

## CURRICULUM VITAE



### Prof. Dušan M. SAKULSKI, Ph.D.

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[dsakulski@yahoo.com](mailto:dsakulski@yahoo.com)

Date of Birth: March 12, 1957., Yugoslavia  
Married: 3 children.

#### WORK EXPERIENCE

- 2009 – 2010** UNDP and WMO National Disaster Risk Management Coordinator for Serbia, Serbia.
- 2008 -** FETWater Network, Water-related Disaster Risk Management Co-coordinator, FETWater, South Africa.
- 2007 –** Associate Professor, Free State University, DiMTEC, Bloemfontein, South Africa.
- 2007 –** Visiting Lecturer, University of Belgrade, Faculty of Security Studies, Belgrade, Serbia.
- 2007 –** Scientific Advisor, UNITED NATIONS UNIVERSITY Cooperation Unit for Southern Africa (UNU-CUSA), Stellenbosch University, Stellenbosch, South Africa.
- 2007 -2008** National Disaster Risk Management Information System for South Africa – National Coordinator.
- 2006 - 2009** GEOSS (Global Earth Observing System of Systems), UNU-EHS and UNU-ViE Representative.
- 2006 - 2008** Advisor, National Disaster Management Centre (NDMC), South Africa.
- 2004 - 2009** Academic Officer, United Nations University – Institute for Environment and Human Security (UNU-EHS), Bonn, Germany.
- 1999 - 2004** National Disaster Management Centre, South Africa, System Integration and Co-ordination, Math's modeling and GIS simulations.
- 1998 - 2004** Lecturer assistant at GIS Lab, WITS University, Civil and Environmental Eng.
- 1995-1999** GIS coordinator at Department of Water Affairs and Forestry - Community Water Supply and Sanitation Project.
- 1992-1994** Research assistant and designer. Environmental Engineering, GIS section, TEMPUS Center, University of Novi Sad, Yugoslavia (GIS lecturing).
- 1988-1992** Managing director, "MANIR" Consulting Co., Ruma, Yugoslavia. Also, co-owner of the company.
- 1985-1988** Junior researcher, "Highway Institute", Department of Pavement. Belgrade, Yugoslavia.
- 1984-1988** Design engineer, "Vojvodinaput - Sreput". Consulting, Design and Construction, Ruma. Yugoslavia.

#### THESIS SUPERVISION

##### Ph.D.

Andries JORDAAN: "Drought risk reduction in the Northern Cape, South Africa", University of the Free State, South Africa.

Elretha LOUW: "Climate change and water related diseases in the Western Cape", Stellenbosch University, Stellenbosch, South Africa.

Marion DAMM: "DISFLOOD – Flood Related Environmental Vulnerability", UNU-EHS, Bonn, Germany.

Alexander FEKETE: "DISFLOOD – Flood Related Social Vulnerability", UNU-EHS, Bonn, Germany.

