

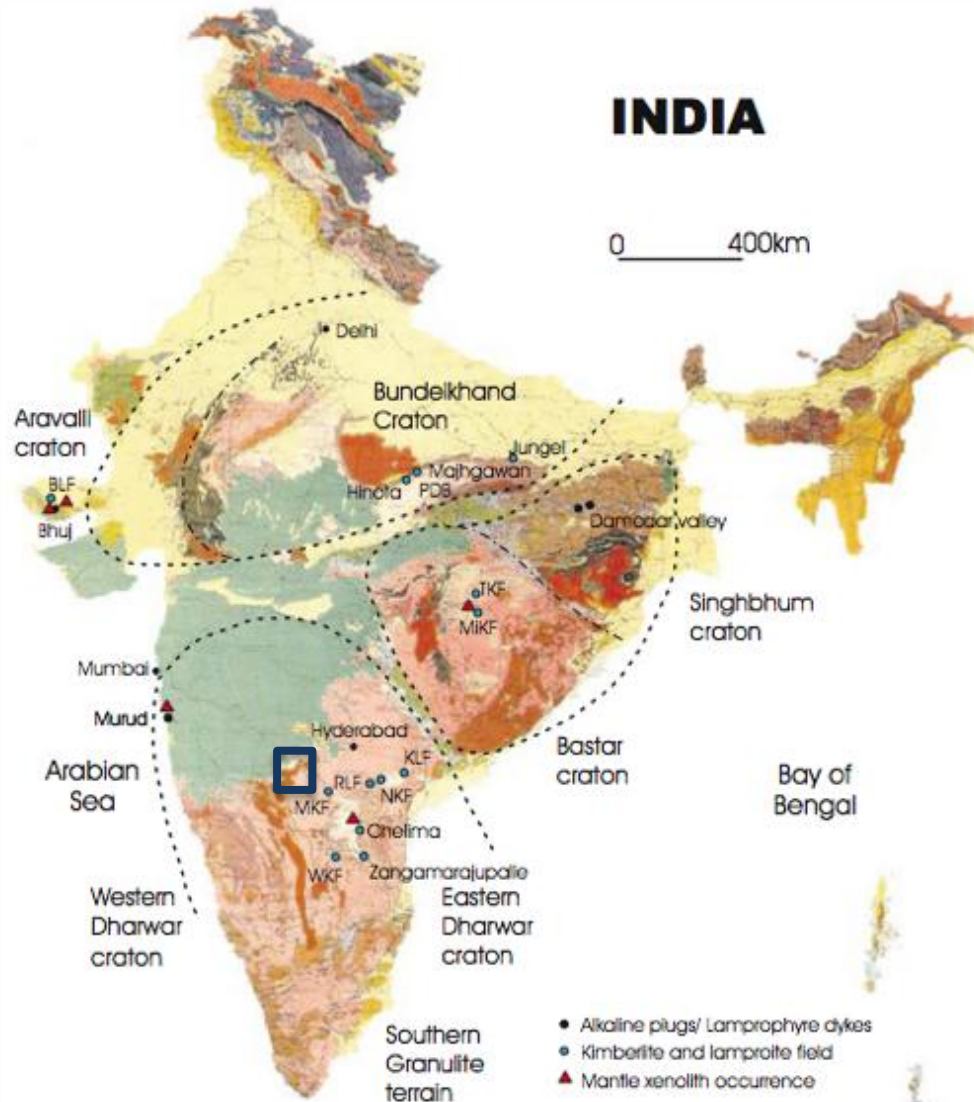
3D inversion of The Bhima basin MT dataset

