

KMS Technologies - KJT Enterprises Inc.

Presentation

Zerilli, A.

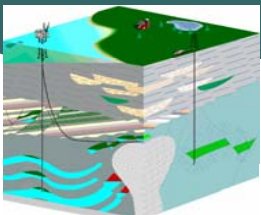
2002

**Integrated imaging adds value to
complex structures exploration**

Society of Exploration Geophysicists, Annual Meeting, Salt Lake City, Invited paper in workshop "Recent Advances and Road ahead session"

*Integrated imaging
adds values to complex
structures exploration*

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SEG/Salt Lake City 2002



Key subjects:

- **Integrated depth imaging**
- **Tackling the near-surface complexity**
- **Enhance seismic imaging in severe topography & complex structures**

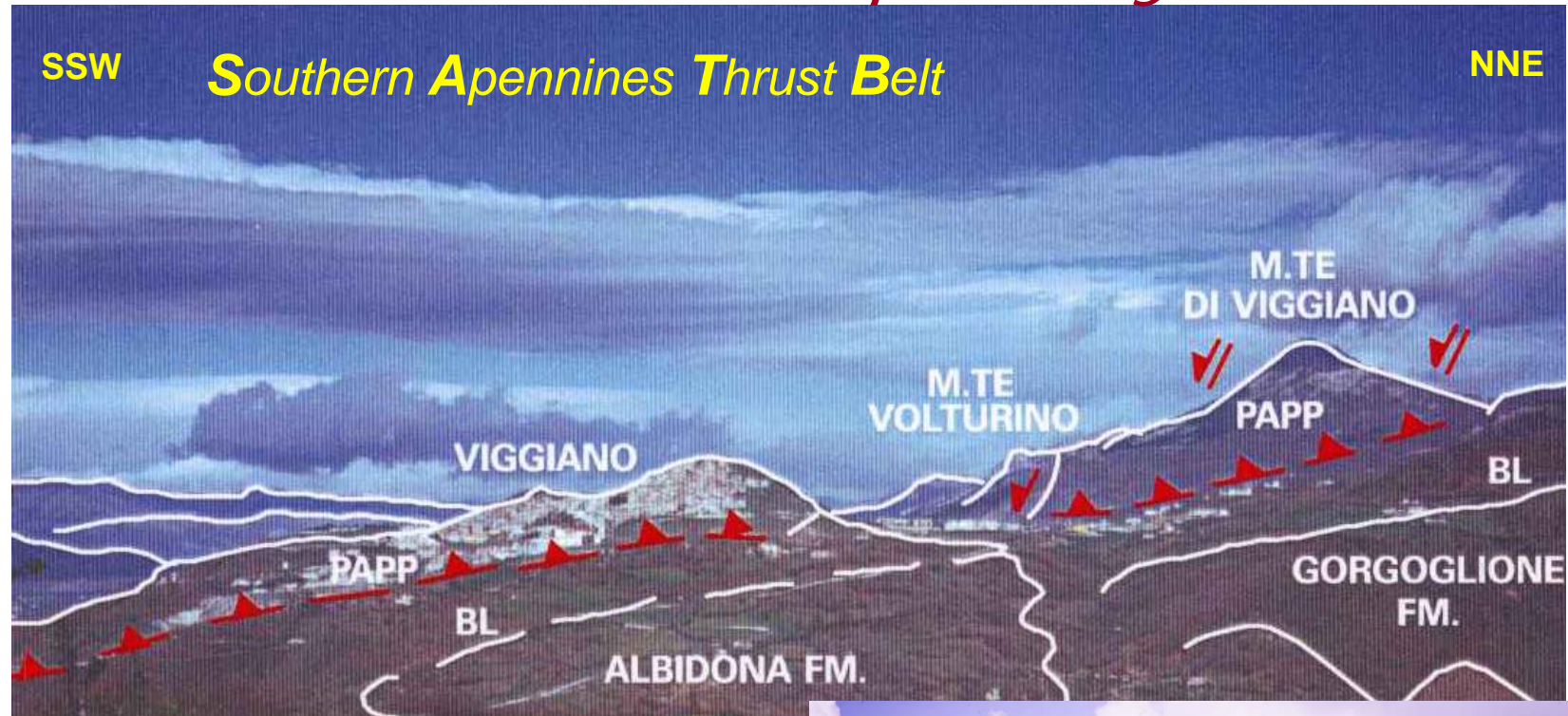
Outline:

- ✓ **Setting the scene**
- ✓ **Integrated imaging – Why ?**
- ✓ **Non-seismic technologies**
- ✓ **Seismic imaging improved**
- ✓ **What's next ?**