### **M.Sc.**

### **COURSES / LECTURES / SEMINARS / PRESENTATIONS GIVEN**

- "Introduction to Disaster Risk Management", May 2009, UNESCO-IHE, Delft, Netherlands.
- "Space for Development: The Case of GMES and Africa", 6-7 December 2007, Lisbon, Portugal
- The ITC Lustrum Conference, "Spatial Information for Civil Society – Capacity building for the international geo-information society", 14-16 December 2005, Enschede, The Netherlands.
- Seminar related to the Interactive Information System Development, 06 December 2005, Nizhny Novgorod, Russia.
- Workshop 'Space Technology for Security; Preparation for the 7<sup>th</sup> Framework Programme', 23 November 2005, ASD, Brussels, Belgium.
- African GEOSS Workshop, 29-30 October, Pretoria, South Africa.
- DMISA (Disaster Management Institute of Southern Africa) Conference – "Disaster Risk Reduction 2005", 19-20 October 2005, Hartenbos, South Africa.
- International Conference on Mitigation of Natural Hazards and Risk Impacts on the Environment and Society, 6-7 October 2005, Chisinau, Moldova.
- Lectures given at the Summer School (Z\_GIS, University of Salzburg), organised to share the specific expertise of the GMOSS (Global Monitoring for Security and Stability) network partners, 15-16 September 2005, Salzburg, Austria.
- Joint Workshop for the Eastern African Geo-Information Network, organized by ITC (The Netherlands) 12-13 September 2005, Kampala, Uganda.
- International Conference on Earthquake Engineering, 27 August – 01 September 2005, Skopje / Ohrid, Macedonia.
- UNESCO Workshop on Urban Water Education, 7-8 July 2005, at the IHE-UNESCO, Delft, Netherlands.
- Tsunami early warning and alert system workshop, EC, 12 May 2005, Brussels, Belgium.
- Workshop on Policy Options for Storm Management in Slovakia, 18 to 21 April 2005, Zvolen, Slovakia.
- Gi4DM, First International Symposium on Geo-Information for Disaster Management, 21-23 March 2005, Delft, Netherlands.
- International Coordination Meeting for the Development of a Tsunami Warning and Mitigation System for the Indian Ocean with a Global Framework, 3-8 March, UNESCO, Paris, France.
- World Conference on Disaster Reduction, 16-23 January 2005, Kobe, Japan.
- UN International Workshop on the Use of Space Technology for Disaster Management, 18-22 October, Munich, Germany.
- MeCEO, First Mediterranean Conference on Earth Observation, 21-23 April 2004, Belgrade, Serbia.
- ATLAS presentation, German Aerospace Center (DLR), 17 March 2004, Wessling, Germany.
- ATLAS presentation, Z\_GIS, University of Salzburg, 16 March 2004, Salzburg, Austria.
- ATLAS presentation, European Commission, Joint Research Centre, 12 March 2004, Ispra, Italy.
- UNESCO Workshop "Urban Water Education and Training", UNESCO HQ, 3-4 November 2003, Paris, France.
- EWCII, Second International Conference on Early Warning, 16-18 October 2003, Bonn, Germany.
- WebMathematica as a Core Service for the Calculation of the Drought Indicator for South Africa, International Mathematica Symposium, 7-11 July 2003, Imperial College London.
- Expert Meeting on 'Low to Medium Resolution Satellite Sensors and Disaster Monitoring', 5-6 June 2003, UN OOSA / SAC, Pretoria, South Africa.
- Integrated Implementation of the Satellite and Information Technology for Drought Analysis, 30 May 2003, University of Novi Sad Scientific Forum, Novi Sad, Serbia and Montenegro.

- Hazard, Vulnerability and Risk 'ATLAS' as a Global Early Warning Tools, 26-27 May 2003, UN ISDR HQ, Geneva.
- UN OOSA Regional Workshop on the Use of Space Technology for Disaster Management for Europe, 19-23 May 2003, Brasov, Romania.
- Disaster Hazard and Vulnerability 'Atlas'. UN ISDR-IGAD Regional Workshop, 17 – 21 February, Nairobi, Kenya.
- Integrated IT in Environmental and Disaster Management. 6 - 11 October 2002, University of Virginia, Charlottesville, USA.
- Integrated IT in Environmental and Disaster Management. 4 October 2002, Department of State, Washington, USA.
- Integrated IT in Environmental and Disaster Management. 3 October 2002, NASA Goddard Space Flight Center, USA.
- Applications of the GIS in Water and Environmental Management, University of Witwatersrand, School of Civil and Environmental Engineering, Johannesburg, South Africa, October 1998.

### POSTGRADUATE STUDIES

**2003**            **Ph.D.** University of the Witwatersrand (WITS) - Civil and Environmental Engineering, South Africa (AN INTEGRATED DATABASE DRIVEN TECHNIQUE FOR MULTIDIMENSIONAL DROUGHT ANALYSIS FOR SOUTH AFRICAN CATCHMENTS).

### UNDERGRADUATE STUDIES

**.1982**            **B.Sc.**, Civil Engineering, Belgrade University. Yugoslavia.

### COURSES COMPLETED

- ORACLE Spatial

### ACCREDITATION

- [Accredited Mathematica consultant](http://www.wolfram.com/services/training/sakulski.html). (<http://www.wolfram.com/services/training/sakulski.html>).  
- National Disaster Hazard and Vulnerability 'Atlas' included in the [Emerald Research Register](#) (Keywords: Hazard; Vulnerability; Risk; Tools; Web; Modelling; Indicators; Drought; Rainfall; GIS).

### COMMITTEES / WORKING GROUPS MEMEBERSHIP

- Global Disaster Information Network (GDIN, [www.gdin.org](http://www.gdin.org)).  
- National (South African) working group for the Near Earth Objects (NEO), the Global Science Forum, OECD.

