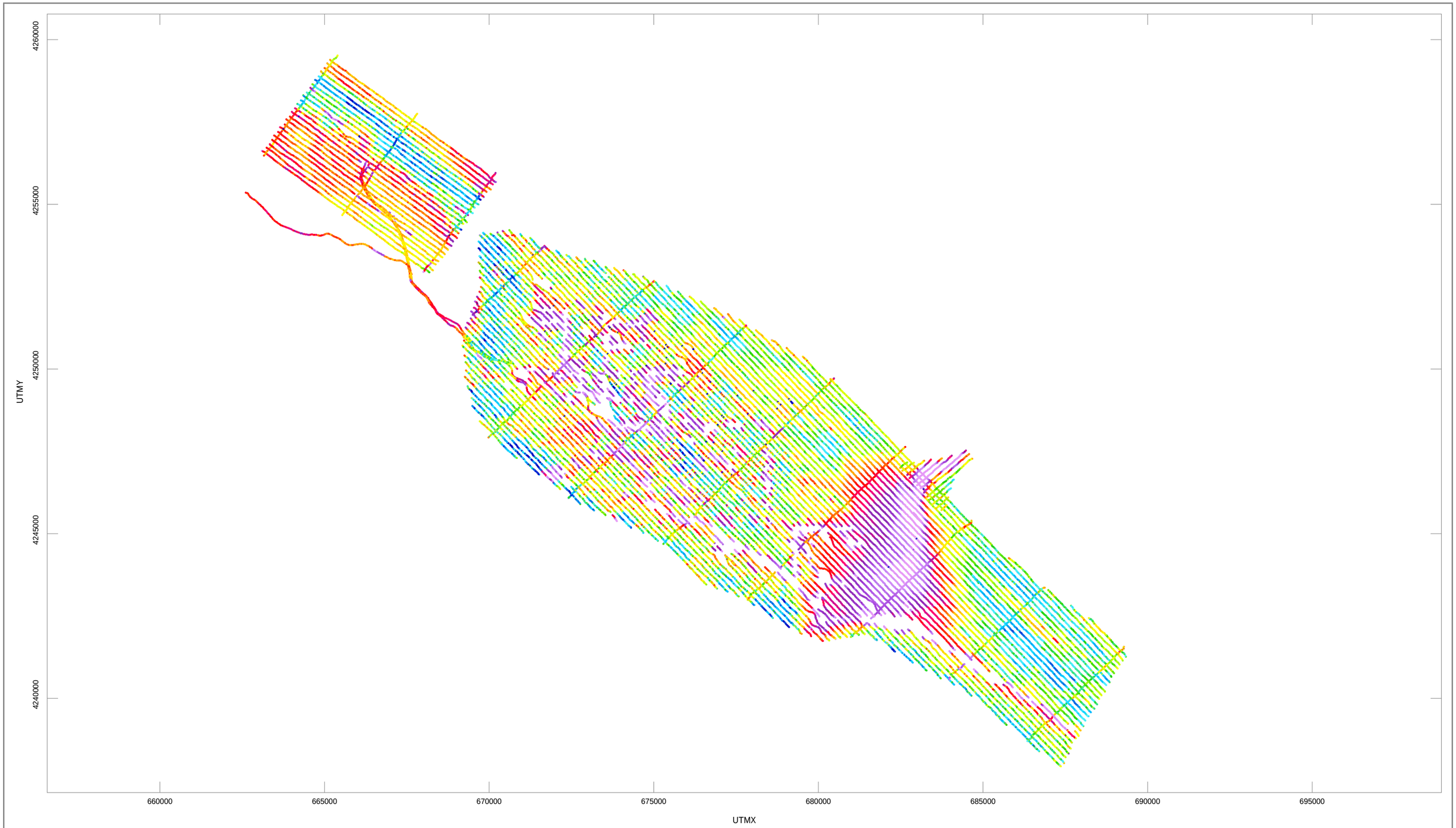
**Client: USGS**

Point theme with the data residual of each model.

Based on the Spatially Constrained Inversion of a smooth model with 19 layers.

0 0.2 0.4 0.6 0.8 1 1.2 1.4 1.6 1.8 2

Residual




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

**Depth of Investigation (as a depth value)**

Aarhus Geophysics

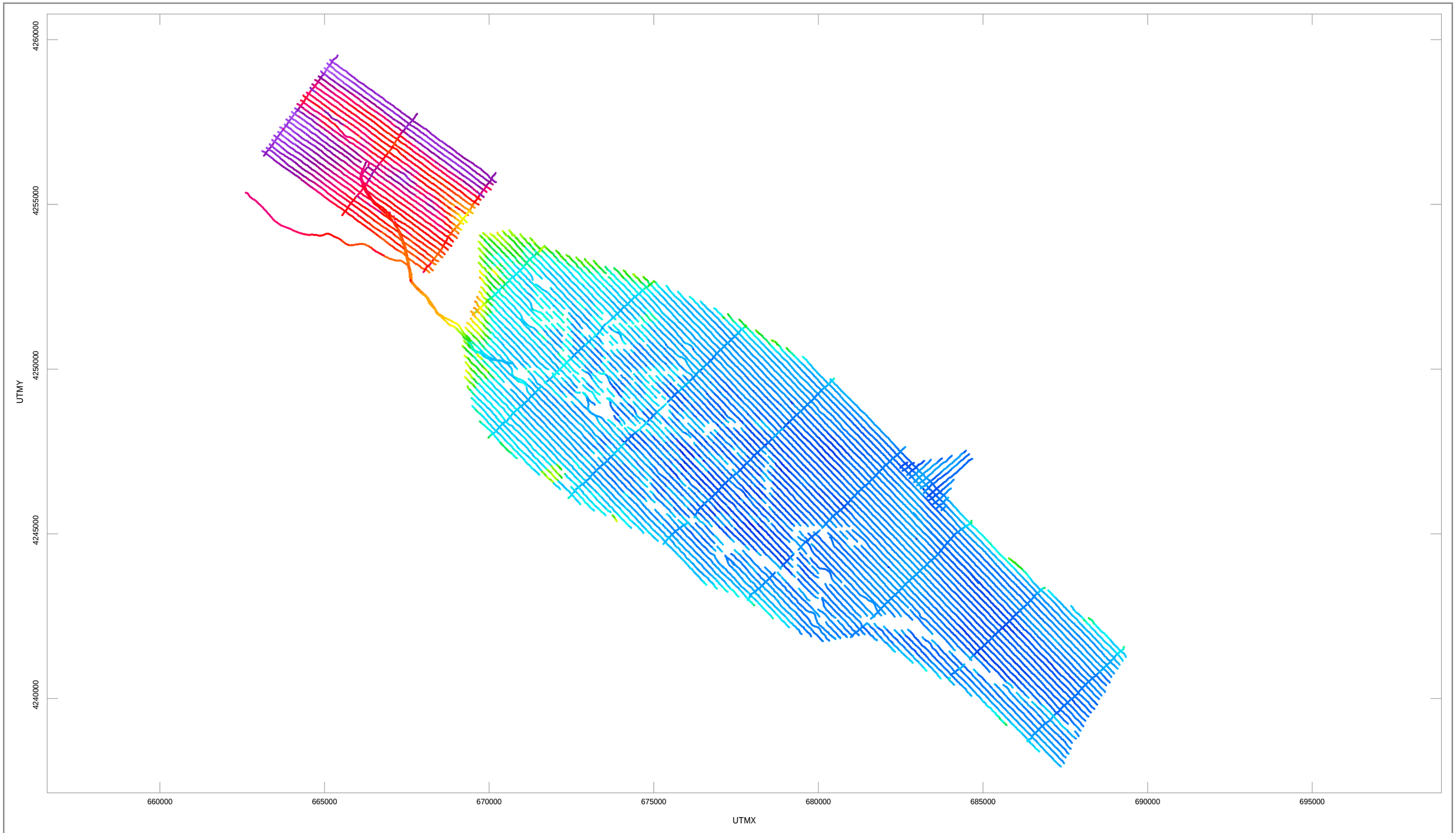
**Client: USGS**

Point theme with the Depth of Investigation (DOI lower as a depth value) of each model.

Based on the Spatially Constrained Inversion of a smooth model with 19 layers.

40 60 80 100 120 140 160 180 200 220 240 260 280 300

Depth [m]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

**Depth of Investigation (as an elevation value)**

Aarhus Geophysics

**Client: USGS**

Point theme with the Depth of Investigation (DOI lower as an elevation value) of each model.

Based on the Spatially Constrained Inversion of a smooth model with 19 layers.

1,200 1,400 1,600 1,800 2,000 2,200 2,400 2,600

Elevation [m.a.s.l.]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

**Flight Altitude Difference**

Aarhus Geophysics

**Client: USGS**

Point theme with the flight altitude difference (inverted - processed) of each model.

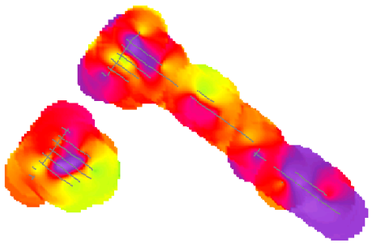
Based on the Spatially Constrained Inversion of a smooth model with 19 layers.

-20 -15 -10 -5 0 5 10 15

Altitude Difference [m]

## Appendix 1.4

The next pages contain all the horizontal maps at point 4 (Inversion results) of section 6. Refer to section 6 for a detailed description of the different maps.



4260000
4255000
4250000
4245000
4240000
UTMY

660000
665000
670000
675000
680000
685000
690000
695000
UTMX

**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

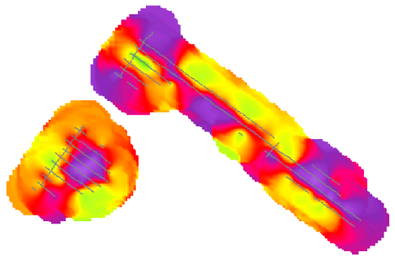
**Mean Resistivity, Elevation 2485 - 2500 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1
1
10
100
1000
Resistivity [Ohmm]



UTMY

4260000
4255000
4250000
4245000
4240000

660000
665000
670000
675000
680000
685000
690000
695000

UTMX

**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

**Mean Resistivity, Elevation 2470 - 2485 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1
1
10
100
1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

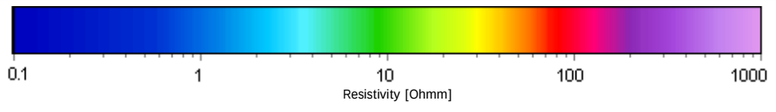
UTM Zone 12N WGS84

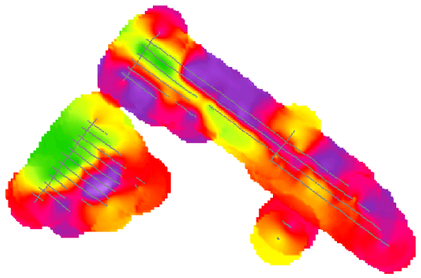
**Mean Resistivity, Elevation 2455 - 2470 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.





UTMY

4260000
4255000
4250000
4245000
4240000

660000
665000
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675000
680000
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690000
695000

UTMX

**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

**Mean Resistivity, Elevation 2440 - 2455 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1
1
10
100
1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

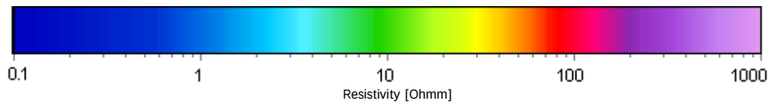
UTM Zone 12N WGS84

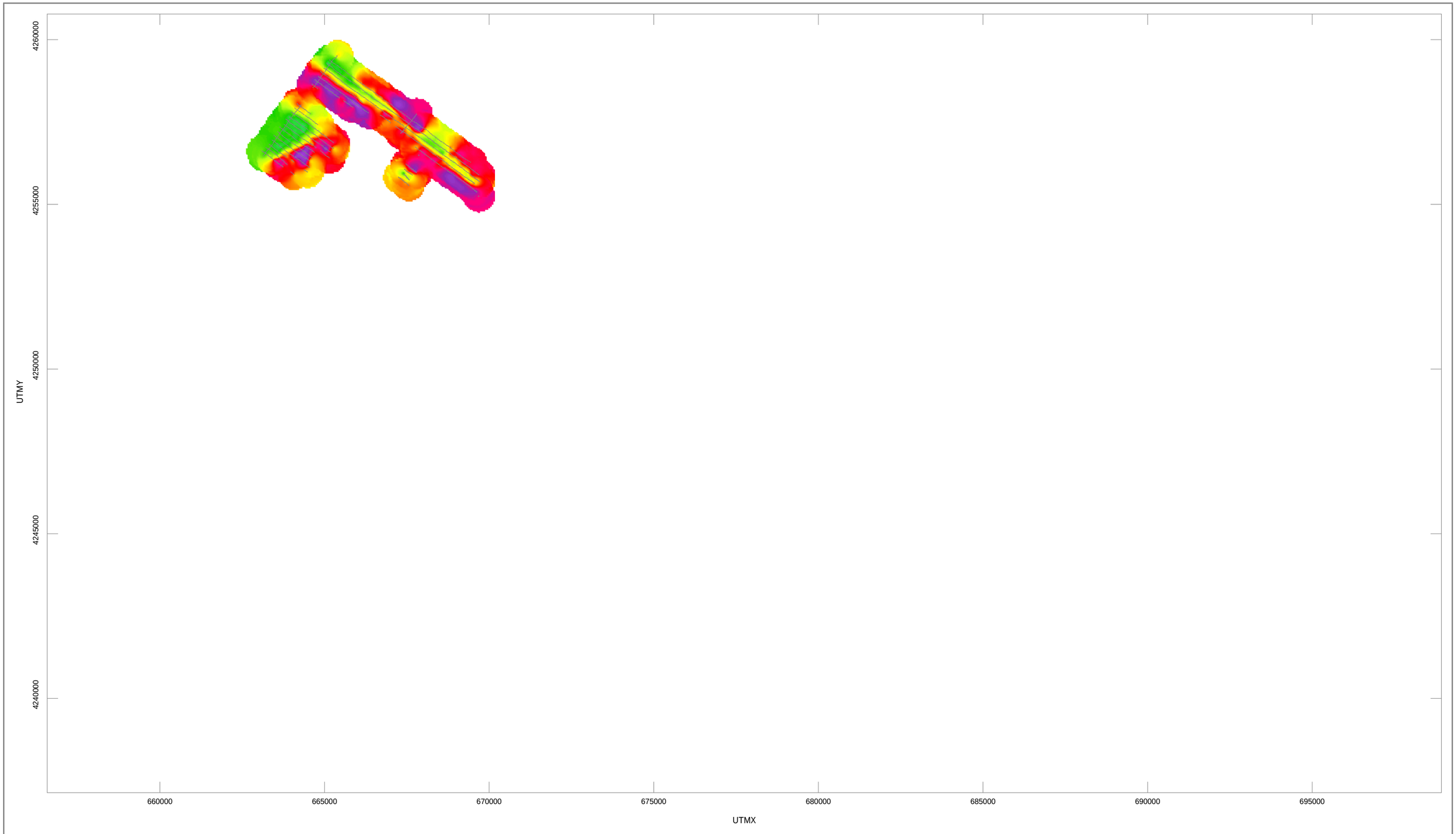
**Mean Resistivity, Elevation 2425 - 2440 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.






**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

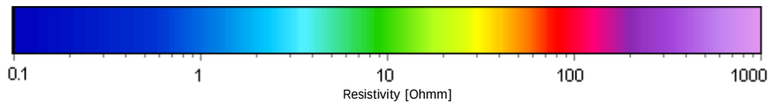
UTM Zone 12N WGS84

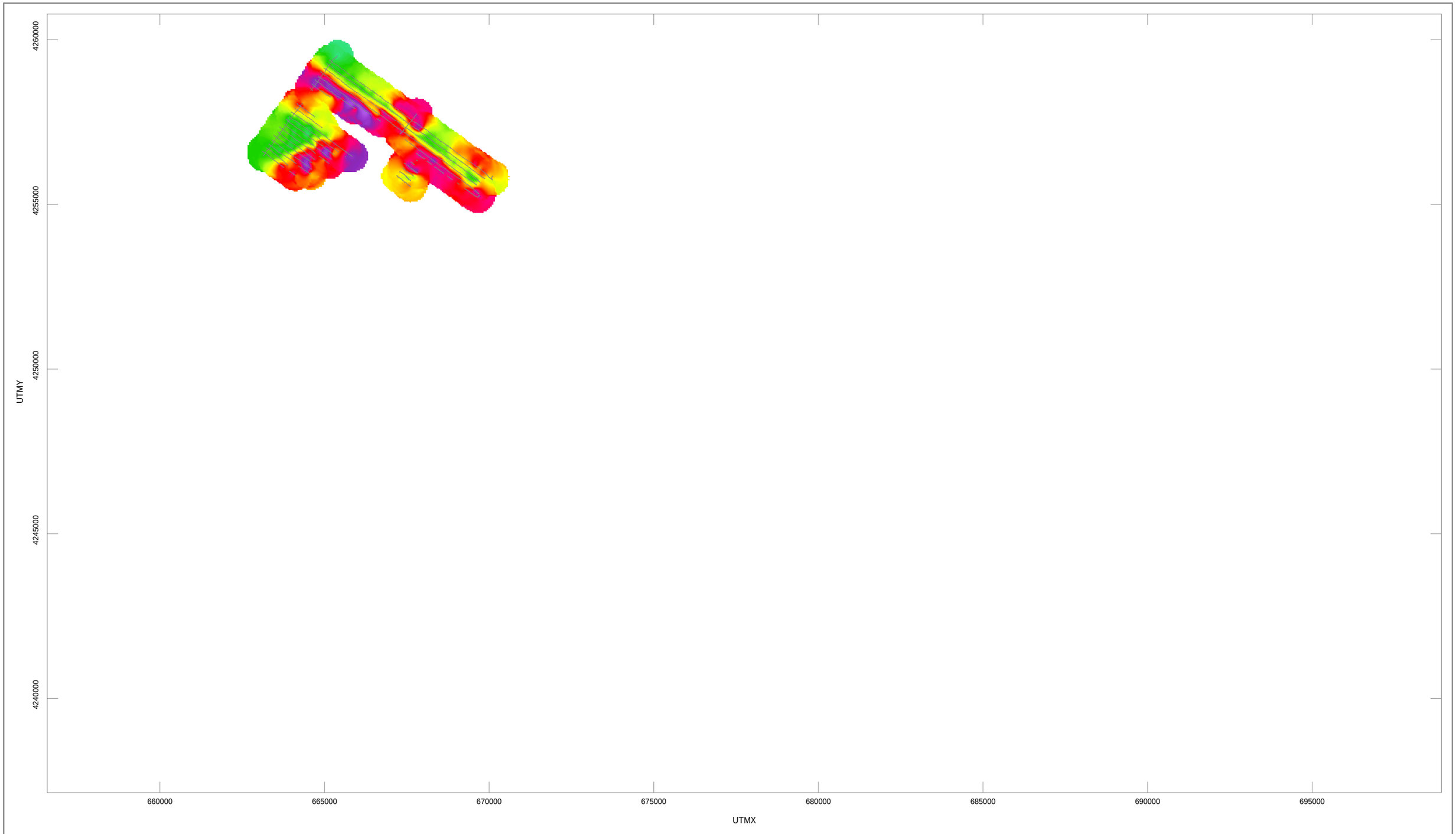
**Mean Resistivity, Elevation 2410 - 2425 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.






**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

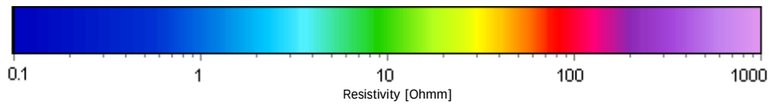
UTM Zone 12N WGS84

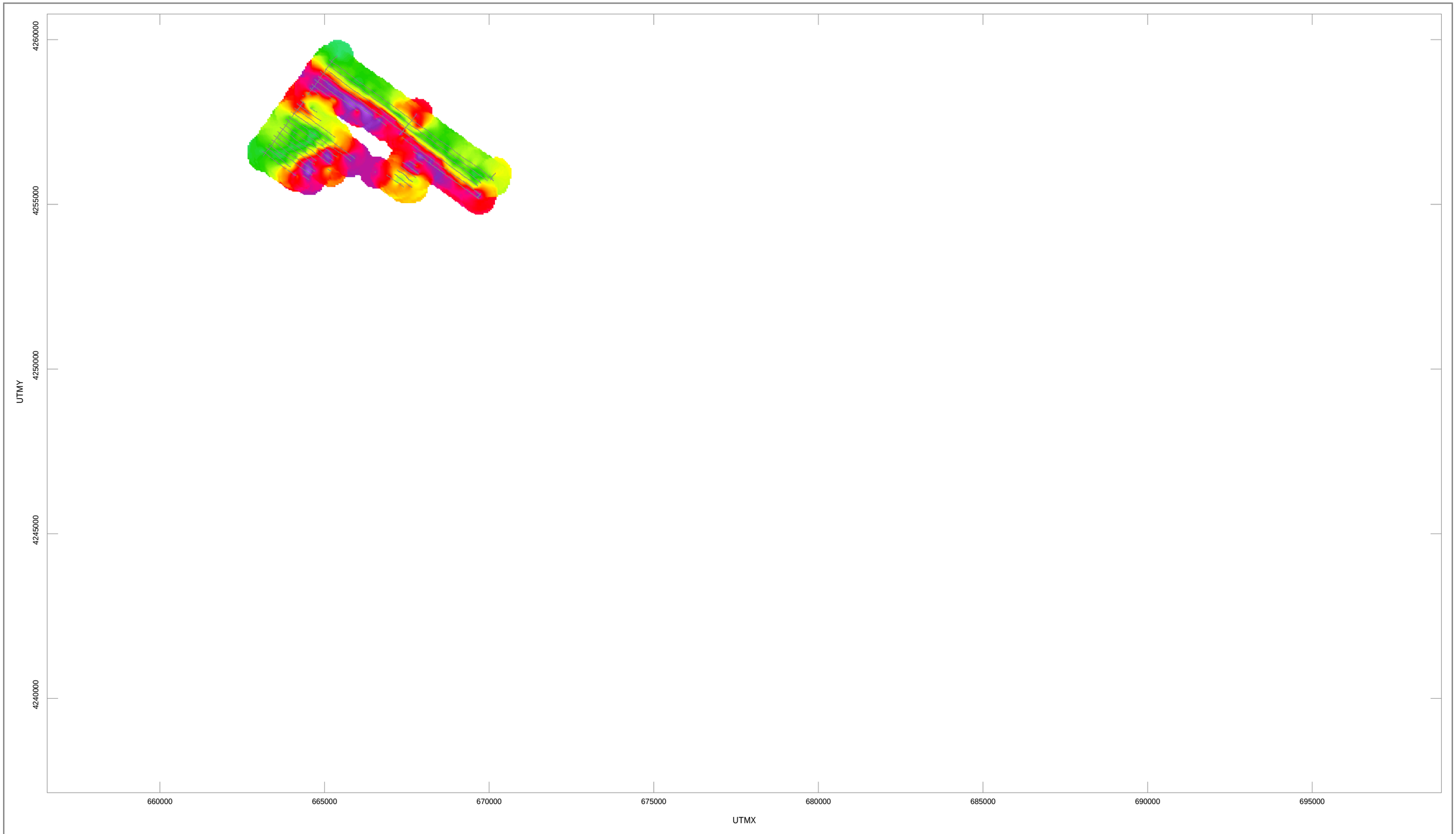
**Mean Resistivity, Elevation 2395 - 2410 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.






**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

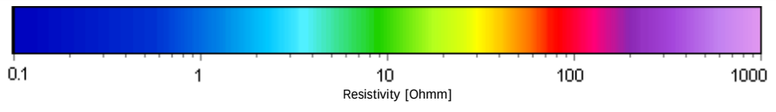
UTM Zone 12N WGS84

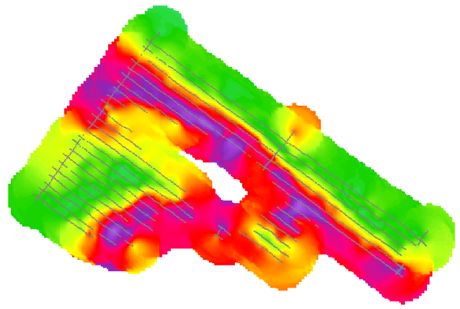
**Mean Resistivity, Elevation 2380 - 2395 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.





UTMY

4260000
4255000
4250000
4245000
4240000

660000 665000 670000 675000 680000 685000 690000 695000

UTMX

**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

**Mean Resistivity, Elevation 2365 - 2380 m.a.s.l.**

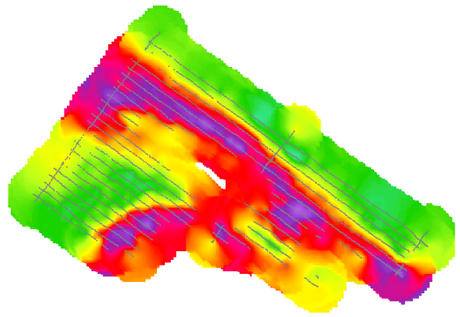
Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000

Resistivity [Ohmm]



UTMY

4260000
4255000
4250000
4245000
4240000

660000 665000 670000 675000 680000 685000 690000 695000

UTMX

**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

**Mean Resistivity, Elevation 2350 - 2365 m.a.s.l.**

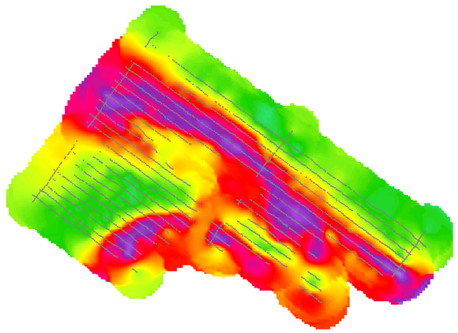
Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000

Resistivity [Ohmm]



UTMY

4260000
4255000
4250000
4245000
4240000

660000
665000
670000
675000
680000
685000
690000
695000

UTMX

**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

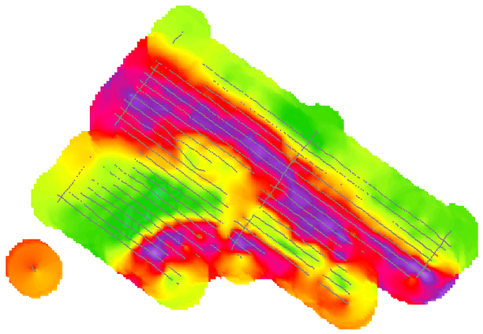
**Mean Resistivity, Elevation 2335 - 2350 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1
1
10
100
1000
Resistivity [Ohmm]



UTMY

4260000
4255000
4250000
4245000
4240000

660000
665000
670000
675000
680000
685000
690000
695000

UTMX

**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

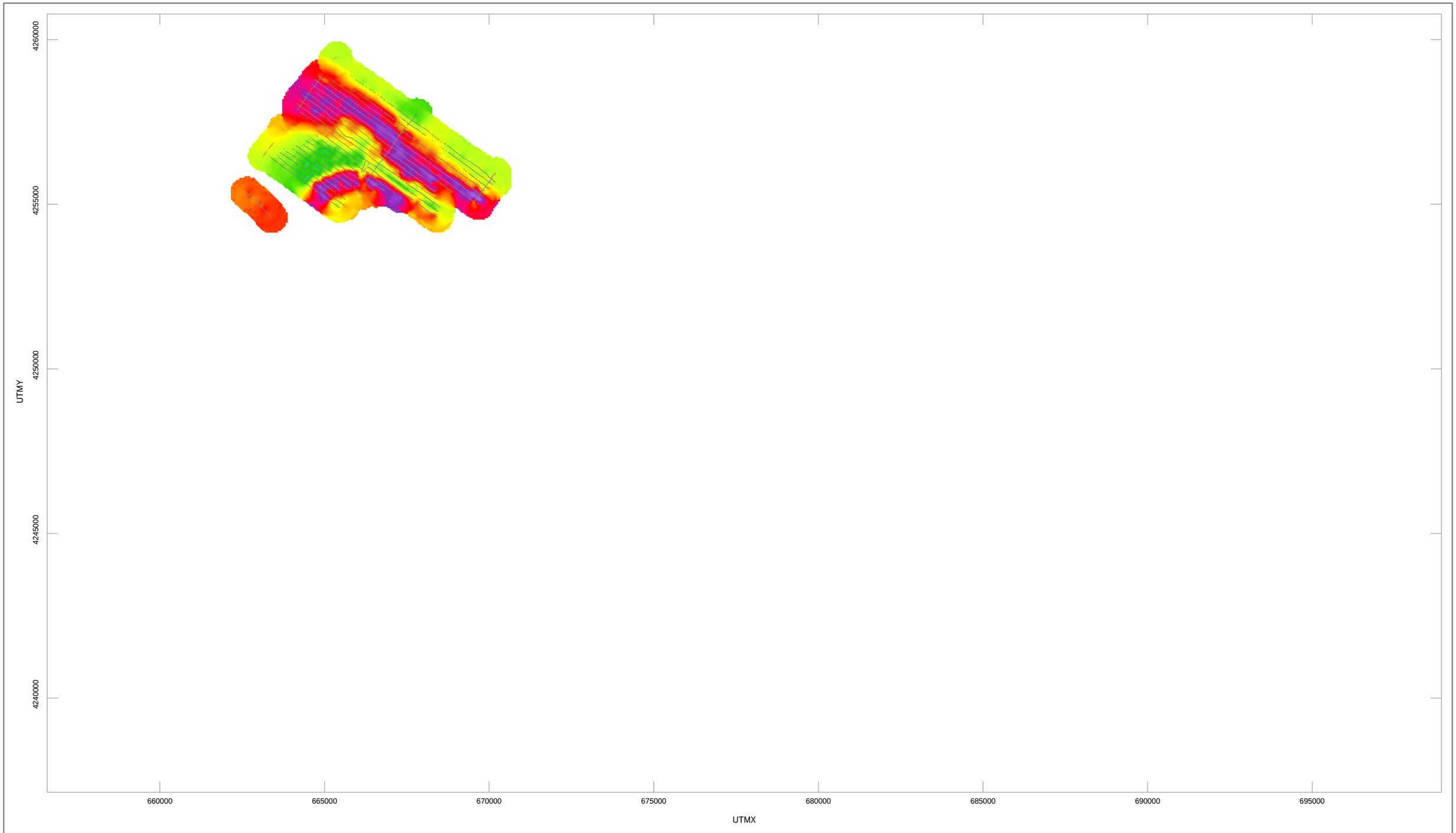
**Mean Resistivity, Elevation 2320 - 2335 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1
1
10
100
1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

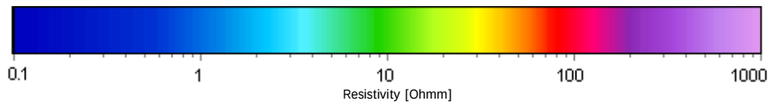
UTM Zone 12N WGS84

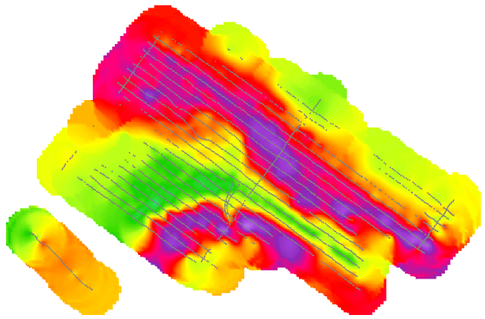
**Mean Resistivity, Elevation 2305 - 2320 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.





UTMY

4260000
4255000
4250000
4245000
4240000

660000 665000 670000 675000 680000 685000 690000 695000

UTMX

**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

**Mean Resistivity, Elevation 2290 - 2305 m.a.s.l.**

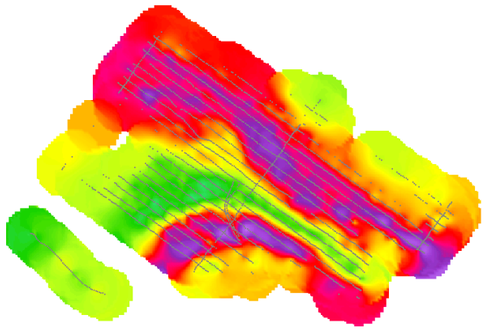
Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000

Resistivity [Ohmm]



UTMY

4260000
4255000
4250000
4245000
4240000

660000 665000 670000 675000 680000 685000 690000 695000

UTMX

**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

**Mean Resistivity, Elevation 2275 - 2290 m.a.s.l.**

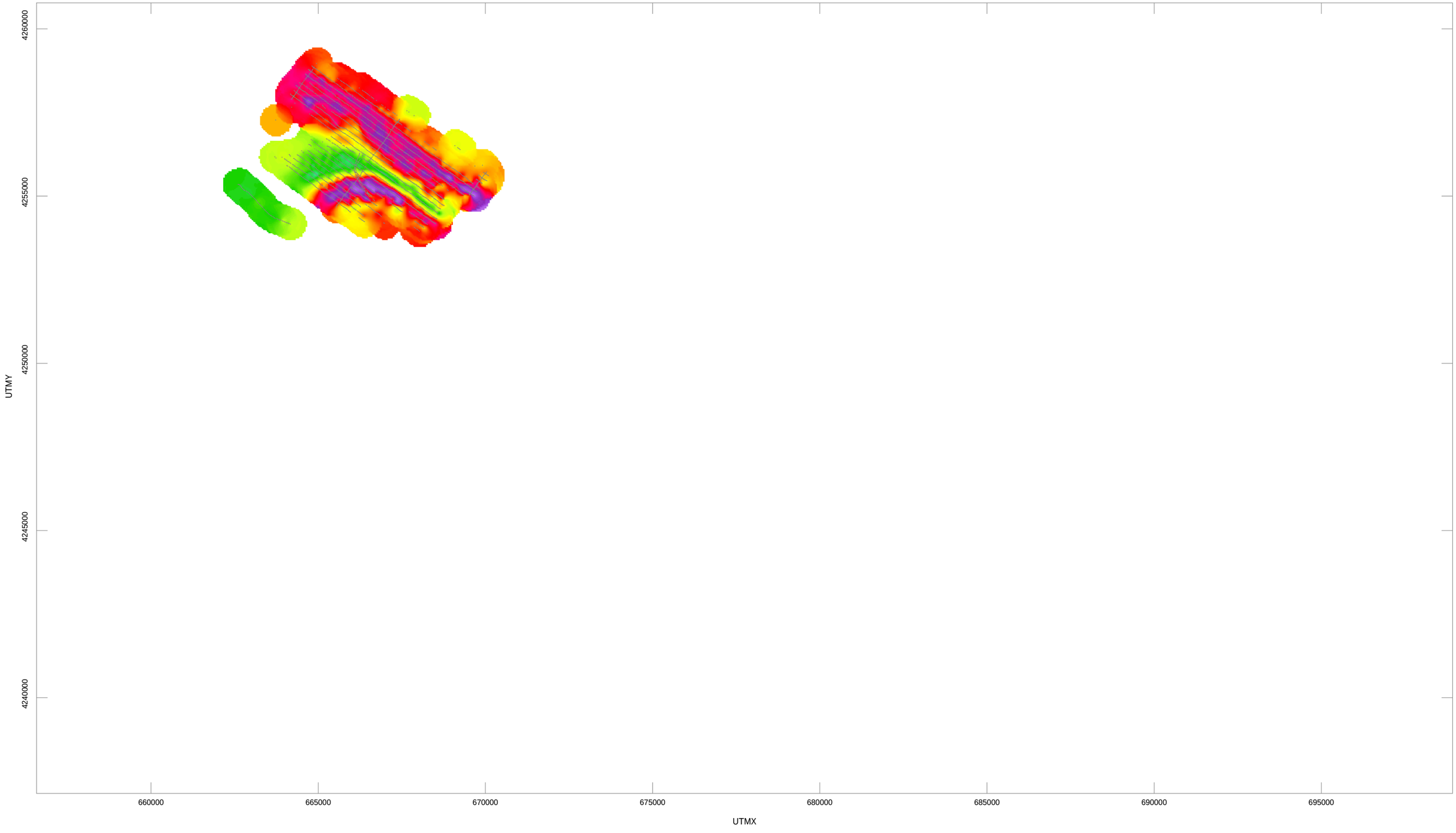
Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000

Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

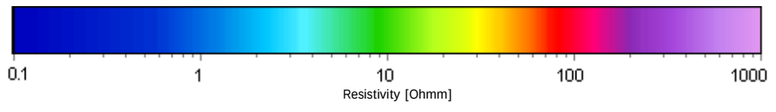
UTM Zone 12N WGS84

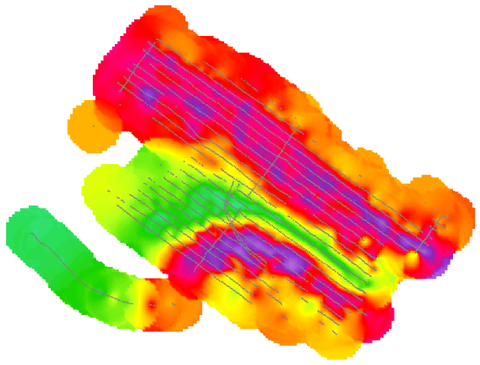
**Mean Resistivity, Elevation 2260 - 2275 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.





UTMY

4260000
4255000
4250000
4245000
4240000

660000 665000 670000 675000 680000 685000 690000 695000

UTMX

**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

**Mean Resistivity, Elevation 2245 - 2260 m.a.s.l.**

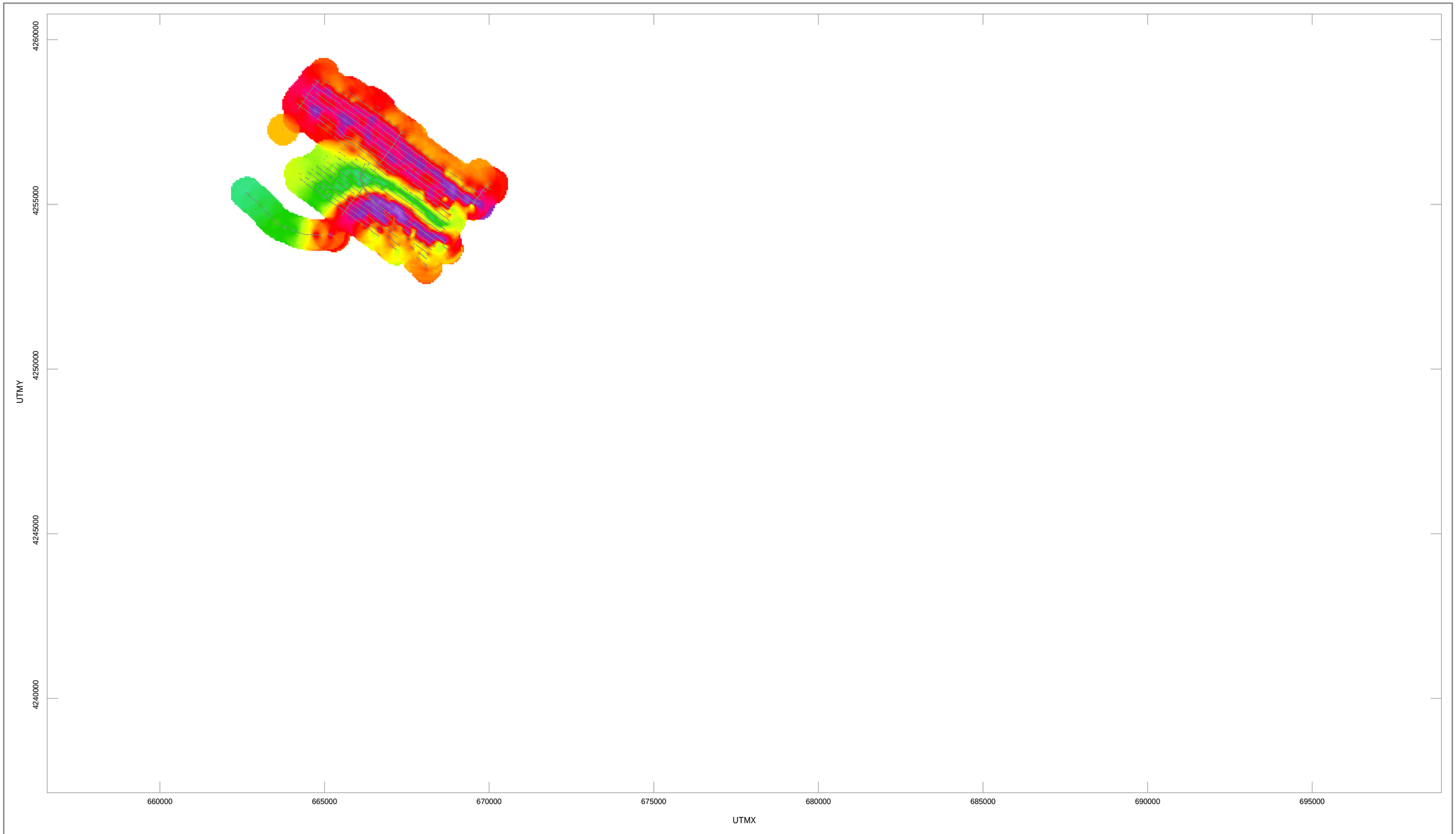
Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000

Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

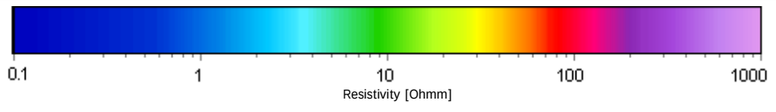
UTM Zone 12N WGS84

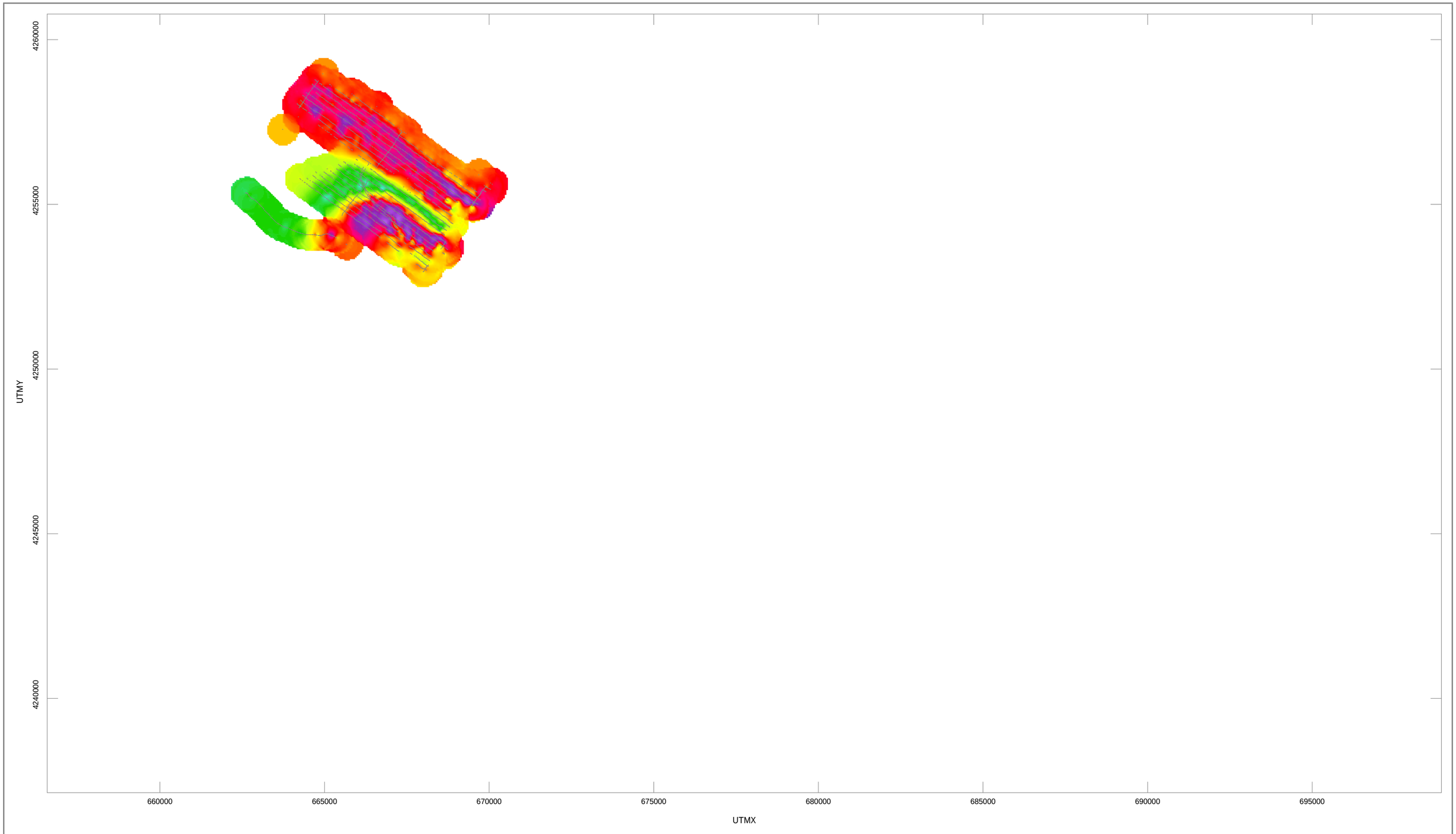
**Mean Resistivity, Elevation 2230 - 2245 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.






**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

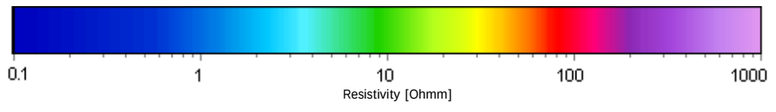
UTM Zone 12N WGS84

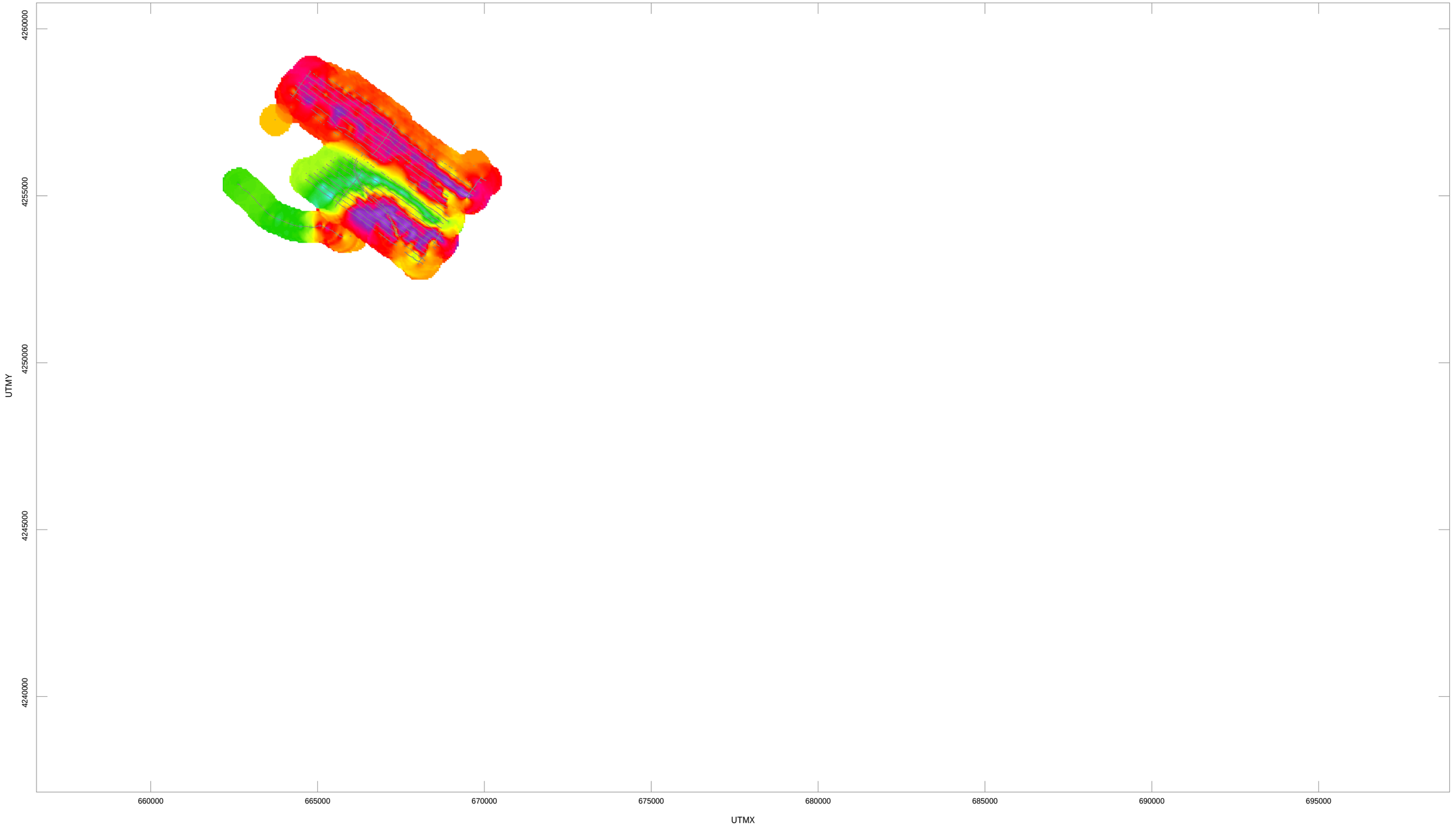
**Mean Resistivity, Elevation 2215 - 2230 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.