SATB petroleum province



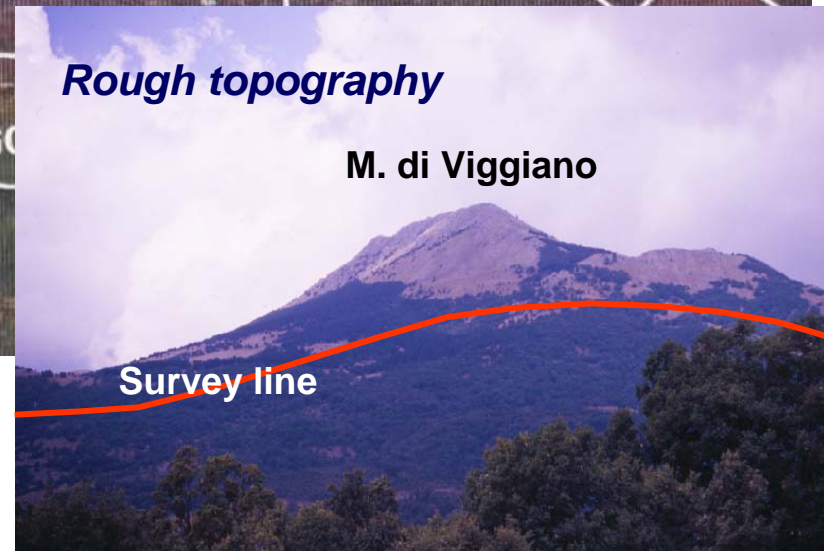
SATB complexity



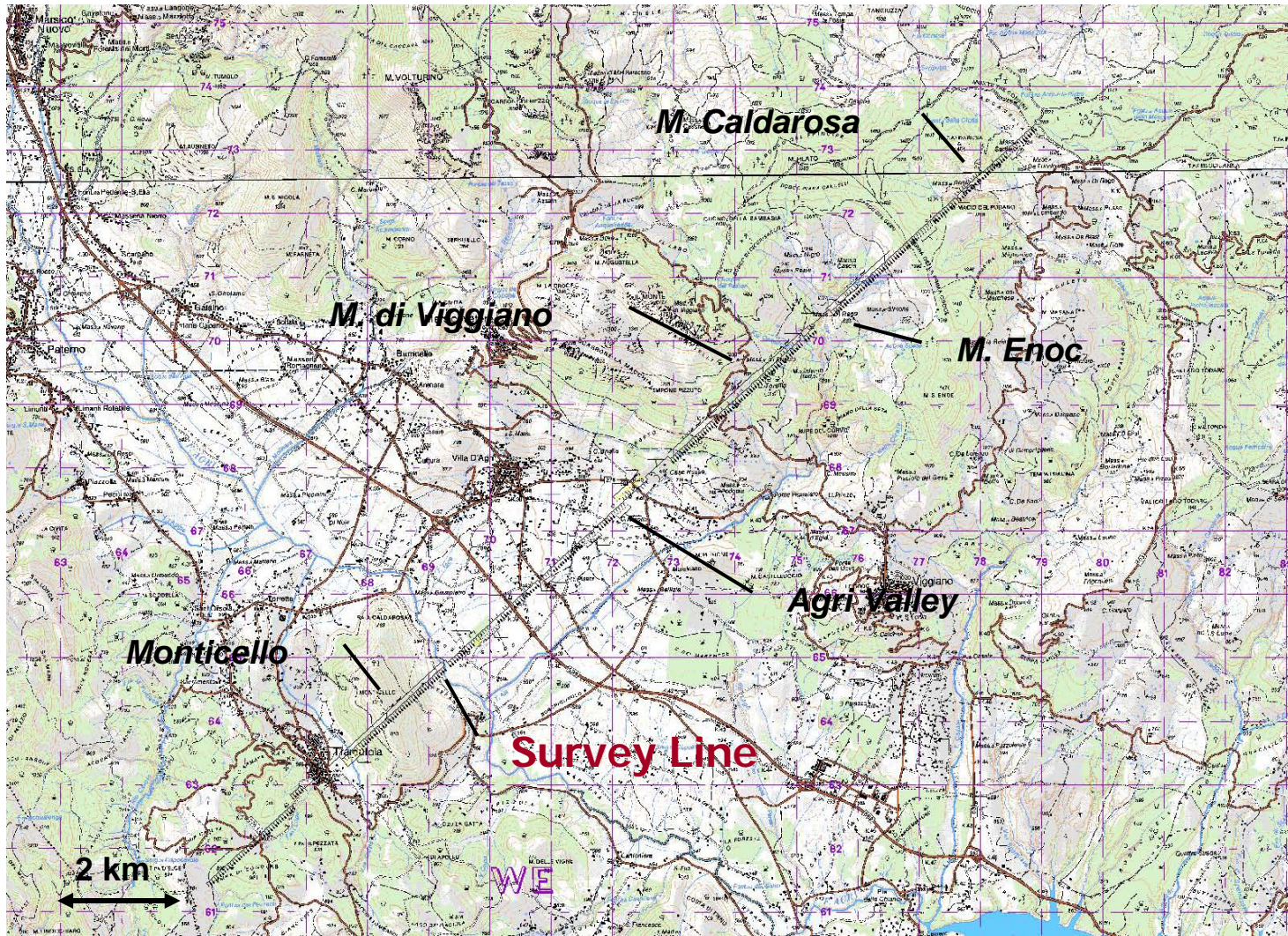
Complex near-surface



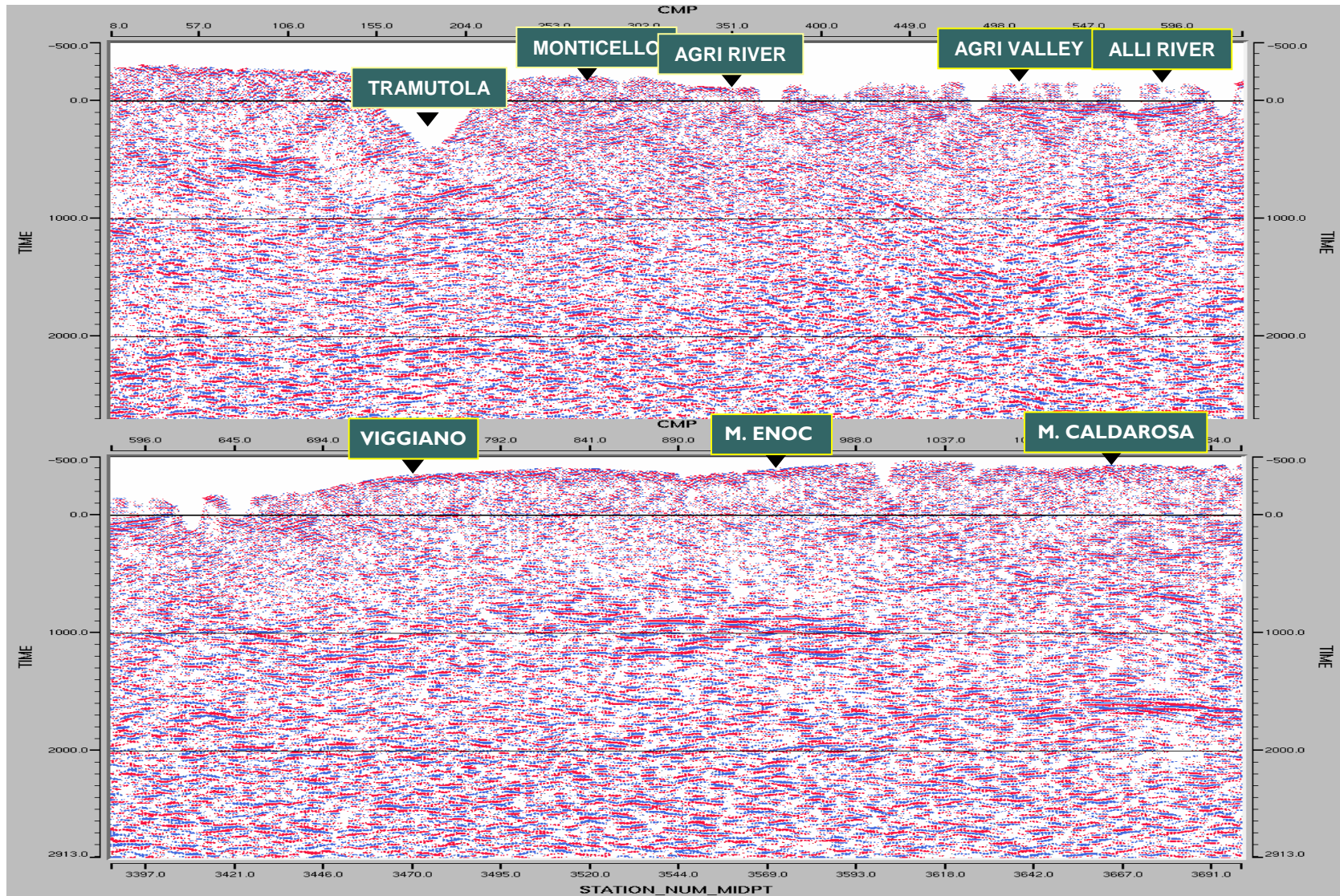
Rough topography



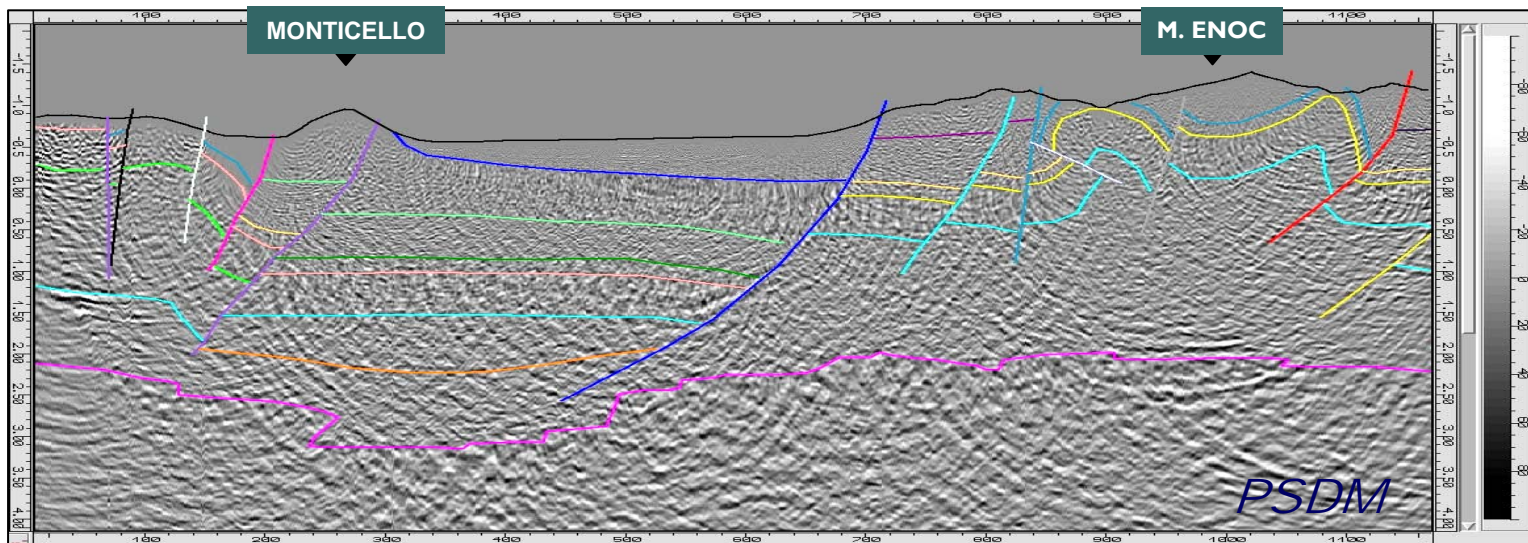
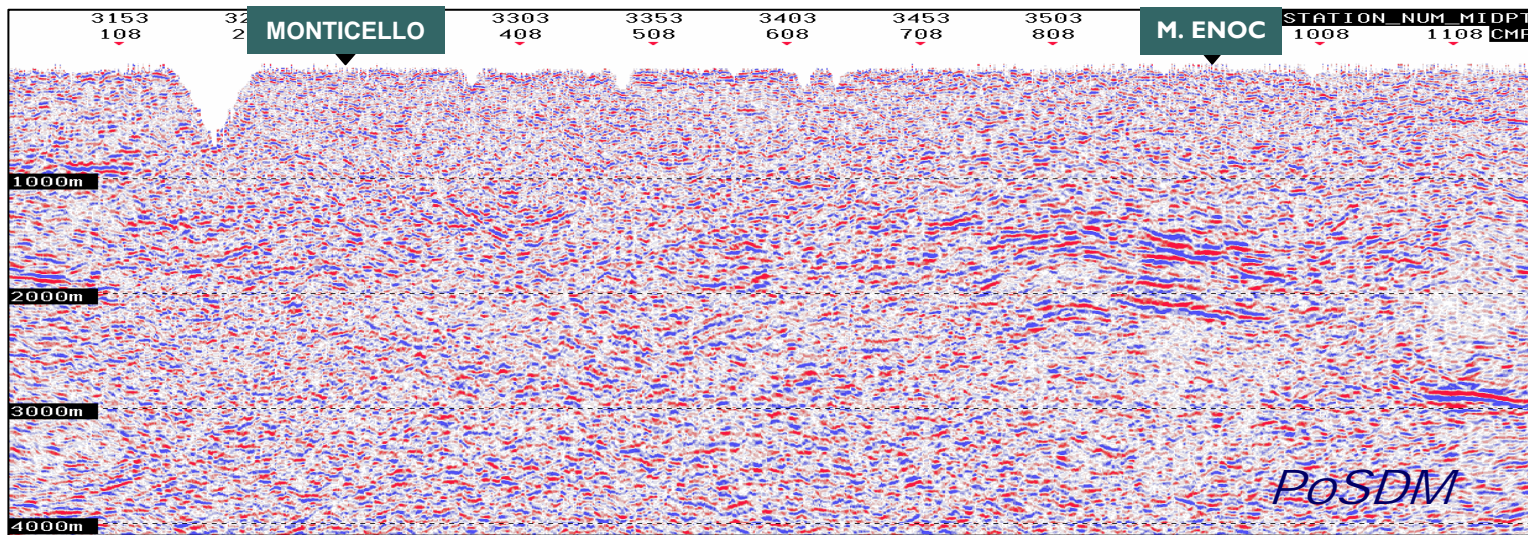
Location map



Noisy seismic



Seismic depth imaging

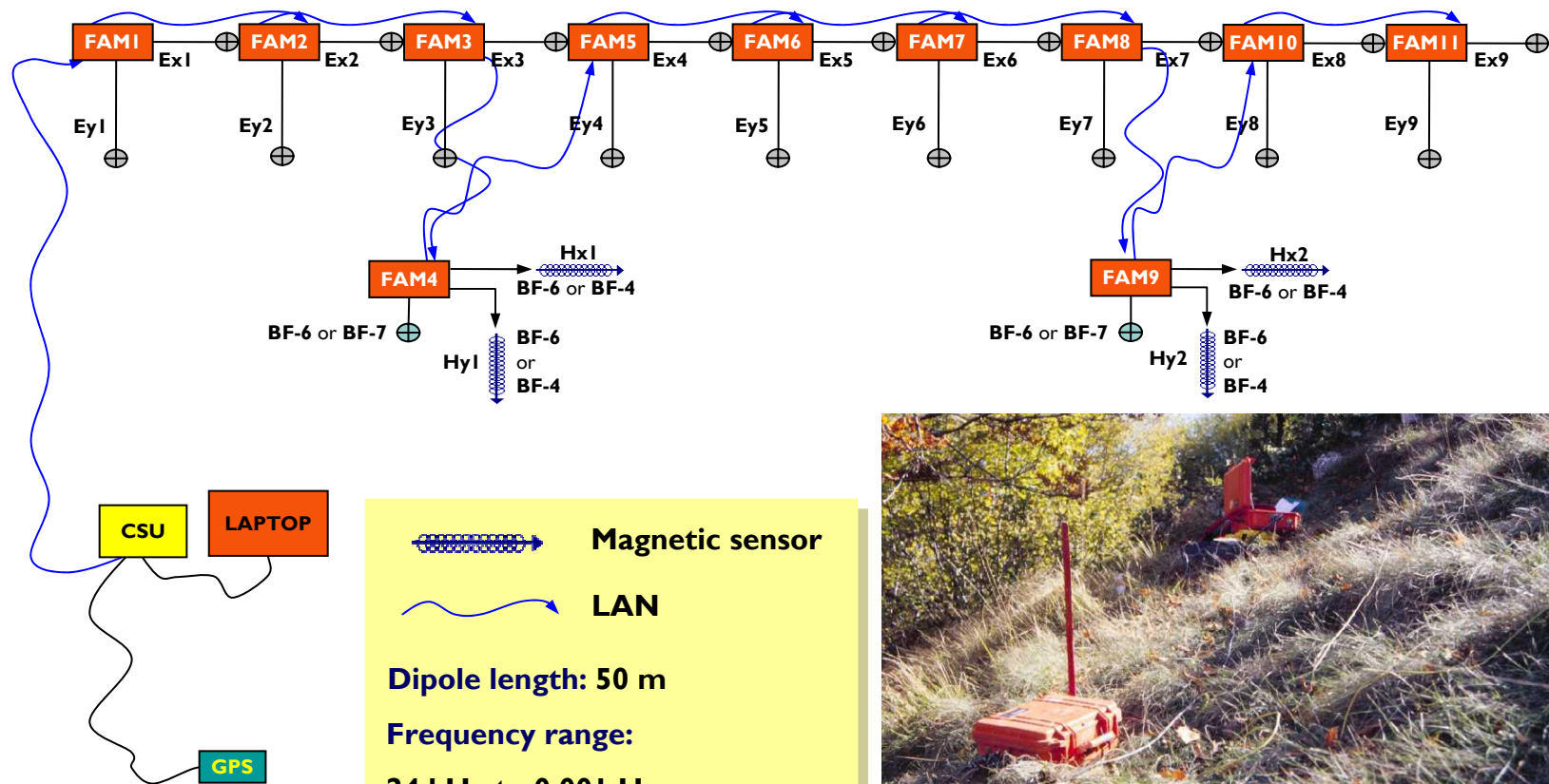


Integrated imaging – Why ?

