Online platform for generating spatial analytics and statistics: UTEP

Tomas Soukup, GISAT
Online platform for generating spatial analytics and statistics: Urban Thematic Exploitation Platform (U-TEP)

Speaker

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Outline of the Presentation

• Intro
• Rationale
• UTEP / EO4SD Urban cooperation
• UTEP in nutshell
• Storylines
• More Resources
• EO4SD project work with a lot of data and generate a lot of information

• General **redline** of today – space is a key for integration, but so much information from different sources starts to be difficult to digest

• While traditional delivery options are still to be continued, producers, users and citizens looks for alternatives – new delivery modes which would manage integration of these vast of data and deliver in more understandable, informative way.

• Whole information sector is going this way and EO is not the other exception - big data analytics and advance visualization are more and more widely used, so the information are presented also in a bit more standards dashboard style allowing storytelling (not only factual, but also in emotional) to support the change and actions
• In GISAT, we are working in this direction for some years.
Selection guide
Scope
Different datasets differ in scope level of analysis. Please choose your scope of interest.

Data: Different datasets cope with different scopes and are available for specific regions. Please select place owned/operated for observations and select a thematic region, country or city of your interest.

Theme: Various view or data are focused on different themes. Information. Please select them according your thematic interest.

NordMap
Degree of urbanization

EARTH OBSERVATION FOR SUSTAINABLE DEVELOPMENT
Urban development
• For EO4SD Urban, we have teamed up with second ESA project called UTEP and integrated our data in this platform.

• In this presentation, we will deal with 2 examples:
  
  1- first presenting UTEP in EO4SD Urban context, functionalities and how you can use resources available
  2- showing Storylines - what can be easily done when you already have some data integrated on the platform. We have prepare for GPSC three of them, from our data and I will go quickly through to show you what you can done with it.
UTEP in a Nutshell

UTEP Tools for City Report contents and much more

- Interactive exploration
- flexible granularity (context - hotspot - detail)
- multiple modes interconnected (map/table/graph)
- seamless 2D/3D presentation
- user visualization support, live views sharing
- result exports in multiple way
## TEP Urban communities

<table>
<thead>
<tr>
<th>Community</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High Altitude Pseudo Satellites</strong></td>
<td>High Altitude Pseudo Satellites (HAPS) are atmospheric platforms that stay over a fixed point on Earth from weeks to months. Compared to ground-based systems, these platforms are cost-effective and can operate quasi-stationary at an altitude of approximately 20 km. This allows them to complement or extend the capabilities of satellites in the domain of Earth Observation. The TEP Urban community can take advantage of the fixed observability of HAPS to further integrate this with ground-based infrastructure. The HAPS group includes users and experts that are interested in the application and evolution of HAPS.</td>
</tr>
<tr>
<td><strong>Starter users</strong></td>
<td>Starter community where you can find applications and resources for managing your workplace and your data in the Urban TEP.</td>
</tr>
<tr>
<td>Public</td>
<td>15 members</td>
</tr>
<tr>
<td>Public</td>
<td>272 members</td>
</tr>
</tbody>
</table>

**EO4SD Urban**

An ESA project aimed at delivering key geospatial products from Earth Observation data in support of urban development programmes.

**Gisat**

GISAT – making better decisions about our environment. The company mission is to provide its clients with a wide range of services that are highly efficient, scalable, and easy-to-use. GISAT is based on the Earth Observation technology. GISAT brings to its domain...
The main goal of the Urban Thematic Exploitation Platform (UTEP) is the implementation of an instrument that helps addressing key research questions and societal challenges arising from the phenomenon of global urbanization.

Therefore, the Urban TEP represents a web-based platform that allows users to effectively utilize Earth Observation (EO) imagery and existing auxiliary data (e.g., geo-data, statistics) to measure and assess key properties of the urban environment and monitor the past and future spatiotemporal development of settlements.

Key elements of the Urban TEP are the provision of easy and high performance access to EO data streams and archived data, multi-mission and multi-source data management and processing infrastructures, modular pre-processing and analysis procedures, useful adding assessments, user oriented functionalities for...
Statistics – understanding intensity and ‘cons / forms’ flows
Global Urban Growth Dynamics Monitoring

Earth Observation data can provide unprecedented insight into long term trends in urban growth dynamics globally. This information is crucial for understanding and managing urban expansion, which is a key component of global urbanization trends. Monitoring urban growth dynamics helps in planning and managing urban areas more efficiently, ensuring sustainable development and improving quality of life for urban populations worldwide. The Global Urban Growth Dynamic Monitoring (using WSF) initiative leverages Earth Observation data to track urban expansion in near-real-time, providing valuable information for urban planning, resource management, and policy development.

As EO4SD-Urban contribution to the GPSC’s 3rd Global Meeting, the Urban Growth Dynamics Monitoring Storyline for all GPSC Cities is available at https://urban-tep.eu/visat/scudeoStories19/globalWSfu
Storyline
City Land Assets Structure and Evolution

City Land Assets Structure and Evolution

Earth Observation data can provide insights into Land Use and Land Cover (LULC) assets structure and evaluate quantity and quality of LULC changes.

Land is a non-renewable resource and its quantity and quality play a crucial role in the development of a city. Land structure and composition influence patterns of urban growth, city functionality, and resilience, as well as determine physical parameters, opportunities, and potential for further development.

Saint Louis

Distribution and spatial composition of LULC classes for two reference years is presented in the map below. Click the city from the pull-down menu on the top to display the maps for respective city.

Land Cover Land Use Structure

As EO4SD-Urban contribution to the GPSC’s 3rd Global Meeting Land Use Land Cover Assets Storyline for several Cities is available at https://urban-tep.eu/visat/scudeoStories19/landAssetsStructure
Mapping and monitoring of urban green areas

How green open and public spaces are defined – opportunities and limitations.

As EO4SD-Urban contribution to the GPSC’s 3rd Global Meeting Green Areas Storyline for selected cities is available at https://urban-tep.eu/visat/scudeoStories19/greenAreas
More Resources
More Resources

Learn more about
EO4SD-URBAN

an ESA project aimed at deriving key geo-information products from Earth observation data in support of urban development programmes.

Since 2008 the European Space Agency (ESA) has worked closely together with the International Financing Institutions (IFIs) and their Client States to harness the benefits of Earth Observation (EO) in their operations and resources management. In this context, Earth Observation for Sustainable Development (EO4SD) is a new ESA initiative, which aims at increasing the...
More Resources

Web Exploration Tool available at https://urban-tep.eu

EARTH OBSERVATION FOR SUSTAINABLE DEVELOPMENT
Urban development
Thank you for your attention!

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