**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

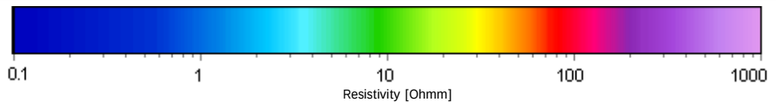
UTM Zone 12N WGS84

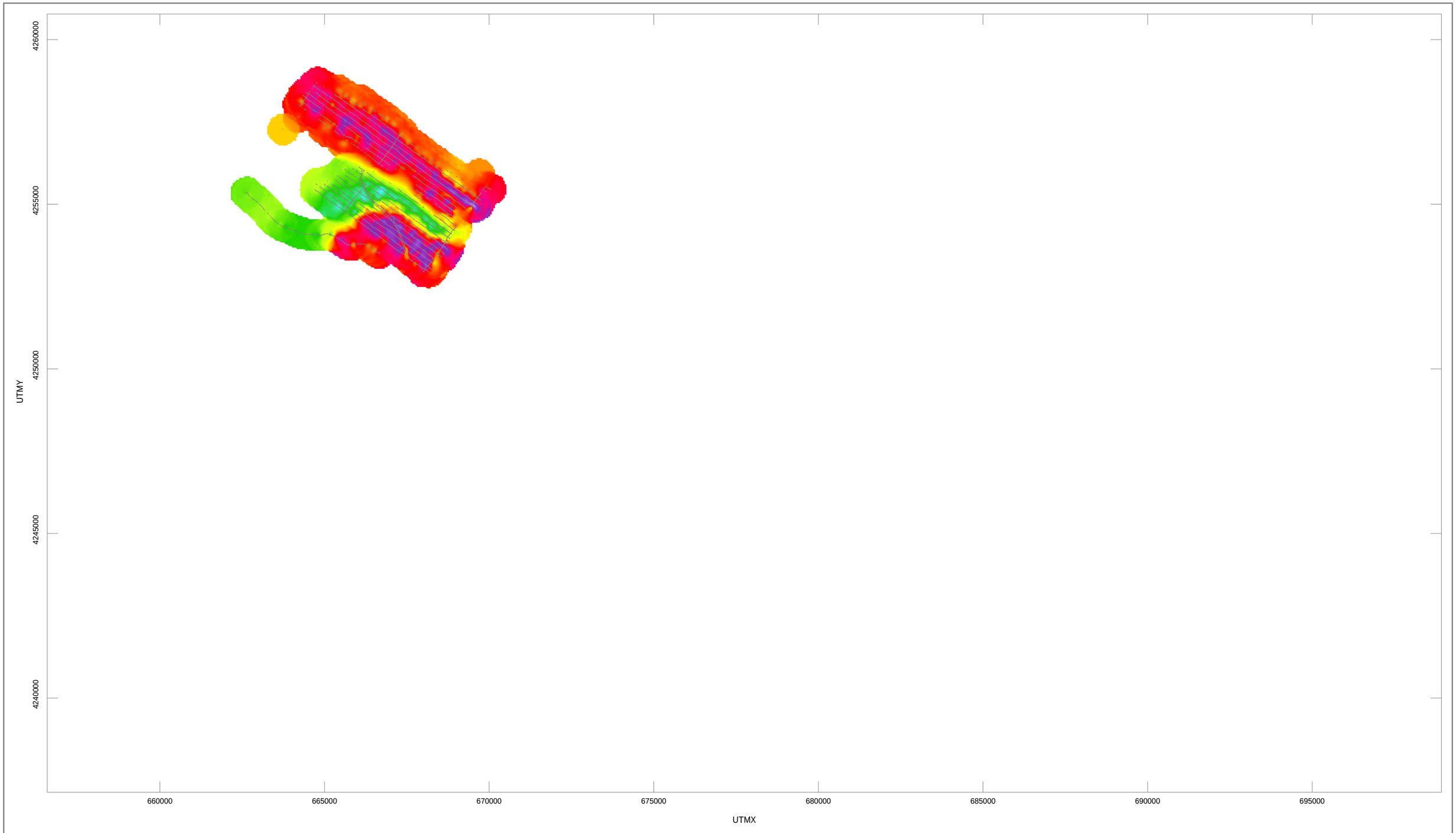
**Mean Resistivity, Elevation 2200 - 2215 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.






**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

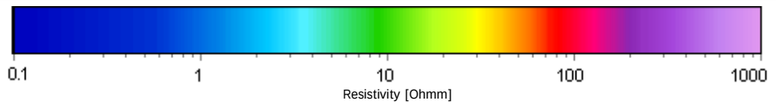
UTM Zone 12N WGS84

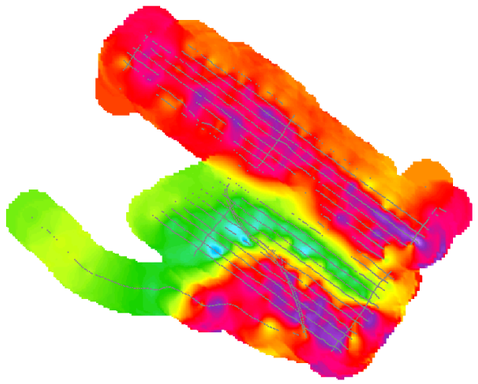
**Mean Resistivity, Elevation 2185 - 2200 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.





UTMY

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UTMX

**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

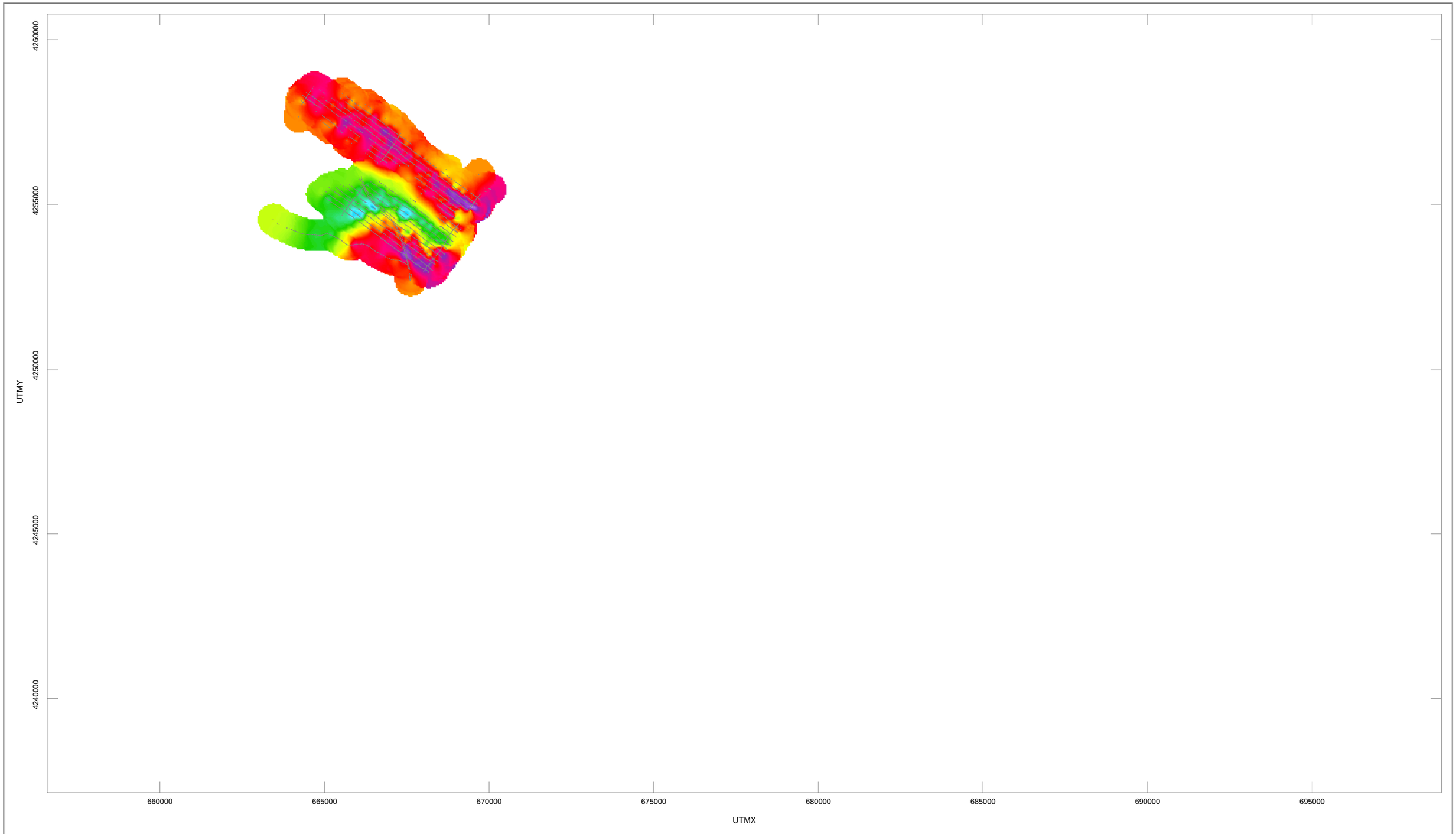
**Mean Resistivity, Elevation 2170 - 2185 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

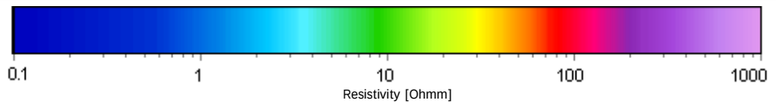
UTM Zone 12N WGS84

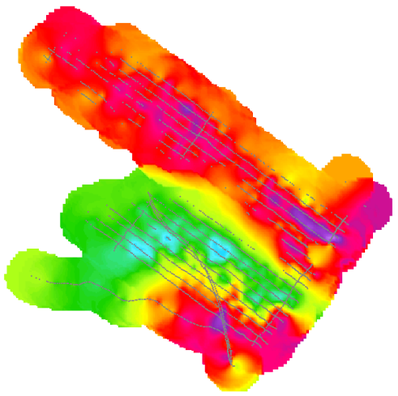
**Mean Resistivity, Elevation 2155 - 2170 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.





UTMY

4260000
4255000
4250000
4245000
4240000

660000 665000 670000 675000 680000 685000 690000 695000

UTMX

**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

**Mean Resistivity, Elevation 2140 - 2155 m.a.s.l.**

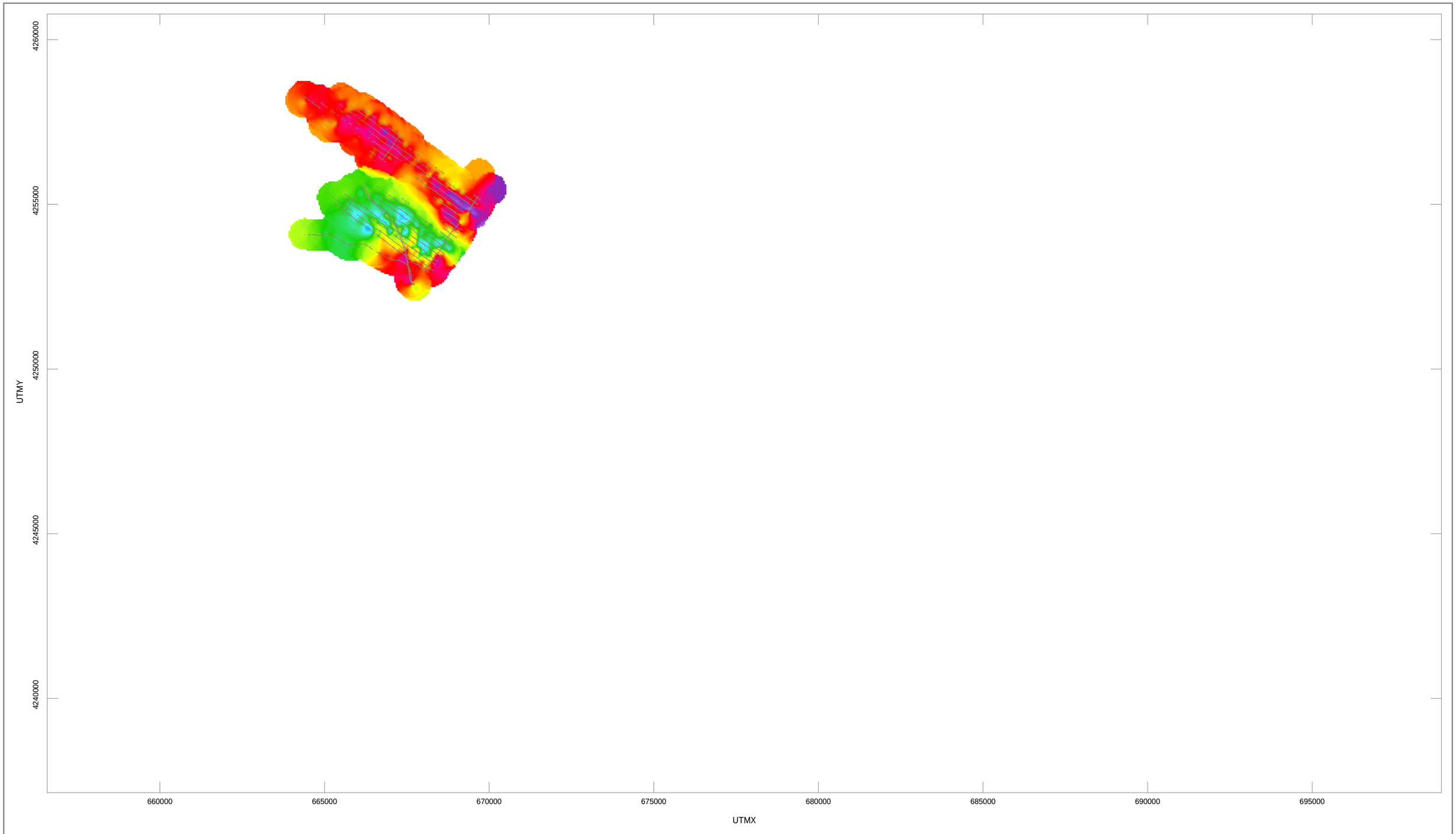
Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000

Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

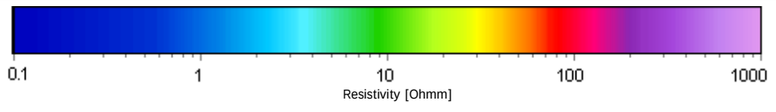
UTM Zone 12N WGS84

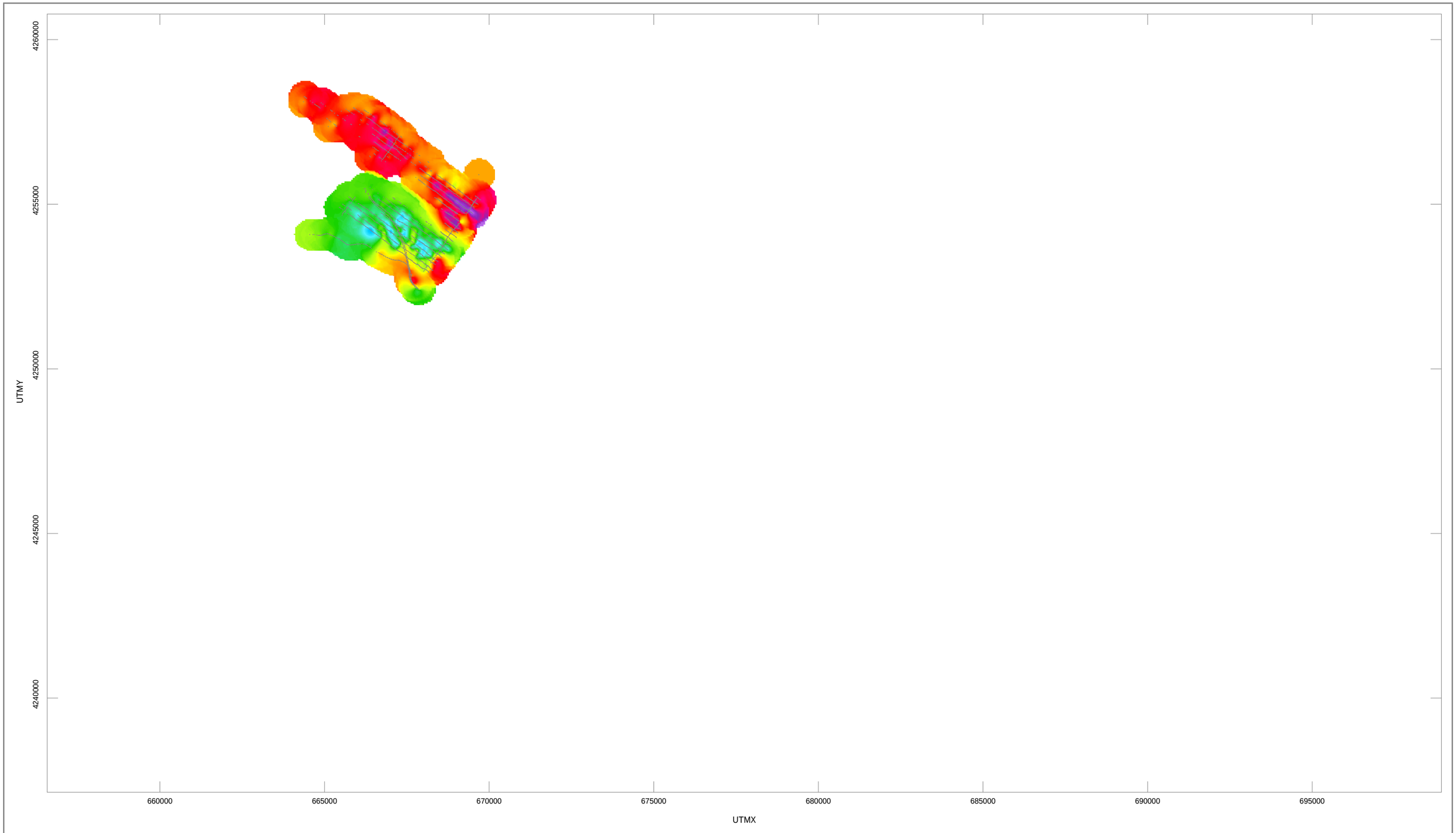
**Mean Resistivity, Elevation 2125 - 2140 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.






**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

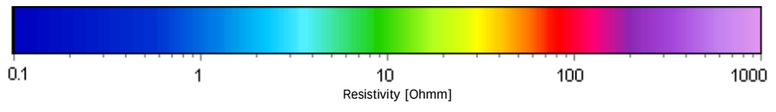
UTM Zone 12N WGS84

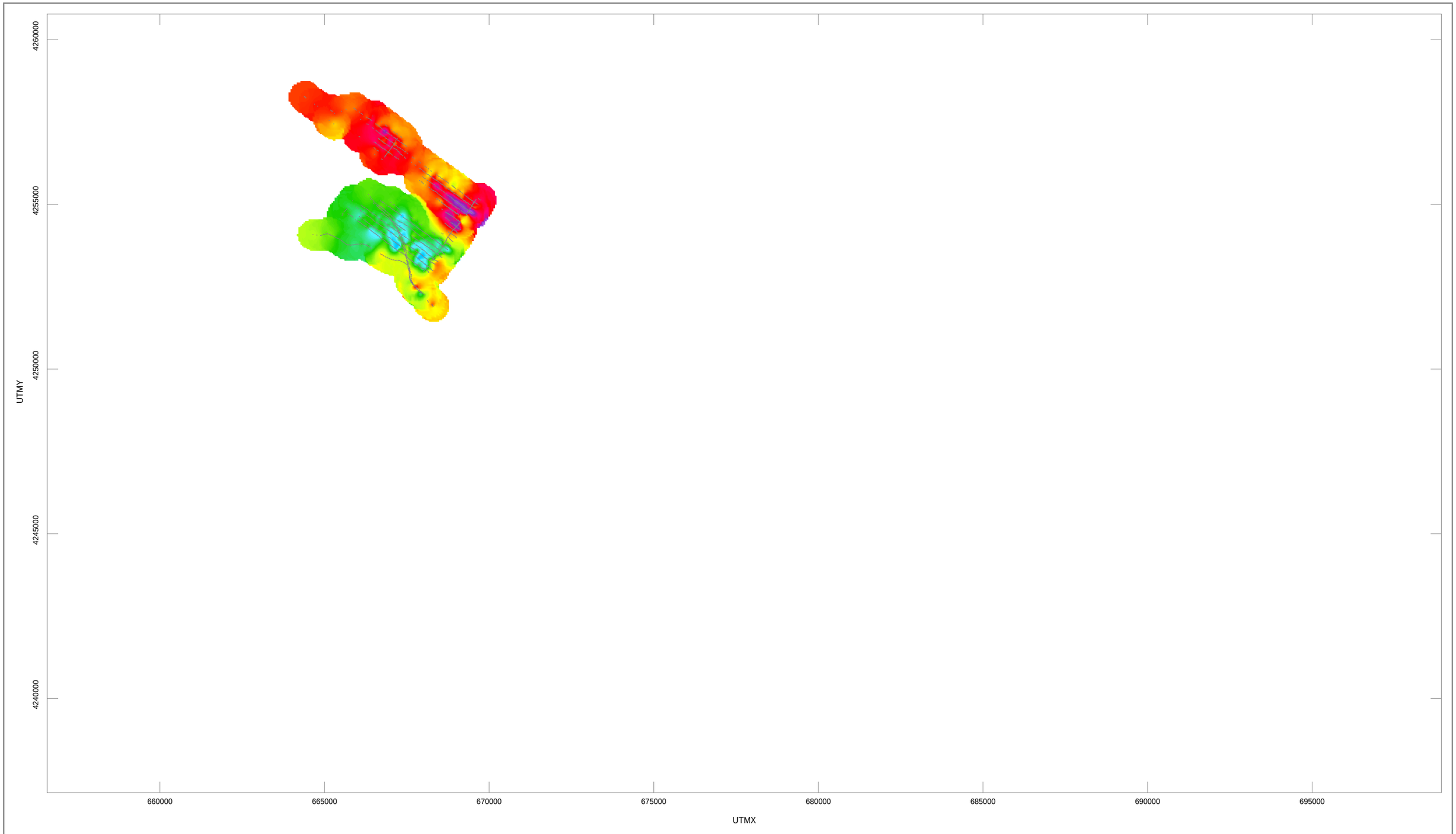
**Mean Resistivity, Elevation 2110 - 2125 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.






**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

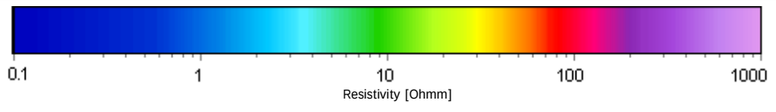
UTM Zone 12N WGS84

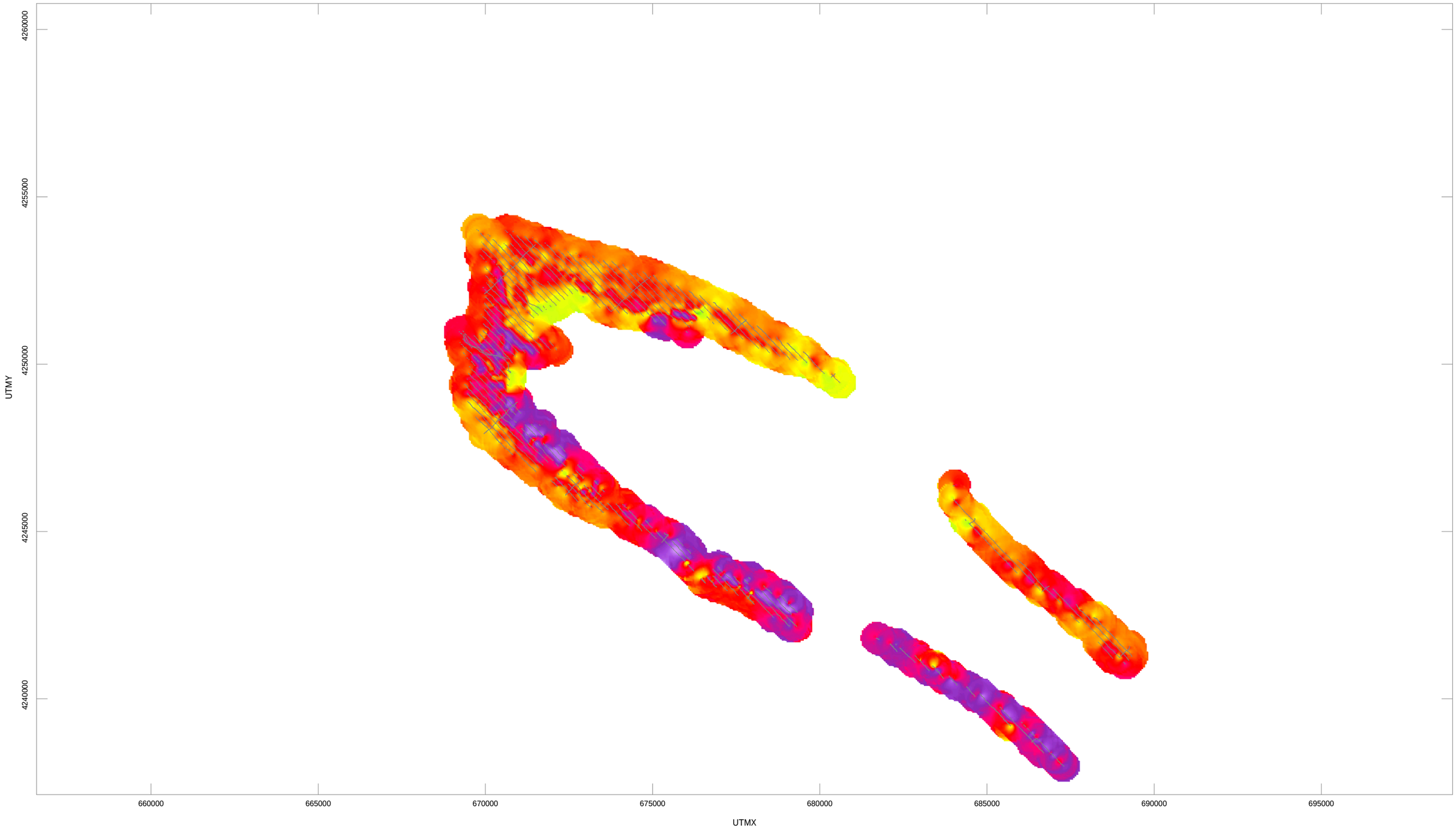
**Mean Resistivity, Elevation 2095 - 2110 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.






**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

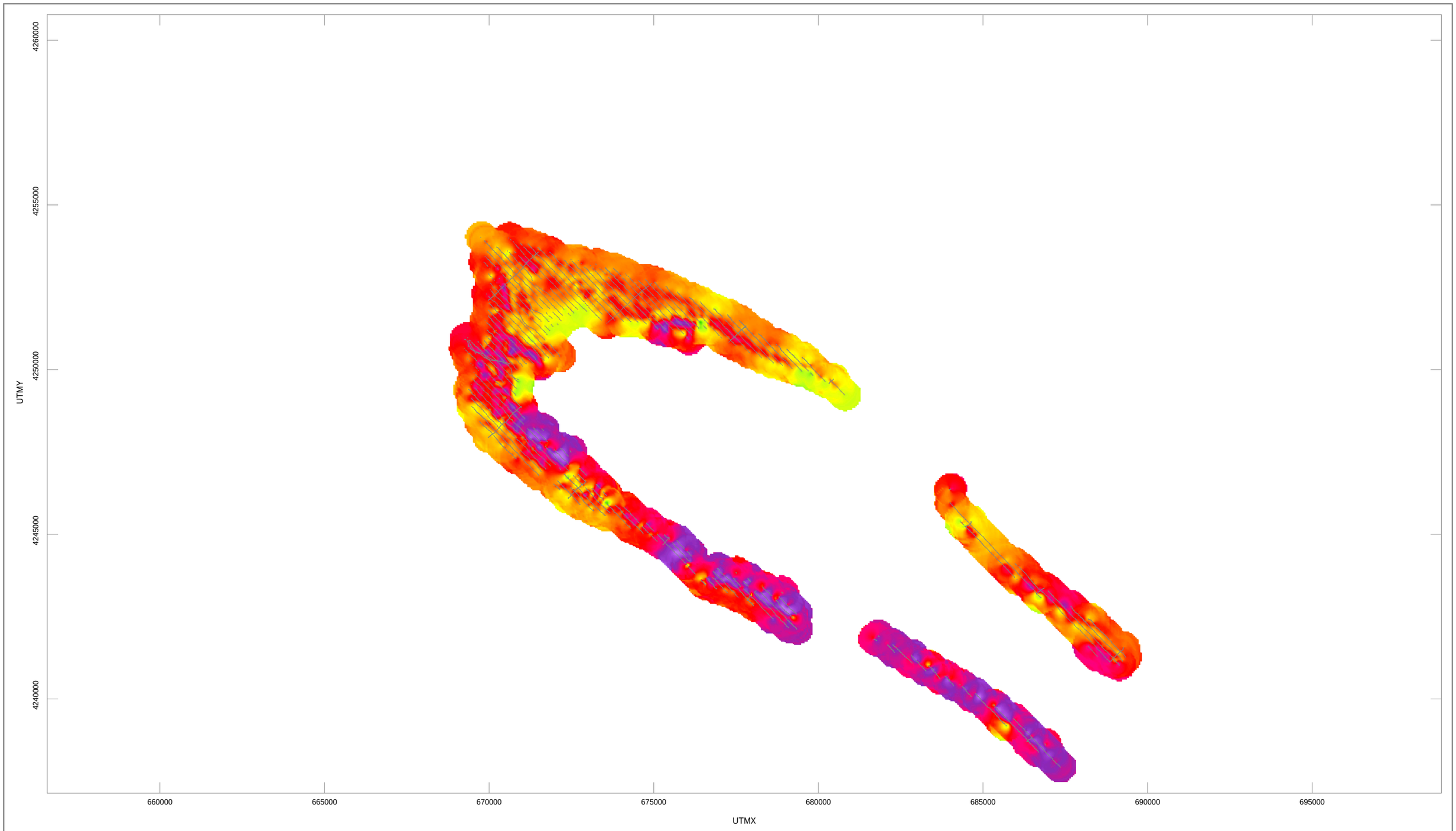
**Mean Resistivity, Elevation 1690 - 1700 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

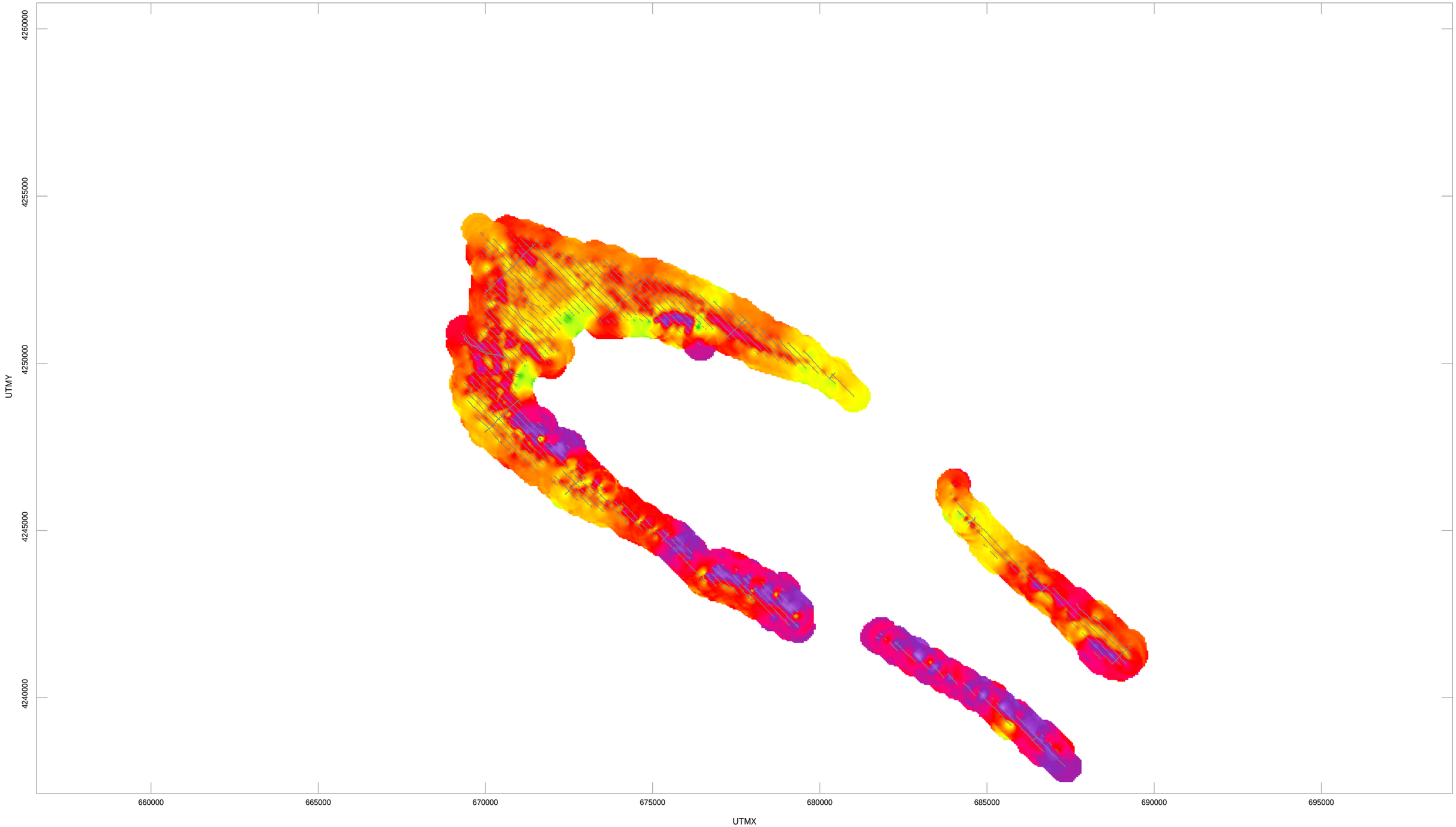
**Mean Resistivity, Elevation 1680 - 1690 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

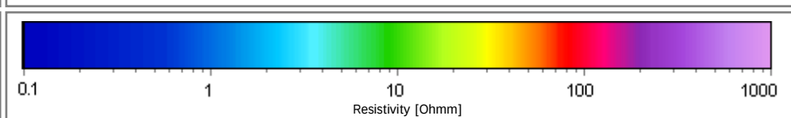
UTM Zone 12N WGS84

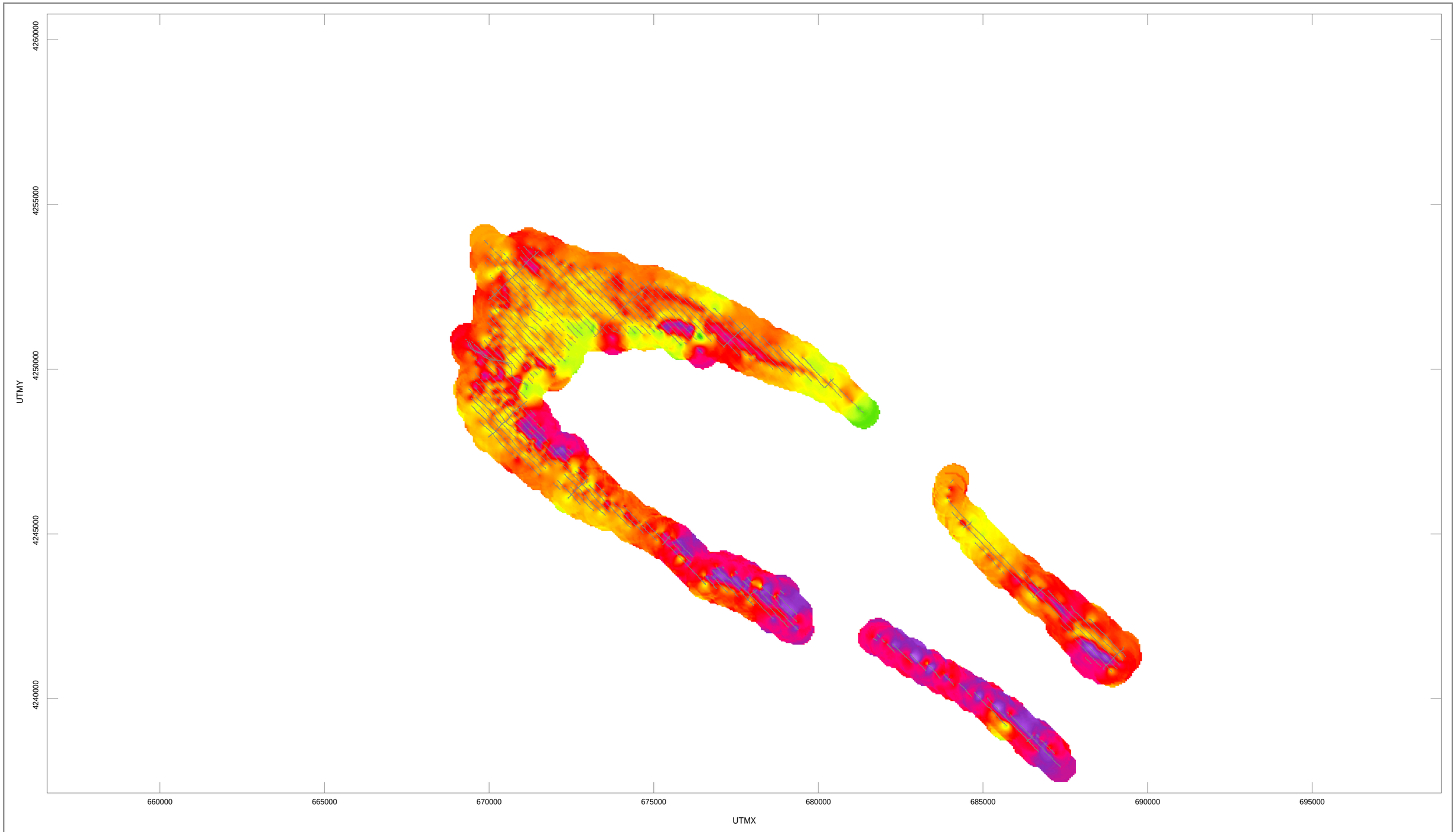
**Mean Resistivity, Elevation 1670 - 1680 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.






**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

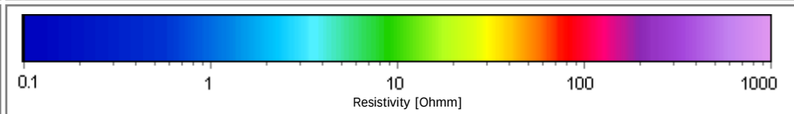
UTM Zone 12N WGS84

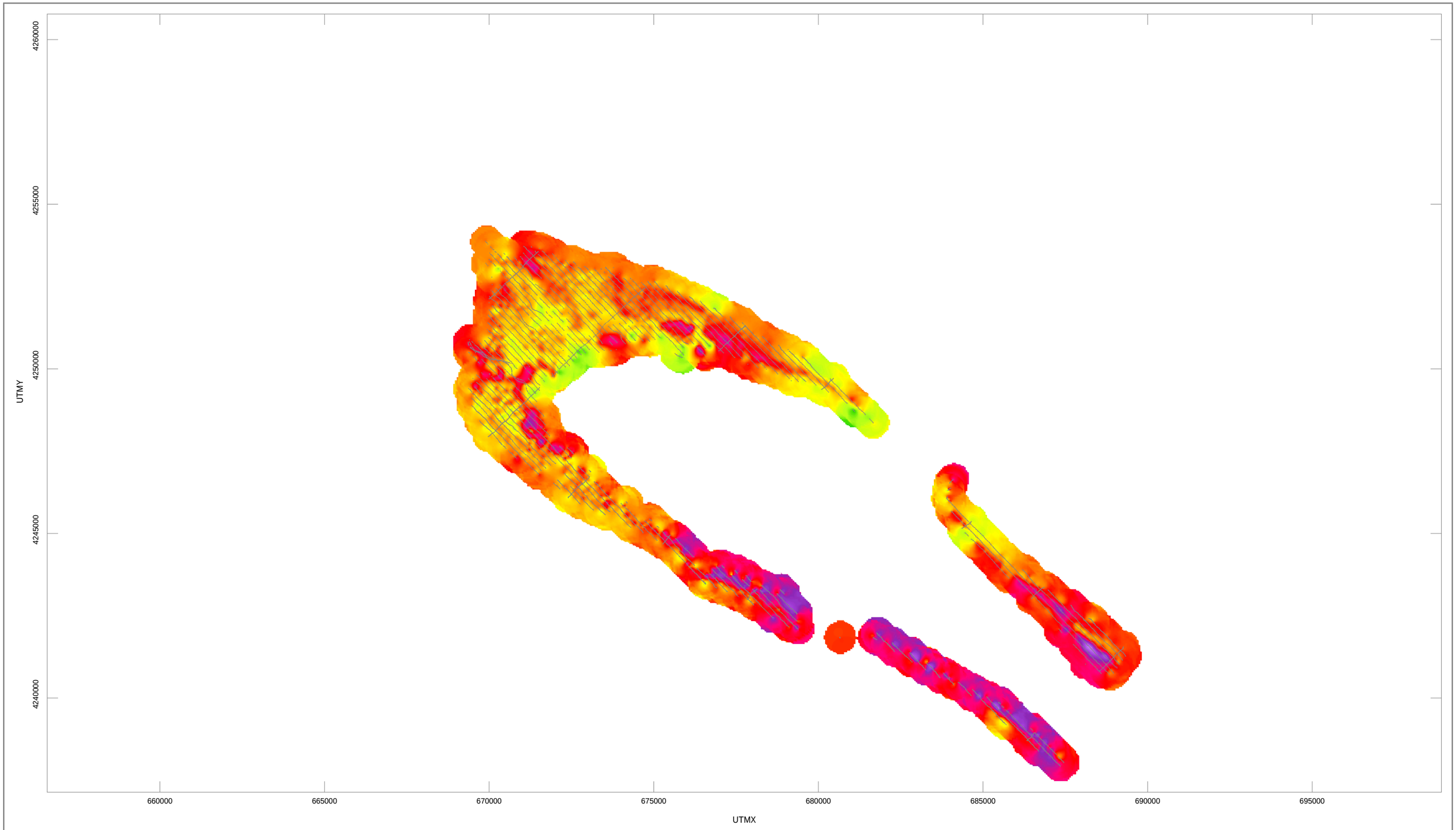
**Mean Resistivity, Elevation 1660 - 1670 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.






