

## CURRICULUM VITAE

### Education

- 1999 Ph.D. (Mathematics and Physics)  
 MITPAN, Russian Academy of Sciences, Moscow  
 Advisors: Prof. V.F. Pisarenko, Prof. V.I. Piterbarg.
- 1995 M.S. (Probability and Statistics)  
 Lomonosov Moscow State University, Dept. of Probability Theory  
 Advisor: Prof. V.I. Piterbarg.

### Fields of interest

Random self-similar trees; coalescent and branching processes; networks and network transport; multiscale methods of time series analysis; random sums of heavy-tailed variables; delay dynamical systems.

*Applications:* Statistical seismology, earthquake dynamics and hazard assessment; river networks; climate stability, El-Niño modeling; stochastic dynamics of intracellular protein motors; financial stochastic modeling.

### Professional experience

- 2016 – present Professor, Dept. of Mathematics and Statistics, UNR
- 2016 – 2018 Director, PhD Program in Statistics and Data Science
- 2015 – 2016 Vice-Chair, Dept. of Mathematics and Statistics, UNR
- 2009 – 2016 Associate Professor, Dept. of Mathematics and Statistics, UNR
- 2006 – 2009 Assistant Professor, Dept. of Mathematics and Statistics, UNR
- 2001 – 2006 Assistant Researcher, Institute of Geophysics and Planetary Physics  
 University of California Los Angeles
- 1999 – 2001 Postdoctoral Fellow, Institute of Geophysics and Planetary Physics  
 University of California Los Angeles

### Broader Service

- 2011 – present Commission on Mathematical Geophysics, International Union of Geodesy and Geophysics (IUGG), Secretary since 2013
- 2016 – present Associate Editor, *Journal of Geophysical Research-Solid Earth* (AGU)
- 2009 – present Editor, *Nonlinear Processes in Geophysics* (EGU/AGU)
- 2011 – 2016 Committee on Prob. and Stat. in Physical Sci.,  
 Bernoulli Society for Mathematical Statistics and Probability, Chair  
 2013 – 2015
- 2009 – 2018 Associate Editor, *Journal of Environmental Statistics* (UCLA)
- 2011 – 2016 Planning Committee, Southern California Earthquake Center
- 2009 – 2012 Secretary, Natural Hazards Focus Group, Am. Geophys. Union (AGU)

### Publications

75 papers in peer-refereed journals, 1 book (co-editor), 158 published abstracts (see the complete list below).

### Teaching (\*=developed)

<i>Multivariate Data Analysis</i> (STAT 755)	(F=Fall, S=Spring, U=Summer) S19, S18, S17, S15, S13, S09
* <i>Time Series Analysis</i> (STAT 758)	F18, F16, F14, S12, S10, F08, F06
<i>Statistical Theory</i> (STAT 467/667)	F20
* <i>Categorical Data Analysis</i> (STAT 453/653)	F19, F17, F15, F12, F11, F09, F07
<i>Intro to Linear Models and Regression</i> (STAT 452/652)	S13, S11, F08
<i>Mathematical Modeling</i> (MATH 420/620)	S15, F14
<i>Probability and Statistics</i> (MATH/STAT 352)	S20, F18, U17, S16, S12, F/S11, F/S10, F/S09, S08, F/S07
<i>Introduction to Statistics</i> (STAT 152)	S18
<i>Calculus for Business</i> (MATH 176)	S07

* <i>Paradoxes of Random Events</i> (UCLA STATS 19)	F05
<i>Applied Statistics</i> (UCLA STATS 110A)	S05
* <i>Paradoxes in Prob. and Statistics</i> (UCLA STATS 189)	S05
* <i>Intro to Stat. for Phys. Sci. and Engineering</i> (UCLA STATS 14)	F04
<i>Geo-complexity and earthquake prediction</i> (UCLA ESS 298)	S02
* <i>Statistical Methods in Geophysical Sciences</i> (Russian Ac. Sci.)	F00

**PostDoctoral Advising**

Alejandro Tejedor (PostDoc) 2011 – 13 Full support from NSF

**Graduate Advising**

Zoe Haskell (PhD)	2015 – 20	RA support from SCEC, NSF
Karla Henriksen	2018 – 19	RA support from USGS, NSF, 3 conf.
Dillon Aberasturi	2016 – 17	RA support from SCEC
Tom Koundakjian	2014 – 15	RA support from NSF and SCEC
Andrew Hicks	2010 – 11	RA support from SCEC, Thesis, 1 conf.
Zachary Rees	2009 – 10	RA support from SCEC
Michael Weinzweig	2009 – 10	RA support from NSF, SCEC
Tyson Reed	2008	RA support from SCEC
Sayaka Olsen	2007 – 10	RA support from NSF, chapter, 3 conf.
Brehnen Wong	2007 – 08	RA support from SCEC
Renee Torres	2007 – 08	RA support from SCEC, 3 conf.
Suresh Kumar	2006 – 07	RA support from SCEC, 3 conf.