- **Integrate seismic with alternative geophysical techniques to build the most accurate near sub-surface model characterized by a high level of spatial resolution at low cost**
- **Exploit recent breakthroughs in non-seismic technologies**
- **Enhance depth imaging & reduce risk**

Non-seismic technologies

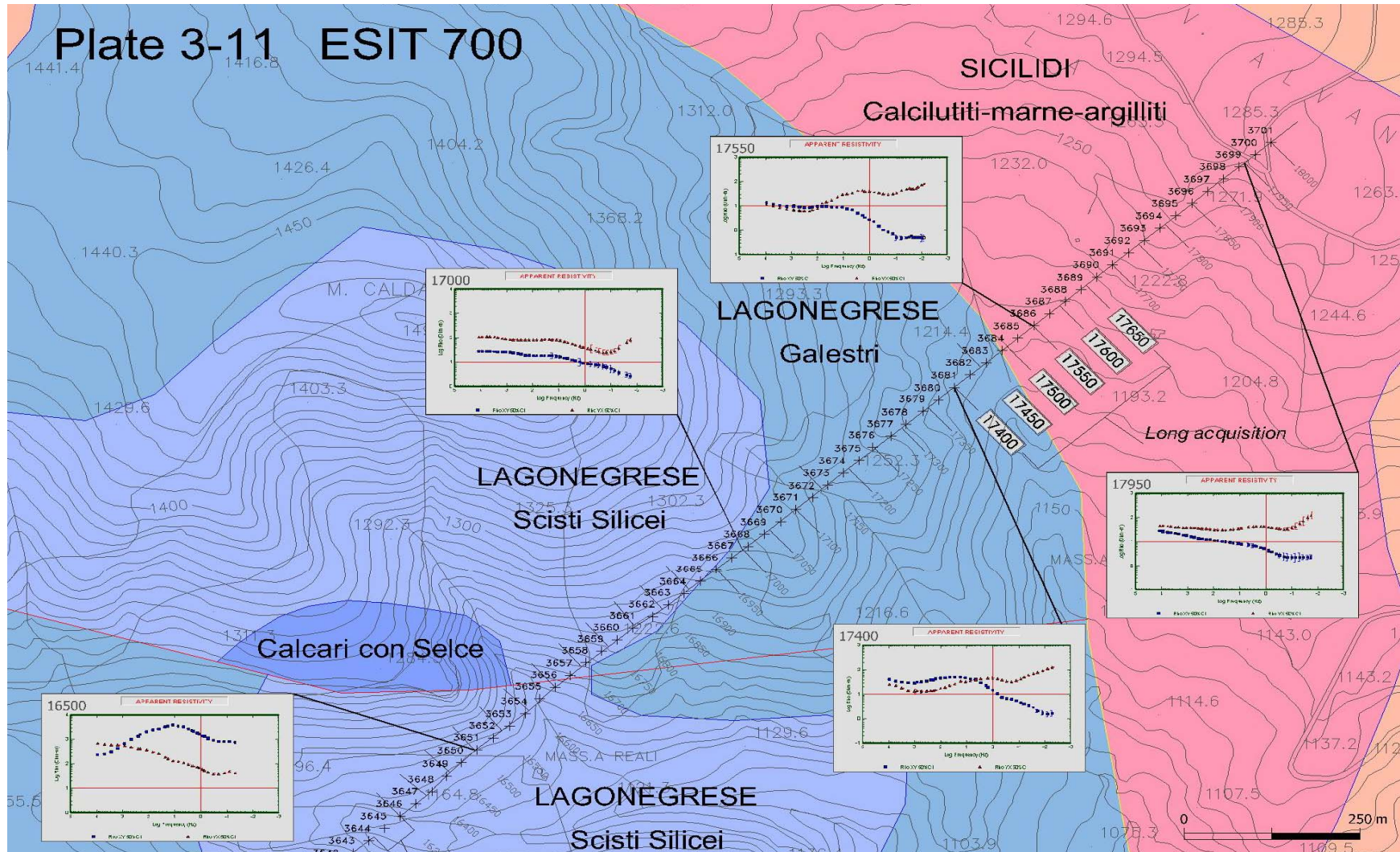
High res MT continuous profiling



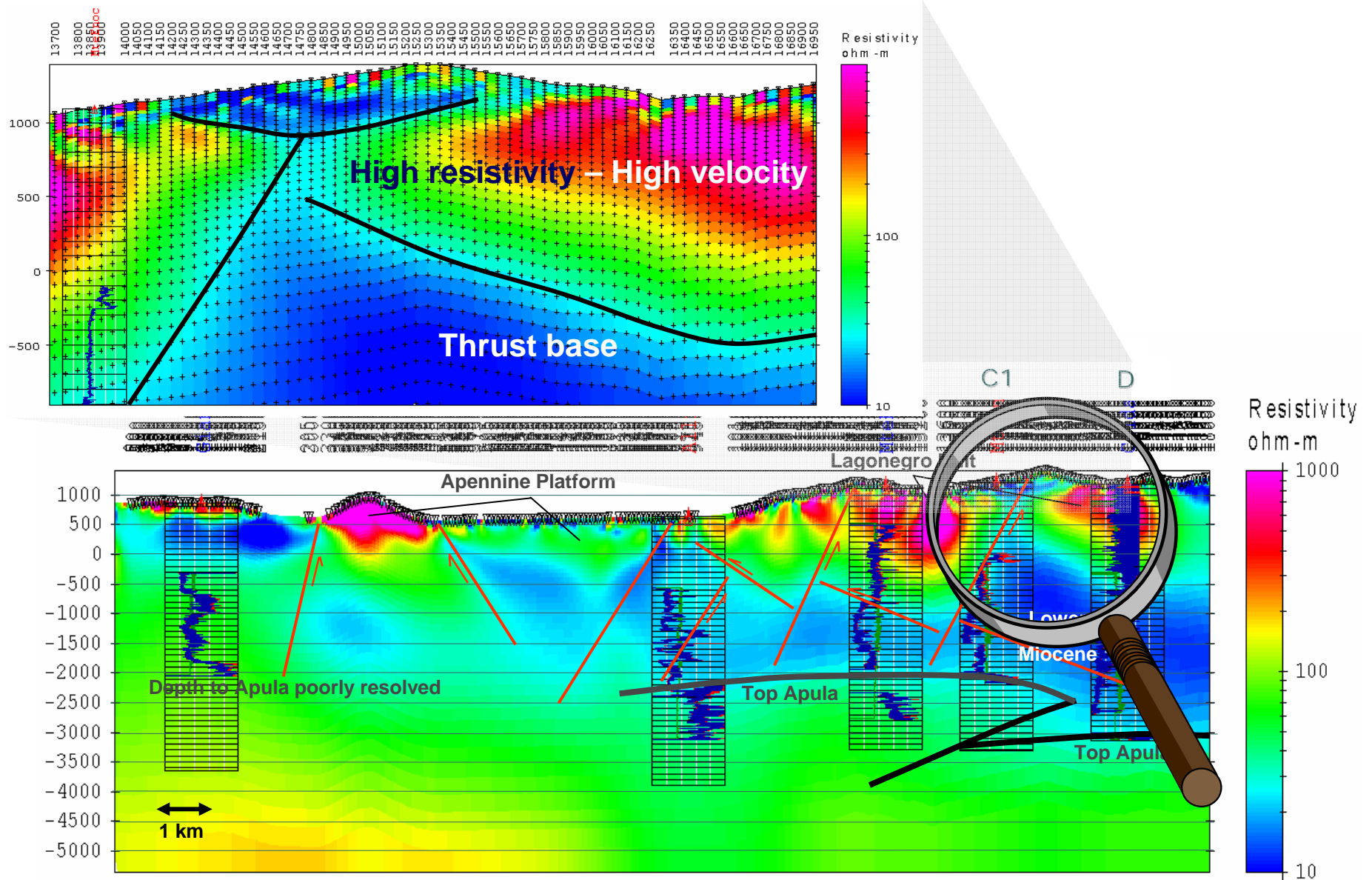
High res MT continuous profiling



