Oleksandra Verpakhovska

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Date of Birth: **28th of September, 1969** **+380679161965**

Nationality **Ukraine**

The main direction of scientific activity is studying the possibilities of improving the processing of seismic data (both land and marine) to increase the level of their interpretation when studying the deep structure of the lithosphere. A professional in the field of seismic migration and modeling of wave fields in a wide range of distances from the explosion point. Develops proprietary software for finite-difference methods of seismic migration and wave field modeling. Took part in marine seismic studies of the northwestern shelf of the Black Sea (Ukraine) in order to search for gas hydrates. I am engaged in the formation of a wave image of the geological structure based on the data of a number of regional deep seismic sounding profiles, carried out with the participation of the Institute of Geophysics within the framework of the "EUROPROBE" program. Sociable, easy to work in a team, I can independently organize work and set tasks, easily learn new things.

SKILLS

Knowledge of research methodologies. Theory of the methods for 2D and 3D seismic data processing. The non-license (free software) special system for seismic data processing – SU (Seismic Unix). Writing and presenting reports.

I am professional user of the operating Systems: Windows and Linux. Installation and support the operating systems; Know computer components and computer can improve.

Programming Languages: C/C++, bash and Tcl/Tk; partially PHP and HTML.

Applications: Microsoft Office Suite (Word, Excel, PowerPoint), CorelDraw, Photoshop and many other programs.

PROFESSIONAL EXPERIENCE

Head of the Department of Regional Problems of Geophysics

Institute of Geophysics, Academy of Science of Ukraine, Kyiv

Leading research scientist

Institute of Geophysics, Academy of Science of Ukraine, Kyiv

2024-Prezent

Project leader: The lithosphere structure of the Ukrainian Shield's western part based on data of the regional WARR profiles in connection with the mineral deposits forecast.

2023

Project leader: Geophysical studies of the deep structure, evolution and geodynamics of the East European and Western European Platform Joining Zone (TESZ – Trans-European Structural Area) in connection with the prospecting of mineral exploration.

Leading research scientist

Institute of Geophysics, Academy of Science of Ukraine, Kyiv

2017-2023

- Project co-leader: Geophysical studies of the deep structure, evolution and geodynamics of the junction zone of the East-European and West-European platforms (TESZ - Trans-European structural zone) in connection with the forecast of mineral exploration.
- Responsible executive of the Project: Geophysical study of the lithosphere of the southwest of the East European platform and its framing in connection with deep degassing with the aim of identifying fluid migration paths
- I am engaged in formation the wave image of the geological structure according to the deep seismic sounding profiles Dobre-3, RomeUkrseis, TTZ-South with using the author finite-difference refraction/reflection migration for more information for them interpretation for investigation of the depth structure Ukrainian Carpathians.

Senior scientist

Institute of Geophysics, Academy of Science of Ukraine, Kyiv

2011-2017

- Participate in the marine seismic researching of the shelf of the West part of Black Sea (Ukraine) in 2011 in order to search for gas hydrates. In during the marine expedition leaded and organized the preliminary seismic data processing.
- Develop of the method of the depth pre-stack reflection migration with finite-difference method solution of the wave equation.

Scientist

Institute of Geophysics, Academy of Science of Ukraine, Kyiv

2006-2009

- Develop of the programs for seismic data processing with the programming language C, scripts language BASH and Tcl/Tk.
- Finite-difference modeling of the wave fields.
- Refraction migration of marine and land seismic data, obtained with DSS and WARRP (wide – angle reflection refraction profiling.

1992-2005 Engineer and Junior Researcher of Institute of Geophysics, National Academy of Sciences, Kiev, Ukraine

PART – TIME POSITION

2019 GeoUnit LCC, OIL AND GAS PRODUCTION COMPANY Kyiv, Ukraine

Developing and testing of the original software corst3D (correction of the static)

2014-2015 Kumran LTD, OIL AND GAS PRODUCTION COMPANY Kyiv, Ukraine

Developing and testing of the original software ProcTop (kinematic seismic migration)

2002-2004 Kyiv Geophysical Prospecting Expedition Kyiv, Ukraine

Installation and support of the system Linux and package SU. Testing of the original software for processing of dot soundings data with the kinematic refraction migration to define LVZ (low-velocity zone).

EDUCATION AND DEGREES

2024 Academic title of corresponding member (Geophysics) of NAS of Ukraine. Diploma *№1162, 25.04.2024.*

2016 Doctor of Physical and Mathematical Sciences Kyiv, Ukraine

Thesis Title on specialty Geophysics: The depth image of the environment with the use of finite-difference migration to process the regional seismic data. Diploma *ДД №006162, 13.12.2016*

2015 Academic title of Senior Researcher Kyiv, Ukraine

Diploma АС№001672, 29.09.2015

2006 PhD in Physics and Mathematics Kyiv, Ukraine

Diploma ДК №036746, 12.10.2006. Thesis Title on specialty Geophysics: Refraction migration for determination of the structure of the geological environment.

1992 Taras Shevchenko National University of Kyiv, *Department of Geology* Kyiv, Ukraine

Diploma Engineer-geophysicist. Speciality: geophysical methods for searching and prospecting the natural resource.

OTHER ACTIVITY .

- The member of the Academic Council, Institute of Geophysics, NAS of Ukraine, Kyiv (from 02.02.2017)
- The member of the editorial board of the Geophysical Journal.

LANGUAGES

English, Russian, Ukrainian (native language).