Xavier Garcia

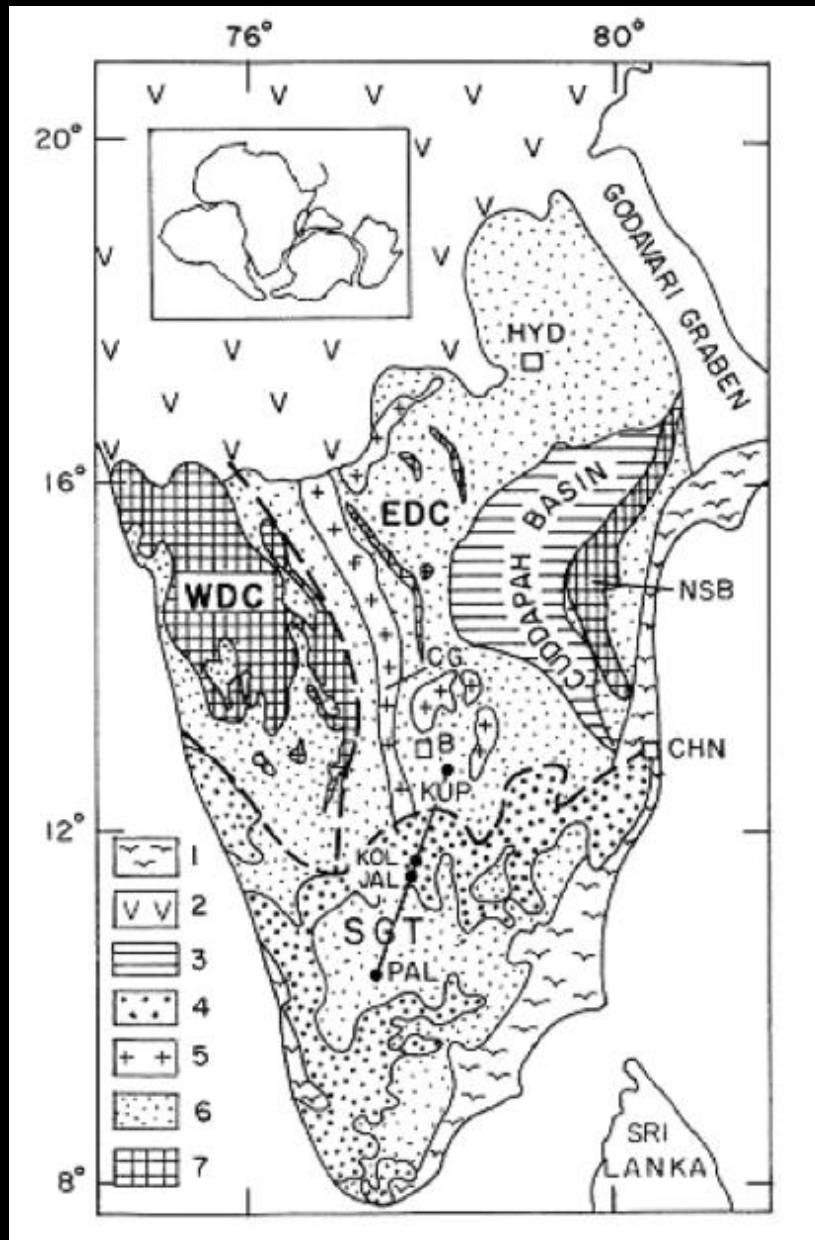


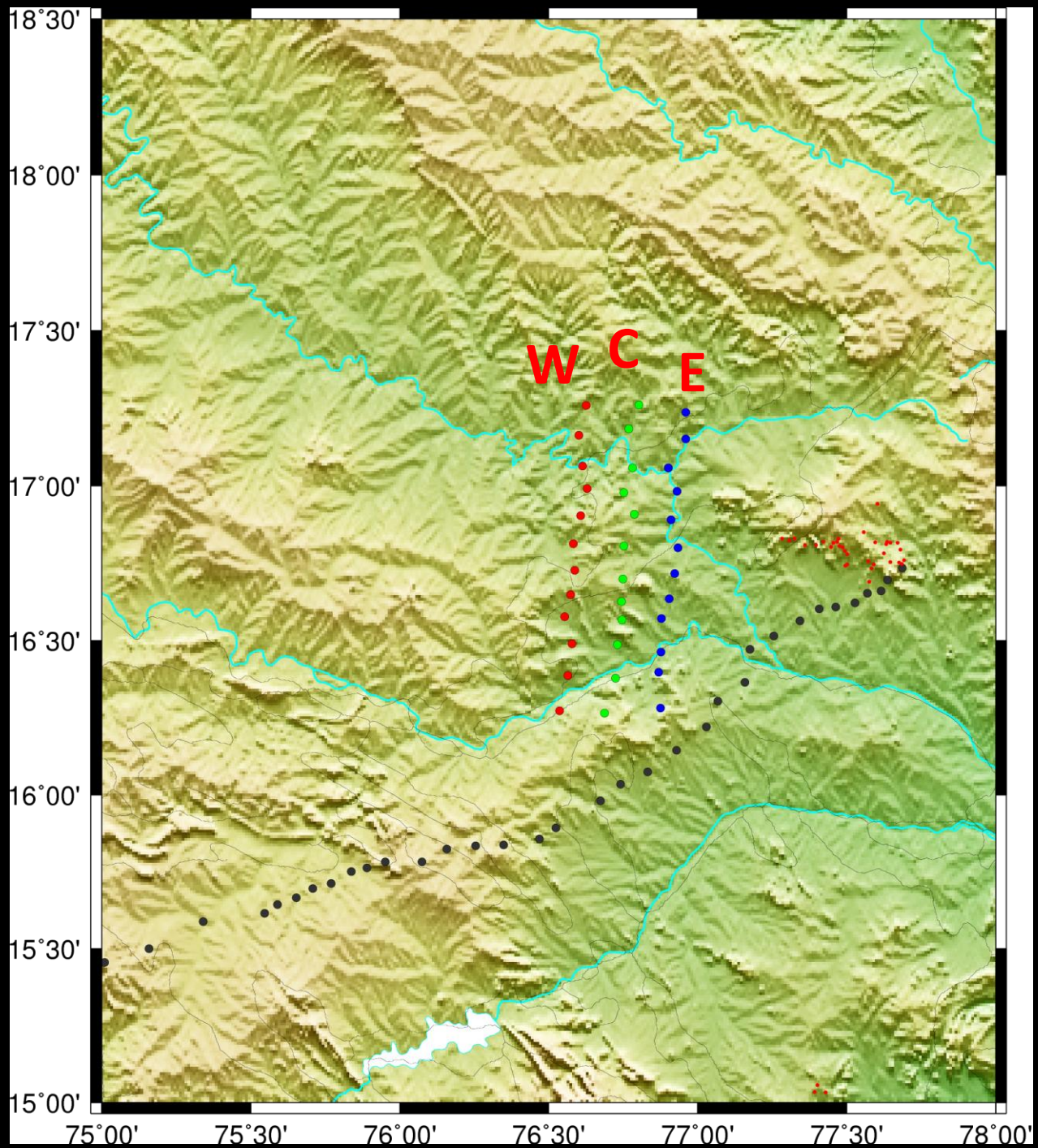
INDIA

0 400km



- Alkaline plugs/ Lamprophyre dykes
- Kimberlite and lamproite field
- ▲ Mantle xenolith occurrence

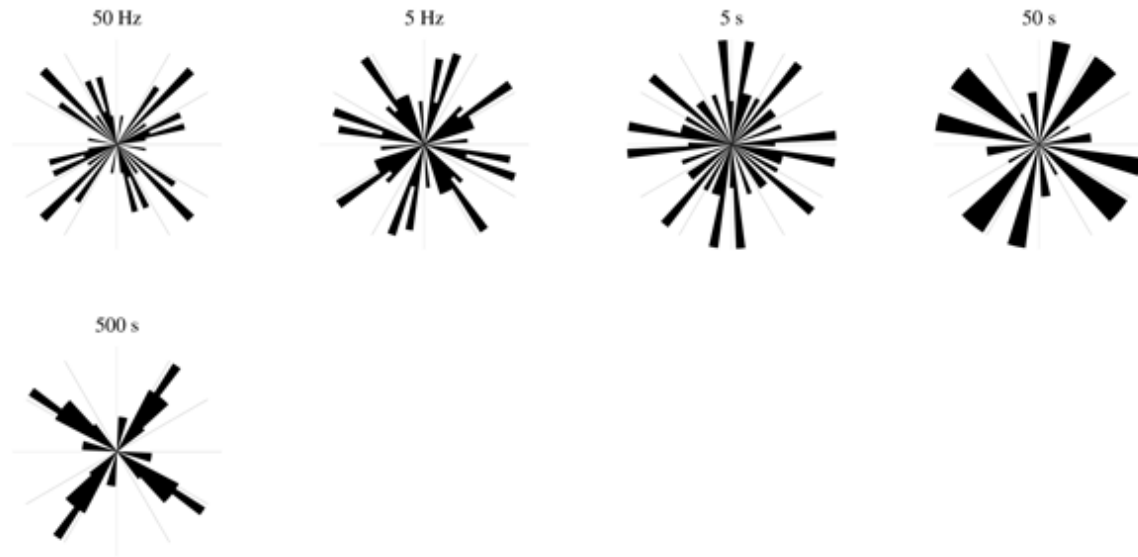




Strike Analysis

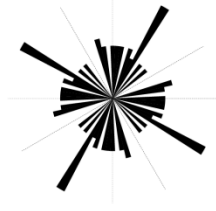
- “strike” algorithm (McNeice and Jones, 2001)
- Based on Groom and Bailey decomposition (Groom and Bailey, 1989)
- Individual sites
- Individual frequencies
- Finally decades to estimate best strike angle

Line E

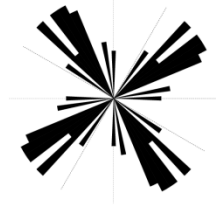


Line C

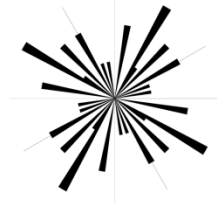
50 Hz



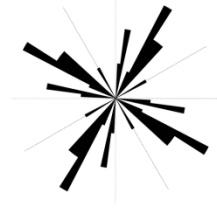
5 Hz



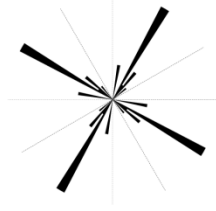
5 s



50 s

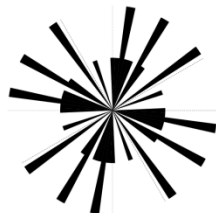


500 s

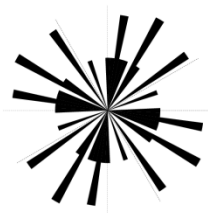


Line W

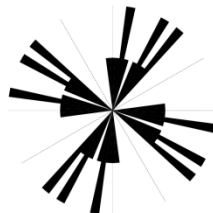
500 Hz



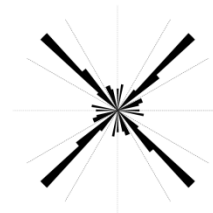
100 Hz



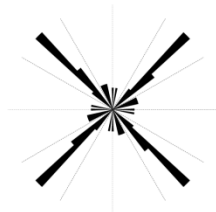
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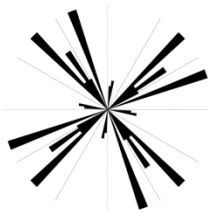
10 Hz



