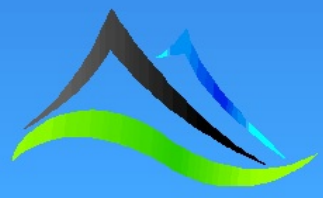
Sources of Noise

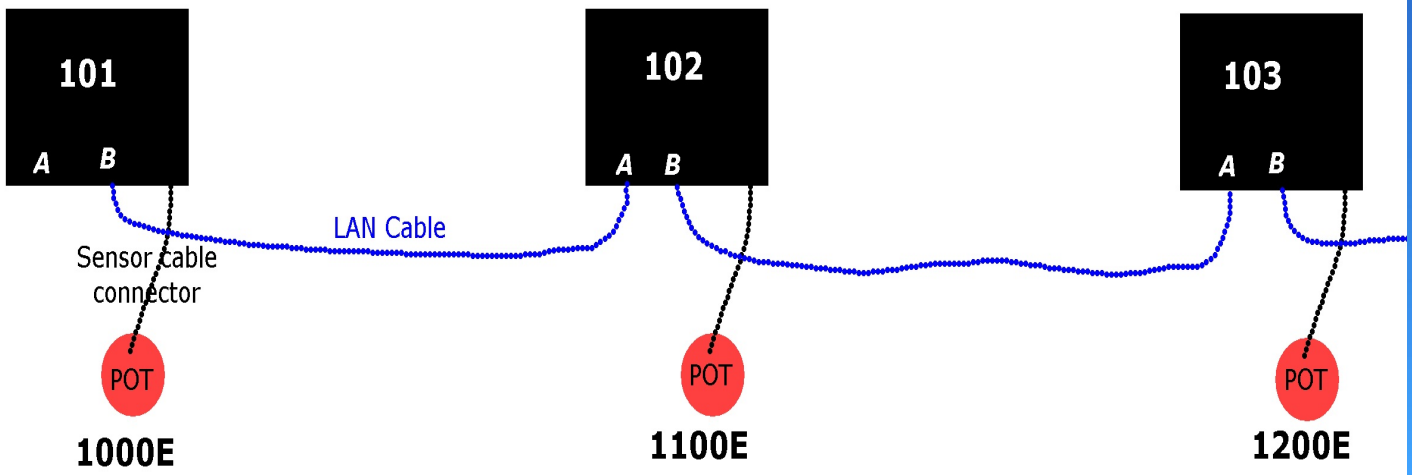
Peter Rowston (GRS) & Kim Frankcombe (ExploreGeo)

IP Workshop
ASEG Adelaide Conference 2016



In any electrical survey connections and connectors are the weakest link. MIMDAS DAU's/Receivers use a single LAN to pass communications/data and signal. There are two connections per dipole per DAU (three total per DAU) – a sensor connector (different types route the signal in different ways) and two LAN connections. Most of the strange decays isolated are due to bad connections. Note that they were either marked bad in the field or removed in Office QC. They have been left in as an exercise in QC. Note also that the telluric correction was not appled to the QC dataset.

85 Channels live at Copper Hill
If a Sensor Connector / Pot Conection is bad 2 Dipoles are affected. If a single dipole is bad, then it is generally the LAN connection, (but it can be the Sensor Connector not seated correctly). Usual procedure is to reseat both.



DAU 101 is reading 1000E-1100E
DAU 102 is reading 1100E-1200E
DAU 103 is reading 1200E-1300E