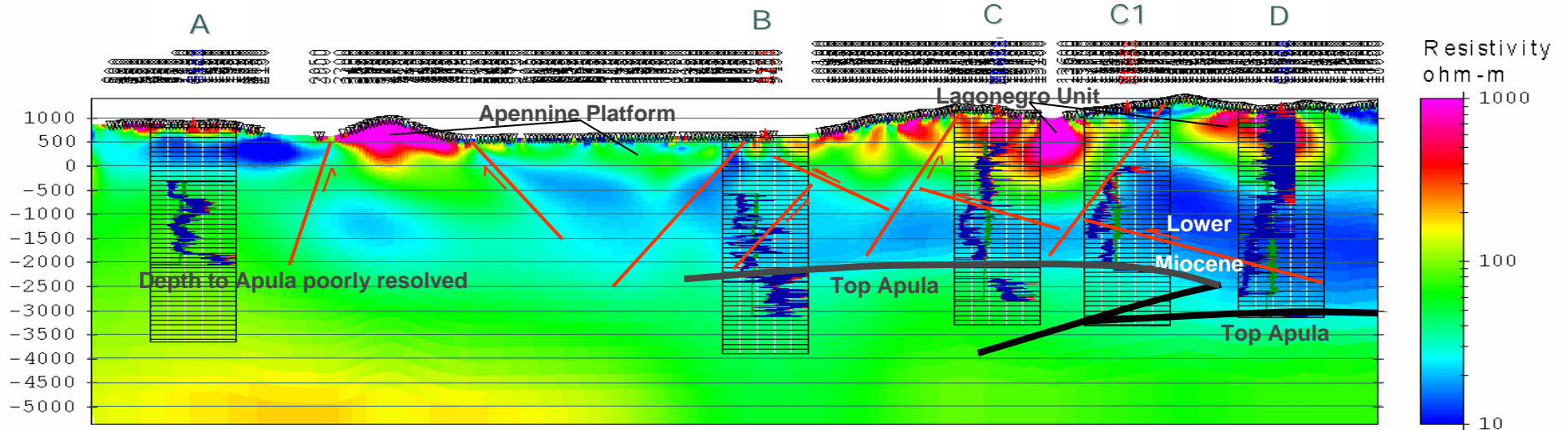
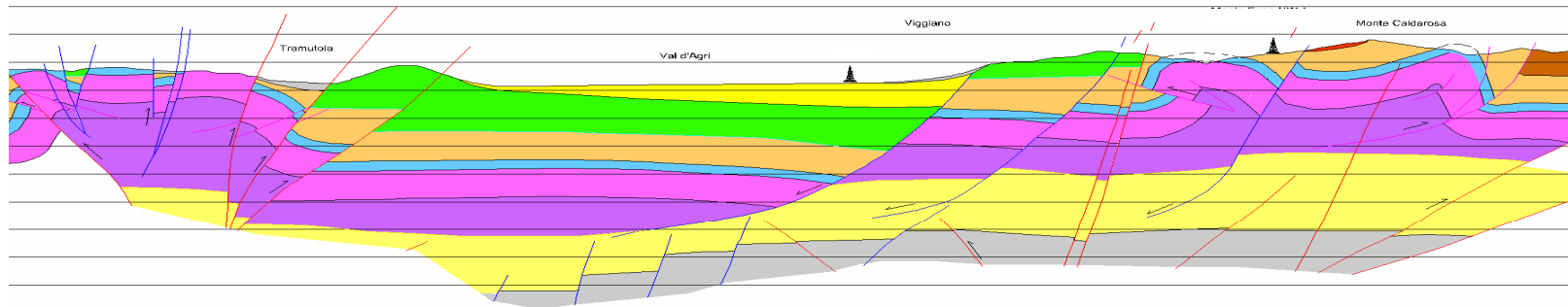
High Res MT data



High Res MT depth imaging



High Res MT imaging vs geology

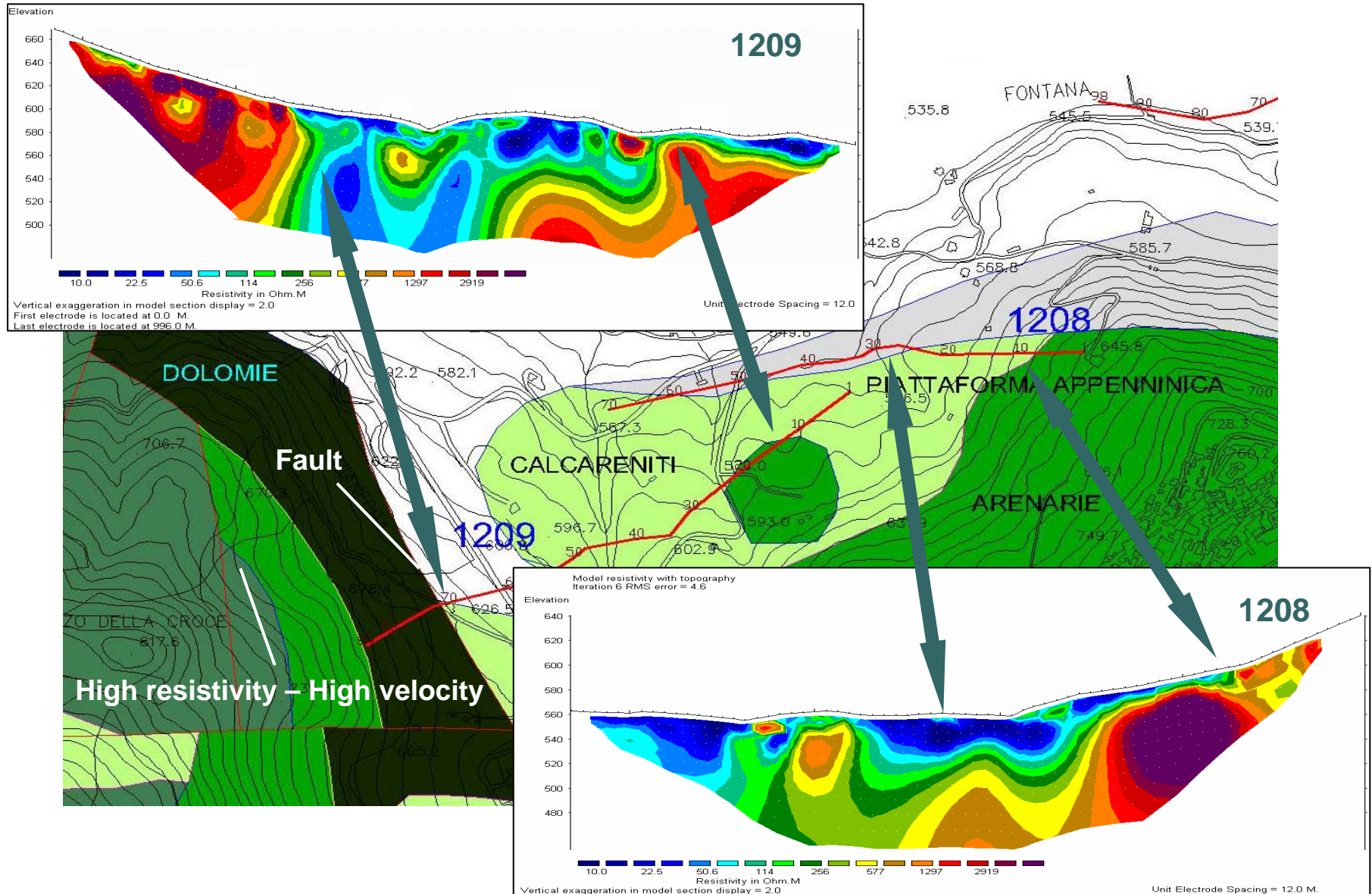


Non-seismic technologies

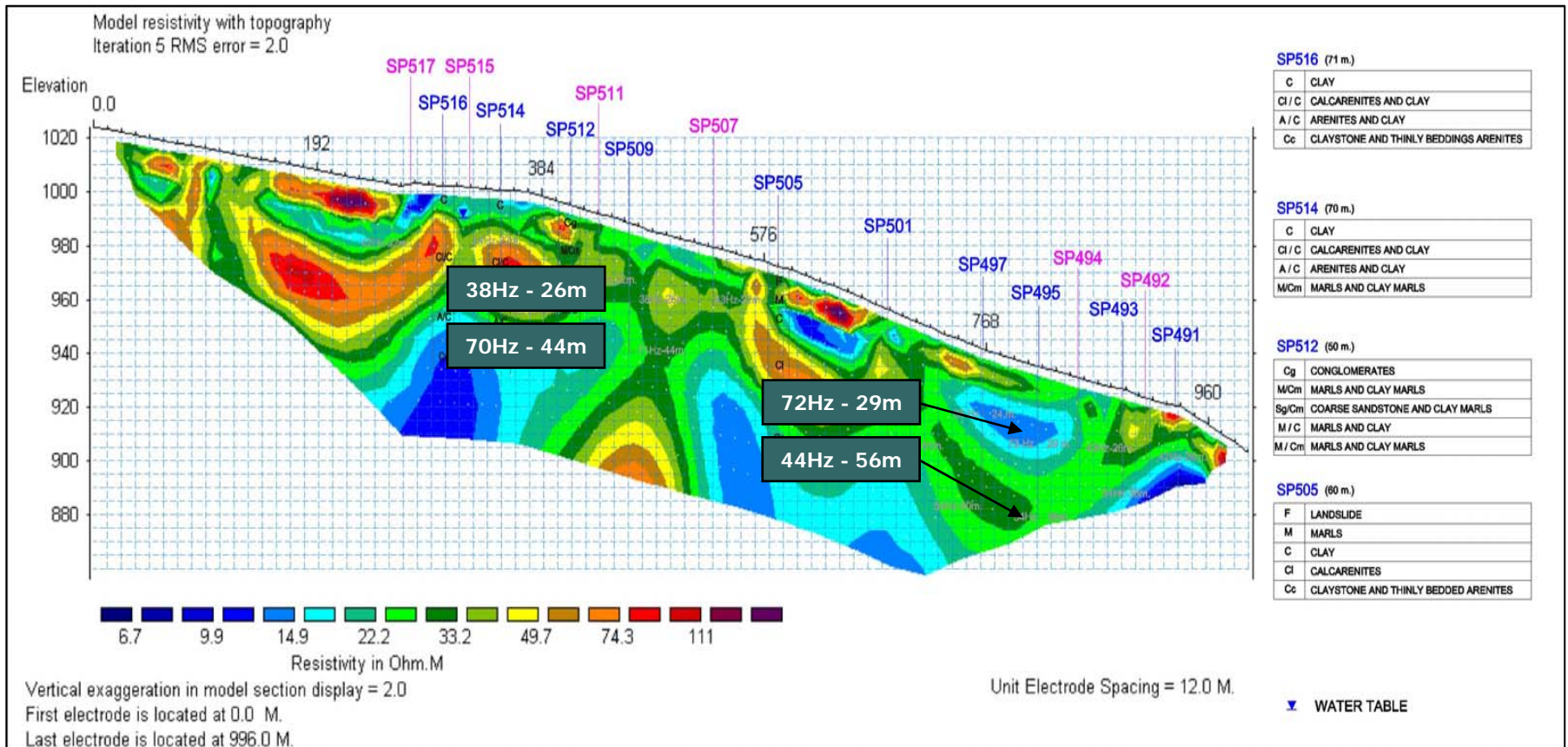
DC resistivity imaging

- **Distributed electrode system**
- **Schlumberger & Wenner arrays**
- **Unit electrode spacing = 6-12 m**
- **Section length = 1.2-2.4 km**
- **Interpreted depth down to 100 m**

