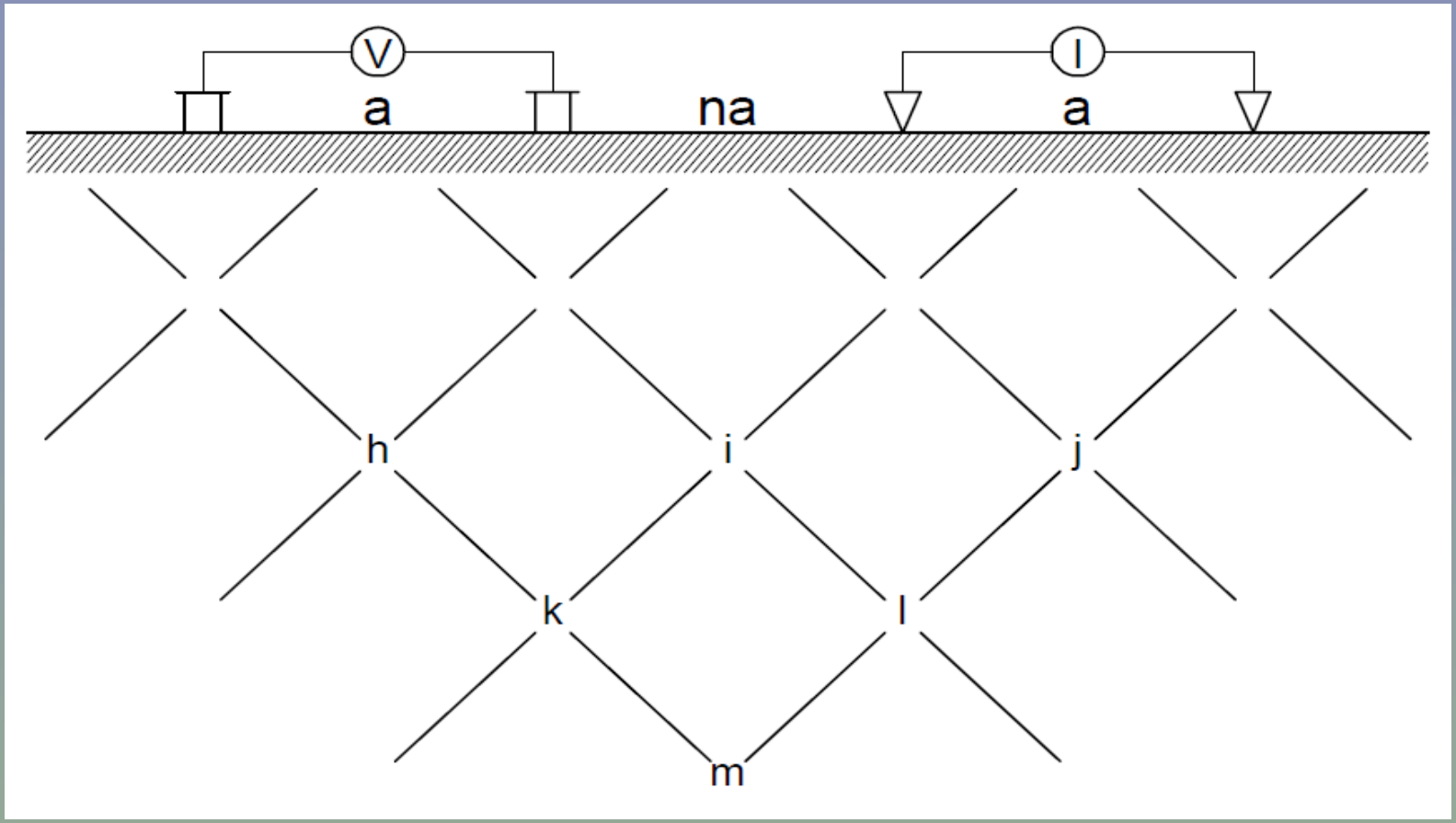
Dipole-Dipole IP, colinear geometries and 2D



DDIP: Why do we use it?