**Undergraduate Advising**

Nicholas Cleymaet	2016 – 17	Undergraduate Honors Thesis, 1 conf.
Megan Phelps	2015 – 16	Undergraduate Honors Thesis
Joe Ward	2014 – 15	Undergraduate Honors Thesis
Maggie Michalowski	2011 – 12	RA support from SCEC
Jennifer Bautista	2009 – 10	Undergraduate Honors Thesis, 1 conf.
Ellen Webb	2007 – 08	Undergraduate Honors Thesis

**Honors**

2015 UNR Hyung K. Shin Outstanding Research Award  
2010 UNR Westfall Scholar Mentor

**Academic services**

Chair, Search Committee  
for Asst./Assoc. Professor in Statistics (x2), 2019 – 2020  
Director, Graduate Program in Statistics and Data Science, 2016 – 2018  
Chair, Search Committee  
for Asst./Assoc. Professor in Statistics (x2), 2018-2019  
Chair, Search Committee  
for Assistant Professor in Statistics (x4), 2017-2018  
Search Committee for External Department Chair, 2017-2018  
Search Committee for Lecturer in Statistics (x2), 2016-2017  
Chair, Undergraduate Program Assessment Committee, 2016 – 2018  
Chair, Search Committee for PostDocs (x2), 2016  
Chair, Search Committee for Assistant Professor in Statistics, 2015-2016  
Chair, Search Committee for Lecturer in Statistics, 2014-2015  
Chair, Search Committee for Assistant Professor in Statistics, 2014-2015  
Department Merit Committee, 2008, 2014, 2015 (Chair), 2016  
Search Committee for Program Officer, 2014  
Graduate Studies Committee, Chair 2014 – 2018, member 2018 –  
Search Committee for External Chair, 2013  
Search Committee for Statistics PostDoc, 2013  
Curriculum committee, College of Sci., UNR, 2011 – 2013

Curriculum committee, Dept. Math. & Stat.,  
UNR, 2006-08, 12, 14 – (member), 2008–11(chair)  
Colloquium committee, Dept. Math. & Stat., UNR, 2008 – 2010  
Colloquia committee, IGPP/UCLA, Fall 2005 (member), Spring 2006 (chair)

### **Conference/workshop organizing**

- 33<sup>rd</sup> IUGG Conference on Mathematical Geophysics*  
National University of Seoul, Korea, June-July, 2021  
*Mathematics of Planet Earth: The Science of Data*  
Union Symposium, 27<sup>th</sup> General Assembly of the International  
Union of Geodesy and Geophysics, Montreal, Canada, July 8-18,  
2019  
<http://iugg2019montreal.com/index.html>
- 32<sup>nd</sup> IUGG Conference on Mathematical Geophysics*  
Federal Research Center Institute of Applied Physics of the  
Russian Academy of Sciences, Nizhny Novgorod, Russia, June 23-  
28, 2018  
<http://cmg2018.iapras.ru/>
- Workshop “Random Trees: Structure, Self-Similarity, and Dynamics”  
CIMAT, Guanajuato, Mexico, April 23-27, 2018  
<http://randomtrees.eventos.cimat.mx>
- “Random Self-Similar Trees and Their Applications”  
Special session. The 39<sup>th</sup> Conference on Stochastic Processes and  
Their Applications, Moscow, Russia, July 24-28, 2017  
<http://www.spa2017.org>
- 31<sup>st</sup> IUGG Conference on Mathematical Geophysics*  
Université Pierre et Marie Curie, Paris, France, June 6-10, 2016  
<https://cmg2016.sciencesconf.org/>
- “Physical and Statistical Properties of Earthquake Swarms and Clustered Seismicity:  
Constraining Driving Mechanisms” (special session)  
2016 Annual Meeting of the Seismological Society of America  
Reno, Nevada, April 20-22, 2016  
<http://www.seismosoc.org/meetings/ssa2016/>
- “Mathematics and Observations of Earth Systems” (Union Symposium 03)  
26<sup>th</sup> General Assembly of the International Union of Geodesy and Geophysics  
Prague, Czech Republic, June 22-July 2, 2015
- 30<sup>th</sup> IUGG Conference on Mathematical Geophysics*  
Merida, Yucatan, Mexico, June 2-6, 2014  
<http://eventos.iingen.unam.mx/IUGG2014/>
- “Mathematics of Planet Earth” (Union Session 11A)  
Fall AGU Meeting, San Francisco, CA, December 9-13, 2013
- “Extreme Events, Stochasticity and Multiscaling” (NG24A)  
Fall AGU Meeting, San Francisco, CA, December 9-13, 2013
- Workshop “Dynamics of Seismicity, Earthquake Clustering and Patterns in Fault  
Networks”  
SAMS, NC, October 9-11, 2013  
<http://www.sams.info/workshop/2013-dynamics-seismicity-earthquake-clustering-and-patterns-fault-networks-october-9-11-2013>
- Workshop “Mathematics of Climate Change, Related Hazards and Risks”  
A satellite activity of the 1<sup>st</sup> Mathematical Congress of the Americas  
Guanajuato, Mexico, July 29-August 2, 2013  
<http://www.mca2013.org/en/workshop-on-mathematics-of-climate-change.html>
- “Graph and Network Analysis in Geosciences” (SS31)  
1<sup>st</sup> Mathematical Congress of the Americas  
Guanajuato, Mexico, August 5, 2013
- “Are Seismicity Patterns and Scaling Laws Universal?” (S51)  
Fall AGU Meeting, San Francisco, CA, December 3-7, 2012
- “Complex Networks in Geosciences” (NG13)  
Fall AGU Meeting, San Francisco, CA, December 3-7, 2012
- “Dynamics of Seismicity Beyond Universal Scaling Laws”  
Annual Meeting of SSA, San Diego, CA, April 17-19, 2012