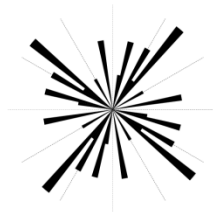
5 Hz



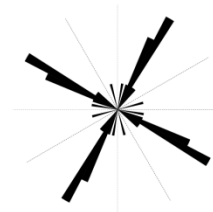
1 s



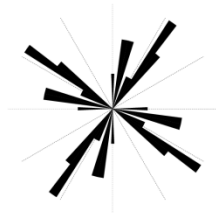
5 s



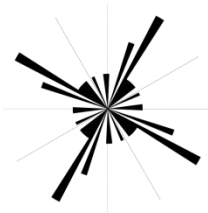
10 s



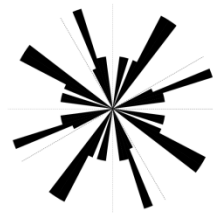
50 s



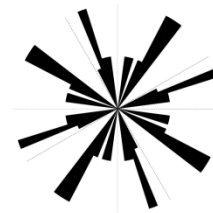
100 s



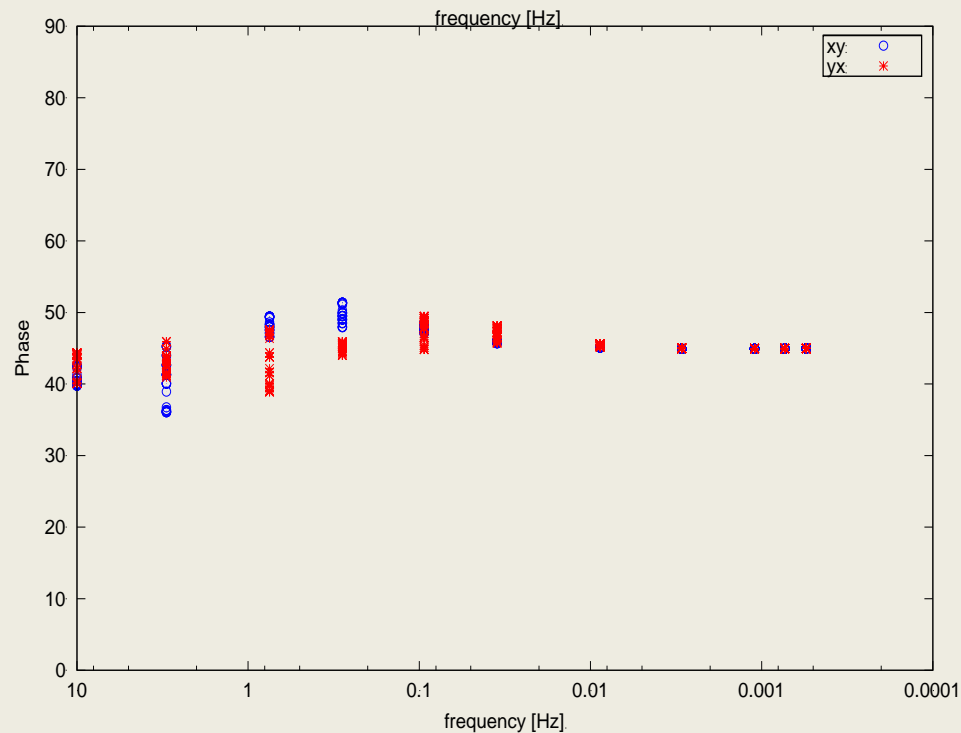
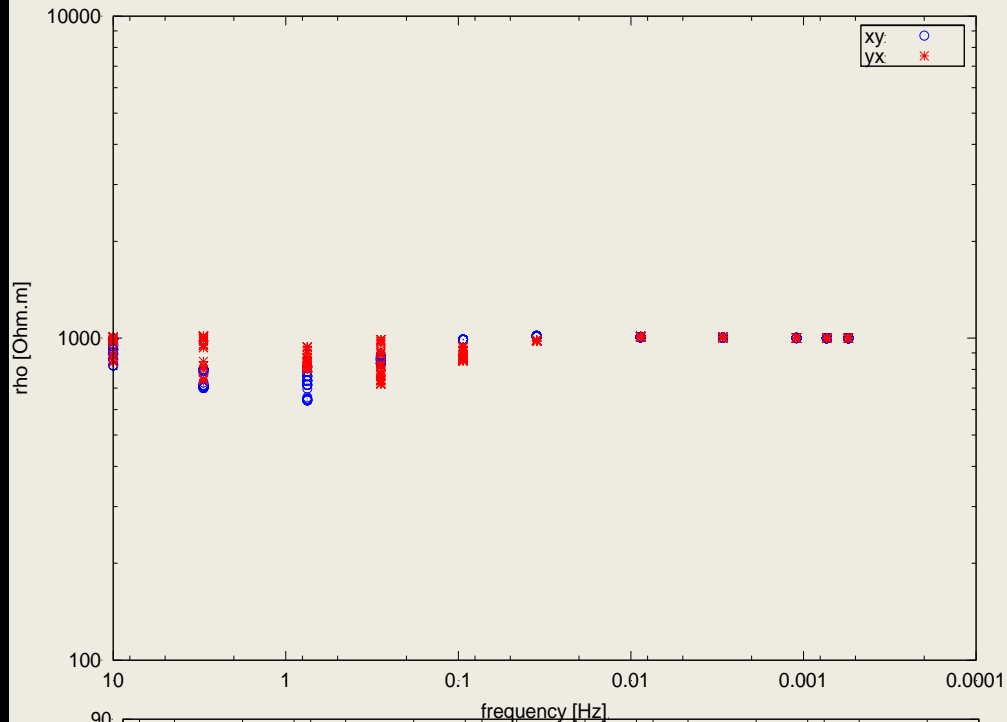
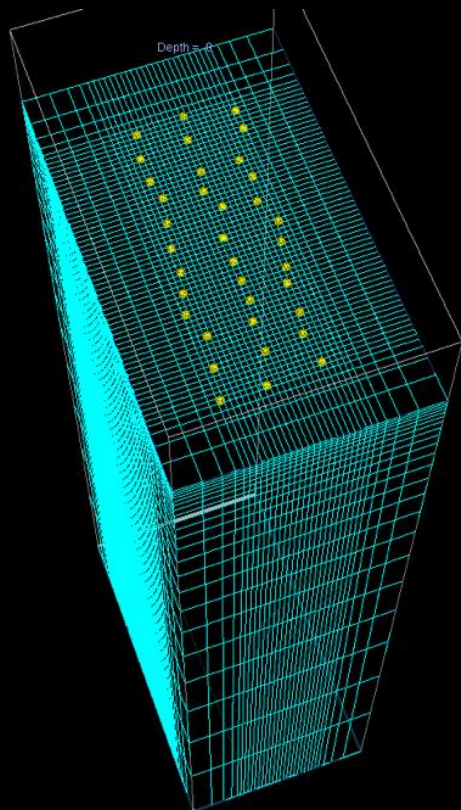
500 s



1000 s



Mesh

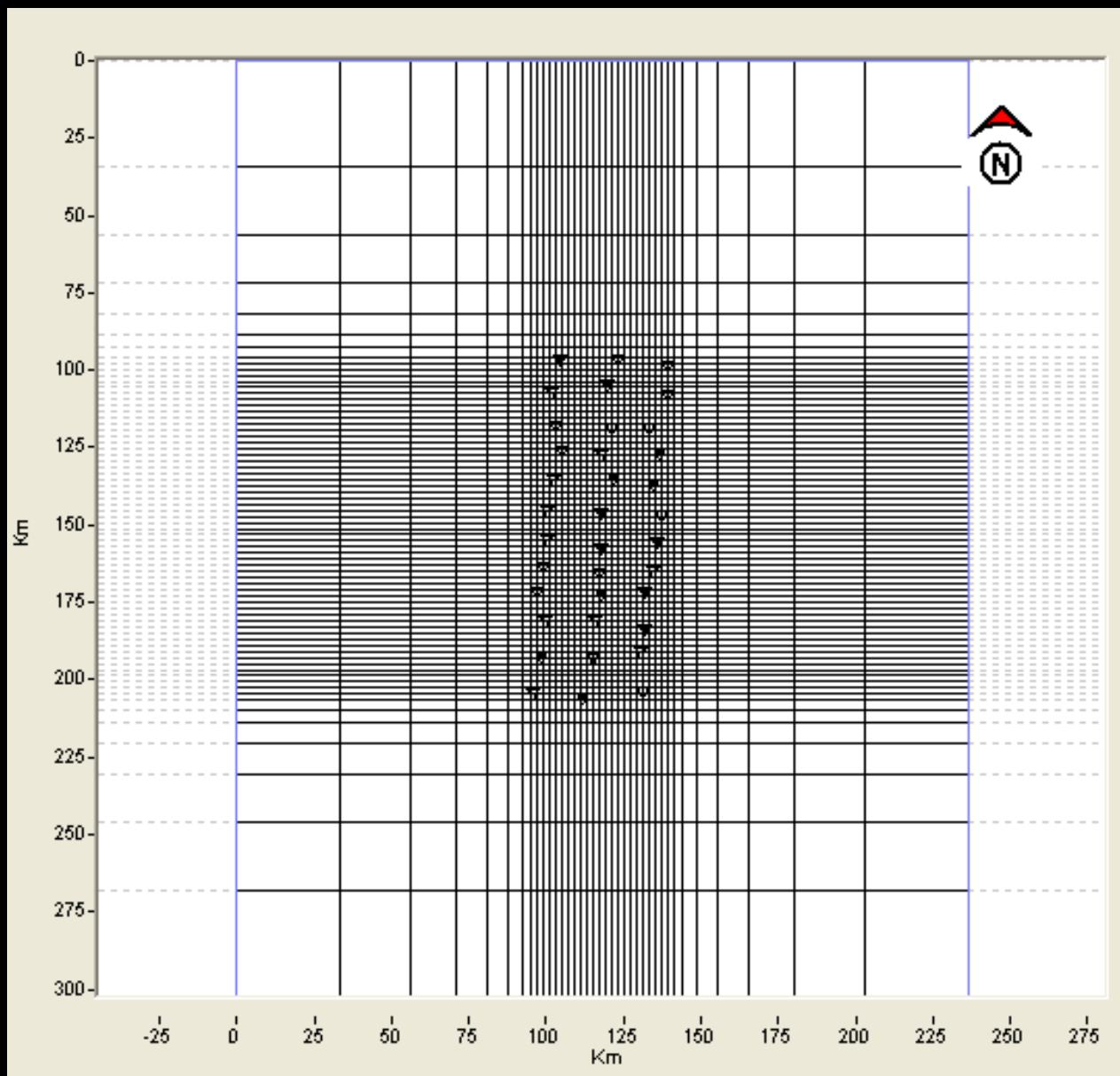


WSINV3D:

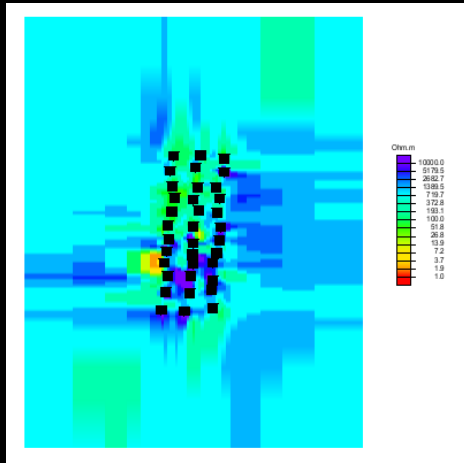
- Mesh: 70x37x29
- 11 frequencies: 10Hz to 1820s
- 1 single processor