- Why do we do it?
- When shouldn’t we do it?
- Can we modify survey geometry it to make it work?

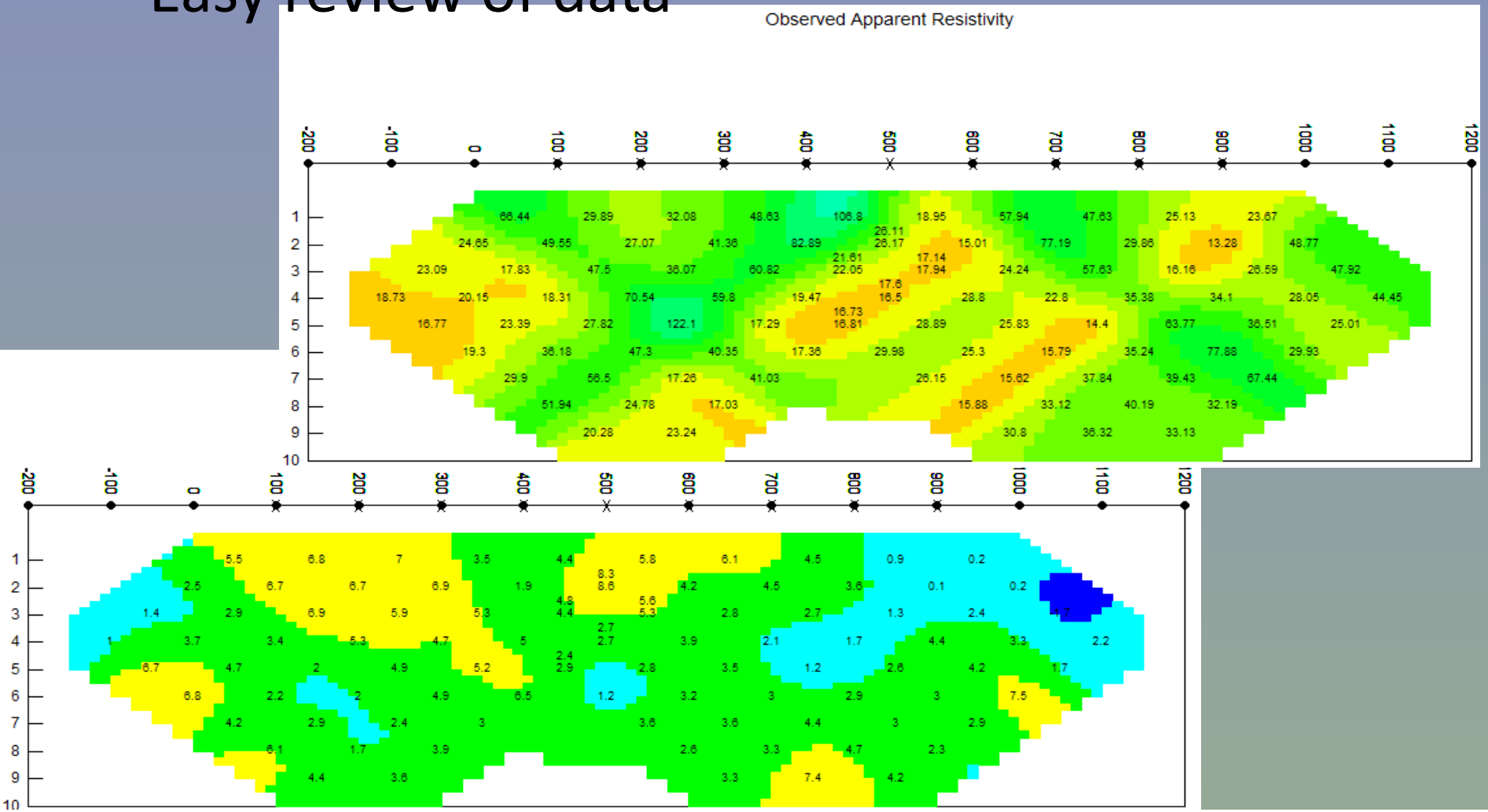
DDIP: Why do we use it?

