

Métodos Potenciais: gravimetria e magnetometria

Generalidades

Yára Marangoni - 2022

Fases de um programa de exploração em métodos potenciais

- fase de planejamento
- fase de aquisição
- fase de processamento de dados
- fase de interpretação
- fase de relatório
- fase de arquivamento

Fases de um programa de exploração em métodos potenciais

- fase de planejamento

Planning is subdivided into two segments: first, the selection of the appropriate method(s) and, second, the design of the survey and the subsequent data processing and interpretation. To be successful, both require a clear

(1) PLANNING PHASE

- Statement of problem (study objectives)
- Define range of subsurface models
- Geological information ←
- Geophysical data ←
- Physical property compilation ←
- Calculate range of geophysical response (models)
- Estimate range of
 - Regional** anomalies,
 - Residual** anomalies,
 - Noise** (observation, reduction, geological)
- Selection of method(s)
- Design of data acquisition, reduction, and interpretation procedures

Pesquisa de banco de dados, mapas, artigos, etc.

The planning phase is perhaps the most important step in the geophysical approach because it is in this stage that fundamental decisions are made regarding the nature and procedures of the program. Appropriate planning requires collecting and using all available geological and geophysical data and interpretations, and establishing strong communication links among the interested parties regardless of their particular expertise. Plans should only be finalized

Fases de um programa de exploração em métodos potenciais

- fase de planejamento
- fase de aquisição

(2) DATA ACQUISITION PHASE

- Acquire data from existing repositories or
 - Observe data as needed
 - Obtain required auxiliary information
[e.g. elevation, geographic position]
-

Fases de um programa de exploração em métodos potenciais

- fase de planejamento
- fase de aquisição
- fase de processamento de dados

(3) DATA PROCESSING PHASE

- Process data for calibration and errors in observations
- Select optimum type of anomaly
- Calculate theoretical (conceptual model) response and compare with observed (anomaly)
- Isolate and/or enhance anomalies to increase perceptibility of desired anomalies

Geophysical practice

(1) PLANNING PHASE

- Statement of problem (study objectives)
- Define range of subsurface models
- Geological information
- Geophysical data
- Physical property compilation
- Calculate range of geophysical response (models)
- Estimate range of
 - Regional** anomalies,
 - Residual** anomalies,
 - Noise** (observation, reduction, geological)
- Selection of method(s)
- Design of data acquisition, reduction, and interpretation procedures

(2) DATA ACQUISITION PHASE

- Acquire data from existing repositories or
- Observe data as needed
- Obtain required auxiliary information [e.g. elevation, geographic position]

(3) DATA PROCESSING PHASE

- Process data for calibration and errors in observations
- Select optimum type of anomaly
- Calculate theoretical (conceptual model) response and compare with observed (anomaly)
- Isolate and/or enhance anomalies to increase perceptibility of desired anomalies

(4) INTERPRETATION PHASE

- Identify and isolate desired anomalies and their potential sources
- Perform simplified inversion on desired anomalies to approximate source parameters
- Conduct iterative forward modeling or inverse modeling of desired anomalies constrained by geological and geophysical information to define subsurface sources
- Establish range of permissible geophysical sources (i.e. physical models)
- Convert geophysical models to geological models

(5) REPORTING PHASE

- Describe above procedures used in study
- Present optimum solutions and permissible range of results

(6) ARCHIVAL PHASE

- Store data, metadata, and documents of study

FIGURE 1.4 The geophysical practice for implementing the gravity and magnetic methods involves a sequence of six phases.