- “Predicting Extreme Events in Natural and Socioeconomic Systems: State-of-the-Art and Emerging Possibilities”* (U21A)  
Fall AGU Meeting, San Francisco, CA, December 5-9, 2011
- “Complex Networks in Geosciences”* (NG02)  
Fall AGU Meeting, San Francisco, CA, December 5-9, 2011
- ENHANS International Workshop on Extreme Natural Hazards and Disaster Risk in Africa* (Intl. program committee)  
Hatfield, Pretoria, South Africa, 17-20 January, 2011
- “Complex Networks in Geosciences”* (NG03)  
Fall AGU Meeting, San Francisco, CA, December 13-17, 2010
- “Extreme Natural Events: Modeling, Prediction and Mitigation”* (U16 & NH20)  
Fall AGU Meeting, San Francisco, CA, December 13-17, 2010
- “Natural Hazards and Disaster Risk in Latin America and the Caribbean”* (U09)  
AGU Joint Assembly, “The Meetings of the Americas”  
August 8-13, 2010, Foz do Iguassu, Brazil
- “Complex Networks in Geosciences”* (NG10)  
Fall AGU Meeting, San Francisco, CA, December 14-18, 2009
- “Extreme Natural Hazards: Risk Assessment and Forecasting”* (NH)  
Fall AGU Meeting, San Francisco, CA, December 14-18, 2009
- “Development and Predictability of Extreme Events in Complex Systems”* (NG03)  
AGU Joint Assembly, “The Meeting of the Americas”,  
May 24-27, 2009, Toronto, Ontario, Canada
- 6<sup>th</sup> International Workshop on Statistical Seismology* (advisory board)  
April 12-16, 2009, Granlibakken conference center, Lake Tahoe, CA
- “Scaling, cascades and self-organized criticality in Earthquakes: Damage mechanics and predictability”*  
EGS-AGU-EUG Joint Assembly, Nice, France 6-11 April, 2003.
- “Scaling, Cascades and Predictability of Earthquakes”* (session NG62B)  
Fall AGU Meeting, San-Francisco, December 6-10, 2002.

## Review services

**Books:** Springer – Mathematics of Planet Earth, Springer-Geosciences, Chapman & Hall/CRC-Statistics.

**Funding agencies:** NSF CAREER (Geosciences); NSF Mathematical Geosciences; NSF Geophysics; Canada Foundation for Innovation (CFI); Czech Science Foundation (CSF); Fondo Nacional de Desarrollo Científico y Tecnológico (FONDECYT), Chile.