- Its simple logistically, smaller crews
- fast to get started
- Less prone to damage

- operator QC straight forward
- Robust and easy to interpret in the field
- Good understanding of the data as it comes in

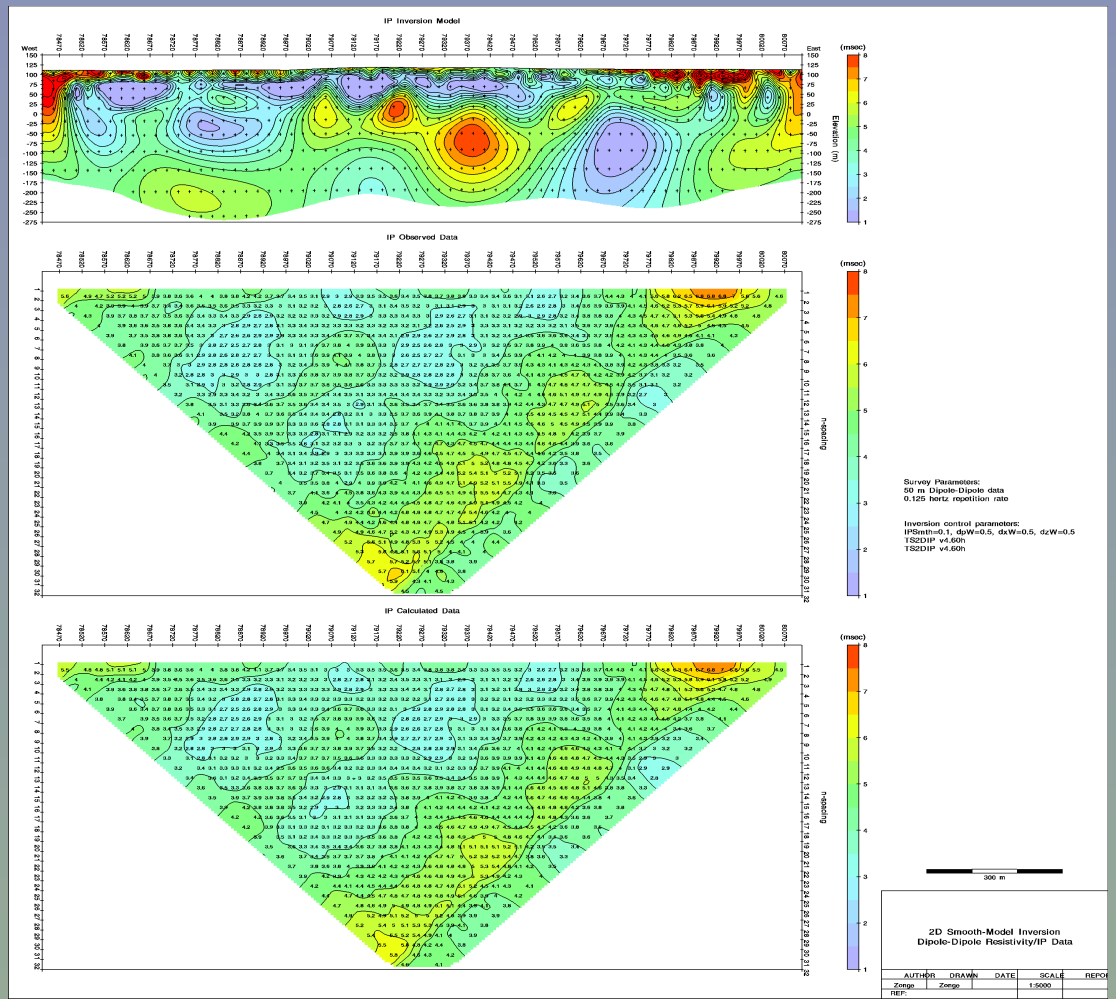
DDIP: Why do we use it?