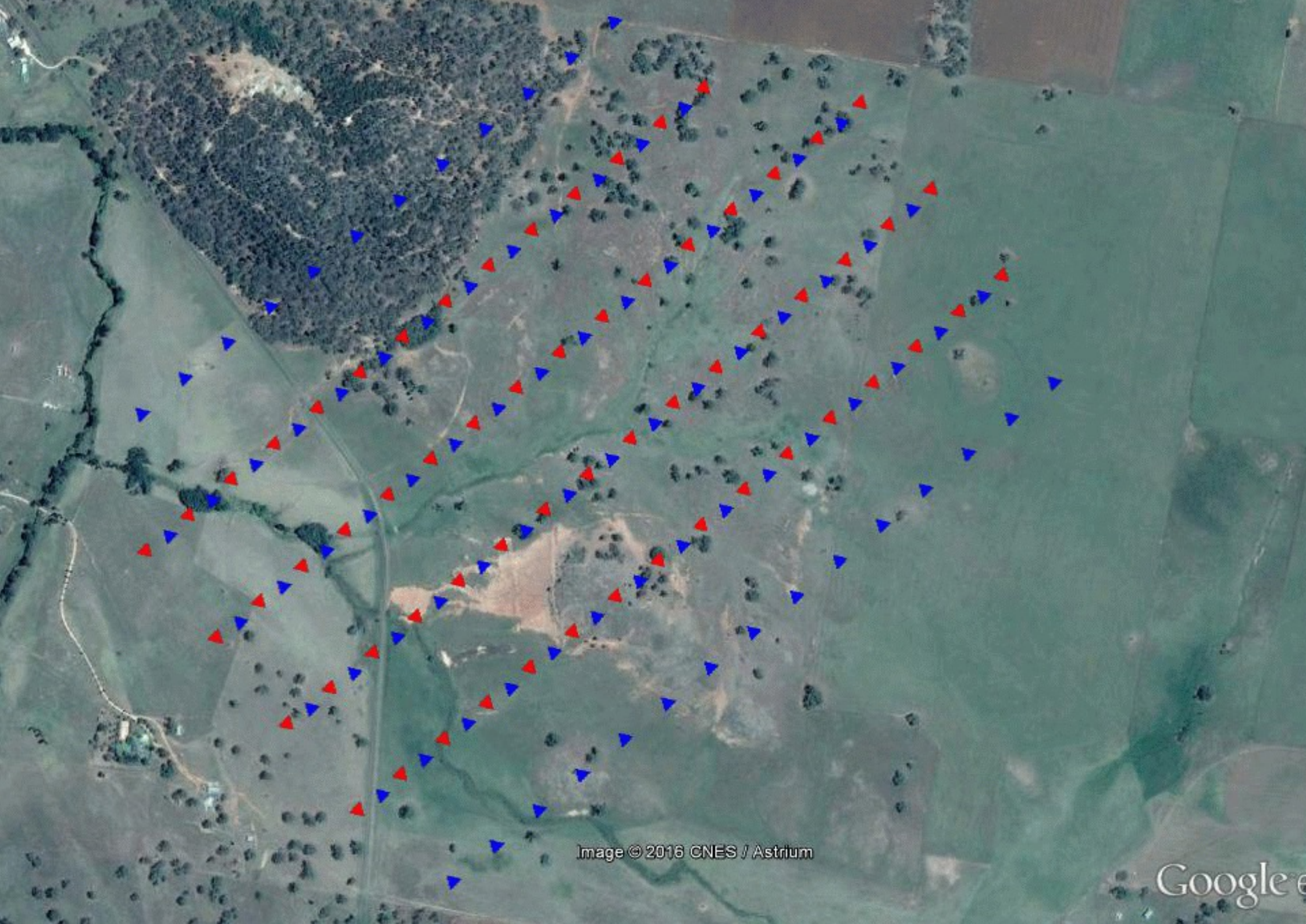
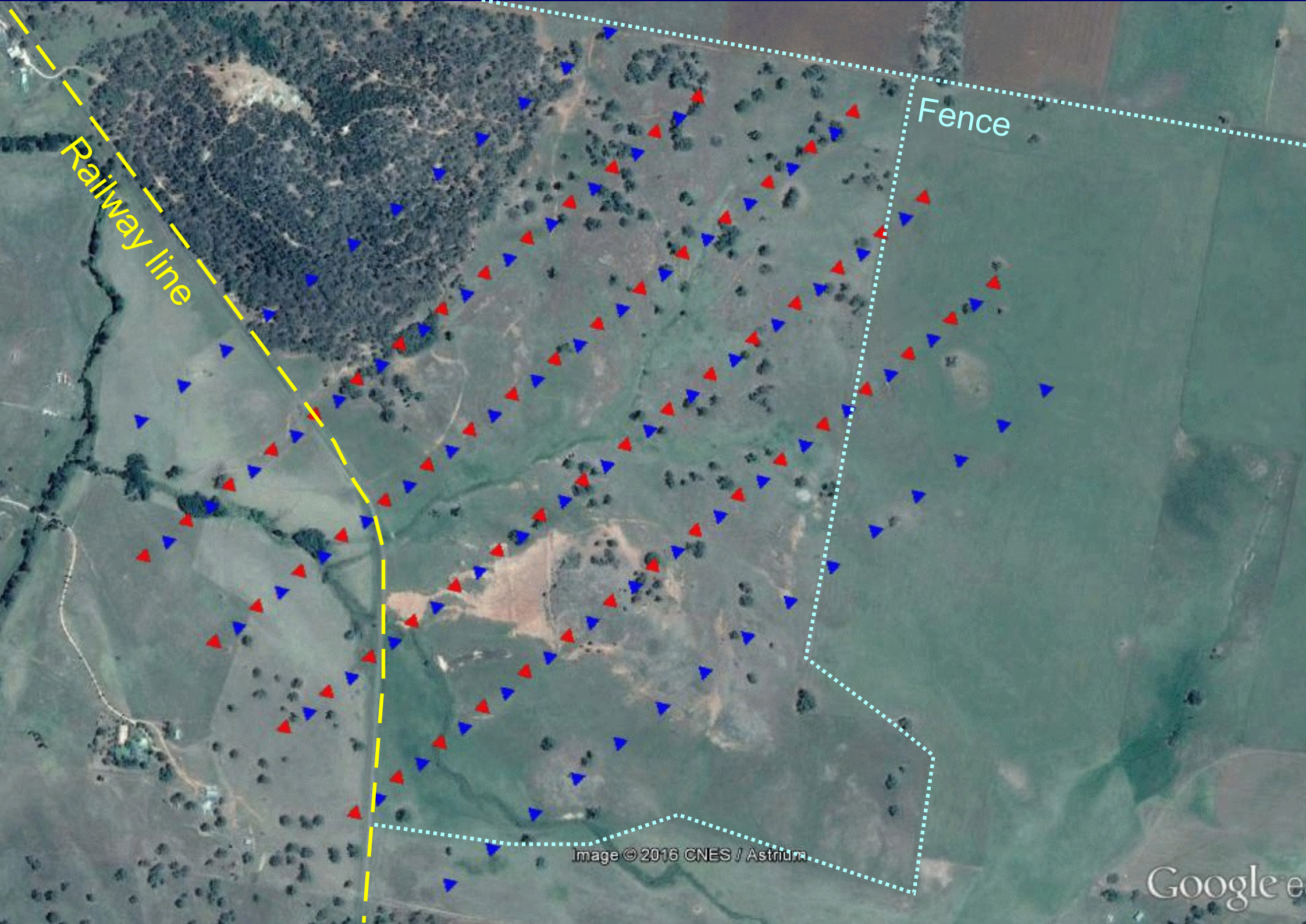
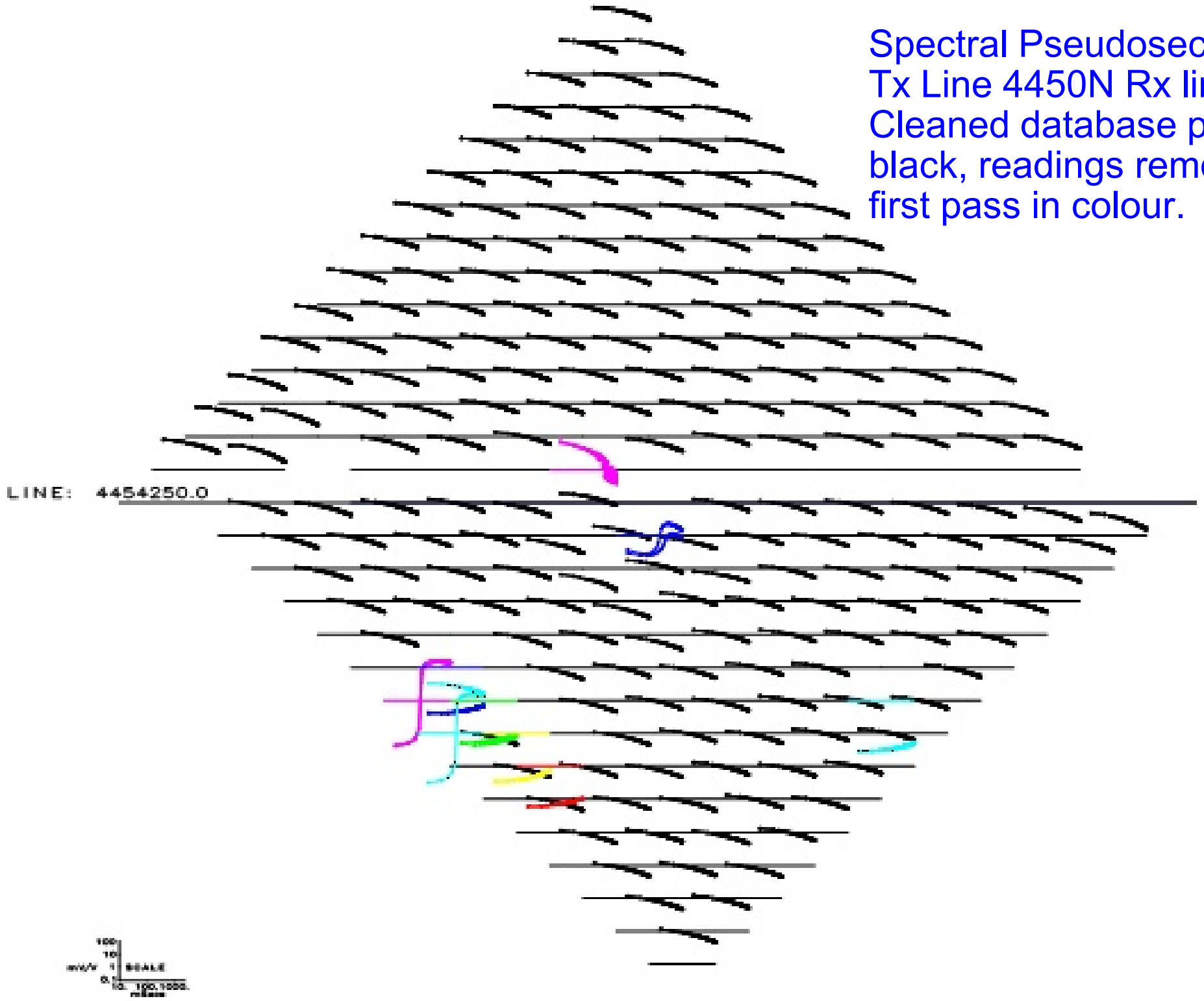
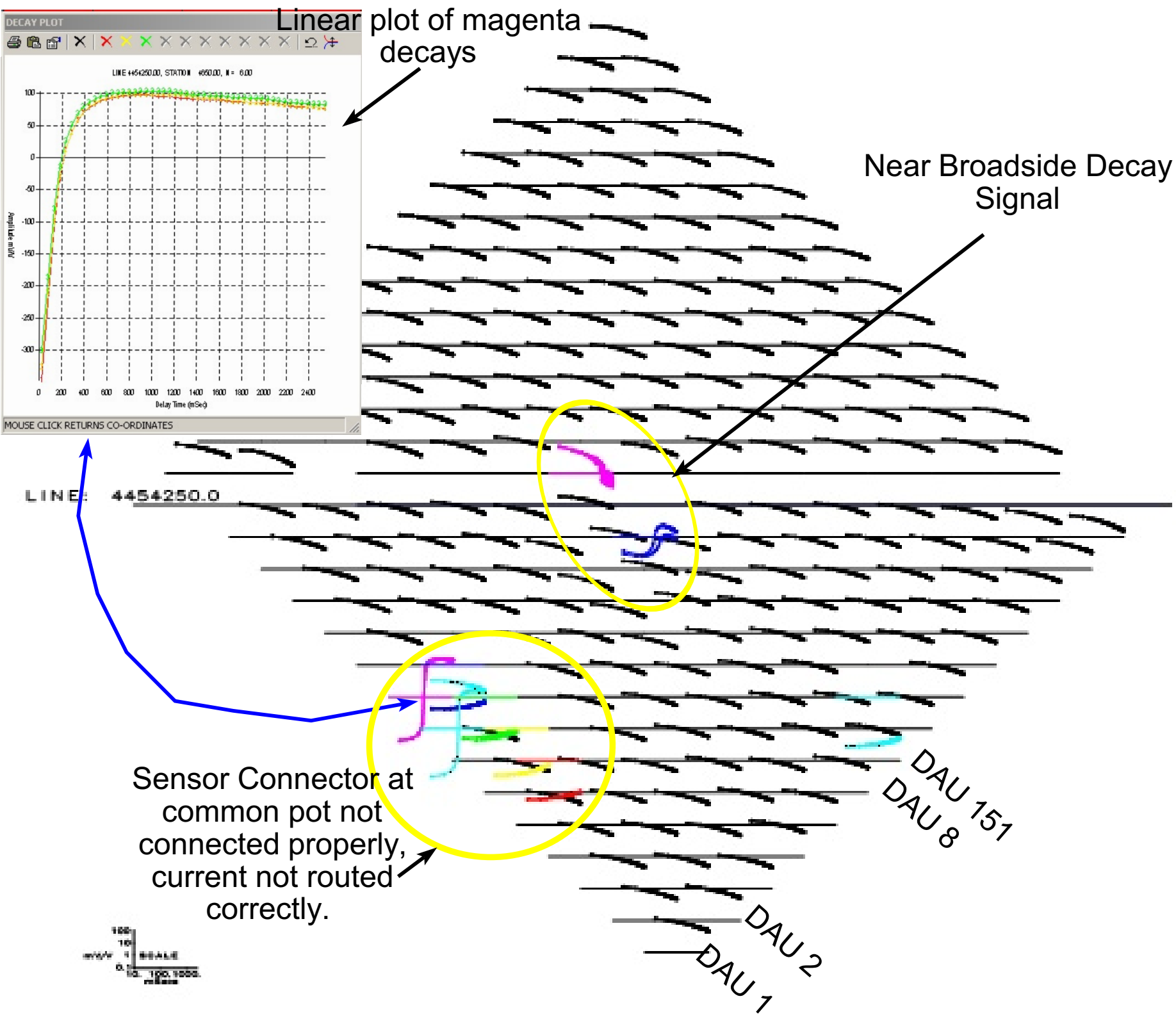


