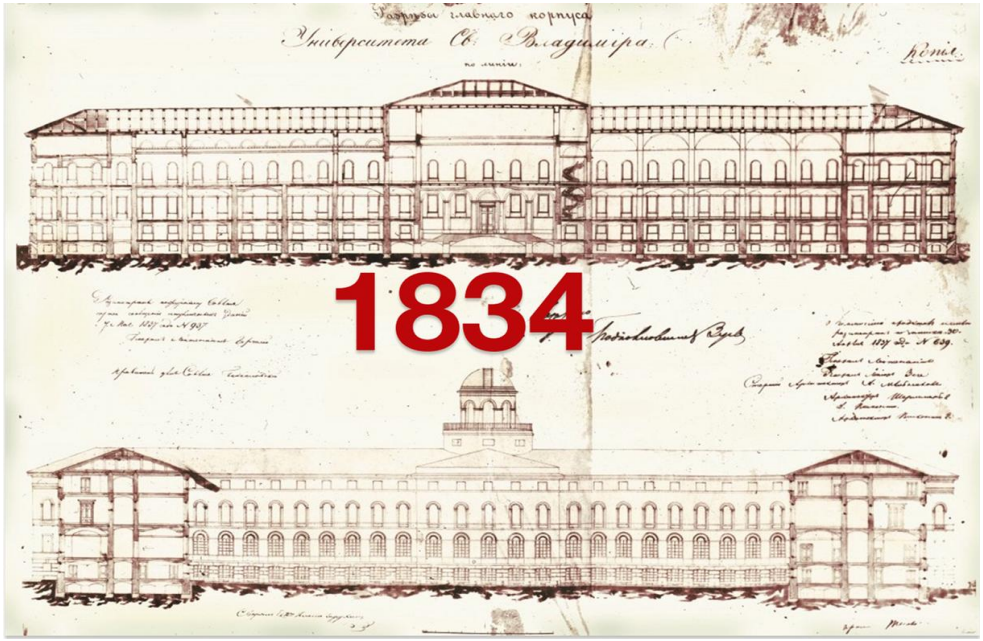
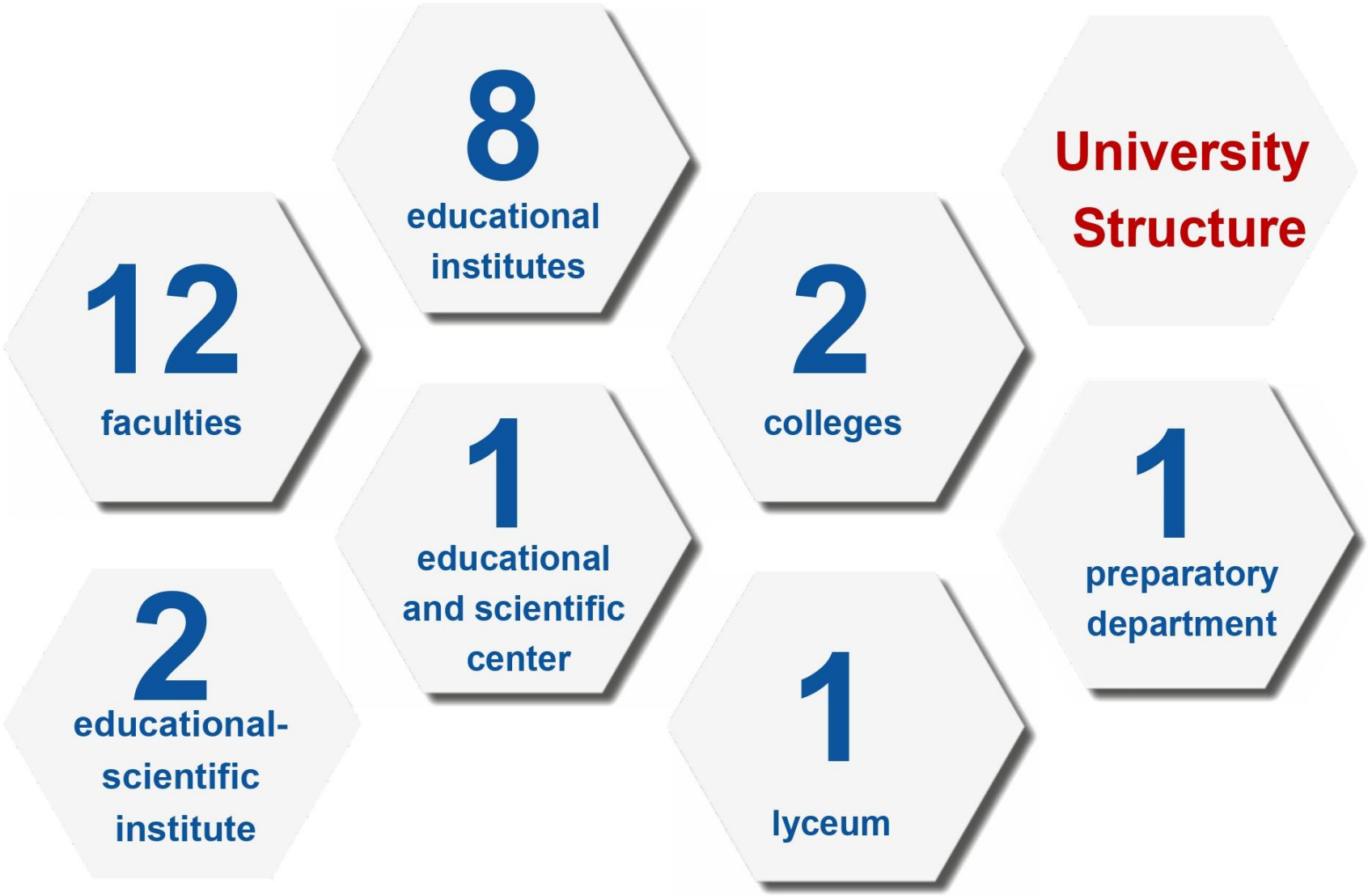
Meteorological and climatic research at Taras Shevchenko National University of Kyiv

