

# CURRICULUM VITAE

**Alik T. Ismail-Zadeh**  
IUGG Secretary-General

## PERSONAL DATA

*Born:* 28 September 1961; Baku, Azerbaijan, married, one son.

*Languages:* fluent - Azeri, English, German, Russian; minor - French, Italian, Turkish

*Secondary education:* Mathematical high school for gifted children (1978, Gold Medal for Excellence in Education); Music high school for gifted children (piano; 1976, cum laud).



## PRESENT POSITIONS

- Project Director, Senior Research Scientist, Karlsruhe Institute of Technology, Geophysical Institute, GERMANY (since 2003)
- Chief Scientist (since 2008), Head of Section “Computational Geodynamics” (since 2004), and Research Professor (since 1998), International Institute of Earthquake Prediction Theory and Mathematical Geophysics, Russian Academy of Sciences, Moscow, RUSSIA
- Visiting Professor, Institut de Physique du Globe de Paris, FRANCE (since 2005)
- Visiting Lecturer/Scientist, Abdus Salam International Centre for Theoretical Physics, Trieste, ITALY (since 1994)

## PROFESSIONAL EDUCATION

1982	B.Sc. (magna c.l.) in Math	S. Kirov Baku State University, Azerbaijan
1983	M.Sc. (magna c.l.) in Math & Physics	M. Lomonossov Moscow State University, Russia
1990	Ph.D. in Geophysics	Russian Academy of Sciences, Moscow, Russia
1997	D.Sc. (Habilitation) in Geophysics	Russian Academy of Sciences, Moscow, Russia

## PROFESSIONAL EXPERIENCE / PREVIOUS APPOINTMENTS

2005-2008	Visiting Professor	University of Tokyo, Earthquake Research Institute, Tokyo, Japan
2005-2007	Foreign Associate	Earth Simulator Center, Yokohama, Japan
2003	Invited Professor	University of California, Department of Earth & Space Sciences, Los Angeles, USA
2002-2003	Senior Researcher	Heidelberg Academy of Sciences, WSM Project
2001-2002	Research Fellow	Universität Karlsruhe, Geophysikalisches Institut,
2000	Royal Society Visiting Scholar	University of Cambridge, Institute of Theoretical Geophysics, DAMTP, Cambridge, UK
1999	Invited Professor	University of Roma “La Sapienza”, Department of Physics, Roma, Italy
1999	Invited Professor	Hebrew University of Jerusalem, Institute of Earth Sciences, Israel
1998-2000	Associate Professor	M. Gubkin Russian State University of Oil and Gas, Moscow, Russia

1998-2000	Visiting Scientist	Uppsala University, Department of Earth Sciences, Uppsala, Sweden
1996-1999	Visiting Scientist	Royal Institute of Technology, Center for Parallel Computers, Stockholm, Sweden
1996	Visiting Scientist	Universität Mainz, Institut für Geowissenschaften, Mainz
1995	Post-doc	University of Trieste, Division of Applied Geophysics, Trieste, Italy
1995	Visiting Scientist	Vrije Universiteit, Faculty of Earth Science, Amsterdam, The Netherlands
Since 1998	Research Professor	Russian Academy of Sciences, IIEPT, Moscow, Russia
1990-1998	Senior Researcher	
1987-1990	Full-time post-graduate student	Russian Academy of Sciences, Institute of Physics of the Earth, Moscow, Russia
1983-1986	Junior Researcher	Azerbaijan National Academy of Sciences, Institute of Geology, Baku, Azerbaijan

## BRIEF DESCRIPTION OF SCIENTIFIC WORK

Studies of dynamics of the crust, lithosphere, and mantle and their surface manifestations (including sedimentary basin evolution, salt tectonics, seismicity, seismic hazard, and orogeny) through multidisciplinary synthesis, theoretical analysis, and numerical experiments.

