Call For Papers to Thematic Session SimVisu2020
"Visualization of complex spatio-temporal data & phenomena"
How to improve the visual understanding on complex dynamics on earth?
14-20 June 2020, ISPRS2020, Nice, France.

Keywords: visualization, rendering, representation, interaction, simulation, learning, interpretation, reasoning.

Challenges

Visualizing images in order to better understand data coming from measures or simulations is a part of the process of scientific computation. A challenge in geovisualization is about **how to improve the understanding of spatio-temporal phenomena of the real world, based on visual reasoning**. The complexity of this issue comes from:

- the complexity of the spatio-temporal phenomena to interpret and analyze, such as the complexity of the related models.
- the amount of multi-sources multi-scales observations and simulated, predicted, annotated, learned, or raw data, and their imprecision,
- the complexity to co-visualize multiple heterogeneous and imprecise data, in order to get a comprehensive point of view on a phenomenon, based on the data interaction, at any scales.

Purposes

The objective of this thematic session is to make researchers have a new perspective on their way to interpret their models and results. This thematic session aims at **favoring a new dynamic of interdisciplinary research, between methodological communities based on spatial applications, for climate change issues**. We expect abstract or full papers addressing:

- visualization or visual analysis and reasoning methods to support perception and interpretation of spatio-temporal data and related phenomena: graphic rendering, graphic representation, augmented reality, 3d visualization, map design, spatio-temporal visualization, data interaction, visual reasoning, etc.
- analysis and interpretation of spatial data, potentially requiring additional visual and interactive methods: how could geovisualization, at any spatio-temporal scales, help to:
    - show and compare realistic simulations or scenarios;
    - interpret results from simulation, prediction or learning models;
    - interpret the gap between predicted or simulated and observed data, in order to refine a model;
    - support the automatic detection and identification of artefacts, patterns, breaks, changes, in order to re-process the data or the models.

There is a need here to bring closer spatial, topographic, physical observations and models, and approaches, models and experiments for visualization and visual reasoning, on many possible applications, such as the following, but not exhaustive ones:

- Climate change simulation, urban climate, climate data visualization, urban heat islands;
- Air pollution, pollutant dispersion;
- Meteorological or weather prediction;
- Water rising, flash flooding, marine submersion, tsunami simulation and scenarii;
- Geosciences, earthquakes and cryosphere assessment and monitoring;
- Spatial dynamics of land cover use or terrain on long-term scale;
- Simulation of past or future urban morphology dynamics;
- High temporal change detection, detection of high frequency events or weak signals;
- Acoustic signal, microwave lengths, wind flow into streets;
- Adaptive user interaction with learning models.

Why a thematic session at the ISPRS2020?

New methodological approaches in geovisualization have to be explored while bringing together various scientific needs, knowledge and methods from the ISPRS community, according to the diversity of data and phenomena at stake. We aim at bringing researchers from outside ISPRS to come to geospatial issues and at federating ISPRS researchers from various Commissions around visualization and visual analysis issues.

Deadlines:

3 February 2020: Deadline for abstracts & full papers.

2 March 2020: Notification for abstracts.

30 March 2020: Notification for full papers.

14-20 June 2020: ISPRS 2020 Conference

How to proceed to submit

A specific track will be created in the Conference Managing System in order to smoothly follow the papers of each session. It will be entitled "TS_SimVisu". The papers will be reviewed through the regular stream. If a sufficient number of (abstract or full) papers is accepted, a specific thematic session will be set up.

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Arzu Cöltekin, Christopher Pettit, Victoria Rautenbach, for the ISPRS WG IV/9.