

## Curriculum Vitae

**Prof. Valery A. ZEMTSOV**, Doctor of Geographical Sciences (Hydrology, Geo-ecology), Professor (Full)



**BORN:** 30 January 1952, Tomsk, Russia

**EDUCATION:** Tomsk State University, 1974, Engineer/Hydrologist

**PRIMARY POSITION:** Head, Department of Hydrology, Faculty of Geology and Geography, Tomsk State University, Russia

**PROFESSIONAL MEMBERSHIPS:** Member of Russian Geographical Society

### **PROFESSIONAL CAREER:**

2005- present Professor, Head of Hydrology Department, TSU;

1991-2004 Head, Department of Hydrology;

1985-1991 Associate Professor;

1980-1984 Assistant Professor;

1974-1980 Engineer, and Researcher, Department of Hydrology, Tomsk State University

**DOCTOR OF SCIENCE DISSERTATION:** Resources of surface water runoff in the Ob River basin: basic regularities and problems of management, 2004.

**SUBJECT REFERENCE:** Cold regions runoff formation, environmental hydrology, management of water resources, hydro-meteorological time series analysis, modelling of stream hydraulics, hydrological implications of climate change

**EDUCATIONAL COURSES:** Statistical Analysis in Hydrometeorology; Hydrometeorological Fundamentals of Environmental Protection; Water Resources Management; the Problems of Modern Hydrometeorology; Hydrology and Hydrochemistry of Siberia and Arctic

### **PROFESSIONAL ACTIVITIES:**

- Hydrological research of West Siberian rivers and peatlands, 1974-

- Consultancy services for governmental bodies and other institutions on the problems of use and integrated management of water resources, flood control, 1991-

- Participation in Environmental Impact Assessment of hydraulic construction projects, projects of oil and natural gas fields development in West Siberia, etc., 1994-2006;

- Hydraulic river surveys and river flow modelling for water projects and river bed regulation (on the basis of HEC-RAS, HEC-6, SMS and other modelling systems) - for Tomsk Shipping Company and other organisations, Siberian rivers: the Tom River, the Ob River, 1997-

- Participation in TEMPUS Tacis T\_JEP10217-96 project on Master's degree programme 'Environmental Management' at Tomsk State University, 1997-1999 (joint project with Oxford, Sheffield and Utrecht Univ.); course co-ordinator;

- D-CP 20589-99 project on dissemination of the Master degree programme in Russian pilot universities, 2000-2002 (joint project with Oxford and Utrecht Univ.); co-ordinator of the course;

- A study visit "Application of modern measuring equipment and techniques in research of river beds dynamics, sediments transport and hydraulic modeling", Univ. of Guelph, Ontario, Canada, October 2007 (3 weeks).

- Hydrological survey, hydrological research and modelling for the bridge construction, the Ob River, 2007-2008;

- Invited Professor, University Paris 11 Sud, Orsay, France, February 2008 (1 month);

- Participation in "CAR WET SIB - Geochemistry of carbon in wet zones of West Siberia", joint Russian and French project; co-supervision of the PhD thesis, 2008-2017;

- Supervision of development of Master's degree programme "Hydrology and geo-ecology of swamped regions with oil and natural gas fields" and participation in development of Master's degree programme "Environmental Management", Tomsk State University, 2011-2012.

- Research project Interaction between velocity fields, sediment transport and channel deformation in complex reaches of big rivers of Western Siberia in natural conditions and under technogenic impacts. Grant 10-05-00625-a of the Russian Basic Research Foundation, Lead Researcher, 2010-2012.

- Research project Assessment and prediction of the effect of climate change on the water cycle, water balance and regime of humidification over the territory of Western Siberia (zonal, regional and local patterns) taking into account the feedbacks generated by the change of landscape parameters due to the process of climate change. Grant 14-05-00700-a of the Russian Basic Research Foundation, Lead Researcher, 2014-2016.