Image © 2016 CNES / Astrium
Google

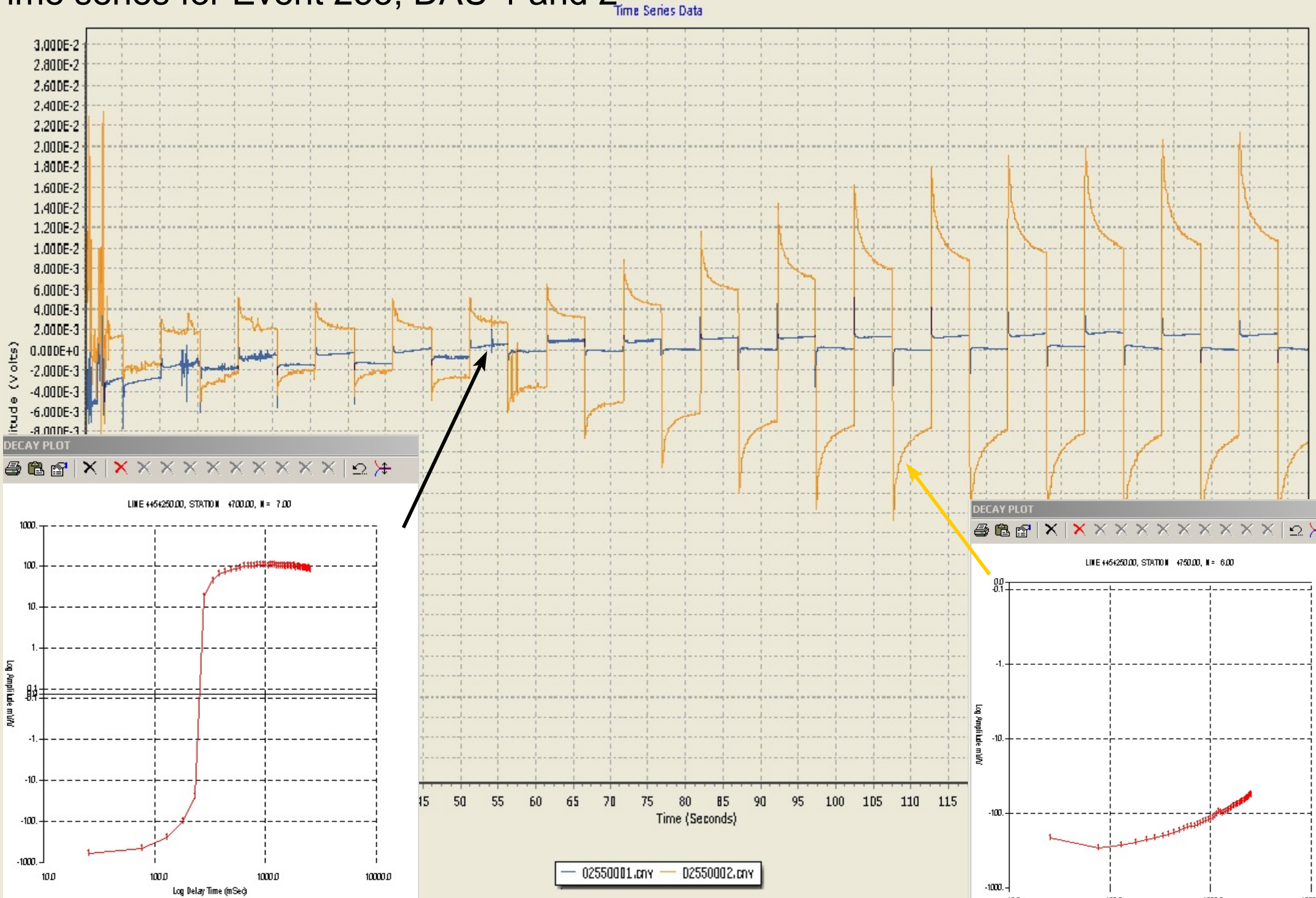

Railway line
Fence
Image © 2016 CNES / Astrium
Google e

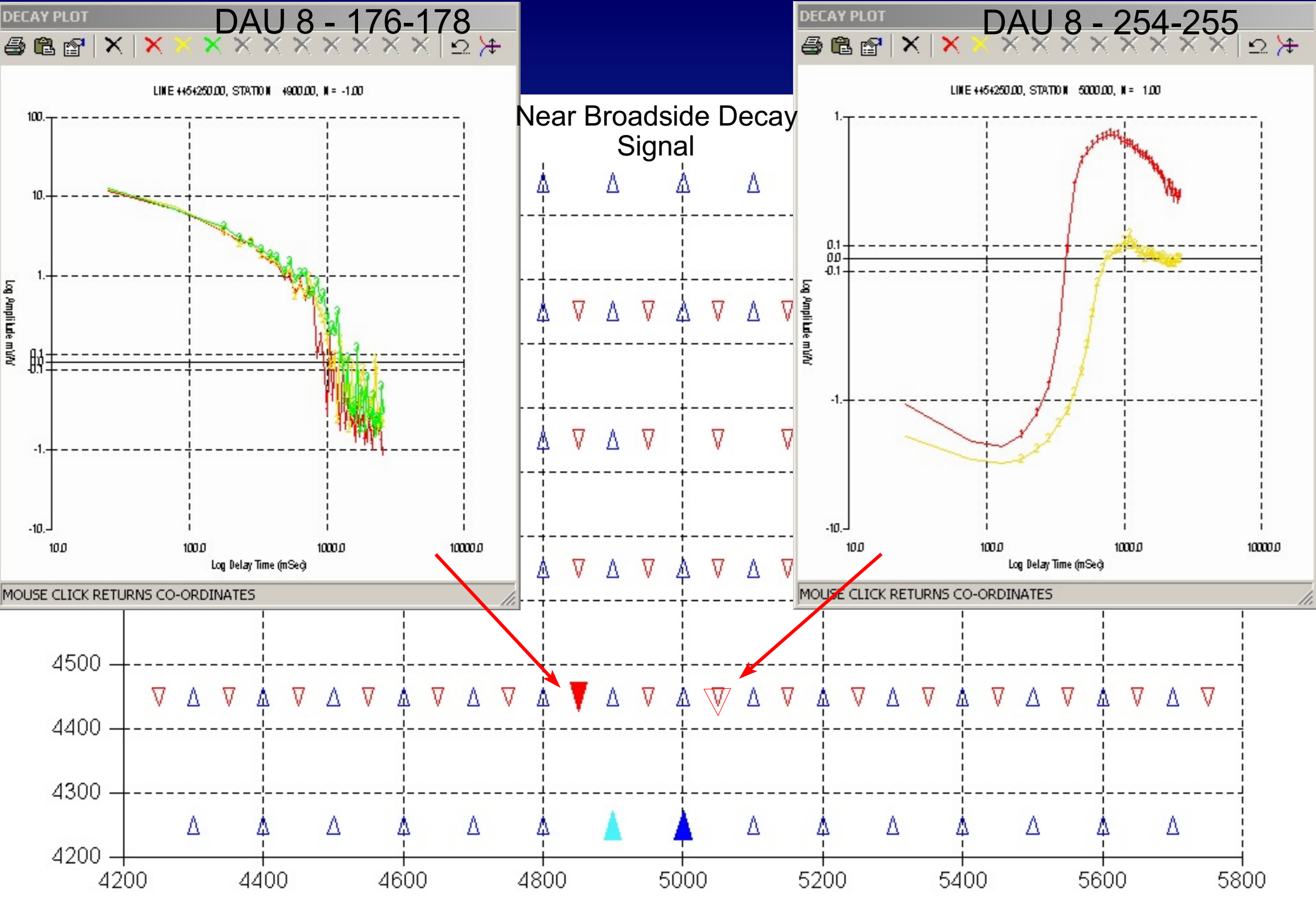
Spectral Pseudosection for Tx Line 4450N Rx line 4250N Cleaned database plotted in black, readings removed in first pass in colour.

