

Data in Tourism

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What is tourism?

What is tourism?

Tourism is a social, cultural and economic **phenomenon** which entails the **movement** of people to countries or places outside their usual environment for personal or business/professional **purposes**.

UNWTO

What is data?

What is data?

Data is information that has been translated into a form that is efficient for movement or processing.

Data is **different types** of information usually **formatted** in a particular manner.

What is tourism data management?

What is tourism data management?

Tourism data management is **collecting, processing** and **re-using touristic data** to help organisations and people to make strategic decisions and taking actions to maximise the benefits.

Data for tourism is everywhere ...

Mobile apps and smart phones provide users with real time travel instructions

75 billion Internet of Things (IoT) devices worldwide by 2025

On-line presence: searching, shopping, personalisation...

Amount of data generated per day is expected to reach 463 exabytes by 2025

Main trends in the tourism sector

Technological progress

- Big data
- Cloud computing
- Artificial intelligence
- Evolution of IoT
- Cybersecurity
- Blockchain
- Augmented reality, Virtual reality
- Metaverse
- Robotics ...

Main trends in the tourism sector

Socio-demographic changes

- Connected at all times
- Changes in purchases
- Digital natives
- Lifelong learning
- Ageing population

Main trends in the tourism sector

Sustainable development

- Responsible tourism
- Sharing economy
- New business models
- Accessible and inclusive tourism
- Regenerative tourism

Added value of data for tourism

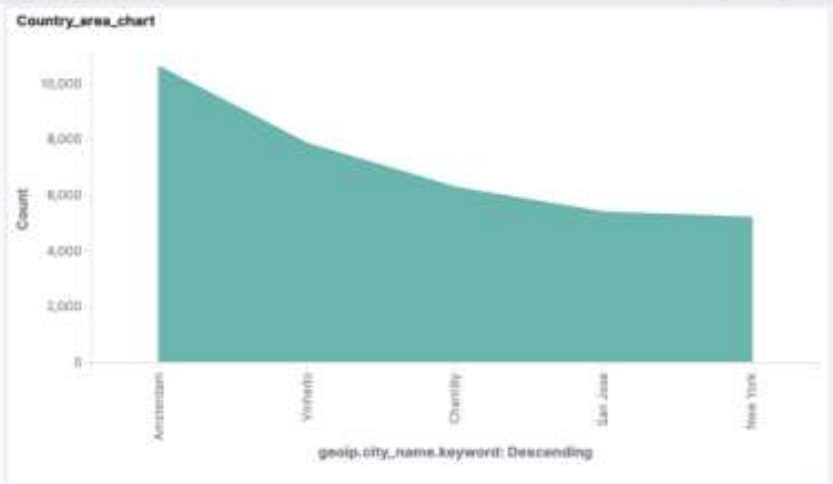
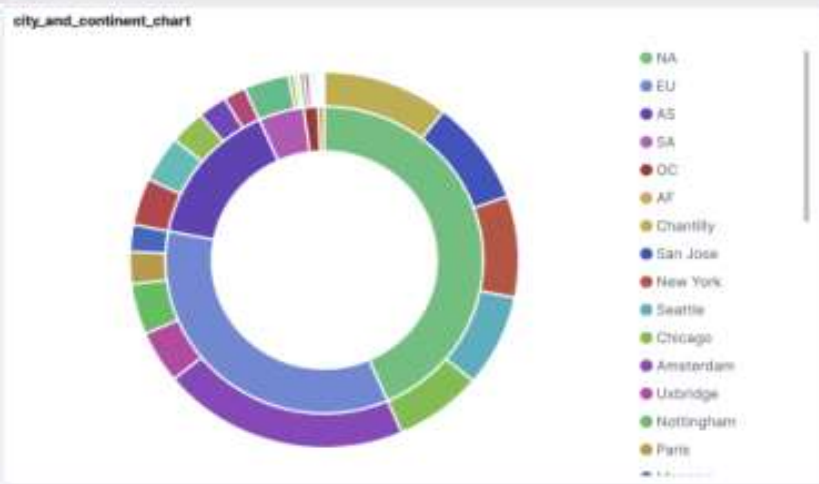
- Data driven decisions
- Understanding of users / tourists
- Foster innovation
- Data driven solutions to enhance business
- Develop sustainable forms of tourism

Use data to enhance strategic decision-making

- Optimise revenues and costs
- Management of tourist flows
- Manage seasonality
- Automate data collecting and speed up the process

Use of data in tourism industry for

- Reputation improving
- Develop strategies, management & marketing activities, etc.
- Personalisation of customer experience
- Management of tourism impact on environment
- Generating new experiences