- EU Erasmus+ Project No. 561775-EPP-1-2015-1-DE-EPPKA2-CBHE-JP "Trans-Regional Environmental Awareness for Sustainable Usage of Water Resources (TREASURE-WATER)", TSU Co-ordinator, 2015-

### **SELECTED PUBLICATIONS:**

- *Variability of Hydrological Characteristics Fields in West Siberia*. Monograph. Nauka, Novosibirsk, 1986, 204 pp. Co-author S.Nikitin (in Russian).
- River and lake waters and their natural and economic significance. *Natural resources of Tomsk Region*. Novosibirsk, 1991. 103-114 (in Russian).
- *Wetlands of West Siberia and their role in biosphere*. Monograph. Tomsk, 1998, 2000, 72 pp, Co-authors A.Zemtsov, A.Mezentsev, L.Inisheva (in Russian).
- *Environmental Management*. A textbook. Tomsk Polytechnic Univ. Publishing, Tomsk, 2000, 159 pp. Co-author V.Izvekov.
- *Fluvial Processes in Siberian Rivers*. A textbook. Tomsk, TML Press, 2007, Co-authors D.Vershinin, A.Krutovskiy, Yu. Kamenskov, 182 pp (in Russian)
  
- Assessment of the Tom River flow sensitivity to climate change. *Geography and Natural Resources*, **3**, 1997, 176-182 (in Russian).
- Long-term tendencies in hydrometeorological variables change in the Upper Ob river basin. In: *Proc. of the NATO Advanced Research Workshop 'Stochastic Models of Hydrological Processes and their Applications to Problems of Environmental Preservation'*. Moscow, Water Problems Institute, 1998, 139-143, Co-author V.Paromov.
- Some problems of groundwater near Tomsk, West Siberia, Russia. *Groundwater in the Urban Environment: Selected City Profiles*, Chilton (ed.), Rotterdam, 1999, Co-authors L.Dubrovskaya, V.L'gotin, 119-123.
- Gravel mining from the Tom River bed and the problem of Environmental Impact Assessment. In: *Proc. of the 2nd Conference 'The Environment of Siberian rivers floodplains and Arctic'*, Tomsk, 2000, 367-373, Co-authors D.Vershinin, N.Inishev (in Russian).
- The Ob River banks deformations near the city of Kolpashevo over the last 100 years. *Geography and Natural Resources*, **3**, 2001, 66-69, Co-authors A.Krutovskiy, V. L'gotin, B. Egorov (in Russian).
- The Tom River bed deformations under the influence of intensive anthropogenic activities – study experience. *Erosion and Fluvial Processes in Siberia*, Barnaul, Altai Univ. Press, 2003, 97-102, Co-authors D.Vershinin, N.Inishev, P.Lestchenko (in Russian).
- Ecoregions and the problem of surface water quality objectives indication in the Ob river basin (Siberia, Russia). In: *Hydrology: Science & Practice for the 21st Century*. V. II. London, 2004, 226-231.
- Geographical regularities of river flow temporal variability in the West Siberian plain and the Altai and Sayan Mountains. In: *Proc. of the 6th Russian Hydrol. Congress*. V. 5. Saint-Petersburg, 2004, 111-112 (in Russian).
- Dynamical properties of Siberian rivers flow time series. *Problems of Geography of Siberia*. V. 26. Tomsk, 2006, 10-13, Co-author O.Yushkina (in Russian)