Ongoing research (key words): computational geodynamics; data assimilation (inverse problems) in models of crustal and mantle dynamics; development of quantitative methods for geodynamics; geothermal evolution of sedimentary basins; salt diapirism; modelling of seismicity; block-and-fault dynamics of the lithosphere; evolution of descending lithosphere; mantle plume evolution.

## MAJOR SCIENTIFIC RESULTS

### Crust and mantle evolution

Introduction of data assimilation in problems of crust and mantle dynamics. Numerical methodology for solving the direct and inverse problems of thermal convection with infinite Prandtl number (development of backward advection, variational/adjoint, and quasi-reversibility methods).

### Crust and lithosphere instability

Theoretical results in problems of gravitational (Rayleigh-Taylor), thermal (Rayleigh-Bernard) and buckling (Kelvin-Helmholtz) instabilities of the (geo)structures including analysis of Newtonian, Maxwell, non-Newtonian power law, and perfectly plastic rheologies.

### Salt diapirism

Models of geothermal evolution of the Astrakhan Arch of the Pricaspian Basin and recognition of the regions of possible hydrocarbon generation.

Models of salt structure evolution in the Pricaspian Basin and in the Gulf of Mexico.

Introduction of quantitative dynamic structural restoration of salt diapirs and their overburden.

Models of salt extrusion and gravity current.

### Sedimentary basins

Introduction of eclogitization-induced mantle flow mechanism for sedimentary basin evolution.

Quantitative models of the evolution of intracratonic sedimentary basins in the North American (Michigan, Illinois, Williston), East European (Timan-Pechora, Dnepr-Donets, Moscow, and Pre-Uralian), and Siberian (Tunguska and Vilyui) platforms.

### Seismicity and seismic hazard

Introduction of mantle dynamics into analysis of lithospheric rigid block-and-fault systems and earthquake studies.

Quantitative models of a fault network interaction in the Tibet-Himalayan region to explain seismicity and slip rates at major regional faults.

Seismic hazards and earthquake loss estimation for Baku (Azerbaijan) and seismic hazard conditions at the Vrancea region (Romania).

### Tectonic stress

Understanding of stress accumulation and its change in the lithospheric slab in terms of style of the slab subduction.

Explanation of coexisting shortening - extension and seismic activity in the Central Apennines by the lithosphere buoyancy.

Numerical methodology in general

New numerical methods and algorithms of an enhanced accuracy to study problems of Earth's dynamics.

