UGPN Conference 2023

Nature-based solutions for urban resilience scientific workshop

Smart cities and digital society

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Two-days workshop

USP Universidade de São Paulo

May 29th - Introduction to the workshop theme

May 30th - Small presentations by researchers interested in the subject, and furthering discussions thinking about how to articulate new partnerships.

May 29th, 2023.

Working with Nature for Better Plans and Project

Prof. Paulo Pellegrino

Senior Associate Professor at FAU USP

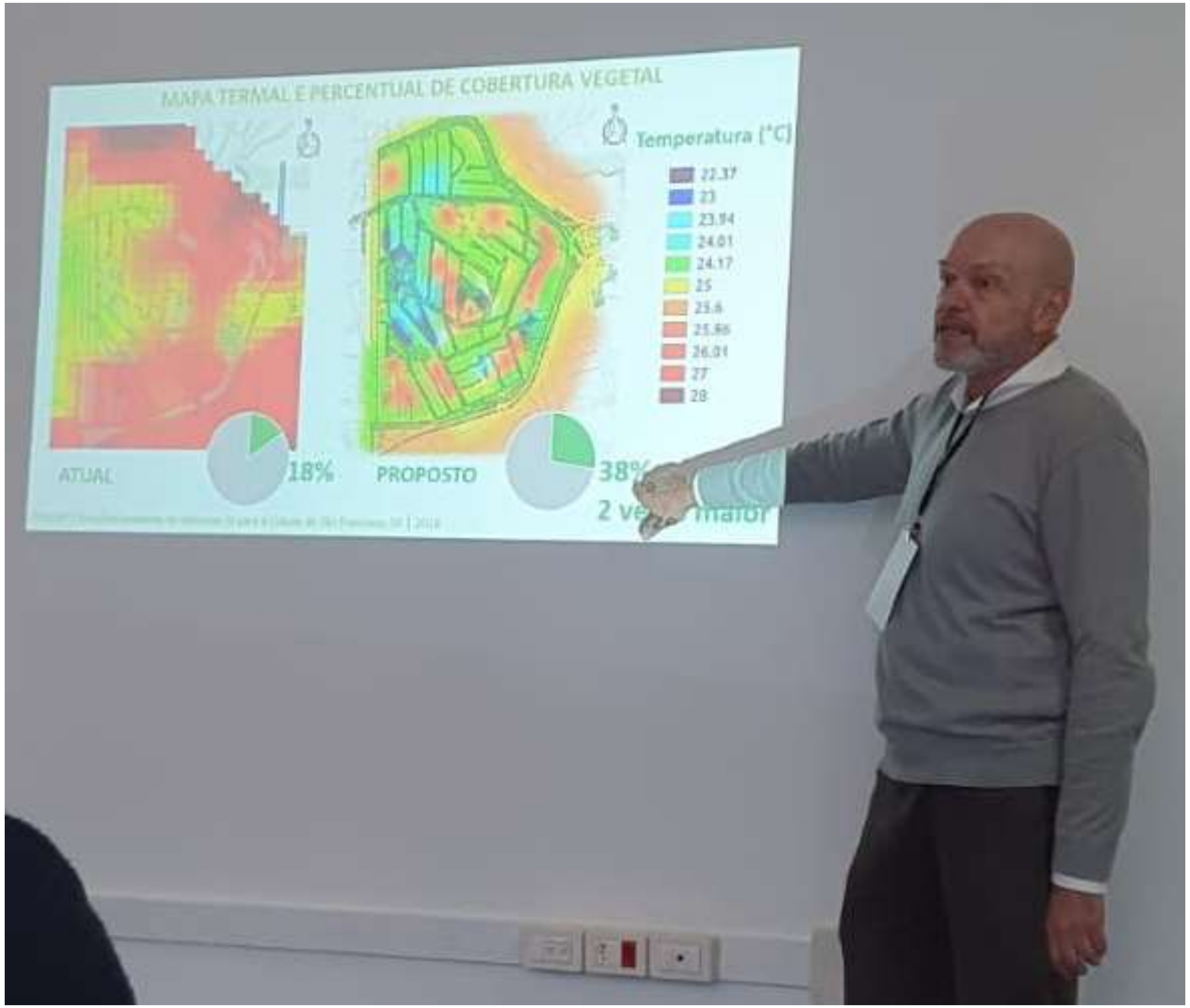
PhD. Landscape Architect, Urban Landscape Planner and Green Infrastructure Expert

May 29th, 2023.

From nature that inspires projects to projects inspired by nature

Intersection between design and nature

- Interdisciplinary research
- Biology, computing, engineering and design
- Reinterpreting the relationship between society and nature
- A design that considers nature also as a customer
- Does not consider the humans as the only users of the landscape
- Palette of materials, strengths and conditions that inform the ecological niche
- Making visible the forces that impact the environment: exercising a deeper and broader vision of the fusion between the built and the natural



May 30th, 2023.