Prof. Olga Shevchenko,
Deputy Dean of the Geography Faculty,
Taras Shevchenko National University of Kyiv

PEEX Online Seminar, 9 April 2026,

The University was founded in 1834




University Structure
12
faculties
8
educational institutes
2
colleges
1
preparatory department
1
educational and scientific center
2
educational-scientific institute
1
lyceum


The Main Building

University Buildings

The Geography Faculty
Taras Shevchenko National Unıversıty of Kyiv

was founded in 1944.

It consists of 8 departments:

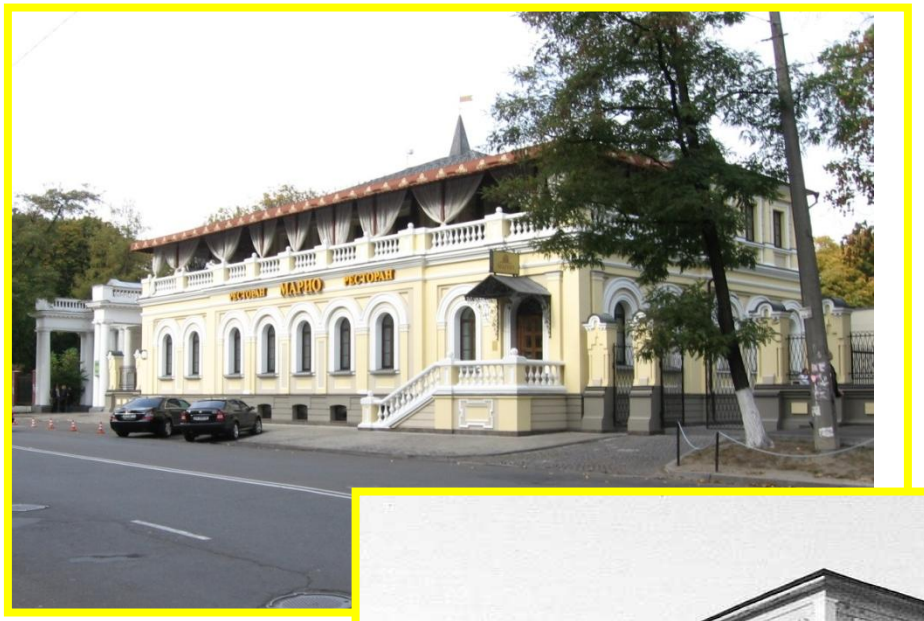
-Economic and Social Geography;
-Regional Geography and Tourism;
-Geography of Ukraine;
-Physical Geography and Geoecology;
-Geomorphology and Paleogeography;
-**Meteorology and Climatology;**
-Hydrology and Hydrochemistry;
-Geodesy and Cartography.