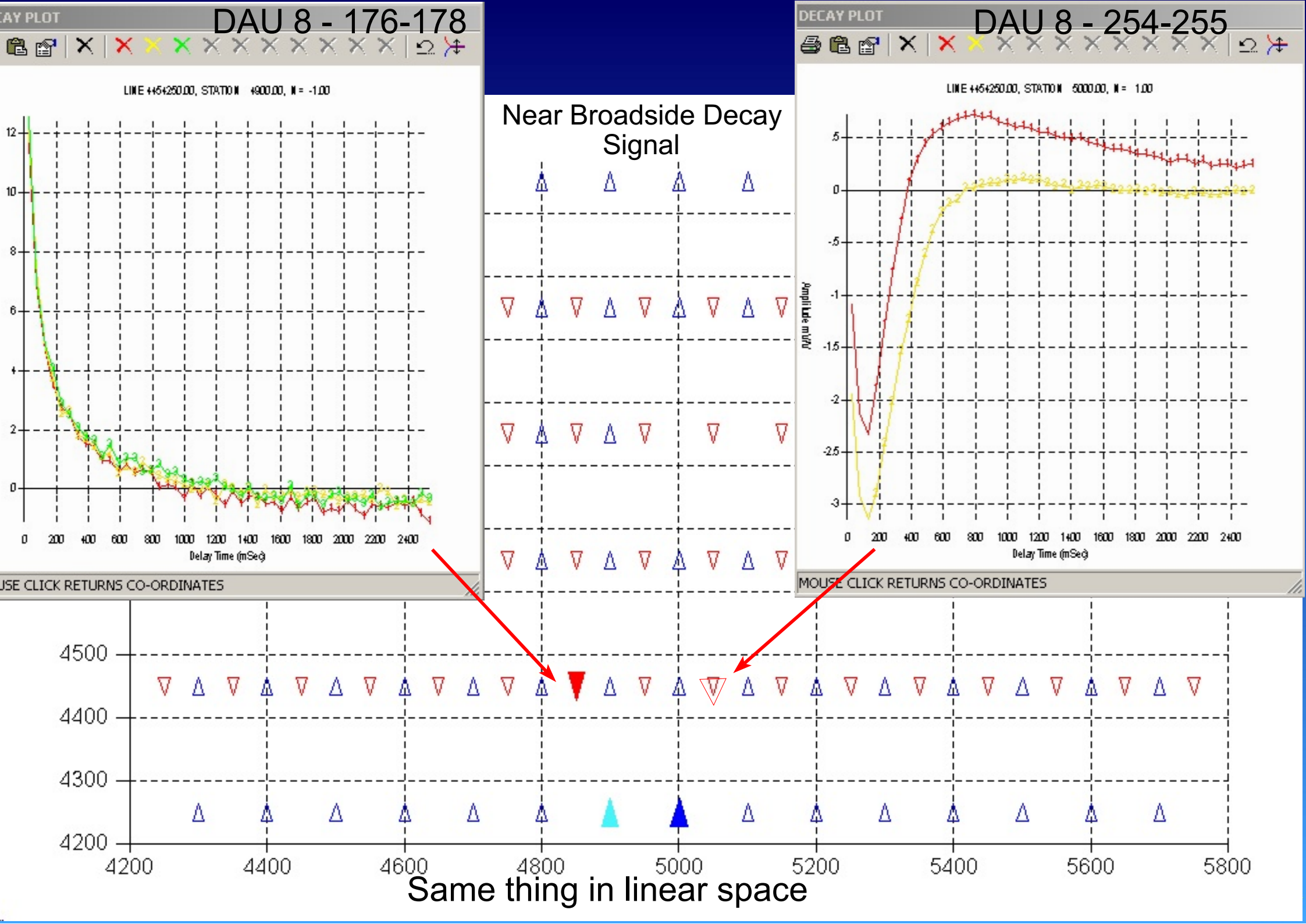


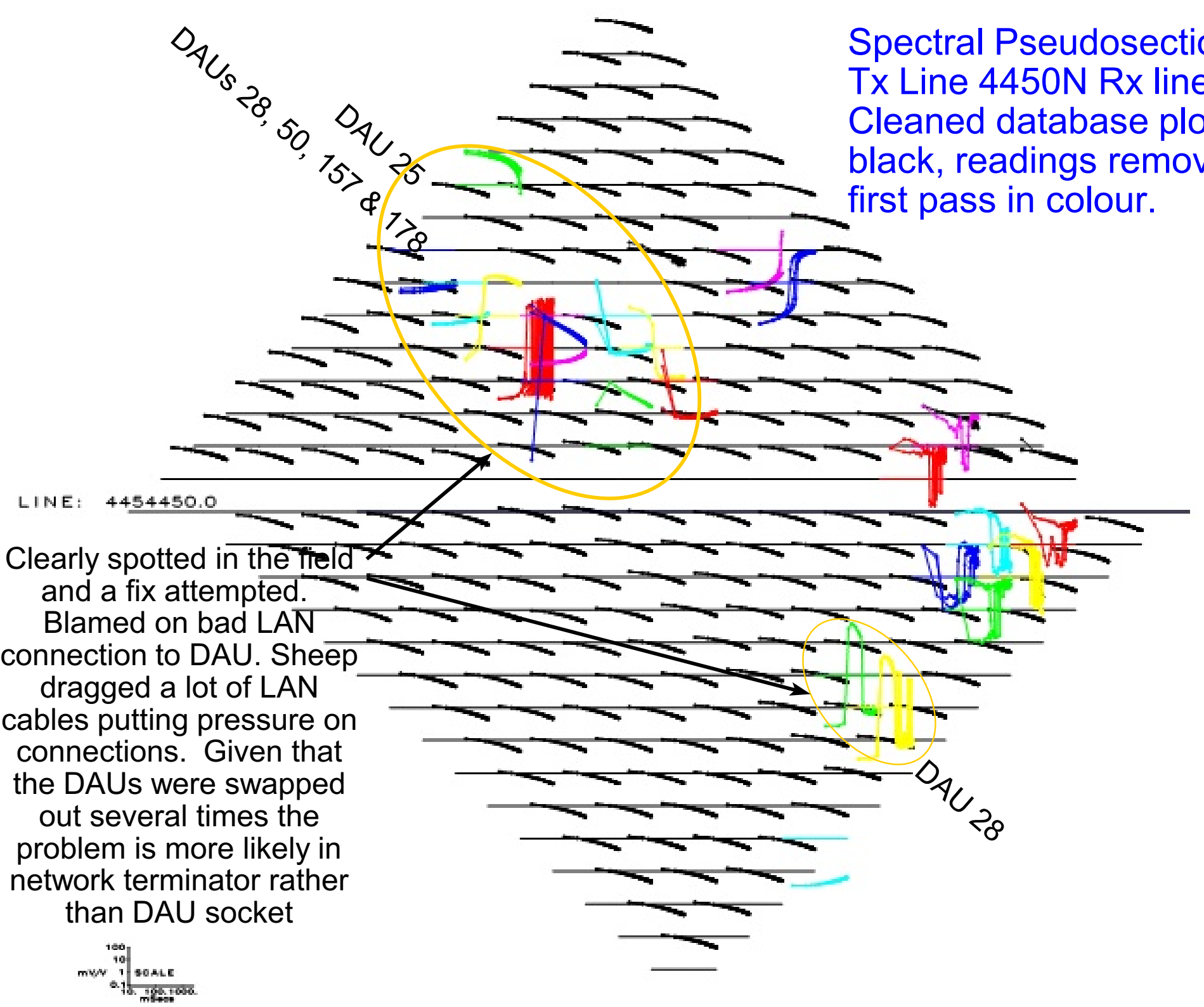

DECAY PLOT
LINE 4454250.00, STATION 4650.00, N = 6.00
Amplitude in nV
Delay Time (mSec)
MOUSE CLICK RETURNS CO-ORDINATES
Linear plot of magenta decays
Near Broadside Decay Signal
LINE 4454250.0
Sensor Connector at common pot not connected properly, current not routed correctly.
DAU 151
DAU 8
DAU 2
DAU 1

Time series for Event 255, DAU 1 and 2




DAU 8 - 176-178
DECAY PLOT
LINE +454250.00, STATION 4900.00, N = -1.00
Log Amplitude mV/V
Log Delay Time (mSec)
MOUSE CLICK RETURNS CO-ORDINATES
Near Broadside Decay Signal
DAU 8 - 254-255
DECAY PLOT
LINE +454250.00, STATION 5000.00, N = 1.00
Log Amplitude mV/V
Log Delay Time (mSec)
MOUSE CLICK RETURNS CO-ORDINATES
4500
4400
4300
4200
4200
4400
4600
4800
5000
5200
5400
5600
5800

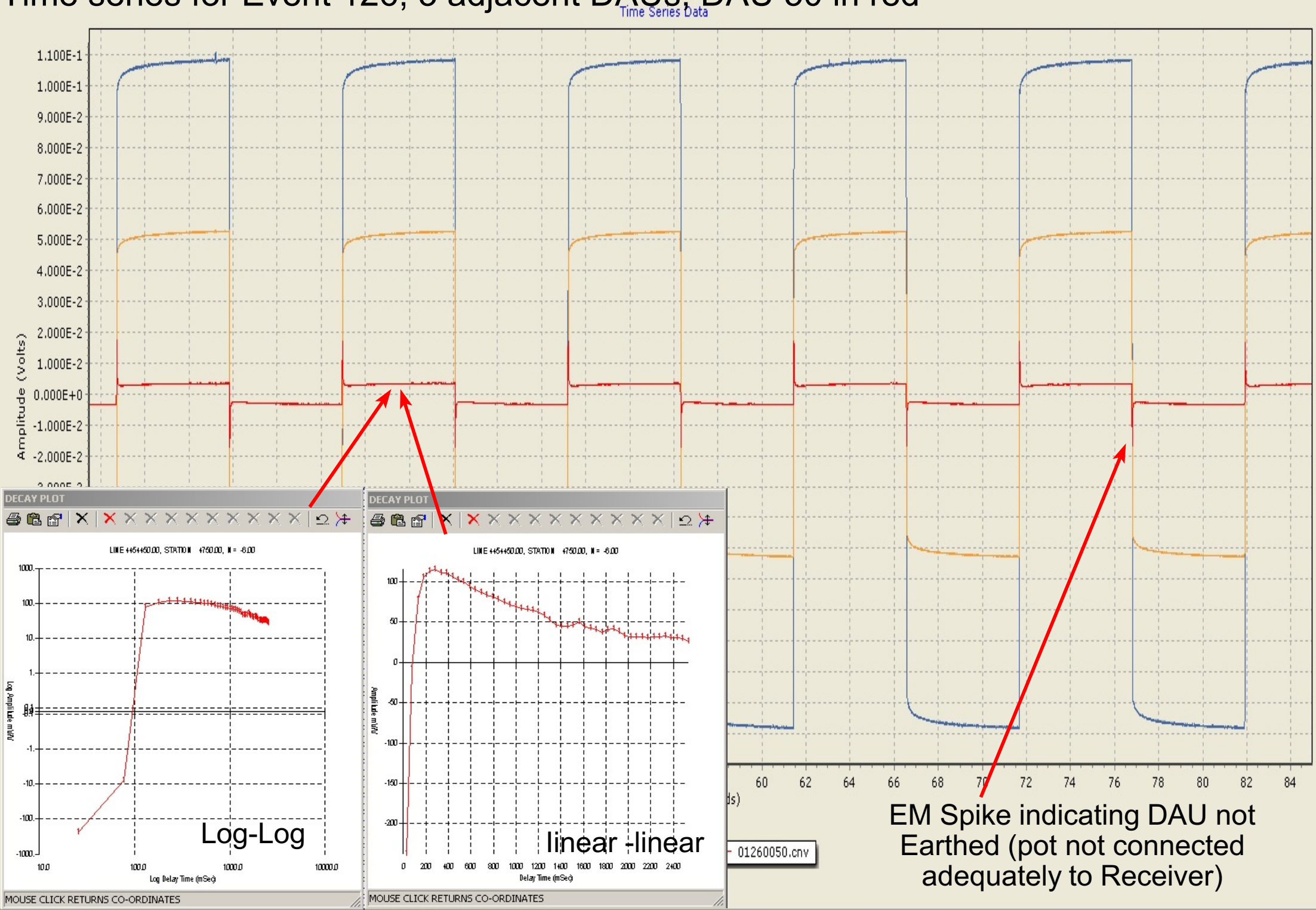

DAU 8 - 176-178
DECAY PLOT
LINE 4454250.00, STATION 4900.00, N = -1.00
Delay Time (mSec)
MOUSE CLICK RETURNS CO-ORDINATES
Near Broadside Decay Signal
DAU 8 - 254-255
DECAY PLOT
LINE 4454250.00, STATION 5000.00, N = 1.00
Amplitude mV/nV
Delay Time (mSec)
MOUSE CLICK RETURNS CO-ORDINATES
Same thing in linear space