1) USP Environmental Comfort and Energy Efficiency Laboratory (LABAUT) Activities - Ranny Michalski (FAU USP)

2) Nature-based Solutions: In the Context of the Municipality of São Paulo - Amanda Lombardo Fruehauf (ESALQ + FAU USP)

3) The underground environment: unearthing landscapes - Fábio Lofrano (EP USP)

4) Unlocking the Potential of Nature-Based Solutions: The RECLAIM Network Plus & The Institute for Sustainability - Prashant Kumar (Univ. of Surrey)

5) Nature-based solutions for sustainable ubiquitous electronics - Radu Sporea (Univ. of Surrey)

6) Street-smart cities: a decolonial approach to innovation through caring technologies - Fernanda Duarte (NCSU)

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USP Environmental Comfort and Energy Efficiency Laboratory (LABAUT) Activities

Ranny Michalski (FAU USP)

FAUUSP
Faculdade de Arquitetura e Urbanismo
Universidade de São Paulo

labaut
fauusp

Environmental Comfort and Energy Efficiency Laboratory

https://labaut.fau.usp.br/

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ENVIRONMENTAL TECHNICAL STUDIES AND RESEARCHES

labaut fauusp

Didactic activities **(teaching, research and extension activities)**

Different areas: ***thermal comfort, acoustic comfort, light comfort, ergonomic comfort and energy efficiency.***

Buildings and urban open spaces.

May 30th, 2023.

Nature-based Solutions: In the context of the municipality of São Paulo

Amanda Lombardo Fruehauf (ESALQ USP)

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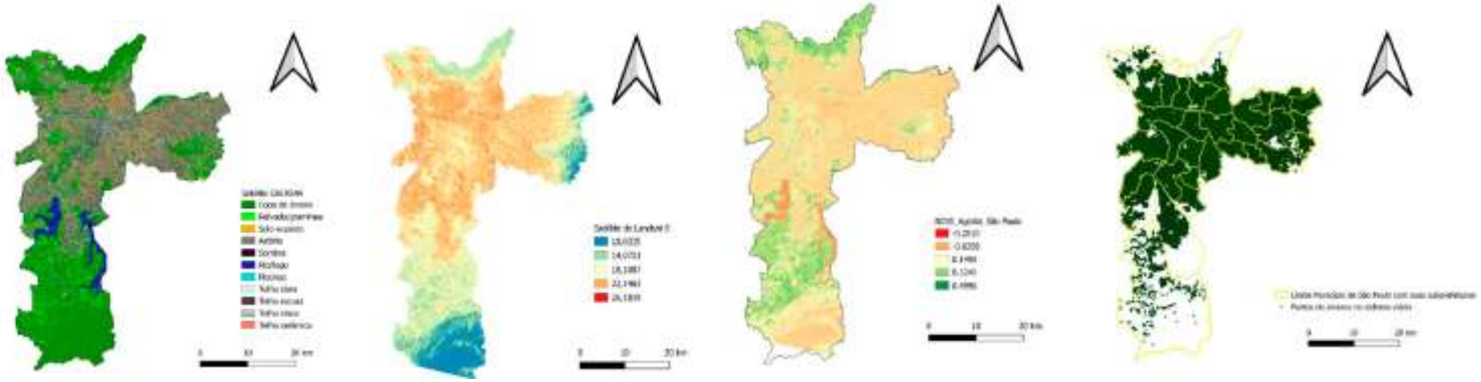
Considering **land use**, **thermal field** and **vegetation index**, and thus seeking **Nature-based Solutions**, such as expansion of Green Infrastructure, with emphasis on **urban forestation** to improve environmental and to promote quality of life for the inhabitants.



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The underground environment: unearthing landscapes

Fábio Lofrano (EP USP)

The presentation aimed to discuss the need of a more comprehensive understanding of the **interconnection between landscapes above and beneath the surface**, in an attempt to inspire participants **to recognize the integral role played by the underground environment and its relevance in achieving resilient cities**.

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- Nature-based solutions to many problems rely on some manipulation of the underground environment
- We must recognize the underground environment as an integral part of the (urban) landscape

Nature as inspiration;
Nature as aspiration.

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Unlocking the Potential of Nature-Based Solutions:
The RECLAIM Network Plus & The Institute for Sustainability

Prashant Kumar (University of Surrey)

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Institute for Sustainability
UNIVERSITY OF SURREY

RECLAIM

GreenCities

GLOBAL CENTRE FOR CLEAN AIR RESEARCH
UNIVERSITY OF SURREY

Nature-based solutions for mitigating natural hazards and environmental challenges. Prashant introduced the University of Surrey's pan-university **Institute for Sustainability**, the work done through the UKRI-funded **RECLAIM Network Plus (Reclaiming Forgotten Cities - Turning cities from vulnerable spaces to healthy places for people)** and the FAPESP-NERC funded **GreenCities project** focusing on assessing the benefits of urban parks and the examples of extensive work carried out by the Global Centre for Clean Air Research (GCARE) team around **urban greening for mitigating impacts of air pollution, urban heating and urban design**.