[eCommerce] Markdown

Sample eCommerce Data

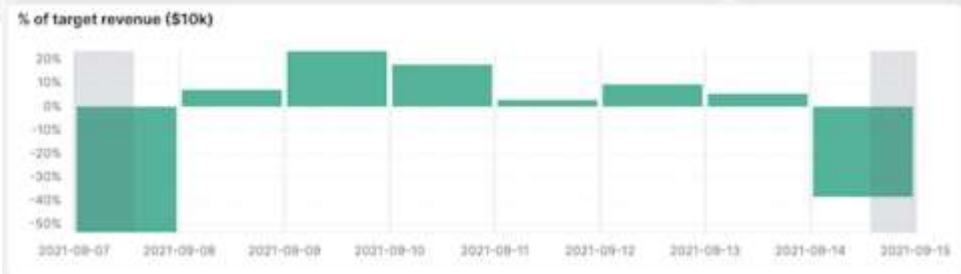
This dashboard contains sample data for you to play with. You can view it, search it, and interact with the visualizations. For more information about Kibana, check our [docs](#).

[eCommerce] Controls

Manufacturer:

Category:

Quantity:



Sum of revenue

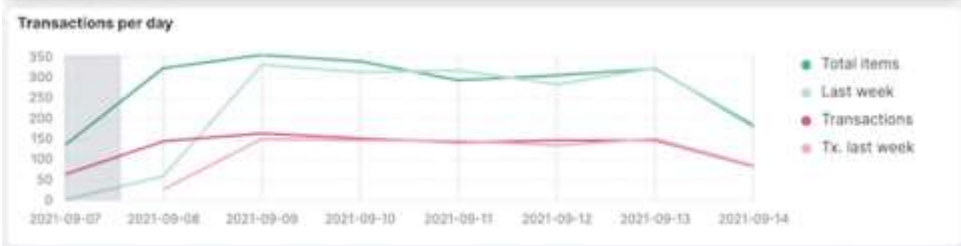
\$77,470.73

Sum of revenue

Median spending

\$66.76

Median spending



Avg. items sold

2.2

Avg. items sold



D2.2 Safety

Please provide information about your *vestibulum imperdiet nec mauris*.

Last edited
Jana Štepić

A. What is the number of visitors that filed a police report at your location? 📌

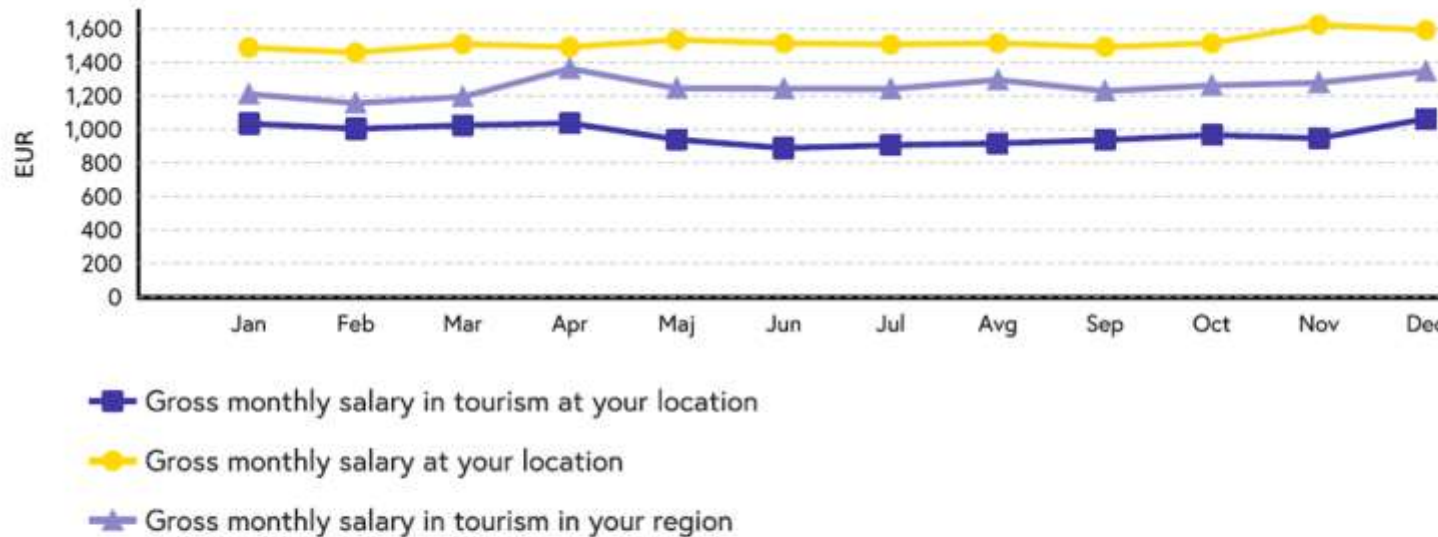
Insert data (at least last two years)

