

Forward Simulation

Survey:
Airborne (Figure 5)

Pair

Problem:
TDEM (eq. 5)

Mesh:
3D tensor mesh

Inversion Elements

Data Misfit:

$$\phi_d(\mathbf{m}) = \frac{1}{2} \|\mathbf{W}_d(F[\mathbf{m}] - \mathbf{d}_{\text{obs}})\|_2^2$$

Regularization:

$$\phi_m(\mathbf{m}) = \frac{1}{2} \|\mathbf{W}_m(\mathbf{m} - \mathbf{m}_{\text{ref}})\|_2^2$$
$$\mathbf{m} = \log(\sigma_{3D})$$

Inversion as Optimization

Inverse Problem

$$\underset{\mathbf{m}}{\text{minimize}} \quad \Phi(\mathbf{m}) = \phi_d(\mathbf{m}) + \beta \phi_m(\mathbf{m})$$

Optimization:
Inexact Gauss Newton

Inversion

Tikhonov with cooling on
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