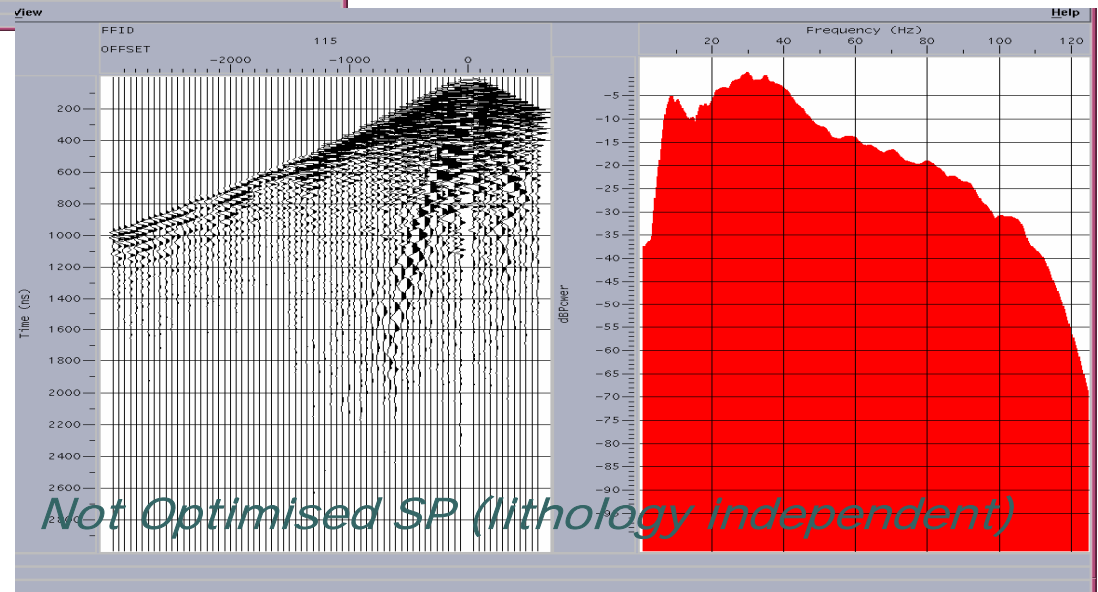
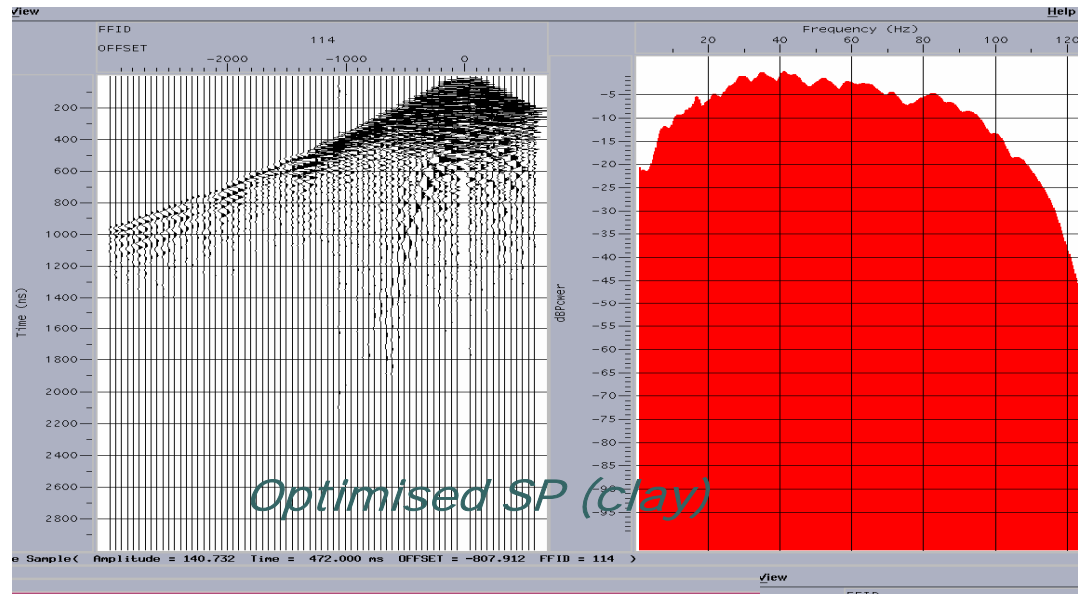
DC resistivity imaging



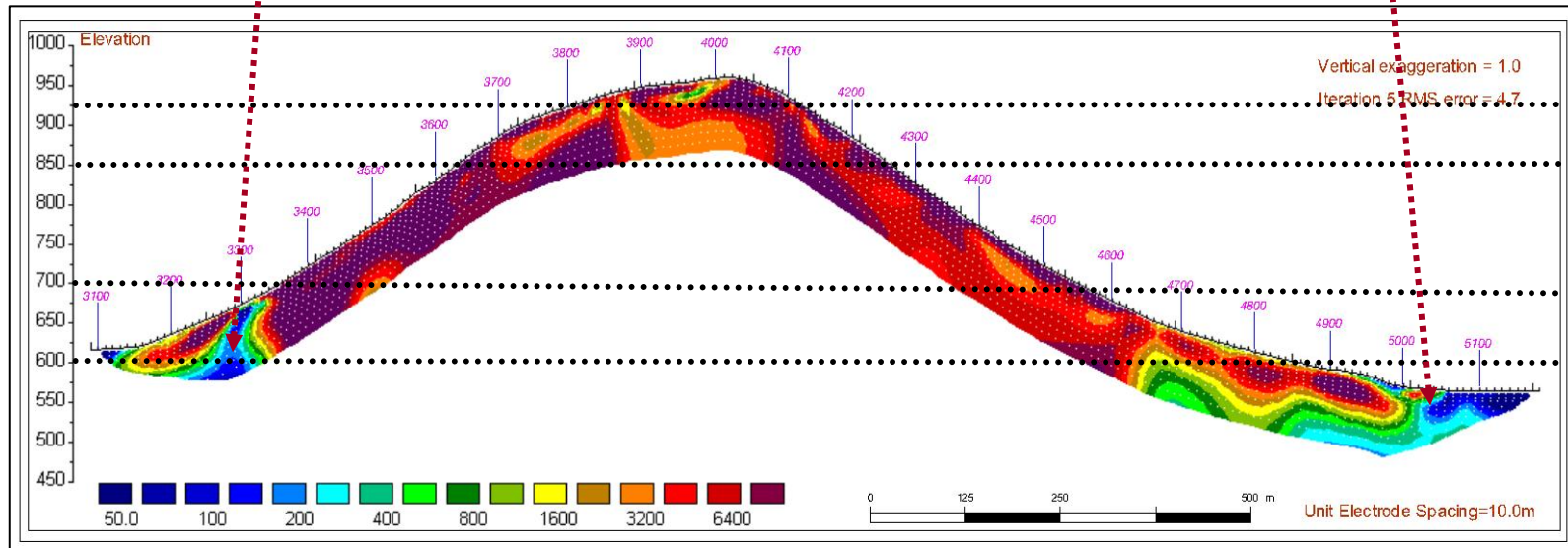
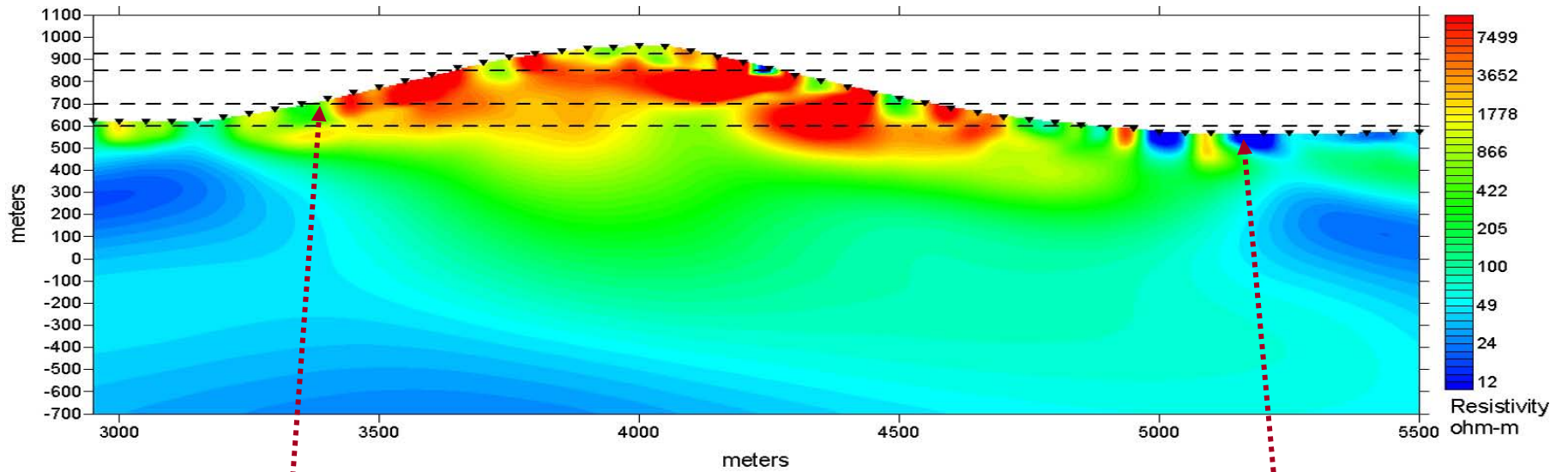
DC resistivity imaging & SP response