- Symmetry of response; reciprocal data points
- Easy review of data



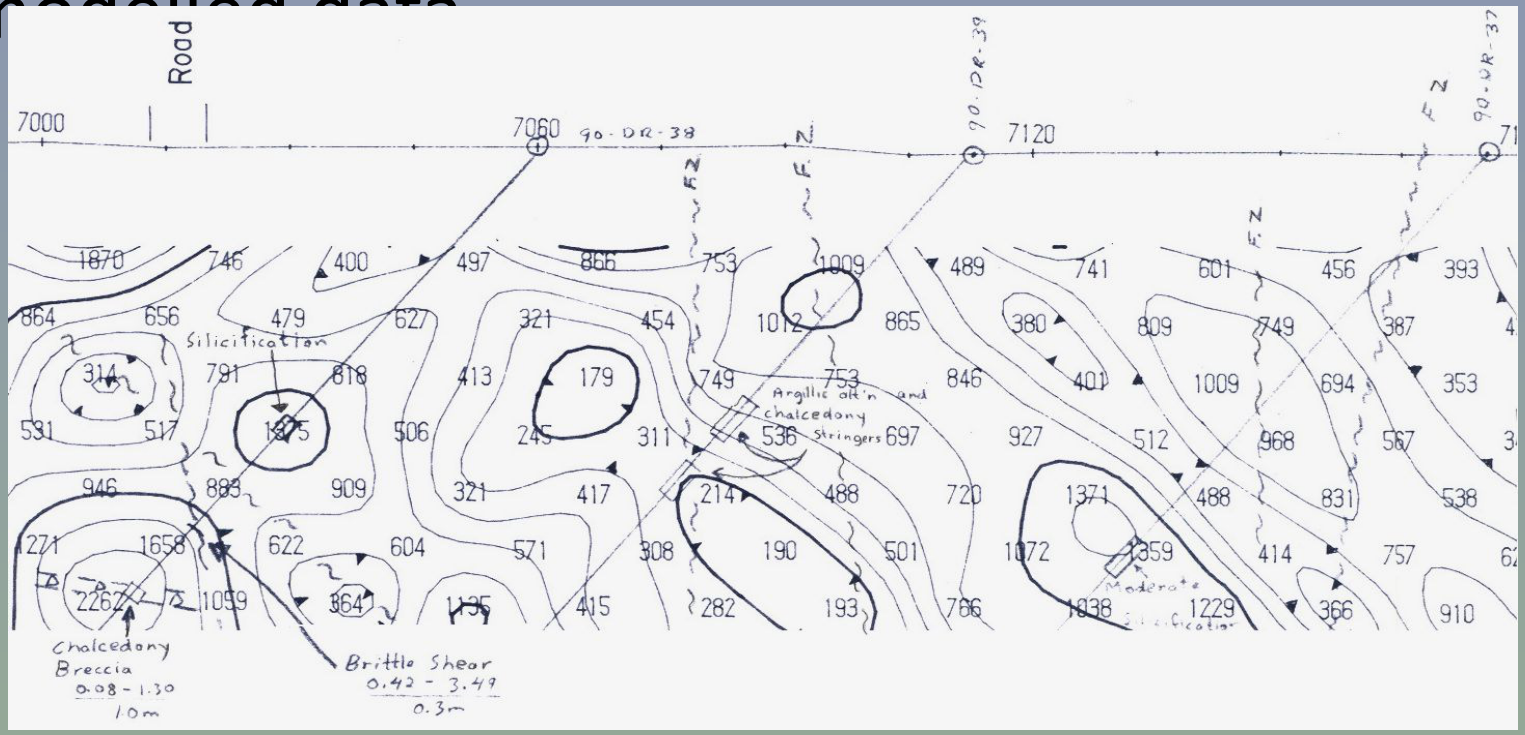
DDIP: Why do we use it?

