

## **Dr. Natasa Sirnik: CV**

**Birth Data:** August 7<sup>th</sup> 1978, Kranj, Slovenia

**Contact info:** Parijsstraat 181, 2711 CS, Zoetermeer  
[natasa@fluid-s.com](mailto:natasa@fluid-s.com)

**Characteristics:** Calm, hardworking, creative, people-oriented

### **Formal education:**

**Bsc:** University of Ljubljana, Faculty of Civil and Geodetic Engineering, Dept. of Civil and Environmental Engineering. **Thesis:** Forecasting flood waves on the Soca river using artificial intelligence tools (supervisor: Prof. Kompare B, Institute of Sanitary Engineering), 2004, pp. 60 (Ref. No. 13)

**PhD:** University of Ljubljana, Faculty of Civil and Geodetic Engineering, Dept. of Civil and Environmental Engineering, Chair of Fluid Mechanics. **Thesis:** Modeling the hydrodynamic, oceanographic and environmental variables in marine environment with emphasis on mercury concentrations (supervisor: Asist. Prof. Zagar D), 2011, pp. 309 (Ref. No. 12)

### **Working experience:**

#### **Employed at:**

Sep. 2004 – Dec. 2015: University of Ljubljana, Faculty of Civil and Geodetic Engineering, Dept. of Civil and Environmental Engineering, Chair of Fluid Mechanics (prof. Cetina M, prof. Zagar D, prof. Rajar R, prof. Mikos M)

#### **Foreign experience:**

Sep. 2002 – Dec 2002: University of Padua, Italy, Faculty of Civil and Environmental Engineering (Prof. Da Deppo L, Prof. Defina A, Prof. Rinaldo A)

Jan. 2003 – Mar 2003: University of Hradec Kralove, Czech Republic, Faculty of Informatics and Management (Prof. Mls K, Prof. Gavalec M)

Sep. 2007 – Apr. 2008: Imperial College, London, UK, Dept. of Civil and Environmental Engineering (Prof. Maksimovic C)

#### **PhD research topics:**

Upgrade and application of the 3D hydrodynamic PCFLOW3D model (a finite volume model, developed by our research group)

Development of two 3D lower trophic level models: N-P-Z-D models, pelagic + benthic part

Development of a simple model for mercury cycling in water compartments

Development of a wind-wave model for the Gulf of Trieste

3D hydrodynamic and ecological modeling of the Mediterranean Sea and the Gulf of Trieste (combination of 3D numerical modeling and empirical modeling using machine learning tools)

#### **Other research topics:**

1D advection-dispersion modeling of oil spill dynamics in rivers (Ref. No. 14)

Design of a chain of hydro-electric power plants on the river Sava (Ref. No. 15)

1D and 2D modeling of flood wave propagation on rivers

Artificial intelligence, machine learning

#### **Other working experience:**

Teaching assistant at undergraduate Fluid Mechanics courses

Public talks about environmental engineering and related topics

I formed a group at the Faculty of Civil and Geodetic Engineering called 'Science to the people', which aim was to inform the lay public and young people about environmental topics.

## Languages:

<b>Slovene:</b>	excellent
<b>English:</b>	very good
<b>Dutch:</b>	good
<b>Italian:</b>	good
<b>Serbo-Croatian:</b>	good
<b>Macedonian:</b>	good
<b>Spanish:</b>	basic

## Interests:

### **Research interests:**

Water (all aspects)  
Oceanography  
Laboratory work, field work (fluid mechanics, ecology)  
Environmental and ecological modeling  
Energy conservation systems  
Nonlinear dynamics

