

ISSN 1392-110X

LITHUANIAN ACADEMY OF SCIENCES  
LIETUVOS MOKSLŲ AKADEMIJA



# Geologija

---

## Geology

The issue has been compiled in cooperation  
with the Vilnius University, Nature Research Center  
Institute of Geology and Geography and  
Geological Survey of Lithuania

Leidiny s udarytas bendradarbiaujant  
su Vilniaus universitetu, Gamtos tyrimų centro  
Geologijos ir geografijos institutu ir  
Lietuvos geologijos tarnyba

2011 Vol. 53 No. 1(73)

LIETUVOS MOKSLŲ AKADEMIJA  
Vilnius – 2011

## Geologija, ISSN 1392-110X

Published since 2000 as a continuation of the *Transactions of the Academy of Sciences of Lithuanian SSR. Series B* four issues per year in English (with summary in Lithuanian)

### Editorial Board

#### Editor-in-Chief

Saulius ŠLIAUPA (Vilnius University, Lithuania)

#### Executive Editor

Donatas KAMINSKAS, Vilnius University, Lithuania (*geochemistry*)

#### Editorial Board

Valentinas BALTRŪNAS, Nature Research Center Institute of Geology and Geography, Lithuania (*quaternary geology*)

Kastytis DUNDULIS, Vilnius University, Lithuania (*engineering geology*)

Saulius GULBINSKAS, Klaipėda University, Lithuania (*marine geology*)

Vytautas JUODKAZIS, Vilnius University, Lithuania (*hydrogeology*)

Robert MOKRIK, Vilnius University, Lithuania (*hydrogeology, tectonics*)

Valentinas KADŪNAS, Nature Research Center Institute of Geology and Geography, Lithuania (*mineralogy, geochemistry*)

Dainius MICHELEVIČIUS, Vilnius University, Lithuania (*geophysics*)

Gediminas MOTUZA, Vilnius University, Lithuania (*petrology, tectonics*)

Juozas PAŠKEVIČIUS, Vilnius University, Lithuania (*palaeontology, stratigraphy*)

Jonas SATKŪNAS, Geological Survey of Lithuania (*Quaternary geology and stratigraphy*)

Petras ŠINKŪNAS, Vilnius University, Lithuania (*sedimentology*)

#### Consulting Editors

Stanislaw FEDOROWICZ, Gdańsk University, Poland (*quaternary geology*)

Radim GARECKIJ, Belarus Academy of Sciences (*tectonics*)

Jemeljan M. JEMELJANOV, Shirshov Institute of Oceanology, Atlantic Branch, Kaliningrad, Russia (*sedimentology*)

Ervins LUKAŠEVIČS, Latvian University (*palaeontology*)

Ryszard KACZYŃSKI, Warsaw University, Poland (*engineering geology*)

Kalle KIRSIMÄE, University of Tartu, Estonia (*mineralogy*)

Tõnu MEIDLA, University of Tartu, Estonia (*stratigraphy, palaeontology*)

Nicolaas MOLENAAR, Technical University of Denmark (*sedimentology*)

Erik NORLING, Swedish National Museum of Natural History (*mineral resources, economic geology*)

Andrey M. KOVKHUTO, Belarussian Research Geological Exploration Institute (*mineral resources*)

Krister SUNBLAD, University of Turku, Finland (*petrology*)

Hans Jürgen VOIGT, Brandenburg Technological University, Germany (*hydrogeology*)

#### Editorial Office

M. K. Čiurlionio 21/27, LT-03101 Vilnius, Lithuania.

Tel.: (+370 5) 239 8273, 210 4704

Fax (+370 5) 239 8272, e-mail: sliupa@geo.lt

#### Indexed in:

Thomson ISI®, Georef, BIOSIS UK / Zoological Records, eLIBRARY.lt, DOAJ, VINITI, EBSCO Publishing

**Editors** Aurelija JUŠKAITĖ,

Aušra GAPSEVIČIENĖ

**Layout by** Egidija JAKUTIENĖ

#### Lithuanian Academy of Sciences

Gedimino pr. 3, LT-01103 Vilnius, Lithuania, tel. (+370 5) 261 3620

E-mail: maketas.leidykla@lma.lt; leidykla@lma.lt

www.lmaleidykla.lt/geologija/

Electronic version ISSN 2029-056X

<http://www.versita.com/science/geosciences/>

© Lietuvos mokslų akademija, 2011