**Journals:** Science; Proceedings of the National Academy of Sciences (PNAS); Annals of Applied Statistics (AOAS); Journal of Applied Statistics (JAS); Physical Review Letters (PRL); Scientific Reports; Physical Review E (PRE); Physica D; SIAM Journal of Discrete Mathematics (SIDMA); Geophysical Research Letters (GRL); Journal of Geophysical Research (JGR); Annals of Geophysics; Pure and Applied Geophysics (PAGEOPH); Geophysical Journal International (GJI); Bulletin of Seismological Society of America (BSSA); Solid Earth; Nonlinear Processes in Geophysics (NPG); Tectonophysics; Climate Dynamics; Chaos; Earth and Planetary Science Letters (EPSL); SIAM Journal on Discrete Mathematics (SIDMA); Earth System Dynamics; Journal of Statistical Theory and Practice; Stochastics and Dynamics; Communications in Statistics – Simulation and Computation; Communications in Nonlinear Science and Numerical Simulations; Information Sciences (INS); Earth, Planets, and Space (EPS); Journal of Seismology; Journal of Hydrology; Bollettino di Geofisica Teorica e Applicata

## Research grants

- 2020-2022    *Effects of earthquake declustering on the U.S. National Seismic Hazard Maps*  
USGS G20AP00010, PI (with John Anderson) (\$72,144)

- 2019-2021 *Temporal changes of seismicity in relation to preparation processes of large earthquakes and decade-scale climate changes*  
Southern California Earthquake Center (SCEC), PI (\$11,500)
- 2018-2019 *Seismic coupling on faults and correlations between geodetic data, seismicity and climatic signals*  
Southern California Earthquake Center (SCEC), PI (\$5,000)
- 2017-2021 *Collaborative Research: Toward Understanding Spatio-Temporal Variations of Seismic Clusters in Different Environments*  
NSF-EAR 1723033, PI (\$198,000)
- 2017-2018 *A systematic approach for discriminating between tectonic and induced earthquake clusters: Collaborative research with University of Nevada Reno and University of Southern California*  
USGS G17AP00086, PI (\$48,000)
- 2017-2018 *Estimating Seismic Coupling in Southern California Using Aftershock Productivity and Geodetic Information*  
Southern California Earthquake Center (SCEC), PI (\$20,000)
- 2016-2017 *Properties and Dynamics of Different Types of Seismicity Clusters in Southern California*  
Southern California Earthquake Center (SCEC), PI (\$15,000)
- 2015-2016 *Robust Quantification of Earthquake Clustering: Overcoming the Artifacts of Catalog Uncertainties*  
Southern California Earthquake Center (SCEC), PI (\$15,000)
- 2014-2015 *30th Conference on Mathematical Geophysics: Support for young US scientists*  
NSF, PI (\$20,000)
- 2012-2015 *Spatio-temporal evolution of seismic clustering in Southern California*  
Southern California Earthquake Center (SCEC), PI (\$15,000)
- 2012-2015 *Towards a unified statistical framework for identification and analysis of earthquake clusters*  
Southern California Earthquake Center (SCEC), PI (\$12,500)
- 2011-2014 *Collaborative Research: Robust Climate Projections, Stochastic Models and GCM-EaSM Optimization*  
NSF DMS-1049092, PI (\$60,429)
- 2010-2011 *Correlation between seismic clustering properties and regional physical conditions*  
Southern California Earthquake Center (SCEC), PI (\$12,000)
- 2009-2012 *CMG Collaborative Research: Envirodynamics on River Networks*  
NSF EAR-0934871, PI (\$224,000)
- 2008-2011 *Time-dependent modeling of seismic moment release in San Andreas Fault -- Great Basin System,*  
Southern California Earthquake Center (SCEC), PI (\$60,000)
- 2009-2011 *Investigating temporal changes in the earthquake magnitude distribution,*  
Southern California Earthquake Center (SCEC), PI (\$12,000)
- 2009-2011 *Correlation between seismic clustering properties and regional physical conditions,*  
Southern California Earthquake Center (SCEC), PI (\$15,000)
- 2007-2010 *Collaborative Research: Robust climate projections and stochastic stability of dynamical systems,* DOE Grant ER64440, PI (\$60,000)
- 2006-2008 *Subjective decision making in presence of uncertainties – a theoretical approach,* Junior Faculty Research Grant, UNR, PI (\$15,000)
- 2006-2007 *Statistical modeling of seismic moment release in San Andres fault system,*  
Southern California Earthquake Center (SCEC), PI (\$9,999)
- 2006-2009 *CMG Collaborative Research: Stochastic Quantization for Modeling the Dynamics of Regional Seismicity,* NSF ATM 0620838, PI (\$247,869)
- 2005-2006 *Estimating the long-term rate of seismic moment release from the observed seismicity,* Southern California Earthquake Center (SCEC), PI (\$16,998)

2004-2005 *Development of Reverse Detection of Precursors Tutorial*, Southern California Earthquake Center (SCEC), Co-PI (\$20,000)

## **Publications**

### **A. Book**

1. A. Ismail-Zadeh, J. Urrutia-Fucugauchi, A. Kijko, K. Takeuchi, I. Zaliapin (Eds.) (2014) *Extreme Natural Hazards, Disaster Risks and Societal Implications*, Cambridge University Press.