2017						
Jan	Feb	Mar	Apr	May	Jun	Jul
12	134	0	7			
Jan	Feb	Mar	Apr	May	Jun	Jul

Not measured

TOURISM

Figure 95: Gross monthly salary at your location



The graph shows average gross monthly salary in tourism and average gross monthly salary overall at your location as well as average gross monthly salary in tourism in your region. The top month for average gross monthly salary in tourism at your location was **December (1.064,09 EUR)** and the top month for average gross monthly salary in tourism in your region was **April (1.363,44 EUR)**.

TOURISM IMPACT MODEL

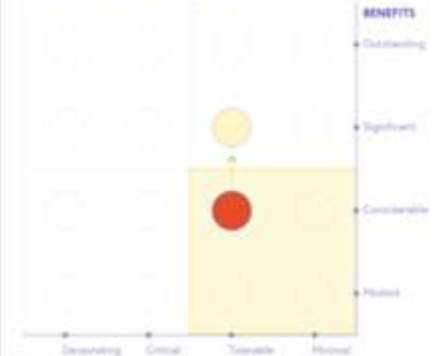
report

2 Management Abstract

The overall result of the impact of tourism at your location is presented with the TIM Destination Character Chart (TIM DCC) below.

Figure 1: TIM Destination Character Chart

You are: Sustainable sleeper



RESOURCE CONSUMPTION

TIM DCC combines the positive impact of tourism (Benefits), the negative impact of tourism (Resource consumption) and the general condition of your location.

Figure 2: Overall data accuracy level



4.4.5 Education (D15)

Education, vocational training, and general lifelong learning play vital roles in both an economic and social context. They offer citizens the ability to become a paid and productive member of the society while acknowledging their own wishes and wants.



USPEŠNO TURISTIČNO LETO 2022

Slovenija okrevala hitreje od evropskega in svetovnega povprečja PRIMERJAVA Z 2021