Second GreenCities Workshop

UKRI / NERC / FA

GreenCities

01 June 2023 9:00 - 1

Venue: Instituto de

Atmosféricas, Univ

Auditór

Rua do Mat

Hybrid Meeting (In-person & Online)

Certificates are offered for in-person attendance

June 1st, 2023
9:00 to 13:00
at IAG USP
Institute of Astronomy, Geophysics and Atmospheric Sciences

To register:
https://forms.gle/q5AFPTtdTeya4KTR6

UKRI / NERC / FAPESP GreenCities Second Workshop

GreenCities

01 June 2023 9:00 - 13:00 (Sao Paulo, Brazil Local Time)
Venue: Instituto de Astronomia, Geofísica e Ciências Atmosféricas, Universidade de São Paulo (IAG-USP)
Auditório 1 (Bloco Principal).
Rua do Matão 1226 - São Paulo, Brazil

Hybrid Meeting (In-person & Online)
Certificates are offered for in-person attendance

Click here to register
For general enquiries, please email thiagonogueira@usp.br

Agenda	São Paulo Local Time
Introduction of GreenCities and Welcome Panel Professor Prashant Kumar (GCARE, University of Surrey) Professor Laurence Jones (UKCEH) Professor Maria de Fatima Andrade (IAG-USP)	9:00 – 9:30
Session 1 - Chair: Prof. Thiago Nogueira	
Experiment update: measurements of heat and water vapour fluxes in São Paulo Prof. Giuliano Locosselli (CENA-USP)	9:30 – 9:40
CO2 and water flow data from Ibirapuera and Cientec parks experiment Dr Polari Batista (CENA-USP)*	9:40 – 9:50
CO2 measurements in São Paulo: Results from Metroclima project Prof. Maria de Fatima Andrade (IAG-USP)	9:50 – 10:00
Q & A Session	10:00 – 10:30
Coffee break	10:30 – 11:00
Session 2 - Chair: Prof. Regina Miranda	
Update on Citizen science initiative: Heat-Cool program and Experiment in Parks Prof. Prashant Kumar´s group (GCARE, University of Surrey) Jeetendra Sahani S. Khalili	11:00 – 11:20
Planning experiment: Air quality monitoring in green parks of São Paulo using low-cost sensors Prof. Thiago Nogueira (FSP-USP)	11:20 – 11:30
Citizen science and air quality monitoring: lesson learned from São Paulo school campaigns Luana Ferreira Vasconcelos (EACH-USP)	11:30 – 11:40
Update on Ecosystem services modelling Prof. Laurence Jones (UKCEH) - Online	11:40 – 11:50
Q & A Session	11:50 – 12:20
Build partnership & experiment organization Prof. Prashant Kumar Prof. Maria de Fatima Andrade	12:20 – 12:40
Close	

Financial support **Organization**

FAPESP 60 · UNIVERSITY OF SURREY · UK Centre for Ecology & Hydrology · USP

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Nature-based solutions for sustainable ubiquitous electronics

Radu Sporea (University of Surrey)

In electronics, nature-based means two things, quite complimentary to what people usually think about. First, it’s about **making electronics sustainable**, especially in the context of distributed and wearable sensors. Second, **we learn from nature in terms of how electronic circuits are made**, how information is processed for reduced energy consumption. In this context, Radu talked about his work on flexible and printed electronics with bio-inspired computation.

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Street-smart cities: a decolonial approach to innovation through caring technologies

Fernanda Duarte (NCSU)

Gambiarra - makeshift and temporary solutions

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Fernanda presented some interesting points:

- Faster does not equal better.
- Is high tech always necessary?
- It is importante to be attentive to the needs of the community.
- Gambiarras are locally created and locally maintained.
- They are not revolutionary, but always (r)evolving.
- They are often risky, and sometimes ilegal.
- Caring is complicated, it is not romantic.

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NBS for urban resilience

- **Nature-based solutions for urban resilience** involve **using nature and natural processes to address urban resilience challenges**, such as those associated with **climate change, urbanization, and loss of biodiversity and ecosystem services**.

- Nature-based solutions can provide **multiple benefits**, including **improved environmental quality, enhanced social well-being, and increased economic opportunities**.

- They can also complement traditional infrastructure and provide cost-effective solutions for urban resilience challenges.

Concluding remarks

- It is time for action.
- We need to act quickly.
- Cities can be important sources of innovation.
- We need to design for cities and buildings' adaptation to climate change.
- A design that does not consider humans as the only users, but that considers nature also as a customer.
- We need to build awareness for NBS implementation and to foster collaboration among stakeholders.
- Universities can lead the way.
- UGPN can help improving collaboration and partnerships.

Thank you.

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