MT3DINV:

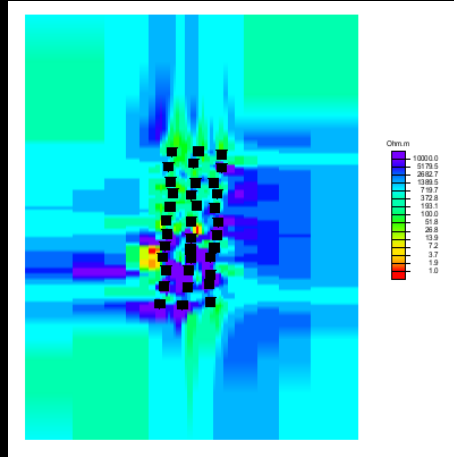
- Mesh: 33x66x44
- 11 frequencies: 10Hz to 1820s
- Cluster: 8 processors



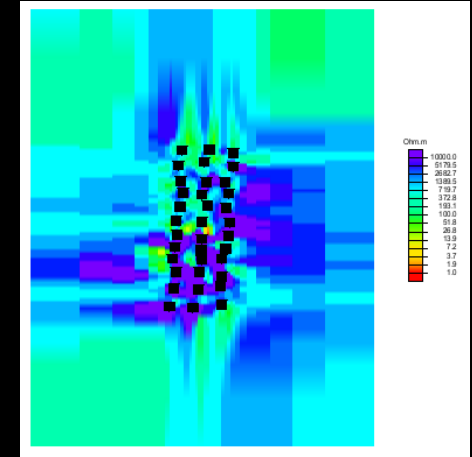
0-500 m



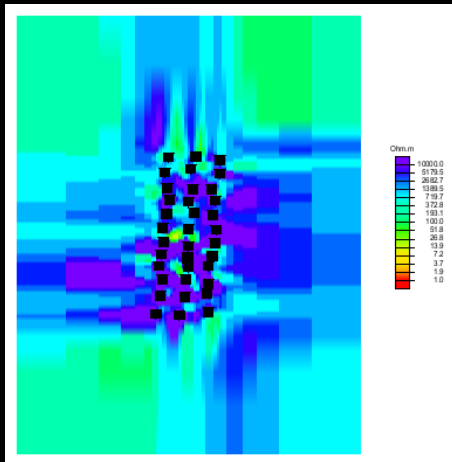
500-1100 m



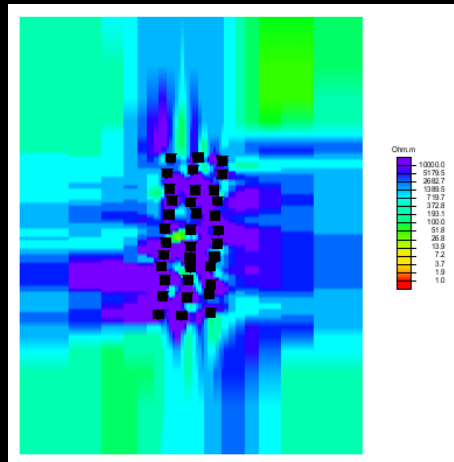
1100-1820 m



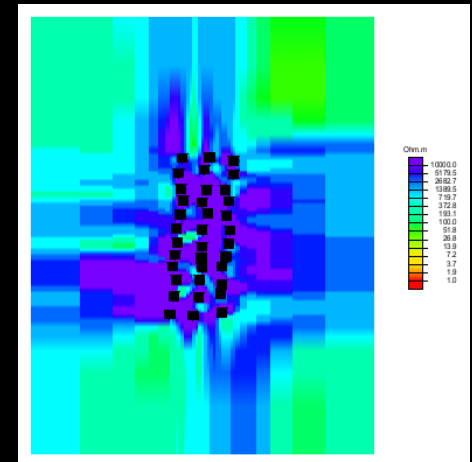
1100-2684 m



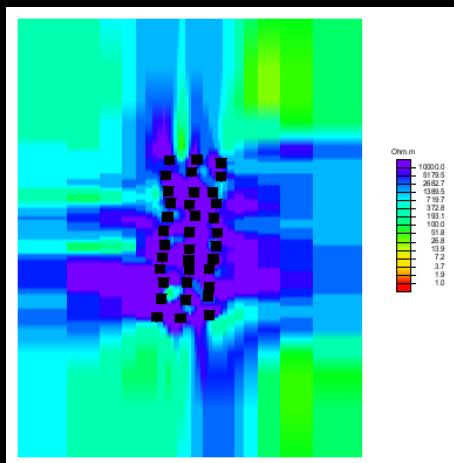
2684-3721 m



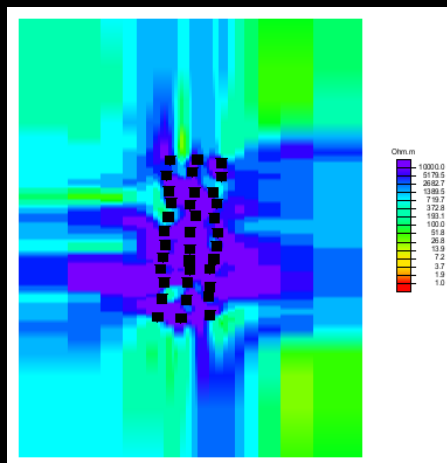
3721-4965 m



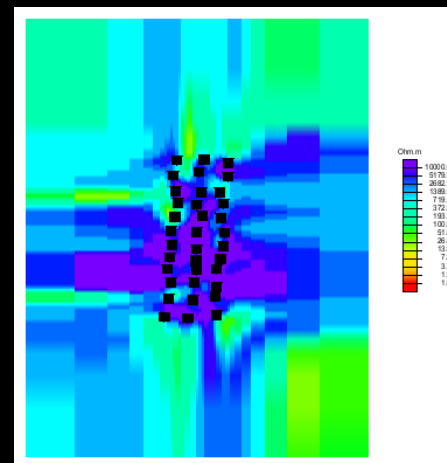
4965-6458 m



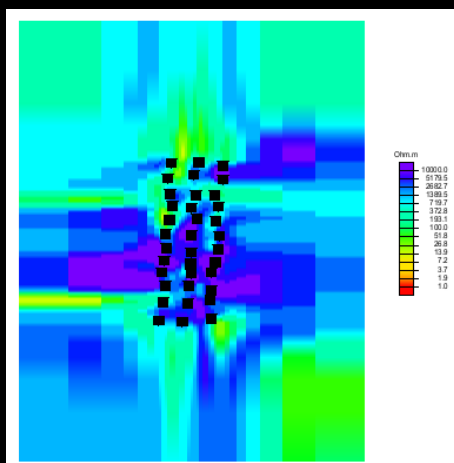
6458-8250 m



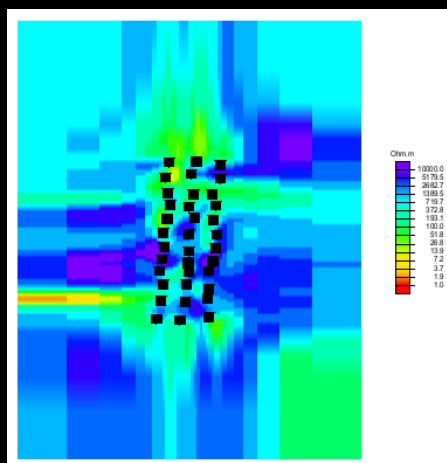
8250-10400 m



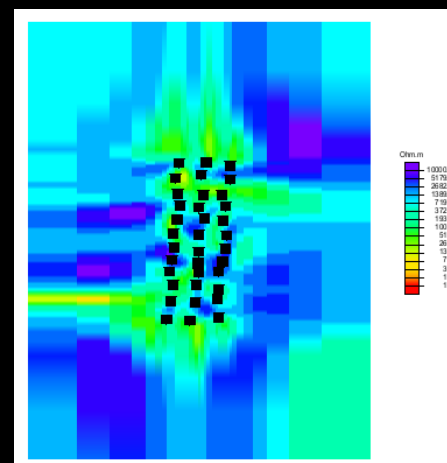
10400-12980 m



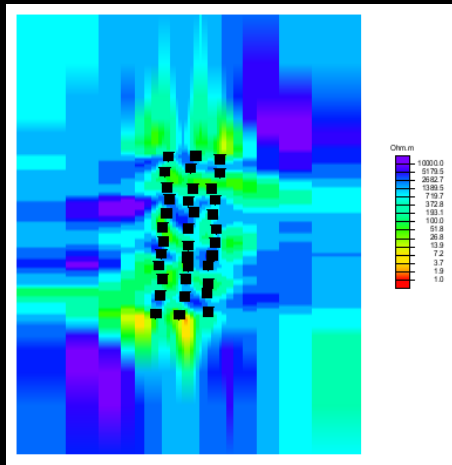
12980-16076 m