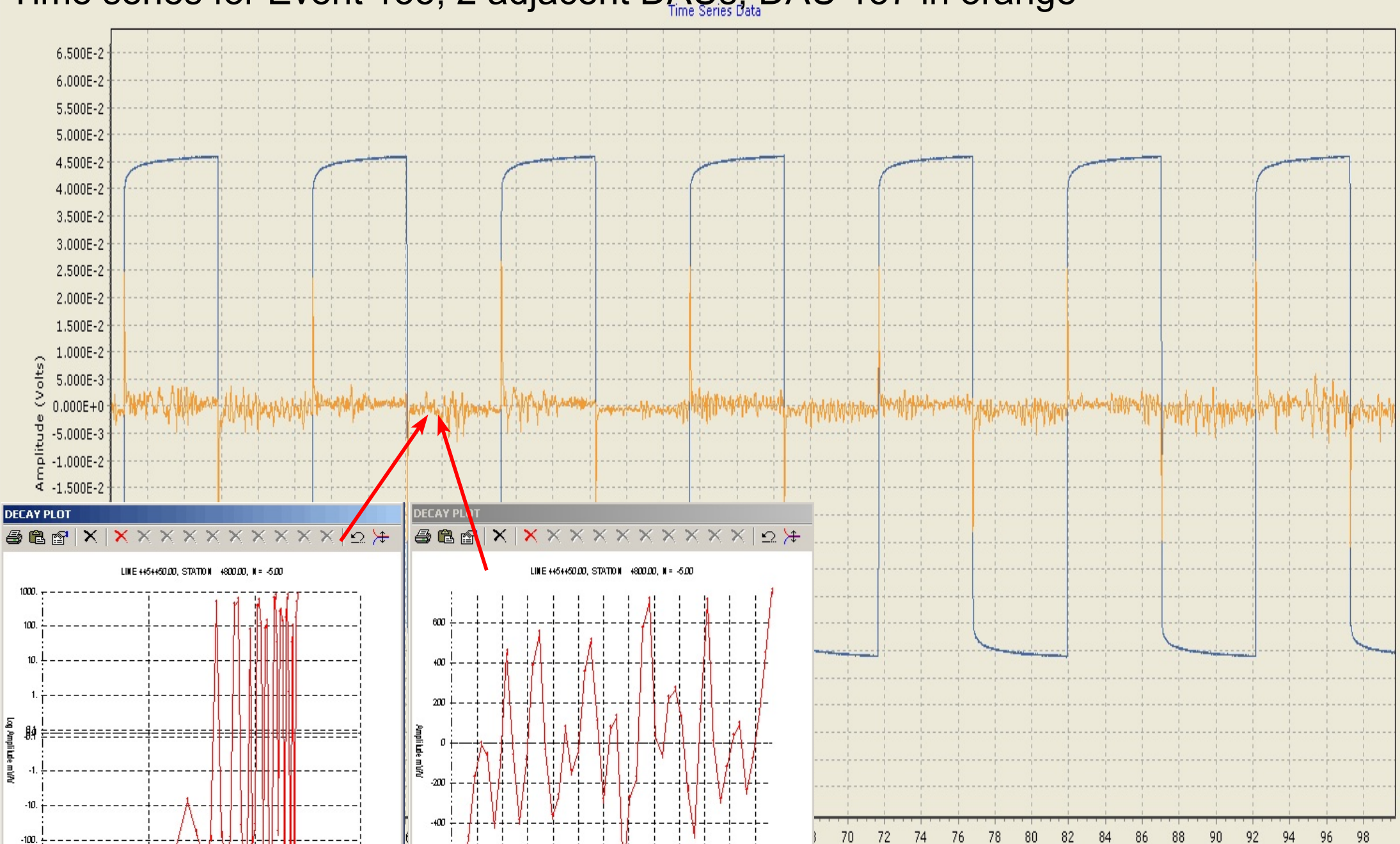
Spectral Pseudosection for Tx Line 4450N Rx line 4450N Cleaned database plotted in black, readings removed in first pass in colour.

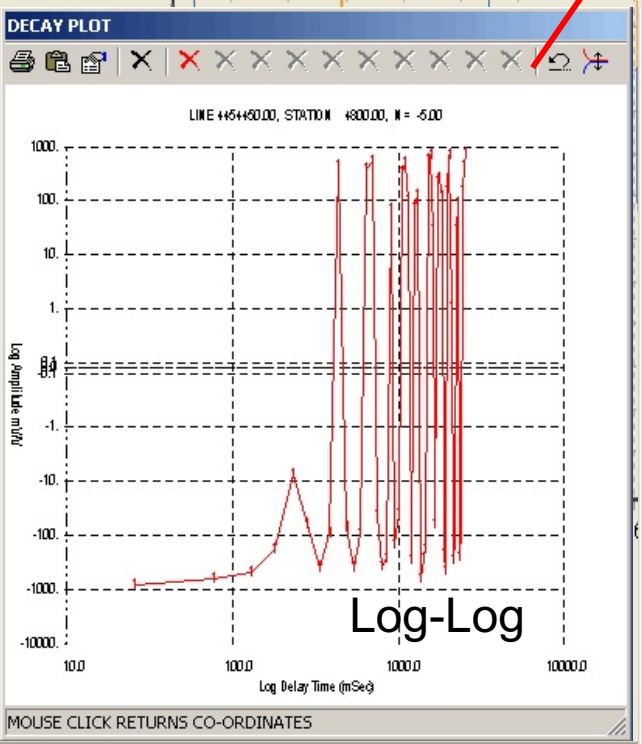
Clearly spotted in the field and a fix attempted. Blamed on bad LAN connection to DAU. Sheep dragged a lot of LAN cables putting pressure on connections. Given that the DAUs were swapped out several times the problem is more likely in network terminator rather than DAU socket

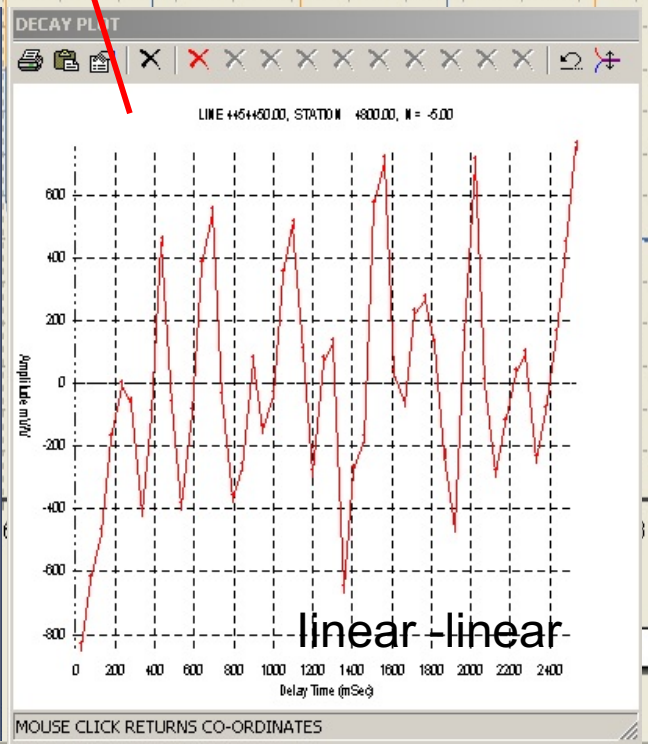
Time series for Event 126, 3 adjacent DAUs, DAU 50 in red



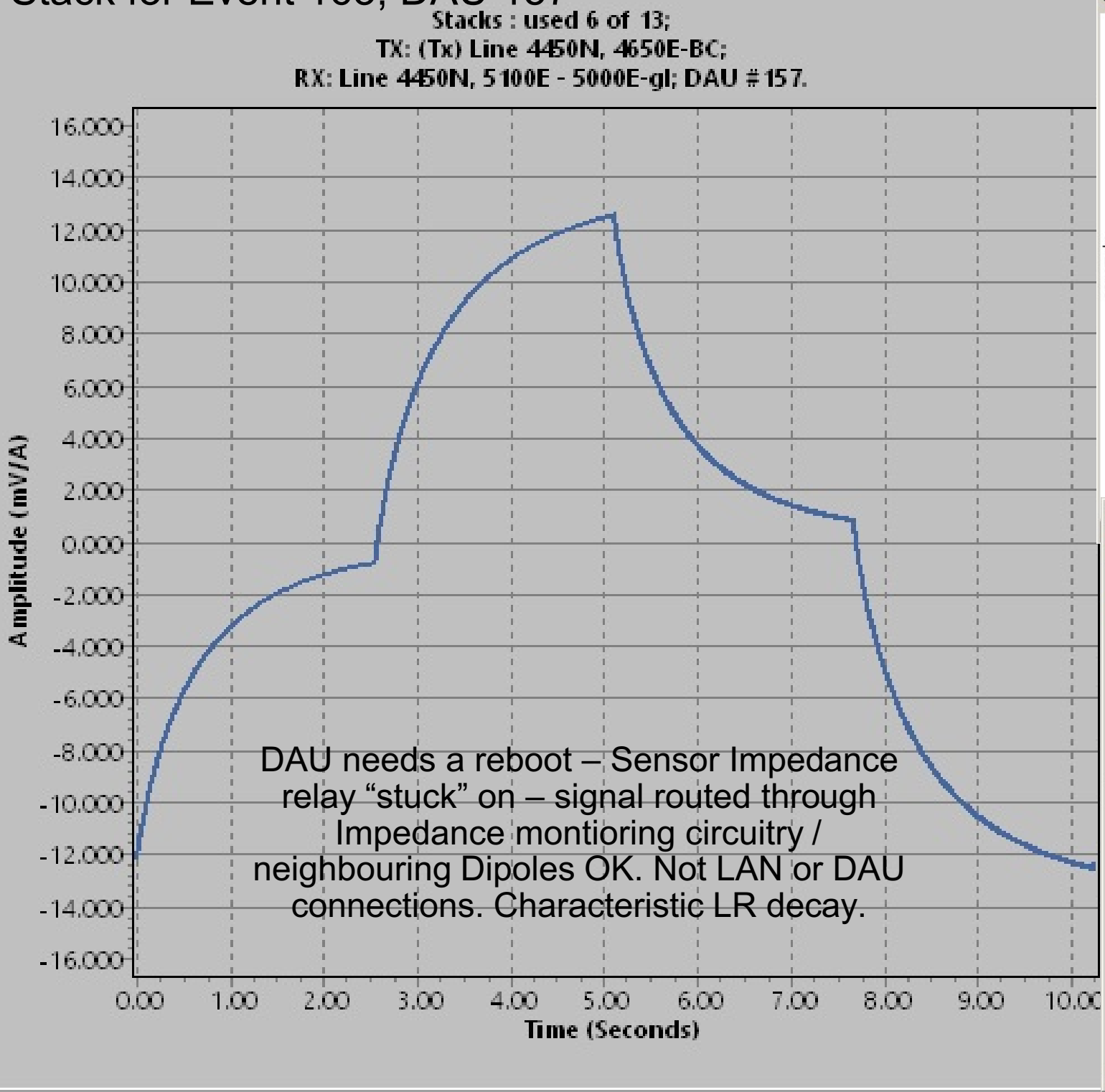
Time series for Event 155, 2 adjacent DAUs, DAU 157 in orange