- Risk assessment and the main peculiarities of hydrologic regime in the Ob and Irtysh rivers basin. In: *Proc. of the Water Forum*. Omsk - Khanti-Mansiysk. 2006. 15-18
- Surface waters pollution with oil-products (hydrocarbons): the problem and possibilities of control. In: *Regional environmental policy in a framework of current priorities of oil and natural gas extraction developments: Proc. of the congress of ecologists of oil-extracting regions*. Khanti-Mansiysk. 2007. 197-205. Co-author O.Yushkina, (in Russian).
- Effect of river flow regime and natural basin storage contribution on parameters of dynamical systems of river basins. *Bulletine of Tomsk University*, 2008. V. 316. 213-218, Co-author O.Yushkina (in Russian)
- Zakharova, E. A., Kouraev, A. V., Kolmakova, M. V., Mognard, N. M., Zemtsov, V. A., Kirpotin, S. N. The modern hydrological regime of the northern part of Western Siberia from in situ and satellite observations // *International Journal of Environmental Studies*, 2009, 66 (4), 447-463. DOI: <http://dx.doi.org/10.1080/00207230902823578>
- Zemtsov V., Vershinin D., Inishev N., Mezentsev A. Computer simulation of river flow dynamics as the component of Decision Support System (on an example of big Siberian rivers). *Water problems of big river basins and approaches to their solution*. Barnaul, 2009. 520-534 (in Russian)
- Rudoy A., Zemtsov V. Simulation of hydraulic characteristics of diluvial floods from the Late-Quaternary Chuya and Kuray glacier-dammed lakes. *Ice and Snow*. 2010. 1(109), 111-118. Co-author A. Rudoy (in Russian).
- Dikunets V., Pushistov P., Zemtsov V., Romanenko R. Feasibility study of the DSS on the protection of the North Sosva River unique ecosystem under large-scale industrial, transport and energetic development of the Sub-Polar Urals area. *Basic Problems of Water and Water Resources*. Barnaul, 2010. 516-519 (in Russian)
- Narozhniy Yu., Zemtsov V. Current State of the Altai Glaciers (Russia) and Trends Over the Period of Instrumental Observations 1952–2008. *AMBIO*. 2011. 40 (6), 575-588. DOI: <http://dx.doi.org/10.1007/s13280-011-0166-0>.
- Terry V.Callaghan, Craig E.Tweedie, Jonas Akerman, Christopher Andrews, ..., Valeriy A. Zemtsov. Multi-Decadal Changes in Tundra Environments and Ecosystems: Synthesis of the International Polar Year-Back to the Future Project (IPY-BTF) // *AMBIO*. 2011. Volume 40, Issue 6, 705-716. DOI: <http://dx.doi.org/10.1007/s13280-011-0179-8>.
- Zakharova, E. A., A. V. Kouraev, S. Biancamaria, M. V. Kolmakova, N. M. Mognard, S. N., V. A. Zemtsov, Kirpotin, B. Decharme. Snow Cover and Spring Flood Flow in the Northern Part of Western Siberia (the Poluy, Nadym, Pur, and Taz Rivers). *J. Hydrometeor*, 2011, 12, 1498–1511. DOI: <http://dx.doi.org/10.1175/JHM-D-11-017.1>
- Zakharova, E.A., Kouraev, A.V., Rémy, F., Zemtsov, V.A., Kirpotin, S.N. Seasonal variability of the Western Siberia wetlands from satellite radar altimetry (2014) *Journal of Hydrology*, 512, 366-378. DOI: <http://dx.doi.org/10.1016/j.jhydrol.2014.03.002>