- Easy data review applies even with large modern arrays



DDIP: Why do we use it?

- Widely accepted and understood, decades of case studies and we are comfortable with it!
- We can work and reconcile observed to modelled data



http://premiergeophysics.com/questions.htm

DDIP: Why do we use it?

- Good lateral resolution
- Better vertical resolution especially in near surface
- Reduced coupling
- Can be safer
- Reduced set up time and loss of equipment

DDIP: Why not use it?

- Low signal
- Safety
- Logistics
- Low sensitivity to deep sources?
- 2D assumptions, targets are rarely 2D

Can we make it better?

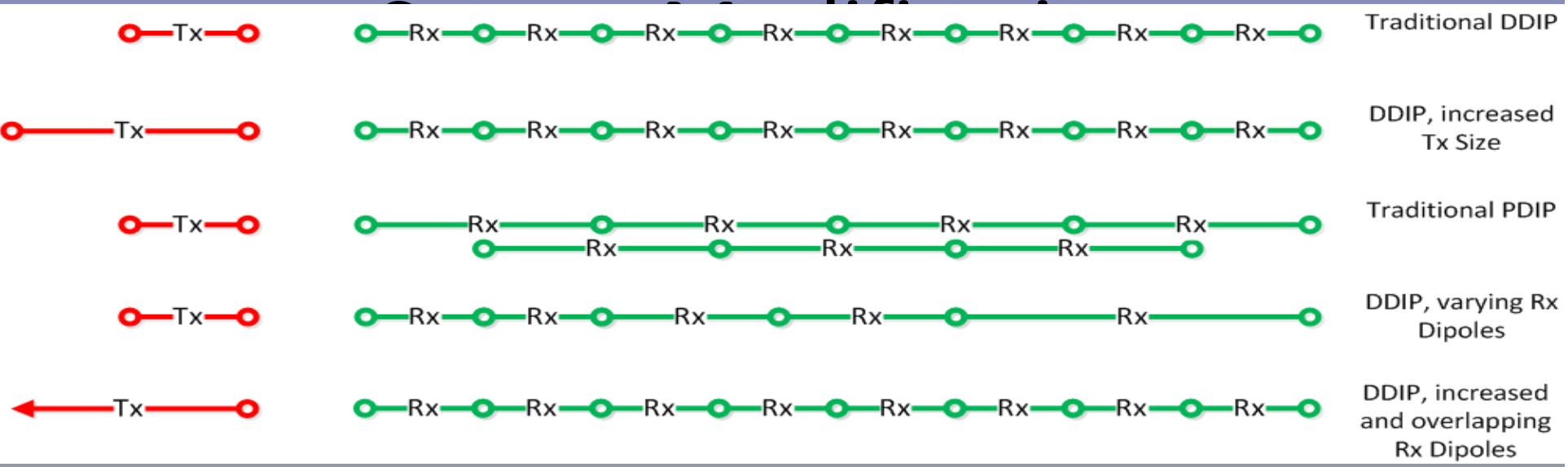
Modern equipment and software give us many options:

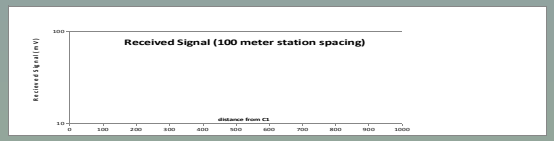
- Increased tx dipole size for better signal: dipole ->bipole -> pole
- Increased rx dipole size:

  overlapping rx dipoles

  multiple dipole sizes
- Can model multiple lines in 3D

Can we make it better?