### **B. Preprints**

1. Kovchegov Y. and I. Zaliapin (2021) A Mathematical Theory of Horton Laws: Application to River Networks.
2. Kovchegov Y., I. Zaliapin and E. Foufoula-Georgiou (2021) Critical Tokunaga model for river networks.

### **C. Peer-reviewed papers/chapters**

1. Kovchegov, Y. and I. Zaliapin (2021) Invariance and attraction properties of Galton-Watson trees. *Bernoulli*, accepted.
2. Ben-Zion Y. and I. Zaliapin (2020) Localization and coalescence of seismicity before large earthquakes. *Geophys. J. Intl.* 223(1), 561-583.  
<https://doi.org/10.1093/gji/ggaa315>
3. Kovchegov, Y. and I. Zaliapin (2020) Dynamical pruning of binary trees with applications to 1-D ballistic annihilation. *J. Stat. Phys.*  
<https://doi.org/10.1007/s10955-020-02593-1>
4. Zaliapin, I. and Y. Ben-Zion (2020) Earthquake declustering using the nearest-neighbor approach in space-time-magnitude domain. *J. Geophys. Res. – Solid Earth*, e53991.  
<https://doi.org/10.1029/2018JB017120>
5. Kovchegov, Y. and I. Zaliapin (2020) Random Self-Similar Trees: A Mathematical Theory of Horton Laws. *Probability Surveys*, 17, 1–213.  
<https://doi.org/10.1214/19-PS331>
6. Henriksen, K., & Zaliapin, I. (2019). Hyperbolic property of earthquake networks. In *JSM Proceedings, Statistics and the Environment Section*. Alexandria, VA: American Statistical Association, 2024 – 2047.
7. Martínez-Garzón, P., Y. Ben-Zion, I. Zaliapin, and M. Bonhoff (2019) Seismic clustering in the Sea of Marmara: Implications for monitoring earthquake processes. *Tectonophysics*, 768, 228176.  
<https://doi.org/10.1016/j.tecto.2019.228176>
8. Hammond, W. C., C. Kreemer, I. Zaliapin, and G. Blewitt (2019) Drought-triggered magmatic inflation, crustal strain and seismicity near the Long Valley Caldera, Central Walker Lane. *J. Geophys. Res.*  
<https://doi.org/10.1029/2019JB017354>
9. Kovchegov, Y. and I. Zaliapin (2019) Random self-similar trees and a hierarchical branching process. *Stochastic Processes and Their Applications*, 129(7), 2528-2560.  
<https://doi.org/10.1016/j.spa.2018.07.015>
10. Ben-Zion, Y. and I. Zaliapin (2019) Spatial variations of rock damage production by earthquakes in southern California. *Earth and Planetary Science Letters*, 512, 184-193.  
<https://doi.org/10.1016/j.epsl.2019.02.006>
11. Kreemer, C. and I. Zaliapin (2018) Spatiotemporal Correlation Between Seasonal Variations in Seismicity and Horizontal Dilatational Strain in California. *Geophysical Research Letters*, 45(18), 9559-9568.  
<https://doi.org/10.1029/2018GL079536>