**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

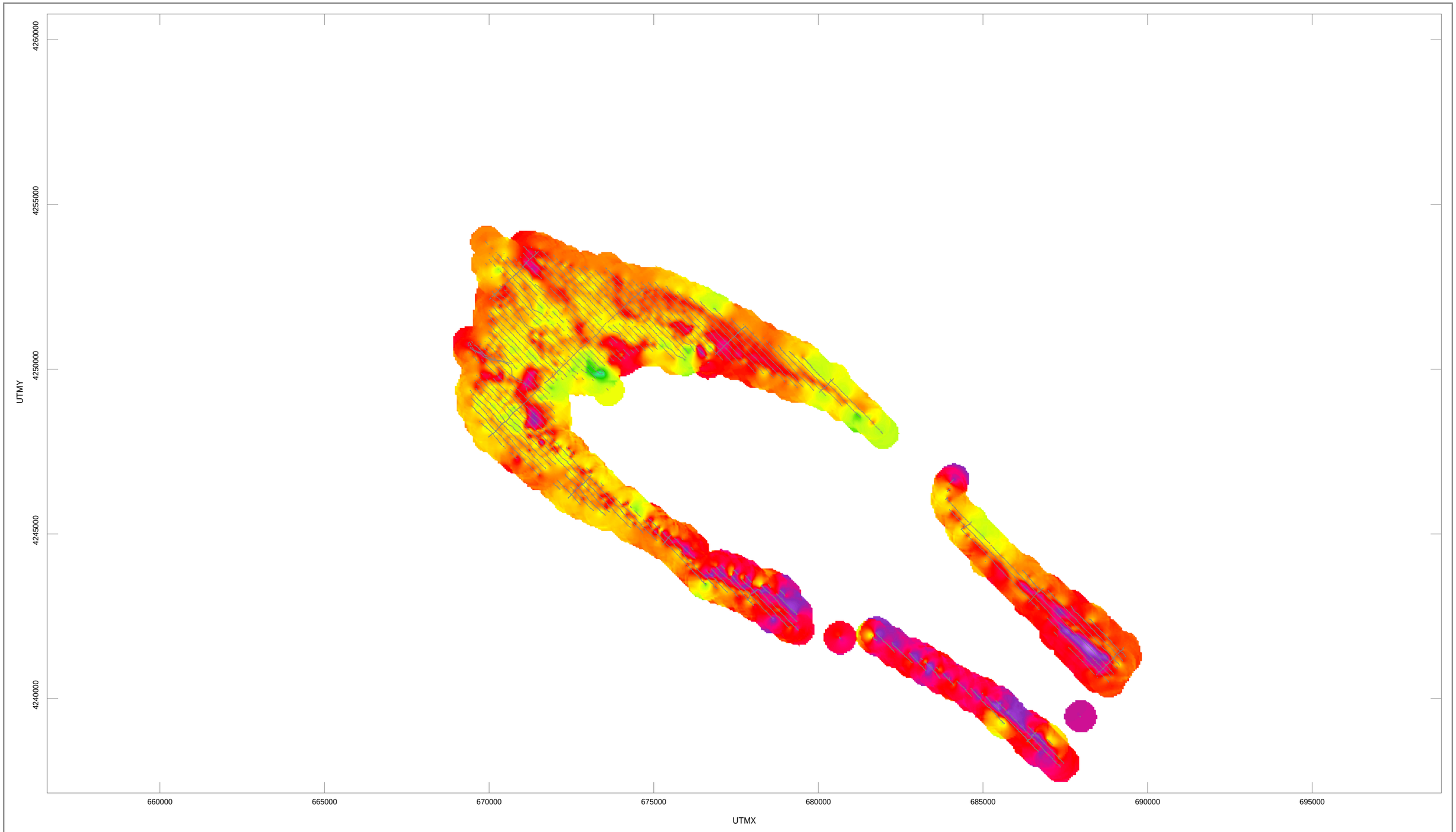
**Mean Resistivity, Elevation 1650 - 1660 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

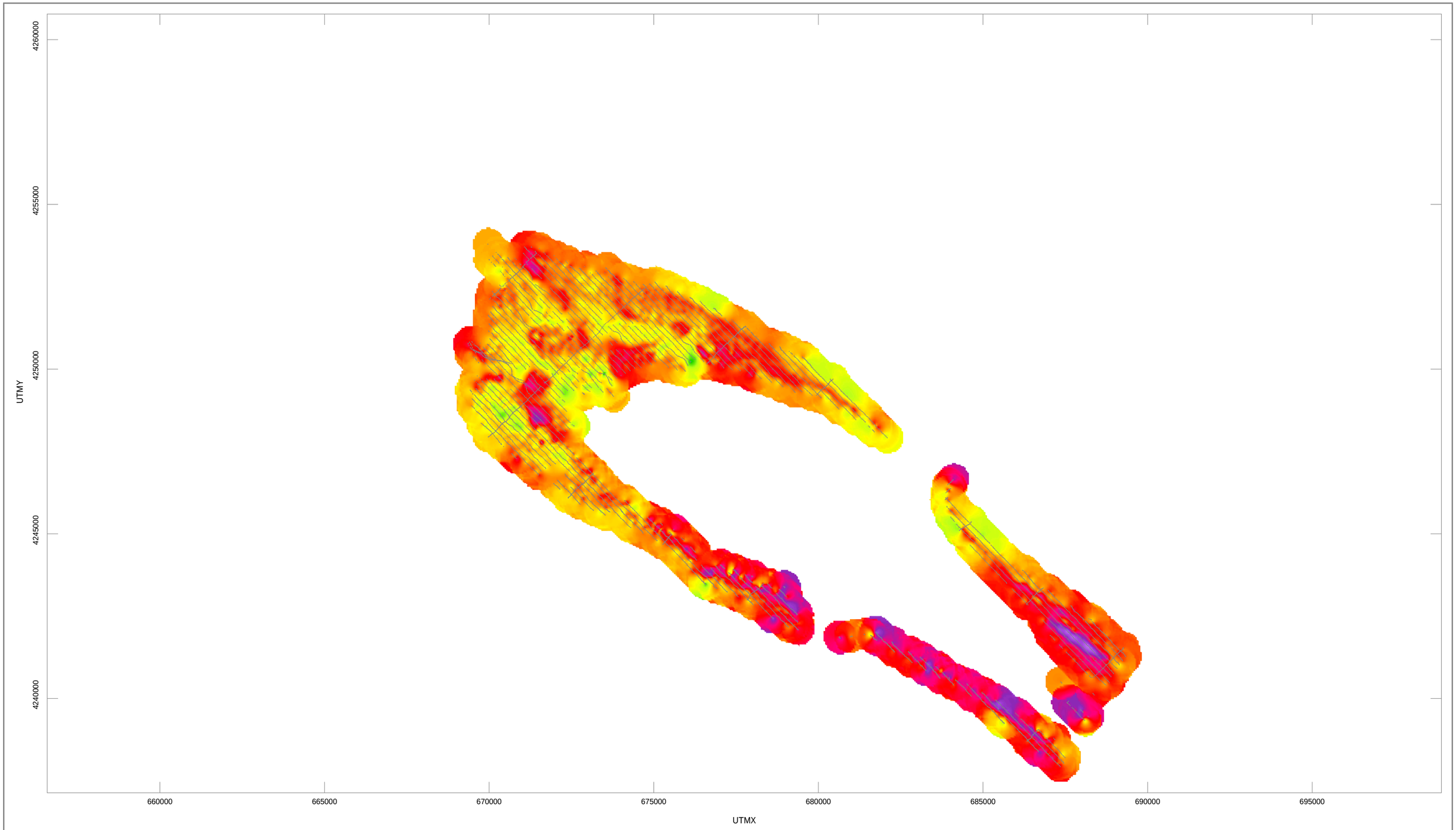
**Mean Resistivity, Elevation 1640 - 1650 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

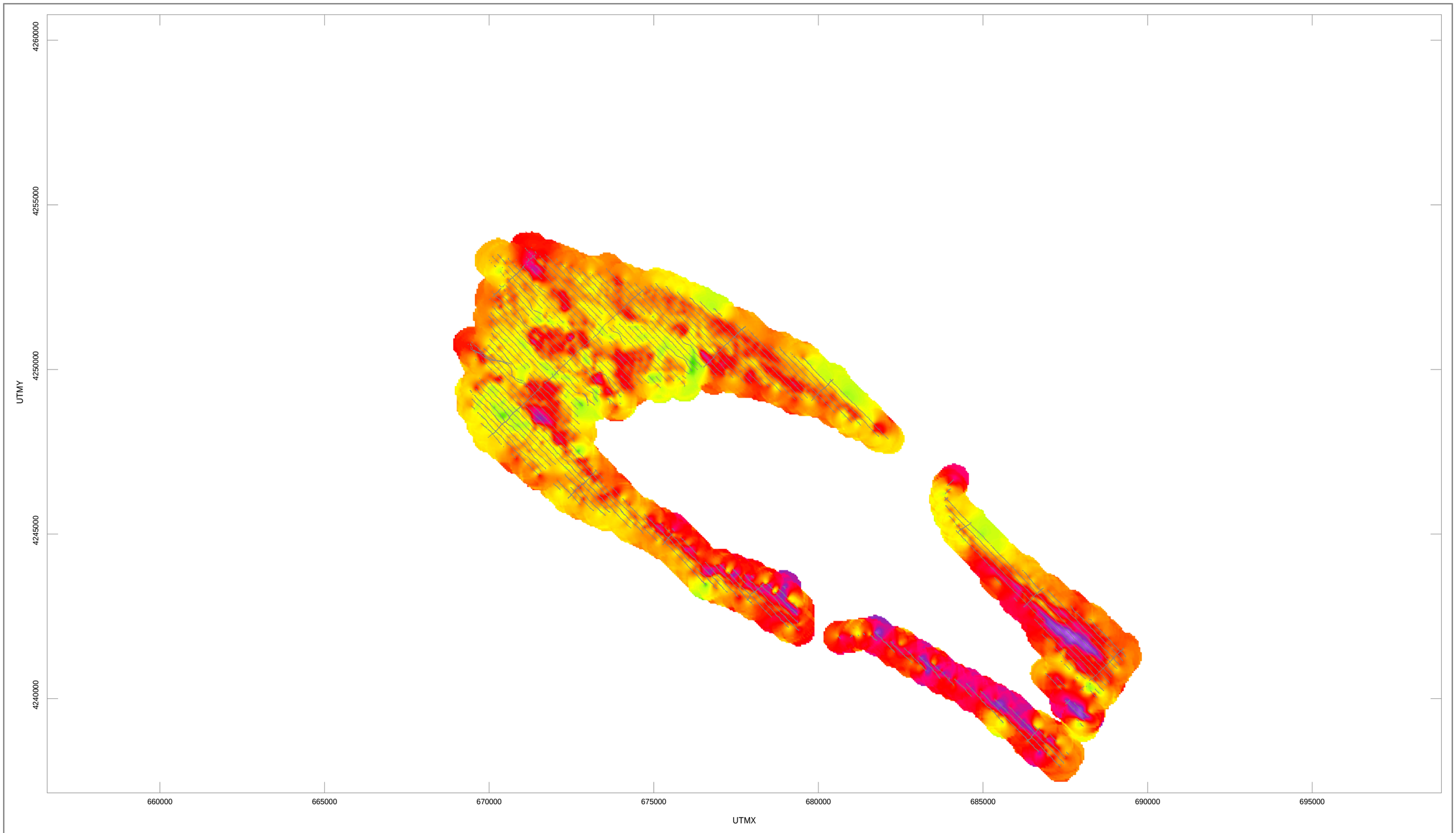
**Mean Resistivity, Elevation 1630 - 1640 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

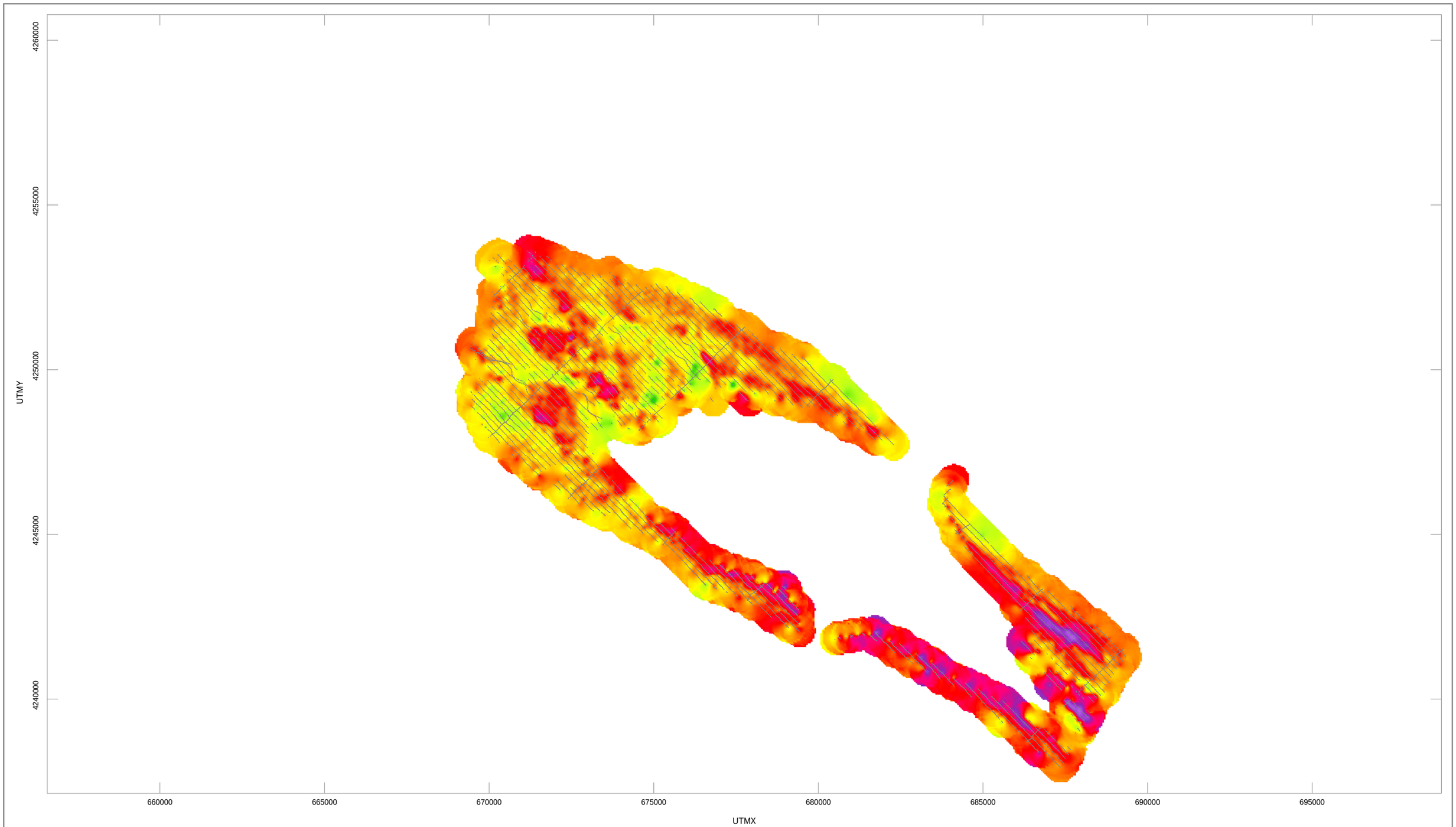
**Mean Resistivity, Elevation 1620 - 1630 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

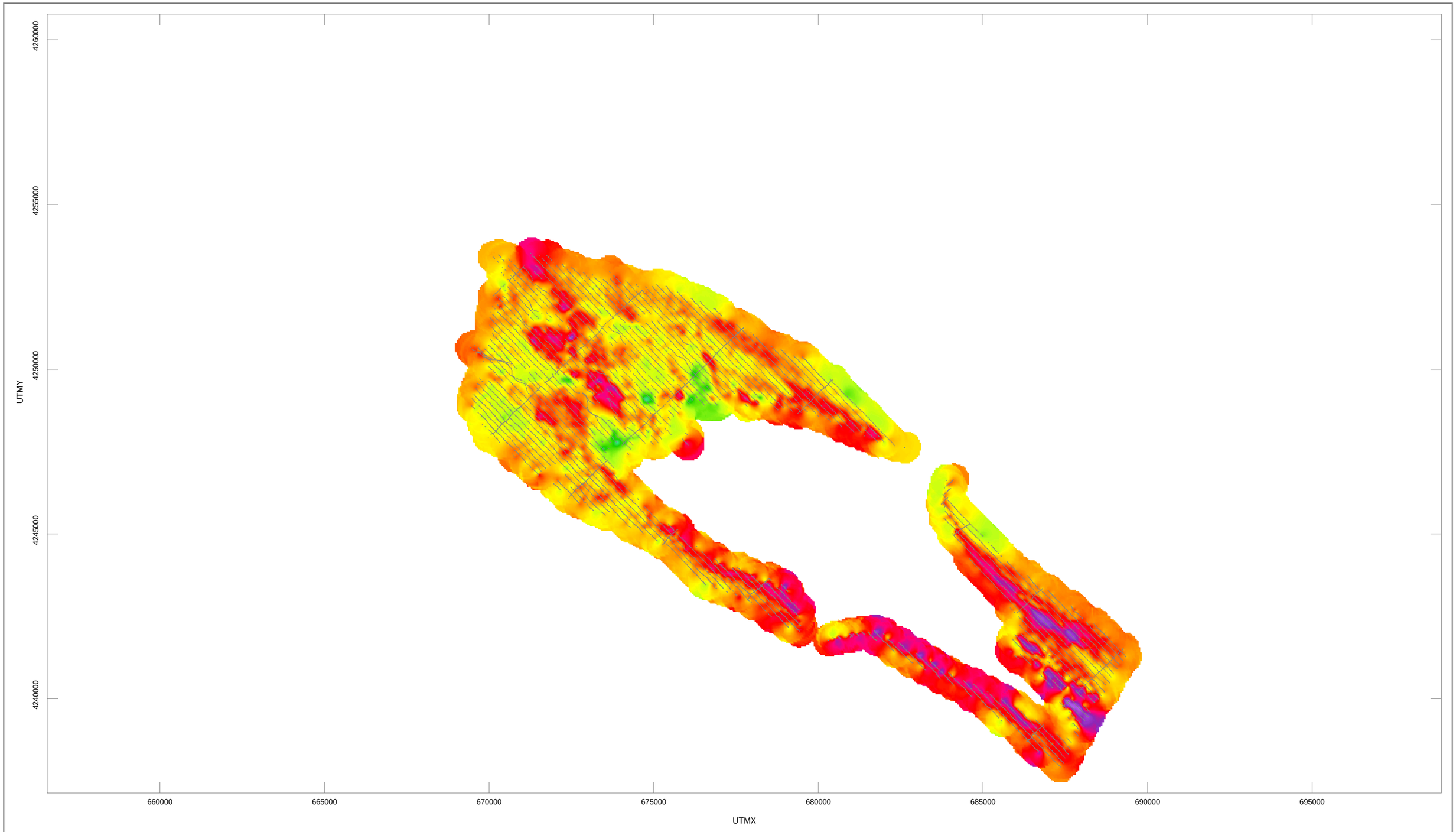
**Mean Resistivity, Elevation 1610 - 1620 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

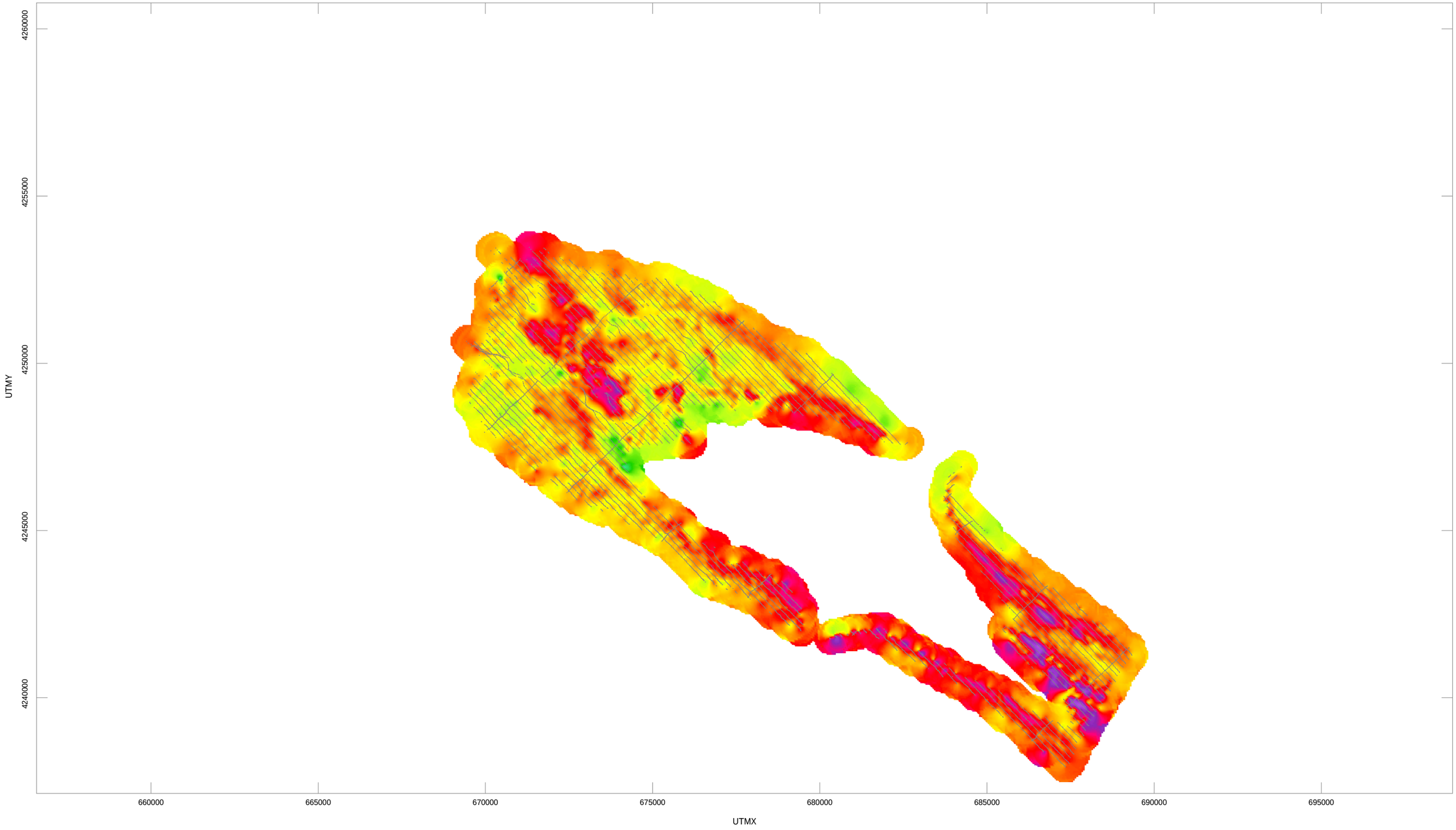
**Mean Resistivity, Elevation 1600 - 1610 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

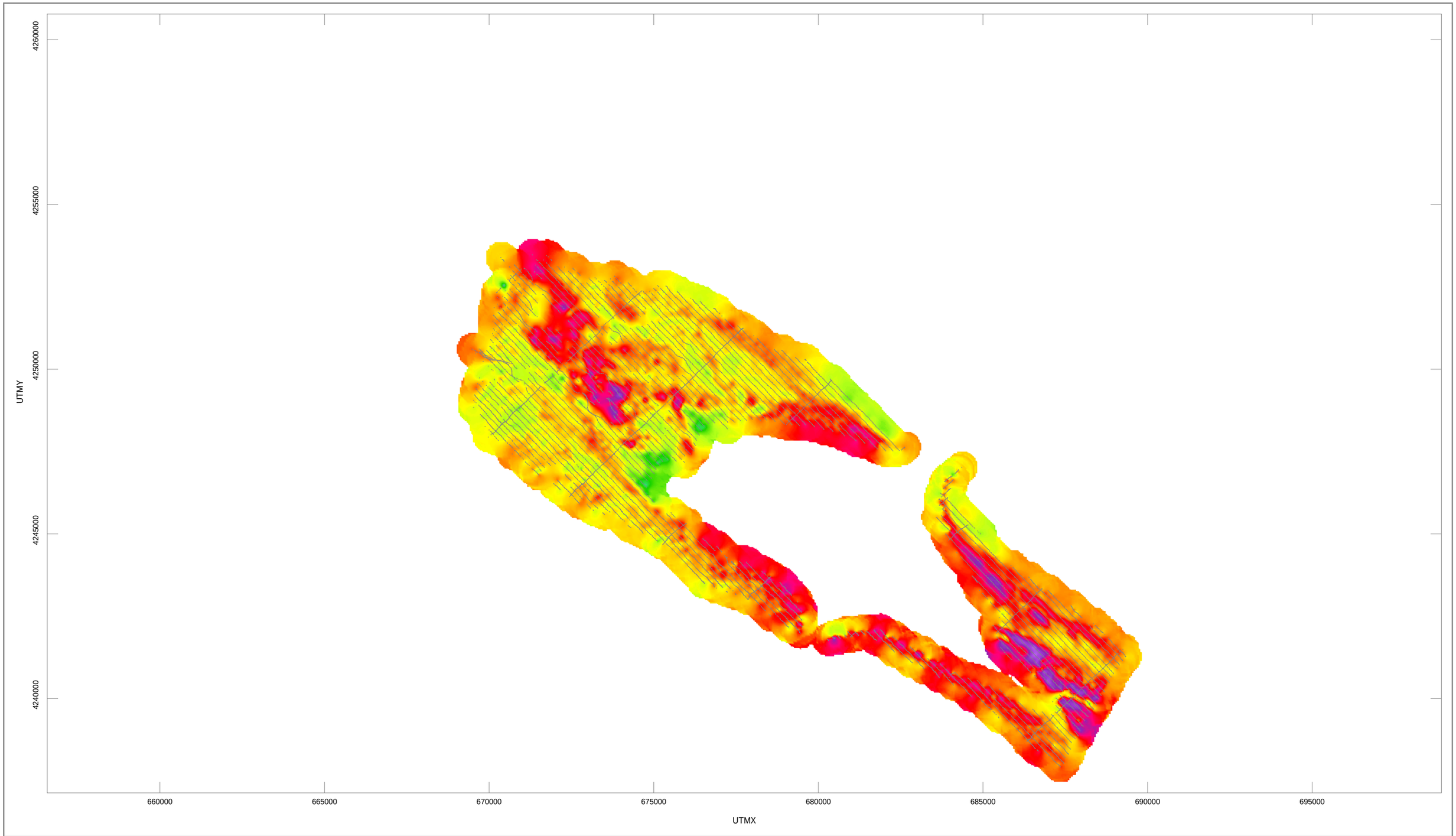
**Mean Resistivity, Elevation 1590 - 1600 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

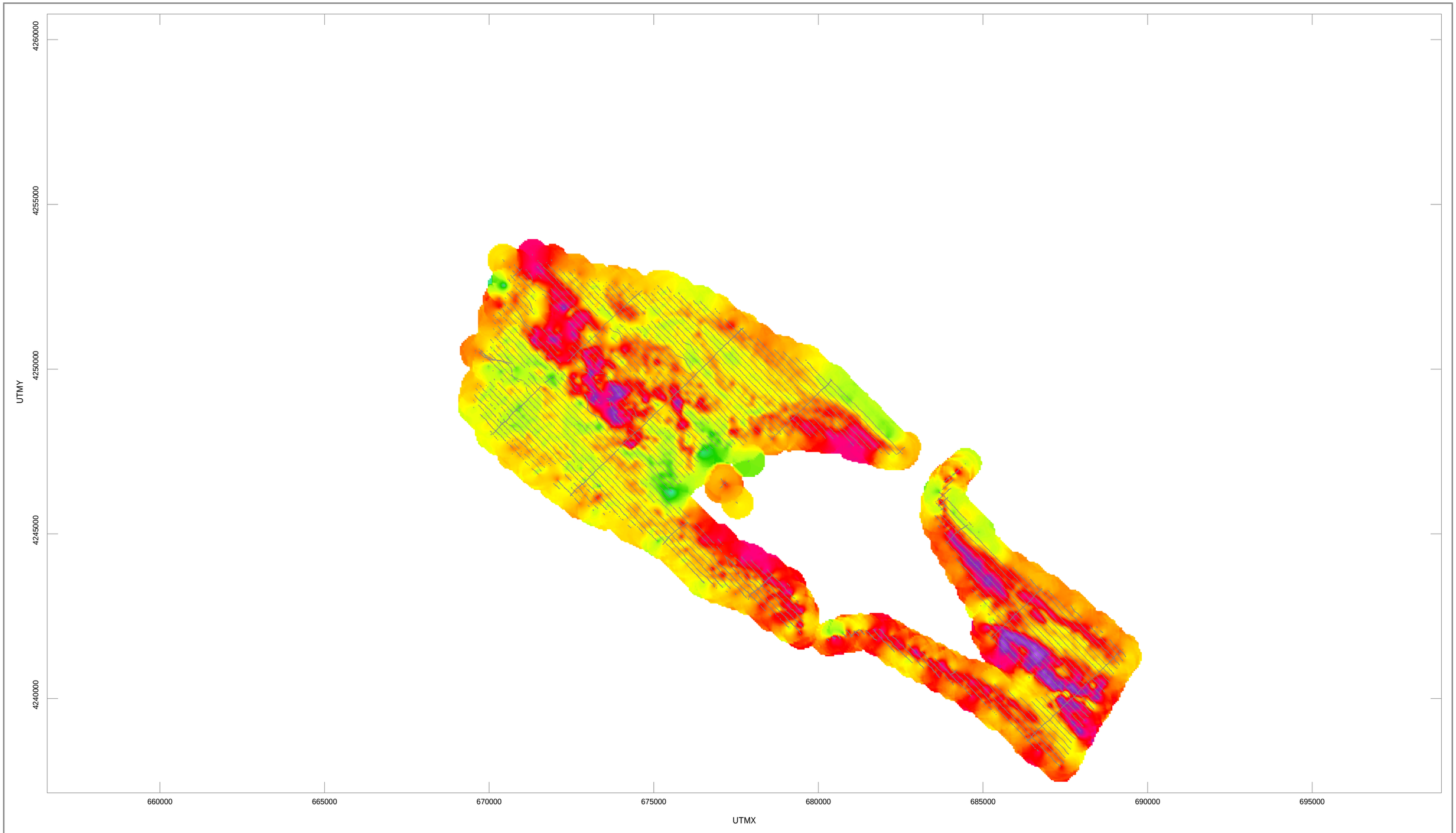
**Mean Resistivity, Elevation 1580 - 1590 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

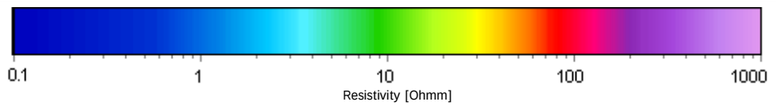
UTM Zone 12N WGS84

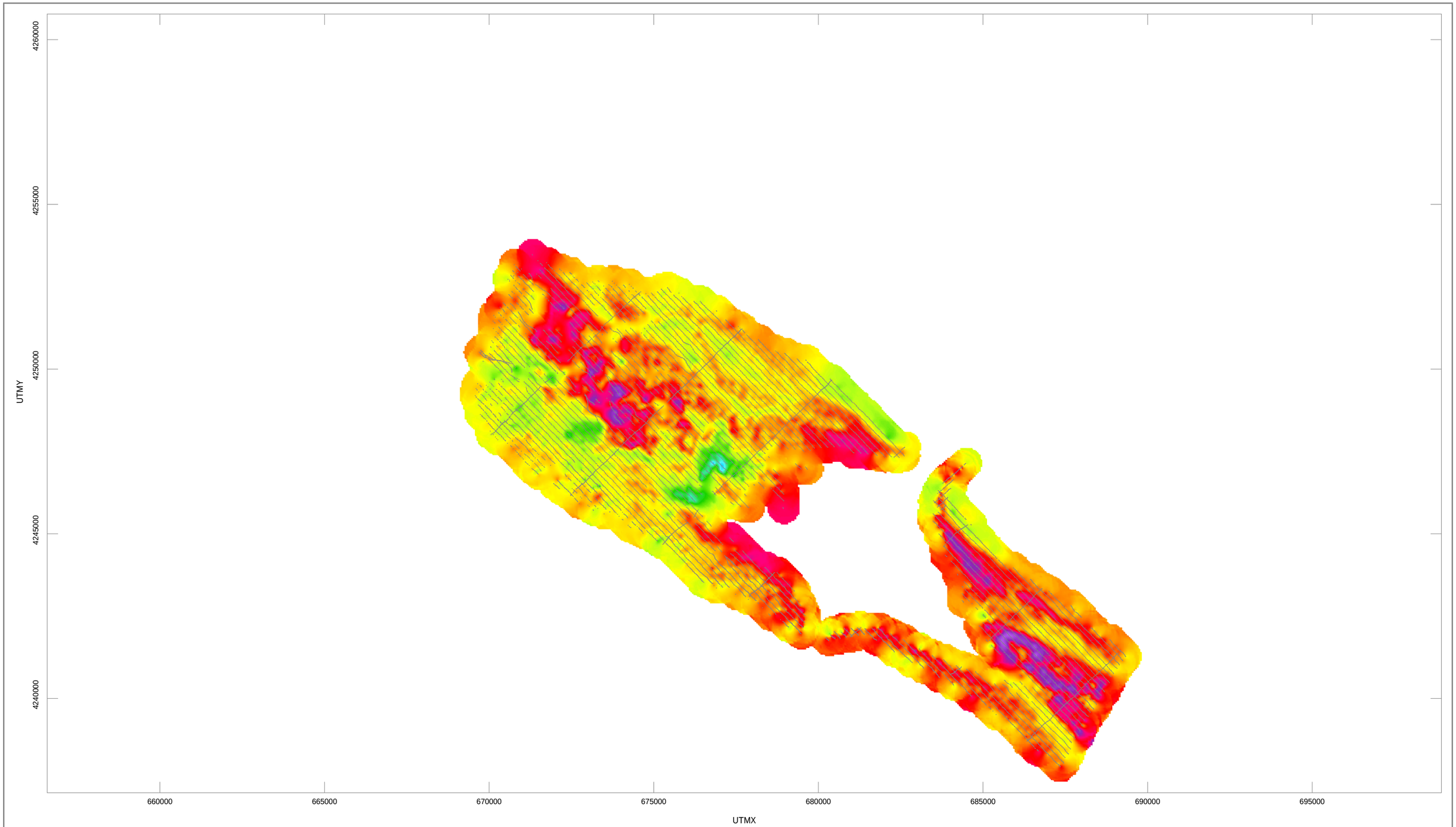
**Mean Resistivity, Elevation 1570 - 1580 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.






**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

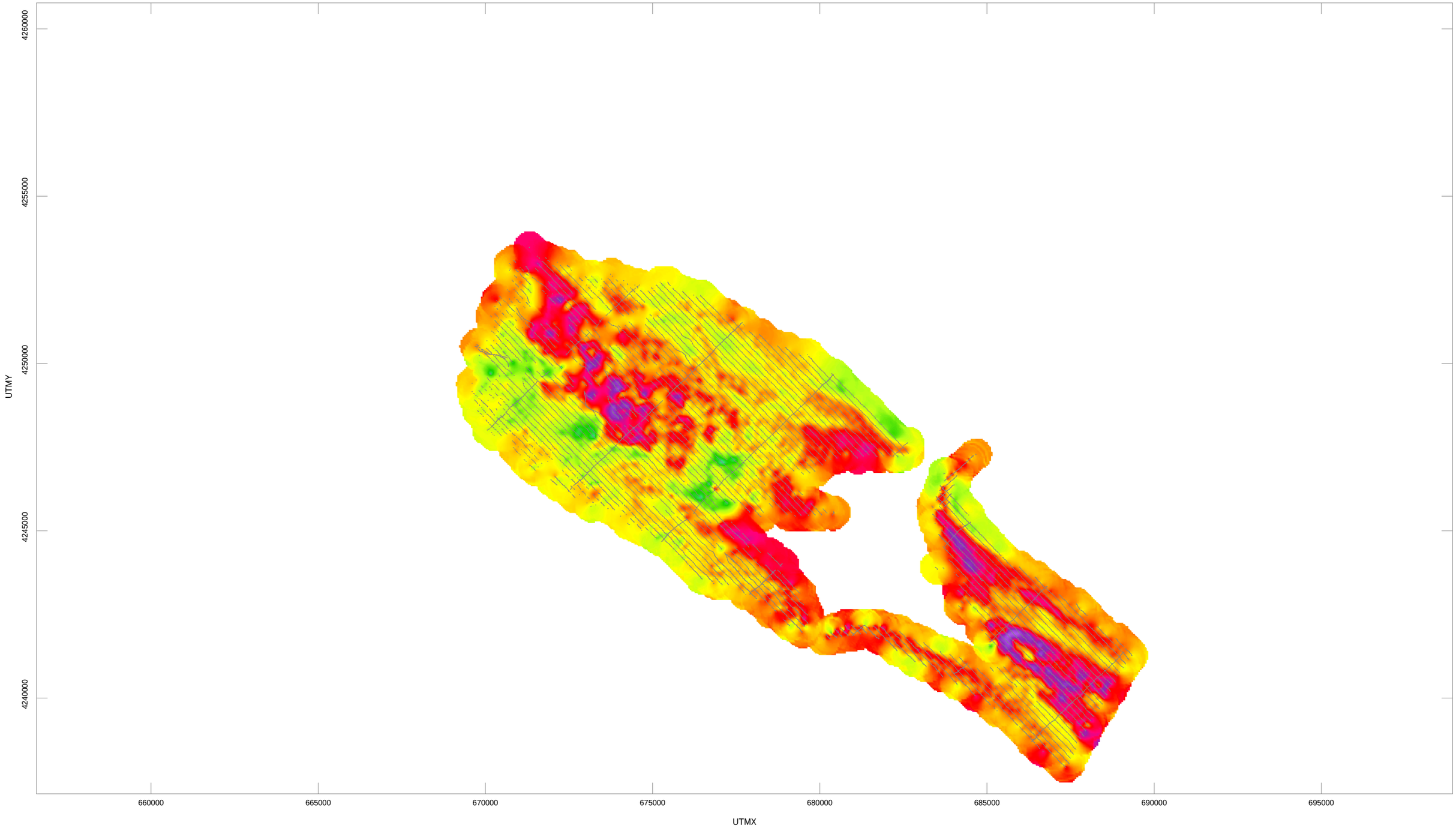
**Mean Resistivity, Elevation 1560 - 1570 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

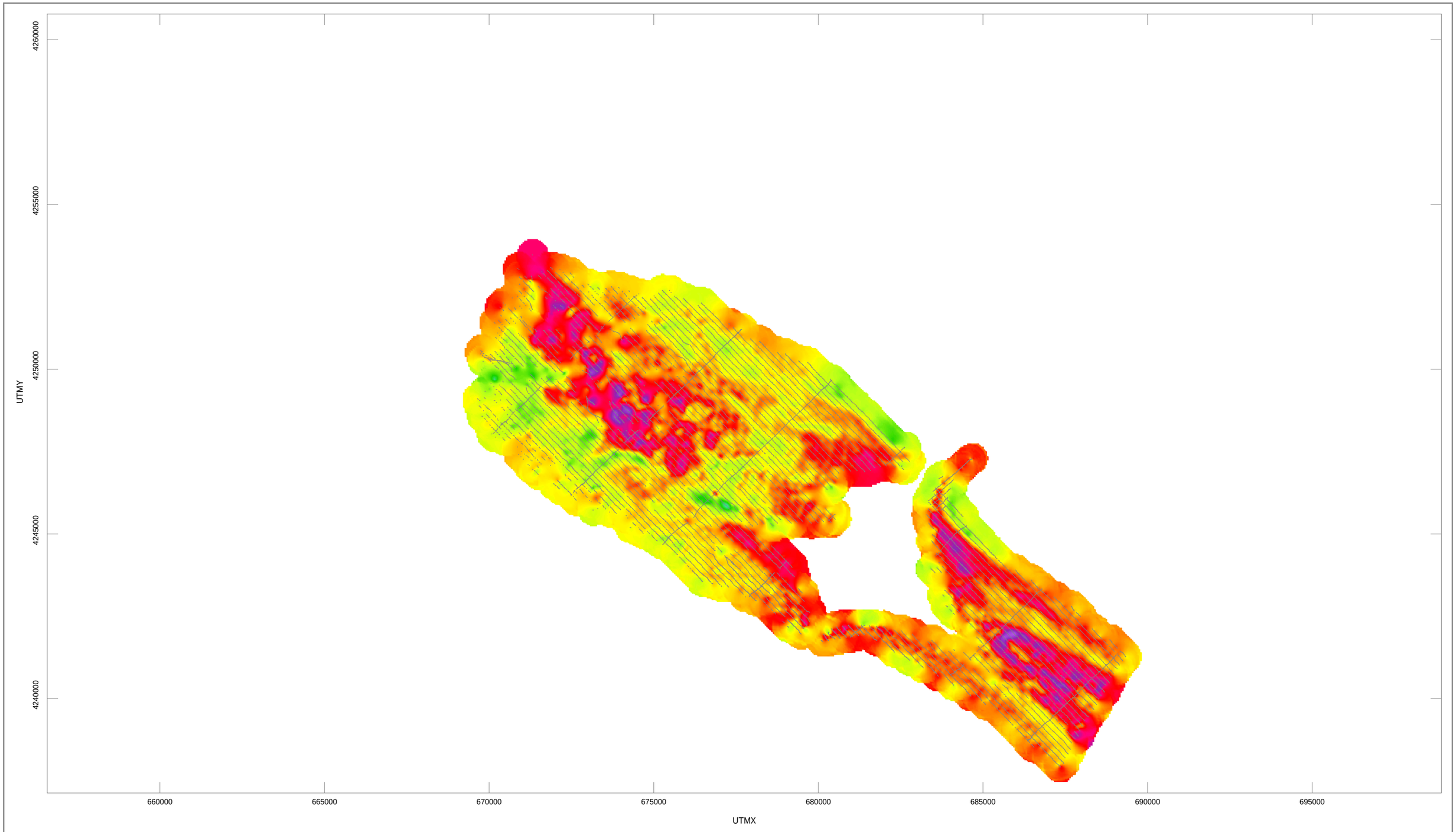
**Mean Resistivity, Elevation 1550 - 1560 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

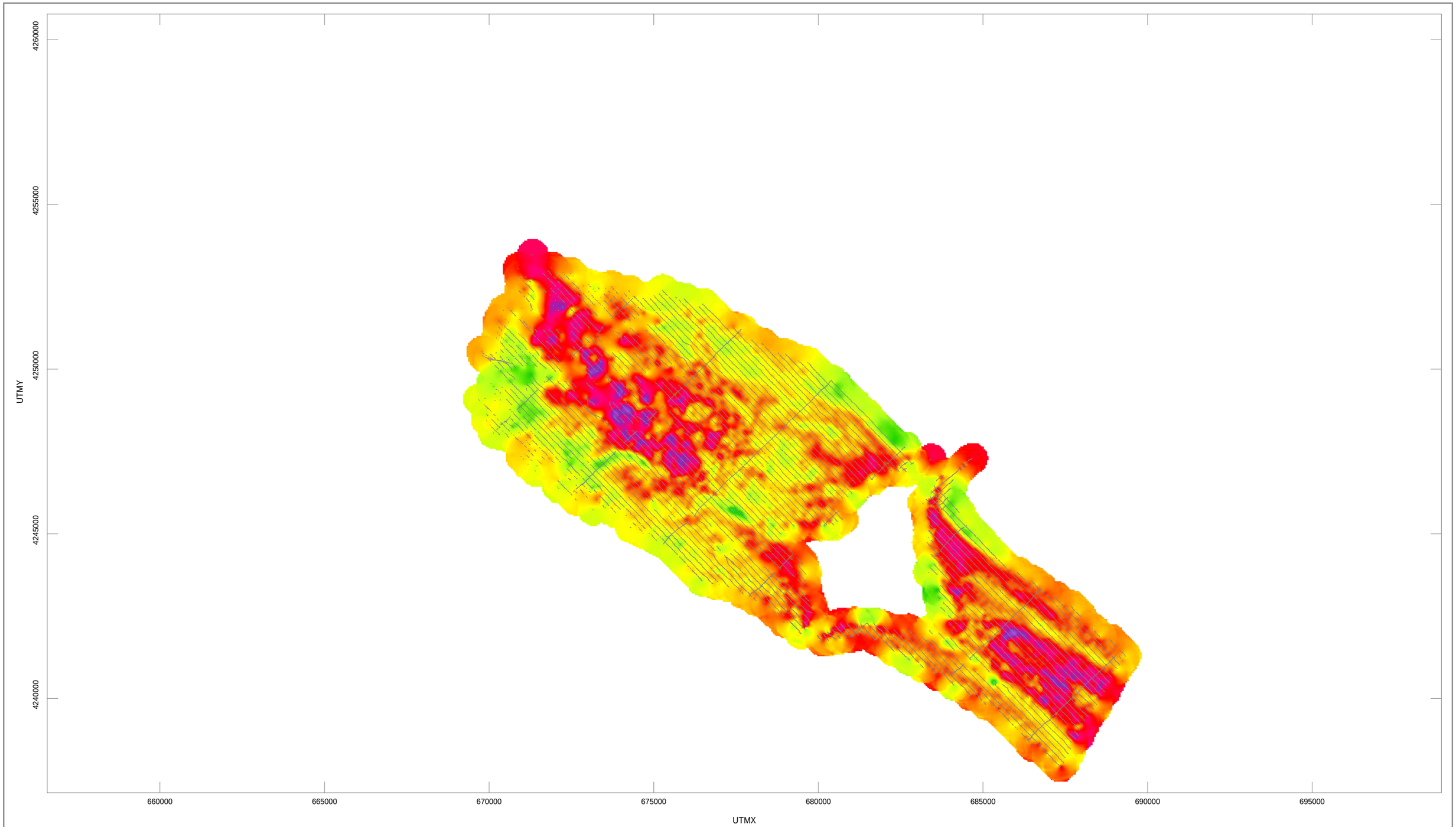
**Mean Resistivity, Elevation 1540 - 1550 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

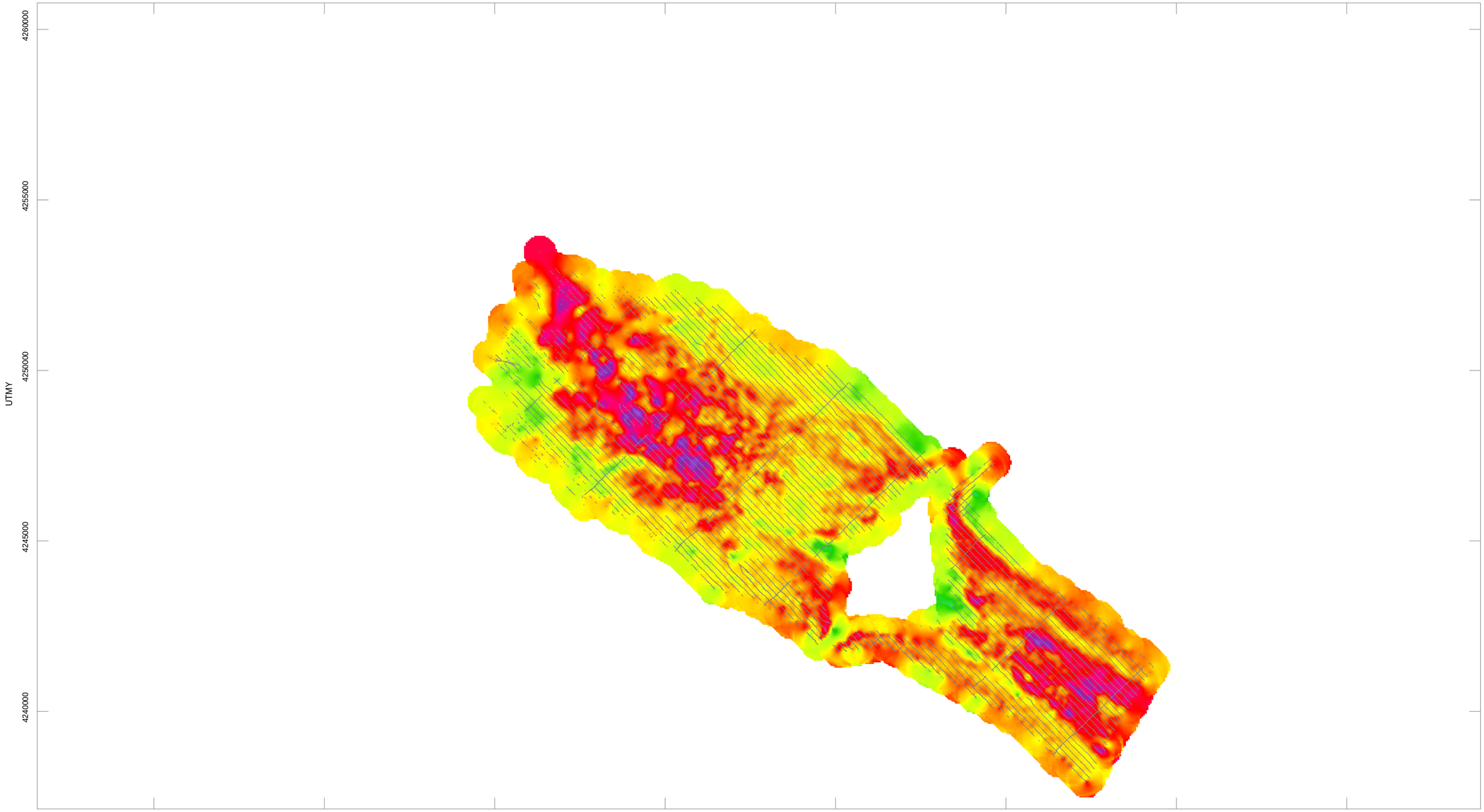
**Mean Resistivity, Elevation 1530 - 1540 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

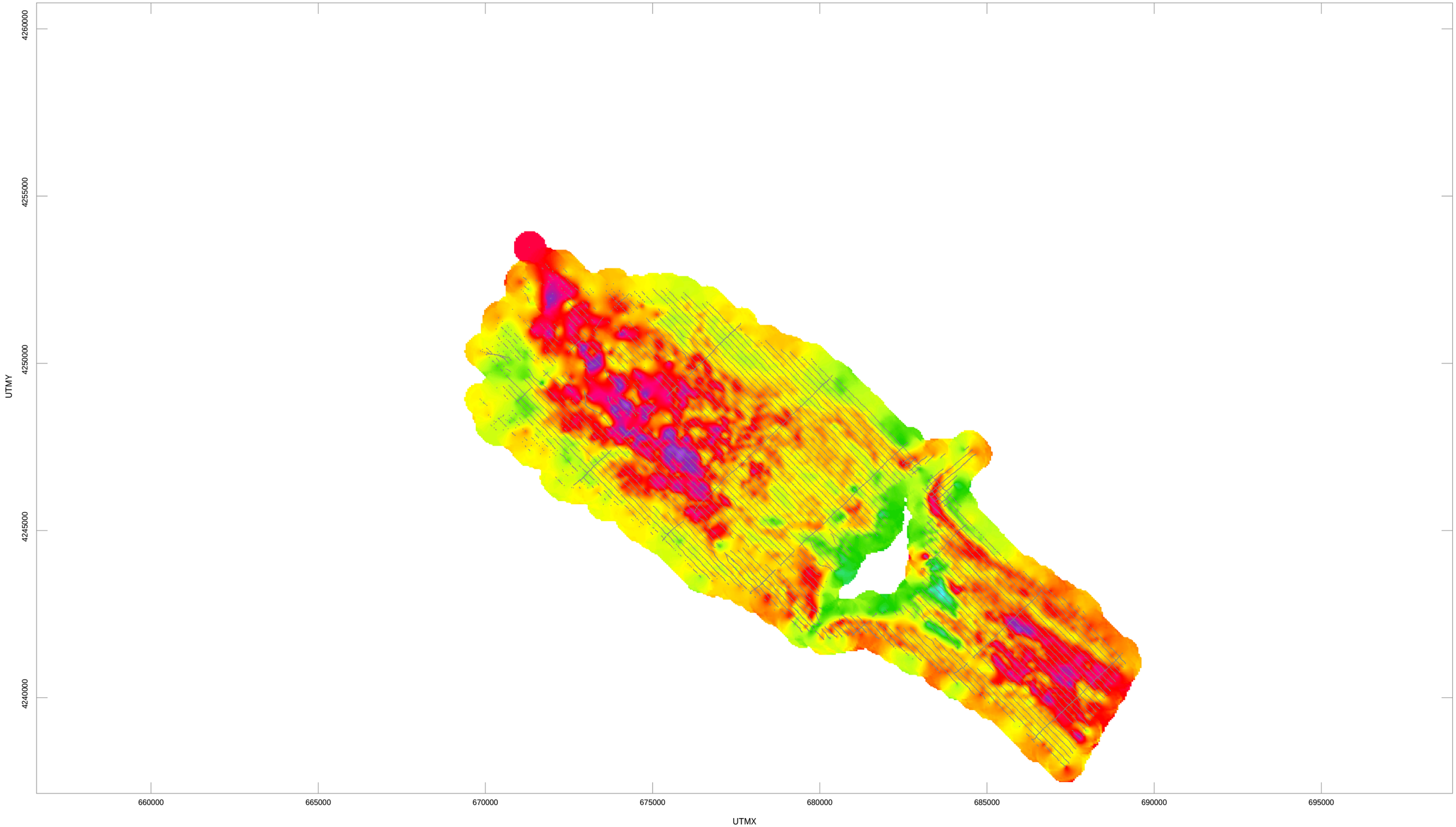
**Mean Resistivity, Elevation 1520 - 1530 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

