

Abstracts Booklet



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2nd International and Interdisciplinary Conference on Spatial Methods for Urban Sustainability (SMUS Conference) and the 1st RC33 Regional Conference “Latin America: Brazil in cooperation with ESA RN21 Quantitative Methods”

September 8th-10th, 2022

The Global Center of Spatial Methods for Urban Sustainability is funded by the German Federal Ministry for Economic Cooperation and Development (BMZ) via the German Academic Exchange Service (DAAD).

Hosted by University of São Paulo (USP)
and organized by the
Global Center for Spatial Methods for Urban Sustainability (GCSMUS),
Research Committee on Logic and Methodology in Sociology (RC33)
of the International Sociology Association (ISA) in cooperation with the
Research Network “Quantitative Methods” (RN21)
of the European Sociology Association (ESA)





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ABSTRACTS BOOKLET



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**“2nd International and Interdisciplinary Conference on
Spatial Methods for Urban Sustainability”
 (“SMUS Conference”)**

and

“1st RC33 Regional Conference – Latin America: Brazil”

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Welcome Remarks

Altogether with the SMUS Conference Brazil Steering Committee and the SMUS Conference Brazil Organization Team, it is a pleasure for me to welcome each one of you to the “2nd International and Interdisciplinary Conference on Spatial Methods” (“SMUS Conference”), which will simultaneously be the “1st RC33 Regional Conference Latin America: Brazil” in cooperation with the Research Network “Quantitative Methods” (RN21) of the European Sociology Association”, and take place online at the University of São Paulo (USP), Brazil, from Thursday September 8th to Saturday September 10th, 2022. This Conference has been made possible by funding from the German Federal Ministry for Economic Cooperation and Development (BMZ) via the German Academic Exchange Service (DAAD). In conceptual and logistic terms the SMUS Conference Brazil was brought about by the joint institutional engagement of the SMUS teams both at USP and at Technische Universität (TU) Berlin alongside the USP departments of Sociology and of Architectural Project, which are settled respectively at the USP [Faculty of Philosophy, Languages and Human Sciences](#) and the [School of Architecture and Urbanism](#).

The still ongoing global uncertainties brought about by the Covid-19 pandemic have forced us to keep on the online format employed at the SMUS Conference Botswana, which convened almost one year ago at the University of Botswana in Gaborone. Well conscious of the challenges to academic sociability implicit in this choice after three pandemic years, we did our best to circumvent the essentially inhospitable nature of online academic conferences. The six keynotes, twenty sessions, two roundtables and twelve Advanced Method courses comprised by the SMUS Conference Brazil will be ‘musically’ entangled with one another. Various talented young musicians of USP offered us six self-composed video soundtracks of instrumental music to enrich in artistic terms the Conference breaks.

Inspired by this musical setting, the SMUS Conference Brazil hopes to further the global dialogue on methods by scholars and researchers from all over the world and all social and spatial sciences (e. g. anthropology, area studies, architecture, communication studies, computational sciences, digital humanities, educational sciences, geography, historical sciences, humanities, landscape planning, philosophy, psychology, sociology, urban design, urban planning, traffic planning and environmental planning) by focusing especially on the following ten issues:





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- spatial and temporal research
- decolonizing (social-scientific) knowledge
- mapping
- informatics
- spatial/cognitive crossroads
- intersections in urban planning
- housing
- violence
- healthcare
- food

By now each subject has been explicitly or implicitly tackled in the framework of the five strategic Actions that underpin the [Global Spatial Methods for Urban Sustainability \(SMUS\)](#). To implement these [Actions](#) at USP, this University and TU Berlin signed a five-year cooperation agreement in 2020. The SMUS lead partner institution at USP is the Faculty of Philosophy, Languages and Human Sciences, and more specifically its [Department of Sociology](#).

Looking forward to the many other, alternative ways in which the above mentioned ten issues will be addressed via the SMUS Conference Brazil activities, I hereby warmly invite you to delve as intensely as possible into the opportunities for scientific, academic and personal exchange that the next three days will offer everyone.