**INVITED PRESENTATIONS (2006-2011)**

- "Modeling and predicting extreme seismic events", ESF Conference "Understanding Extreme Geohazards: The Science of the Disaster Risk Management Cycle", Sant Feliu de Guixols, Spain, 28 November - 1 December 2011.
- "Extreme seismic hazard and disasters: from basic science to preventive disaster management", IRDR Conference "Disaster Risk: Integrating Science and Practice", Beijing, China, 31 October - 2 November, 2011.
- "Extreme seismic events: from basic science to preventive disaster management", General Assembly of the International Union of Radio Sciences (URSI), Istanbul, Turkey, 19 August 2011.
- "The Pacific plate subduction beneath the Japanese island arc: Insight from the past", General Assembly of the International Union of Geodesy and Geophysics (IUGG), Melbourne, Australia, 3 July 2011.
- "Contribution of computational geophysics to the CTBT monitoring system", IUGG General Assembly, Melbourne, Australia, 3 July 2011.
- "Numerical modeling in geodynamics and seismicity: Success stories and perspectives", Workshop on Seismic and Aseismic Deformation in Crustal Domain Subject to Very Slow Deformation Rates, Mt Ste Odile, France, June 1, 2011.
- "Extreme seismic hazards: from modeling and prediction to preventive disaster management", International Conference "GeoInformation for Disaster Management", Antalya, Turkey, 7 May 2011.
- "Modeling of extreme seismic events", *International Workshop on Extreme Natural Hazards and Disaster Risks in Africa*, Pretoria, South Africa, 17-20 January 2011.
- "Advances in Predicting Evolution of the Earth Interior", Institute of Geodesy and Geophysics, Technical University of Vienna (TU-Wien), Austria, 13 January 2011.
- "Extreme natural events: from modeling and forecasting to societal needs", *Round-Table Discussion at the Egyptian Academy of Scientific Research and Technology*, Cairo, Egypt, 1 November 2010.
- "Inverse problems and data assimilations in geodynamics" (keynote lecture), *Second International Conference on Data Analysis and Modelling in Earth Sciences DAMES'2010*, Lisbon, Portugal, 22-24 September 2010.
- "Geodynamics and seismicity of the Vrancea region: Insight from the past", *AGU Joint Meeting of Americas*, Iguassu, Brazil, 9-12 August 2010.
- "Modelling and predicting extreme seismic events", *AGU Chapman Conference on Complexity and Extreme Events in Geosciences*, Hyderabad, India, 15-19 February 2010.
- "Inverse retrospective problems in geodynamics", *ESF-ILP-Academie Europeaea TOPO-Europe Workshop*, Heidelberg, Germany, 15-17 October 2009.
- "Extreme geophysical events: From modeling and prediction to preventive disaster management", *2009 AGU Joint Assembly: The Meeting of the Americas*, Toronto, Ontario, Canada, 24-27 May 2009.
- "Modeling of extreme seismic events", *International Workshop on Statistical Seismology*, Lake Tahoe, California, USA, 12-16 April 2009.
- "Direct and inverse problems in geodynamics", *Dublin Institute for Advanced Studies*, Ireland, March 2009.
- "Direct and inverse problems in dynamics of the geosphere", *Department of Earth Sciences, Geography and Astronomy, University of Vienna*, Austria, January 2009.
- "Reconstructing the geodynamic conditions for Japan Sea opening back to Early Miocene", *Department of Earth and Planetary Sciences, University of Tokyo*, Japan, 3 December 2008.
- "Computational geodynamics as a research tool in geohazard analysis", *International Geological Congress*, Oslo, August 2008.
- "Preventive disaster management of extreme events", *Euroscience Open Forum*, Barcelona, Spain, July 2008.

- “Data assimilation methods in geodynamical models” (invited lecture), *International Workshop on Advanced Numerical Modeling of Mantle Convection and Lithospheric Dynamics*, University of California, Davis, July 2008.
- “Reduzierung von geologischen und meteorologischen Risiken”, *RisiKa Internationaler Kongress und Fachmesse*, Kongresszentrum Karlsruhe, April 2008.
- “Extreme seismic events in the Vrancea region” (invited key-note lecture), *International Conference on Extreme Events, Causes and Consequences*, Ecole Normale Supérieure, Paris, France, March 2008.
- “Geophysical hazards and preventive disaster management of extreme natural events”, *Fall Meeting, American Geophysical Union*, San Francisco, USA, December, 2007.
- “Extreme Seismic Events” (key-note lecture), International Conference on 50<sup>th</sup> Anniversary of the International Geophysical Year and Symposium on Natural Disasters and Risks in the Modern World, Suzdal, Russia, September 2007.
- “Earthquakes: From basic science and prediction to preventive disaster management”, Union Symposium US8 “Earthquake prediction: what can be done with the best science available?”, *European Geophysical Union*, Vienna, April 2007.
- “Computational geodynamics and seismology toward the understanding of extreme seismic events” (key-note lecture), *International Conference on Global Change*, Islamabad, Pakistan, November 2006.
- “Extreme seismic events: From science to preventive disaster management” (plenary key-note lecture), *General Assembly of the Asian Seismological Commission*, Bangkok, Thailand, November 2006.
- “Crustal dynamics, earthquake and fault slip rate modelling in Tibet-Himalayans”, *General Assembly of the Asian Seismological Commission*, Bangkok, Thailand, November 2006.
- “Earthquakes: from analysis, modeling and prediction to preventive disaster management” (key-note lecture), *OECD (Organisation for Economic Co-operation and Development) Global Science Forum Workshop "Earthquake Science and its Contribution to Society"*, Potsdam, Germany, June 2006.
- “Variational data assimilation in thermo-convective mantle dynamics”, *Fall Meeting, American Geophysical Union*, San Francisco, USA, December 2005.