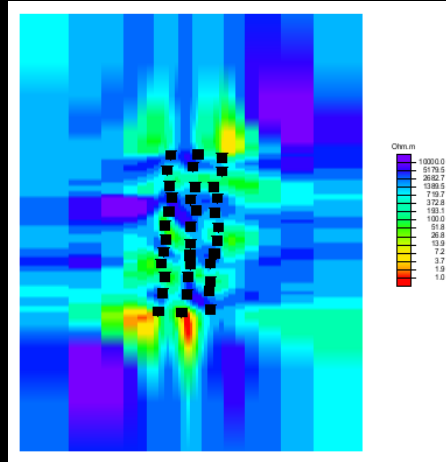
16076-19791 m



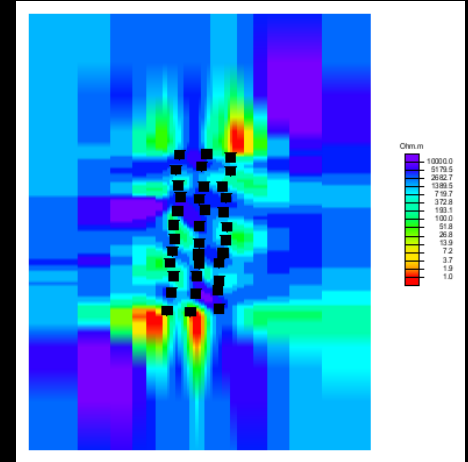
19791-24249 m



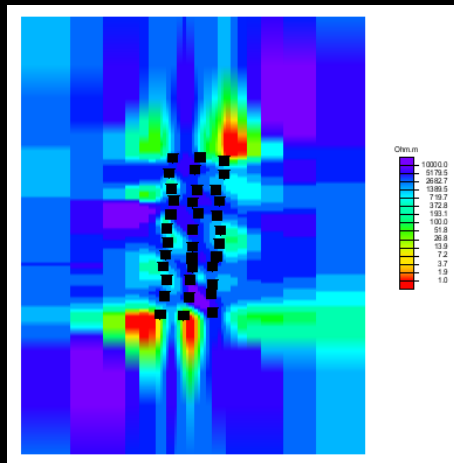
24249-29599 m



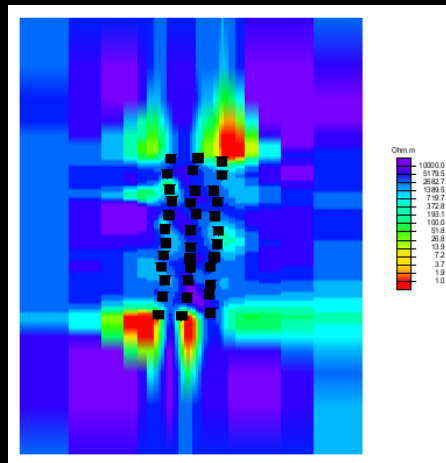
29599-36019 m



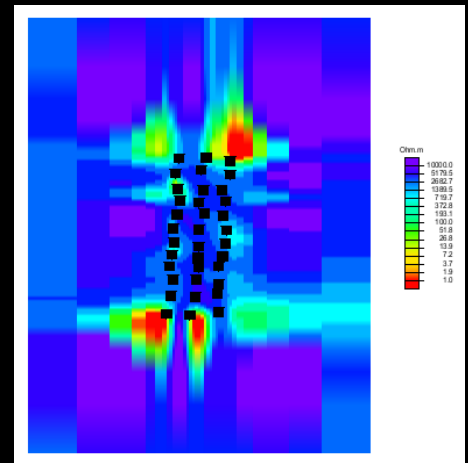
36019-43723 m



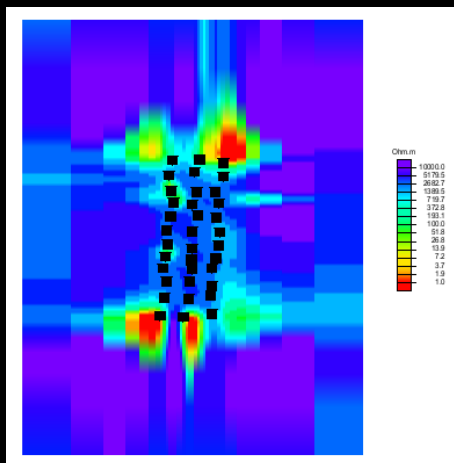
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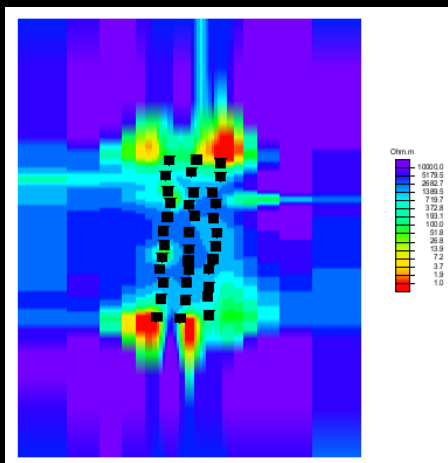
52967-64057 m



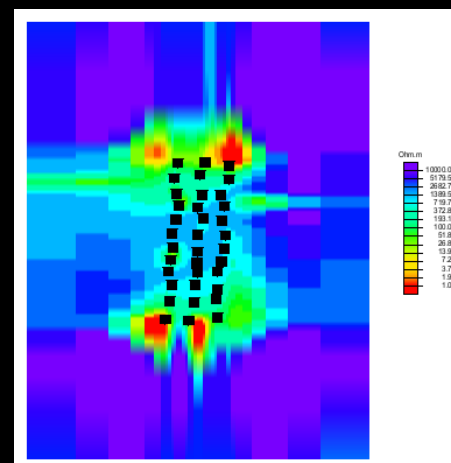
64057-77367 m



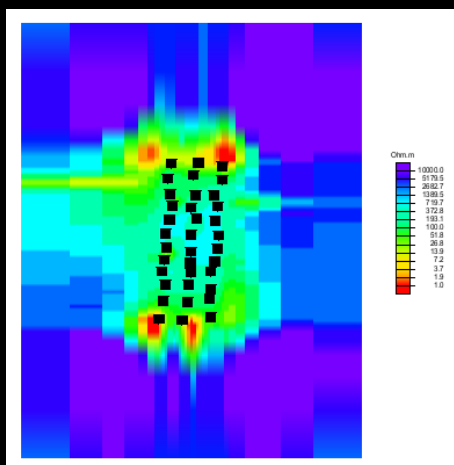
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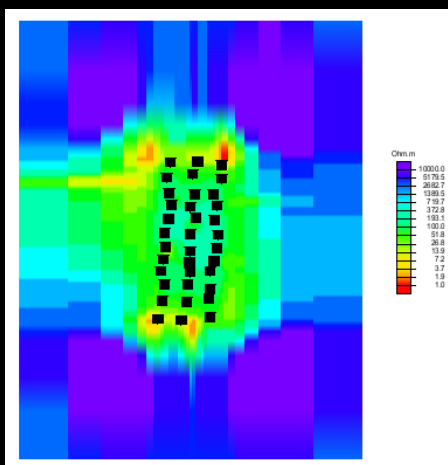
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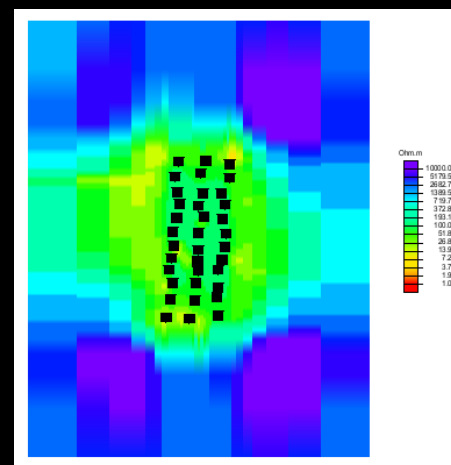
112507-135507 m