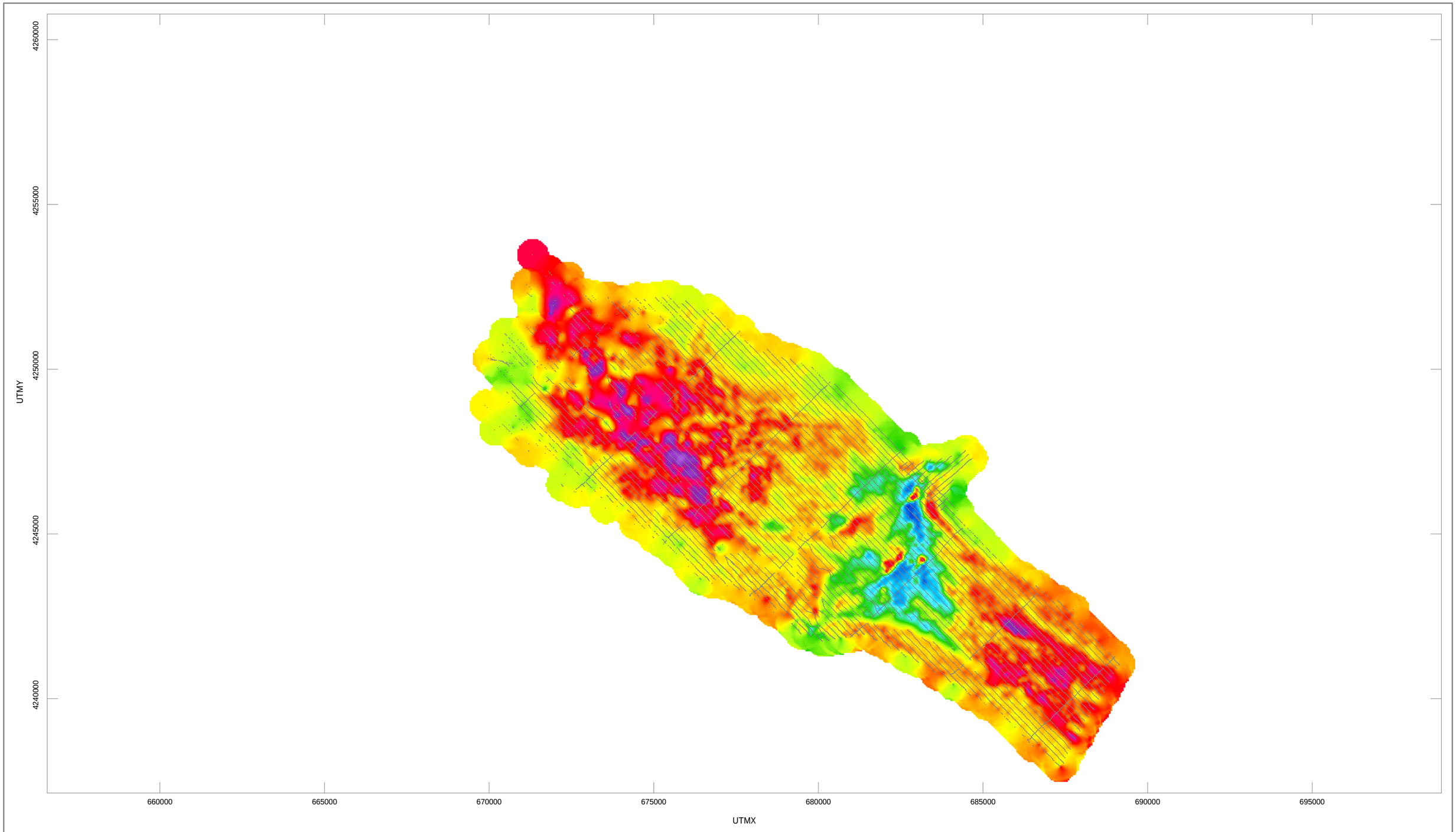
**Mean Resistivity, Elevation 1510 - 1520 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

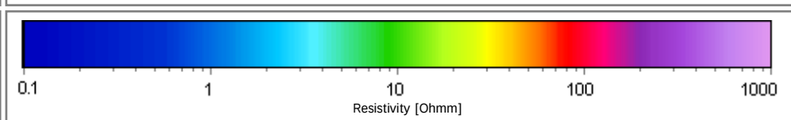
UTM Zone 12N WGS84

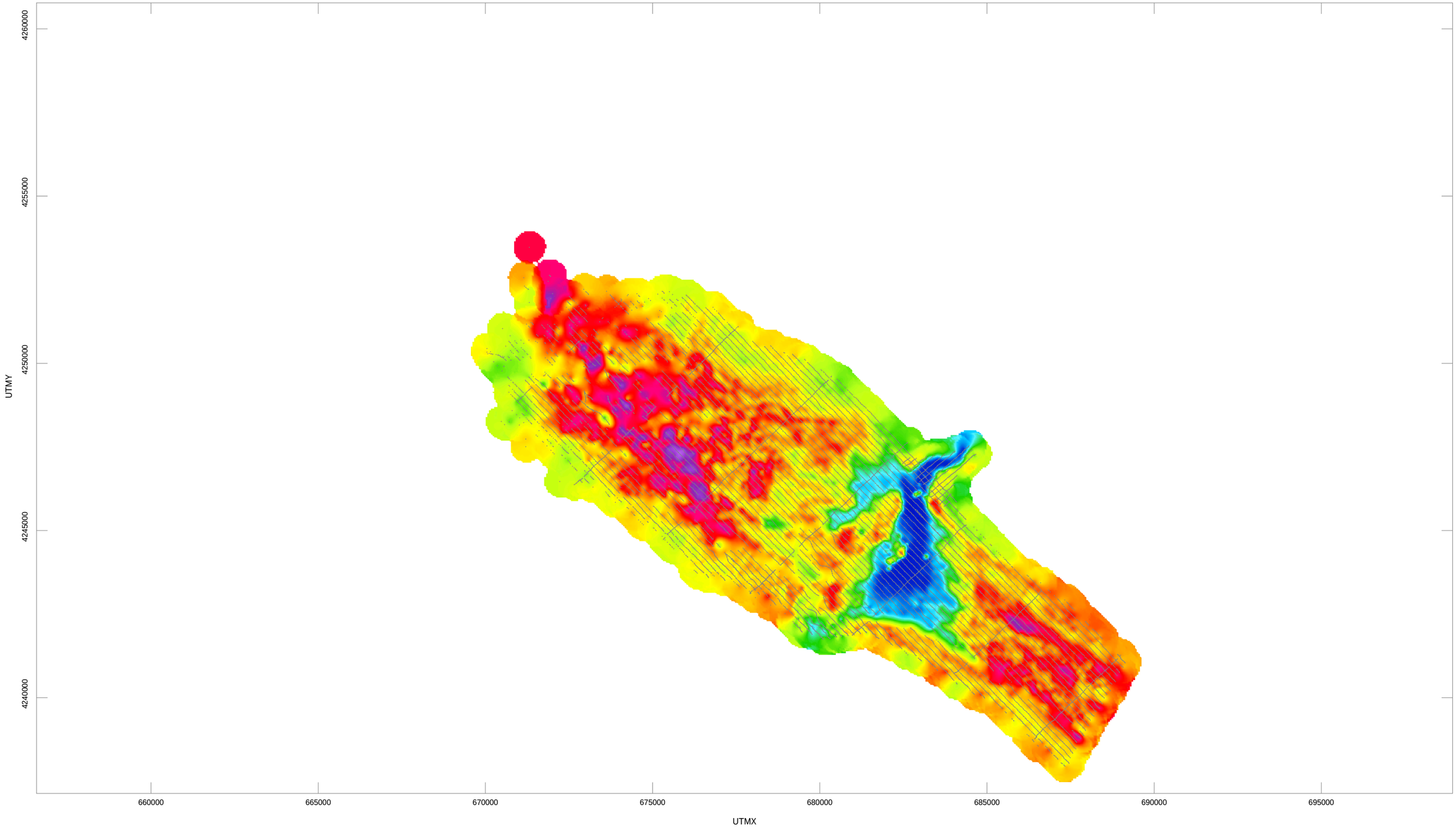
**Mean Resistivity, Elevation 1500 - 1510 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.






**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

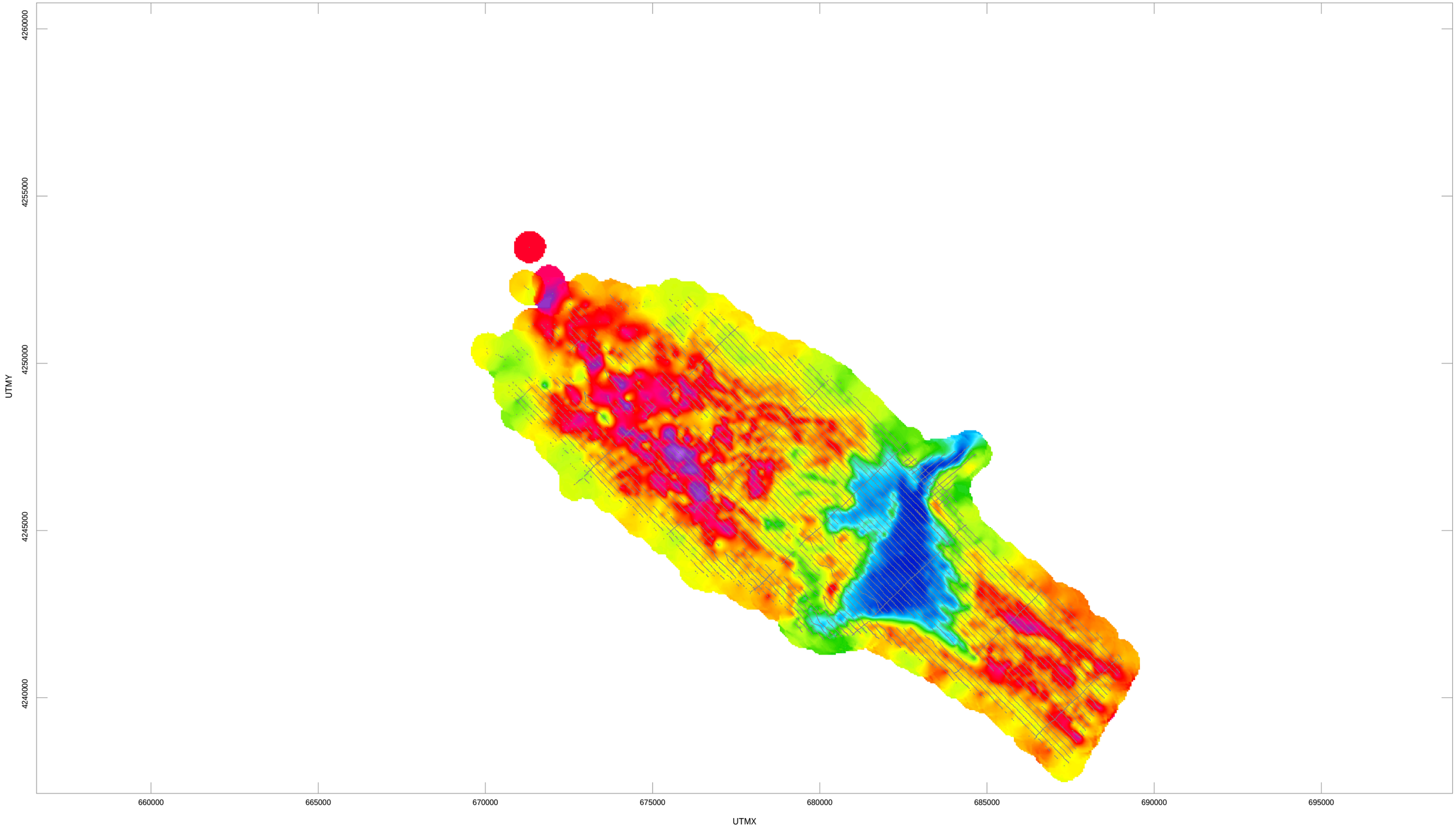
**Mean Resistivity, Elevation 1490 - 1500 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

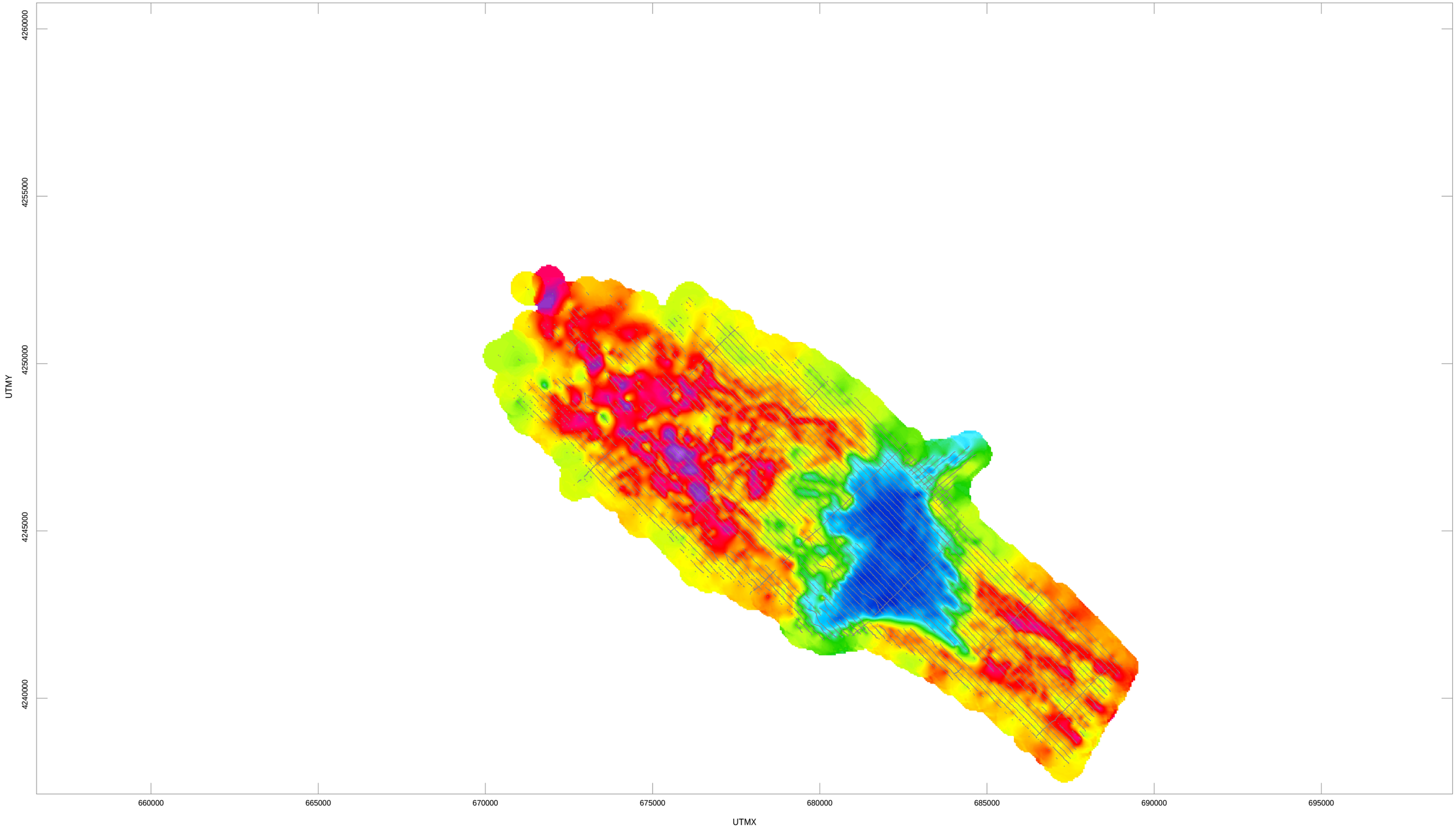
**Mean Resistivity, Elevation 1480 - 1490 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

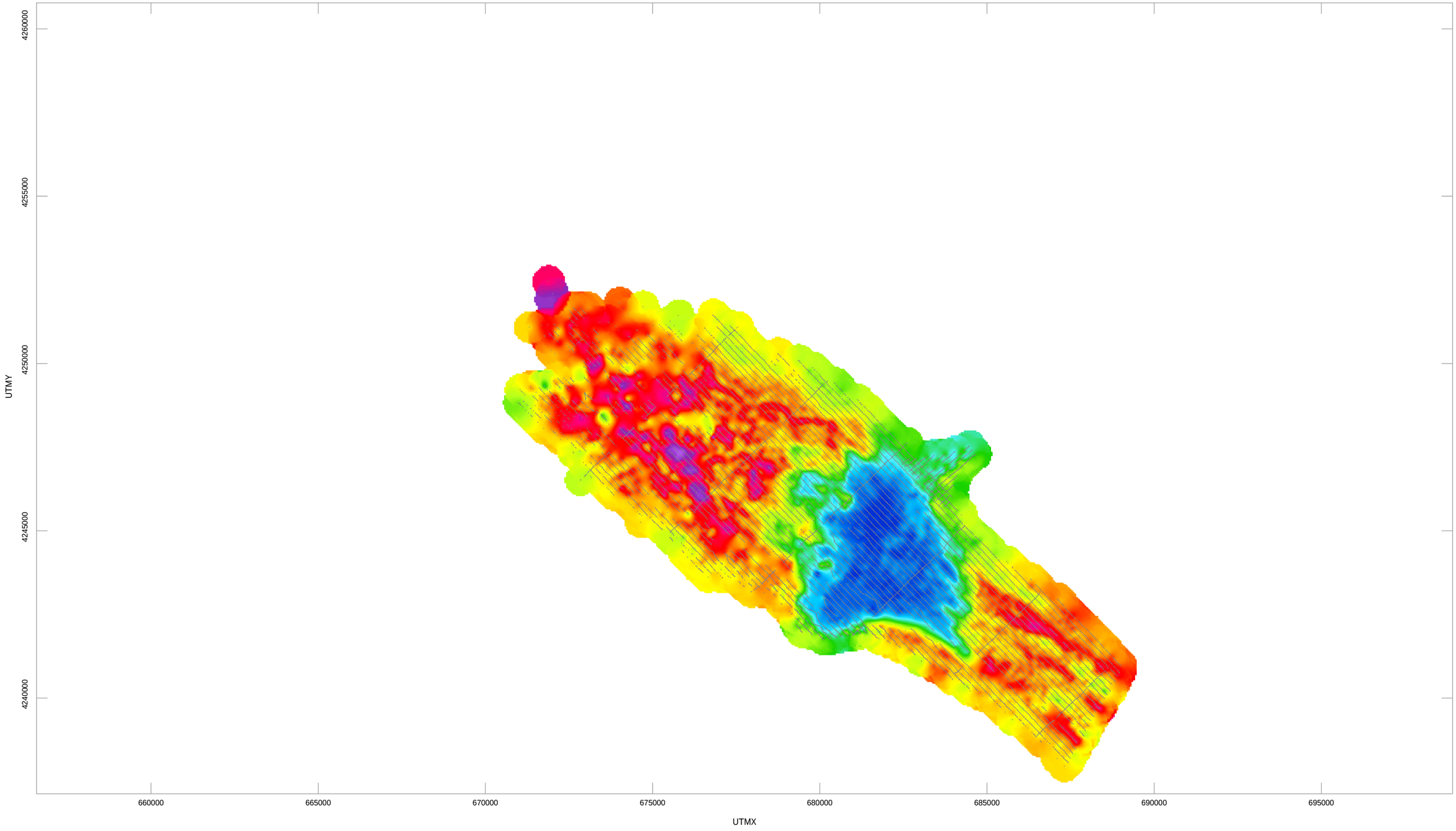
**Mean Resistivity, Elevation 1470 - 1480 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

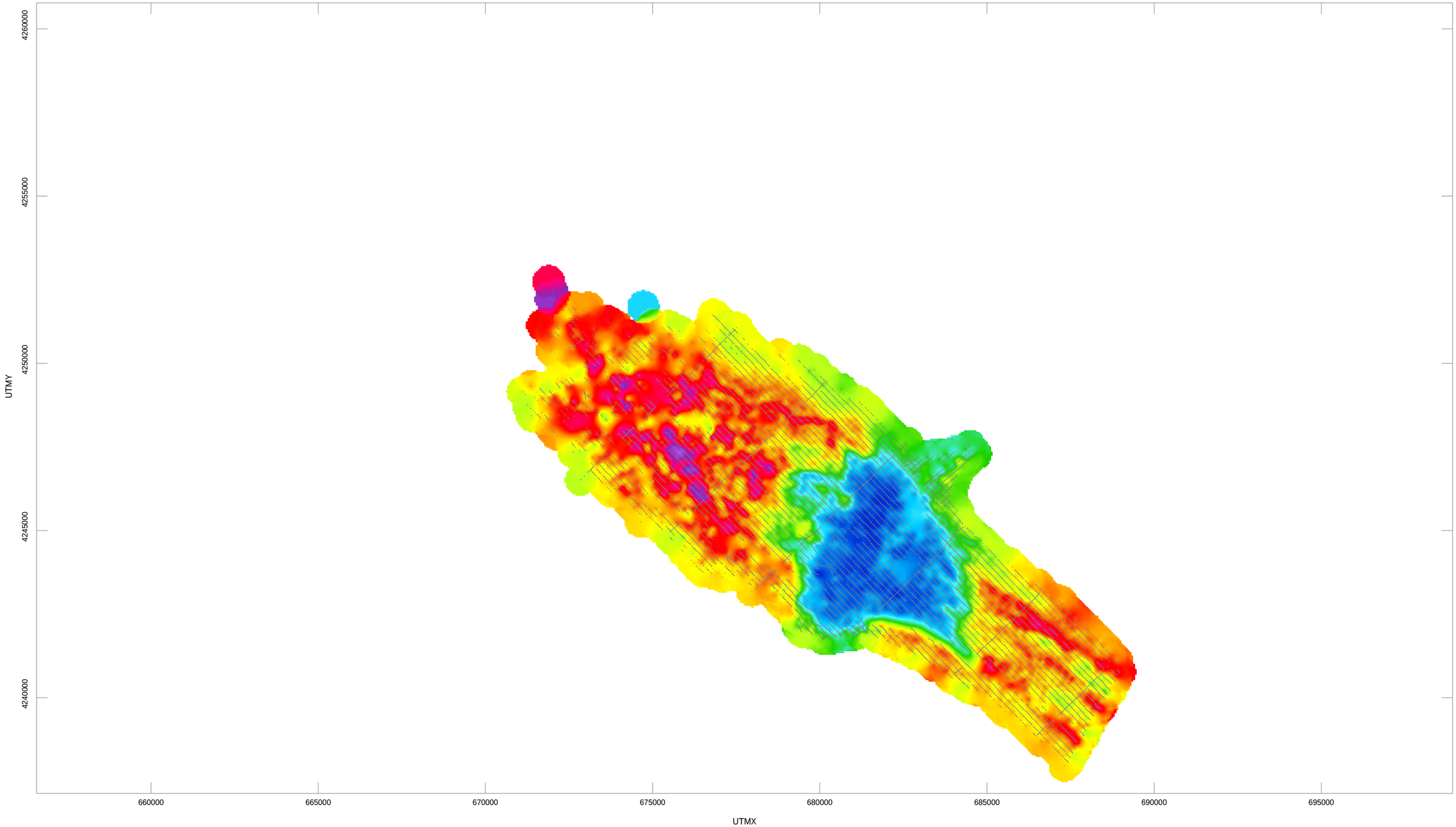
**Mean Resistivity, Elevation 1460 - 1470 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

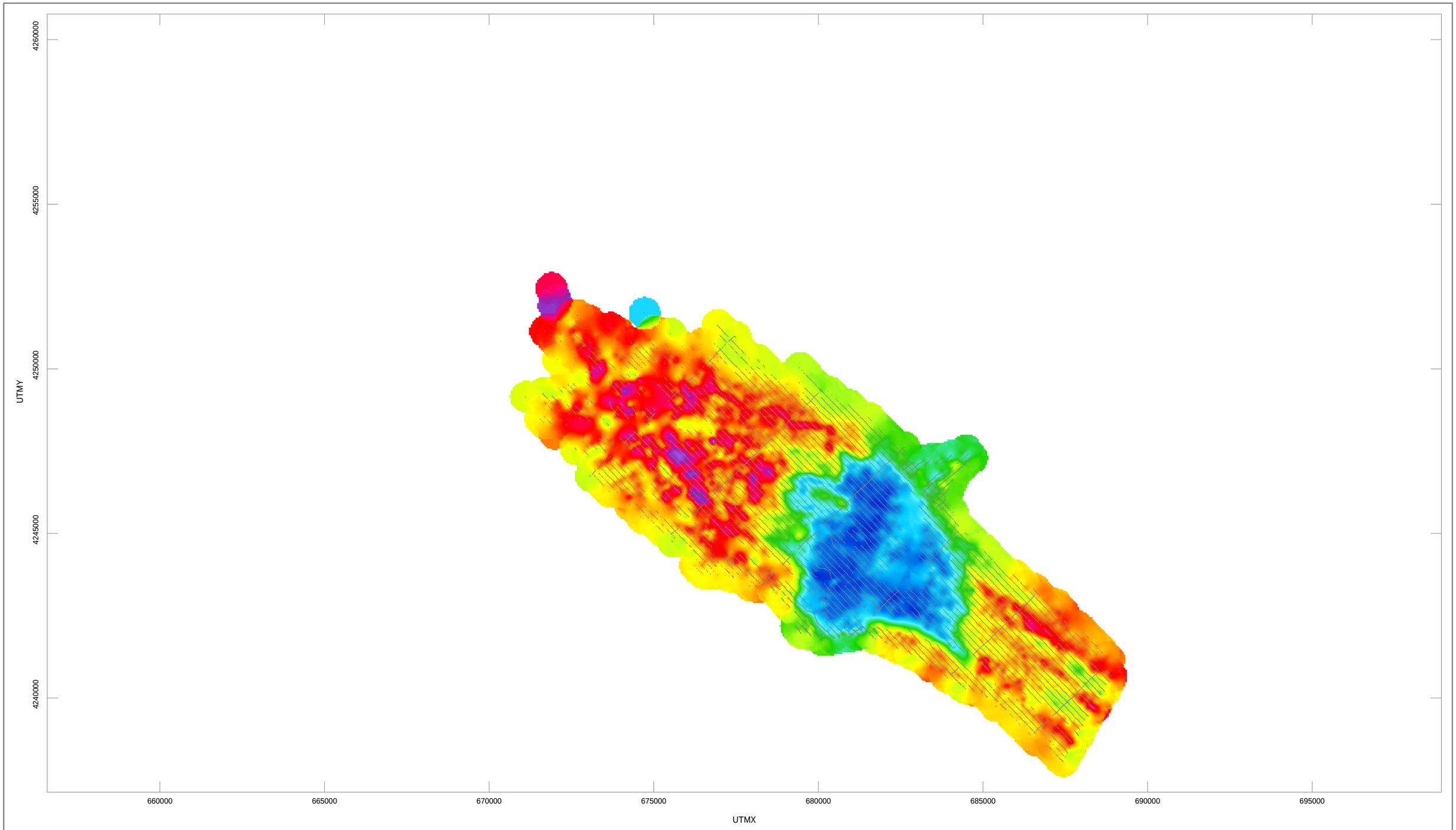
**Mean Resistivity, Elevation 1450 - 1460 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

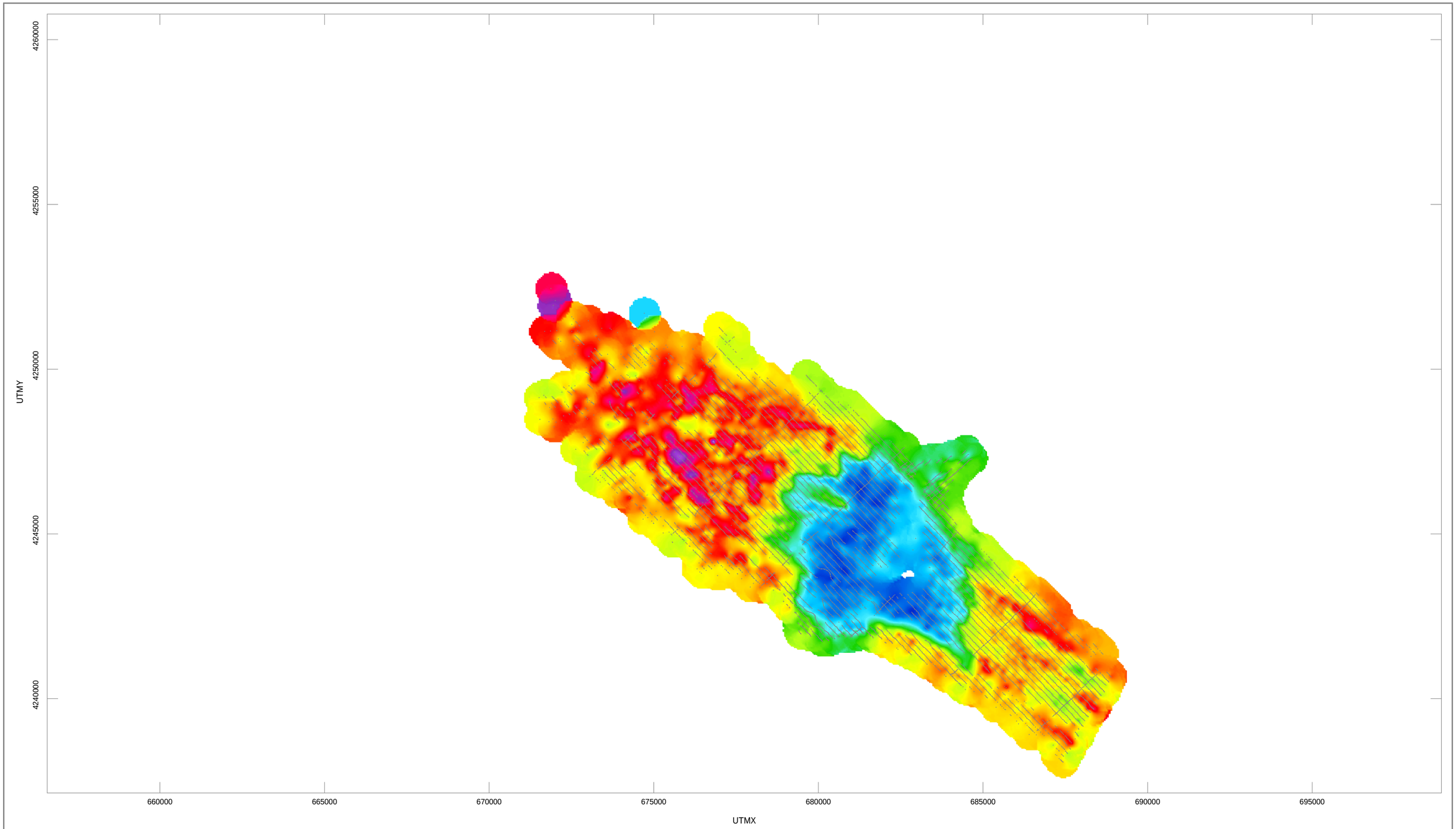
**Mean Resistivity, Elevation 1440 - 1450 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

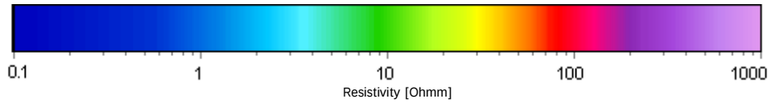
UTM Zone 12N WGS84

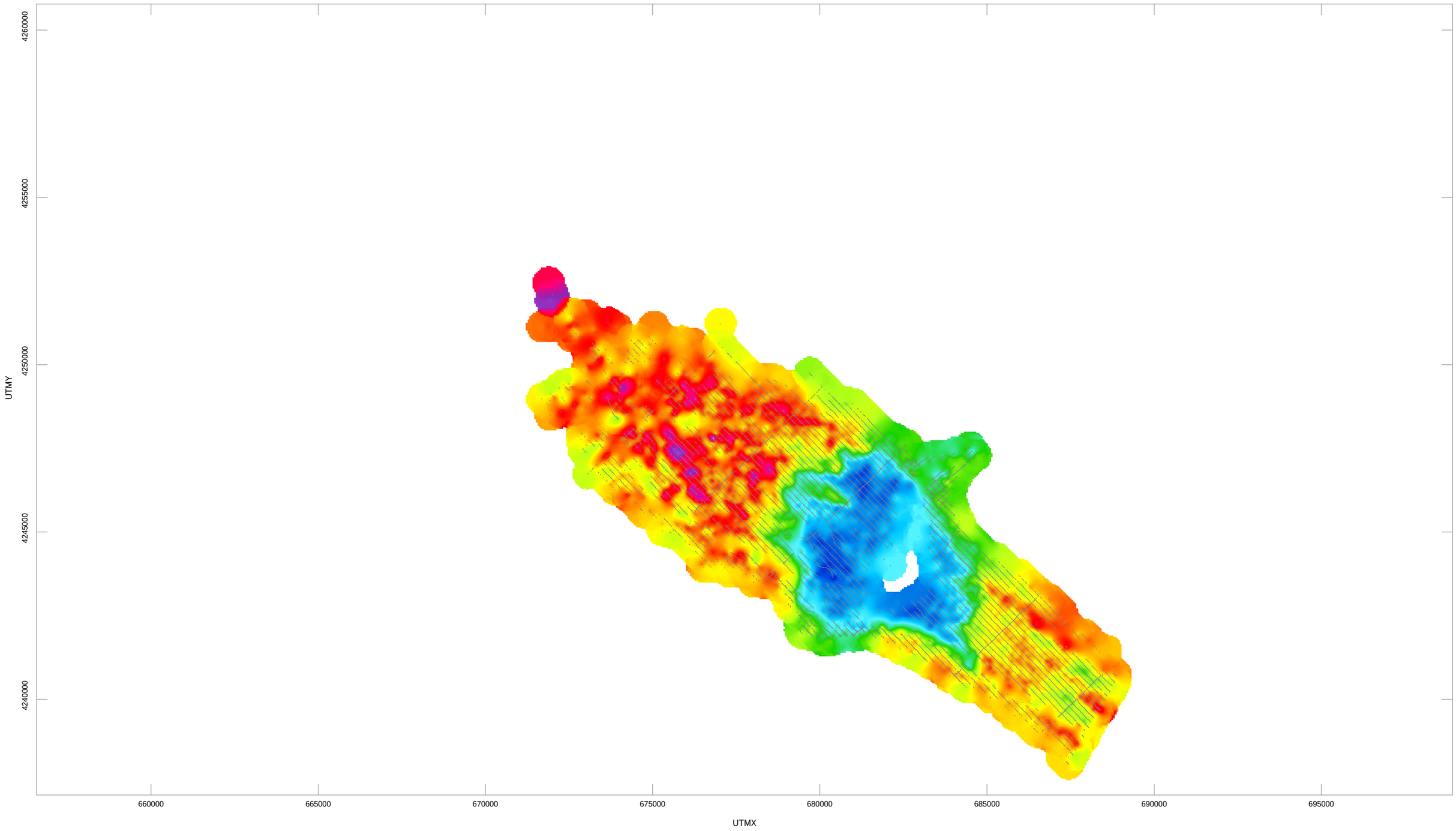
**Mean Resistivity, Elevation 1430 - 1440 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.






**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

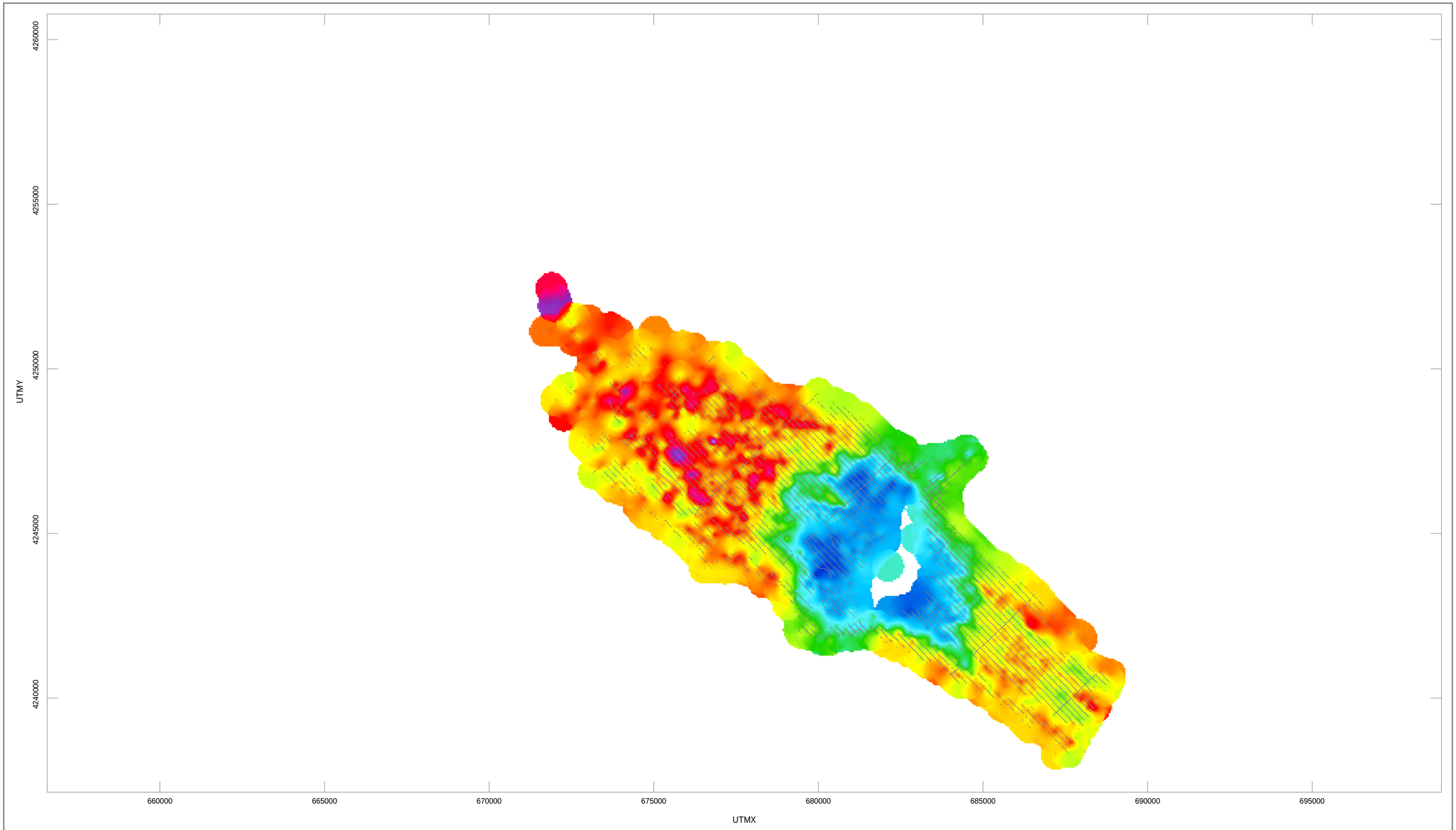
**Mean Resistivity, Elevation 1420 - 1430 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

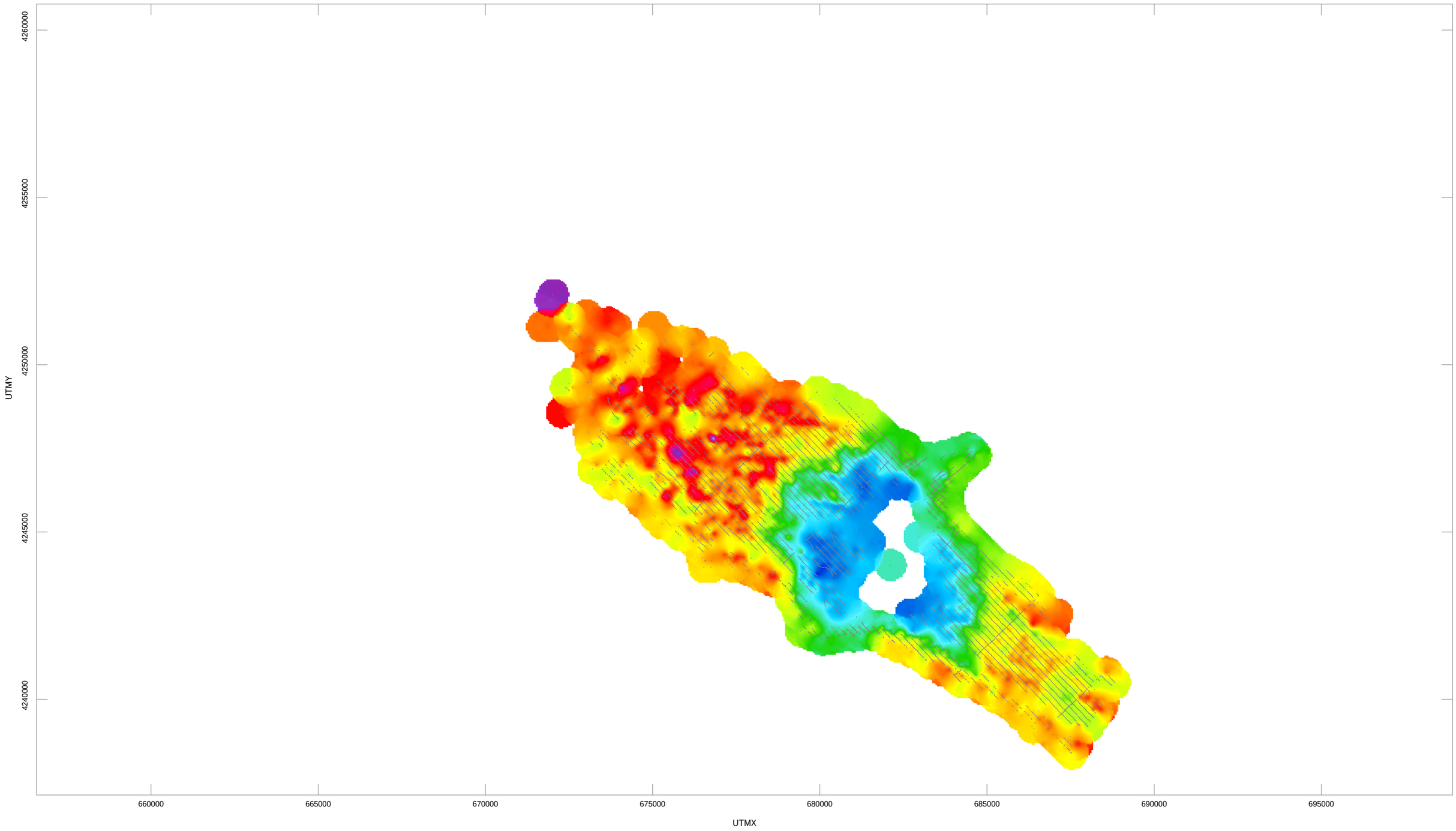
**Mean Resistivity, Elevation 1410 - 1420 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

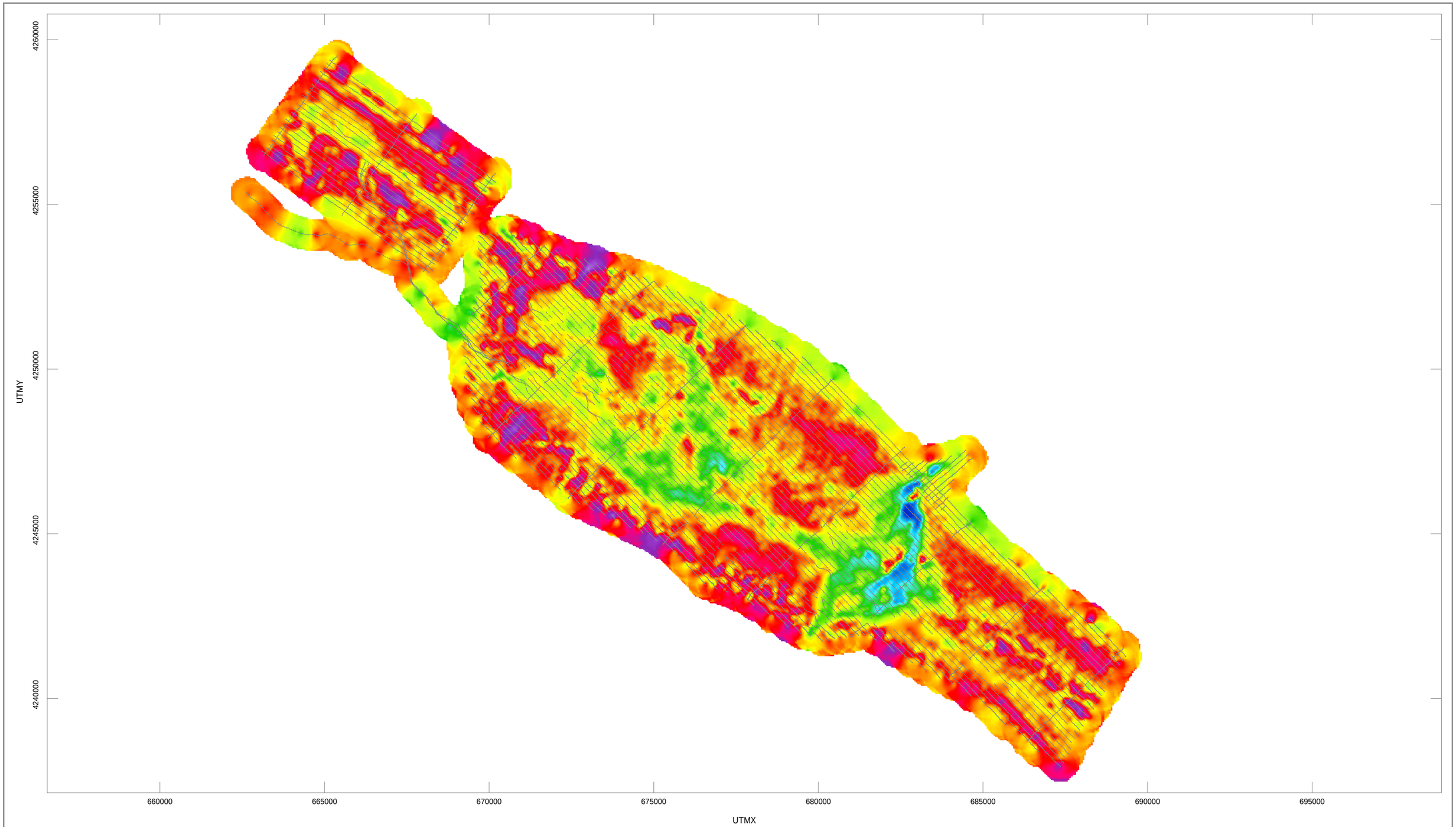
**Mean Resistivity, Elevation 1400 - 1410 m.a.s.l.**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

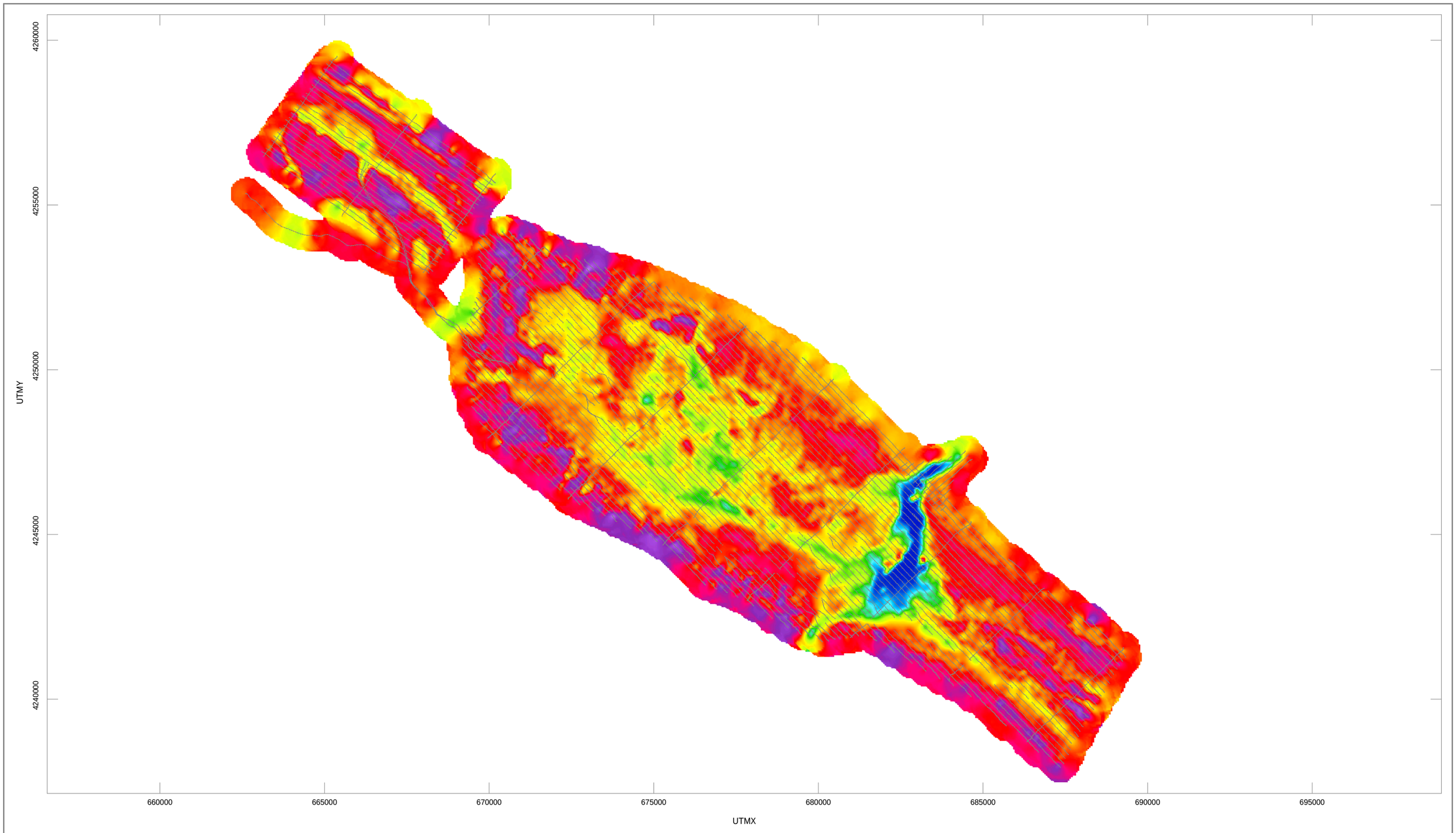
**Mean Resistivity, Depth 0 - 5 m**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