- Zemtsov, V.A., Paromov, V.V., Kopysov, S.G., Kouraev, A.V., Negrul, S.V. Hydrological risks in Western Siberia under the changing climate and anthropogenic influences conditions. *International Journal of Environmental Studies*. 2014. 71(5). pp. 611-617. DOI: <http://dx.doi.org/10.1080/00207233.2014.942530>
- Ray A. Kostaschuk, Dmitriy A. Vershinin, Valeri A. Zemtsov. Ice-jam Floods. River Ice-jams cause Severe Flooding in Tom River, Western Siberia, *Hydro International*, 2014, 18(5), 23-27
- Zemtsov, V.A., Vershinin, D.A., Inishev, N.G. Imitational simulation of ice-jams (an example of the Tom River, West Siberia). *Ice and Snow*. 2014, 3, 59-68 (in Russian)
- Inishev N. G., Rudoy A. N., Zemtsov V. A., and Vershinin D. A. The First Computer Model of Currents in the Kurai Intermountane Basin, Altai, under Release of a Glacial-Dammed Lake. *Doklady Earth Sciences*, V. 461(1), 2015. 283-285. DOI: <http://dx.doi.org/10.1134/S1028334X15030125>
- Sergey G. Kopysov, Aleksandr A. Erofeev & Valeriy A. Zemtsov. Estimation of water balance over catchment areas taking into account the heterogeneity of their landscape conditions. *International Journal of Environmental Studies*, 2015. 72(3). 380-385. Special Issue: The great Ob River basin. DOI: <http://dx.doi.org/10.1080/00207233.2015.1010876>
- Valeriy A. Zemtsov and Oleg G. Savichev. Resources, regime and quality of surface waters in the Ob River basin: history, current state and problems of research. *International Journal of Environmental Studies*, 2015. 72(3), 386-396. Special Issue: The great Ob River basin. DOI: <http://dx.doi.org/10.1080/00207233.2015.1019299>
- Manasypov, R. M., Vorobyev, S. N., Loiko, S. V., Kritzkov, I. V., Shirokova, L. S., Shevchenko, V. P., Kirpotin, S. N., Kulizhsky, S. P., Kolesnichenko, L. G., Zemtsov, V. A., Sinkinov, V. V., and Pokrovsky, O. S.: Seasonal dynamics of organic carbon and metals in thermokarst lakes from the discontinuous permafrost zone of western Siberia, *Biogeosciences*, 12, 3009-3028, 2015. doi: <http://dx.doi.org/10.5194/bg-12-3009-2015>
- Pokrovsky, O. S., Manasypov, R. M., Loiko, S., Shirokova, L. S., Krickov, I. A., Pokrovsky, B. G., Kolesnichenko, L. G., Kopysov, S. G., Zemtsov, V. A., Kulizhsky, S. P., Vorobyev, S. N., and Kirpotin, S. N.: Permafrost coverage, watershed area and season control of dissolved carbon and major elements in western Siberian rivers, *Biogeosciences*, 12, 6301-6320, 2015. doi: <http://dx.doi.org/10.5194/bg-12-6301-2015>
- Beisembayeva, M. A., Zemtsov, V. A., Kamkin, V. A., and Bazarbekov, K. U. Chapter 9. Dynamics of the Irtysh River Floodplain Hydrology and Vegetation in the Pavlodar Region of the Republic of Kazakhstan. In: Oleg S. Pokrovsky (Ed.) *Riparian Zones: Characteristics, Management Practices and Ecological Impacts* (Nova Science Publishers). 2016. 211-230.
- Paromov, V.V., Zemtsov, V.A., Kopysov, S.G. Climate of West Siberia during the slowing phase of warming (1986-2015) and prediction of hydroclimatic resources for 2021-2030, *Bulletin of the Tomsk Polytechnic University. Geo Assets Engineering*. 2017. V. 328(1). 62-74 (in Russian)
- Pokrovsky, O.S., Manasypov, R.M., Loiko, S.V., Krickov, L. S. Shirokova, B. G. Pokrovsky, L. G. Kolesnichenko, V. A. Zemtsov, S. G. Kopysov, S. P. Kulizhsky, S. N. Vorobiev and S. N. Kirpotin. Chapter 10. Landscape factors regulating dissolved carbon in Western Siberian rivers. In: Oleg S. Pokrovsky and Liudmila Shirokova (Eds.) *Dissolved Organic Matter (DOM): Properties, Applications and Behavior* (Nova Science Publishers). 2017, pp 213-252.

#### **SOME SUPERVISED PhD THESES:**

- Krutovskiy A. (2002) Means of the enhancement of geoecological monitoring efficiency in the process of river bed deformations research near populated localities on the banks of the big rivers in Tomsk region, Russia.
- Vershinin D. (2004) Methods of investigation of man's activities effects on fluvial processes (an example of the Tom River, Siberia).
- Yushkina O. (2009) Analysis and forecasting of river flow temporal variations with application of nonlinear dynamics methods.
- Kolmakova M. (2012) Hydrological and climatic variability in the river basins of the Western Siberian plain (the PhD thesis is carried out in co-operation between LEGOS, Univ. Toulouse, France and the Univ. of Tomsk, Russia; co-supervisor A.Kouraev)

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