12. Kovchegov, Y. and Zaliapin, I. (2018) Tokunaga self-similarity arises naturally from time invariance. *Chaos: An Interdisciplinary Journal of Nonlinear Science*, 28(4), 041102. <https://doi.org/10.1063/1.5029937>
13. Martinez-Garzón, P., I. Zaliapin, Y. Ben-Zion, G. Kwiatek and M. Bohnhoff (2018) Comparative study of earthquake clustering in relation to hydraulic activities at geothermal fields in California, *J. Geophys. Res.*, 123(5), 4041-4062. <https://doi.org/10.1029/2017JB014972>
14. Tejedor, A., Longjas, A., Edmonds, D. A., Zaliapin, I., Georgiou, T. T., Rinaldo, A., and Foufoula-Georgiou, E. (2017) Entropy and optimality in river deltas. *Proc. Natl. Ac. Sci.*, 114(44), 11651-11656. <https://doi.org/10.1073/pnas.1708404114>
15. Tejedor, A., A. Longjas, I. Zaliapin, S. Ambroj, and E. Foufoula-Georgiou (2017) Network robustness assessed within a dual connectivity framework: joint dynamics of the Active and Idle Networks, *Scientific Reports*, 7(1), 8567 <https://doi.org/10.1038/s41598-017-08714-3>
16. Tejedor, A., Singh, A., Zaliapin, I., Densmore, A. L., and Foufoula-Georgiou, E. (2017) Scale-dependent erosional patterns in steady-state and transient-state landscapes. *Science Advances*, 3(9), e1701683. <https://doi.org/10.1126/sciadv.1701683>
17. Zaliapin, I. and C. Kreemer (2017) Systematic fluctuations in the global seismic moment release. *Geophys. Res. Lett.*, 44, 4820-4828, <https://doi.org/doi:10.1002/2017GL073504>
18. Kovchegov, Y. and I. Zaliapin (2017) Horton self-similarity of Kingman's coalescent tree. *Annales de l'Institut Henri Poincaré (B) Probability and Statistics*, 53(3), 1069-1107. [doi: 10.1214/16-AIHP748](https://doi.org/10.1214/16-AIHP748)
19. Ruhl, C. J., R. E. Abercrombie, K. D. Smith, and I. Zaliapin (2016) Complex spatiotemporal evolution of the 2008 Mw 4.9 Mogul earthquake swarm (Reno, Nevada): Interplay of fluid and faulting, *J. Geophys. Res. Solid Earth*, 121, 8196–8216, <https://doi.org/10.1002/2016JB013399>
20. Zaliapin, I. and Y. Ben-Zion (2016) A global classification and characterization of earthquake clusters. *Geophys. J. Intl.*, 207 (1): 608-634. doi: <https://doi.org/10.1093/gji/ggw300>
21. Rezaul, K., D. Gupta, I. Semenova, K. Ikeda, P. Kraikivski, J. Yu, A. Cowan, I. Zaliapin, and V. Rodionov (2016) Engineered tug-of-war between kinesin and dynein controls direction of microtubule transport in vivo. *Traffic*, 17(5), 475–486. [doi: 10.1111/tra.12385](https://doi.org/10.1111/tra.12385)
22. Tejedor, A., A. Longjas, E. Douglas, R. Caldwell, I. Zaliapin, and E. Foufoula-Georgiou (2016) Quantifying the signature of sediment composition on the topologic and dynamic complexity of river delta channel networks and inferences towards delta classification. *Geophys. Res. Lett.*, 43, 3280–3287, [doi:10.1002/2016GL068210](https://doi.org/10.1002/2016GL068210)
23. Zaliapin, I. and Y. Ben-Zion (2016) Discriminating characteristics of tectonic and human-induced seismicity. *Bull. Seismol. Soc. Am.*, 106(3), 846-859. [doi: 10.1785/0120150211](https://doi.org/10.1785/0120150211)
24. Kovchegov, Y. and I. Zaliapin (2016) Horton law in self-similar trees. *Fractals*, 24, 1650017. [http://dx.doi.org/10.1142/S0218348X16500171](https://dx.doi.org/10.1142/S0218348X16500171)
25. Zaliapin, I. and Y. Ben-Zion (2015) Artifacts of earthquake location errors and short-term incompleteness on seismicity clusters in southern California. *Geophys. J. Intl.*, 202 (3): 1949-1968. doi: 10.1093/gji/ggv259.
26. Ghil, M. and I. Zaliapin (2015) Understanding ENSO variability and its extrema: A delay differential equation approach. In Chaves, Ghil, and Urrutia-Fucugauchi (Eds.) *Extreme Events: Observations, Modeling and Economics*, Wiley-Blackwell, 438 pp.
27. Tejedor, A., A. Longjas, I. Zaliapin, and E. Foufoula-Georgiou (2015) Delta channel networks: 1. A graph-theoretic approach for studying connectivity and steady-state transport on deltaic surfaces. *Water Resources Research*, 51, doi:10.1002/2014WR016577.