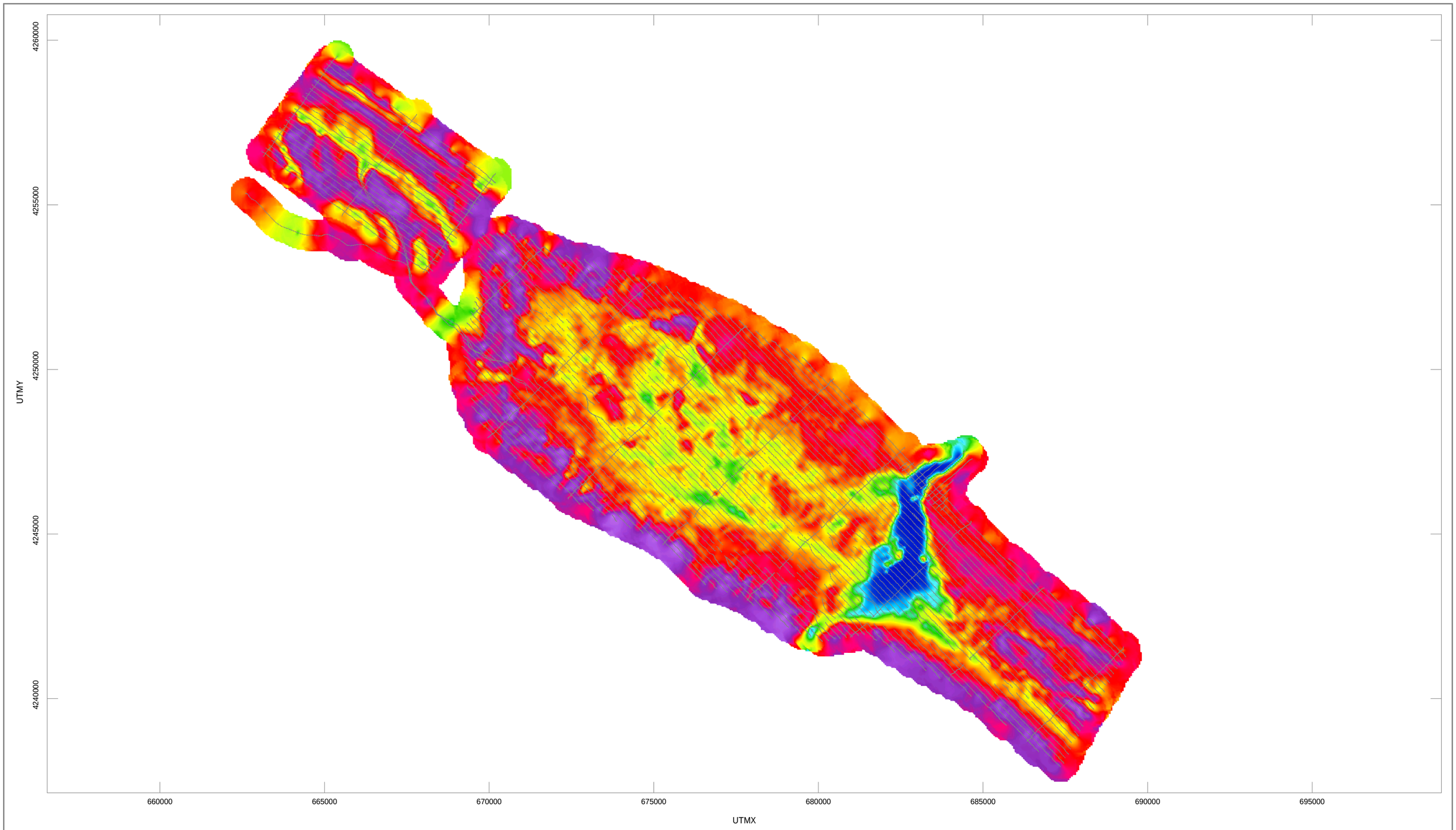
**Mean Resistivity, Depth 5 - 10 m**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

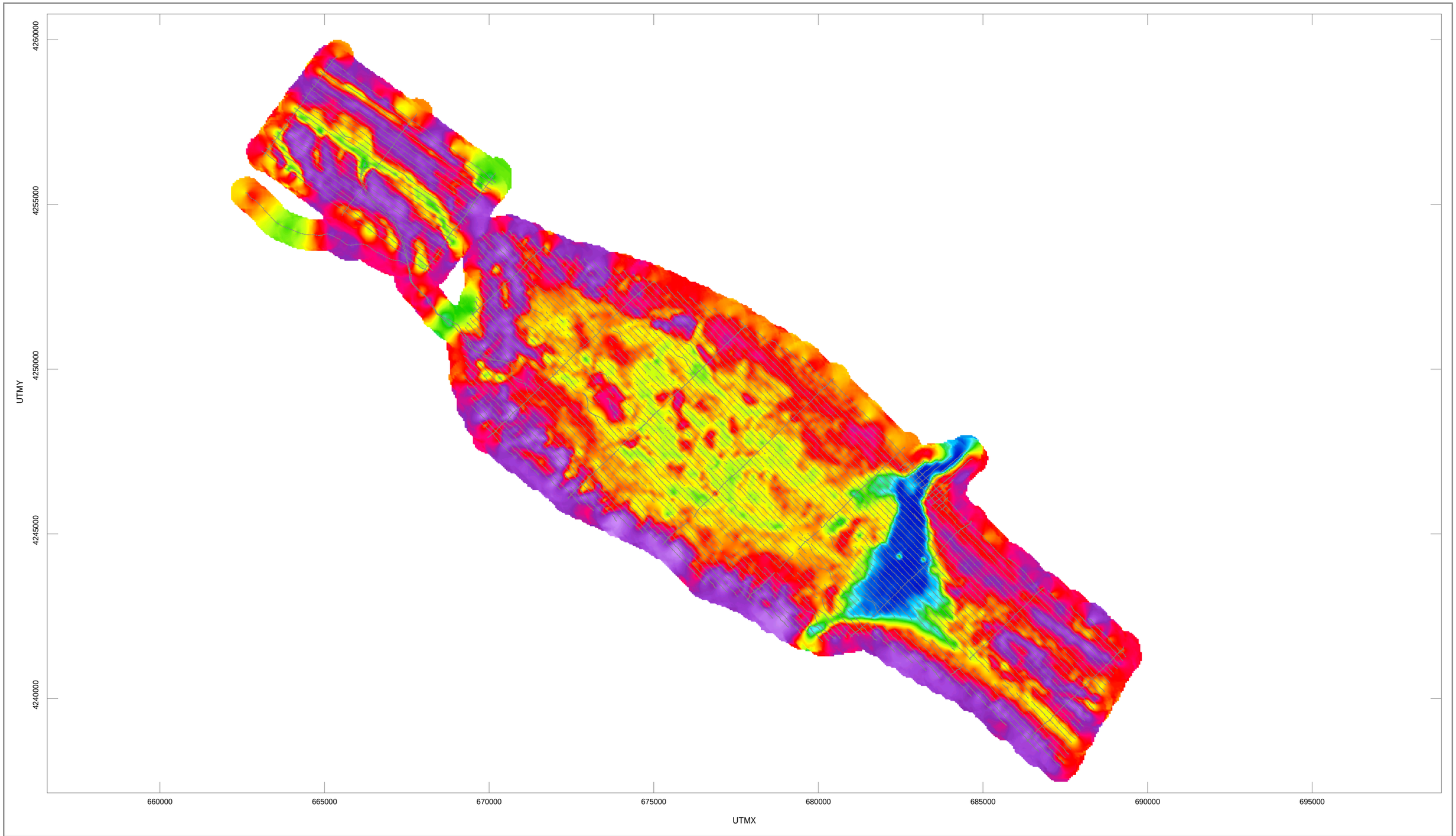
**Mean Resistivity, Depth 10 - 15 m**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

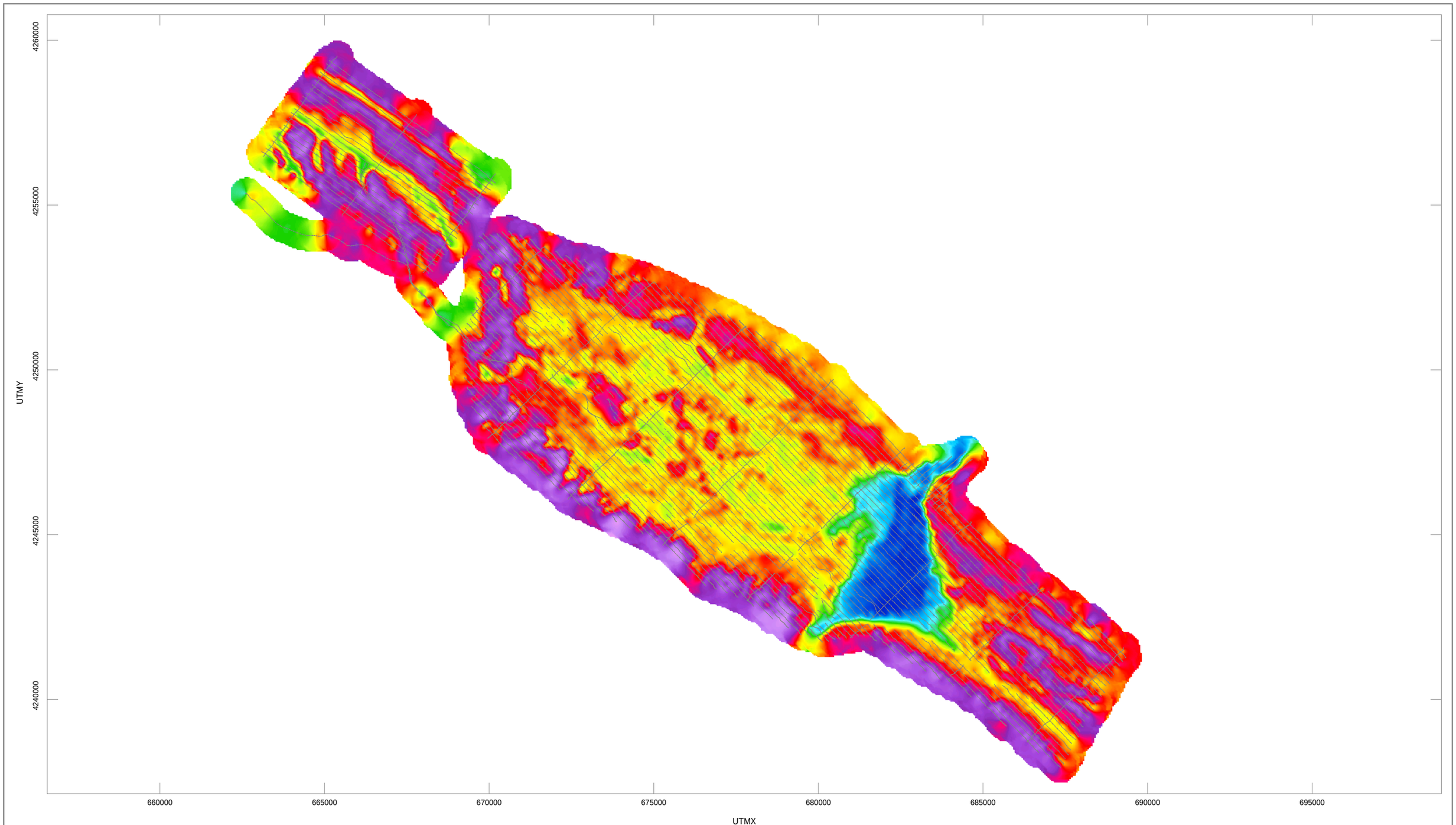
**Mean Resistivity, Depth 15 - 20 m**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

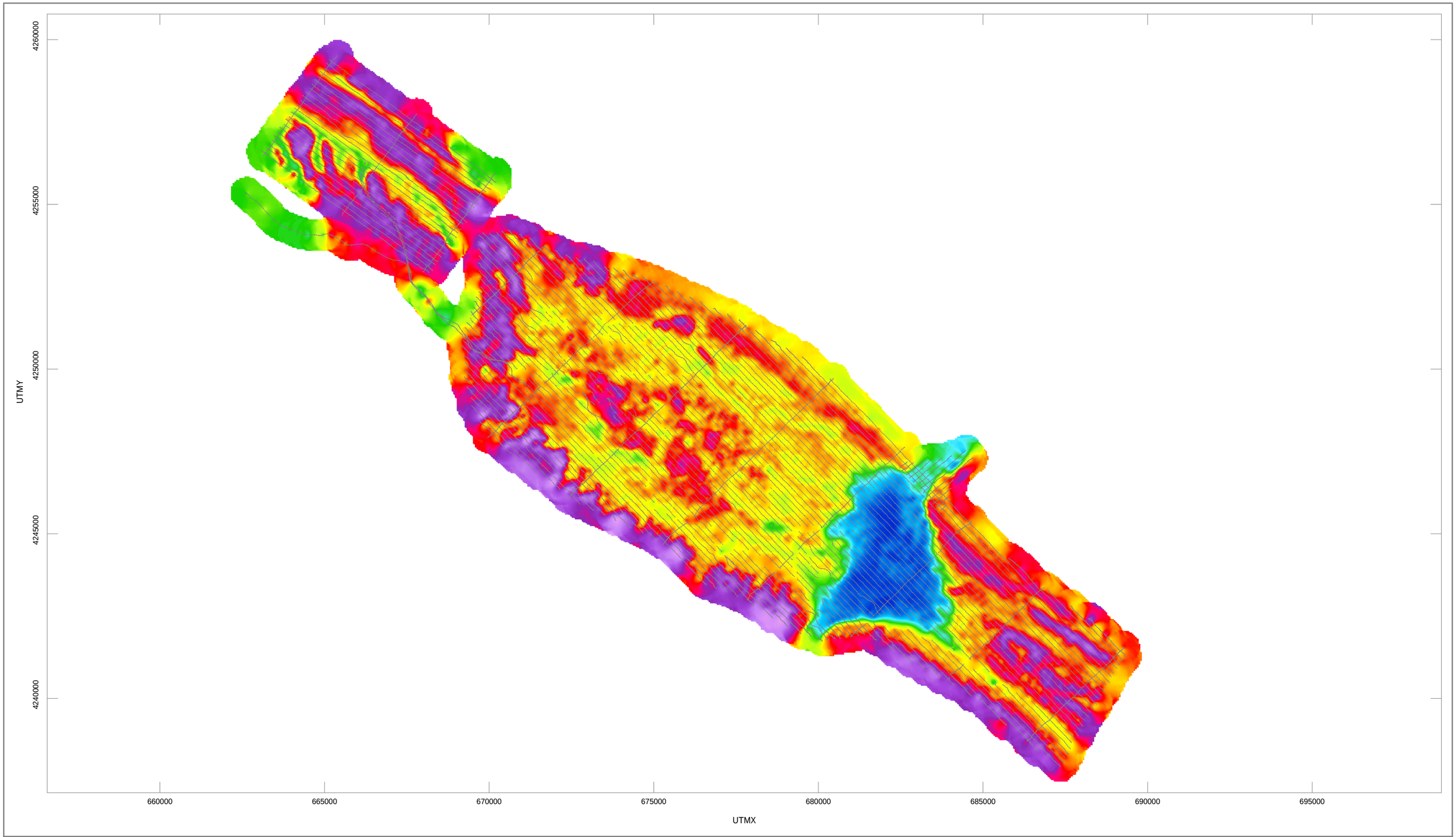
**Mean Resistivity, Depth 20 - 30 m**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

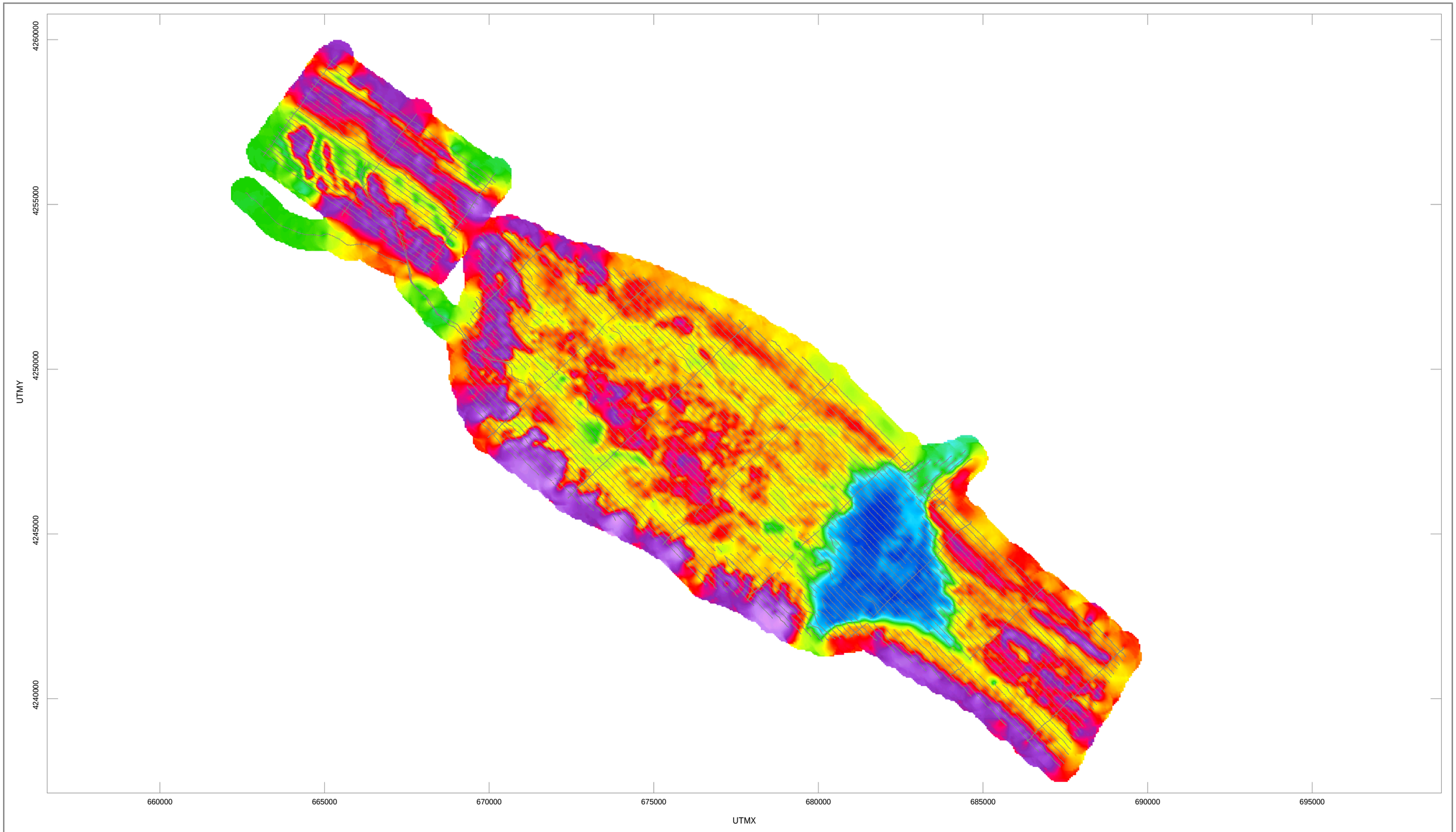
**Mean Resistivity, Depth 30 - 40 m**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

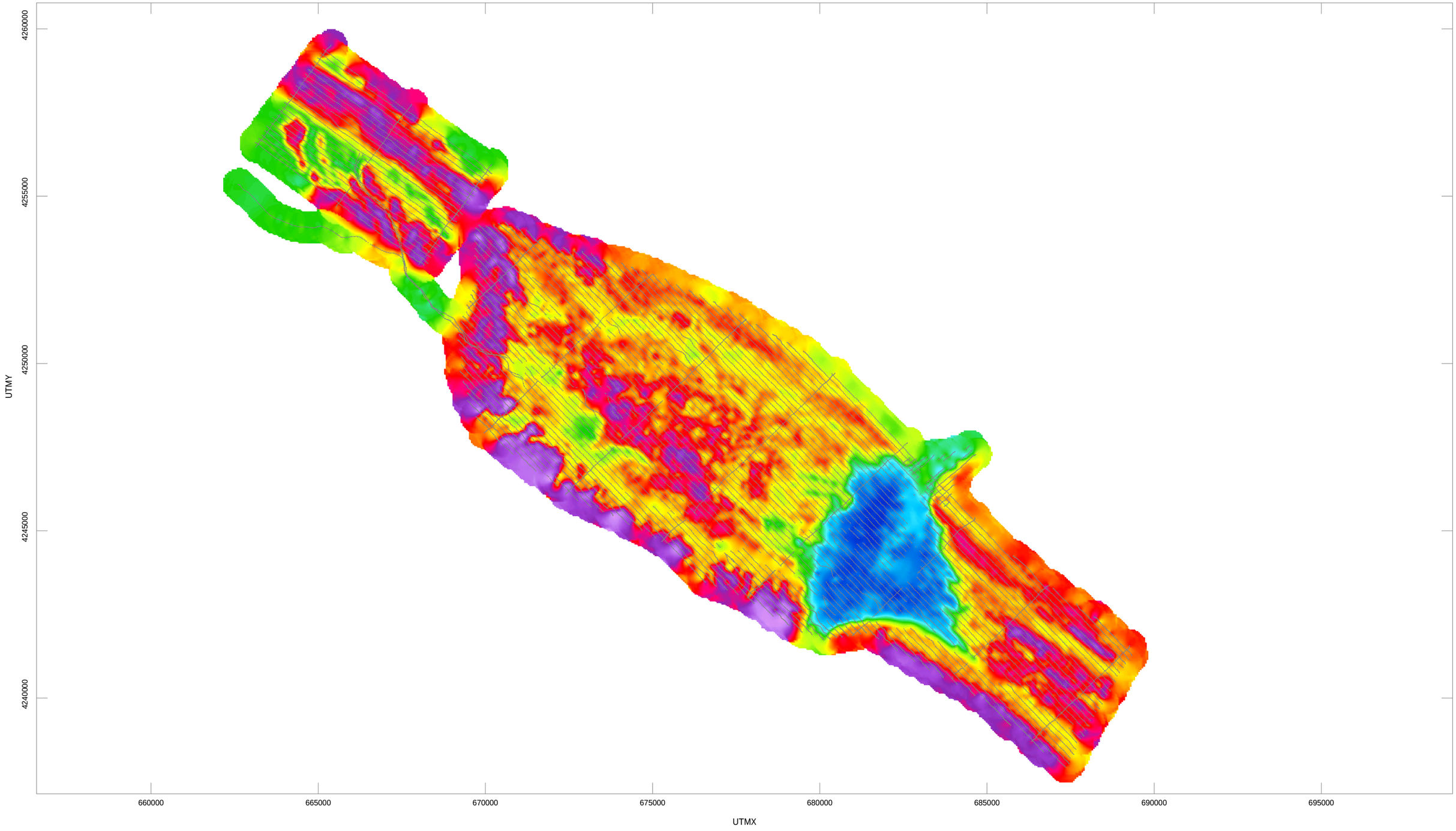
**Mean Resistivity, Depth 40 - 50 m**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

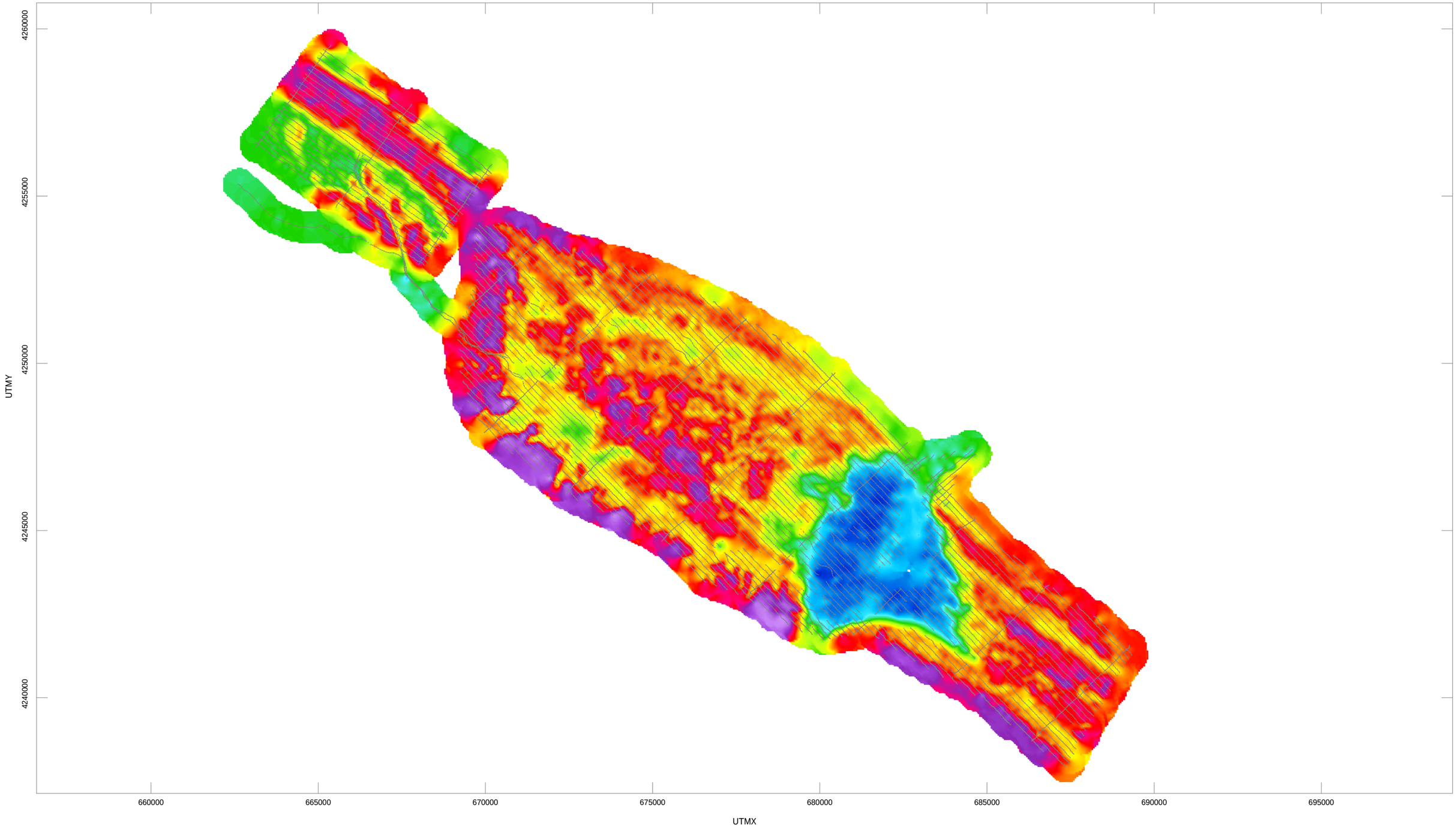
**Mean Resistivity, Depth 50 - 60 m**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

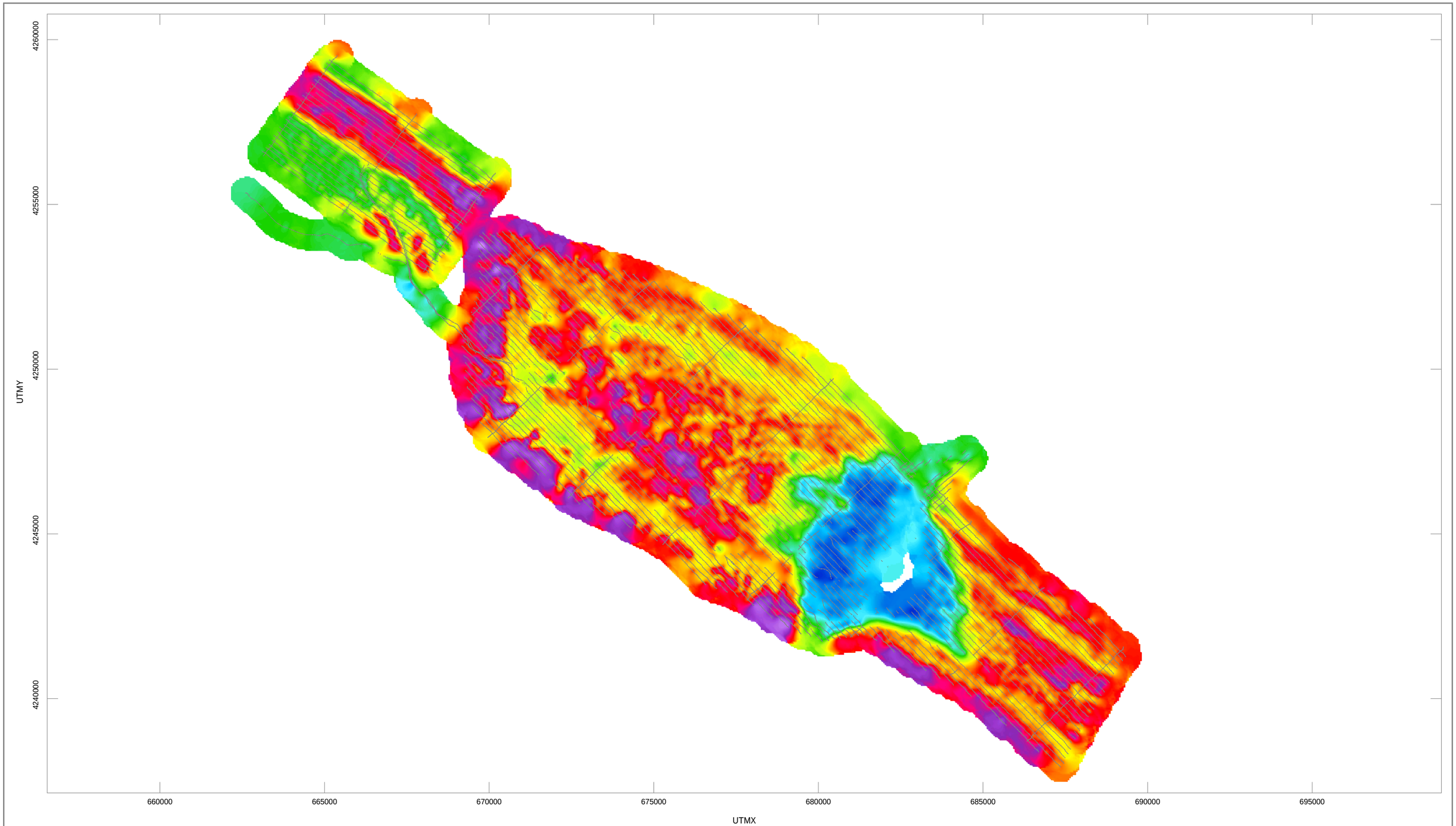
**Mean Resistivity, Depth 60 - 75 m**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

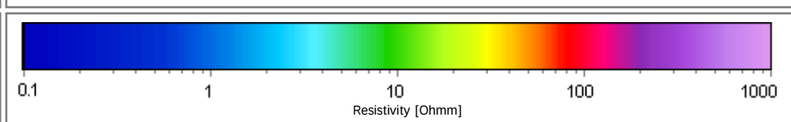
UTM Zone 12N WGS84

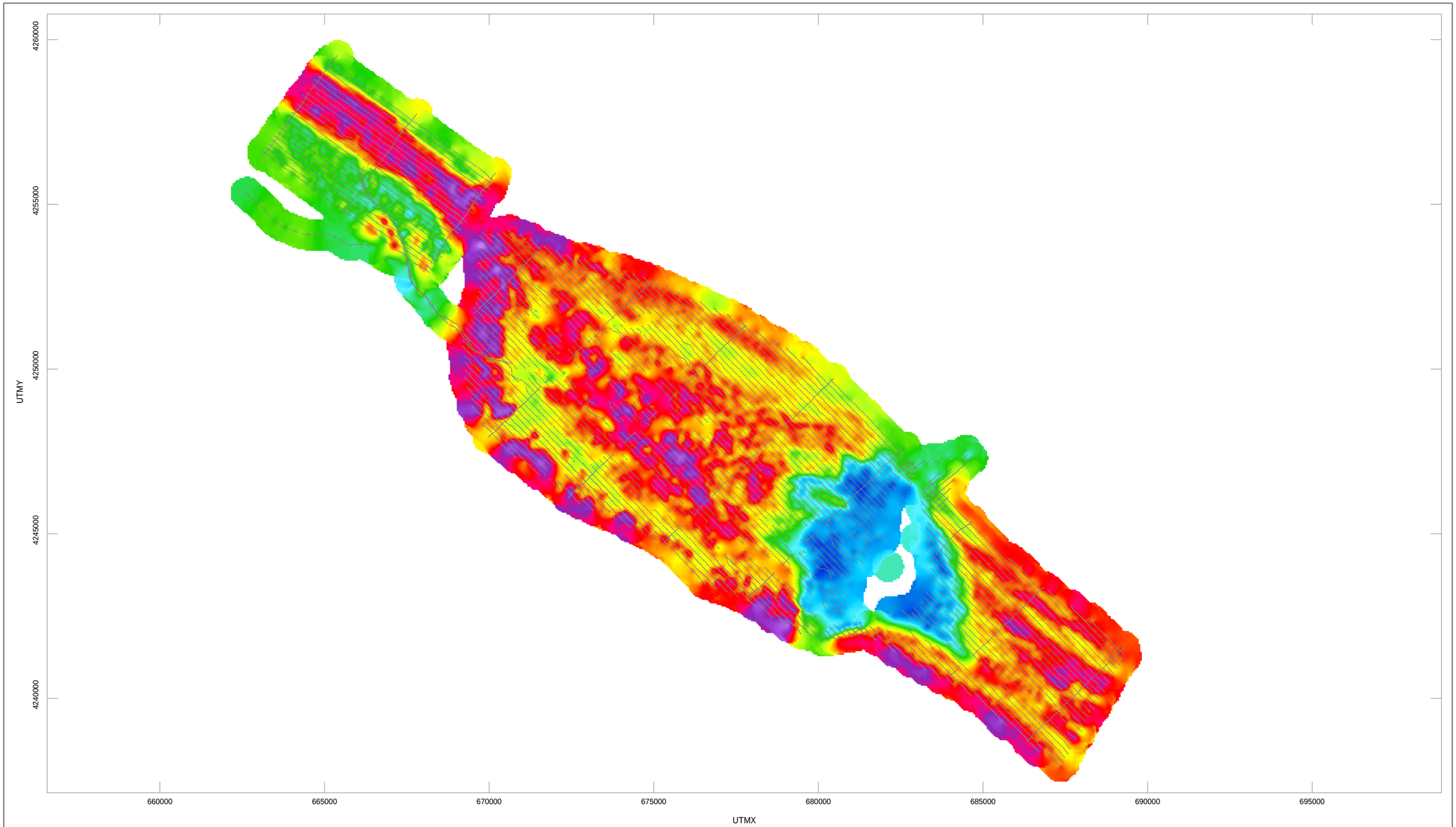
**Mean Resistivity, Depth 75 - 90 m**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.






**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

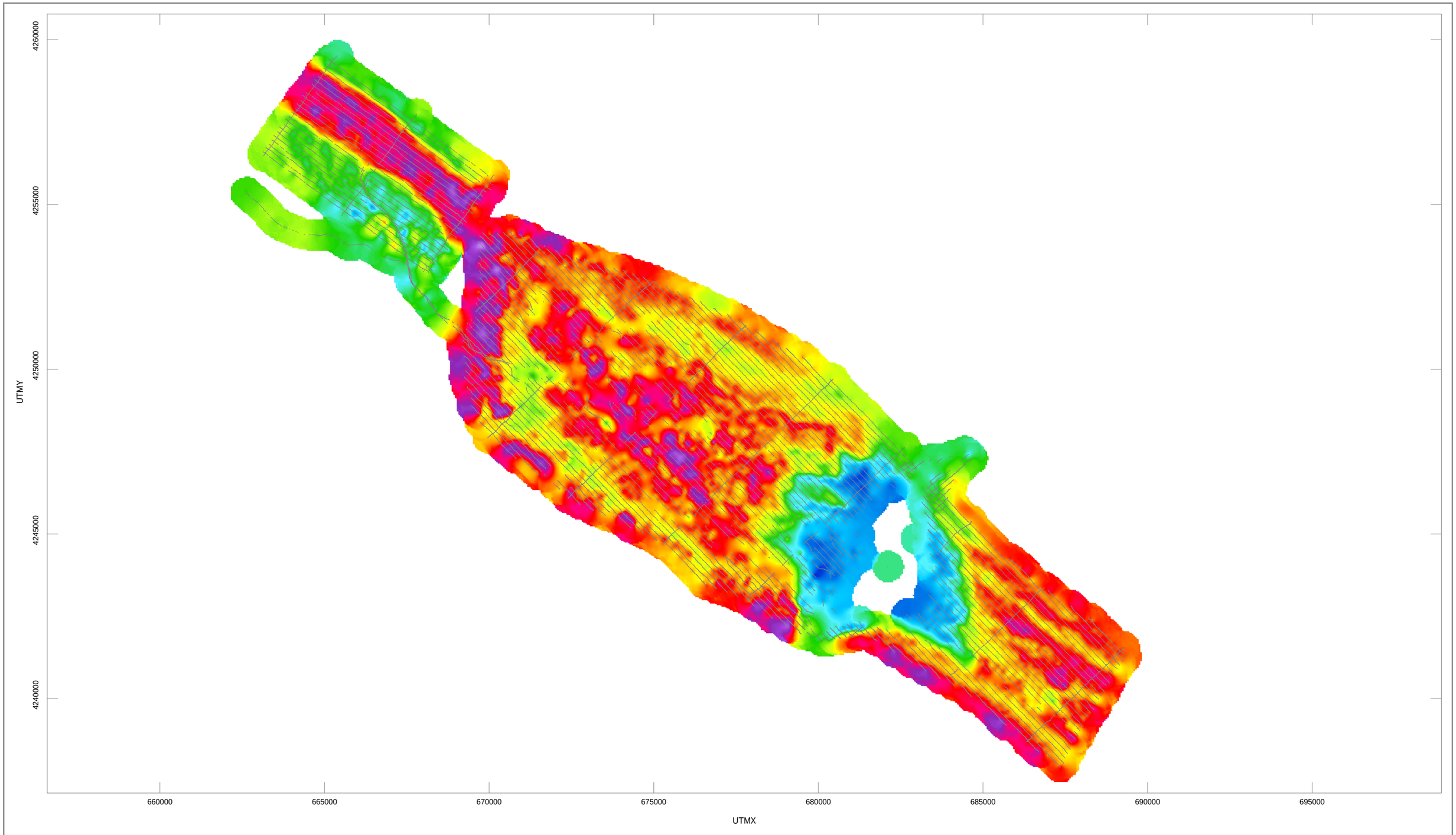
**Mean Resistivity, Depth 90 - 105 m**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

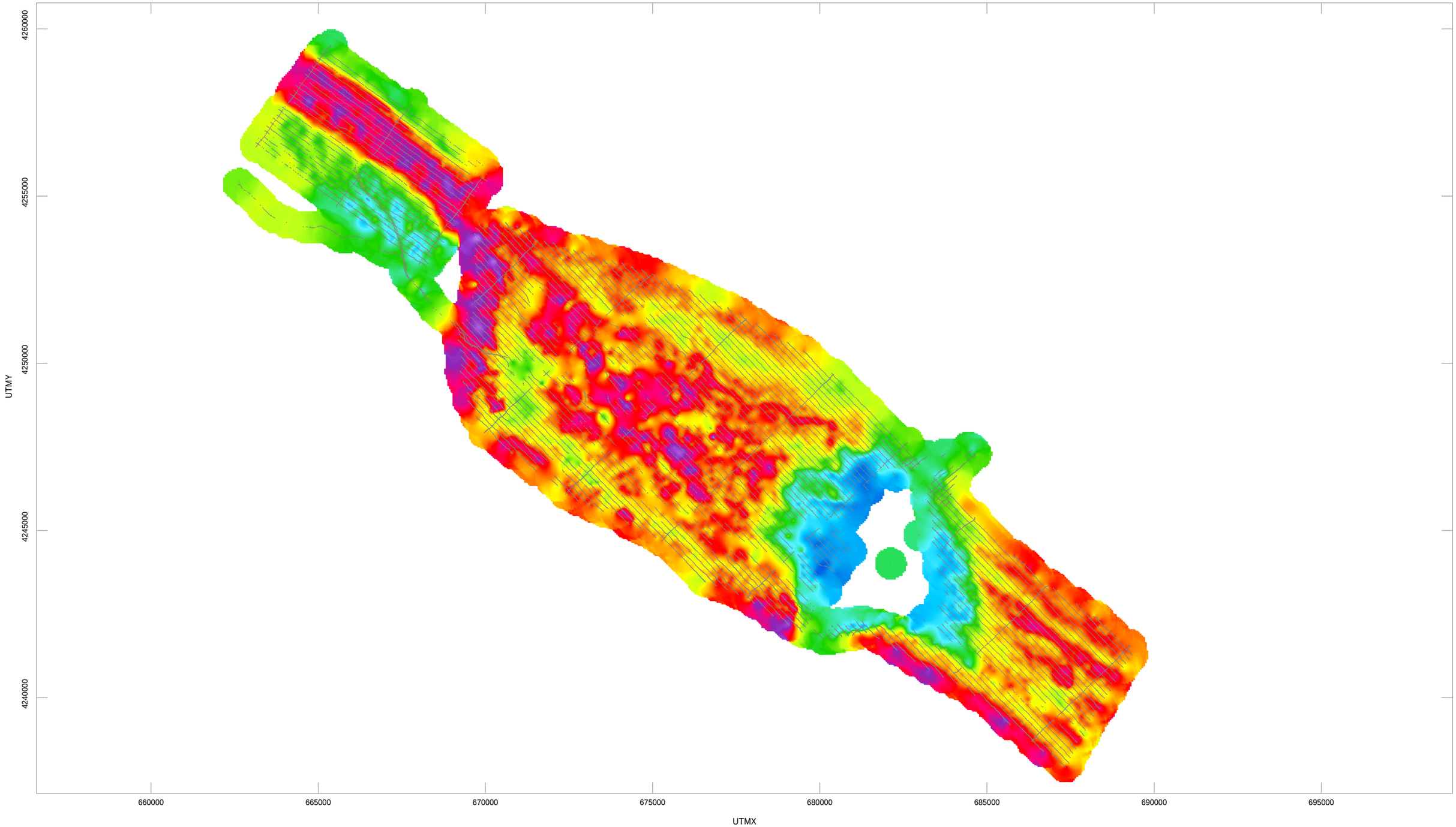
**Mean Resistivity, Depth 105 - 120 m**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

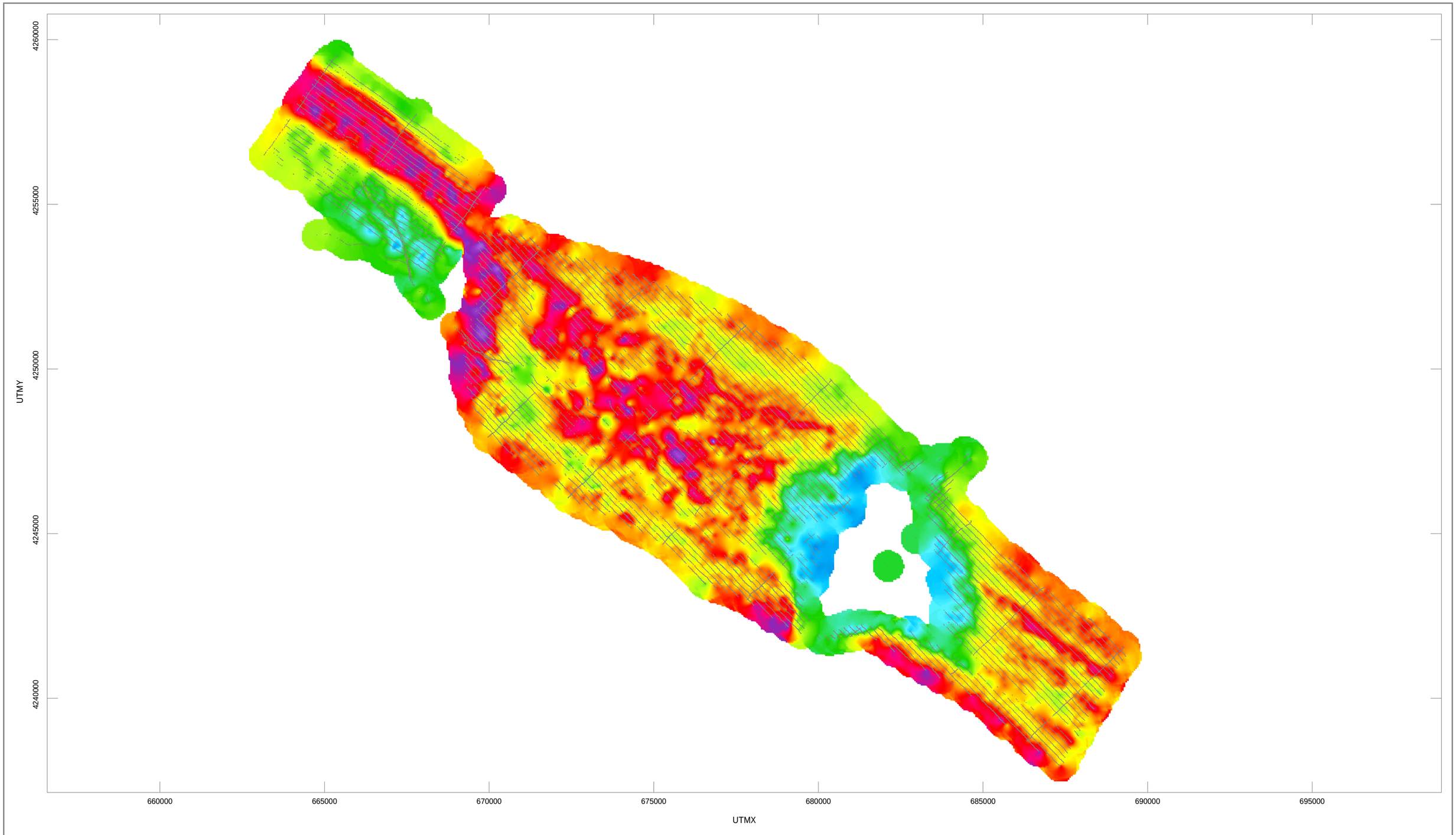
**Mean Resistivity, Depth 120 - 140 m**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