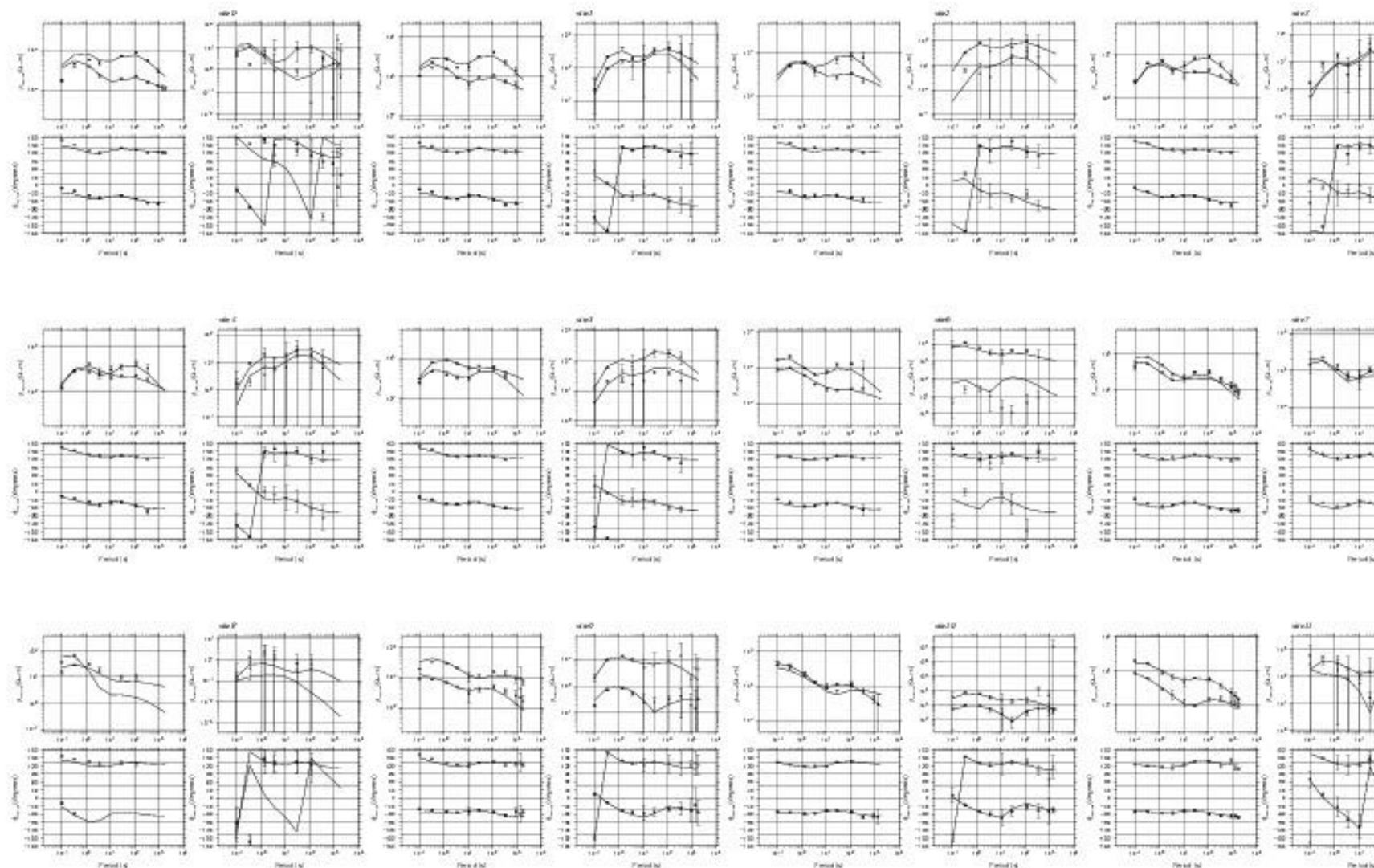


135507-163107 m



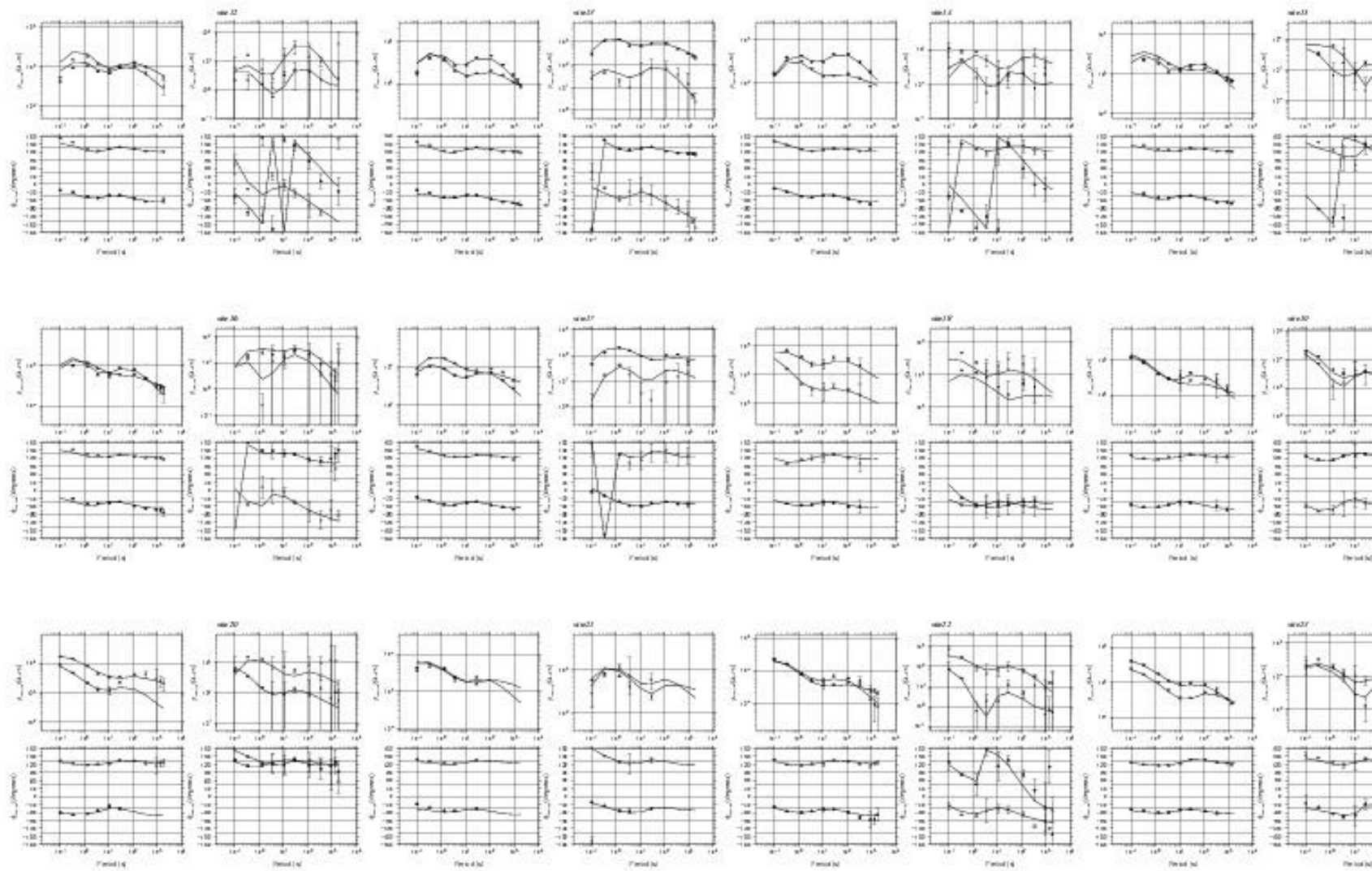
163107-196227 m