## **ACADEMIC DISTINCTIONS AND AWARDS**

- International Award, American Geophysical Union (2009)
- Most Cited Paper 2004-2007 Award, Elsevier (2007)
- Alexander von Humboldt Research Fellowship (2001)
- Royal Society of London Research Fellowship (2000)
- Russian President Research Fellowship (1999)
- Swedish Institute Research Scholarship (1996, 1997)
- Italian Ministry of Education Research Scholarship (1995)
- Academia Europaea Award and Medal (1995)
- International Science Foundation Award, New York (1993)

## **PROFESSIONAL SOCIETY ACTIVITIES AND PANELS OF EXPERTS**

- Scientific Panel Member (2011-2014), Initiative on Global Understanding.
- Council Member (2010-2012), Chair of the Natural Hazards Focus Group (2009-2012), American Geophysical Union (AGU).
- Member (2007-2010), Board of Directors, International Year of Planet Earth (IYPE) Corporation.
- Member (since 2007), International Council for Science (ICSU) GeoUnions Consortium
- Council Member (2007-2009), ICSU Federation of Astronomical and Geophysical Data Services.
- Member (2007-2008), AGU Panel on Natural Hazards.
- President (2004-2007), Vice-President (2000-2004), IUGG Commission on Geophysical Risk and Sustainability.
- Member (2005-2007), Science Working Group, UNESCO-IGOS-Geohazards.
- Executive Director (2001-2010), Russian Outreach Center of the American Geophysical Union.
- Member (2000-2008), AGU Committee on International Participation.
- Governing Board Member (1997-2002), EuroScience – European Association for the Promotion of Science and Technology.
- Chair (since 1998), EuroScience Working Group “Science and Urgent Problems of Society”.
- Co-Chair (1996-2006), EuroScience Working Group “Integration and Collaboration in Europe”.

- Member (1993-1995), EUROPROBE Task Group “GeoRift: Geodynamics of Intracratonic Rifting”.

## MEMBERSHIPS IN PROFESSIONAL SOCIETIES

- Associate Member, American Association of Petroleum Geologists
- Member, European Geosciences Union
- Founder Member, EuroScience
- Life Member, American Geophysical Union

## TEACHING EXPERIENCE

- 2007-2011, block lecture course “Data Assimilation and Inverse Problems in Geodynamics” for graduate students and young scientists, Abdus Salam International Center for Theoretical Physics (ICTP), Trieste, Italy.
- 2005-2007, lecture course “Introduction to Tectonic Stress Analysis and Modeling” for advanced students of the Geophysical Institute, Karlsruhe University, Germany.
- 2004-2005, curriculum “Physics of the Earth” for undergraduate students and lecture course “Computational Geodynamics”, Geophysical Institute, Karlsruhe University, Germany.
- 2001-2005, block lecture course “Numerical Modeling of Nonlinear Dynamics of the Lithosphere” for graduate students and young scientists, Abdus Salam International Center for Theoretical Physics (ICTP), Trieste, Italy.
- 1998-2000, lecture courses “Foundations of Geophysics and Geodynamics” and “Computational Geodynamics” for students of the M. Gubkin Russian State University of Oil and Gas in Moscow, Russia.
- 1997-2001, chair of colloquium “Mathematical and Numerical Problems in Geodynamics” for graduate students and young researchers in the Russian Academy of Sciences, Moscow, Russia.