### ARTICLES ABOUT MY WORK

- "South African National Disaster ATLAS Uses web*Mathematica* Technology to Fight Catastrophic Events", (<http://www.wolfram.com/news/disasteratlas.html>), 25 July 2003.  
- "Local early warning system grabs the attention of the UN, NASA", Engineering News (<http://www.engineeringnews.co.za/eng/news/it/?show=37480>), July 4-10 2003.  
- ComputingSA ([http://www.bluestallion.co.za/press\\_3.htm](http://www.bluestallion.co.za/press_3.htm)), Vol. 23, No 16, April/May 2003.  
- Crisis Call (<http://www.crisiscall.co.za/>), October / November 2002 Issue, TechnoChat, Disaster.

## IMPORTANT RESEARCH AND OTHER PROJECTS

### Integrated Information Systems:

- National Flood Nowcasting System, Water Research Commission Project, South Africa.
- IT co-ordination for the World Food Programme (WFP) in Sub-Saharan Africa
- Design, development and implementation of the National Disaster Hazard and Vulnerability Atlas for South Africa
- MUNIWATER – Web-enabled Municipal Water Infrastructure Management System development co-ordination (as a part of the new e-Government initiative)
- NASA – National Disaster Management Centre data distribution centre
- ORNL-NDMC Global Monthly Precipitation Management System
- International Distributed Active Archive Centre for Africa (IDAACA)
- Cholera epidemic in South Africa
- Database driven, web-enabled integrated air quality management
- UNIQUE CALCULATION, ANALYSIS AND GRAPHING e-SERVICES
- Rainfall monitoring and analysis and rainfall animation for South African region
- Groundwater mapping for South Africa
- Population distribution as a technical support for the Y2K management.
- Multi software solutions for the integrated modeling and management of the hydrological and meteorological indices - (drought, flood)
- Integration of the GIS and applied mathematical modeling tools for the spatial and network analysis (Water resources management, Environmental management, Disaster modeling and management), South Africa
- DWAF Web pages authoring: database driven, web-enabled application development, including GIS
- El-Nino and drought task team - monitoring and visualization of the spatial drought indexes
- Design of the GIS-Multimedia approach for the Community Water Supply and Sanitation (CWSS) RDP projects, Republic of South Africa
- Coverage conversion from/to ARC/Info platform
- Methodology for the integral cadastre of polluters in Yugoslavia using GIS (Development of methodology and pilot implementation using Arc Info)
- Integrated inventory of the national parks in Yugoslavia (System development and implementation using Arc Info)
- Management of the air quality and level of noise in the city of Novi Sad
- GIS system for management of used motor oils in urban area of Vojvodina (Development and implementation using Arc Info)
- GIS system for management of point sources of pollution for the Danube river basin (Development and implementation using Arc Info)
- GIS system for management of point sources of pollution along the Adriatic coast of Yugoslavia (Development and implementation using Arc Info)
- GIS as a basis for the notes of property-value evaluation for the city Ruma: Data collection, Data base design and Arc Info implementation
- GIS as a basis for the roads management in Serbia (Development of Information System using Arc Info)
- GIS and management of the high voltage network in Vojvodina (Development of Information System using Arc Info)
- GIS as an aid in the maintenance of the transformer stations network in Vojvodina (Development and implementation of Information System using Arc Info)
- Agricultural resources management and GIS (Development and implementation of Information System using Arc Info)
- Introducing GIS as a basis for the property cadastre for Serbia: System development and implementation using Arc Info
- GIS system for management of the gasoline stations network in Vojvodina - System development and implementation using Arc Info

### "Highway Institute". Belgrade, Yugoslavia:

- Design and supervision of the runway pavement reconstruction. Belgrade Airport (cooperated with NPC Netherlands)

- Member of the expert team for the Royal Jordan airport pavements project.
- Road geometrical design using computer programs (HIDES, COGO). - Pavement optimization of the Serbian highway
- Pavement optimization of the road Novi Sad - Zrenjanin
- Design of the nonstandard pavements for the line loaded streets in Belgrade and Novi Sad
- Pavements for the roads with high longitudinal slope
- Using polymer modified bitumen for better asphalt mix characteristics
- Discontinuous granulometric lines - decreasing of the plastic deformations. - Space designed asphalt mixes - RAMPEIN method
- Using computer programs (BISAR, POEL, PONOS) for the multi-layer stress, strain and displacements calculations
- Introduction of the non-destructive methods for the data collection on the condition of pavements (FWD - SHELL method)
- Lab methods for the pavement analysis (creep test, dynamic analysis,...)
- Finite Element Method (FEM) for the calculation of the condition of concrete pavements
- Reconstruction of the road Novi Sad - Ruma, evaluation of alternatives
- Stopping distance analysis as the function of the reference vehicle. Faculty of Civil Engineering, University of Belgrade, Yugoslavia.