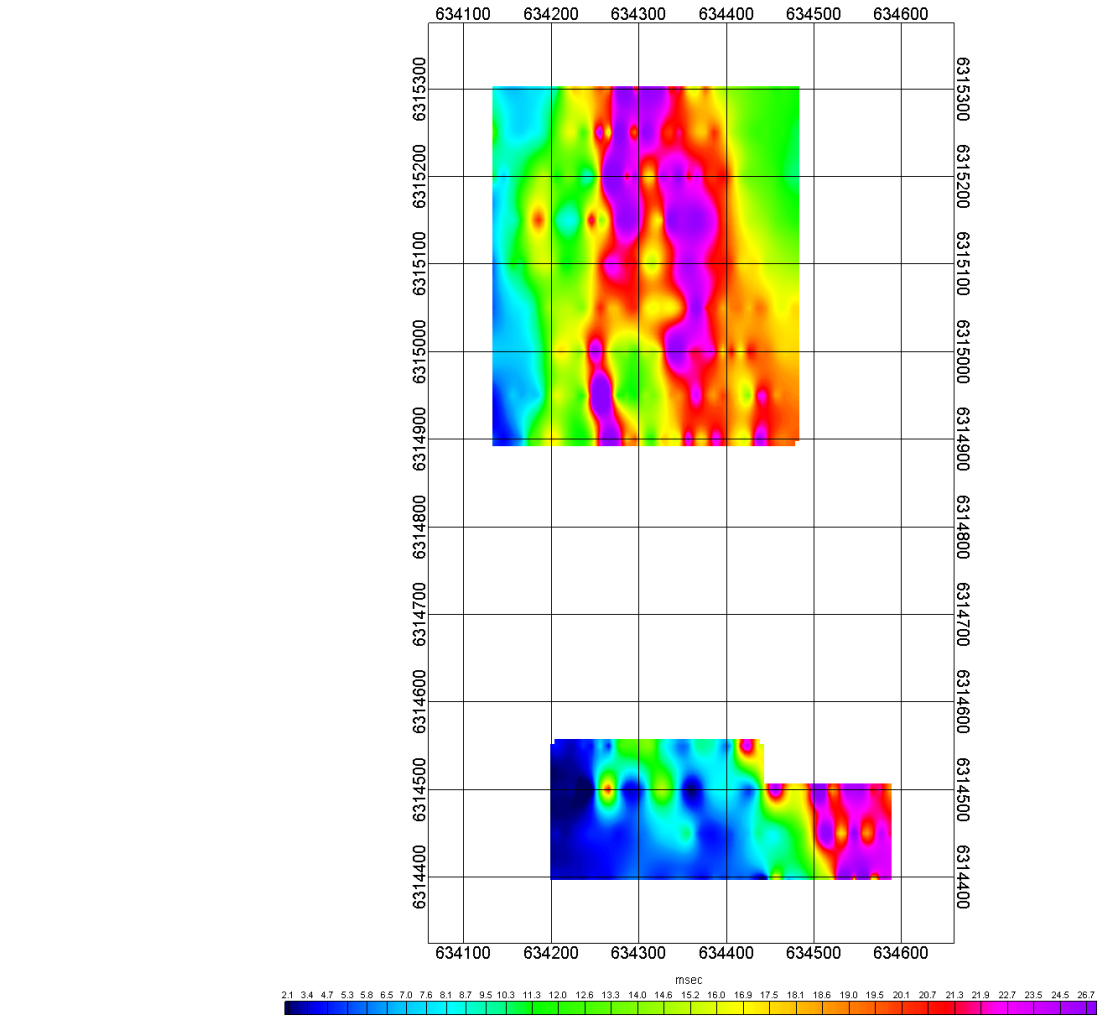




DDIP and other 2D IP arrays

- Cheaper than drilling!
- Good for reconnaissance (greenfields) work (2D): is it chargeable? Single lines or broad grid spacing
- Provides some structural information
- Ambiguity: out of plane effects and potentially poorer model resolving power