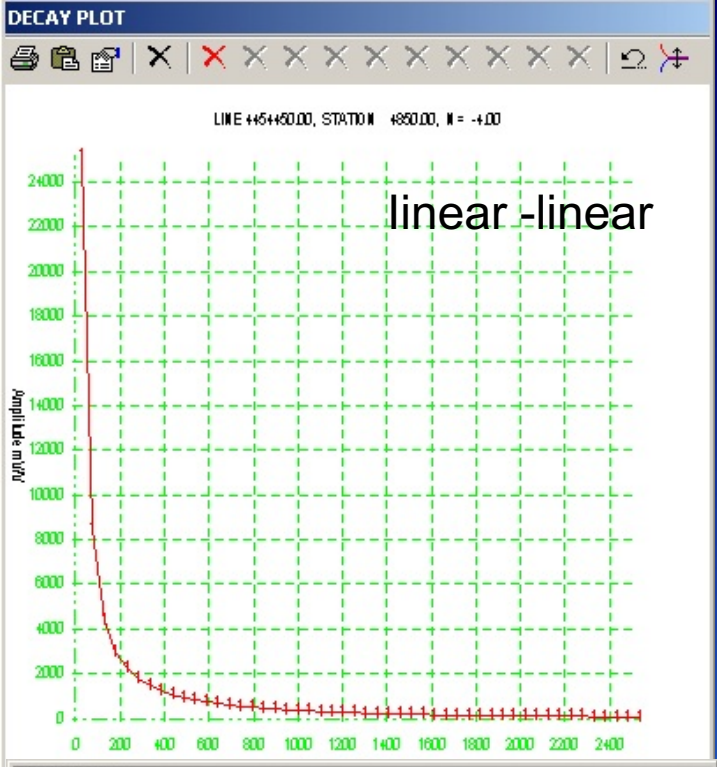


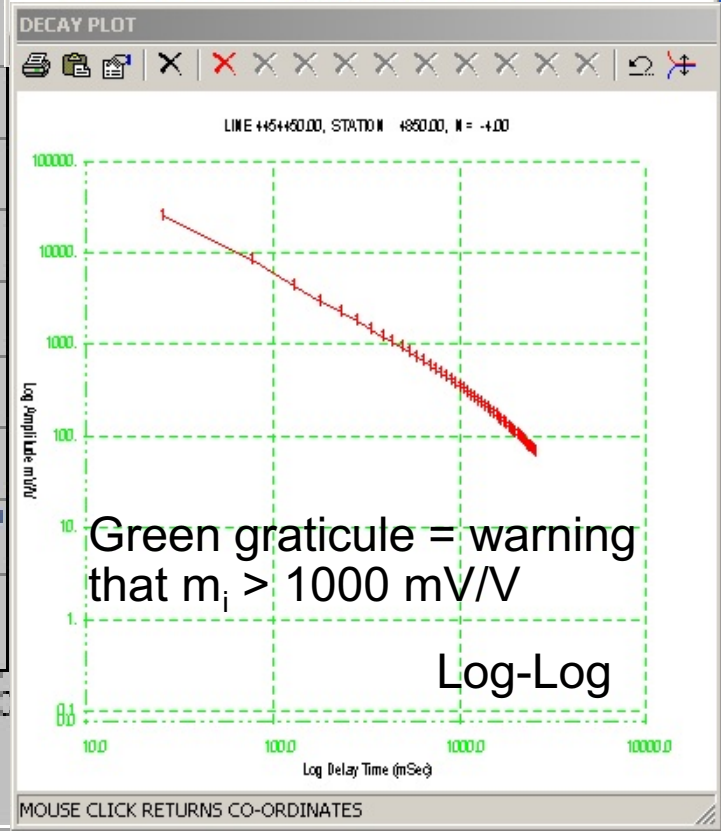




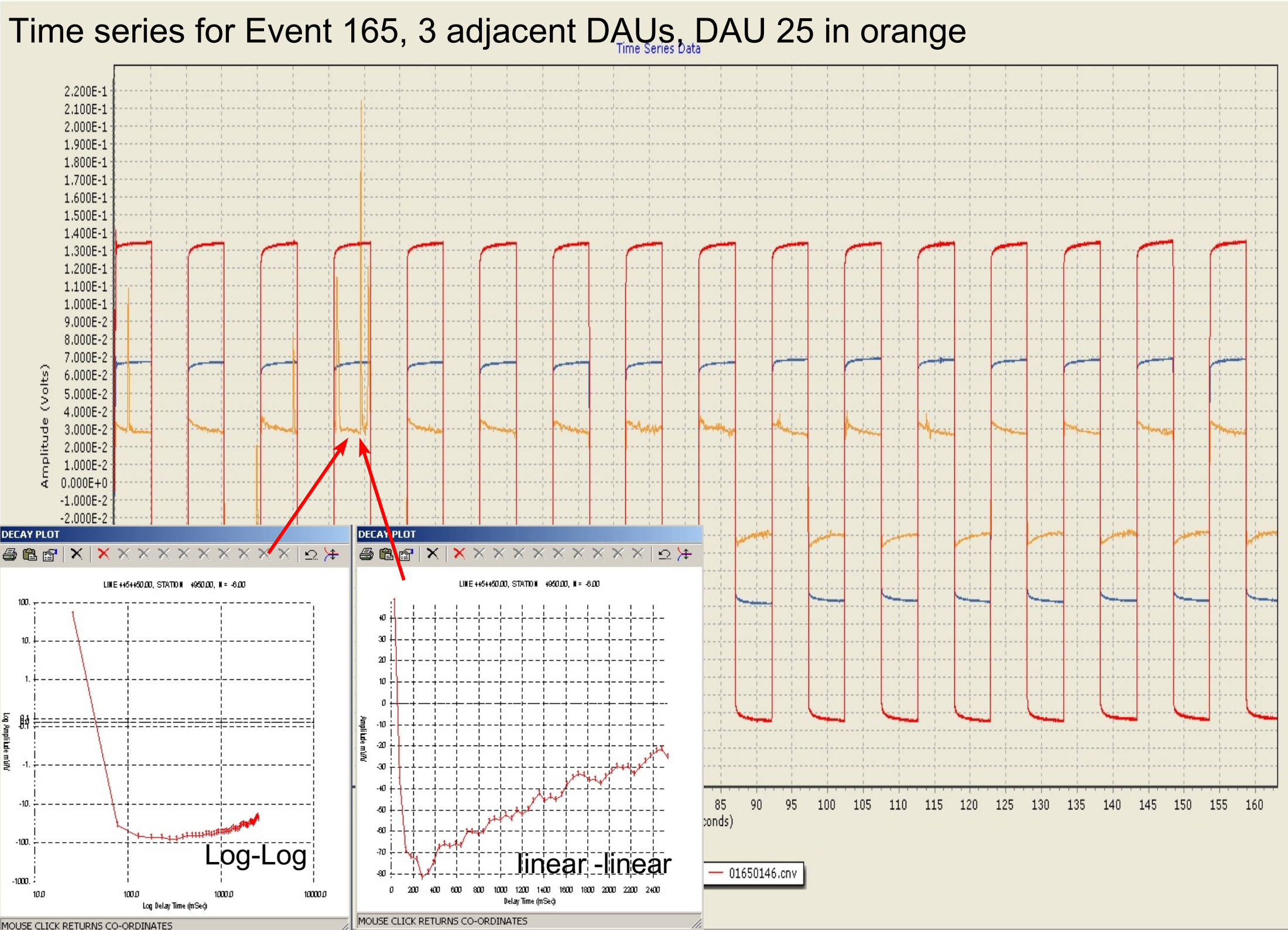
Stack for Event 163, DAU 157



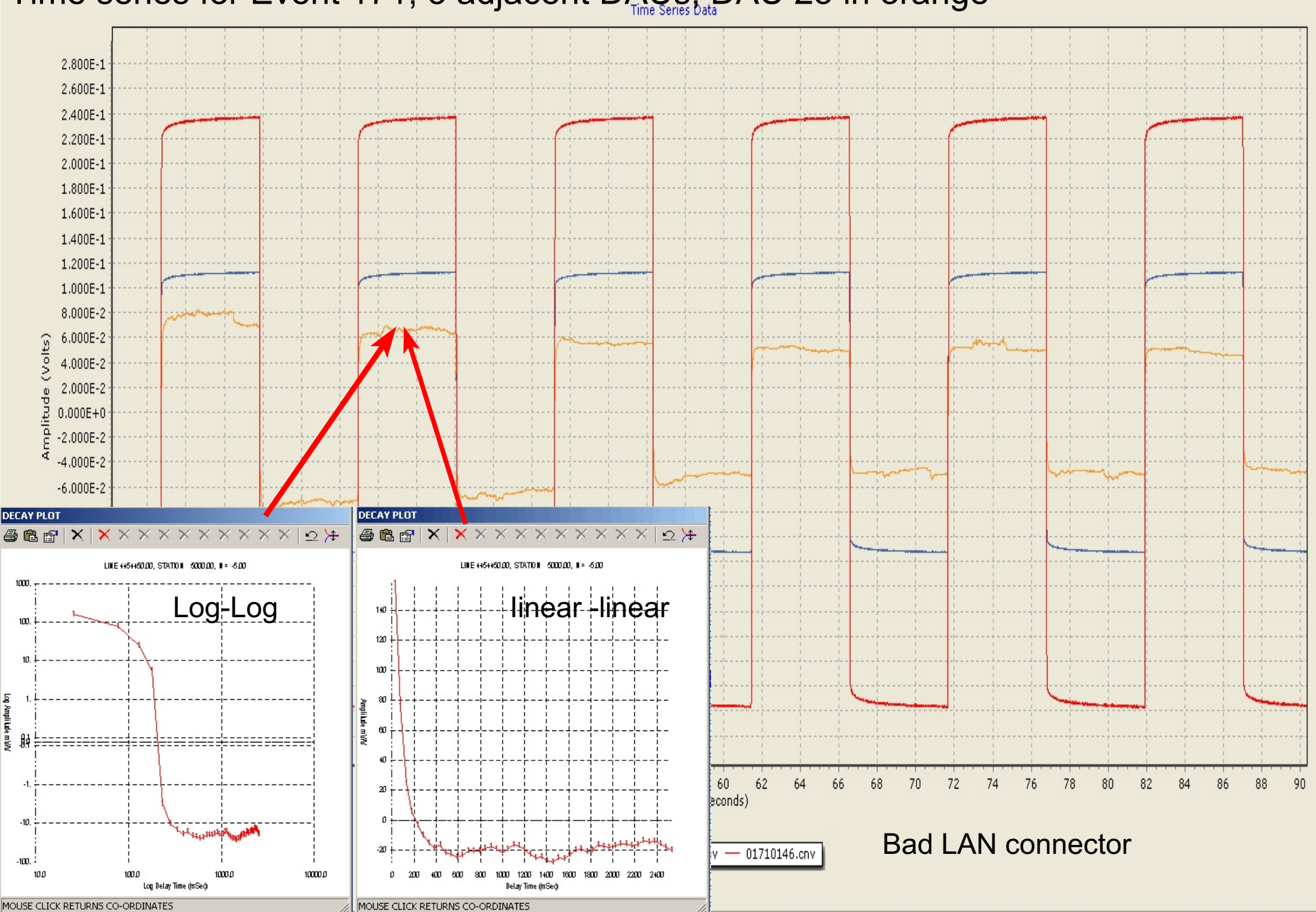