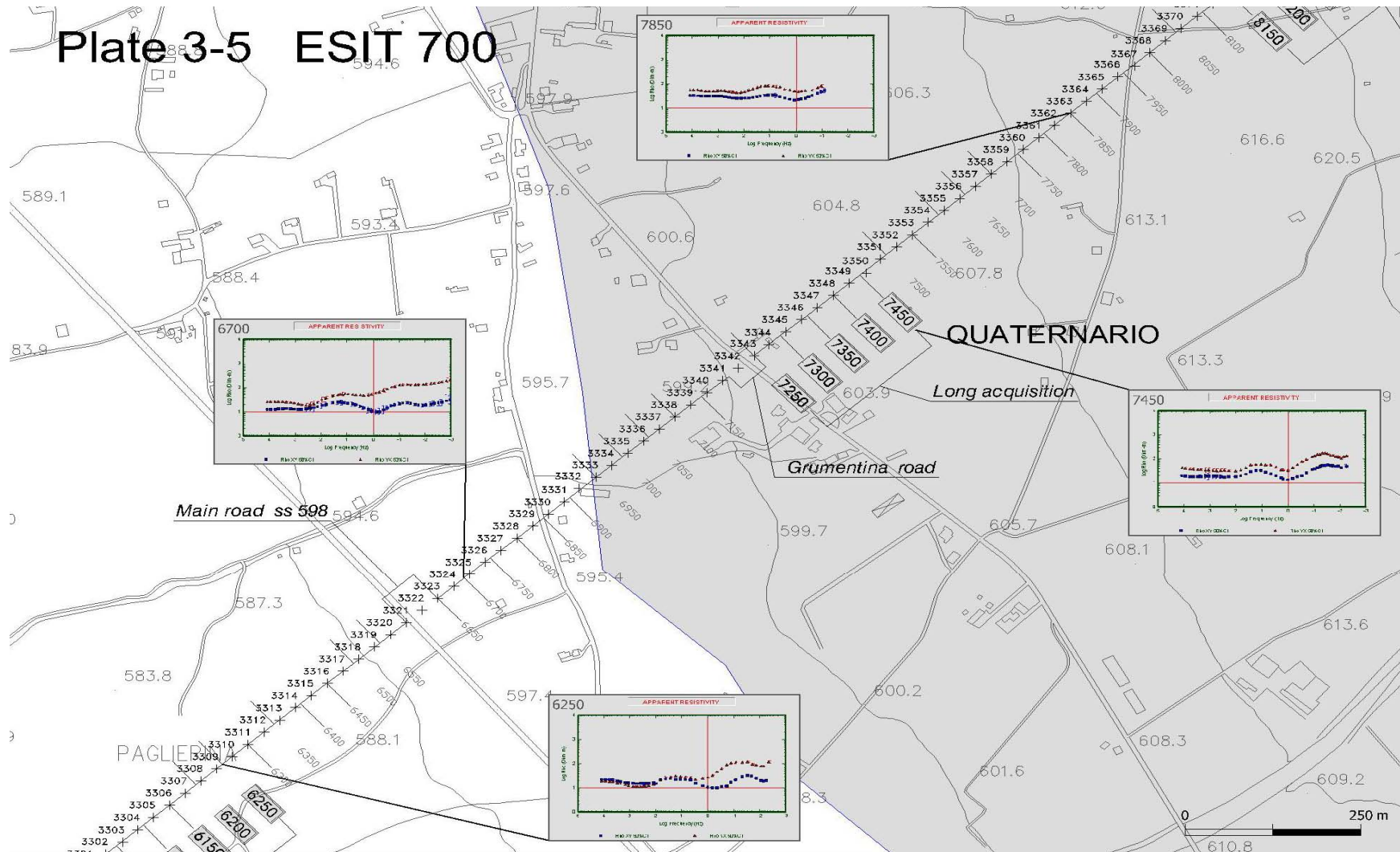
Optimized source placement



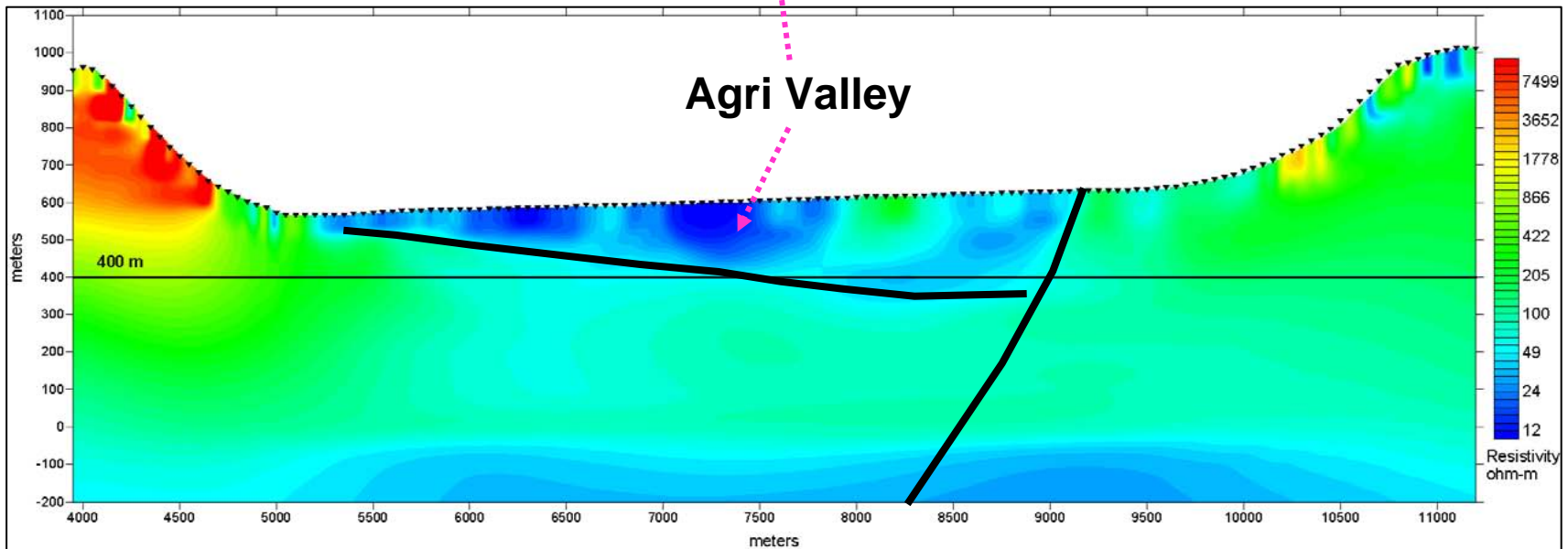
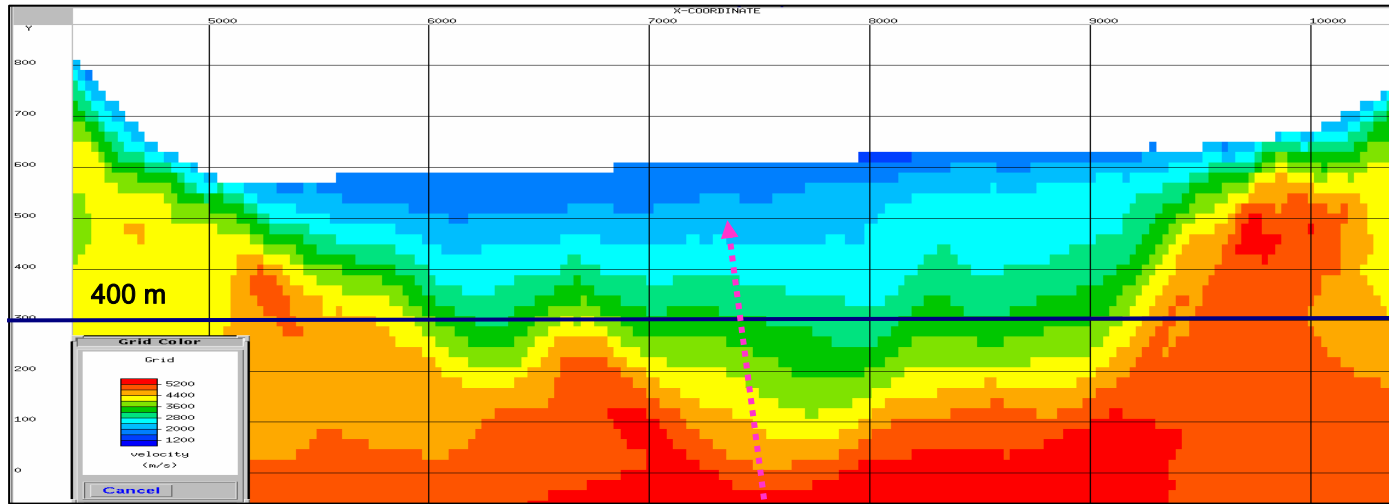
DC resistivity & HRMT imaging



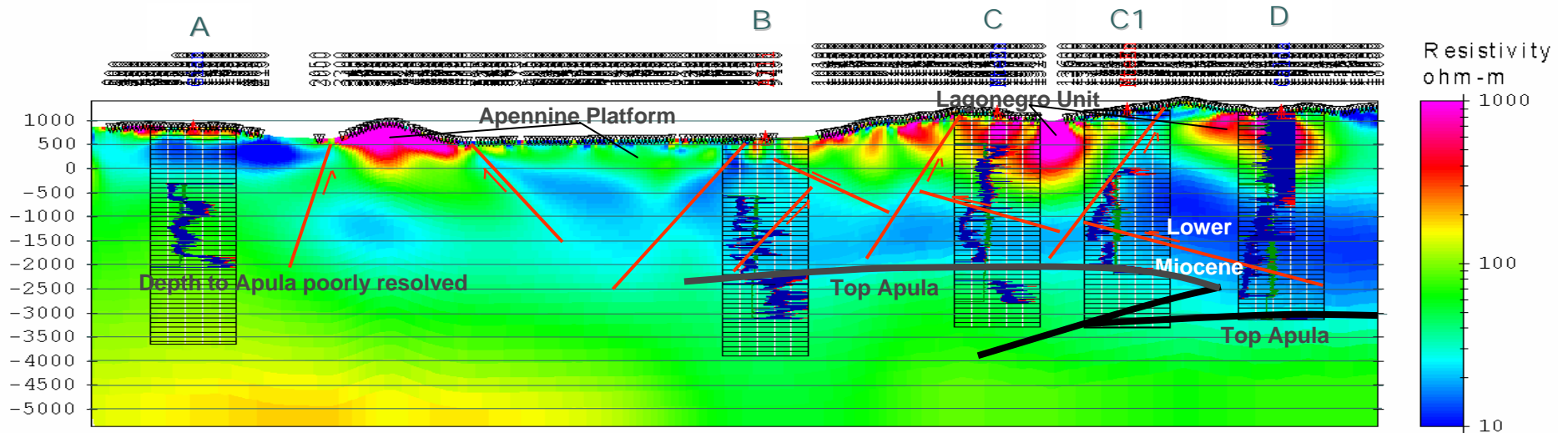
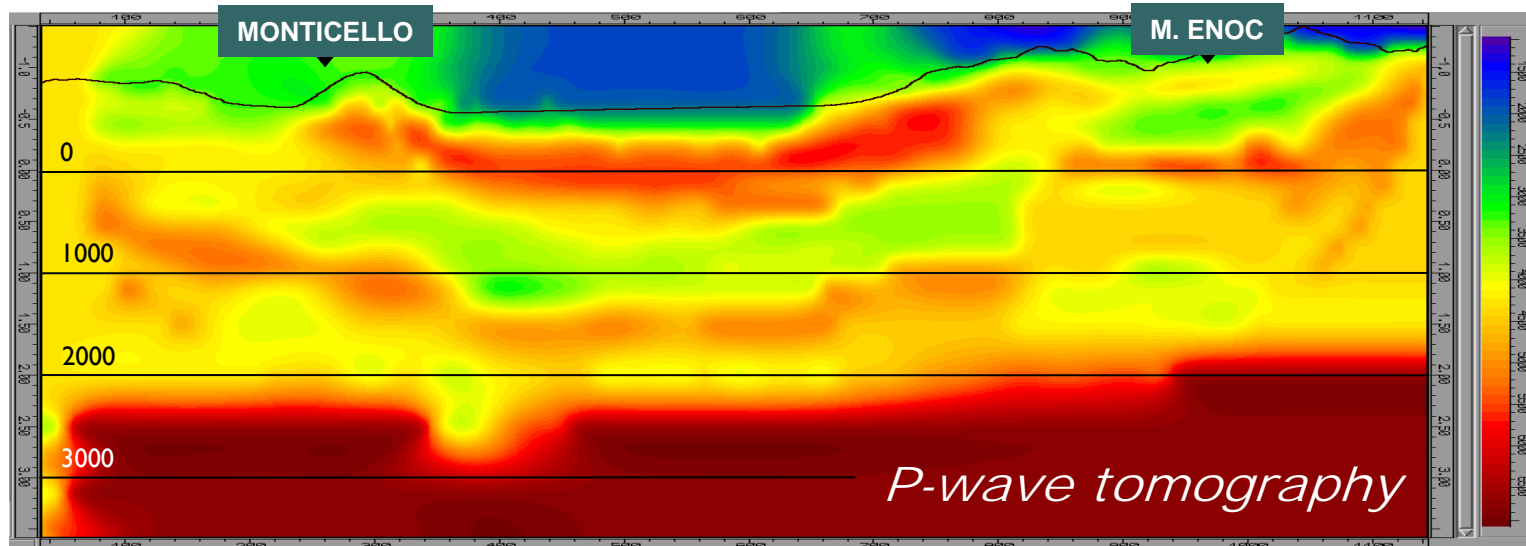
Seismic refraction & HRMT imaging