28. Tejedor, A., A. Longjas, I. Zaliapin, and E. Foufoula-Georgiou (2015) Delta Channel networks: 2. Metrics of topologic and dynamic complexity for delta comparison, physical inference and vulnerability assessment. *Water Resources Research*, 51, doi:10.1002/2014WR016604.
29. Mukhin, D., E. Loskutov, A. Mukhina, A. Feigin, I. Zaliapin, and M. Ghil (2014) Predicting critical transitions in ENSO models, Part I: Methodology and simple models with memory. *Journal of Climate*, 28, 1940–1961. doi: 10.1175/JCLI-D-14-00239.1.
30. Semenova, I., Ikeda, K., Resaul, K., Kraikivski, P., Aguiar, M., Gygi, S., Zaliapin, I., Cowan, A., & Rodionov, V. (2014). Regulation of microtubule-based transport by MAP4. *Molecular biology of the cell*, 25(20), 3119-3132.
31. Gabrielov, A., V. Keilis-Borok, S. Olsen and I. Zaliapin (2014) Predictability of extreme events in a branching diffusion model. In A. Ismail-Zadeh, J. Urrutia Fucugauchi, A. Kijko, K. Takeuchi, and I. Zaliapin (Eds.), *Extreme Natural Hazards, Disaster Risks and Societal Implications*, Cambridge University Press.
32. Zaliapin, I. and Y. Ben-Zion (2013a) Earthquake clusters in southern California, I: Identification and stability. *J. Geophys. Res.*, 118, 2847-2864. doi: 10.1002/jgrb.50179
33. Zaliapin, I. and Y. Ben-Zion (2013b) Earthquake clusters in southern California, II: Classification and relation to physical properties of lithosphere. *J. Geophys. Res.*, 118, 2865-2877. doi: 10.1002/jgrb.50178
34. Zanardo, S., I. Zaliapin, and E. Foufoula-Georgiou (2013) Are American rivers Tokunaga self-similar? New results on river network topology and its climatic dependence. *J. Geophys. Res.* doi: 10.1002/jgrf.20029
35. Ghil, M. and I. Zaliapin (2012) El Niño/Southern Oscillation: Impacts, Modeling and Forecasts, In *Encyclopedia of Natural Hazards*, P. Bobrowsky (Ed.), Springer.
36. Zaliapin, I. and Y. Kovchegov (2012) Tokunaga and Horton self-similarity for level-set trees of Markov chains. *Chaos, Solitons and Fractals*, 45, 358-372. doi: 10.1016/j.chaos.2011.11.006
37. Ghil *et al.* (2011) Extreme events: Dynamics, statistics and prediction, *Nonlin. Processes Geophys.*, 18, 295–350.
38. Zaliapin, I. and Y. Ben-Zion (2011) Asymmetric distribution of early aftershocks on large faults in California. *Geophys. J. Intl.*, 185, 1288–1304.
39. Zaliapin I. and M. Ghil (2011) Reply to Roe and Baker’s comment on “Another look at climate sensitivity” by Zaliapin and Ghil (2010) *Nonlin. Processes Geophys.*, 18, 129-131.
40. Ikeda, K., O. Zhapparova, I. Brodsky, I. Semenova, I. Zaliapin, and V. Rodionov (2011) CK1 activates minus-end directed transport of membrane organelles along microtubules. *Molecular Biology of the Cell*, 22, 1321-1329.
41. Zaliapin I. and M. Ghil (2010) Another look at climate sensitivity. *Nonlin. Processes Geophys.*, 17, 113-122.
42. Zaliapin, I. and M. Ghil (2010) A delay differential model of ENSO variability, Part 2: Phase locking, multiple solutions, and dynamics of extrema. *Nonlin. Processes Geophys.*, 17, 123-135.
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### **C. Other professional publications**

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### **D. Abstracts/Conference proceedings**

1. Ben-Zion, Y. and I. Zaliapin (2020) Localization and coalescence of seismicity before large earthquakes. Abstract T004-0006 presented at *2020 Fall Meeting of AGU, Online, Dec. 1-17*.
2. Zhou, B., I. Zaliapin, C. Johnson, Y. Fu, K. Chanard and Y. Ben-Zion (2020) Environmental Triggering of Seismicity in California. Abstract S038-0008 presented at *2020 Fall Meeting of AGU, Online, Dec. 1-17*.
3. Vulis, L., A. Tejedor, I. Zaliapin, J. Rowland and E. Foufoula-Georgiou (2020) Characterizing the Distribution of Lakes on Arctic Deltas. Abstract C013-0012 presented at *2020 Fall Meeting of AGU, Online, Dec. 1-17*.