## PUBLICATIONS (selected, 2011-2001)

Full list of publications can be found at web-page: <http://www.mitp.ru/~aismail>

### Books and book chapters

1. Ismail-Zadeh, A. T., and Tackley, P. J., *Computational Methods for Geodynamics*, Cambridge University Press, Cambridge, 2010.
2. Ismail-Zadeh, A., Computational geodynamics as a component of comprehensive seismic hazards analysis, in *Geophysical Hazards: Minimizing Risk and Maximizing Awareness*, T. Beer (Ed.), Springer, Amsterdam, pp. 161-178, 2010.
3. Ismail-Zadeh, A. T., and T. Beer (Eds.), *Georisk: Interactions between Science and Society*, Springer, Heidelberg, 2007.
4. Ismail-Zadeh, A. T. (Ed.) *Recent Geodynamics, Georisk and Sustainable Development in the Black Sea to Caspian Sea Region*, American Institute of Physics Conference Proceedings, vol. 825, Melville, New York, 2006. 162 p.
5. Beer, T. and Ismail-Zadeh, A. T. (Eds.) *Risk Science and Sustainability*, Kluwer Academic Publishers, Dordrecht, 2003. 256 p.
6. Soloviev, A. A., and Ismail-Zadeh, A. T., Models of dynamics of block-and-fault systems, in *Nonlinear Dynamics of the Lithosphere and Earthquake Prediction*, Keilis-Borok, V. I., and Soloviev, A. A. (eds.), pp. 69-138, Springer, Heidelberg, 2003.

### Journal articles

1. Ismail-Zadeh, A., Le Mouél, J.-L., and Soloviev, A., Modeling of extreme seismic events, submitted to the American Geophysical Union Geodynamics Series book “*Complexity and Extreme Events in Geosciences*”, accepted, August 2011.
2. Ismail-Zadeh, A., Matenco, L., Radulian, M., Cloetingh, S., and Panza, G., Geodynamic and intermediate-depth seismicity in Vrancea (the south-eastern Carpathians): Current State-of-the-Art, *Tectonophysics*, accepted with minor revision, 2011.
3. Doglioni, C., Ismail-Zadeh, A., Panza, G., and Riguzzi, F., Lithosphere-asthenosphere viscosity contrast and decoupling, *Phys. Earth Planet. Inter.*, 189, 1-8, doi:10.1016/j.pepi.2011.09.006, 2011.