Time series for Event 165, 3 adjacent DAUs, DAU 25 in orange

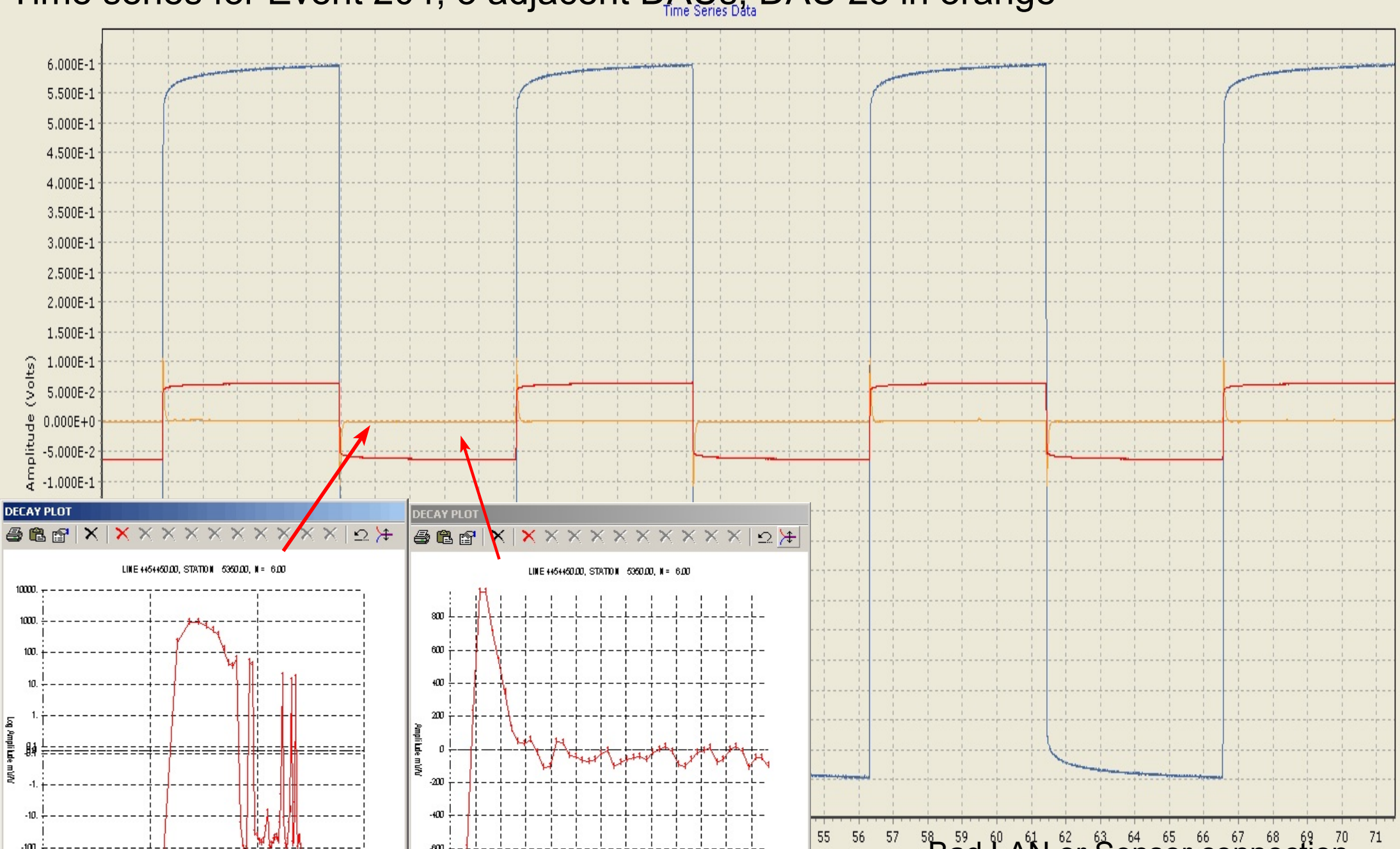


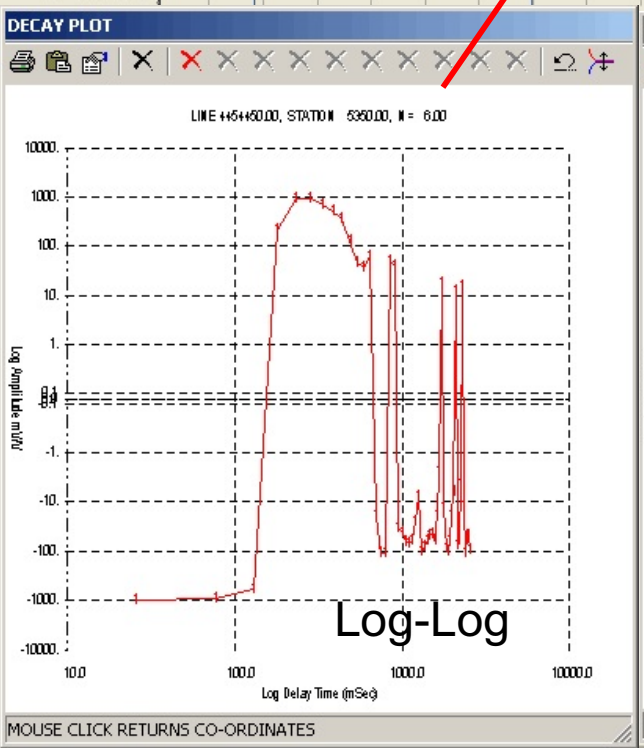
Time series for Event 171, 3 adjacent DAUs, DAU 25 in orange