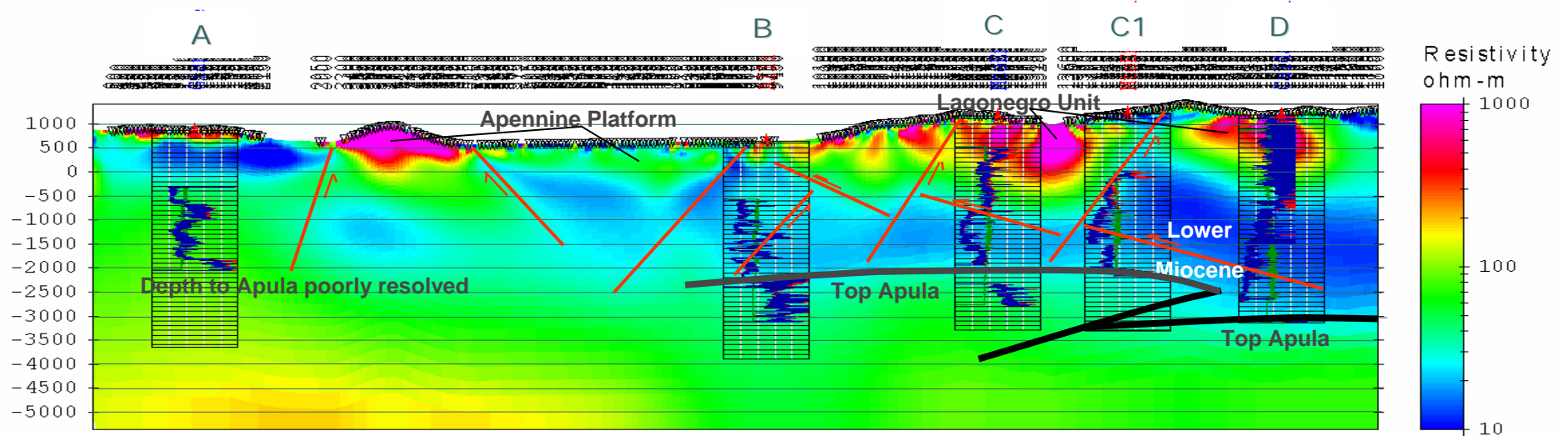
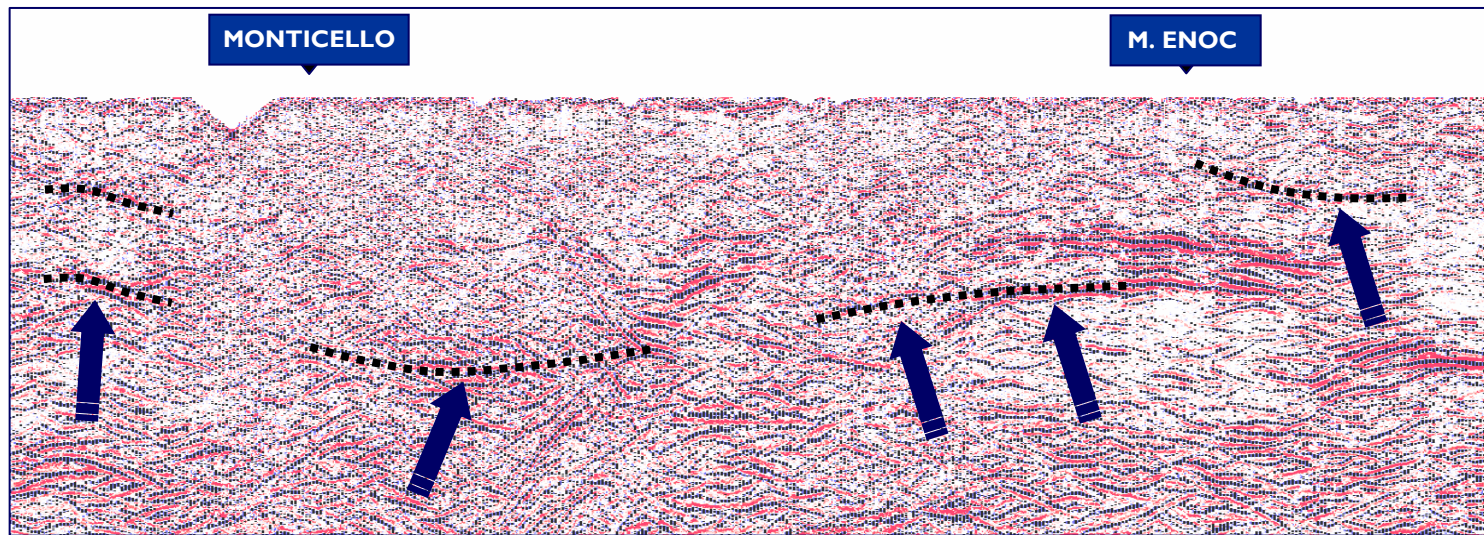
Seismic refraction & HRMT imaging



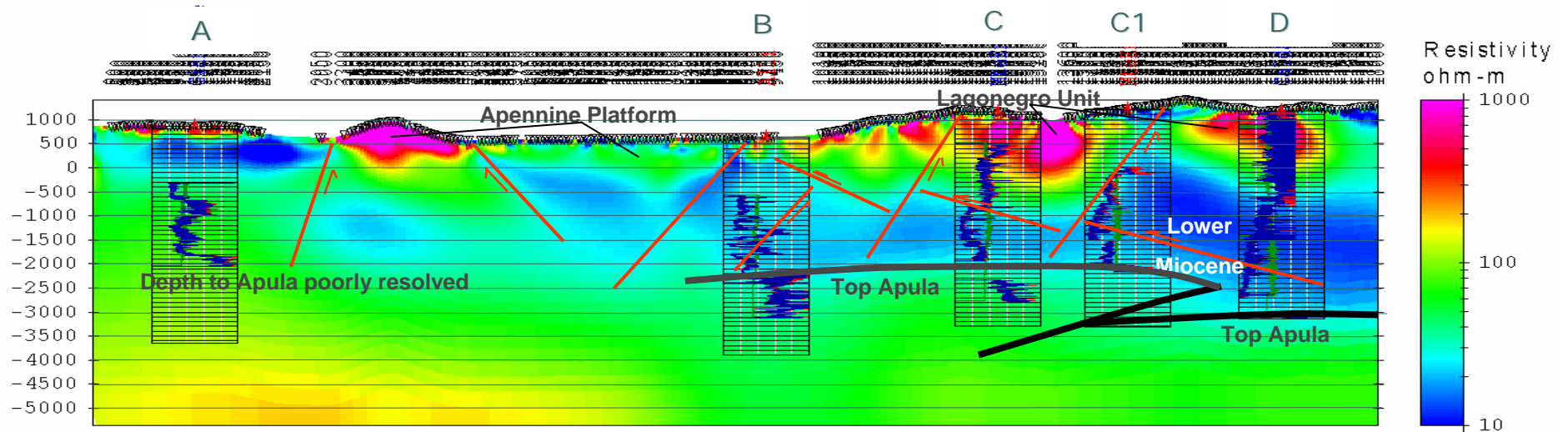
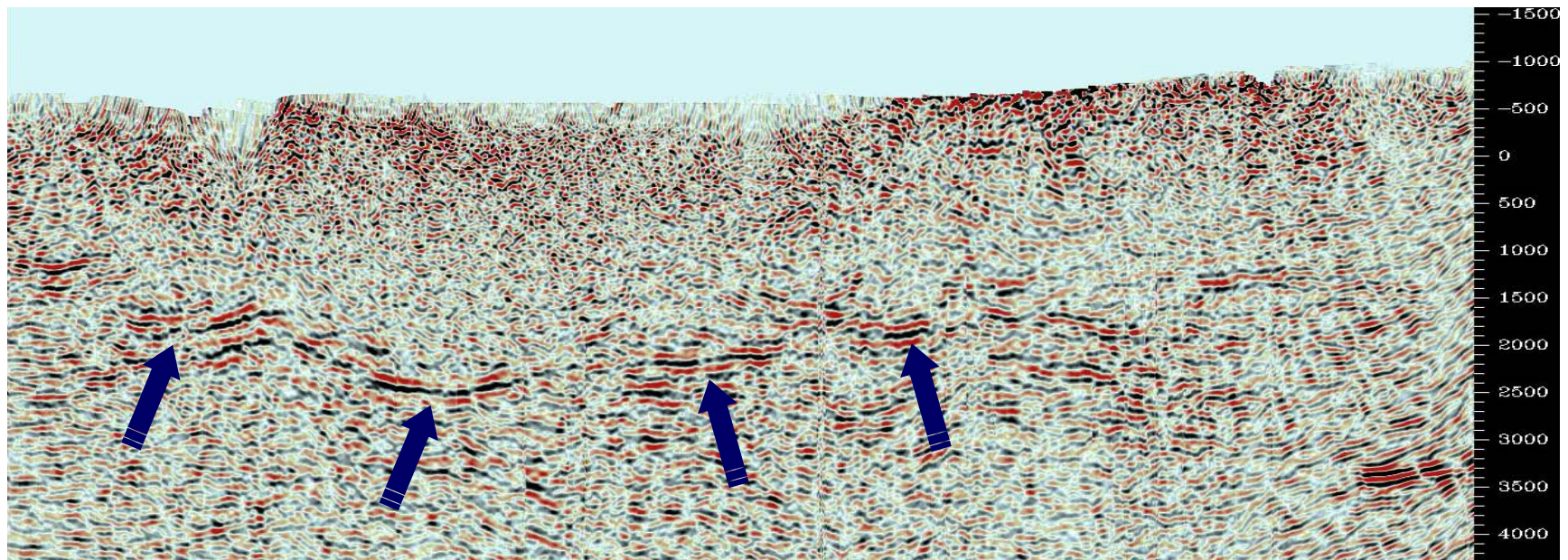
HRMT - seismic refraction synergy