DDIP: Quick Case Study

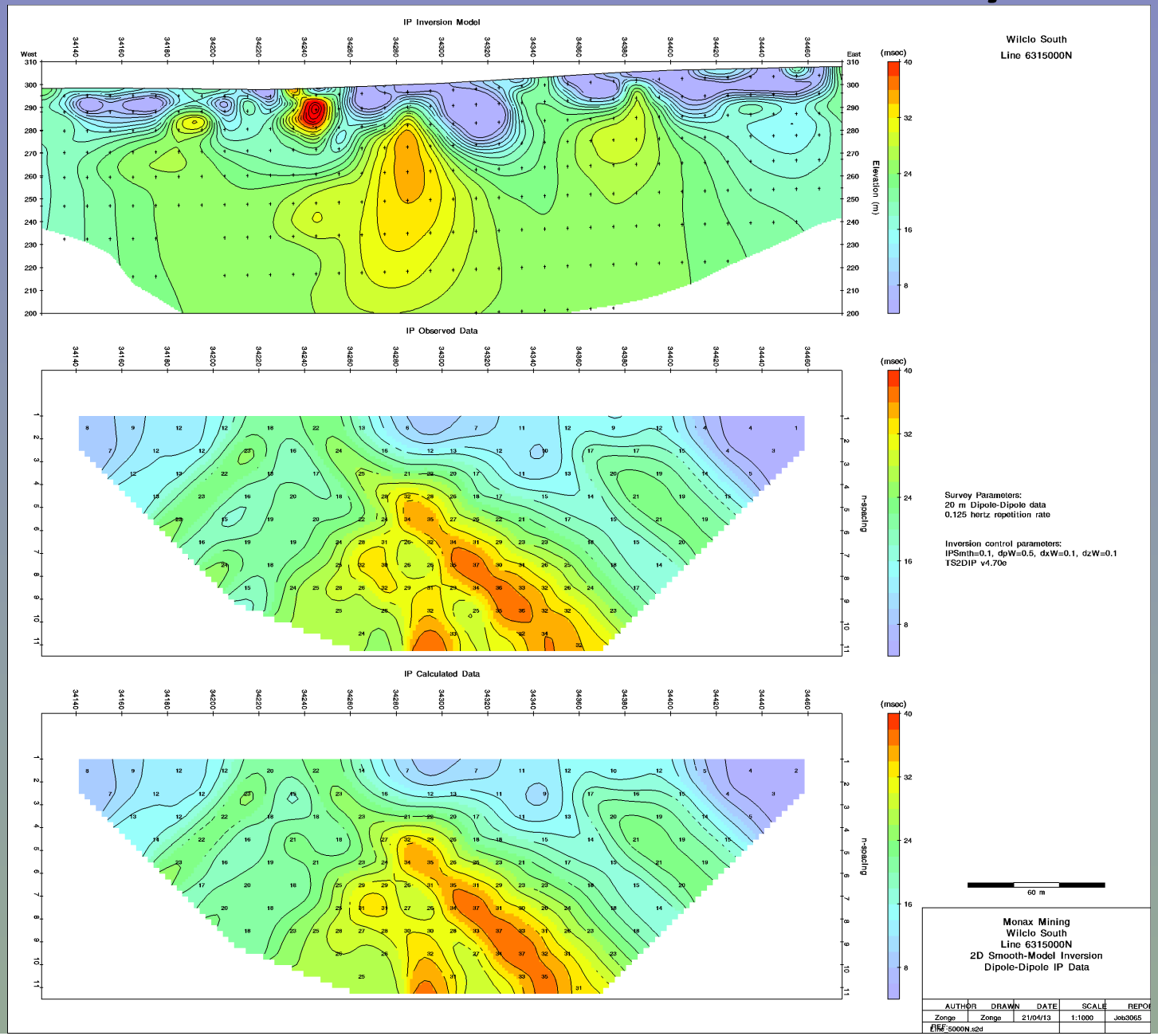


Wilclo South Graphite Prospect

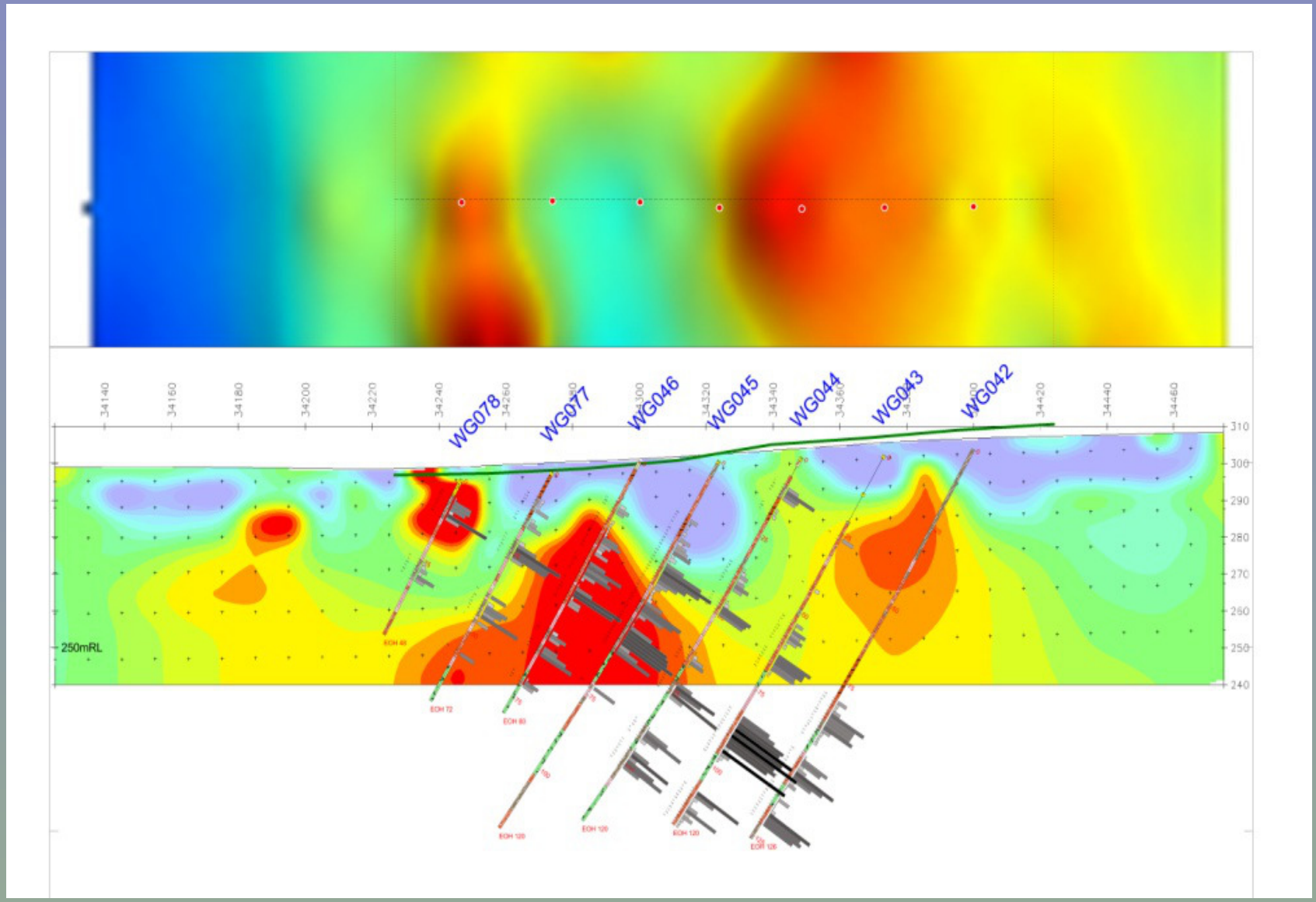
Gradient IP Data: 10m stations/dipoles

Zonge Austraila April 2012

DDIP: Quick Case Study



Quick Case Study



2D or not to 2D
DDIP and Co-linear Geometries

- 2D arrays can be appropriate for prioritising targets
- 2D arrays can be made to work in various ways with modern equipment
- 2D arrays can model some structures quite well
- Many assumptions exist in reviewing 2D data, take care in targeting!