5,86 MIO PRIHODOV

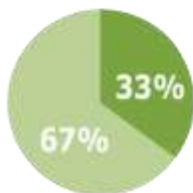
SKUPAJ +46,6%

1,93 MIO

DOMAČI -11%

3,93 MIO

TUJI +114,8%



VIR: SURS PRIMERJAVA 2022/2021

15,58 MIO PRENOČITEV

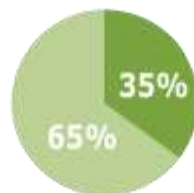
SKUPAJ +38,5%

5,50 MIO

DOMAČI -14,7%

10,07 MIO

TUJI +110,2%



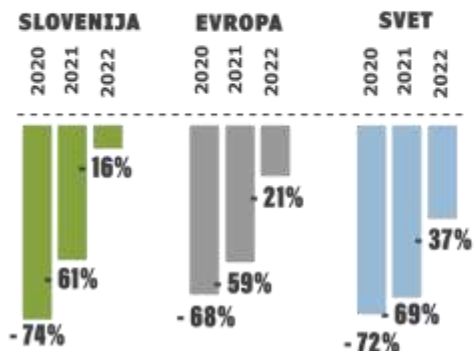
VIR: SURS PRIMERJAVA 2022/2021

2,91 MRD EUR

IZVOZ POTOVANJ +72,87%

VIR: BANKA SLOVENIJE 2022/2021

OKREVANJE MEDNARODNIH PRIHODOV GLEDE NA 2019



Vir: UNWTO

ZNAKI



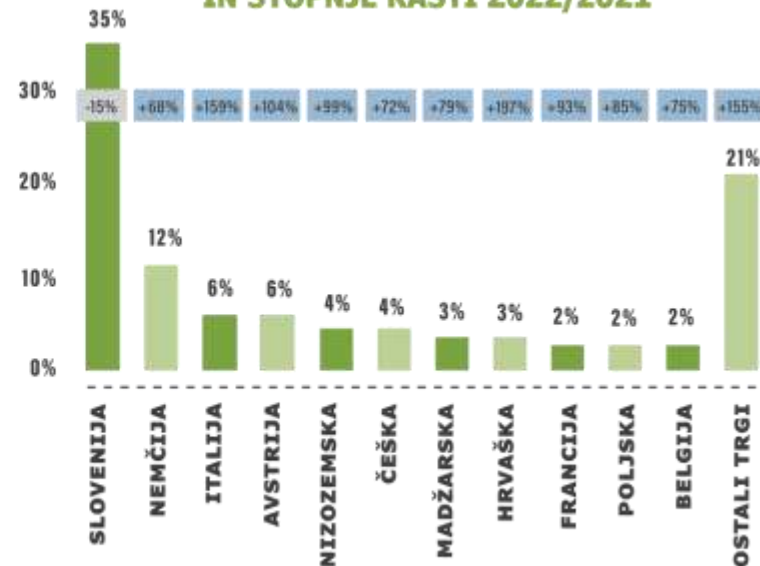
70 NOVIH V 2022

279 VSEH PODELJENIH

85% PRENOČITEV NA DESTINACIJAH Z ZNAKOM

Vir: STO

TRGI PO DELEŽU PRENOČITEV 2022 IN STOPNJE RASTI 2022/2021



Vir: SURS. Stopnje rasti računane na enako obdobje leta 2021 (prihodi in prenočitve).

Multitude of data in Tourism

- Publicly collected data / Private owned data / Data produced by tourists
- Structured / Unstructured data
- Data collection:
 - Direct data sources
 - External sources
 - Hidden data
- Real time data / Historical data

User generated data

- **Textual:** reviews, social media posts, blog articles, contributions to surveys, likes
- **Photos:** posts on social media with rich metadata: locations, time, tags

Transactional data

- Web searches
- Web page visits
- Online bookings and purchases

Device data

- Tracking devices
- Smart devices

Other data

- Private data sources
- Statistics
- Context specific information
- Local data...

KEY CHALLENGES IN DATA FOR TOURISM

Data itself

- Volume
- Velocity
- Variety
- Veracity

Heterogeneity of data

- Interoperability
- Standardisation



Technology and power

- Infrastructure
- Investments

... processing big data requires special high-performance technologies.

Tourist attitude and digital literacy

- use of smart services vs. traditional experiences

Privacy

- personalisation
- sharing personal data

Human and artificial intelligence:

- skilled work force for the use of hi-tech and digital tools
- great changes

Governance and cooperation:

- cooperation
- sharing data and re-use

Data analytics in tourism -

Descriptive Analytics

- what happened and/or might happen in the future

Predictive Analytics

- long term forecasts

Prescriptive Analytics

- simulation scenarios

Case study: Monitoring visit in natural areas – MOUNTAINEERING 4.0

T4.0 Alpine flows

measuring footfall in mountain areas



The potential of data use in mountains

- Monitoring visits based on actual data
- Analysis
- Forecasts based on historical data
- Better user experience
- Improved security
- Better data-driven decision making
- Better governance

Challenges of data collection in the mountains

- Extreme weather conditions (snow, ice, heat)
- Remote access
- Lack of infrastructure:
 - no resources to power the devices
 - no resources for installation
 - poor internet signal for real time communication
- Natural disasters (fires)

Using data for strategic purposes

- Developing sustainable tourism models taking into account carrying capacities
- Redirecting visitors to less congested areas
- Efficient management of routes (management priorities)
- Effective communication activities
- Better communication to stakeholders (e.g. hut managers, staff planning)

Storžič



Data sources in the mountains

Visitor data

Weather data,

Mobile users

Traffic

Mountain accidents

Other relevant data:

- holidays calendar
- overnight stays and bookings (in mountain huts)
- car park occupancy & use of public transport,
- entry tickets to natural attractions or points of interest
- amount of litter, etc.

Selecting the data sources / data

What do we monitor? Choose measurable activities

- Number of tourists and visitors, number of accidents, number of traffic, reservations, etc.

Who are the users of the data?

- Users/planners, managers, administrators, researchers, marketing experts...

What data do I need?

How do I analyse it?

What technologies do I need?

Counting mountain visit in real time

Infrared people counters:

- every pass by the counter - entry/exit
- 24/7 operation,
- reporting to backend system every 30 minutes,
- NB or LoRaWan signals
- Robust – extreme weather protection
- Low power consumption / AA battery



Razmere v živo

5. 7. 2023, 11:32

Zastoji

Na cestah Šmarje - Koper, Lucija - Strunjan in Lesce - Bled. Na dolenski avtocesti pred predorom Mali vrh proti Ljubljani, na vzhodni mariborski obvoznici pred Malečnikom iz smeri Pesnice.