The main dates in the development of meteorology at Taras Shevchenko National University of Kyiv

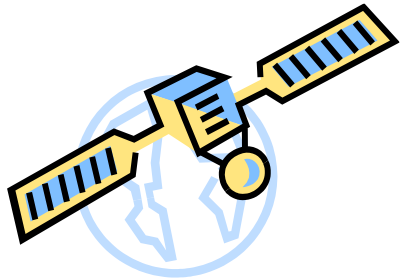
1846 – beginning of teaching of meteorology (Prof. August Knorr)

1855 – opening meteorological observatory

1949 – creation of Meteorology and Climatology Department



Since 2006, the Department of Meteorology and Climatology has operated a Synoptic Training Laboratory.



Opening of Synoptic Training Laboratory at the Department of Meteorology and Climatology (23th March 2006)

Main objectives and areas of focus for the synoptic meteorology laboratory:

- Training students in procedures for obtaining meteorological data, preparing weather forecasts, providing meteorological support to airport control services, numerical weather prediction models, etc.;
- Conducting practical classes in the disciplines of “Synoptic Meteorology,” “Aviation Meteorology,” and “Numerical Methods of Weather Forecasting”;
- Preparatory work with meteorological data and synoptic information for the department’s scientific research.

The Meteorology and Climatology Department team

PEEX Online Seminar, 9 April 2026,

Climate change, vulnerability, adaptation

Prof. Sergiy Snizhko

Prof. Olga Shevchenko

Ivan Kostyrko

International Projects:

•06/2018–11/2020 – Project Technology Needs Assessment «TNA»: Ukraine;
•2014 – International Project «CLIMATE FORUM EAST»;
•2014 – International Project “LOC-CLIM-ACT: Local Actions to Influence Climate Change”;
•2014 Project of the 7th Framework Programme “Climate Change for the Identification of Relevant Sub-Themes and Topics for the EU-EaP STI Cooperation”. Funding: International Innovation and Technology Center for International and Regional Studies (CeRISS);
2012 – German-Ukrainian project “Development of an Atlas of Water Resources in Western Ukraine in the Context of Climate Change”. Funding – State Committee of Ukraine for Science and Technology;
2008 – Joint project of the University of Cambridge and the Open Society Institute “Chemistry of Atmosphere and Climate Change.” Implemented at the Centre for Atmospheric Sciences, University of Cambridge (Cambridge, UK).

Publications:

Shevchenko O., Lee H., *Snizhko S.,* Mayer H.Long-term analysis of heat waves in Ukraine. International Journal of Climatology. – 2014. Vol. 34, Is.5. Pp.1642–1650.

S. Snizhko, O. Shevchenko, Iu.Didovets, A. Krukivska, I.Kostyrko. Assessment of changes in the main climatic parameters over the territory of Ukraine during the XXI century according to scenarios based on representative concentration pathways (RCP). XIV International Scientific Conference “Monitoring of Geological Processes and Ecological Condition of the Environment”. 10–13 November 2020, Kyiv, Ukraine.

I. Kostyrko, O. Shevchenko, S. Zapototskyi, V.Pavlovskyi. The Projections of the Number of Ice Days in Ukraine in the 21st Century. 18th International Conference Monitoring of Geological Processes and Ecological Condition of the Environment Conference paper Apr 2025, Vol. 2025, p.1–5 https://doi.org/10.3997/2214-4609.2025510205.

O. Shevchenko, V. Rybchynska, I. Kostyrko, S. Snizhko, Iu. Didovets.The projections of heat wave cases in Kyiv in the 21st century. XVI International Scientific Conference “Monitoring of Geological Processes and Ecological Condition of the Environment”. 15–18 November 2022, Kyiv, Ukraine.

Human biometeorology

Prof. Sergiy Snizhko

Prof. Olga Shevchenko

International Projects:
01/2023–06/2023 International project «Urbisphere», financed by European Research Council (ERC-SyG).