4. Babayev, G., Ismail-Zadeh, A., and Le Mouél, J.-L., Scenario-based earthquake hazard and risk assessment for Baku (Azerbaijan), *Natural Hazards and Earth System Sciences*, 10, 2697-2712, 2010.
5. Ismail-Zadeh, A., Aoudia, A., and Panza, G., Three-dimensional numerical modeling of contemporary mantle flow and tectonic stress beneath the Central Mediterranean, *Tectonophysics*, 482, 226-236, 2010.
6. Ismail-Zadeh, A., Wilhelm, H., Volozh, Y., and Tinakin, O., The Astrakhan Arch of the Pricaspian Basin: Geothermal analysis and modelling, *Basin Research*, 22, 751-764, 2010.
7. Ismail-Zadeh, A., Korotkii, A., Schubert, G., and Tsepelev, I., Numerical techniques for solving the inverse retrospective problem of thermal evolution of the Earth interior, *Computers & Structures*, 87, 802-811, 2009.
8. Ismail-Zadeh, A., Schubert, G., Tsepelev, I., and Korotkii, A., Thermal evolution and geometry of the descending lithosphere beneath the SE-Carpathians: An insight from the past, *Earth Planet. Sci. Lett.*, 273, 68-79, 2008.
9. Ismail-Zadeh, A., Wilhelm, H., and Volozh, Yu, Geothermal evolution of the Astrakhan arch region of the Pricaspian Basin, *Int. J. Earth Sci.*, 97, 1029-1043, 2008.
10. Ismail-Zadeh, A., Korotkii, A., Schubert, G., and Tsepelev, I., Quasi-reversibility method for data assimilation in models of mantle dynamics, *Geophys. J. Int.*, 170, 1381-1398, 2007.
11. Ismail-Zadeh, A., Le Mouél, J.-L., Soloviev, A., Tapponnier, P., and Vorovieva, I., Numerical modeling of crustal block-and-fault dynamics, earthquakes and slip rates in the Tibet-Himalayan region, *Earth Planet. Sci. Lett.*, 258, 465-485, 2007.
12. Ismail-Zadeh, A. and Takeuchi, K., Preventive disaster management of extreme natural events, *Natural Hazards*, 42, 459-467, 2007.
13. Ismail-Zadeh, A., Sokolov, V., and Bonier, K., Geodynamics, seismicity and seismic hazard of the south-eastern Carpathians, *Natural Hazards*, 42, 493-514, 2007.
14. Aoudia, A., Ismail-Zadeh, A.T., and Romanelli, F., Buoyancy-driven deformation and contemporary tectonic stress in the lithosphere beneath Central Italy, *Terra Nova*, 19(6), 490-495, 2007.
15. Weidle, C., Wenzel, F., and Ismail-Zadeh, A.,  $t^*$  - an unsuitable parameter for anelastic attenuation in the Eastern Carpathians, *Geophys. J. Int.*, 170, 1139-1150, 2007.
16. Ismail-Zadeh, A., Schubert, G., Tsepelev, I., and Korotkii, A., Three-dimensional forward and backward numerical modeling of mantle plume evolution: Effects of thermal diffusion, *J. Geophys. Res.*, 111, B06401, doi:10.1029/2005JB003782, 2006.
17. Ismail-Zadeh, A. T., Korotkii, A. I., and Tsepelev, I. A., Three-dimensional numerical simulation of the inverse problem of thermal convection using the quasi-reversibility method, *Comp. Math. & Math. Physics*, 46(12), 2176-2186, 2006.
18. Krupsky, D., Ismail-Zadeh, A., Wilhelm, H., and Volozh, Y., Geothermal evolution of the Astrakhan Crest region of the PriCaspian Basin, Russia, in *Recent Geodynamics, Georisk and Sustainable Development in the Black Sea to Caspian Sea Region*, A. Ismail-Zadeh (Ed.), American Institute of Physics Conference Proceedings, vol. 825, Melville, New York, pp. 120-131, 2006.
19. Ismail-Zadeh, A., Mueller, B., and Schubert, G., Three-dimensional modeling of present-day tectonic stress beneath the earthquake-prone southeastern Carpathians based on integrated analysis of seismic, heat flow, and gravity observations, *Phys. Earth Planet. Inter.*, 149, 81-98, 2005.
20. Ismail-Zadeh, A.T., and Huppert, H.E., Effect of power law rheology of surroundings on the gravitational instability of a viscous layer, *Comput. Seism. Geodyn.*, 7, 216-223, Amer. Geophys. Union, Washington D.C., 2005.
21. Ismail-Zadeh, A., Korotkii, A., Schubert, G., and Tsepelev, I., Numerical reconstruction of the initial temperature of diapiric structures in the Earth, in *M.I.T. Computational Fluid and Solid Mechanics 2005*, K.J. Bathe (Ed.), Elsevier Science, Oxford, pp. 679-682, 2005.
22. Ismail-Zadeh, A., Mueller, B., and Wenzel, F., Modelling of descending slab evolution beneath the SE-Carpathians: Implications for seismicity, in *Perspectives in Modern Seismology, Lecture Notes in Earth Sciences, Volume 105*, pp. 205-226, F. Wenzel (Ed.), Springer-Verlag, Heidelberg, 2005.
23. Ismail-Zadeh, A., Schubert, G., Tsepelev, I., and Korotkii, A., Inverse problem of thermal convection: Numerical approach and application to mantle plume restoration, *Phys. Earth Planet. Inter.*, 145, 99-114, 2004.
24. Ismail-Zadeh, A., Naimark, B., and Talbot, C., Reconstruction of the history of the movement of layered geostructures: Inverse problem of gravitational stability, *Comput. Seism. Geodyn.*, 6, 27-32, Amer. Geophys. Union, Washington D.C., 2004.