PARTICIPATION IN CONFERENCE (only main in list)

12th International Symposium on Deep Seismic Profiling of the Continents and their Margins, Hayama, Japan, September 24th – 29th 2006.

The 13th International Symposium on "Deep Seismic Profiling of the Continents and Their Margins", SEISMIX2008, 8-13 June 2008, Finland, Saariselka.

12th International Multidisciplinary Scintific GeoConference & EXPO, SGEM2012, 17.06.2012-23.06.2012, Albena, Bulgaria.

The 15th International Symposium on Deep Seismic Profiling of the Continents and Their Margins (SEISMIX 2012), 16-20 September 2012, Beijing, China.

Geoinformatics 2019, 13-16 May 2019, Kyiv, Ukraine, 16029, DOI: https://doi.org/10.3997/2214-4609.201902092

Geoinformatics 2021, 11-14 May 2021, Kyiv, Ukraine, 21058, p.1-6 DOI: https://doi.org/10.3997/2214-4609.20215521058

PUBLICATIONS (97, only main in list)

Pavlenkova N.I., Pilipenko V.N., **Verpakhovskaya A.O.**, G.A. Pavlenkova, V.P. Filonenko. Crustal structure in Chile and Okhotsk Sea regions. Tectonophysics, vol.472, Issue 1-4, July 2009, pp28-38.

Pilipenko V.N., **Verpakhovskaya A.O.**, Starostenko V.I., Pavlenkova N.I. Finite-difference migration of the field of refracted waves in studies of the deep structure of the

Earth's crust and the upper mantle based on the DSS (on the example of the DOBRE profile. Izvestiya, Physics of the Solid Earth, 2010, Vol. 46, No. 11, pp. 943–954.

Pylypenko V.N., **Verpakhovska O.O.**, Starostenko V.I., Pavlenkova N.I. Wave images of the crustal structure from refractions and wide-angle reflections migration along the DOBRE profile (Dnieper-Donets paleorift). Tectonophysics, vol.508, issue 1-4,July 2011, P.96-105.

Verpakhovska O., Pylypenko V. The image of the depth structure of the geological medium with the using of the seismic refraction migration. "Scientific book" project. Kyiv: Naukova dumka, 2019, 158p(in Ukrainian).

Verpakhovska A., Pylypenko V., Yegorova T., Murovskaya A. Seismic image of the crust on the PANCAKE profile across the UKRAINIAN CARPATHIANS from the migration method. *Journal of Geodynamics, 2018, 121, p.76-87* DOI: 10.1016/j.jog.2018.07.006

Verpakhovska A. O., Lesnoy G.D., Polunin A.I. A procedure of automatic evaluation of residual statistic adjustments for increasing information value of exploration seismology data. Geophysical Journal, 2021, vol.43, No.2, P.14-27. DOI: https://doi.org/10.24028/gzh.v43i2.230188

Verpakhovska A. O. Technique for the imaging crystalline basement according to the DSS data. Geophysical Journal, 2021, vol.43, No.5, P.127-149. DOI: https://doi.org/10.24028/gzh.v43i5.244076

Yegorova T.P., **Verpakhovska A. O.**, Murovskaya A. Three-layer structure of the Carpathian sedimentary prism from the results of seismic migration on the PANCAKE and RomUkrSeis WARR profiles. Geophysical Journal, 2022, vol.44, No.2, P.152-169. DOI: https://doi.org/10.24028/gj.v44i2.256270

O.O. Verpakhovska, V.P. Kobolev, V.M. Pylypenko. The precision of the migration image of the depth section on the seismometry observations on northwestern Black Sea shelf// Геофиз.журнал, т.44, №5, 2022, с.3-12. DOI: https://doi.org/10.24028/gj.v44i5.272324

Verpakhovska, O., & Chorna, O. (2023). The correctness of the finite-difference problems of the time- and wave fields continuation for the migration image of the basement boundary. *Geofizicheskiy Zhurnal*, *45*(6). https://doi.org/10.24028/gj.v45i6.293306

V. Starostenko, T. Janik, W. Czuba, P. Środa, A. Murovskaya, T.Yegorova, **A.Verpakhovska**, K.Kolomiyets, D. Lysynchuk, D. Wójcik, V. Omelchenko, T. Amashukeli, O. Legostaeva, D. Gryn, S. Chulkov. Seismic lithospheric model across Ukrainian Shield from the Carpathians to the Dnieper-Donets Basin // Tectonophysics, 2024, Vol.892, 230540, https://doi.org/10.1016/j.tecto.2024.230540

Verpakhovska O., T Yegorova, V Starostenko, A Murovskaya, A Artoni. Migration of RomUkrSeis WARR data reveals complex basement structure for the area of accretion of Tisza–Dacia microplate to the East European Craton// *Int J Earth Sci (Geol Rundsch)* (2025). https://doi.org/10.1007/s00531-025-02506-1

CITATION DATA

Web of Science ResearcherID: Y-9529-2018 (Oleksandra Verpakhovska) https://www.webofscience.com/wos/author/record/1321634
Scopus Author ID: 36716977300 (Verpakhovska, O.) https://www.scopus.com/authid/detail.uri?authorId=36716977300
ORCID:https://orcid.org/0000-0002-6607-2360 (Oleksandra Verpakhovska)
Google Scholar : Verpakhovska A., Верпаховская А.О. (https://scholar.google.com.ua/citations?hl=uk&user=T-9Wv-YAAAAJ)