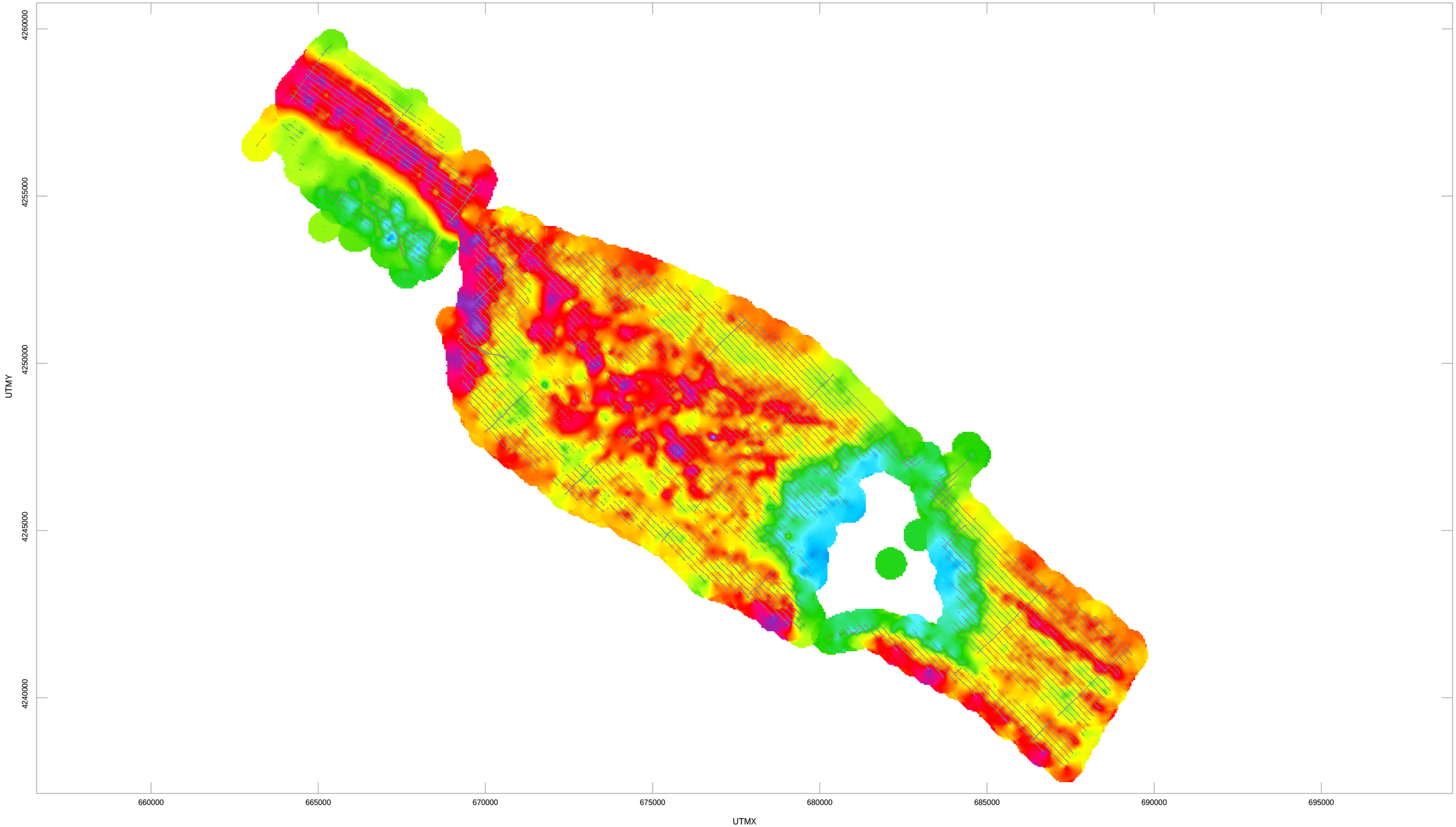
**Mean Resistivity, Depth 140 - 160 m**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

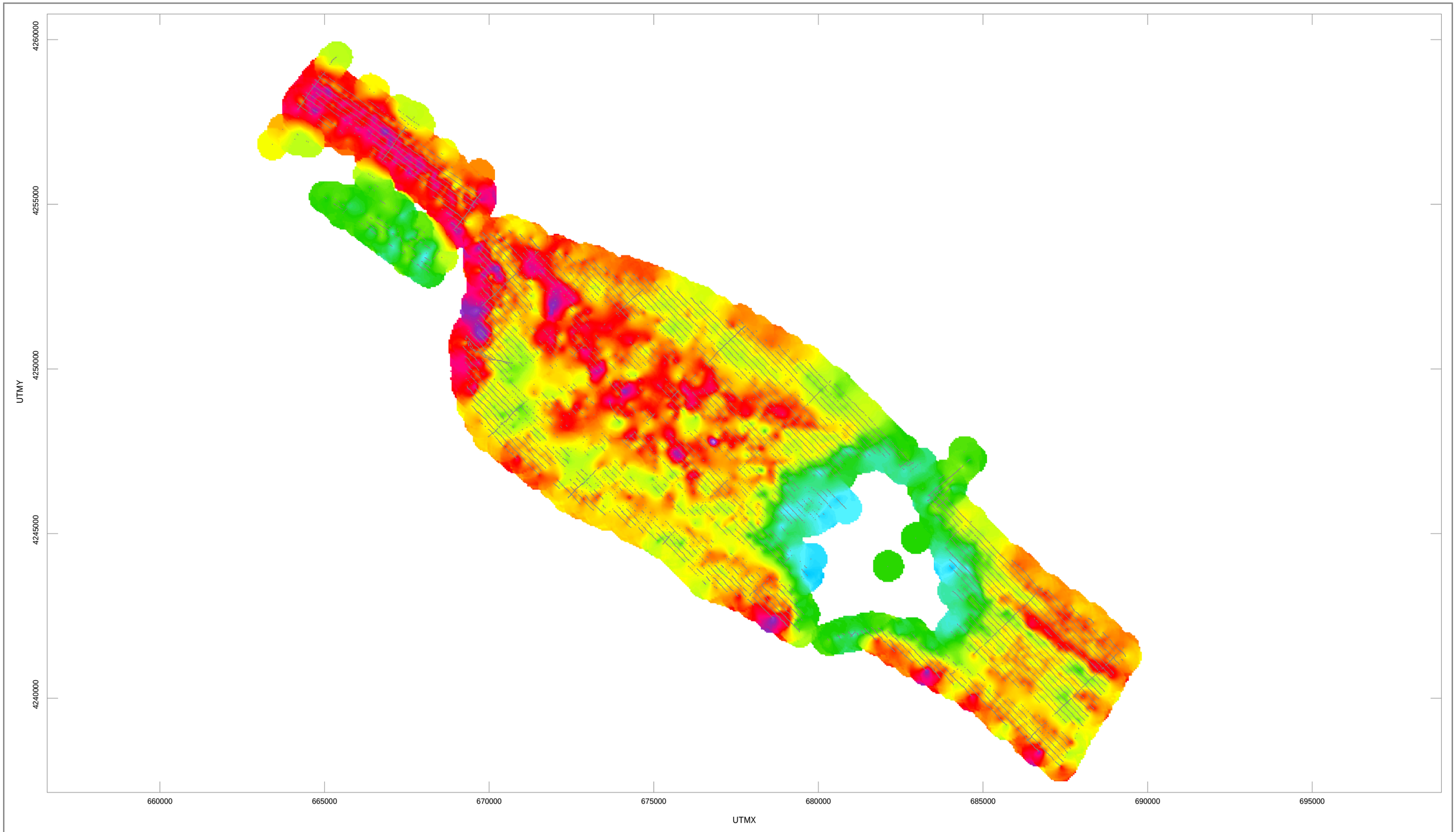
**Mean Resistivity, Depth 160 - 180 m**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

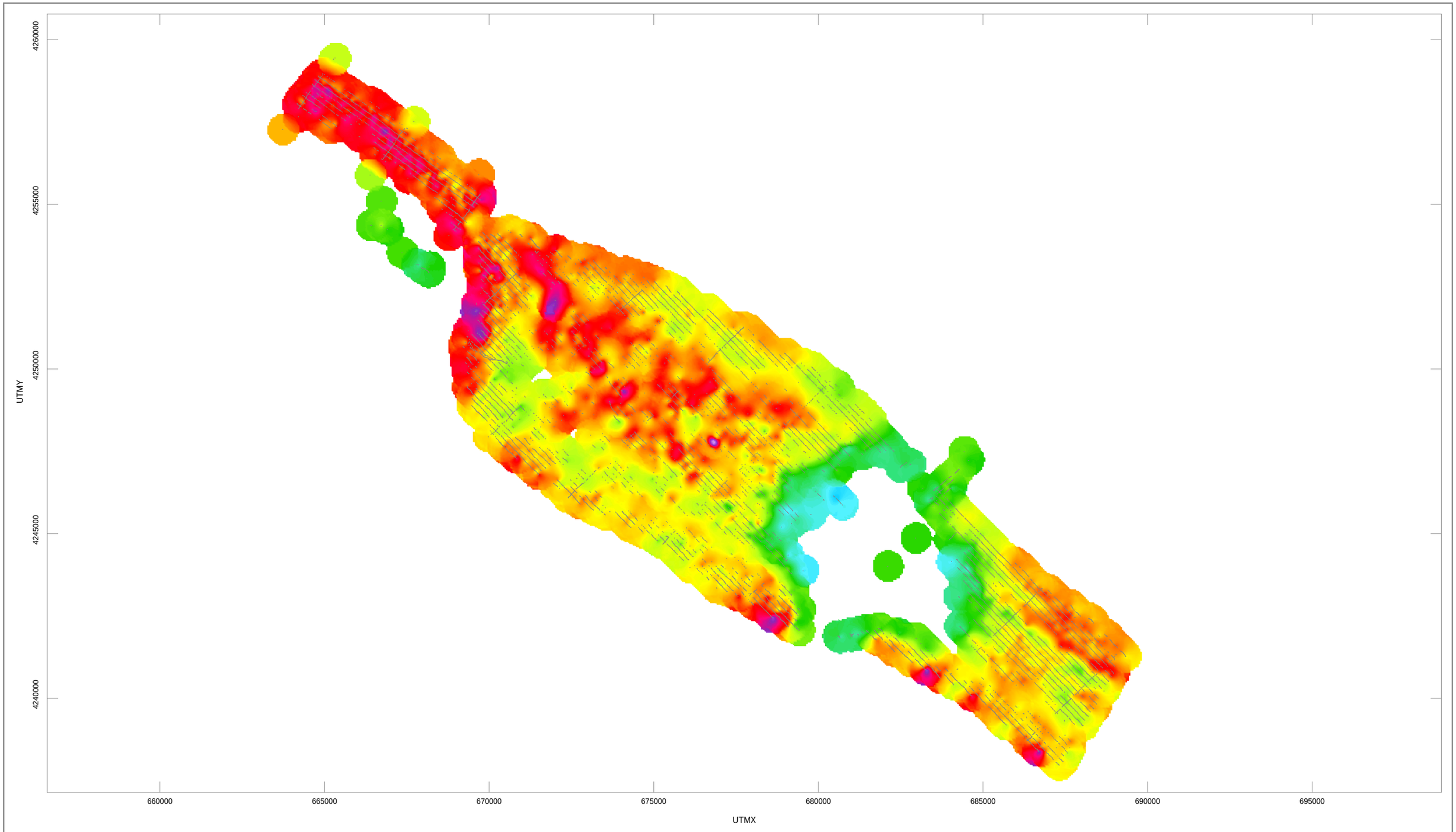
**Mean Resistivity, Depth 180 - 200 m**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

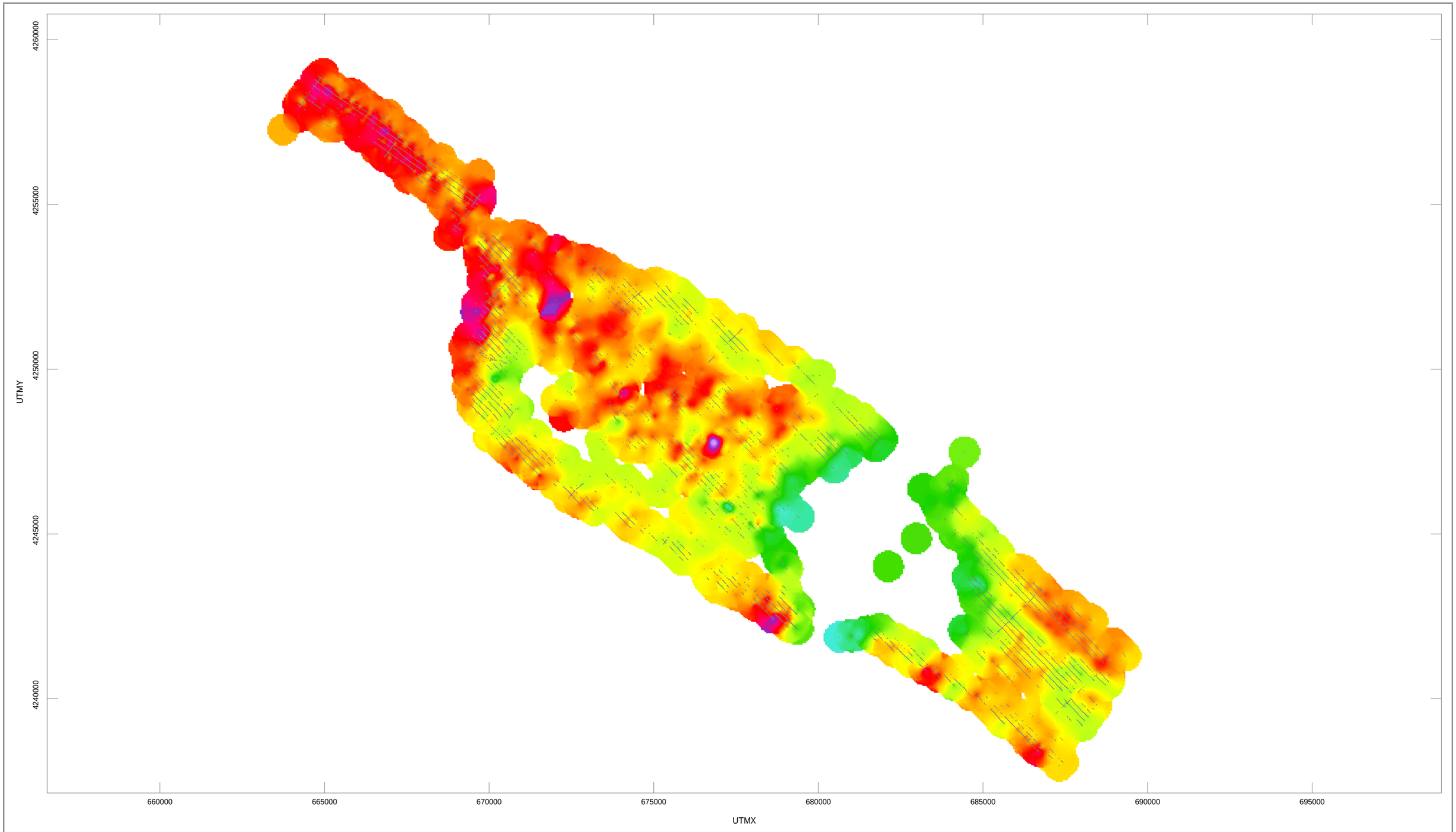
**Mean Resistivity, Depth 200 - 220 m**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

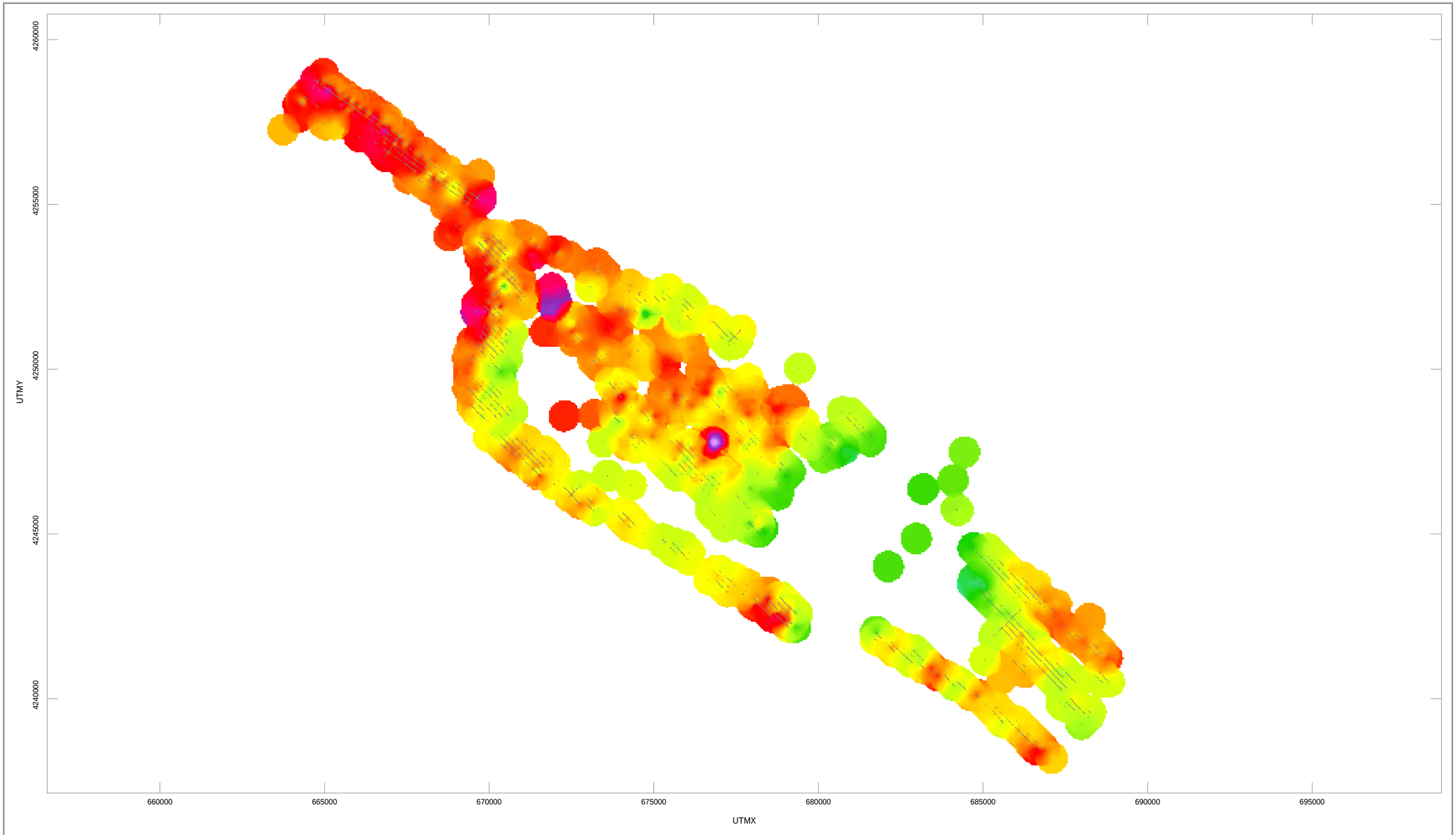
**Mean Resistivity, Depth 220 - 240 m**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

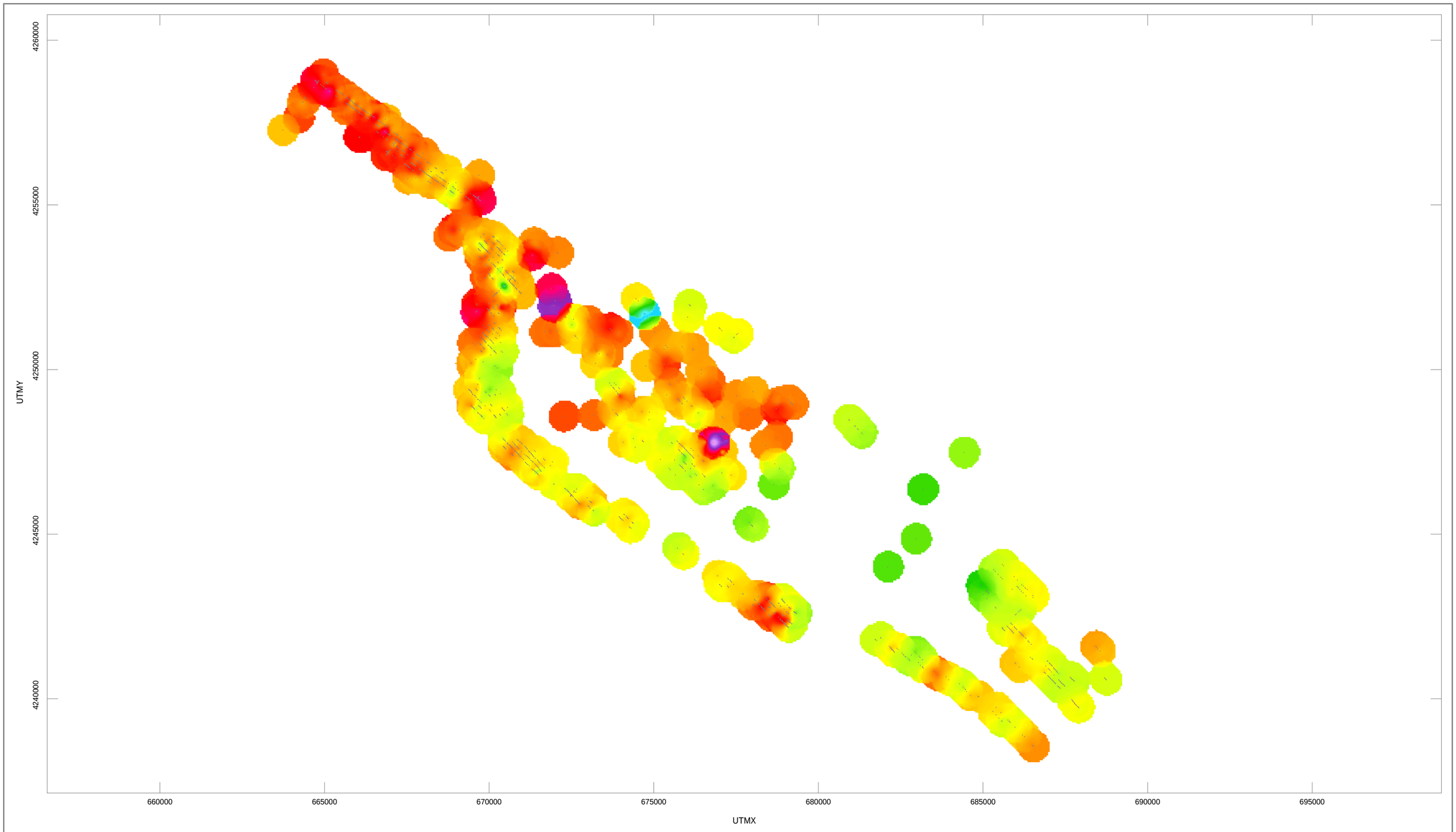
**Mean Resistivity, Depth 240 - 260 m**

Aarhus Geophysics

**Client: USGS**

All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]




**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

10 km

UTM Zone 12N WGS84

**Mean Resistivity, Depth 260 - 280 m**

Aarhus Geophysics

**Client: USGS**

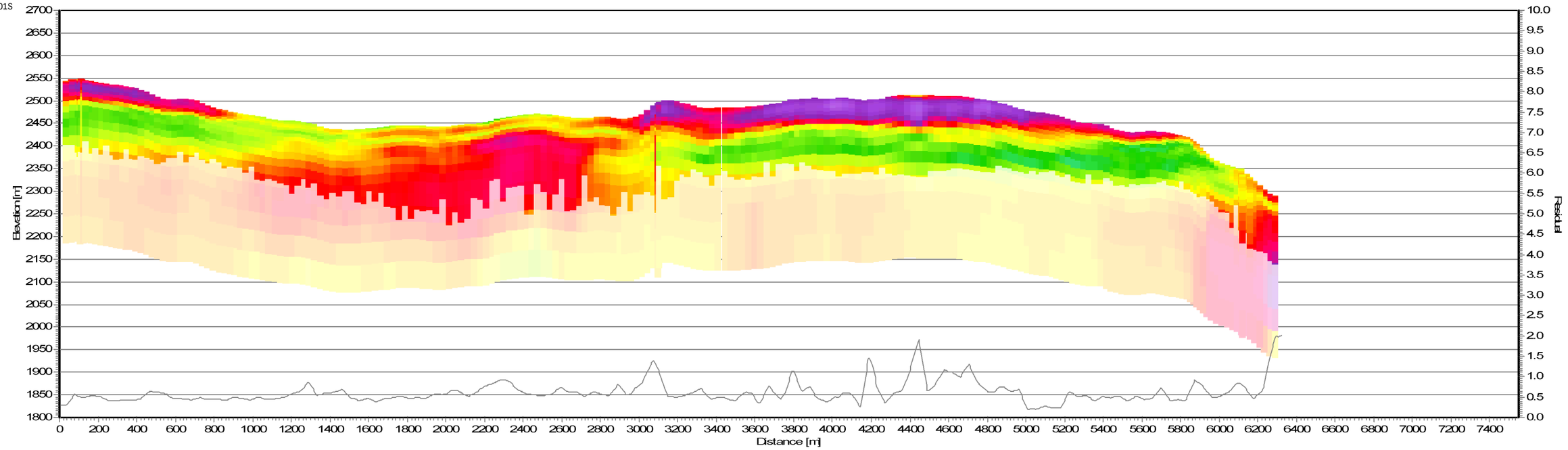
All grids are based on the results from a Spatially Constrained Inversion made with a smooth model with 19 layers.
Maps are masked with Depth of Investigation.
Grey dots represent the location of datapoints used in the interpolation of this layer.
All themes are gridded using Kriging with a search radius of 500 m and a cell size of 50 m.

0.1 1 10 100 1000
Resistivity [Ohmm]

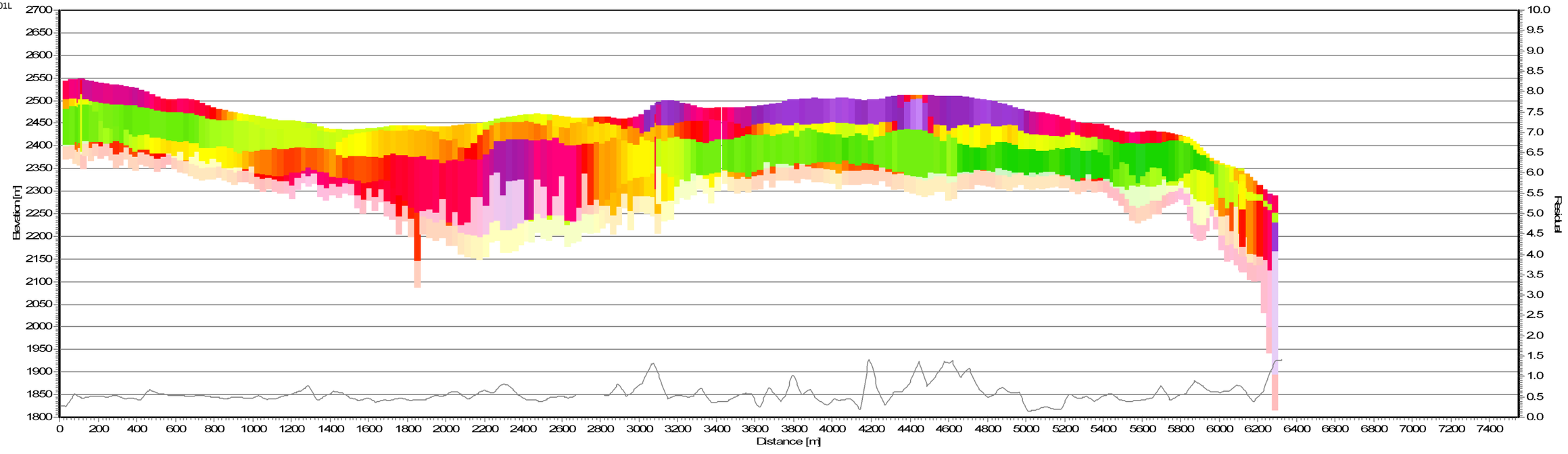
## Appendix 2

The next pages contain the vertical resistivity profiles, for both the few and the multi layers inversion, with DOI superimposed to them. Refer to Appendix 1.1 for a map of the locations of the profiles. Profiles are drawn West to East. Notice that the discontinuities in topography visible in some profiles are due to models belonging to tie lines projected onto the profile.

NW-SE_01S




NW-SE_01L



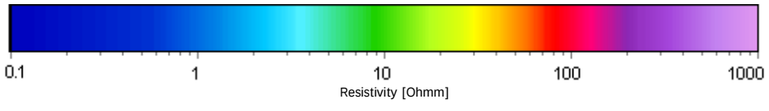

**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

**Cross Sections with 1D modelbars**

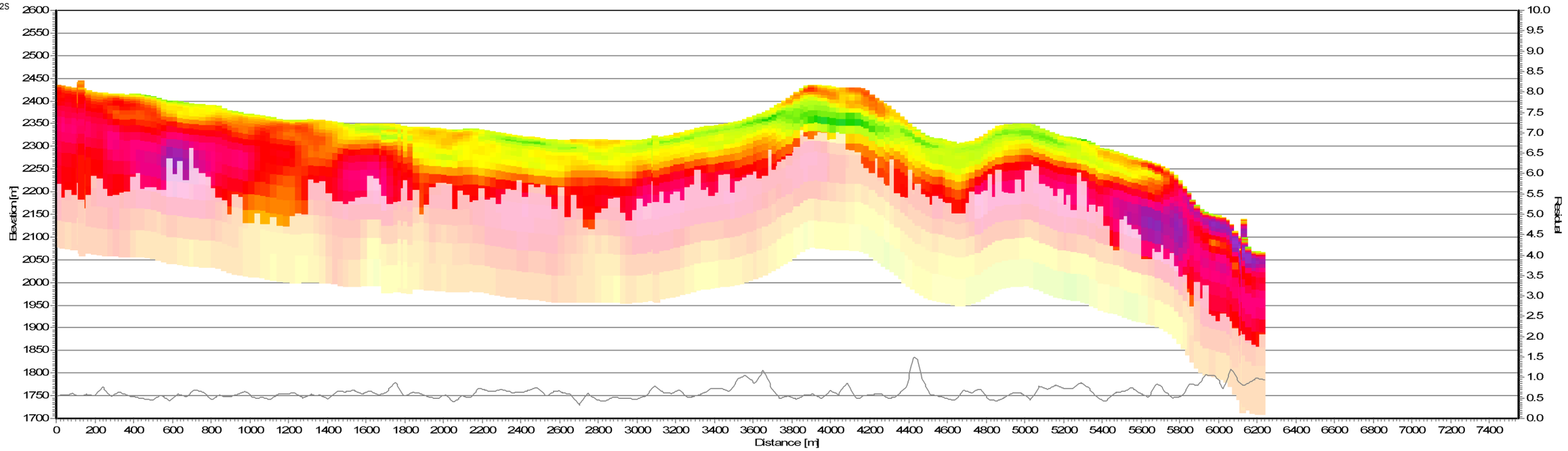
Aarhus Geophysics

**Client: USGS**

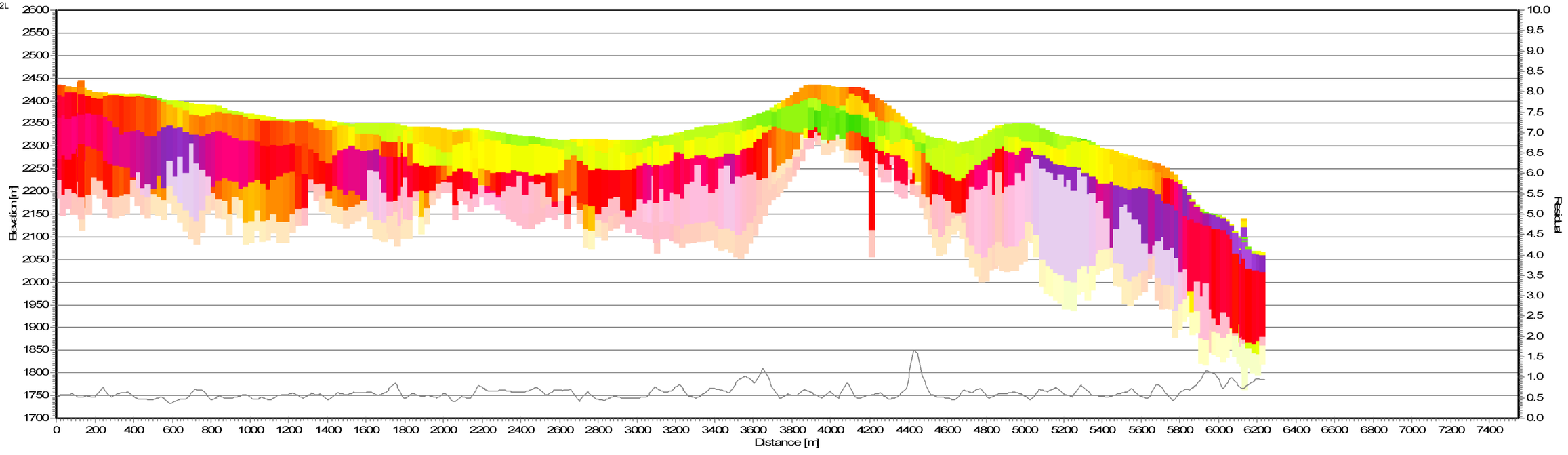
The upper cross sections show 1D modelbars from the Spatially Constrained Inversion based on a smooth model with 19 layers.
The lower cross section show the similar result based on a layered model with 4 layers.
The colors are faded below the Depth of Investigation (DOI lower).
The grey lines show the data residual normalized against noise.



NW-SE_02S




NW-SE_02L



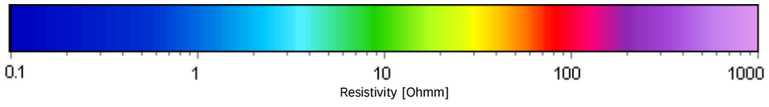

**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

**Cross Sections with 1D modelbars**

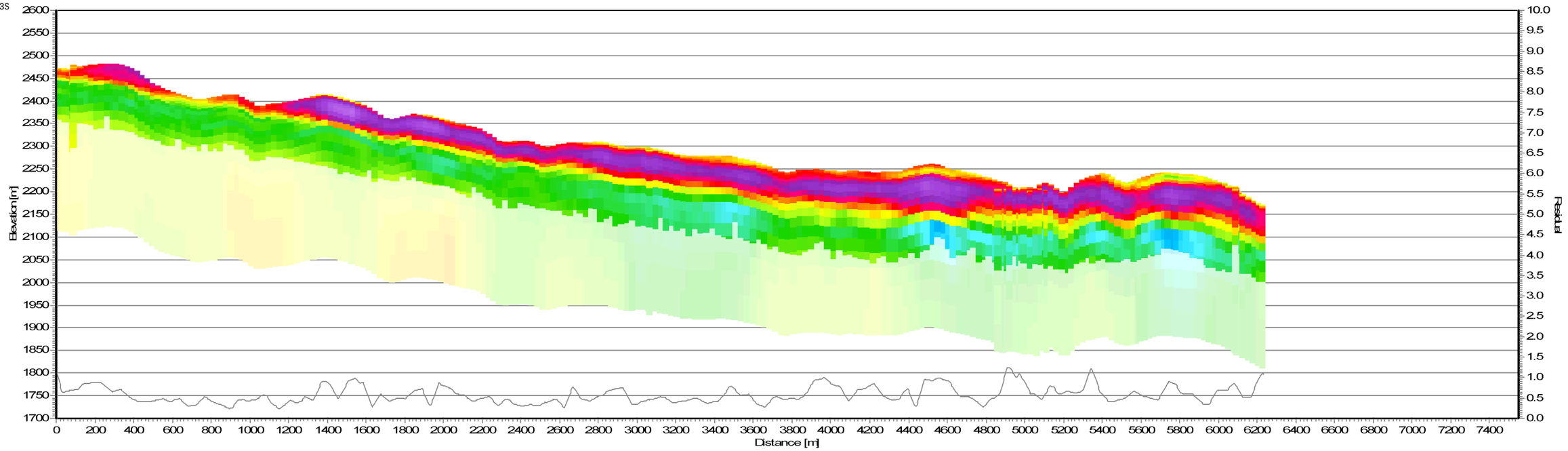
Aarhus Geophysics

**Client: USGS**

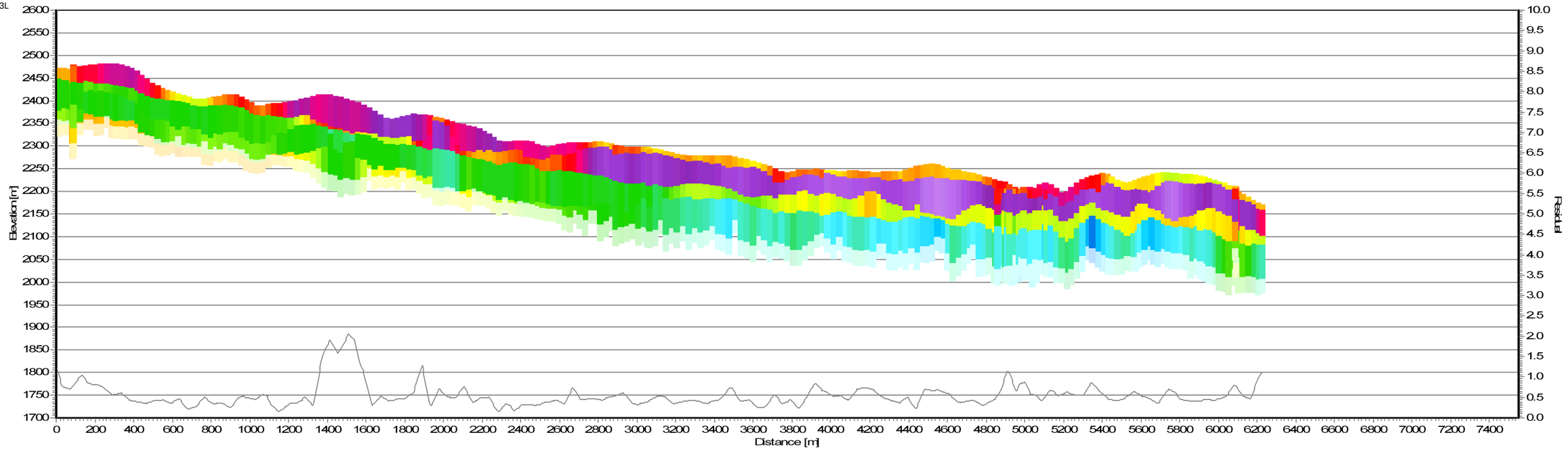
The upper cross sections show 1D modelbars from the Spatially Constrained Inversion based on a smooth model with 19 layers.
The lower cross section show the similar result based on a layered model with 4 layers.
The colors are faded below the Depth of Investigation (DOI lower).
The grey lines show the data residual normalized against noise.



NW-SE_03S




NW-SE_03L



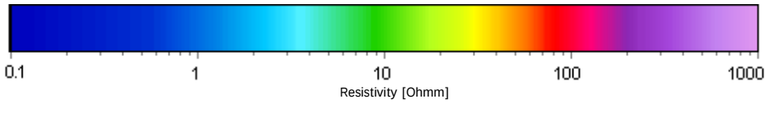

**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

**Cross Sections with 1D modelbars**

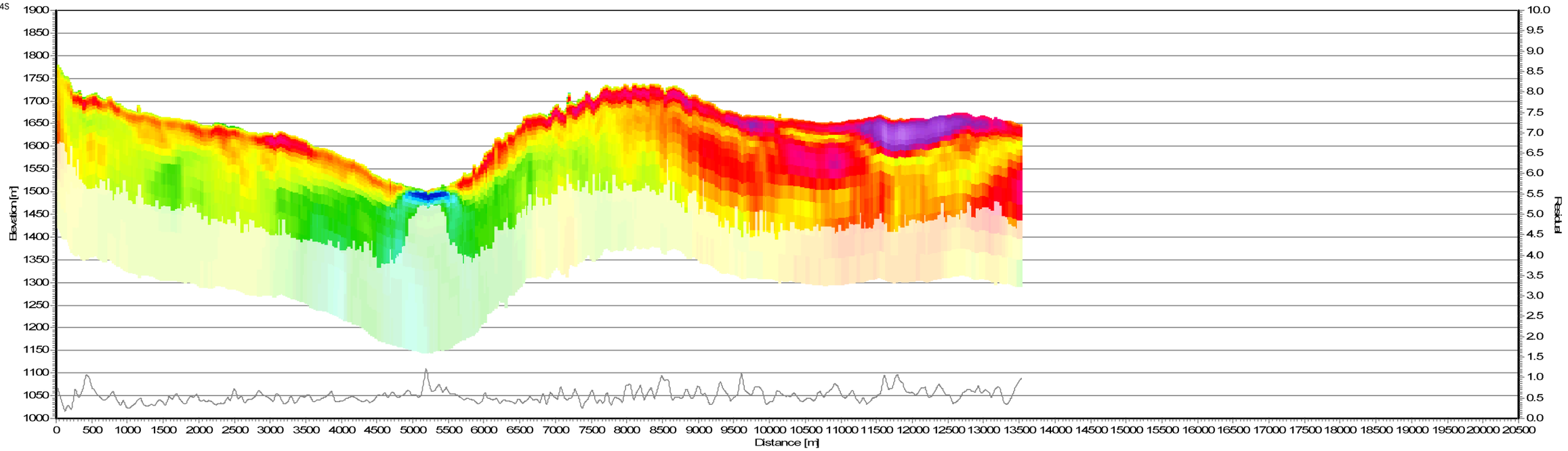
Aarhus Geophysics

**Client: USGS**

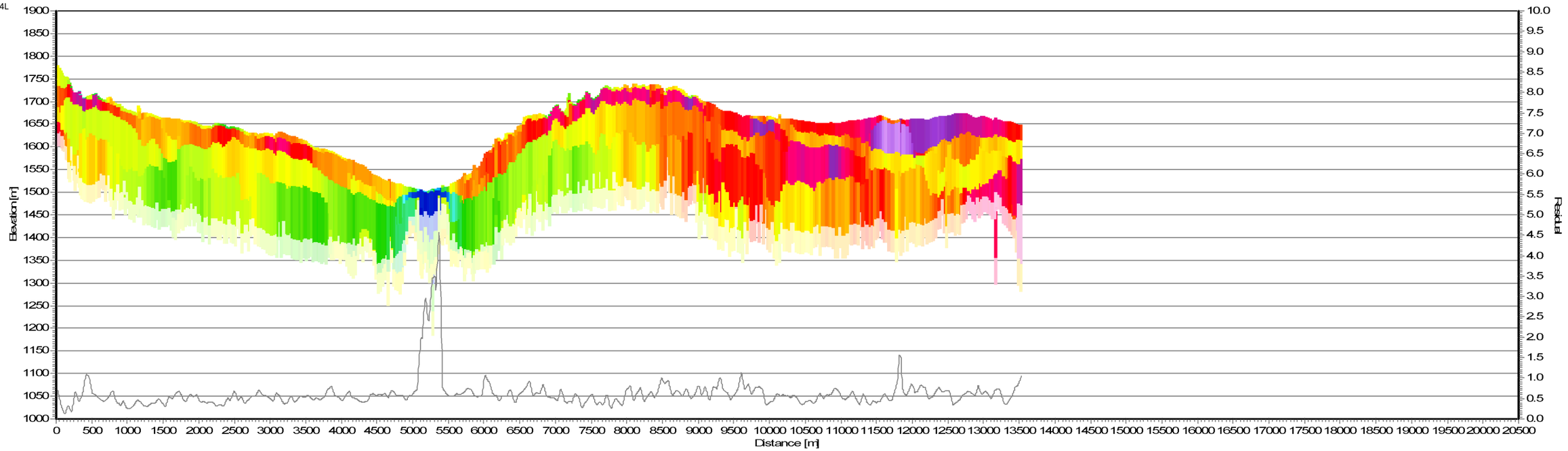
The upper cross sections show 1D modelbars from the Spatially Constrained Inversion based on a smooth model with 19 layers.
The lower cross section show the similar result based on a layered model with 4 layers.
The colors are faded below the Depth of Investigation (DOI lower).
The grey lines show the data residual normalized against noise.



NW-SE_04S




NW-SE_04L



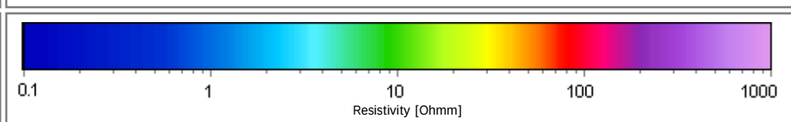

**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

**Cross Sections with 1D modelbars**

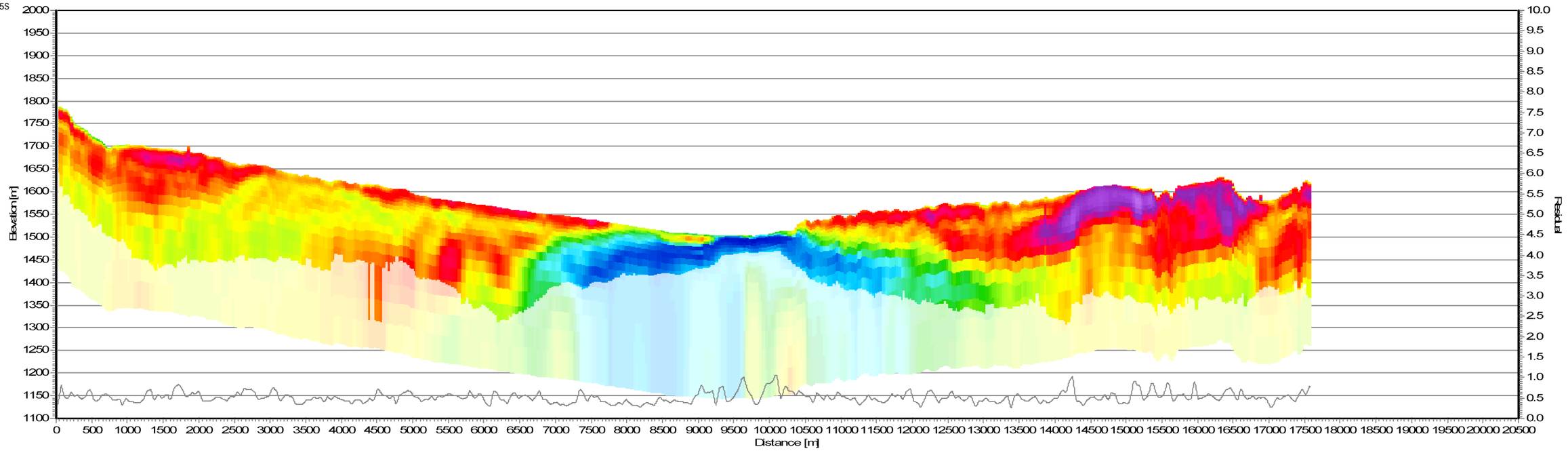
Aarhus Geophysics

**Client: USGS**

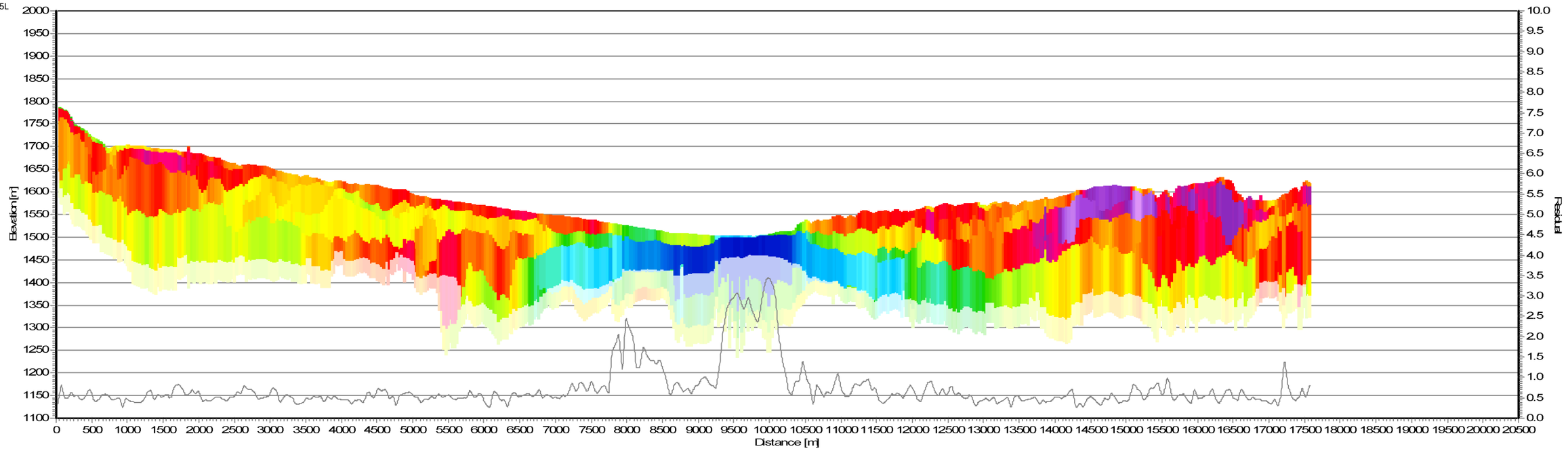
The upper cross sections show 1D modelbars from the Spatially Constrained Inversion based on a smooth model with 19 layers.
The lower cross section show the similar result based on a layered model with 4 layers.
The colors are faded below the Depth of Investigation (DOI lower).
The grey lines show the data residual normalized against noise.