Publications:
O. Shevchenko, S. Snizhko, A. Matzarakis. Recent trends on human thermal bioclimate conditions in Kyiv, Ukraine. Geographia Polonica. 2020. Vol. 93, Issue 1. – pp. 89 – 106.
O. Shevchenko. Human thermal comfort conditions during heat wave events in Kyiv, Ukraine. Journal of Environmental Research, Engineering and Management. Vol. 77 / No. 2 / 2021. pp. 99–110. DOI 10.5755/10.5755/j01.erem.77.2.23142.
O. Shevchenko, S. Snizhko, S. Zapototskyi, A. Matzarakis. Biometeorological Conditions during the August 2015 Mega-Heat Wave and the Summer 2010 Mega-Heat Wave in Ukraine. Atmosphere 2022, 13, 99. https://doi.org/10.3390/atmos13010099.
O. Shevchenko, S. Snizhko, S. Zapototskyi, H. Svintsitska, M. Matviienko, A. Matzarakis. Long-term analysis of thermal comfort conditions during heat waves in Ukraine. Geographia Polonica 2022. Vol. 95, Is.1. pp.53–70.
A.M. Tomczyk, *O. Shevchenko,* A. Matzarakis. Biometeorological conditions during cold spells in south-east Poland and west Ukraine. International Journal of Biometeorology (2023). https://doi.org/10.1007/s00484-023-02559-4.
O. Shevchenko, S. Snizhko, S. Zapototskyi, I. Kostyrko, I. Semylit. Thermal comfort conditions of the Dnipropetrovsk region in the modern period. Journal of Geology, Geography and Geoecology. 2024. 33(4), 817–829. https://doi.org/https://doi.org/10.15421/112474.
O. Shevchenko, M. Sluzer, A. Christen, A. Matzarakis. Coupling Indoor and Outdoor Heat Stress During the Hot Summer of 2022: A Case Study of Freiburg, Germany. Atmosphere 2025, 16, 167. https://doi.org/10.3390/atmos16020167.

Urban Climate, Air Pollution

As. Juliia Yatsenko

Prof. Olga Shevchenko

Prof. Sergiy Snizhko

As.Pr. Vasyl Zatula

Publications:

M. Radomska, R. Stevens, M. Semkiv, *Yu. Yatsenko*, S. Lysovenko. An initial data-limited modeling of the environmental consequences: case-study of the Vasylkiv fuel reservoir fire. Environmental Problems. 2023. DOI: 10.23939/ep2023.02.076

N. Korohoda, *Yu. Yatsenko*. Assessment of ecosystem services to reduce the level of dust pollution in the urban air along roads. Physical Geography and Geomorphology. 2023. DOI: 10.17721/phgg.2023.1-6.04

A. Sivak; *Yu. Yatsenko*. Assessment of Ground Layer Air Pollution by Radioactive Aerosols as a Result of Secondary Wind Uprising. 17th International Conference Monitoring of Geological Processes and Ecological Condition of the Environment. 2023. DOI:10.3997/2214-4609.2023520243.

O.Shevchenko; Yu. Yatsenko; D. Kryvobok; *S. Snizhko*. The impact of heat waves on the level of air pollution in Kyiv. Bulletin of Taras Shevchenko National University of Kyiv. Geography. 2023. DOI:10.17721/1728-2721.2023.87.1

Yu. Yatsenko. The influence of military actions on atmospheric air quality in Ukraine. Bulletin of Taras Shevchenko National University of Kyiv. Geography. 2022. DOI:10.17721/1728-2721.2022.82.12

Water resources (climate change impact on water resources, hydrochemistry, water security)

Prof. Sergiy Snizhko

Prof. Olga Shevchenko

Projects:

2012 – German-Ukrainian project “Development of an Atlas of Water Resources in Western Ukraine in the Context of Climate Change”. Funding – State Committee of Ukraine for Science and Technology;

1998–2002 – Project “1997 TACIS CBC Programme: Bug and Latorica/Uzh Transboundary Water Quality Monitoring and Assessment (ENVREG9702)”, head of the international hydrochemical expedition. Funding – EU TACIS programme;

2018–2020 – State budget research project No. 018BP050-01 “Hydroecological assessment and forecast of the hydropower potential of Ukrainian rivers in the context of climate change.” Funding – Ministry of Education, Science, Youth, and Sports of Ukraine;

2014–2015 – State Budget Research Project No. 14BP050-01. “Hydroecological assessment and forecast of the energy potential of rivers in the Ukrainian Carpathians.” Funding: Ministry of Education, Science, Youth and Sports of Ukraine;

2012 – State budget research project “Developing principles and methods for basin assessment of the impact of climate change on water flow.” No. DR 0108U005988. Funding: Ministry of Education, Science, Youth and Sports of Ukraine;

Publications:

Snizhko S., Bertola M., Ovcharuk V., *Shevchenko O.,* Didovets I., Blöschl G. Climate impact on flood changes – an Austrian-Ukrainian comparison. Journal of Hydrology and Hydromechanics Vol. 3., 71, 2023. Pp. 271–282.

