

## Numerical Methods of Geophysical Fields Inversion

Guest Editor:

**Prof. Vladimir Cheverda**

Trofimuk Institute of Petroleum  
Geology and Geophysics of  
Siberian Branch of Russian  
Academy of Sciences,  
Novosibirsk, Russian Federation

CheverdaVA@ipgg.sbras.ru

Deadline for manuscript  
submissions:

**closed (16 November 2018)**

### Message from the Guest Editor

Dear Colleagues,

The overwhelming volume of modern knowledge regarding the Earth's interior became available due to the results of geophysical observations, on or near the surface. Inversion of geophysical fields within the framework of the corresponding mathematical model provides the most complete knowledge about subsurface distributions of desired parameters. However, it is necessary to stress, that we could never describe a real geological medium using such an abstract object as a system of partial differential equations. Hence, the proper mathematical model is necessary in providing reliable results of geophysical inversion. It is worth mentioning that the emergence and development of such a direction of modern mathematics as inverse and ill-posed problems originates in geophysics. The key position in modern theory and numerical methods of inverse and ill-posed problems takes nonlinear least squares and various regularization techniques. It is these two components form the basis of modern methods of geophysical fields inversion which is dedicated to this issue.



an Open Access Journal by MDPI

## Editor-in-Chief

### **Prof. Dr. Jesus Martinez-Frias**

Instituto de Geociencias, IGEO  
(CSIC-UCM), C/ Del Doctor Severo  
Ochoa 7, Facultad de Medicina  
(Edificio Entrepabellones 7 y 8),  
28040 Madrid, Spain

## Message from the Editor-in-Chief

Understanding the Earth's origin and its bio-geological evolution, the multiple implications of the geosciences (as a coherent set of interconnected disciplines), and the sociocultural and ethical interdisciplinary approaches, will be crucial for a better understanding of Nature, and also for undertaking scientifically based political decisions.

We are committed to drive *Geosciences* to a position in which it is recognized for its high-quality, cutting-edge research and scientific influence, and strongly encourage and invite your participation and manuscripts.

## Author Benefits

**Open Access:** free for readers, with article processing charges (APC) paid by authors or their institutions.

**High visibility:** Indexed in the Emerging Sources Citation Index (ESCI - Web of Science), Scopus and other databases.

**CiteScore 2017** (Scopus): **1.97**, which equals rank 32/182 (Q1) in the category 'General Earth and Planetary Sciences'.

## Contact Us

---

*Geosciences*  
MDPI, St. Alban-Anlage 66  
4052 Basel, Switzerland

Tel: +41 61 683 77 34  
Fax: +41 61 302 89 18  
www.mdpi.com

mdpi.com/journal/geosciences  
geosciences@mdpi.com