With my deepest wish of an exciting and productive Conference for us all, I thank each of you in advance for your presence and engagement.



Prof. Dr. Fraya Frehse
GCSMUS Lead Partner, Steering Committee Member, and Action Speaker
Department of Sociology, University of São Paulo





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Lucca Ignacio Morais Luiz – MA Student
(Graduate Program in Education, University of São Paulo)
Mateus Alves de Mendonça – MA Student
(Graduate Program in Sociology, University of São Paulo)

Steering Committee

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(Department of Landscape Architecture, University of São Paulo)



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1. Conference Technical Requirements

- **Zoom**

The SMUS Conference Brazil will be hosted through Zoom application. Please note that you are required to be connected to the internet throughout the Conference to be able to participate in all the Conference activities (keynotes, sessions, courses and roundtables). The Zoom application can be accessed and/or downloaded at: <https://zoom.us/download>.

Once you have the Zoom application installed in your computer or gadget and you are ready to launch the application from your preferred web browser, simply click on the links for the keynotes, sessions, courses and roundtables, which are provided in the Conference Agenda (pp.10) via the following link:

<https://gcsmus.org/wp-content/uploads/SMUS-Conference-Brazil-AGENDA.pdf>.

These details have also been sent to you in advance via email. For more details on how to use Zoom during the conference, please access the **Zoom technical guide**: https://gcsmus.org/wp-content/uploads/SMUS_Brazil_Zoom_TechnicalGuidelines_v2.pdf.

- **Technical Support - contact details**

In case of doubts our Technical Support Team may be contacted via the email smusbrasil2022@usp.br.

Our WhatsApp Helpline is **+55 11 99925-5503** (only during the Conference days).

Please visit the SMUS Conference Brazil 2022 official website for more updates: <https://gcsmus.org/conferences/brazil/>.



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2. Conference Event Procedures

- **Conference Language(s) and Time**

All keynote, roundtable and session presentations will be held in English. The Advanced Method courses may be held in English and/or in Portuguese, according to previous announcements at: <https://gcsmus.org/conferences/brazil/courses>.

The Conference times adhere to Brasília Time – BRT Time Zone, also known as Brazil Time. Please find the link for the Time Zone Converter: <https://dateful.com/convert/brazil-sao-paulo?t=1729>

- **Opening Ceremony, Opening/Closing Lectures and Keynotes**

Given the online nature of the 2nd SMUS Conference Brazil, only the speakers can be seen and heard. Participants are not able to participate through audio or video. To make the most of the limited time available for discussion, questions can only be posed via the chat feature (located in the bottom bar of the Zoom interface).

- **Parallel Sessions, Roundtables and Courses**

Sessions, roundtables, and courses will take place in six parallel streams (from A to F). According to the Conference rules the length of each paper presentation is 15 minutes, and the time for each roundtable speech is 10 minutes. The purpose is to assure enough complementary discussion time. Advanced Methods courses in two formats will underpin the three Conference days (<https://gcsmus.org/conferences/brazil/courses>).



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imageries. Based on related studies on mangrove vegetation properties and spectral responses within the spectral wavelengths, three multispectral bands were selected to be formulated into the MVI. These are the SWIR1, NIR (Band 8), and green (Band 3). The MVI utilizes three Sentinel-2 bands green, Near Infrared (NIR), and Shortwave Infrared (SWIR) in the form $|NIR-Green|/|SWIR-Green|$ to discriminate the distinct greenness and moisture of mangroves from terrestrial vegetation and other land covers. Spectral band analysis shows that the $|NIR-Green|$ part of MVI captures the differences in greenness between mangrove forests and terrestrial vegetation. In this study, the MVI will be used as a tool to mark off the extension of the urban mangrove in Vitória, Espírito Santo.