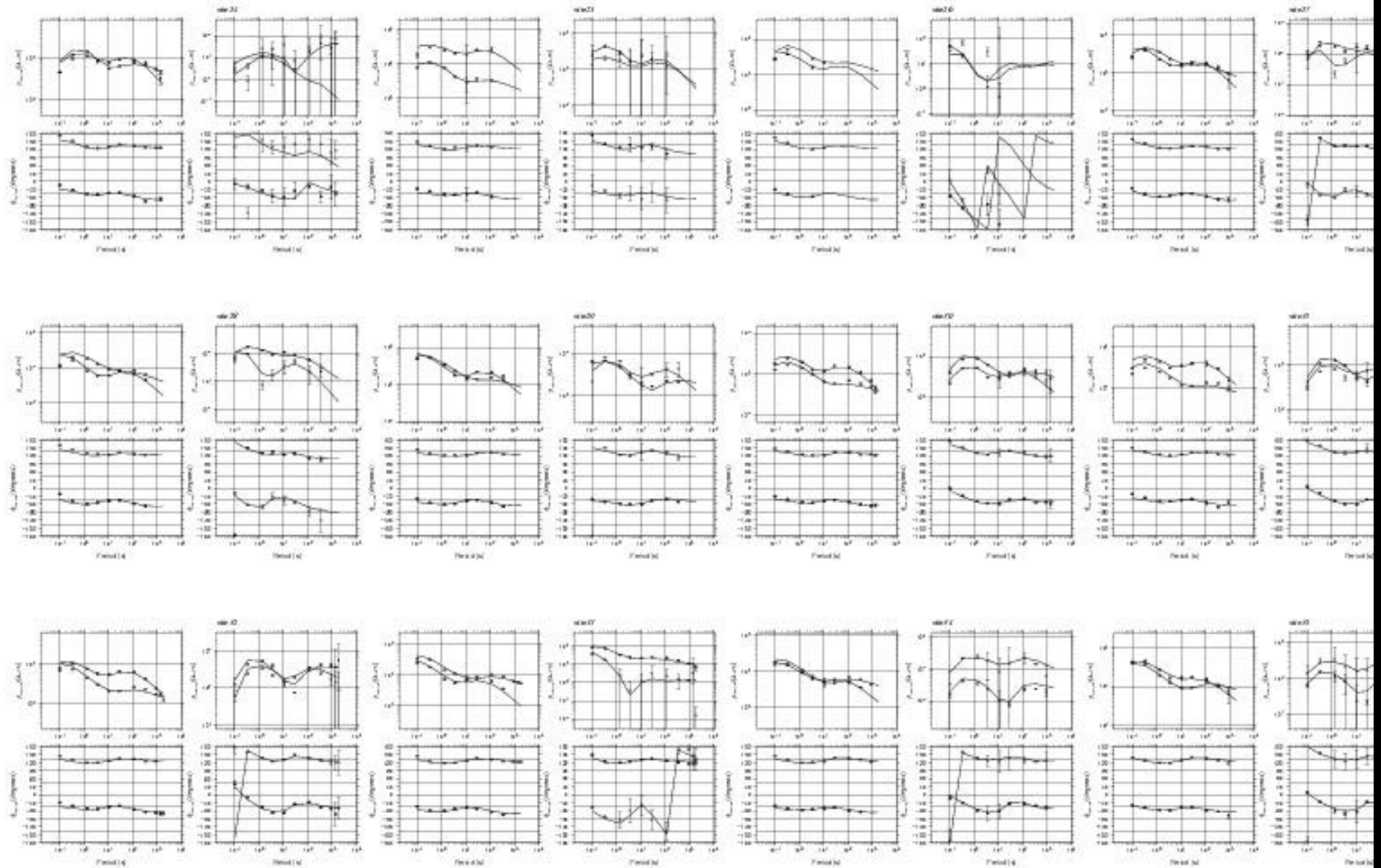


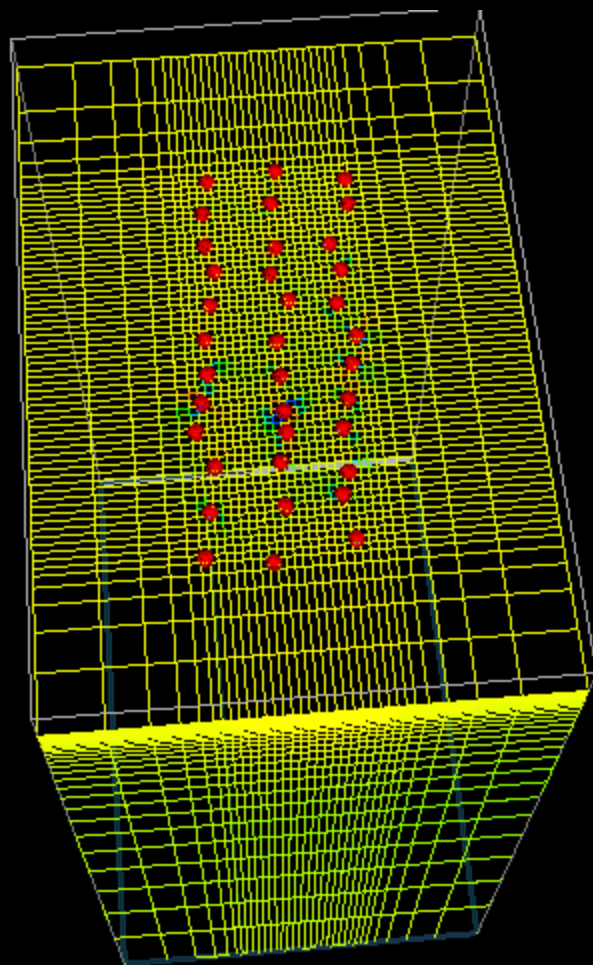


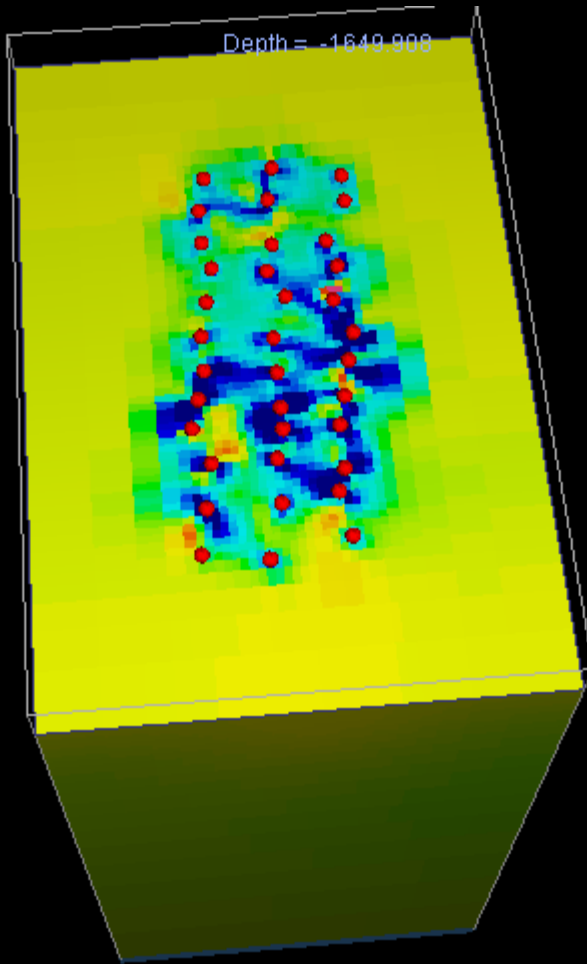
plotim3dfit RMS: 1.2785

(1/3)