### **Other interests:**

Family  
Art  
Reading  
Travelling  
Sport  
Alternative healing

## References:

1. ŽAGAR, Dušan, SIRNIK, Nataša, ČETINA, Matjaž, HORVAT, Milena, KOTNIK, Jože, OGRINC, Nives, HEDGECKOCK, Ian M., CINNIRELLA, Sergio, DE SIMONE, Francesco, GENCARELLI, Christian N., PIRRONE, Nicola. Mercury in the Mediterranean. Part 2, Processes and mass balance. V: *16th International Conference on Heavy Metals in the Environment, 23-27 September, 2012, Rome, Italy*. Heidelberg: Springer, vol. 21, no. 6. 2014, letn. 21, št. 6, str. 4081-4094, ilustr., doi: 10.1007/s11356-013-2055-5. [COBISS.SI-ID 26981671], [JCR, SNIP, WoS do 3. 2. 2016: št. citatov (TC): 3, čistih citatov (CI): 3, Scopus do 3. 7. 2016: št. citatov (TC): 4, čistih citatov (CI): 4]
2. SIRNIK, Nataša, VILHAR, Gregor, ŠIRCA, Andrej, RAJAR, Rudolf, ŽAGAR, Dušan, ČETINA, Matjaž. SIPOREK = SIPOREK: a computer program for simulating spills of hazardous chemicals in natural watercourses : program za hitro oceno onesnaženosti vodotoka v primerih razlitij nevarnih snovi. *Acta hydrotechnica*, ISSN 1581-0267. [Spletna izd.], 2012, letn. 25, št. 43, str. 117-127, ilustr. ftp://ksh.fgg.uni-lj.si/acta/a43ns.pdf, http://drugg.fgg.uni-lj.si/4965. [COBISS.SI-ID 6789729]
3. ŽAGAR, Dušan, PETKOVŠEK, Gregor, RAJAR, Rudolf, SIRNIK, Nataša, HORVAT, Milena, VOUDOURI, Antigoni, KALLOS, George B., ČETINA, Matjaž. Modelling of mercury transport and transformation in the water compartment of the Mediterranean Sea. *Marine Chemistry*, ISSN 0304-4203. [Print ed.], 2007, issue 1, vol. 107, str. 64-88. http://dx.doi.org/10.1016/j.marchem.2007.02.007. [COBISS.SI-ID 3638113], [JCR, SNIP, WoS do 10. 2. 2016: št. citatov (TC): 12, čistih citatov (CI): 8, Scopus do 10. 1. 2016: št. citatov (TC): 13, čistih citatov (CI): 9]
4. ŽAGAR, Dušan, PETKOVŠEK, Gregor, RAJAR, Rudolf, SIRNIK, Nataša, HORVAT, Milena, ČETINA, Matjaž. Mathematical modelling of mercury transport and transformations in the Mediterranean. V: JUN, Byong-Ho (ur.). *Water Engineering for the Future, Choices and Challenges : Proceedings of XXXI IAHR congress : Hydroinformatics, Hydraulic Modelling and Data, Urban and Industrial Flows, Water Quality and Habitat, Coping with Extremes in Water Resources, Coastal Development, Dynamics and Ecosystem Fragility*. Seoul: IAHR, 2005, str. 2392-2402, ilustr. [COBISS.SI-ID 2846305]
5. BARBONE, Fabio, MAZEJ, Darja, SNOJ TRATNIK, Janja, OSREDKAR, Joško, HORVAT, Milena, ŽAGAR, Dušan, SIRNIK, Nataša, HORVAT, Milena, KOČMAN, David, et al. The association of mercury, fish consumption and child development in a Mediterranean cohort. V: *10th International Conference on Mercury as a Global Pollutant : Abstract Volume : July 24-29, 2011, Halifax, Nova Scotia, Canada*. Halifax: ICMGP, 2011, str. 20-21. [COBISS.SI-ID 24942119]
6. ŽAGAR, Dušan, SIRNIK, Nataša, HORVAT, Milena, KOČMAN, David. Application of advanced modelling approach in contaminated coastal areas. V: *10th International Conference on Mercury as a Global Pollutant : Abstract Volume : July 24-29, 2011, Halifax, Nova Scotia, Canada*. Halifax: ICMGP, 2011, str. 343. [COBISS.SI-ID 5499489]

7. SIRNIK, Nataša, ŽAGAR, Dušan, PETKOVŠEK, Gregor, HORVAT, Milena, ČETINA, Matjaž. Use of Artificial Intelligence Tools in Modelling of Mercury Cycling. V: *Abstracts of the Contributions of the EGU General Assembly 2006 : Vienna, Austria, 02-07 April 2006*, (Geophysical Research Abstracts, ISSN 1029-7006, Vol. 8). Katlenburg-Lindau: EGU, 2006, 2 str. [COBISS.SI-ID 3088481]
8. ŽAGAR, Dušan, PETKOVŠEK, Gregor, RAJAR, Rudolf, SIRNIK, Nataša, HORVAT, Milena, VOUDOURI, Antigoni, KALLOS, George B., ČETINA, Matjaž. Modelling of mercury transport and transformations in the water compartment of the Mediterranean sea. V: *Abstracts, Eight International Conference on Mercury as a Global Pollutant*, Madison, Wisconsin, August 6-11, 2006. [Lanchaster]: DEStech Publications, 2006, str. 53. [COBISS.SI-ID 20056615]
9. SIRNIK, Nataša, ŽAGAR, Dušan, PETKOVŠEK, Gregor, HORVAT, Milena, ČETINA, Matjaž (pisar). Modeling of mercury cycling in aquatic environment using machine learning tools. V: *Abstracts, Eight International Conference on Mercury as a Global Pollutant*, Madison, Wisconsin, August 6-11, 2006. [Lanchaster]: DEStech Publications, 2006, str. 230-231. [COBISS.SI-ID 20063783]
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13. SIRNIK, Nataša. *Napovedovanje poplavnih valov na reki Soči z orodji umetne inteligence: diplomatska naloga*. Ljubljana: [N. Sirnik], 2004. 60 str., 8 pril., ilustr. [COBISS.SI-ID 2452577]
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