NW-SE_05S




NW-SE_05L



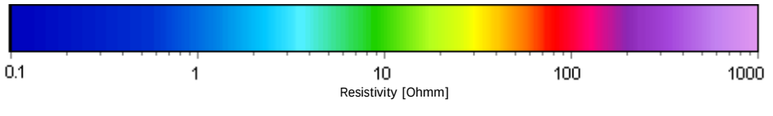

**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

**Cross Sections with 1D modelbars**

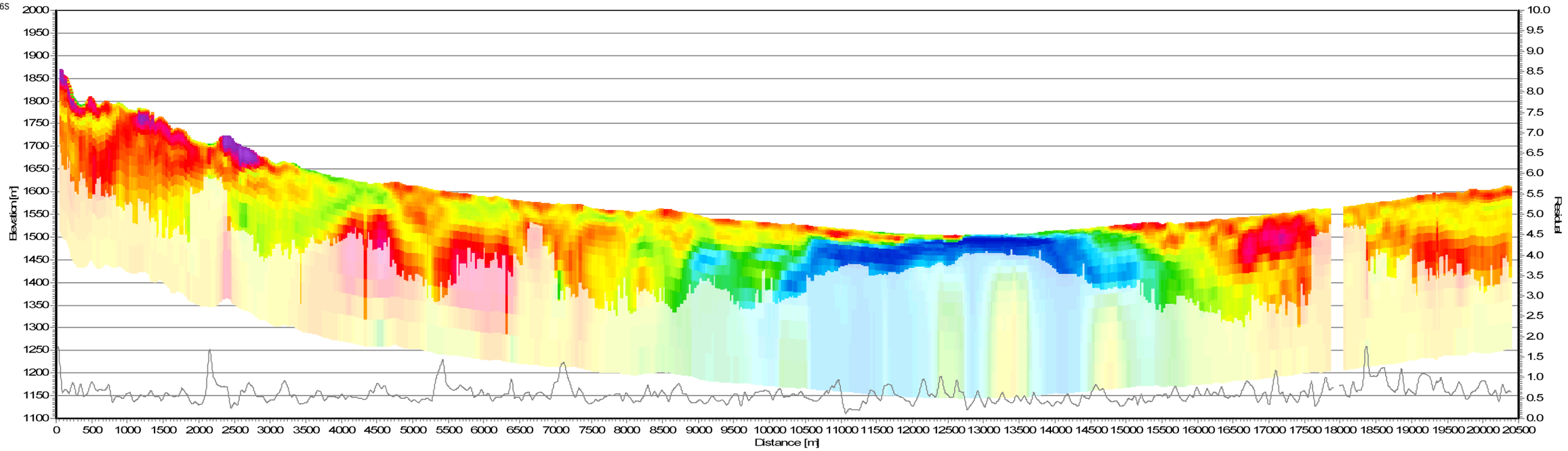
Aarhus Geophysics

**Client: USGS**

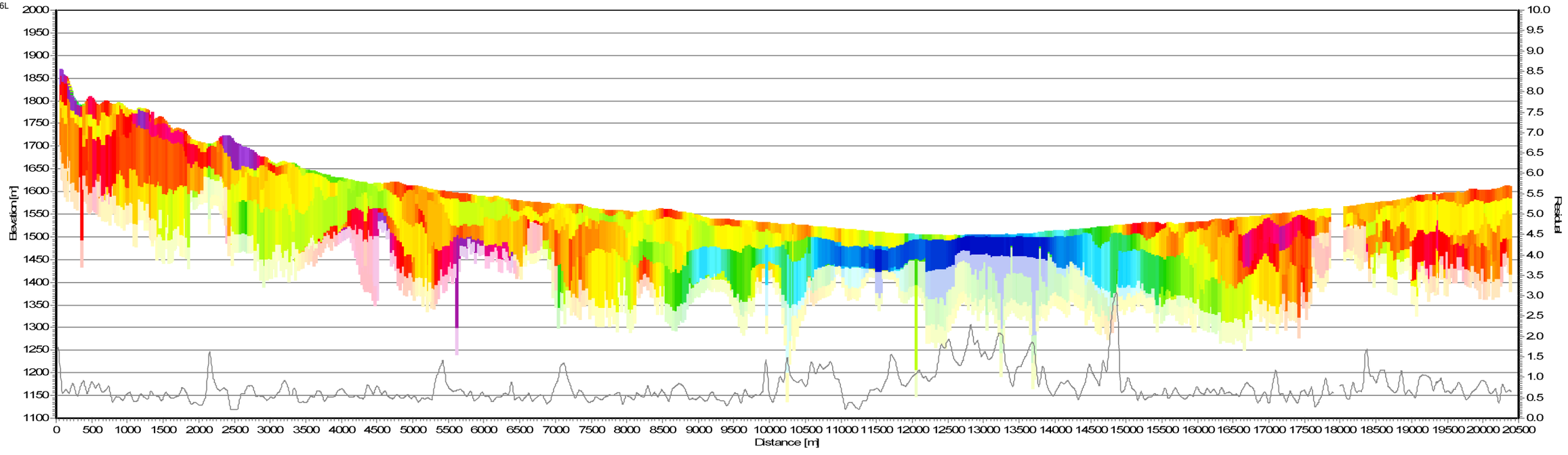
The upper cross sections show 1D modelbars from the Spatially Constrained Inversion based on a smooth model with 19 layers.
The lower cross section show the similar result based on a layered model with 4 layers.
The colors are faded below the Depth of Investigation (DOI lower).
The grey lines show the data residual normalized against noise.



NW-SE_06S




NW-SE_06L



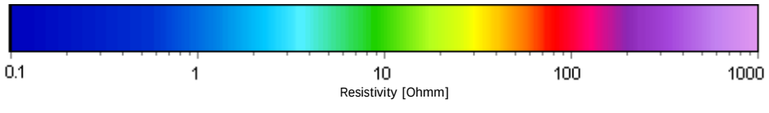

**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

**Cross Sections with 1D modelbars**

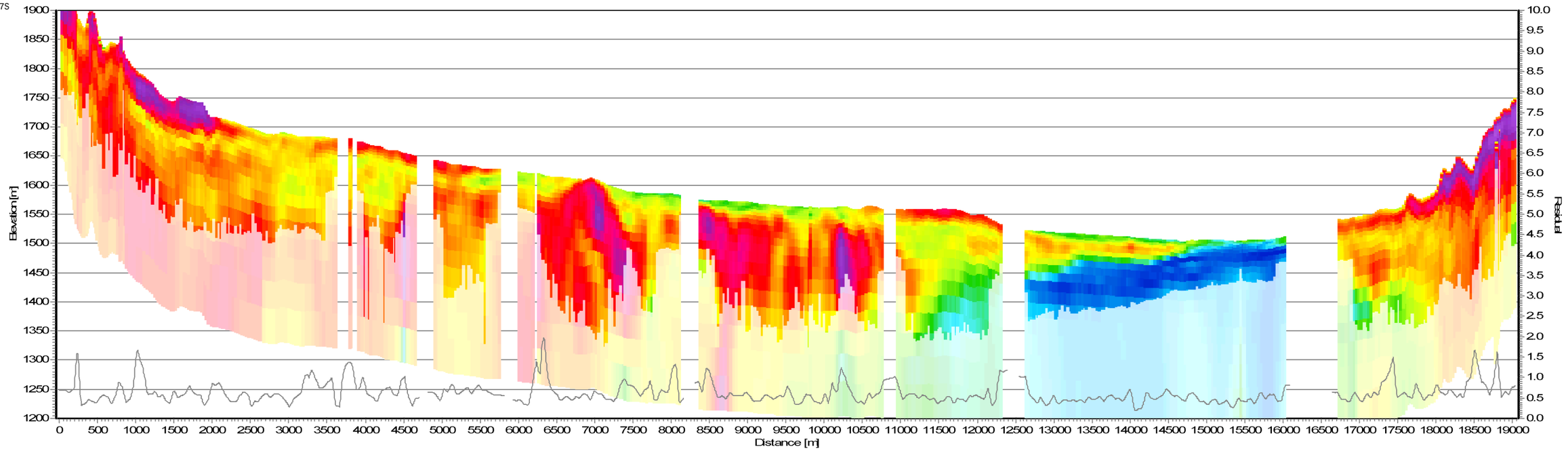
Aarhus Geophysics

**Client: USGS**

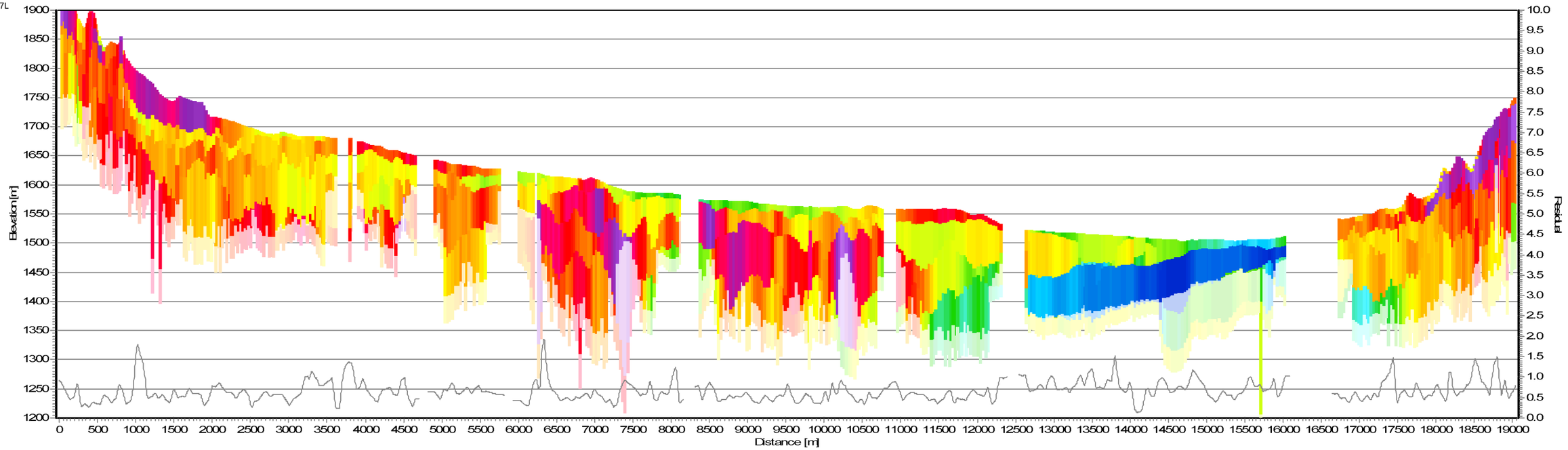
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NW-SE_07S




NW-SE_07L



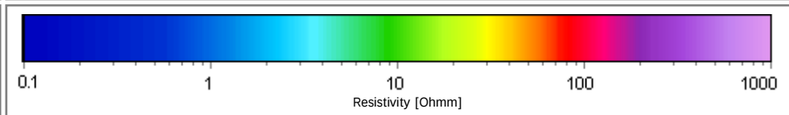

**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

**Cross Sections with 1D modelbars**

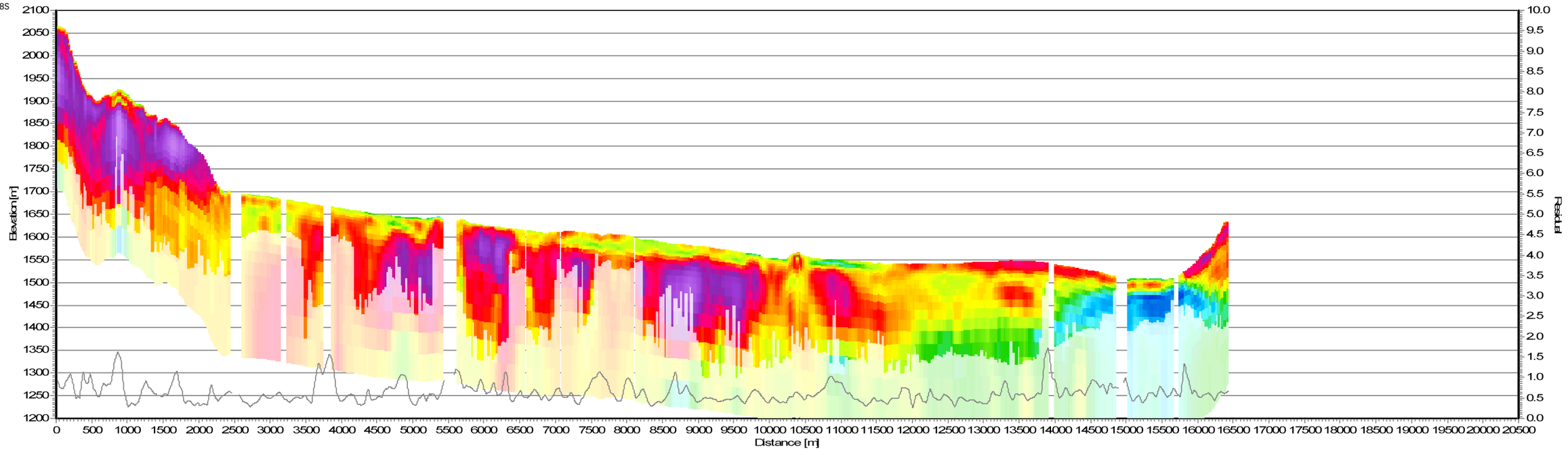
Aarhus Geophysics

**Client: USGS**

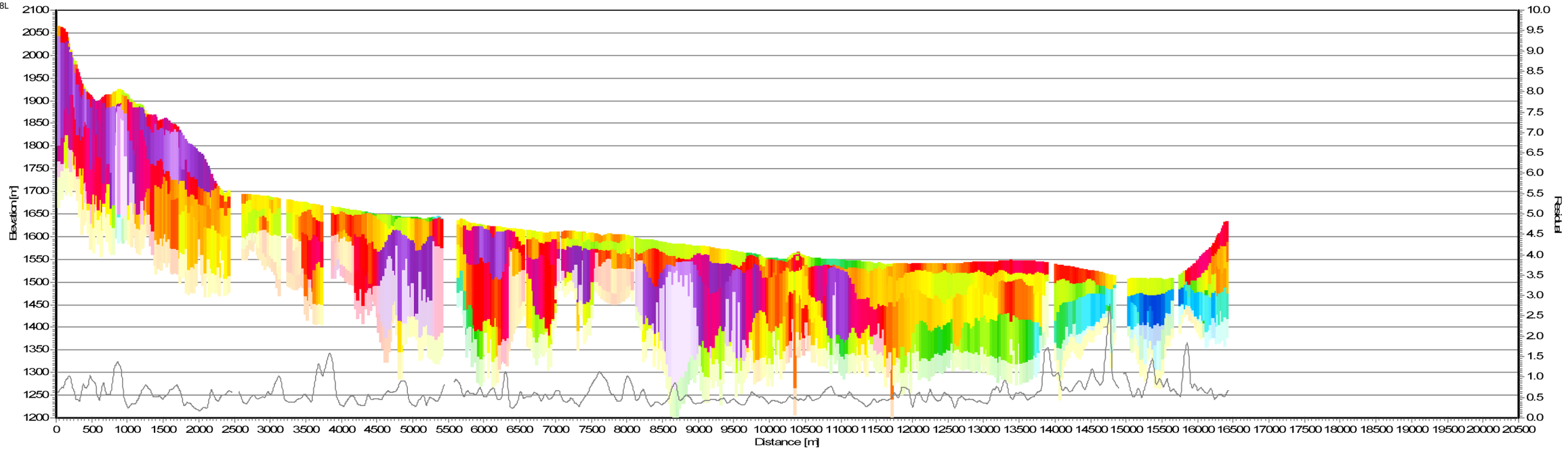
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The grey lines show the data residual normalized against noise.



NW-SE_08S




NW-SE_08L



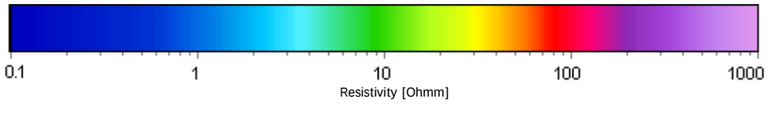

**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

**Cross Sections with 1D modelbars**

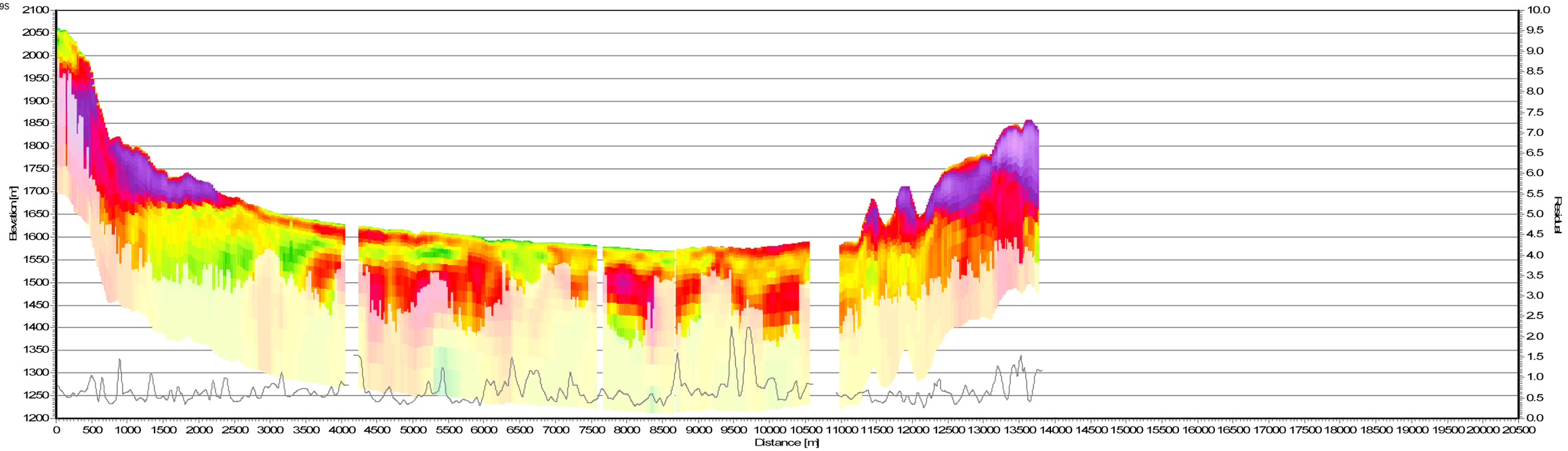
Aarhus Geophysics

**Client: USGS**

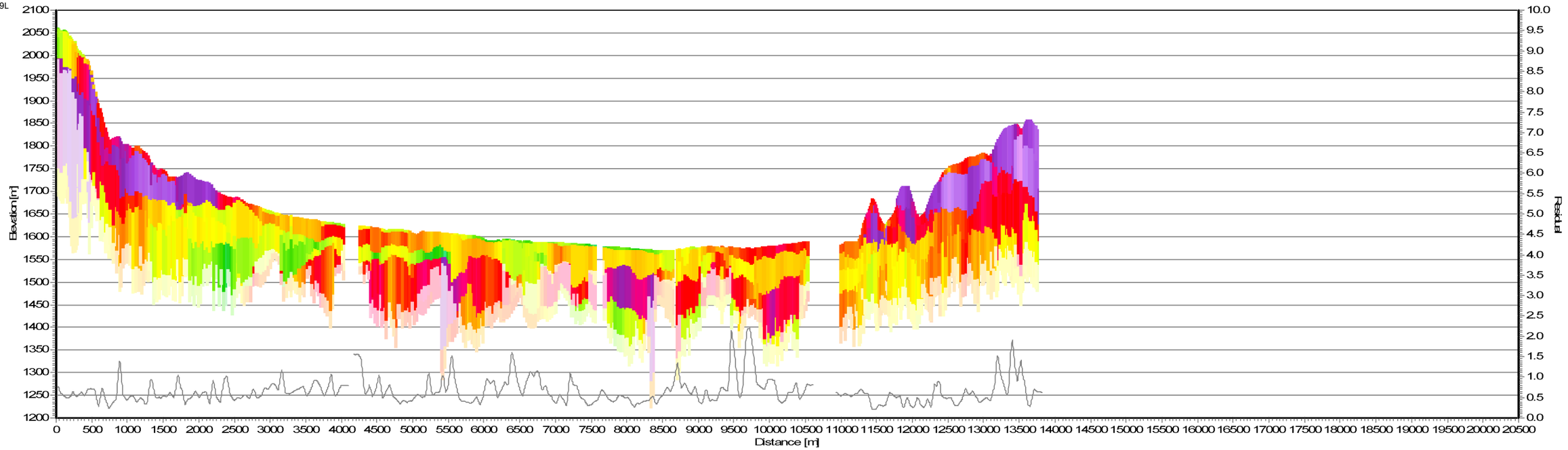
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NW-SE_09S




NW-SE_09L



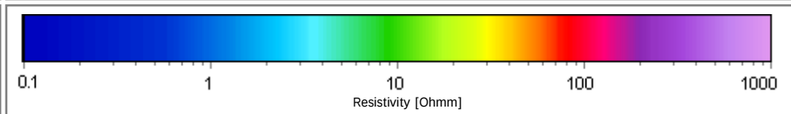

**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

**Cross Sections with 1D modelbars**

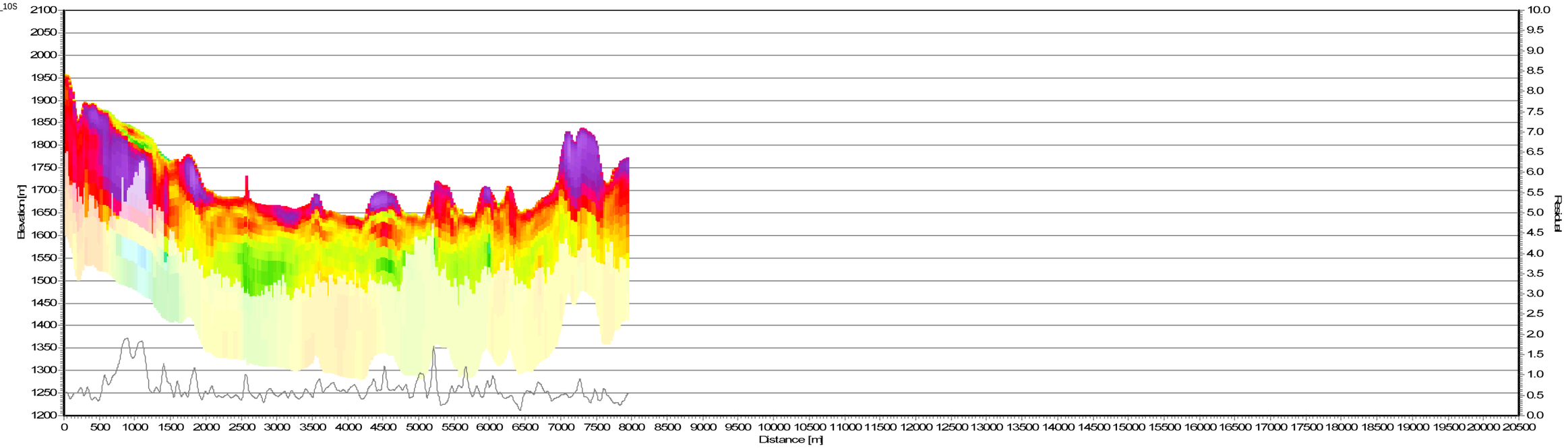
Aarhus Geophysics

**Client: USGS**

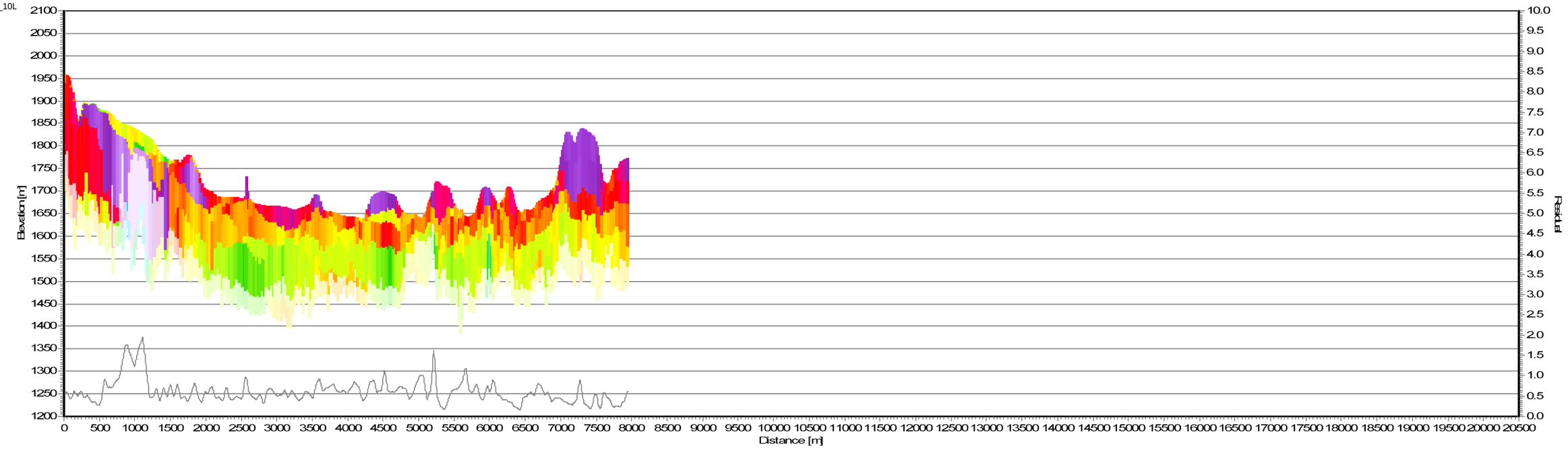
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NW-SE_10S




NW-SE_10L



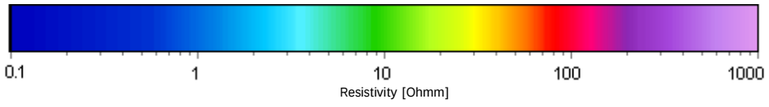

**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

**Cross Sections with 1D modelbars**

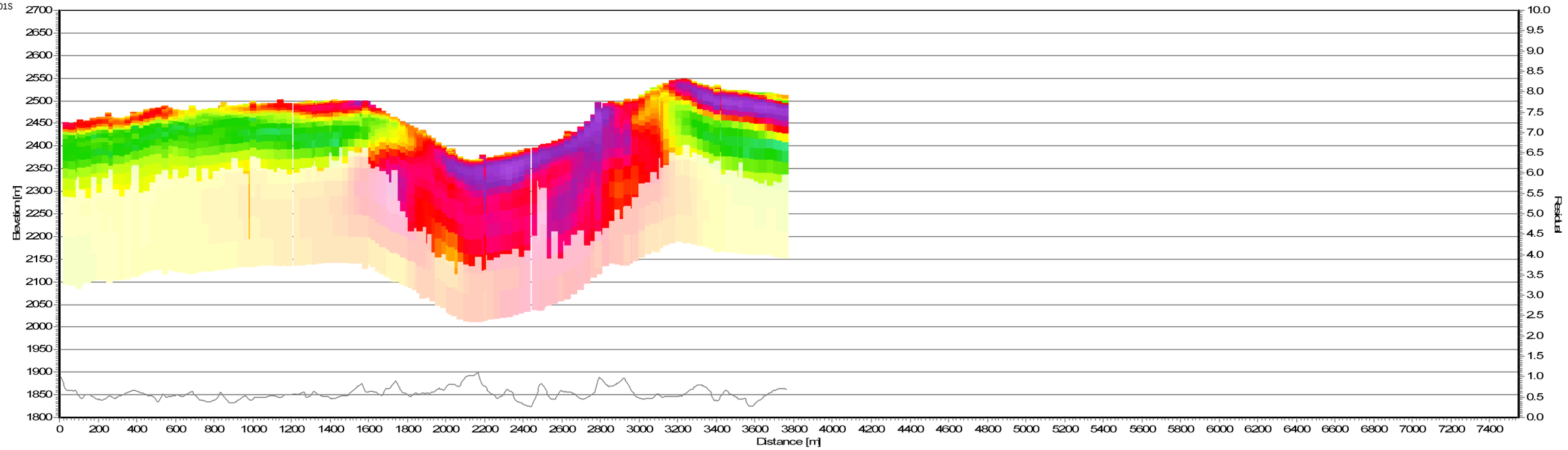
Aarhus Geophysics

**Client: USGS**

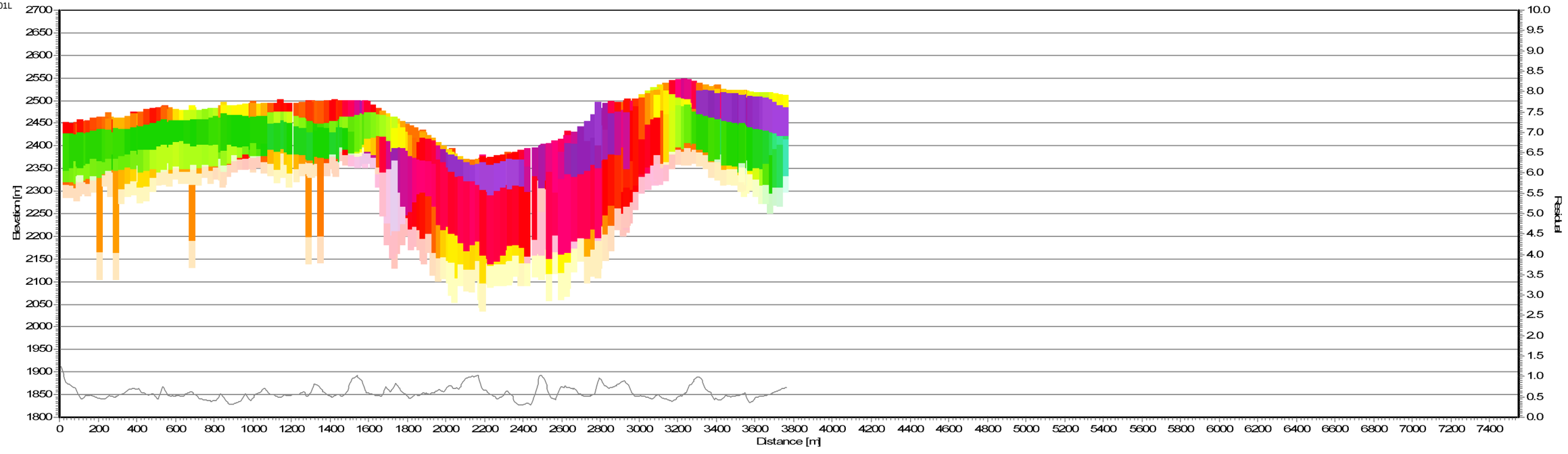
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SW-NE_01S




SW-NE_01L



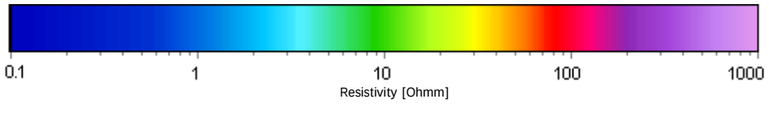

**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

**Cross Sections with 1D modelbars**

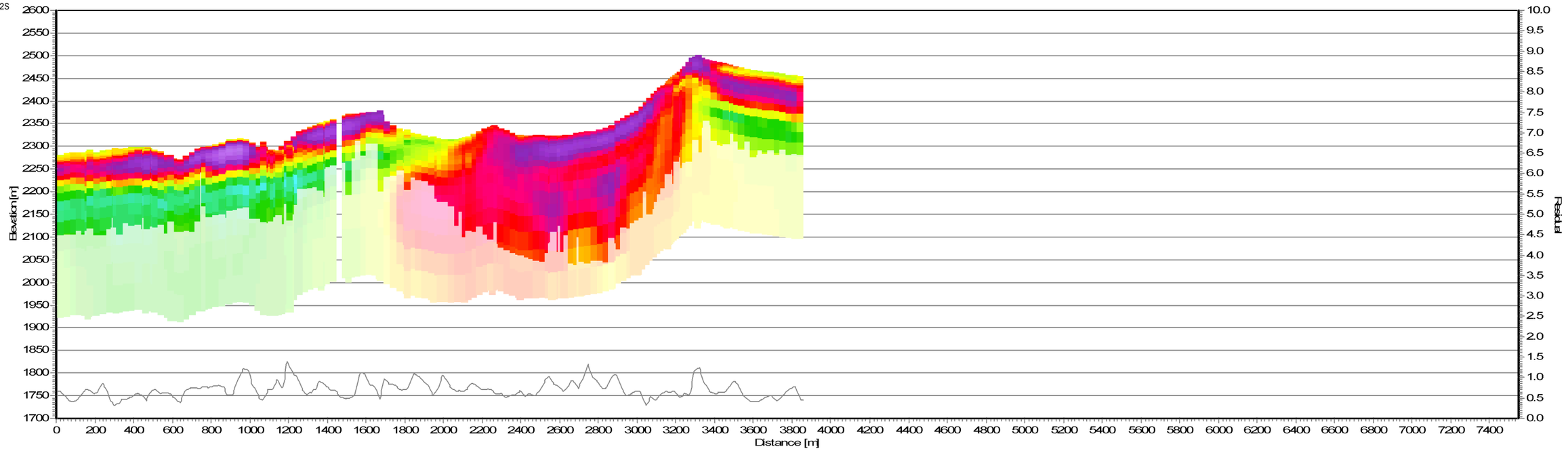
Aarhus Geophysics

**Client: USGS**

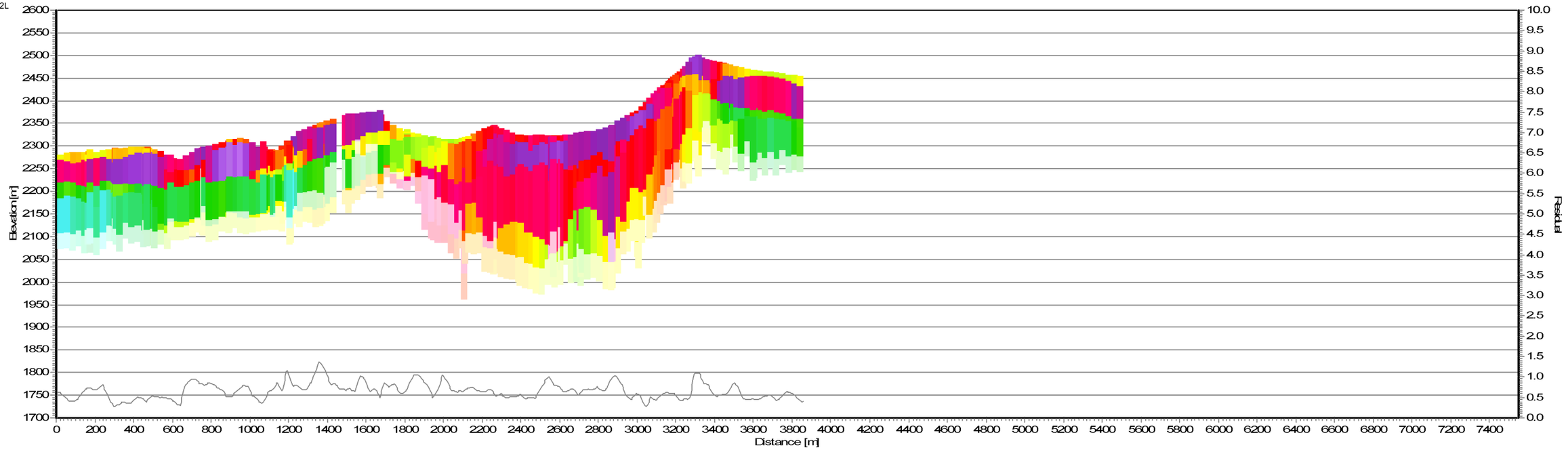
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SW-NE_02S




SW-NE_02L



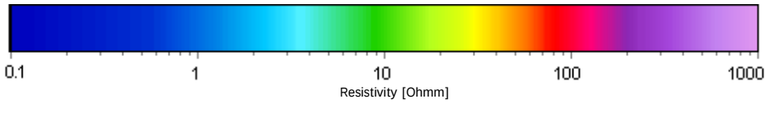

**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

**Cross Sections with 1D modelbars**

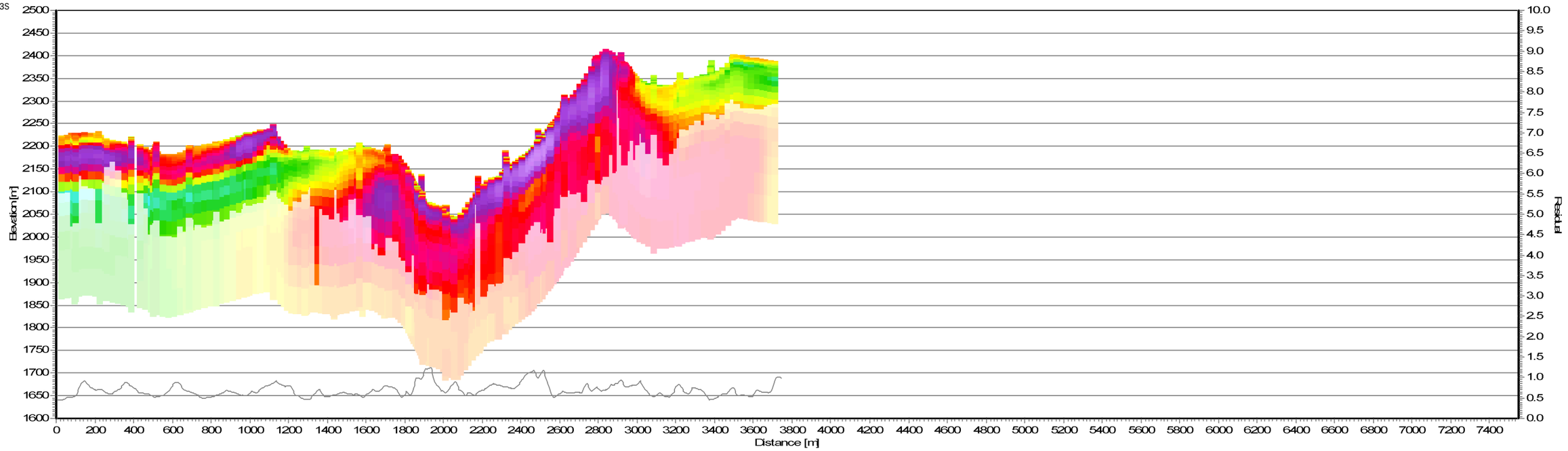
Aarhus Geophysics

**Client: USGS**

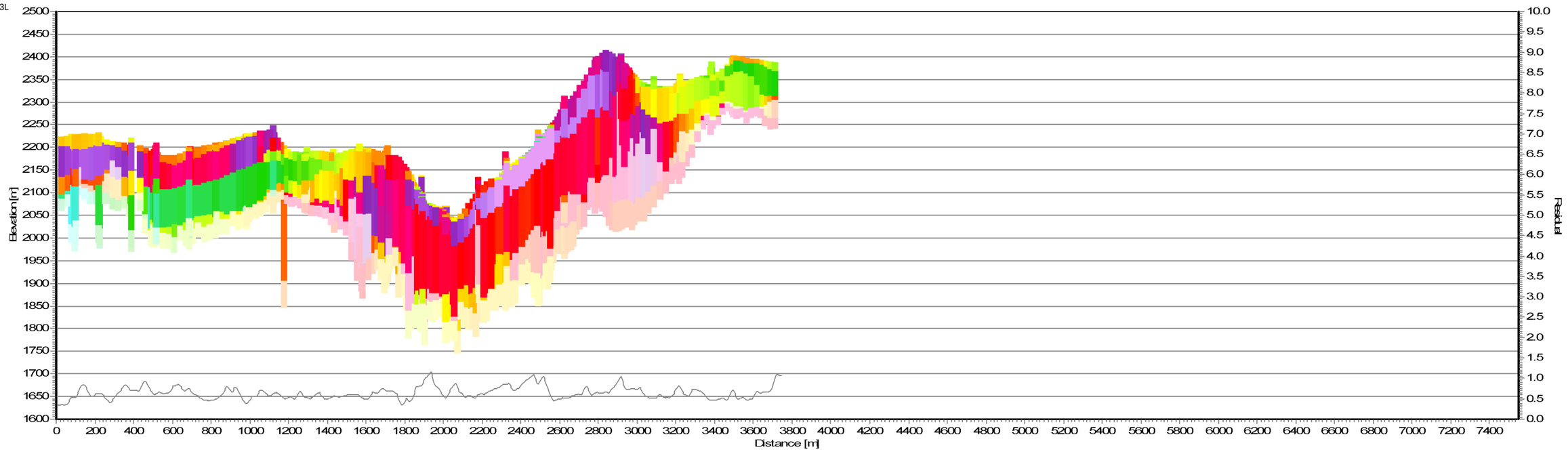
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SW-NE_03S




SW-NE_03L



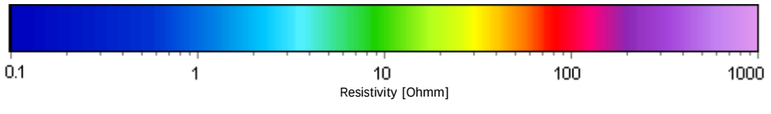

**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

**Cross Sections with 1D modelbars**

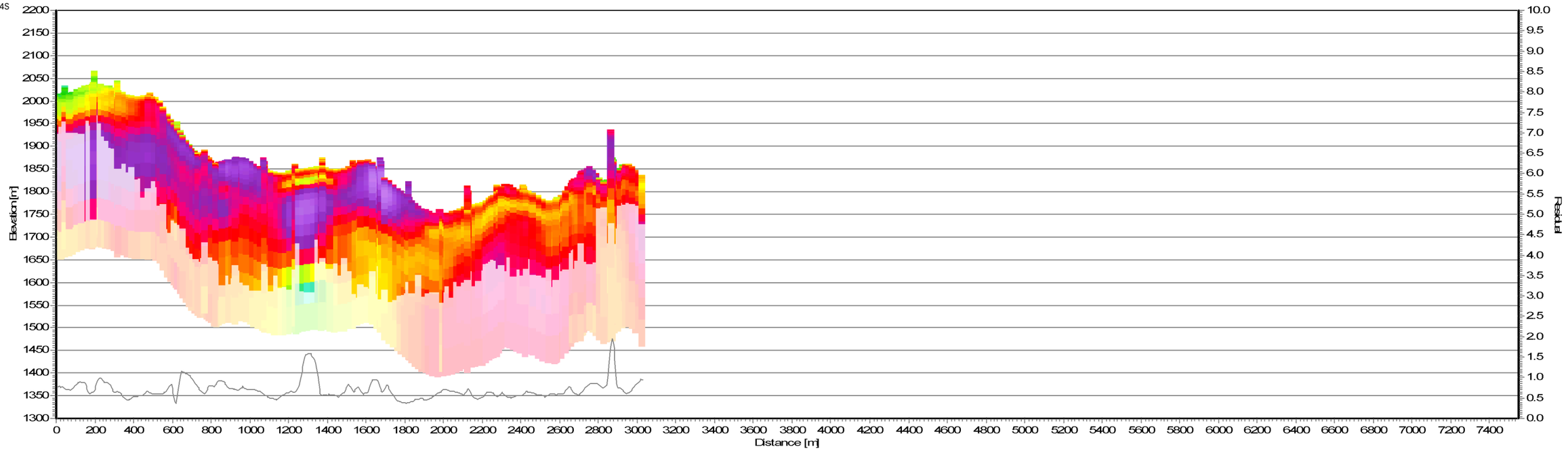
Aarhus Geophysics

**Client: USGS**

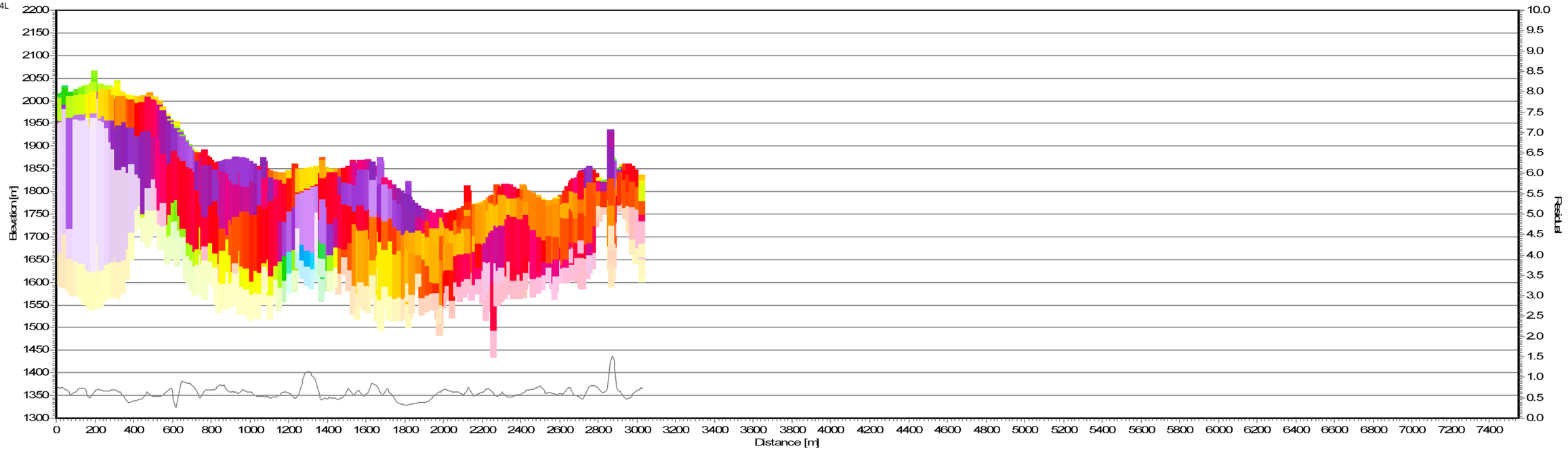
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SW-NE_04S




SW-NE_04L



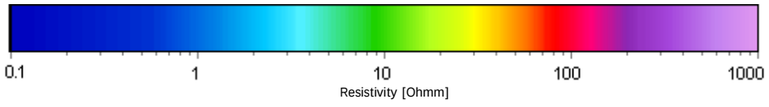

**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

**Cross Sections with 1D modelbars**

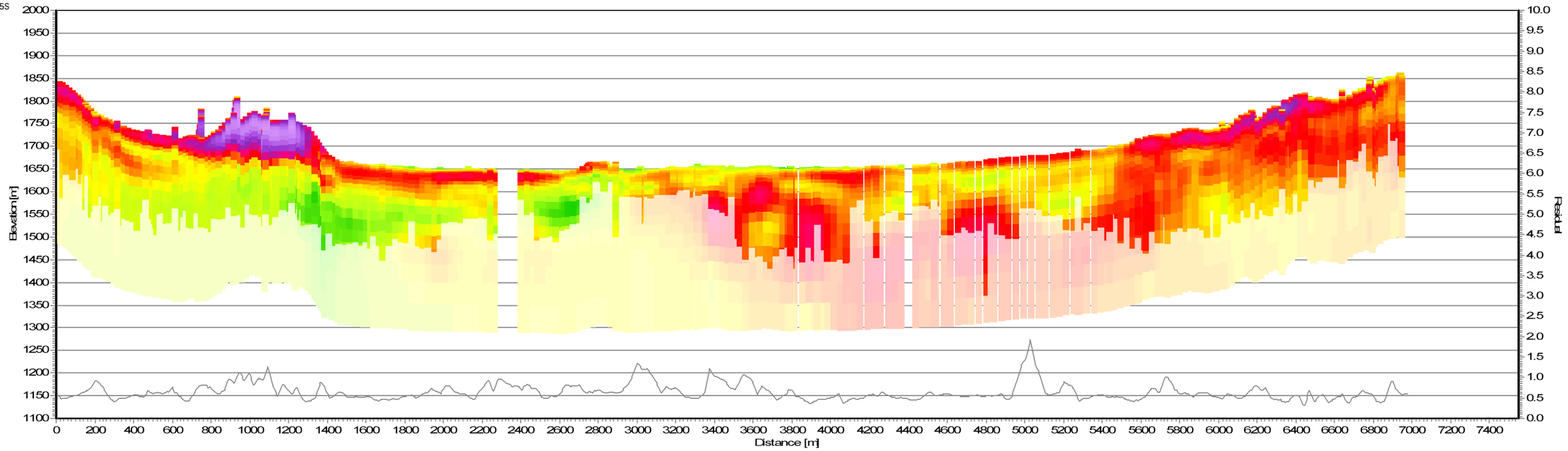
Aarhus Geophysics

**Client: USGS**

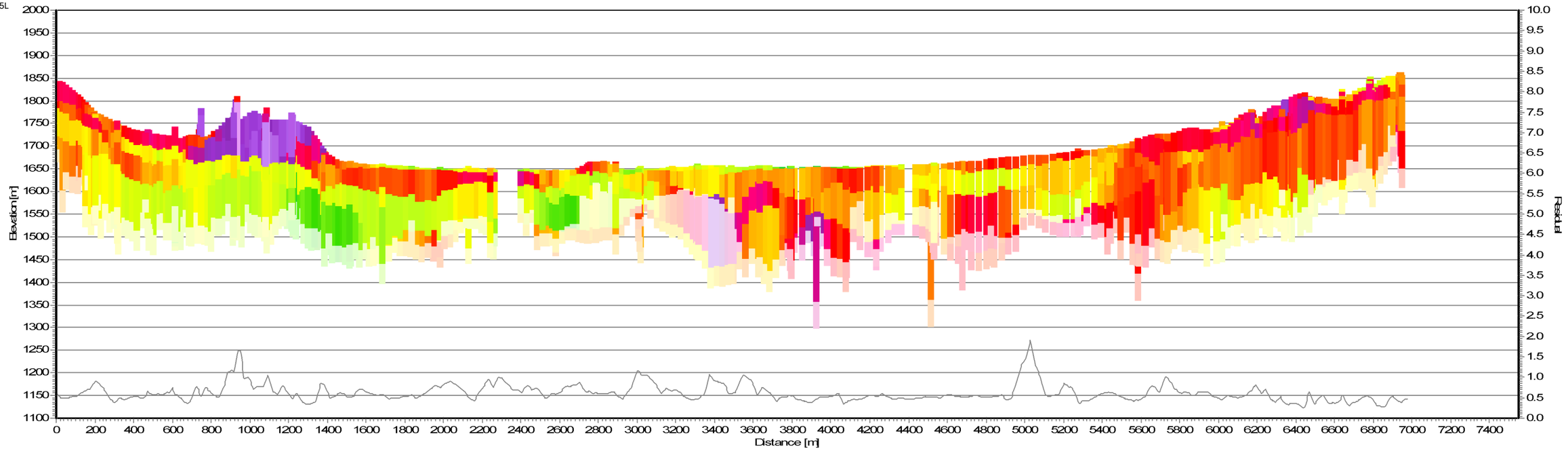
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SW-NE_05S