#### **"M A N I R" Ruma, Yugoslavia (Pty LTD)**

- Computer project management
- Computer sales and support
- Computer assembling and testing
- Computer network management
- Printers, Plotters, Scanners, Digitizers sales and installations
- Software project management
- Software sales and support
- Customers education and training

#### **IMPORTANT PAPERS**

**Sakulski, D.:** Modaliteti doktorskih studija na Univerzitetu Ujedinjenih Nacija, *TREND 2009, February 2009, Kopaonik, Serbia.*

Bogardi J., Villagran JC, **Sakulski D.:** Minimizing Risk: Maximizing Awareness: Focusing on the environment and human security nexus, *Proceedings of the 33rd International Geological Congress, August 6-14 2008, Oslo, Norway* (<http://www.cprm.gov.br/33IGC/1342349.html>).

**Sakulski D.:** Towards Integrated Disaster Risk Assessment for South Africa, *Geoinformation for Development*, Zeil/Kienberger, 2007, Herbert Wichmann Verlag.

Bogardi, J.J., J.C. Villagrán, J. Birkmann, F. Renaud, **D. Sakulski**, X. Chen, B. Affeltranger, A. Mensa and M. Kaplan, 2005: Vulnerability in the Context of Climate Change. *International Workshop "Human Security and Climate Change"*, Asker, Norway, 21-23 June 2005, 14 pp.

**Sakulski D.:** Web-enabled GIS in Disaster Management, *The Global Magazine for Geomatics* (GIM, <http://www.gim-international.com>), May 2005, Volume 19, Number 5.

**Sakulski D.:** Geo-Information as an Integral Component of the National Disaster Hazard and Vulnerability ATLAS, *Proceedings of the First International Symposium on Geo-Information for Disaster Management*, March 21-23 2005, Delft, Netherlands. Springer Verlag Berlin.

**Sakulski D.:** South African National Disaster Hazard and Vulnerability ATLAS, *Proceedings of the International Conference "Disasters and Society – From Hazard Assessment to Risk Reduction"*, July 26-27 2004, Karlsruhe, Germany. Logos Verlag Berlin.

**Sakulski D.** Stephenson D, Marjanovic P.: WebMathematica as a Core Service for the Calculation of the Drought Indicator for South Africa, *Proceedings of the 5<sup>th</sup> International Mathematica Symposium, 7-11 July 2003*, Imperial College Press, London.

**Sakulski D.** Stephenson, D: National Disaster Vulnerability Atlas-Drought, *3<sup>rd</sup> International Conference on Integrated Environmental Management in Southern Africa, 27-30 August 2002*, Johannesburg, South Africa.

**Sakulski D.:** The Role of Information Technology in Disaster Management, *3<sup>rd</sup> International Conference on Integrated Environmental Management in Southern Africa, 27-30 August 2002*, Johannesburg, South Africa.

**Sakulski D.**, The development and implementation of a database driven web-enabled integrated system for air quality observation and analysis. *AIR POLLUTION 2001, 12-14 September 2001*, Ancona, Italy, WIT Press, Southampton.

**Sakulski D.:** Implementation of the multi-software solution for the on-the-fly calculation of the Standardized Precipitation Index (SPI) as a drought indicator for South African environment. *ENVIROSOFT 2000, 28-30 June 2000*, Bilbao, Spain, WIT Press, Southampton.

Marjanovic P., Miloradov M., Cukic Z., **Sakulski D.**, Bogdanovic S.: Integrated cadastre (Inventory System) for pollution sources in the Danube Basin in Yugoslavia. *Water Science and Technology*, Vol. 32 No 5-6 pp 265-275, IWA Publishing 1995.

Miloradov M., Marjanovic P., **Sakulski D.:** Water Resources Information Systems. *Computer Graphics '95 Conference, SAPGIS/TAGIS, 1995*, South Africa.

Miloradov M., Bogdanovic S.. **Sakulski D.:** Methodology for the integrated cadastre of polluters in Yugoslavia and GIS. *October 1994, Herceg Novi*. Yugoslavia

Marjanovic P.. Miloradov M. **Sakulski D.:** Water resource information system which way to go - can GIS be the best answer ?. *14 annual SA computer aided design symposium and annual SAPGIS-TAGIS conference*, September 1994. Johannesburg, SA.

Sokolovic S. **Sakulski D.**, Culum R. Popovic D. (1994): Identification of used oils in an urban area by GIS. *Second international symposium and exhibition on environmental contamination in Central and Eastern Europe 1994.* Budapest. Hungary.