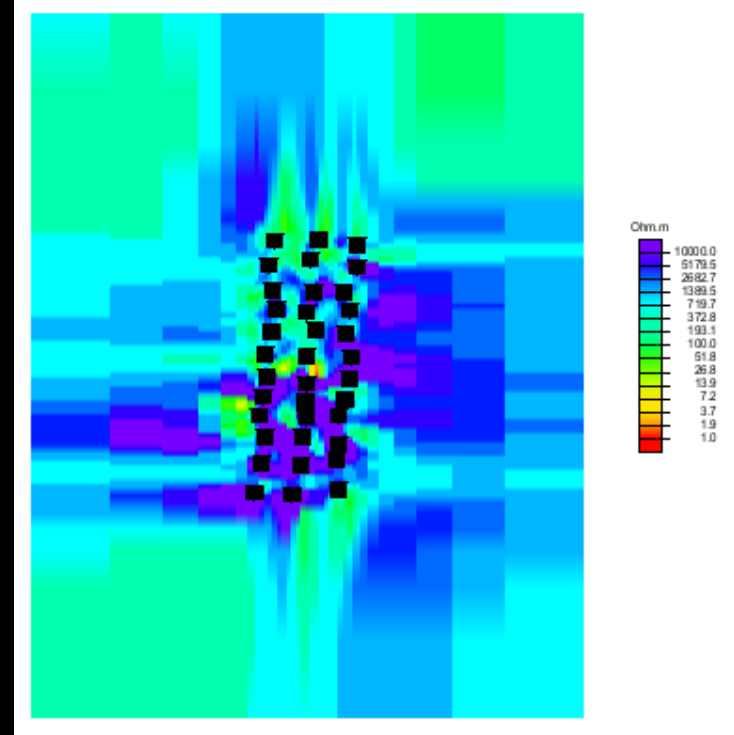


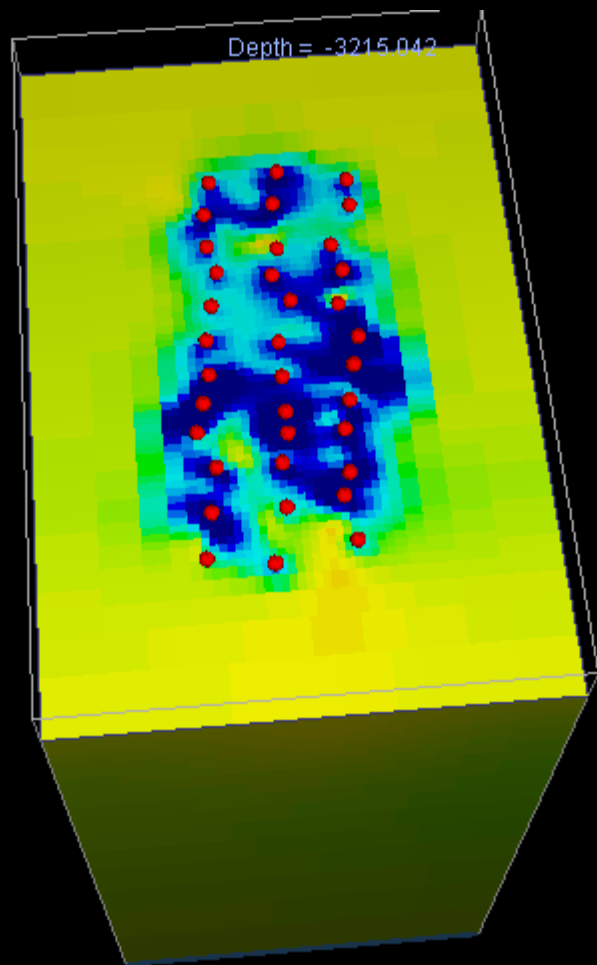




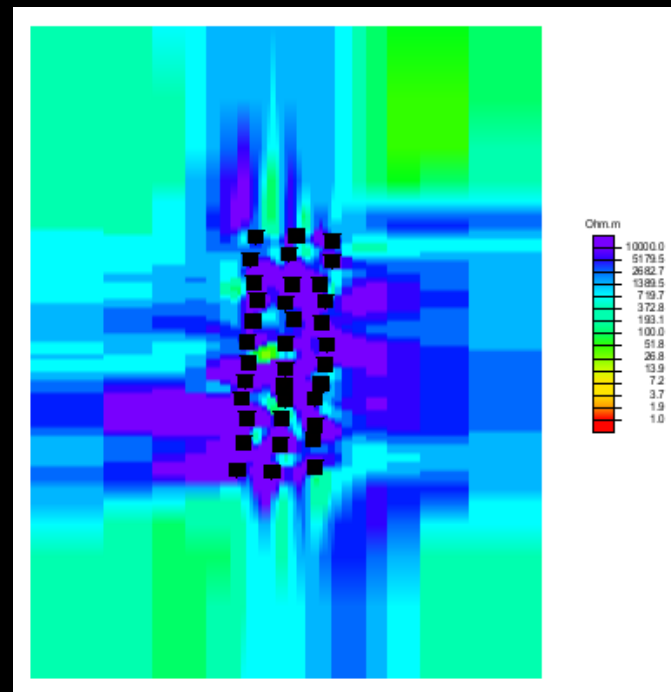


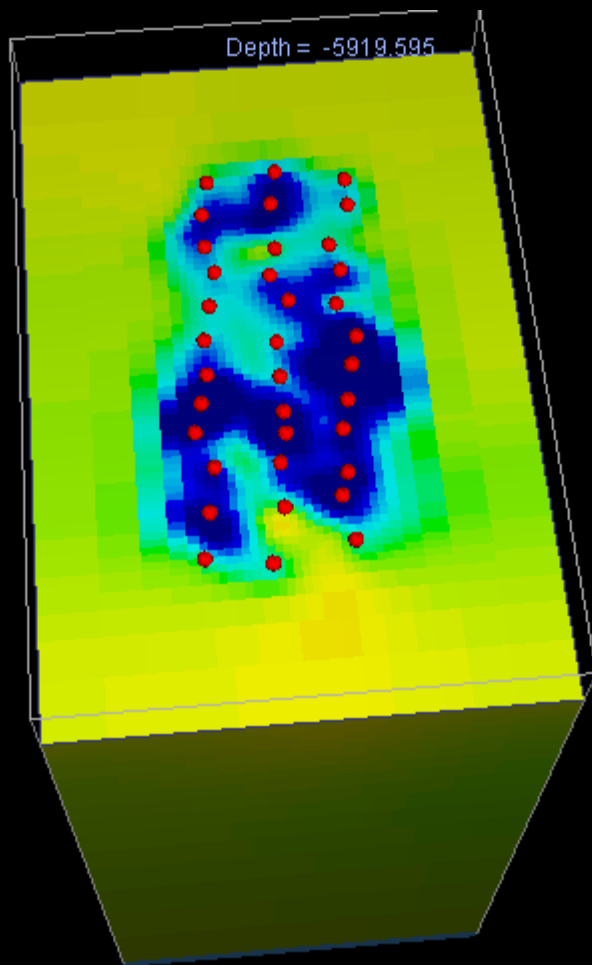
1100-1820 m



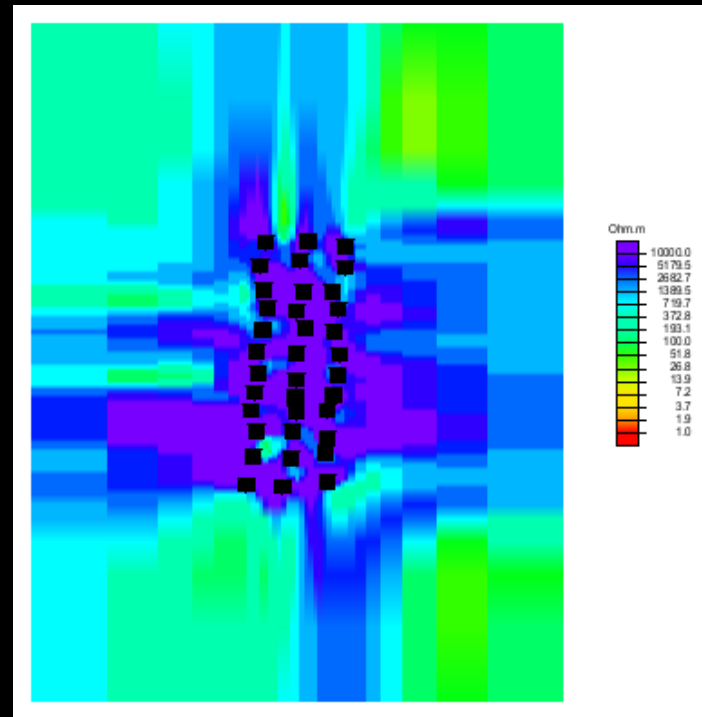


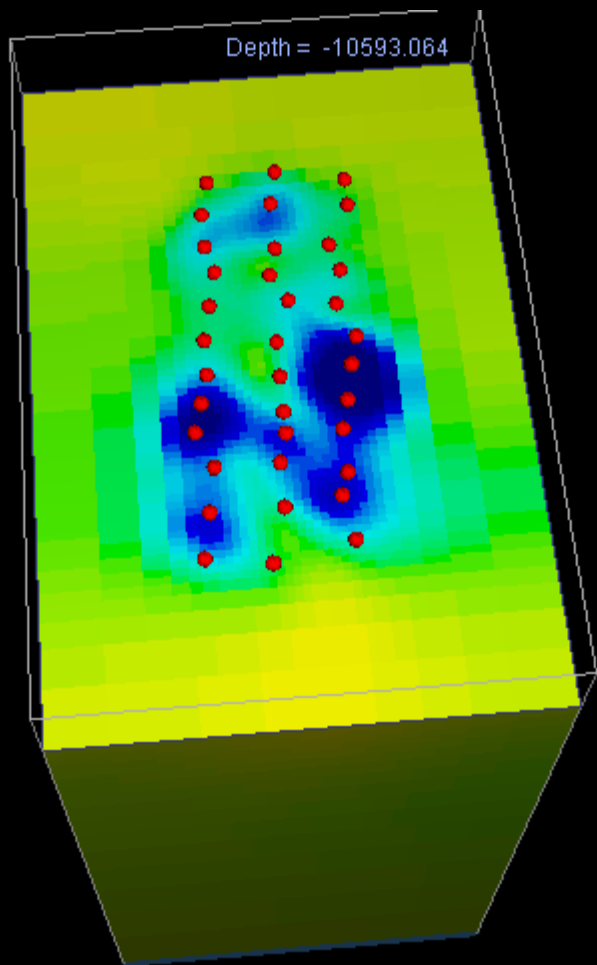
2684-3721 m



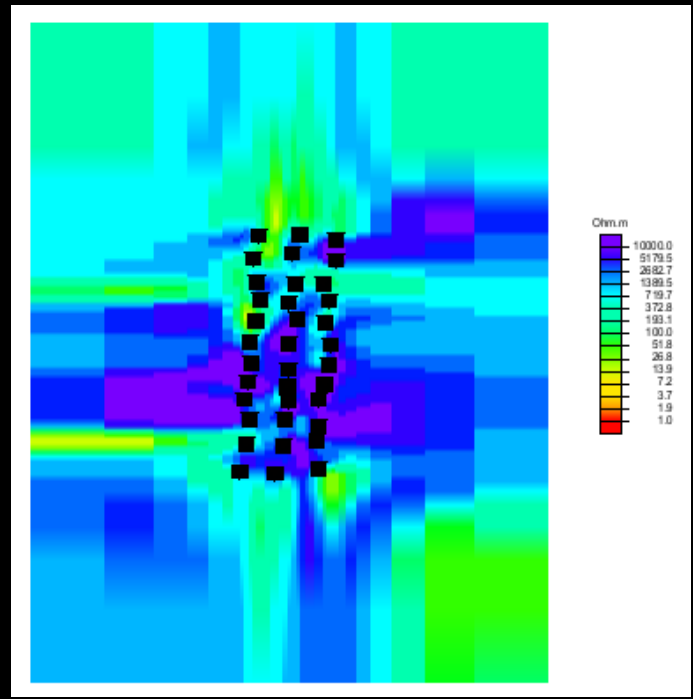


4965-6458 m





10400-12980 m



Final remarks

- Do it right:
 - Check mesh/air layers
 - Frequency selection
 - Data selection
- Patience

Acknowledgements

- Weerachai
- Colin
- C.K. Rao
- Anna Martí