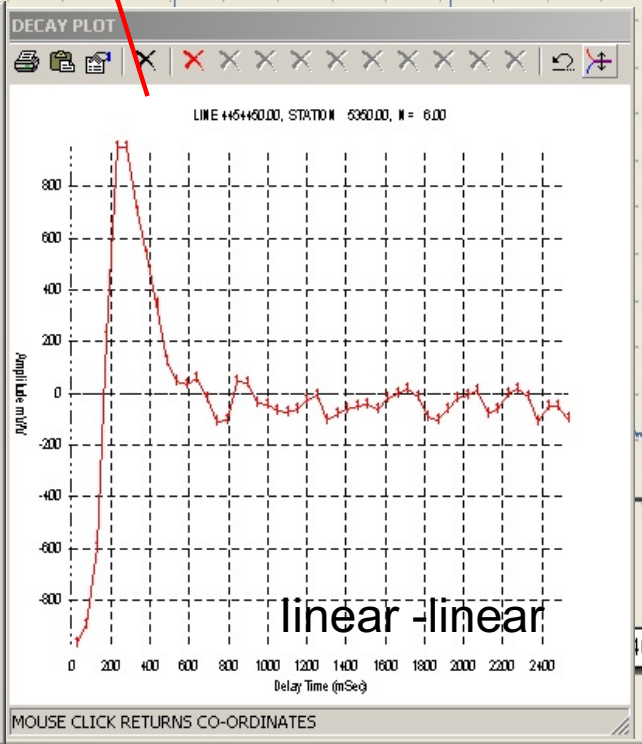


Bad LAN connector

Time series for Event 204, 3 adjacent DAUs, DAU 28 in orange



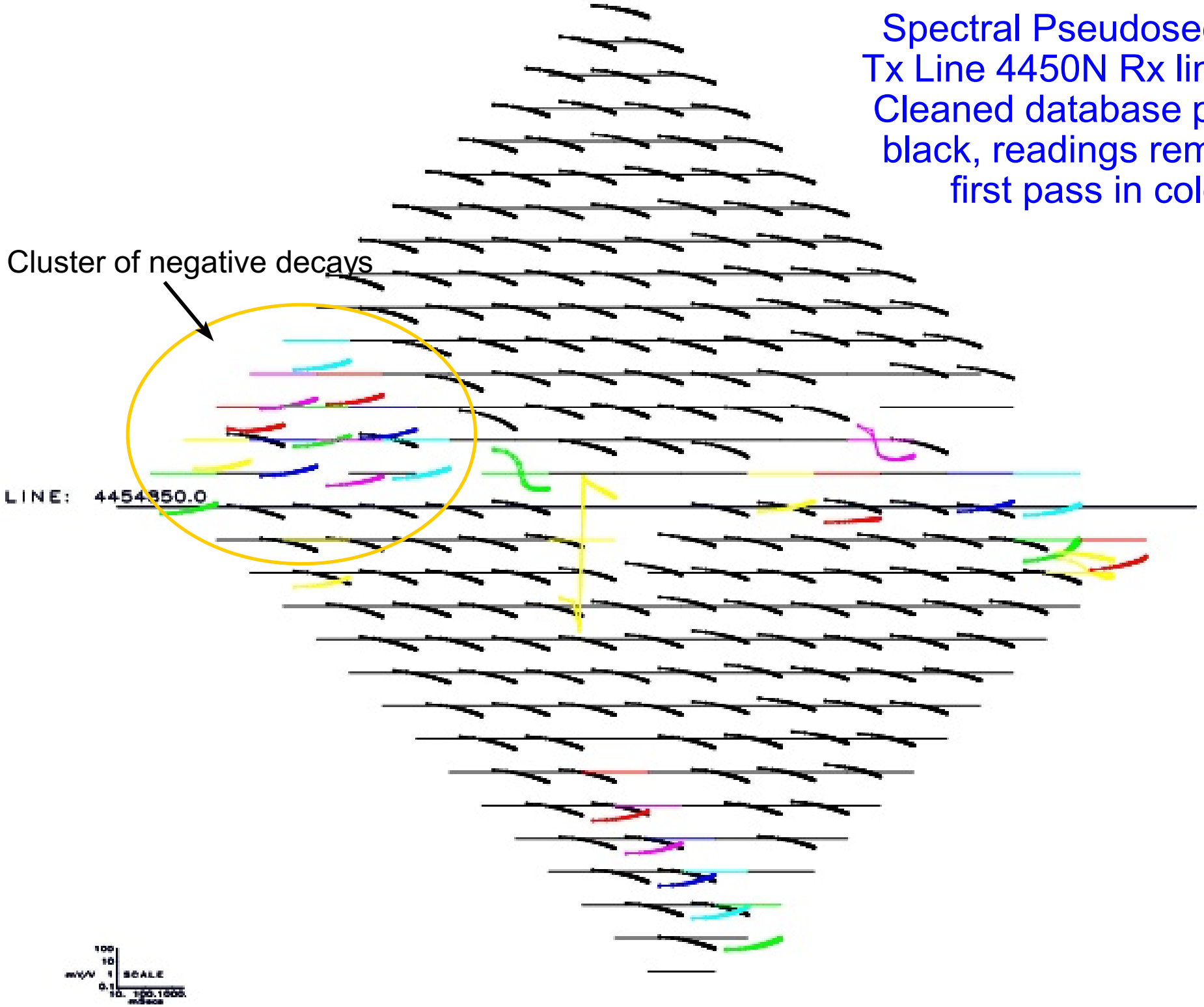




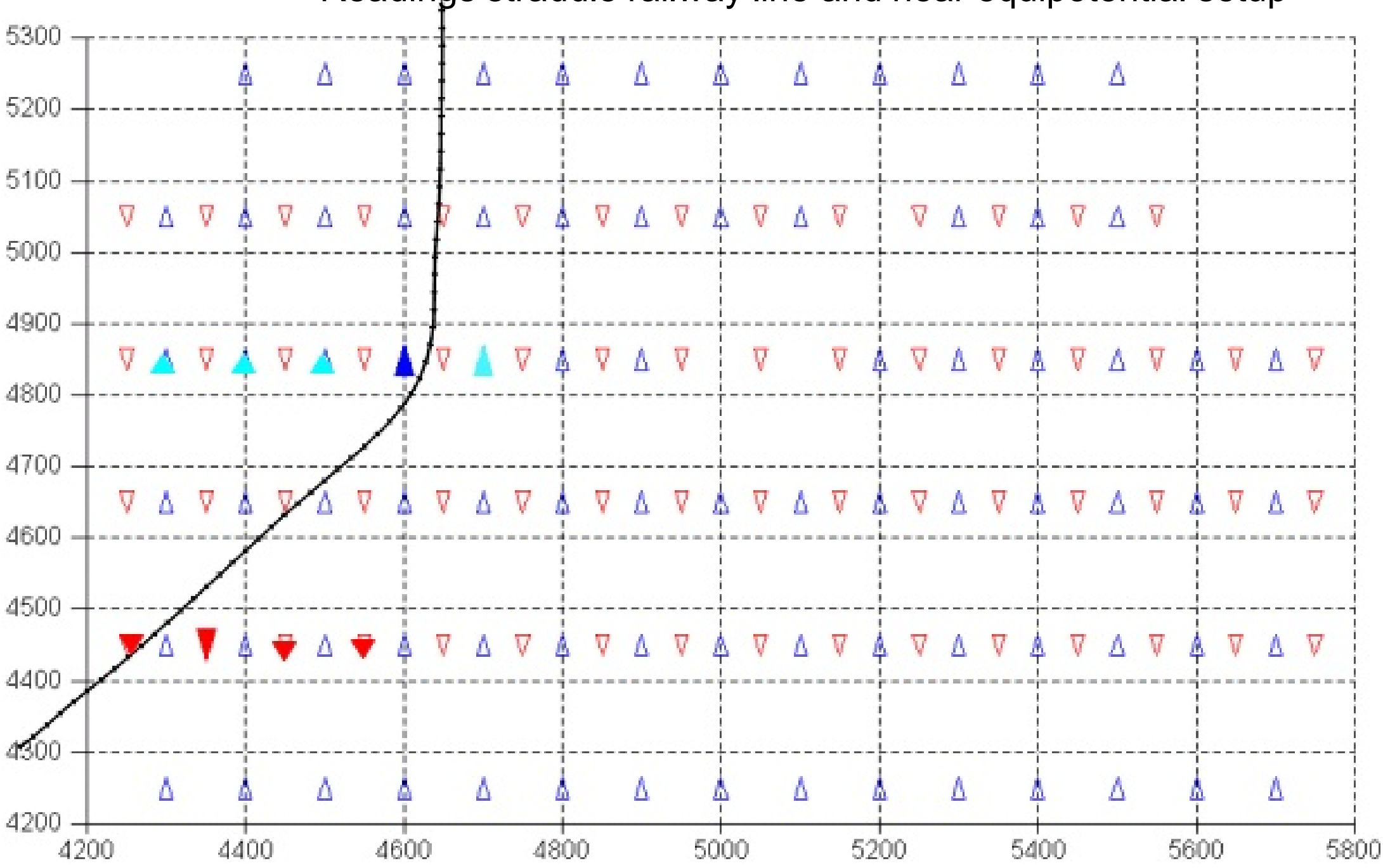
40029.cnv

Bad LAN or Sensor connection, switching spike but no waveform, DAU not connected to pot. But Vp=0.118 mV/VA !!

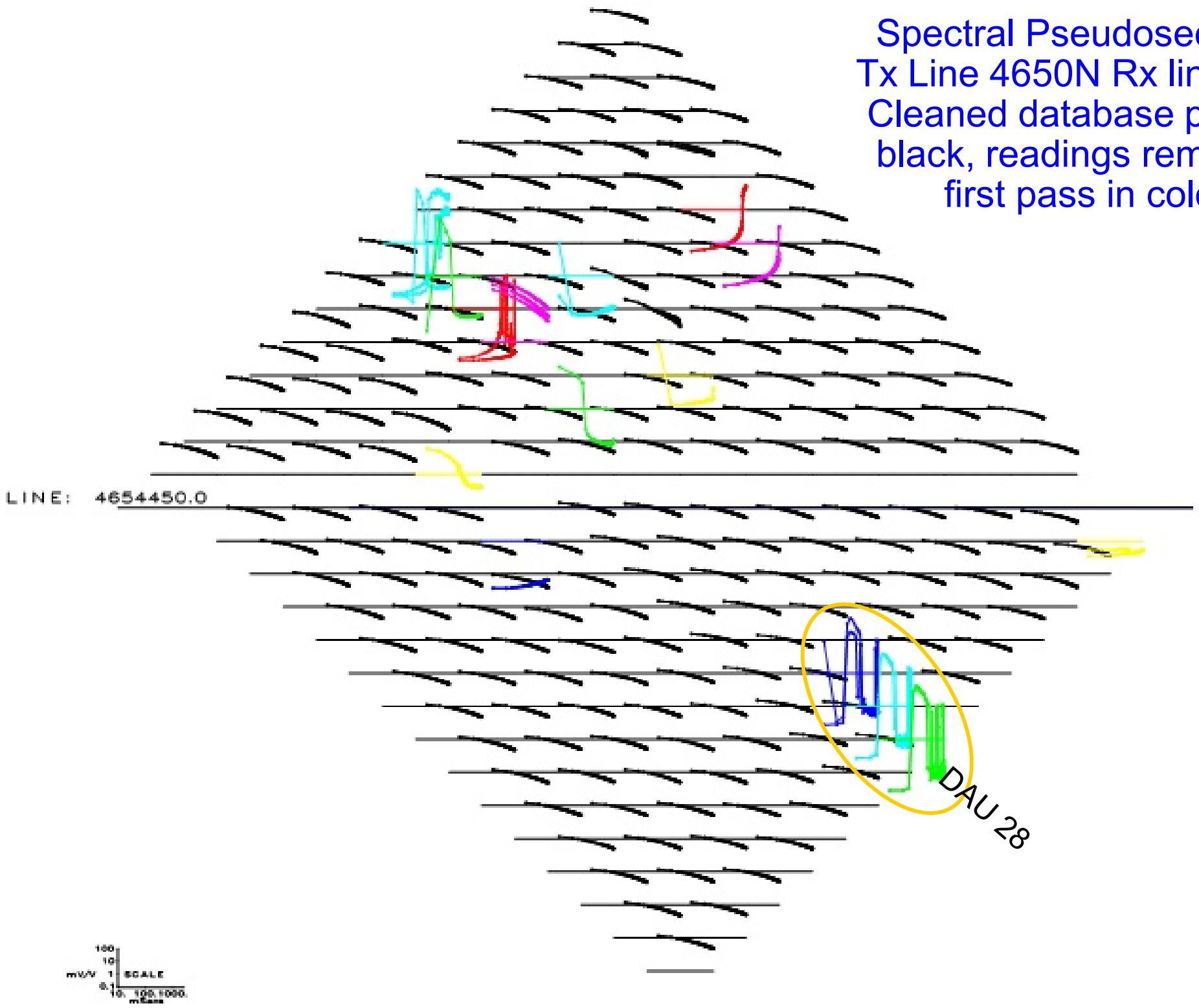
Spectral Pseudosection for Tx Line 4450N Rx line 4850N Cleaned database plotted in black, readings removed in first pass in colour.



Readings straddle railway line and near equipotential setup



Spectral Pseudosection for Tx Line 4650N Rx line 4450N Cleaned database plotted in black, readings removed in first pass in colour.



Stack for Event 163, DAU 157