Presentation 3

Mapping the Urbanization Impact on a Regional Ecosystem. Historical Cartography on Invasion-Succession of *Ligustrum lucidum* in the Chaco Forest of Metro Córdoba (2001-2022)

Sara Maria Boccolini and Valeria Fenoglio

The Sierras Chicas valley (Córdoba, Argentina) has faced for years the invasion of the native forest by the exotic species *Ligustrum lucidum* (glossy privet). This problem is directly related to the urbanization processes in the region, specifically to urban forestry strategies that promote the implantation of exotic species - especially *Ligustrum* - whose evergreen foliage contrasts with the deciduous flora of this semi-arid region. In recent years, the affected area has grown significantly, causing drastic changes in the local ecosystem: *Ligustrum* reproduces quickly and competes successfully with the native flora for water and sunlight, causing the loss of the native flora and fauna. Several studies record the evolution of this process since 1983; this is essential to calculate the magnitude of the problem and the affected area over time. However, its evolution in the 21st century has not yet been reconstructed, even when in these years Sierras Chicas shows an exponential increase in its population and urbanized area, which would indicate a growing aggravation of the problem. Due to this, we propose to complete the historical record of the area occupied by *Ligustrum* between 2001 and 2022. To do this, we processed Landsat 8 and 9 satellite imagery obtained during dry season (between July-September), when the foliage difference between native forest and *Lucidum* is most notable: we calculated the different levels of the Normalized Difference Vegetation Index in the territory, detecting both areas covered with *Ligustrum* and urbanized areas in 2001, 2006, 2010, 2016 and 2022 with great level of detail and reliability. The selection of temporary samples responds to obtaining data with a periodicity according to the dynamic condition of the problem and generates information synchronous to the national population censuses (2001, 2010 and 2022); we also work with hydrographic cartography and Digital Elevation Models, to identify trends linked to topographic and hydrographic conditions. Integrating these variables in a Multicriteria



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Matrix - through the use of GIS - allows us to integrate environmental, spatial, and socioeconomic variables to study the close relationship between invasion-succession patterns and urbanization patterns. Our approach reconstructs this problem as a complex and dynamic process, from which it is possible to infer medium-term development trends. Through this transdisciplinary analysis, a critical environmental process becomes a direct indicator of the capacity of urbanization to transform the landscape on a regional scale. This is strategic data, not only to develop more effective protocols to remedy the impact of the invasion on the native forest, but also to generate situated knowledge about the urban-environmental dynamics of (re)production of the regional landscape, promoting more sustainable regional policies.

Presentation 4

Land-Use Change and Greenspace Connectivity in a Large City in Brazil

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Urban areas occupy a small percentage of the territory in the landscape, representing only 3% of the terrestrial globe. However, these areas substantially impact ecosystems and environmental resources and are considered a long-lasting land-use type. Urbanization impacts water and air quality, micro-climate, water infiltration, biodiversity, and human health. Greenspaces help build resilience in cities, providing habitat or ecological corridors for biodiversity and ecosystem services, including cleaner air and water, temperature regulation, and improving human health. However, to be ecological functional, greenspace must be connected to the landscape. Despite the extensive research about the urban greenspace benefits, these areas have been commonly ignored for decades in cities, especially in developing Latin American countries. In this context, the objective of this study was to assess the land use change (between 1985-2020) in a large city in Brazil and the respective change in greenspace connectivity. Our research is related to this section because it aims to map landscape patterns. The study area is Sorocaba city, located in the southern portion of the Brazilian Atlantic Forest. The MapBiomass project provided land use/land cover maps. We considered five classes of Sorocaba: Agriculture, Forest formation (greenspaces), Forest plantation, Mosaic of Agriculture and Pasture, Pasture, River and Lake, Urban area, and Wetland, wherein we assessed the land use change between 1985-2020. Furthermore, we used the land use/land information to map the greenspaces (forest formation) and evaluate their functional connectivity by the graph theory. For that, we calculated the Probability of Connectivity (PC) index in Graphab software over the 36 years. Our research is related to this section because it aims at mapping landscape patterns over decades in an urban landscape to understand changes in greenspace connectivity and its implication in urban landscape planning. Our results will provide important information for local planners and other large cities worldwide. The current challenge for urban environmental agendas is improving the sustainability and