Marjanovic P., Miloradov M., Cukic Z., **Sakulski D.** (1994): Strategies for environmental management in Eastern and Central Europe - transboundary problem require international co-operation, *Water quality international 1994*. Budapest. Hungary.

**Sakulski D.** Katic Z. (1987): Pavement design and overlay using FWD measurement and dynamically lab analysis. *Serbian symposium for Pavement design and overlay*.

Peric D., **Sakulski D.** (1987): Optimization of the granulometric lines in the asphalt mixes - new algorithm and computer program. *Road and Traffic*, 1987.

**Sakulski D.** (1986): Classification of the highway damage. *Road and Traffic*. 1986.

**Sakulski D.** (1985): Pavement overlay using Falling Weight Deflectometer. *Road and Traffic*. 1985.

**Sakulski D.** (1984): Stopping distance analysis as the function of the reference vehicle. *Road and Traffic*, 1984.

## ADDITIONAL STRENGTHS

In my previous work I have extensively used many professional software packages (listed below). My knowledge of all of these is excellent. I also have experience with a comprehensive list of other software packages on both PC and Macintosh platforms. I also worked on workstations (SUN, HP, Silicon Graphics) and mainframes.

**PROGRAMMING LANGUAGES:**

Mathematica, AML, Avenue, FORTRAN, Basic, Pascal, Java Script, VB Script, Perl, UNIX-Shell, MatLab, IDL, PHP/PHP3/PHP4.

**PROFESSIONAL SOFTWARE:**

**Modeling:**

- |               |  |
|---------------|--|
| - Mathematica | Mathematical analysis                                  |
| - MatLab      | Mathematical analysis                                  |
| - Statistica  | Statistical analysis                                   |
| - Splus       | Statistical analysis                                   |
| - SAS         | Statistical analysis                                   |
| - IDL         | Modeling software, Statistical analysis, Visualization |
| - Stella      | Modeling software                                      |
| - LINDO       | Optimization software                                  |

**GIS:**

- |            |                                    |
|------------|------------------------------------|
| - ARC/INFO | (All modules) GIS                  |
| - TNT      | GIS                                |
| - COGO     | Analytical geometry                |
| - ArcView  | Including Avenue (All modules) GIS |
| - SURFER   | 2D and 3D terrain analysis         |

**Visualisation and Animation:**

- |             |                         |
|-------------|-------------------------|
| - AVS       | Advanced Visual Systems |
| - 3D STUDIO | Animation               |

**Internet/Intranet:**

- |                     |   |
|---------------------|---|
| - ArcView IMS       | GIS on the Web                                    |
| - ArcIMS            | GIS on the Web                                    |
| - PERL and CGI      | Web pages design                                  |
| - Front Page        | Web pages design                                  |
| - ASP               | Active Server Pages Technology (Web pages design) |
| - PHP / PHP3/PHP4   | Embedded Web language                             |
| - Java, Java Script | Embedded Web languages                            |
| - Cool 3D           | Web animation (animated GIF)                      |

**Data Base Products:**

- MS SQL Server, ORACLE, MS Access

**Graphics:**

- Adobe Photo Shop, Paint Shop Pro, Corel Draw

**DTP and Electronic Publishing:**

- Adobe Acrobat, VENTURA, PAGE MAKER, Arts and Letters

**Civil Engineering Software:**

- |               |   |
|---------------|---|
| - HDM III     | Road design technical and economical analysis |
| - FEM         | Finite Element Method                         |
| - BISAR       | Multi-layer stress analysis                   |
| - POEL, PONOS | Bitumen modules analysis                      |

- |              |                                  |
|--------------|----------------------------------|
| - STRESS     | Static analysis of constructions |
| - ACAD       | Computer Aided Design            |
| - HIDES      | Road geometrical design          |
| - MicroTRIMS | Transportation demand analysis   |
| - HEC family | Hydrology and hydraulics         |

## **MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS AND AWARDS**

### **Professional Societies:**

- |           |  |
|-----------|--|
| From 1996 | SAICE, South Africa  |
| From 1996 | CITSA, South Africa  |
| From 1992 | Ecological Association of Vojvodina.   |
| From 1992 | Yugoslav Society of Water Pollution Control.   |
| From 1988 | Transportation Research Board. National Research Council. USA. Individual Associate. |
| From 1985 | Serbian Society of Roads and Pavements   |
| From 1984 | Yugoslav Society of Roads and Pavements.   |

### **Awards:**

- |      |   |
|------|---|
| 1981 | Student Annual Research Award. Faculty of Civil Engineering, University of Belgrade, Yugoslavia |
|------|---|