4. Zaliapin, I., K. Henricksen, and K. Zuev (2020) Hyperbolic geometry of earthquake networks. Virtual workshop “*Micromechanics, Statistics and Hazards of Mechanical Failure*” at The Centre de Recerca Matemàtica, Spain, Oct. 19-22. <http://fail.crm.cat/>
5. Zaliapin, I. and Ben-Zion, Y. (2020) Quantifying preparation process of large earthquakes: Damage localization and coalescent dynamics. Virtual workshop “*Micromechanics, Statistics and Hazards of Mechanical Failure*” at The Centre de Recerca Matemàtica, Spain, Oct. 19-22. <http://fail.crm.cat/>
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40. Tejedor, A., A. Longjas, R. Caldwell, D. Edmonds, I. Zaliapin, and E. Foufoula-Georgiou (2015) Moving beyond the Galloway diagrams for delta classification: Connecting morphodynamic and sediment-mechanistic properties with metrics of delta channel network topology and dynamics. Abstract GC44C-03 (oral) presented at 2015 Fall Meeting of AGU, San Francisco, California, December 14-18, 2015.
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45. Tejedor, A., A. Longjas, I. Zaliapin, and E. Foufoula-Georgiou (2015) A graph-theoretic approach to River Deltas: Studying complexity, universality, and vulnerability to change. EGU General Assembly 2015, *Geophysical Research Abstracts*, Vol. 17, EGU2015-7706.
46. Foufoula-Georgiou, E., A. Tejedor, A. Longjas, and I. Zaliapin (2014) Quantitative Metrics of Robustness in River Deltas. Abstract H13I-1223 (poster) presented at 2014 Fall Meeting of AGU, San Francisco, California, December 15-19, 2014.
47. Tejedor, A., E. Foufoula-Georgiou, A. Longjas, and I. Zaliapin (2014) Network topology, Transport dynamics, and Vulnerability Analysis in River Deltas: A Graph-Theoretic Approach. Abstract GC21D-0582 (poster) presented at 2014 Fall Meeting of AGU, San Francisco, California, December 15-19, 2014.
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49. Zaliapin, I. and Y. Ben-Zion (2014) Robust Quantification of Earthquake Clustering: Overcoming the Artifacts of Catalog Errors. Abstract S53D-4557 (poster) presented at 2014 Fall Meeting of AGU, San Francisco, California, December 15-19, 2014.
50. Singh, A., A. Tejedor, I. Zaliapin, L. Reinhardt, and E. Foufoula-Georgiou (2014) Emergent reorganization of an evolving experimental landscape under changing climatic forcing. Abstract EP53B-3645 (poster) presented at 2014 Fall Meeting of AGU, San Francisco, California, December 15-19, 2014.
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52. Zaliapin, I. and Y. Ben-Zion (2014) Earthquake Clusters: Identification, Classification, and Relation to the Physical Properties of the Crust. Poster presented at the 30<sup>th</sup> IUGG Conference on Mathematical Geophysics, Merida, Yucatan, Mexico, June 2-6.

53. Tejedor, A., A. Longjas, I. Zaliapin and E. Foufoula-Georgiou (2014) Defining network robustness using a dual connectivity perspective. Poster presented at the 30<sup>th</sup> IUGG Conference on Mathematical Geophysics, Merida, Yucatan, Mexico, June 2-6.
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58. Tejedor, A. and I. Zaliapin (2013) Tokunaga river networks: New empirical evidence and applications to transport problems, Abstract H23I-03 presented at 2013 Fall Meeting, AGU, San Francisco, California, 9-13 December.
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62. Zaliapin, I. and A. Tejedor (2013) Random self-similar trees: statistical inference and hydrological applications. *Mathematical Congress of the Americas*, August 5-9, 2013 Guanajuato, Mexico, Abstract 5007-60-457.
63. Zaliapin, I. and Y. Kovchegov (2012) Horton and Tokunaga self-similarity in basic models of branching, aggregation, time series (Invited). Abstract NG43C-01 presented at 2012 Fall Meeting, AGU, San Francisco, California, 3-7 December.
64. Zaliapin, I. and Y. Ben-Zion (2012) Different types of seismicity clusters in southern California: A case study of non-universal behavior. Abstract S51F-03 presented at 2012 Fall Meeting, AGU, San Francisco, California, 3-7 December.
65. Tejedor, A. and I. Zaliapin (2012) Horton and Tokunaga self-similarity for multiplicative coalescent: A numerical approach. Abstract NG13A-1514 presented at 2012 Fall Meeting, AGU, San Francisco, California, 3-7 December.
66. Shcherbakov, R. and I. Zaliapin (2012) Confidence Intervals for the Magnitude of the Largest Aftershock. Abstract S31A-2476 presented at 2012 Fall Meeting, AGU, San Francisco, California, 3-7 December.
67. Zhanardo, S., I. Zaliapin, E. Foufoula (2012) Tree-like Representation of Hydrologic Time Series. Abstract H33A-1287 presented at 2012 Fall Meeting, AGU, San Francisco, California, 3-7 December.
68. Foufoula, E., S. Zhanardo, M. Danesh-Yazdi, I. Zaliapin, M. Power, W. Dietrich (2012) Dynamic Landscape Connectivity, Threshold Behavior, and Scaling Frameworks for Hydrologic and Bio-geochemical Fluxes (Invited). Abstract H42D-07 presented at 2012 Fall Meeting, AGU, San Francisco, California, 3-7 December.
69. Zaliapin, I. and Y. Ben-Zion (2012) Different types of seismicity clusters in southern California: A case study of non-universal behavior. *Proc. of Southern California Earthquake Center (SCEC) 2012 Annual Meeting, Palm Springs, CA, September 9-12, 2012*, Vol. XXII, p.79, poster 053.
70. Zaliapin, I. and Y. Kovchegov (2012) Horton and Tokunaga self-similarity for random trees and time series, with applications to river networks. 2012 Oregon State University



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