Snizhko S., Didovets Yu., *Shevchenko O.*, Yatsiuk M., Hattermann F.F., Bronstert A. Southern Bug River: water security and climate changes perspectives for post-war city of Mykolaiv, Ukraine. Frontiers in Water. 2024.

Snizhko, S.; Bronstert, A.; Didovets, I. Ukraine's water security under pressure: Climate change and wartime. Water Security. 2024.

Didovets, I.; Krysanova, V.; Hattermann, F.F.; del Rocío Rivas López, M.; *Snizhko, S.*; Müller Schmied, H. Climate change impact on water availability of main river basins in Ukraine. Journal of Hydrology: Regional Studies. 2020.

Themes of dissertations defended at the Meteorology and Climatology Department since 2007

Scientific supervisor - Prof. S.I. Snizhko:

Candidate dissertations in the specialty Meteorology, Climatology, Agrometeorology:

•2007 – Dvoretska I.V. “Dynamics of individual chemical components and optical properties of the atmosphere over the territory of Ukraine”;

•2009 – Skrynyk O.A. “Method for determining the dates of stable air temperature transitions through fixed values and trends in their changes in modern climate conditions”;

•2009 – Shevchenko O.G. “Assessment and forecasting of the current state of atmospheric air pollution in Kyiv.”

Candidate of Science dissertations in the specialty Hydrology, Hydrochemistry, Water Resources:

•2010 – Bodnarchuk T.V. “Formation of the hydrological and hydrochemical regime and water quality in the upper reaches of the Dniester and Western Bug basins”;

•2010 – Kosovets-Skavronska O.O. “Chemical composition of atmospheric precipitation and its role in the formation of the chemical composition of surface waters in Ukraine”;

•2013 – Kuprikov I.V. “Assessment of possible changes in local water resources in Ukraine in the 21st century”;

•2016 – Pavelchuk E.M. “Features of the hydrological and hydrochemical regime of rivers in the Zhytomyr Polissya region in the context of climate change”;

•2019 – Didovets Yu. S. “Assessment of the impact of climate change on water flow and flood regime of rivers in Ukraine using the SWIM eco-hydrological model.”

Doctoral dissertation in the field of Meteorology, Climatology, Agrometeorology:

•2020 – Shevchenko O.G. “Theoretical and Methodological Foundations of Complex Studies of Urban Meteorological Transformations in Cities”.

Scientific supervisor – As.Pr. V.I. Zatula:

Candidate dissertations in the specialty Meteorology, Climatology, Agrometeorology:

•2016 –Oleksienko I.M. “Spatial and temporal distribution of frost in Ukraine and their impact on fruit crops”.

•2012 – Sidorenko A.V. “Features of saturation deficit fields in modern climate of Ukraine”.

Scientific supervisor –Prof. O.G. Shevchenko:

2023 –Matviienko M.O. Simulation of Microclimate and Bioclimatic Conditions of Big Cities in Summer Months

Educational projects of the Meteorology and Climatology Department of TSNUK for the period 2016-2025

PEEX Online Seminar, 9 April 2026,

Co-funded by the
Erasmus+ Programme
of the European Union

561975-EPP-1-2015-1-FI-EPPKA2-CBHE-JP «Adaptive learning environment for competence in economic and societal impacts of local weather, air quality and climate» (2016-2019).

https://ecoimpact.knu.ua/en/

Coordinator: University of Helsinki, Prof. Sergej S. Zilitinkevich,

CLUVEX
CLIMATE UNIVERSITY FOR VIRTUAL EXCHANGES

Co-funded by the Erasmus+ Programme of the European Union

CLUVEX (Climate University for Virtual Exchanges; 2023-2026).

https://www.atm.helsinki.fi/cluvex/

Coordinator: University of Helsinki, PhD, Docent, Hanna K. Lappalainen

Co-funded by the European Union

DOMANI

MICROCREDENTIALS FOR UKRAINE AND MONGOLIA

Project 101179859 «DOMANI - Developing Micro-credentials Ecosystems in Ukraine and Mongolia for Competitive and Resilient Green Economies» (2024-2027).

https://domaniproject.eu/

Coordinator: The Open University, Estonian University of Life Science, Tartu, Kristina Marran

PEEX Online Seminar, 9 April 2026,

Thank you for your attention!

Prof. Olga Shevchenko,
shevchenko_olga@knu.ua

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