SW-NE_05L



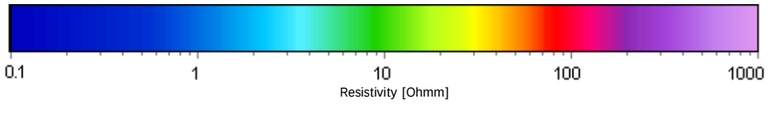

**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

**Cross Sections with 1D modelbars**

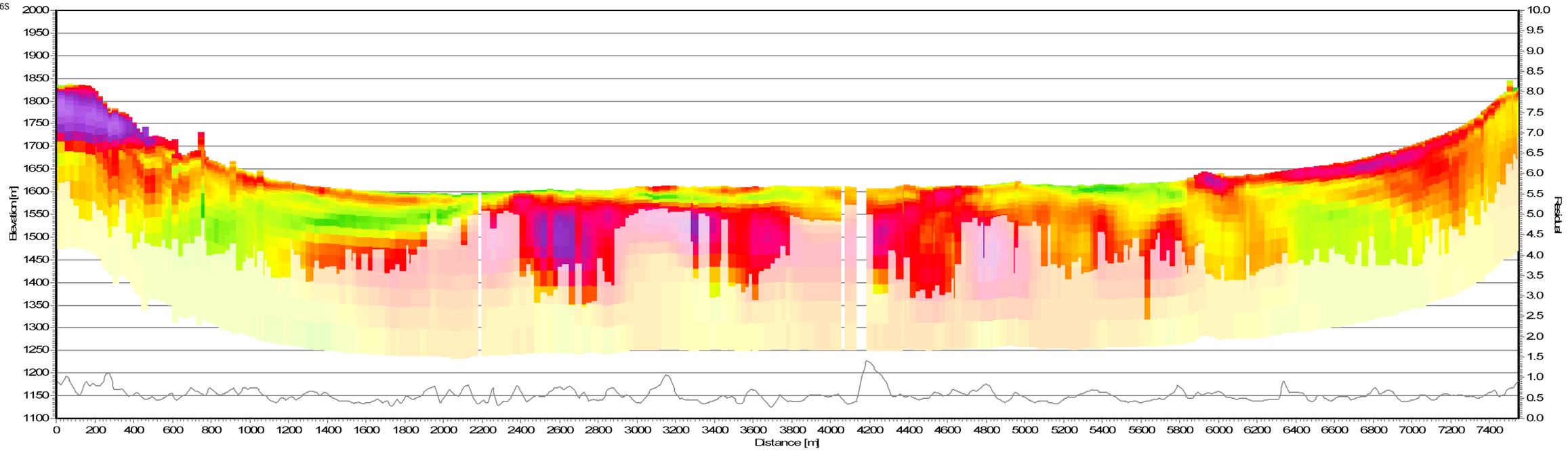
Aarhus Geophysics

**Client: USGS**

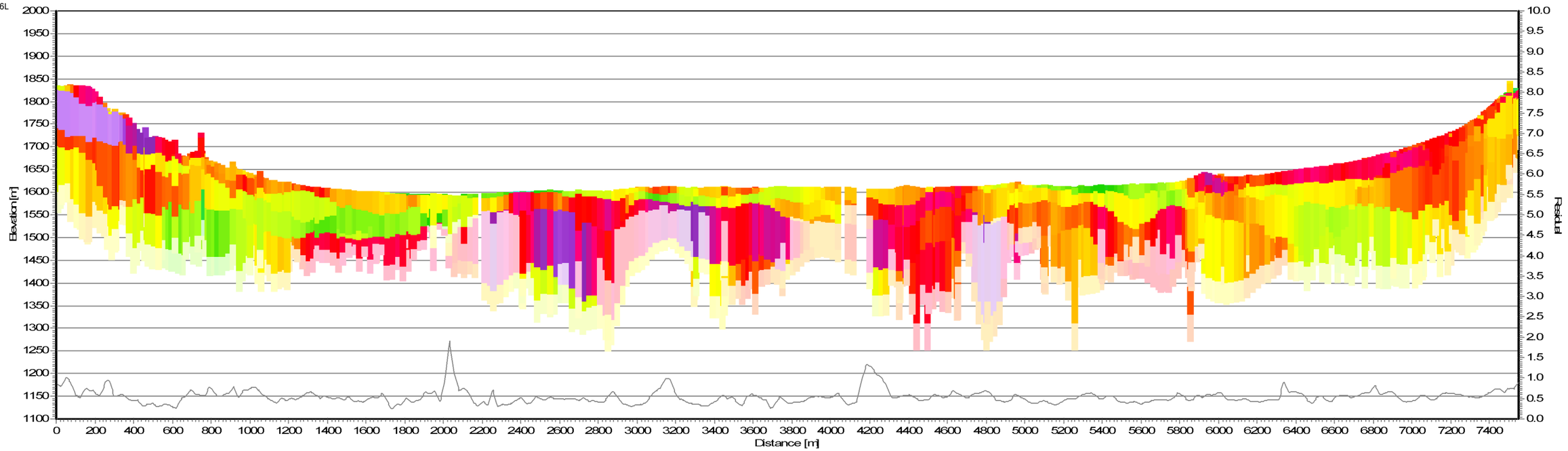
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SW-NE_06S




SW-NE_06L



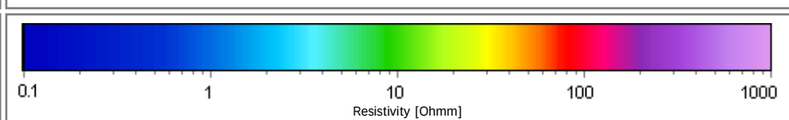

**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

**Cross Sections with 1D modelbars**

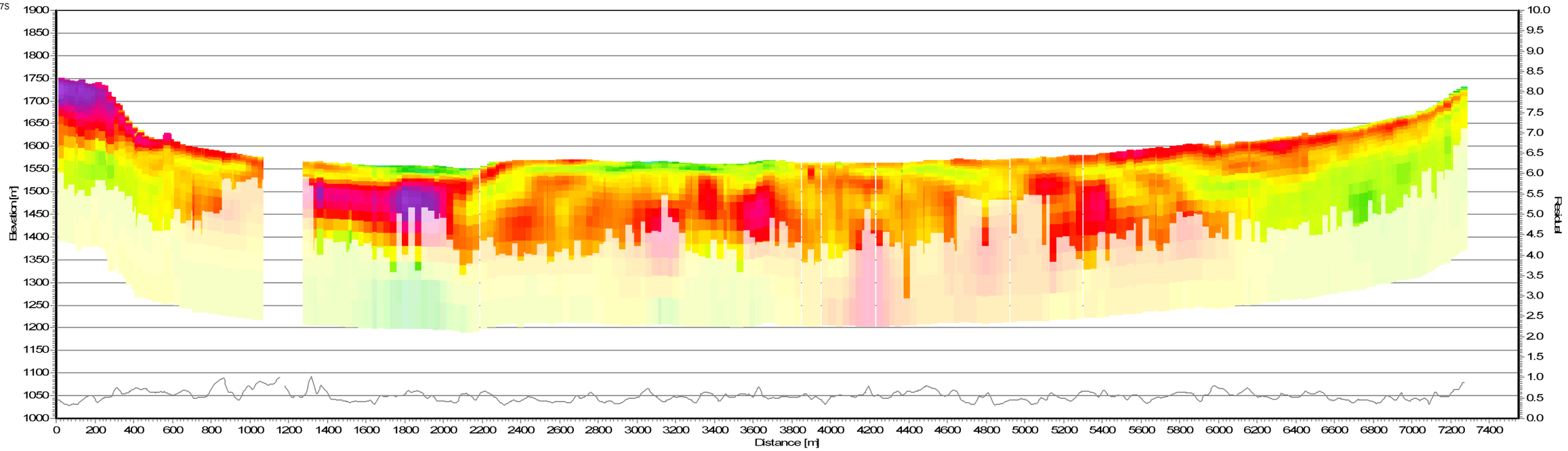
Aarhus Geophysics

**Client: USGS**

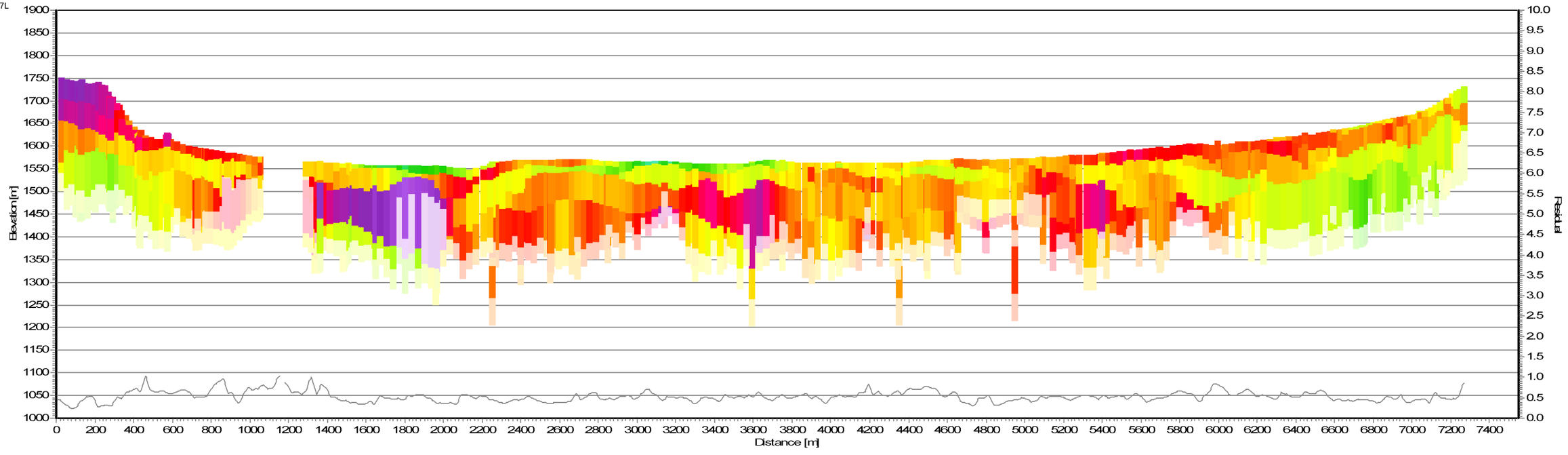
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SW-NE_07S




SW-NE_07L



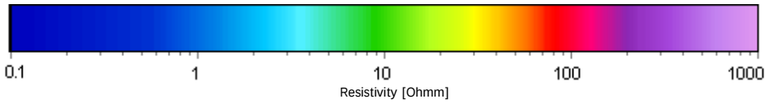

**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

**Cross Sections with 1D modelbars**

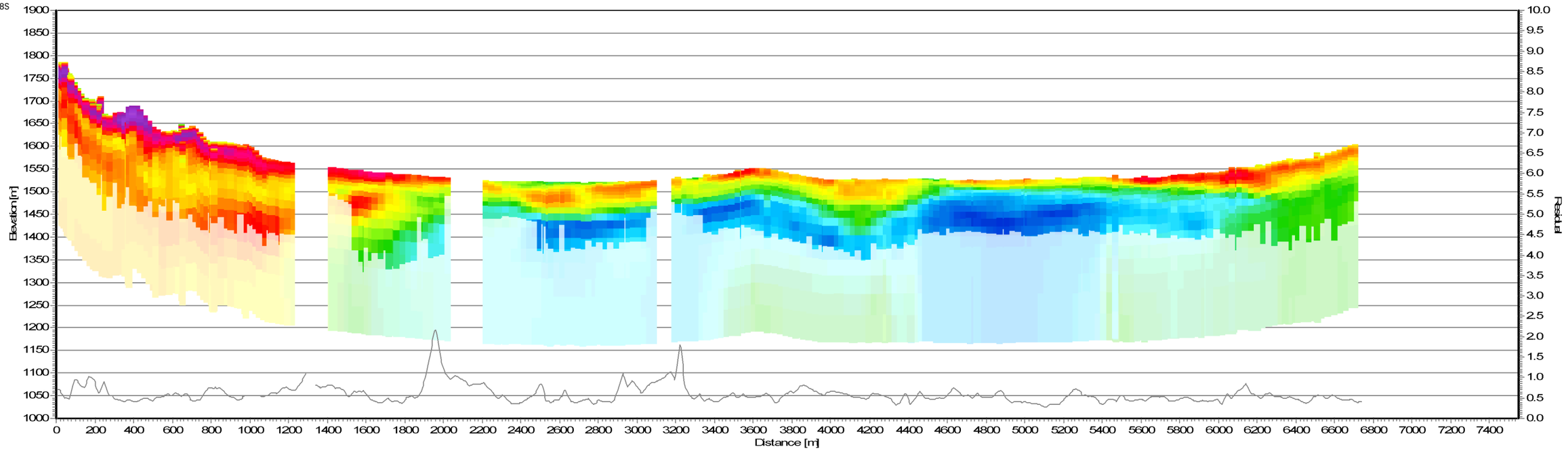
Aarhus Geophysics

**Client: USGS**

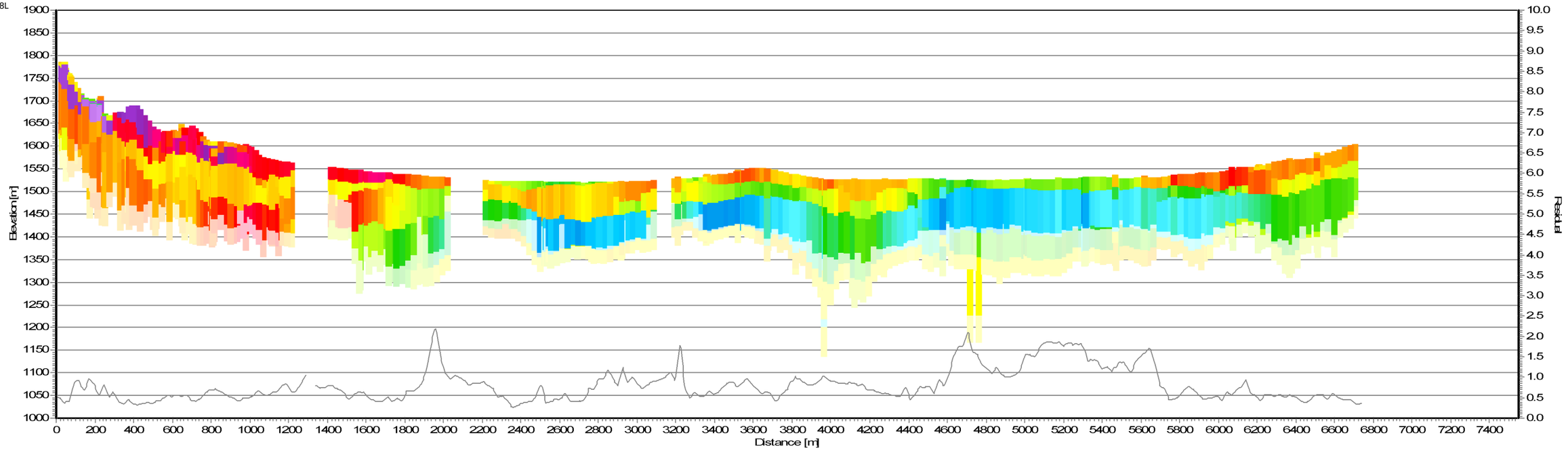
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SW-NE_08S




SW-NE_08L



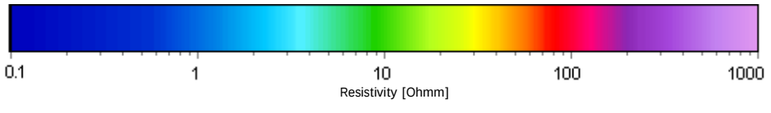

**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

**Cross Sections with 1D modelbars**

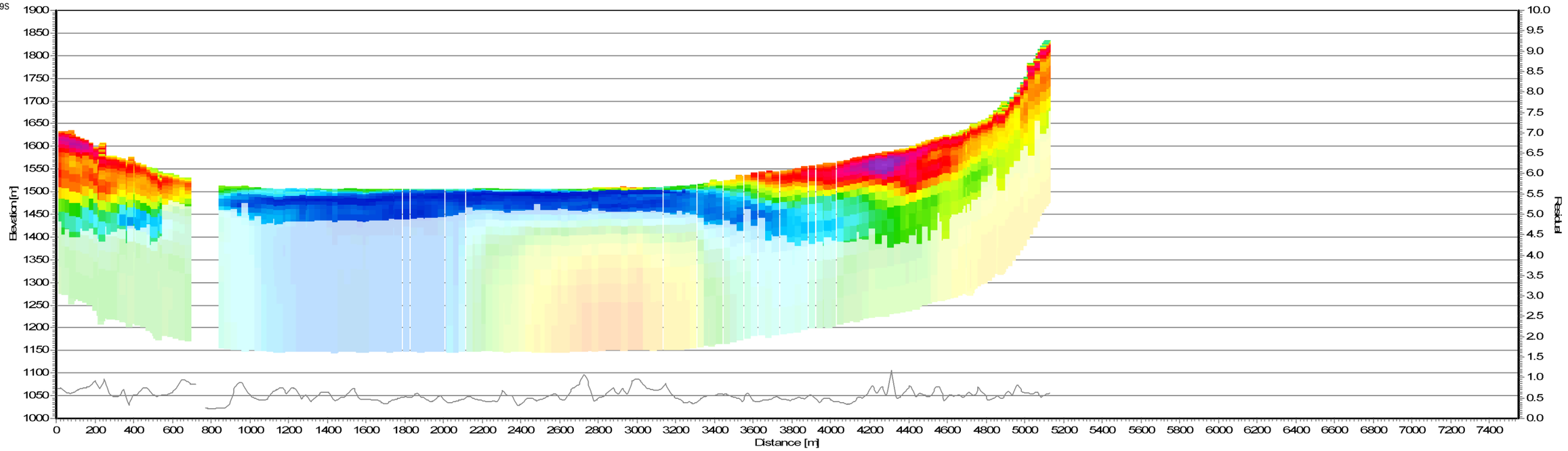
Aarhus Geophysics

**Client: USGS**

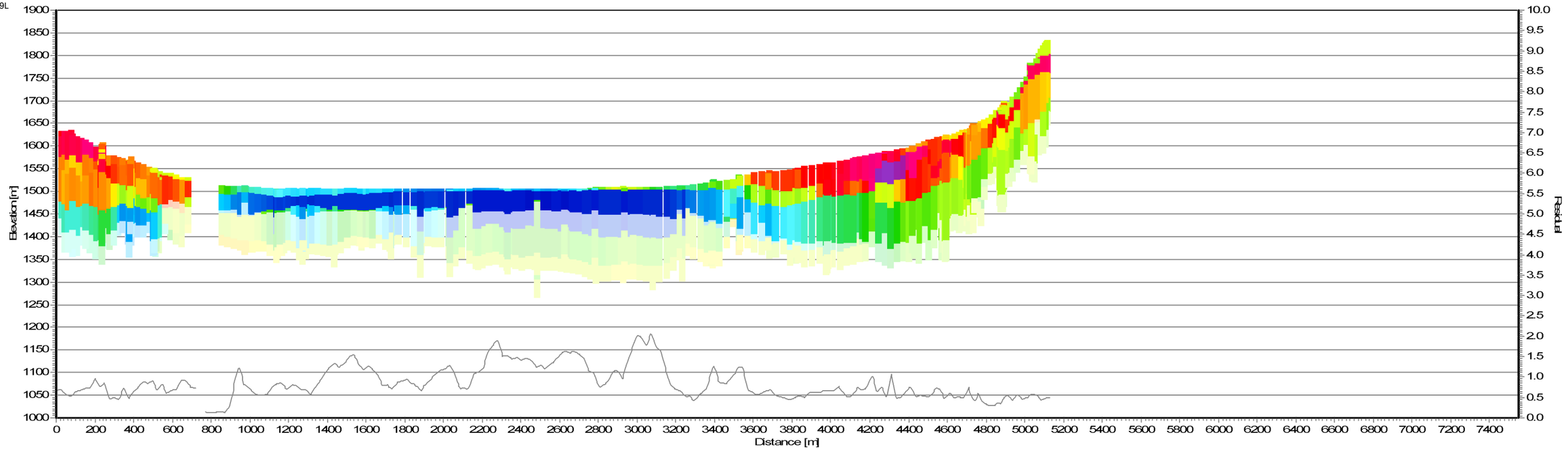
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SW-NE_09S




SW-NE_09L



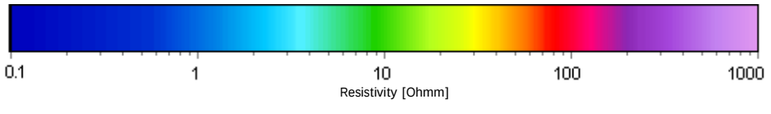

**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

**Cross Sections with 1D modelbars**

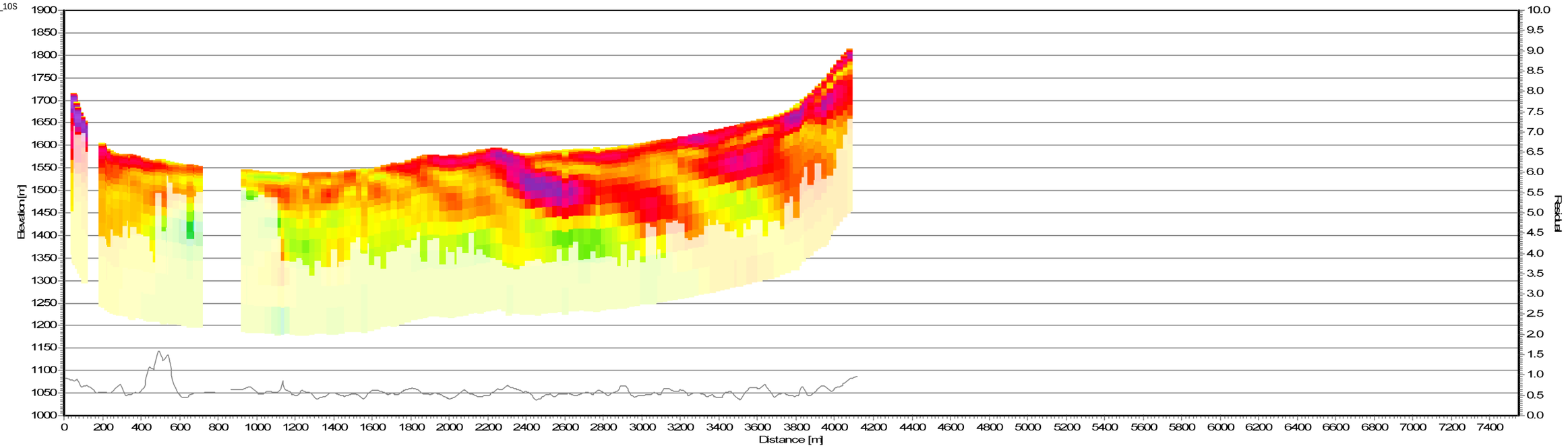
Aarhus Geophysics

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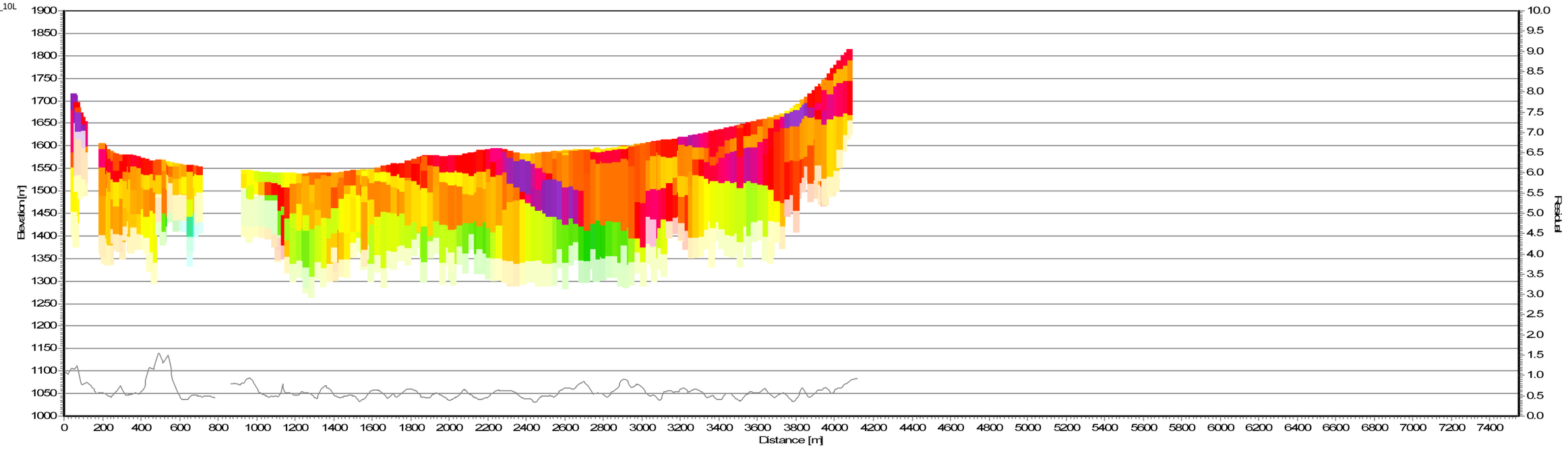
The upper cross sections show 1D modelbars from the Spatially Constrained Inversion based on a smooth model with 19 layers.
The lower cross section show the similar result based on a layered model with 4 layers.
The colors are faded below the Depth of Investigation (DOI lower).
The grey lines show the data residual normalized against noise.



SW-NE_10S




SW-NE_10L



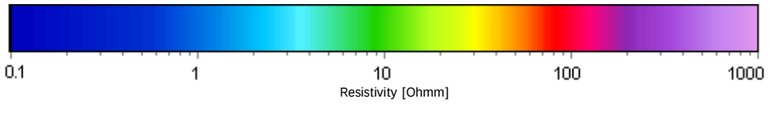

**SkyTEM Survey Colorado, "Paradox". Report # 2011_17 A**

**Cross Sections with 1D modelbars**

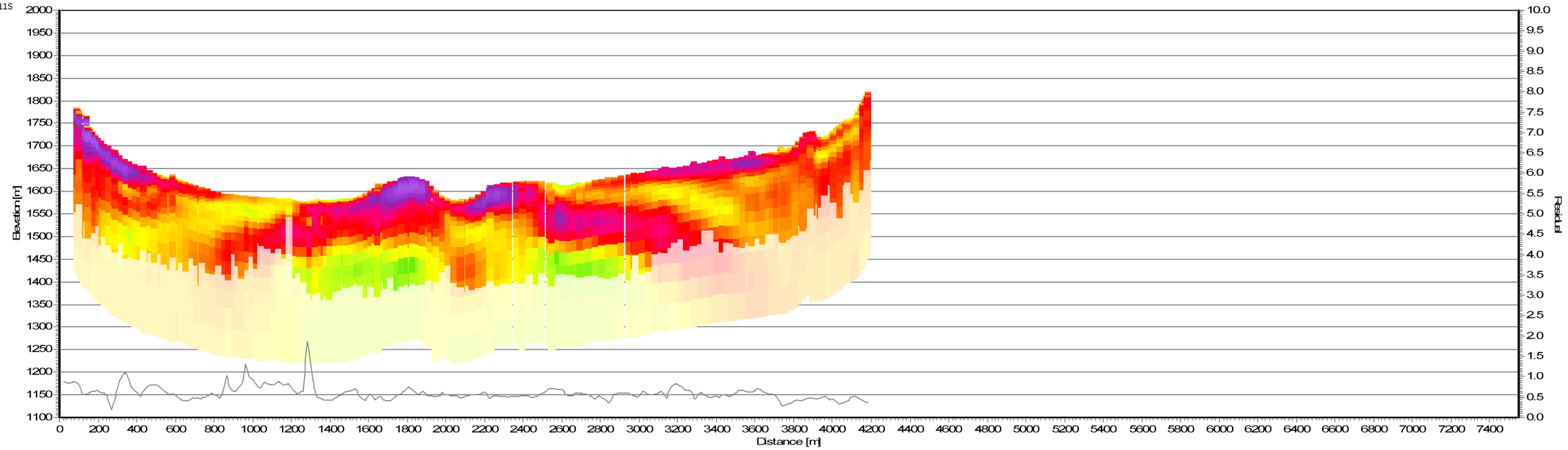
Aarhus Geophysics

**Client: USGS**

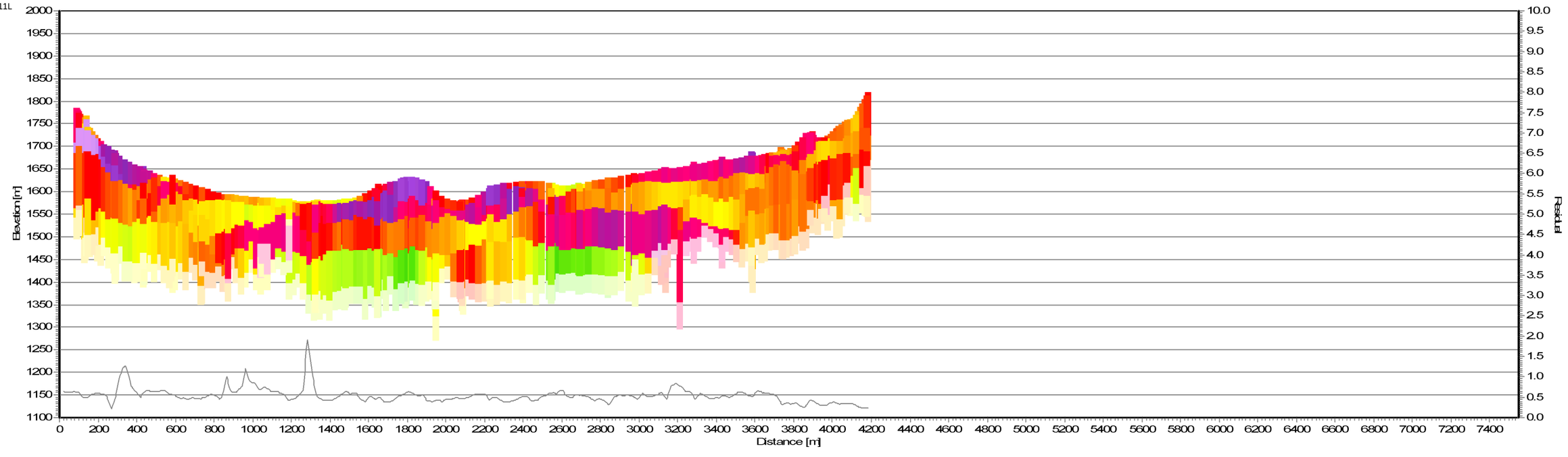
The upper cross sections show 1D modelbars from the Spatially Constrained Inversion based on a smooth model with 19 layers.
The lower cross section show the similar result based on a layered model with 4 layers.
The colors are faded below the Depth of Investigation (DOI lower).
The grey lines show the data residual normalized against noise.



SW-NE_11S




SW-NE_11L



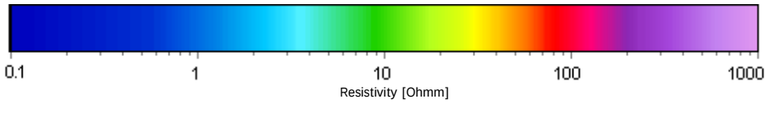

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**Cross Sections with 1D modelbars**

Aarhus Geophysics

**Client: USGS**

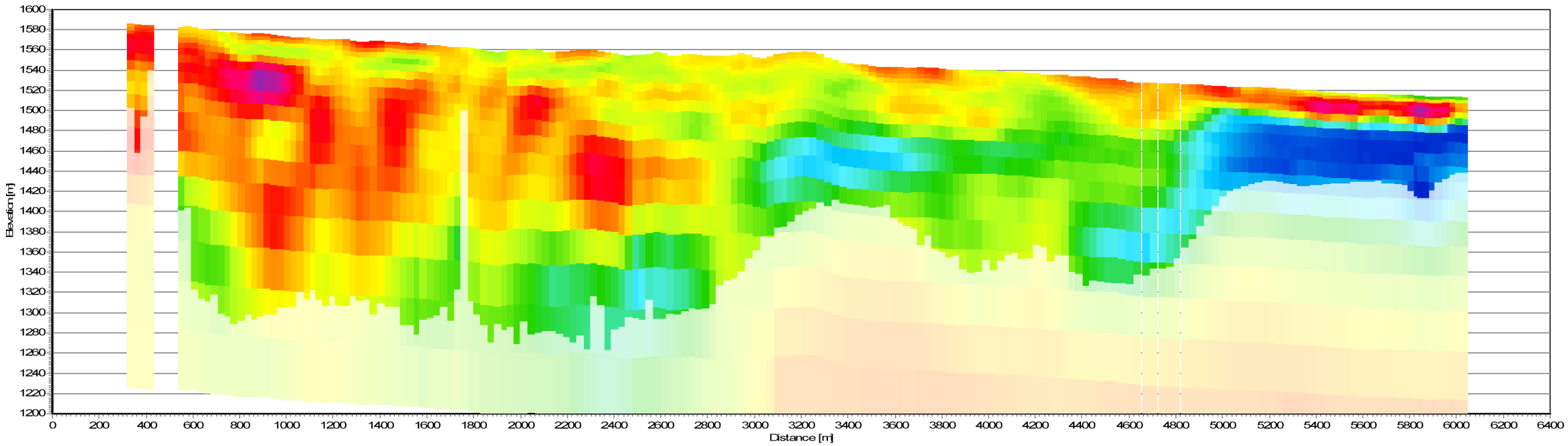
The upper cross sections show 1D modelbars from the Spatially Constrained Inversion based on a smooth model with 19 layers.
The lower cross section show the similar result based on a layered model with 4 layers.
The colors are faded below the Depth of Investigation (DOI lower).
The grey lines show the data residual normalized against noise.



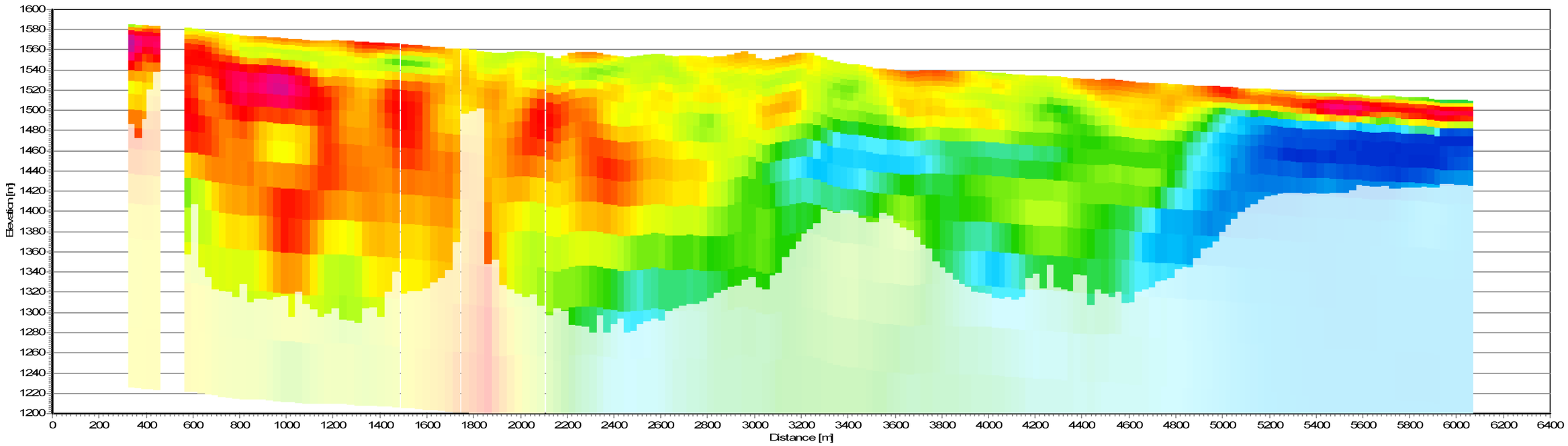
## Appendix 3

The next pages contain the vertical resistivity profiles, for the repeat test line, flown at different heights.

Pass 1




Pass 2



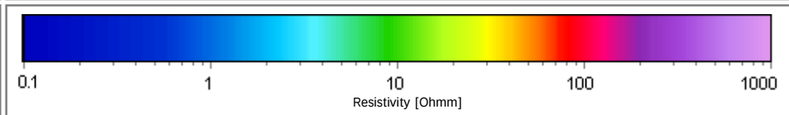

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**Cross Sections with 1D modelbars**

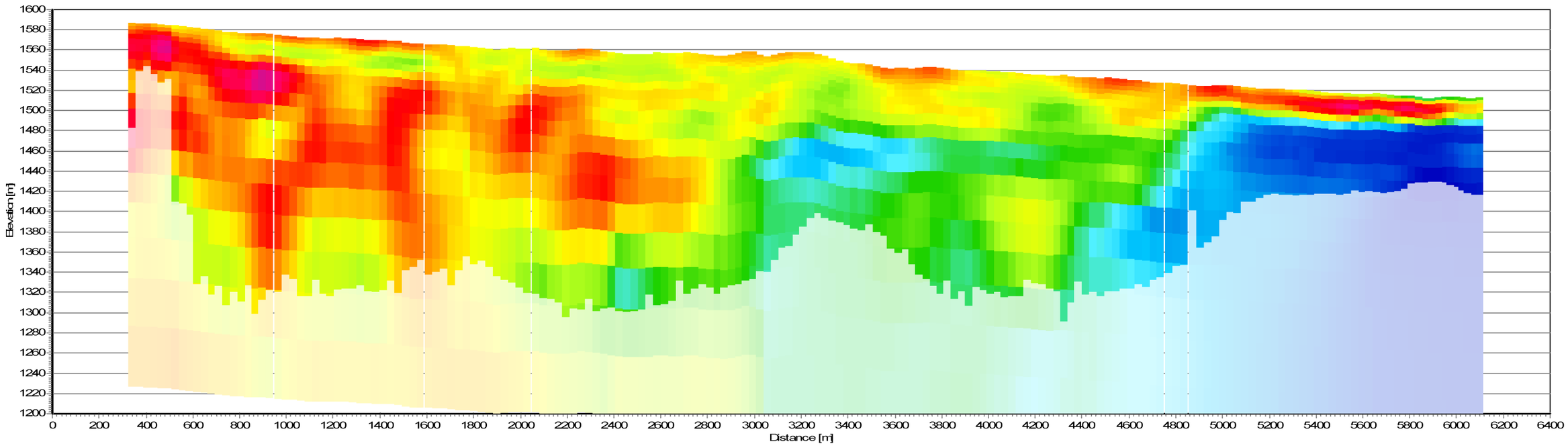
Aarhus Geophysics

**Client: USGS**

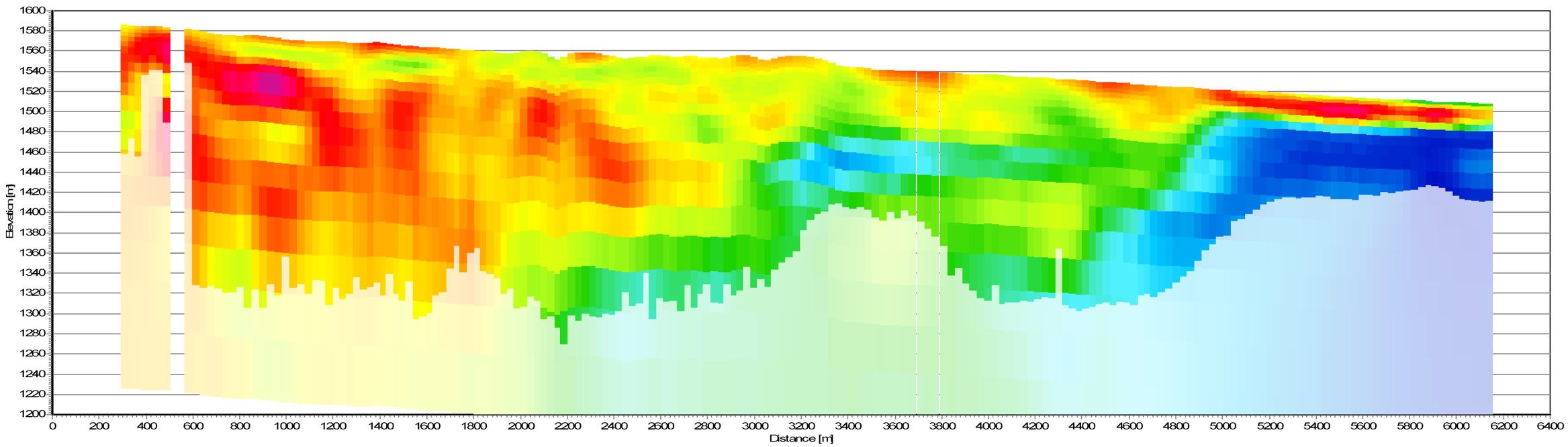
Inversion results from the test line flown at different fligth altitudes.
The colors are faded below the Depth of Investigation (DOI lower).



Pass 3




Pass 4



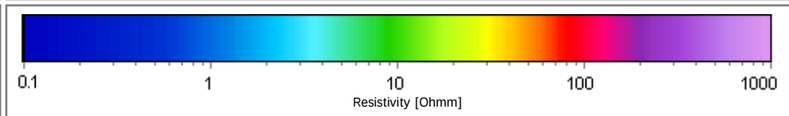

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**Cross Sections with 1D modelbars**

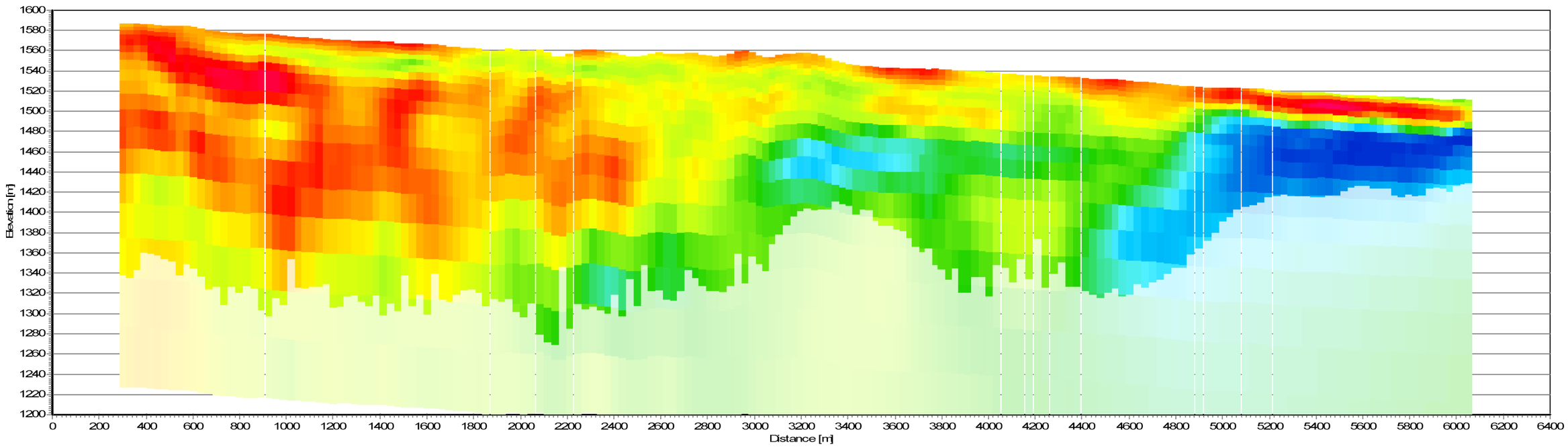
Aarhus Geophysics

**Client: USGS**

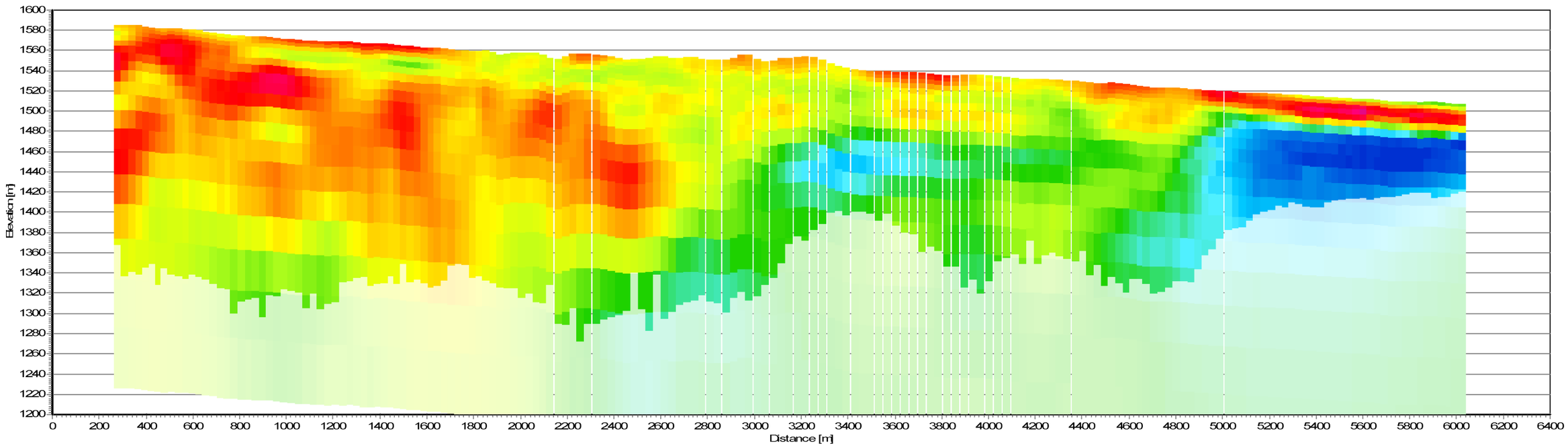
Inversion results from the test line flown at different fligth altitudes.
The colors are faded below the Depth of Investigation (DOI lower).



Pass 5




Pass 6



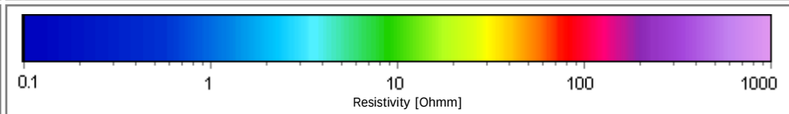

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**Cross Sections with 1D modelbars**

Aarhus Geophysics

**Client: USGS**

Inversion results from the test line flown at different flight altitudes.
The colors are faded below the Depth of Investigation (DOI lower).



## Appendix 4

CD/DVD containing thematic maps, report, inversion results in ASCII format, processing and inversion settings. In alternative, the data is provided via secure ftp connection. Please contact av@aarhusgeo.com for details about the connection.