Enhanced seismic depth imaging



Enhanced seismic depth imaging

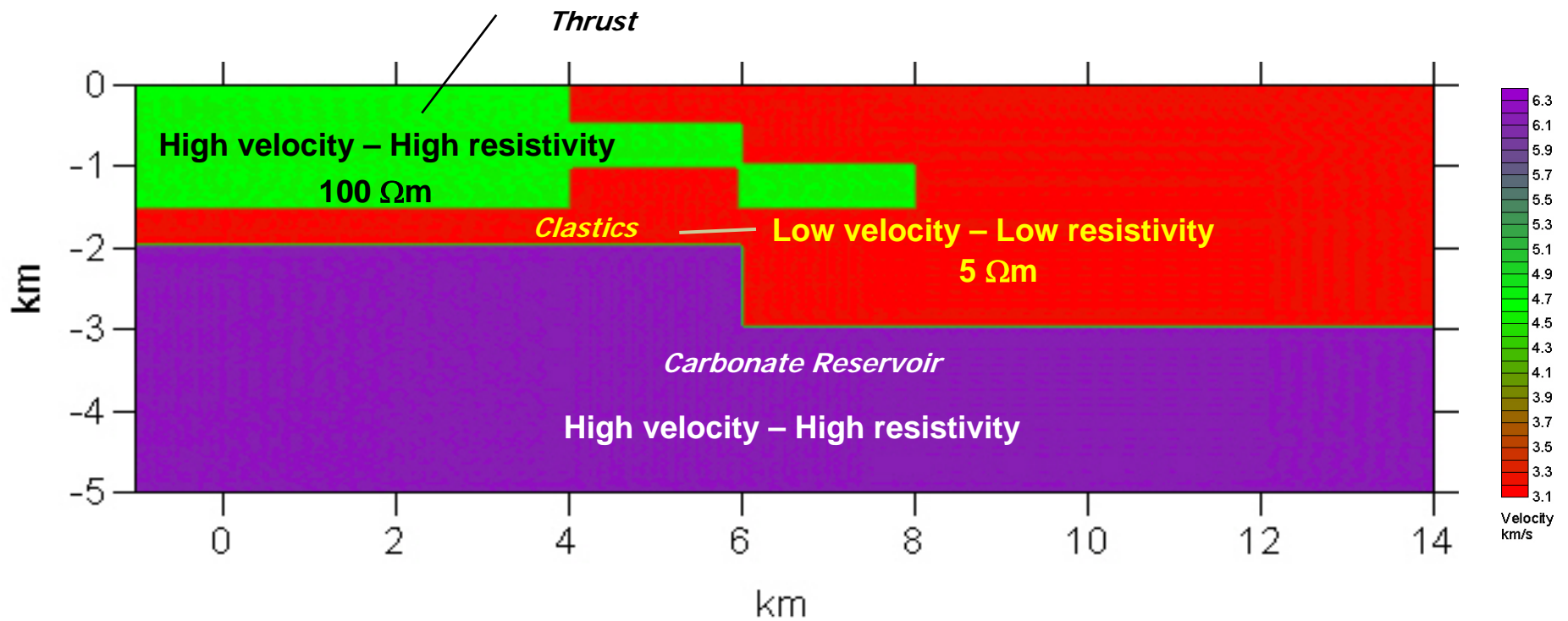


What's next ?

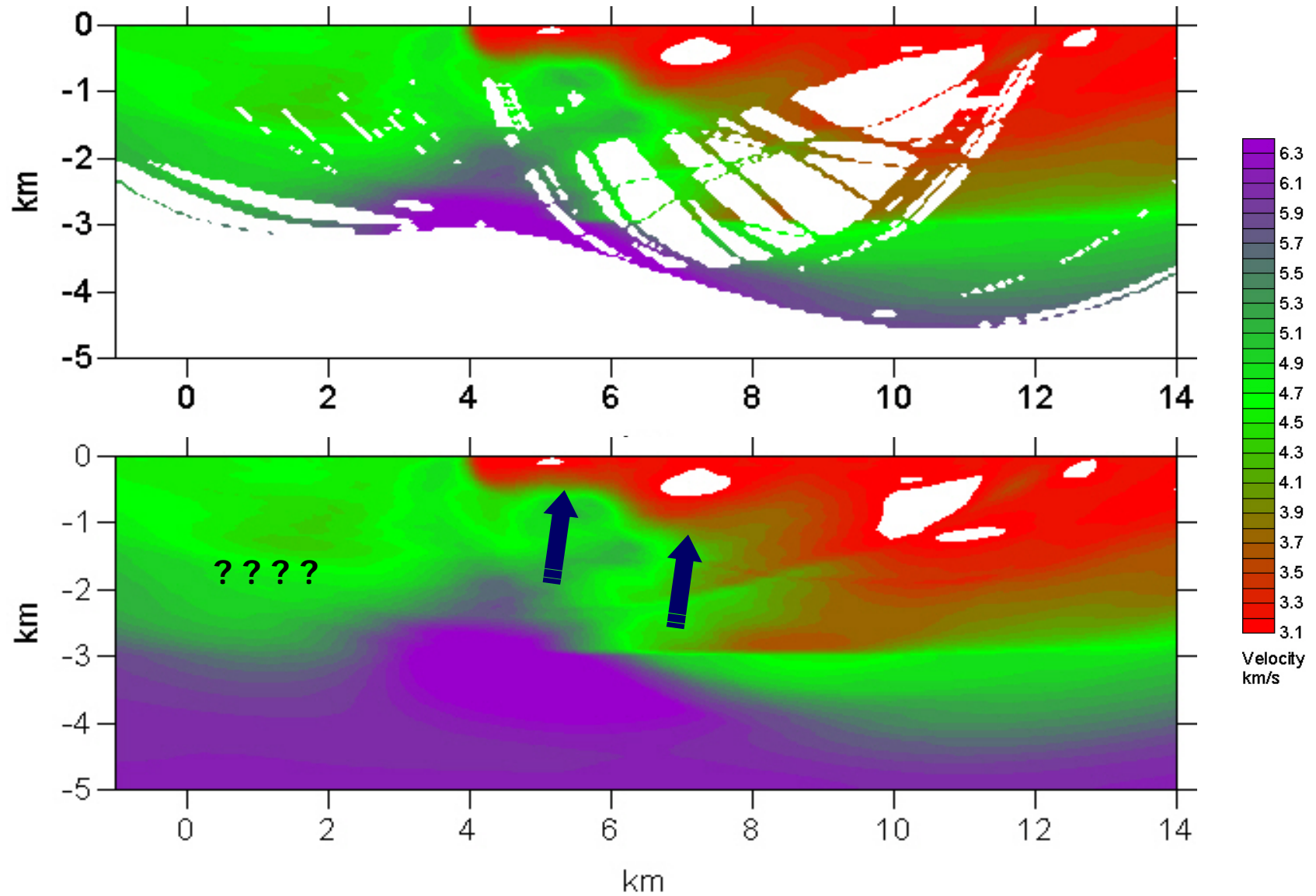
- ✓ **Increase data volume & productivity**
- ✓ **Progress joint imaging technology for PSDM updating**
- ✓ **Progress mapping from resistivity to seismic**
- ✓ **Tackle 3D joint imaging on cost effective clusters**
- ✓ **Deliver commercial solutions**

Joint seismic - MT depth imaging

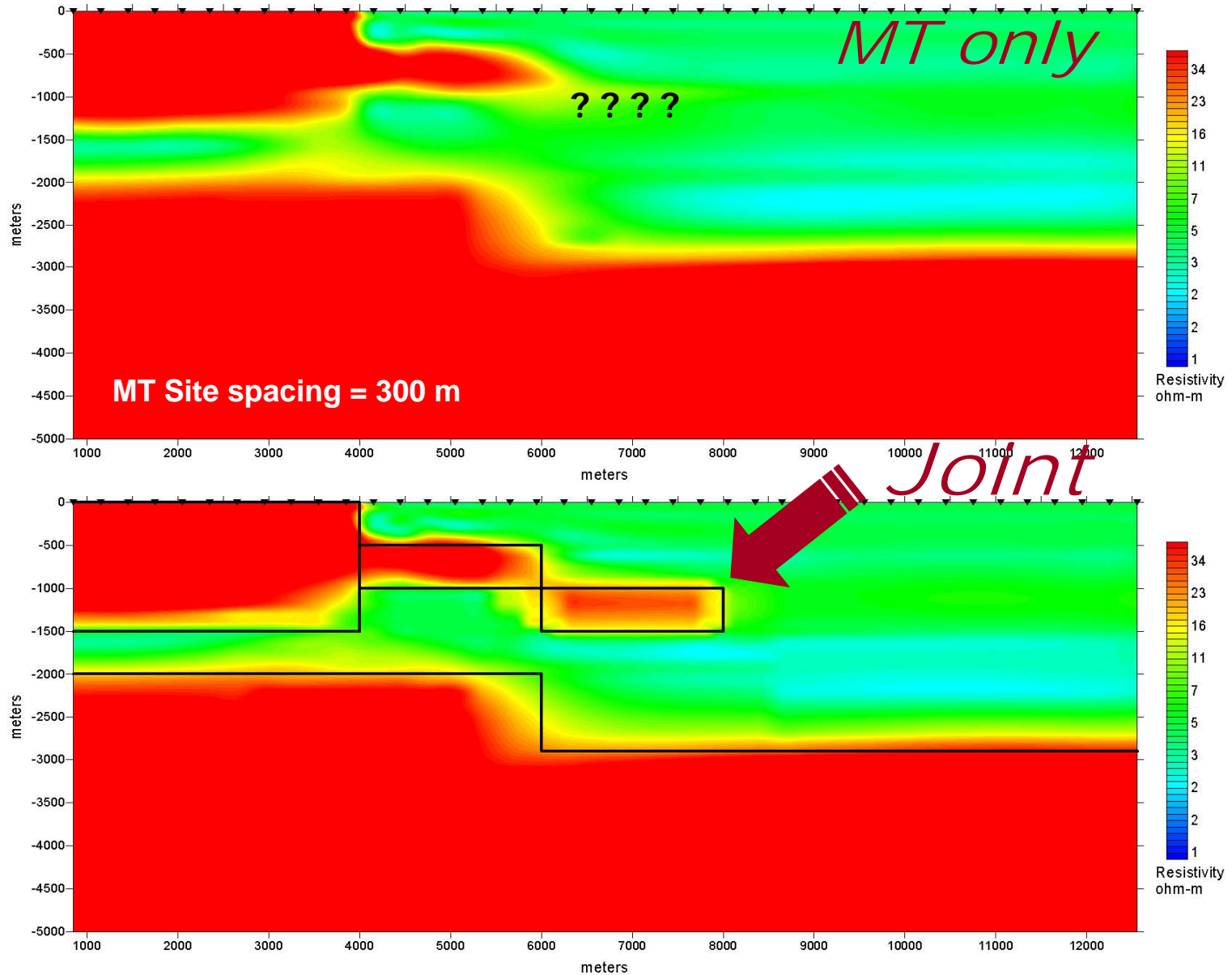
Reference model



Seismic refraction imaging



MT depth imaging



Acknowledgments

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- ✓ **Yuri Roslov**

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