25. Ismail-Zadeh, A.T., Tsepelev, I.A., Talbot, C., and Oster, P., Three-dimensional modeling of salt diapirism: A numerical approach and algorithm of parallel calculations, *Comput. Seism. Geodyn.*, 6, 33-41, Amer. Geophys. Union, Washington D.C., 2004.
26. Ismail-Zadeh, A.T., Tsepelev, I.A., Talbot, C.J., and Korotkii, A.I., Three-dimensional forward and backward modelling of diapirism: Numerical approach and its applicability to the evolution of salt structures in the Pricaspian basin, *Tectonophysics*, 387, 81-103, 2004.
27. Ismail-Zadeh, A.T., Nicolich, R., and Cernobori, R., Modelling of the Ionian basin formation: Deep processes and tectonic evolution, *Comput. Seism. Geodyn.*, 5, 1-12, Amer. Geophys. Union, Washington D.C., 2003.
28. Volozh, Yu. A., Talbot, C.J., and Ismail-Zadeh, A.T., Salt structures and hydrocarbons in the Pricaspian Basin, *Amer. Assoc. Petrol. Geol. Bull.*, 87(2), 313-334, 2003.
29. Ismail-Zadeh, A.T., Korotkii, A.I., Naimark, B.M., and Tsepelev, I.A., Three-dimensional numerical modelling of a backward problem of thermal convection, *Comput. Math. & Math. Phys.*, 43(4), 587-599, 2003.
30. Ismail-Zadeh, A.T., Modelling of stress and seismicity in the south-eastern Carpathians: Basis for seismic risk estimation, in: Beer, T. and Ismail-Zadeh, A.T. (Eds.) *Risk Science and Sustainability*, pp. 149-162, Kluwer Academic Publishers, Dordrecht, 2003.
31. Ismail-Zadeh, A.T., Korotkii, A.I., and Tsepelev, I.A., Numerical approach to solving problems of slow viscous flow backwards in time, in *M.I.T. Computational Fluid and Solid Mechanics 2003*, K.J. Bathe (Ed.), Elsevier Science, Oxford, pp. 938-941, 2003.
32. Tsepelev, I.A., Korotkii, A.I., and Ismail-Zadeh, A.T., Numerical approach to 3D forward modeling of slow viscous flow, in *M.I.T. Computational Fluid and Solid Mechanics 2003*, K.J. Bathe (Ed.), Elsevier Science, Oxford, pp. 1169-1171, 2003.
33. Ismail-Zadeh, A.T., Huppert, H.E., and Lister, J.R., Gravitational and buckling instabilities of a rheologically layered structure: Implications for salt diapirism, *Geophys. J. Int.*, 148(2), 288-302, 2002.
34. Ismail-Zadeh, A.T., Korotkii, A.I., Naimark, B.M., and Tsepelev, I.A., Numerical modelling of three-dimensional viscous flow under gravity and thermal effects, *Comput. Math. & Math. Phys.*, 41(9), 1331-1345, 2001.
35. Ismail-Zadeh, A.T., Talbot, C.J., and Volozh, Yu.A., Dynamic restoration of profiles across diapiric salt structures: numerical approach and its applications, *Tectonophysics*, 337, 21-36, 2001.
36. Ismail-Zadeh, A.T., Huppert, H.E., and Lister, J.R., Analytical modelling of viscous diapirism through a strongly non-Newtonian overburden subject to horizontal forces, *J. Geodyn.*, 31, 447-458, 2001.