Delo na cesti

Nocoj bo zaradi postavitve portala 30 minutna popolna zavora na severni ljubljanski obvoznici med Ind. cono Šiška in Kosezami med 23. in 23.30 uro.

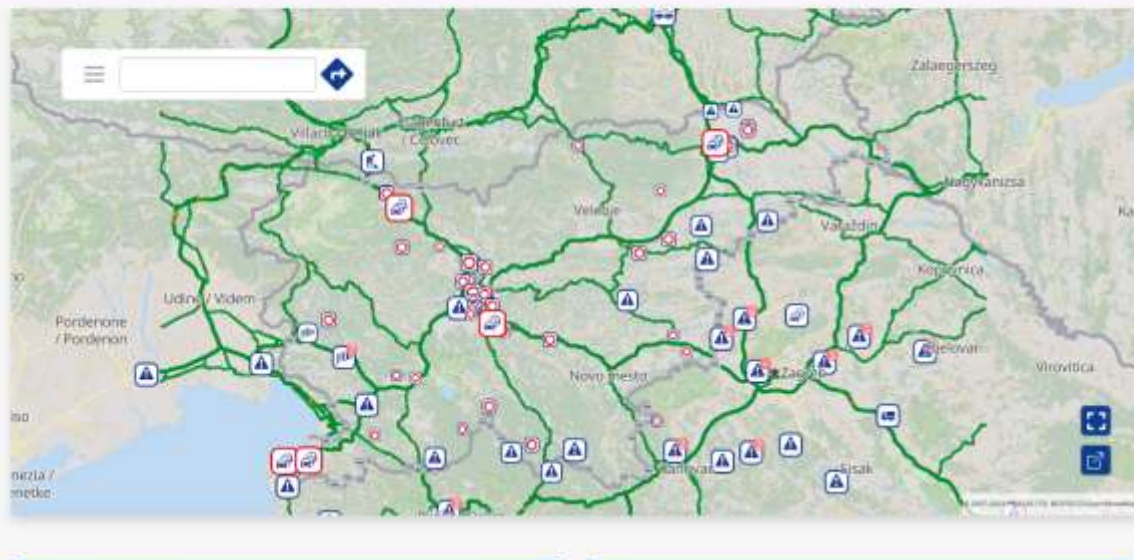
Na gorenjski avtocesti zaprt priključek Jesenice vzhod, izvoz in uvoz:

- proti Karavankam predvidoma do 10. julija,
- proti Ljubljani pa predvidoma do 15. julija.

Ostale ceste:

- Cesta Ljubljana - Šentvid - Vodice, **Tacenska cesta** do decembra letos. Obvoz je urejen po avtocesti Brod - tudi za vozila brez vinjete.
- Cesta **Rudno - Češnjica, pri Češnjici** do 16. julija.

[Več o delovnih zaporah v prometni napovedi.](#)



Traffic data

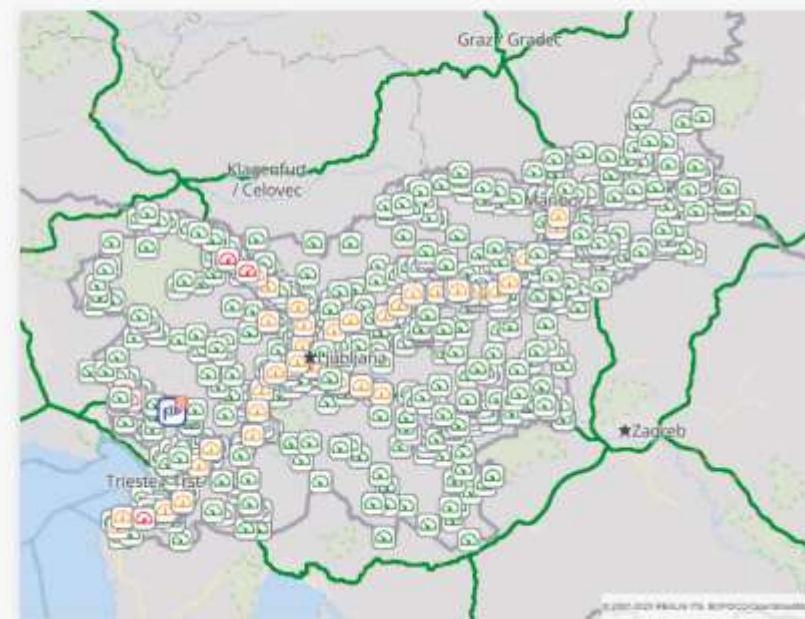
Prometna napoved - klik



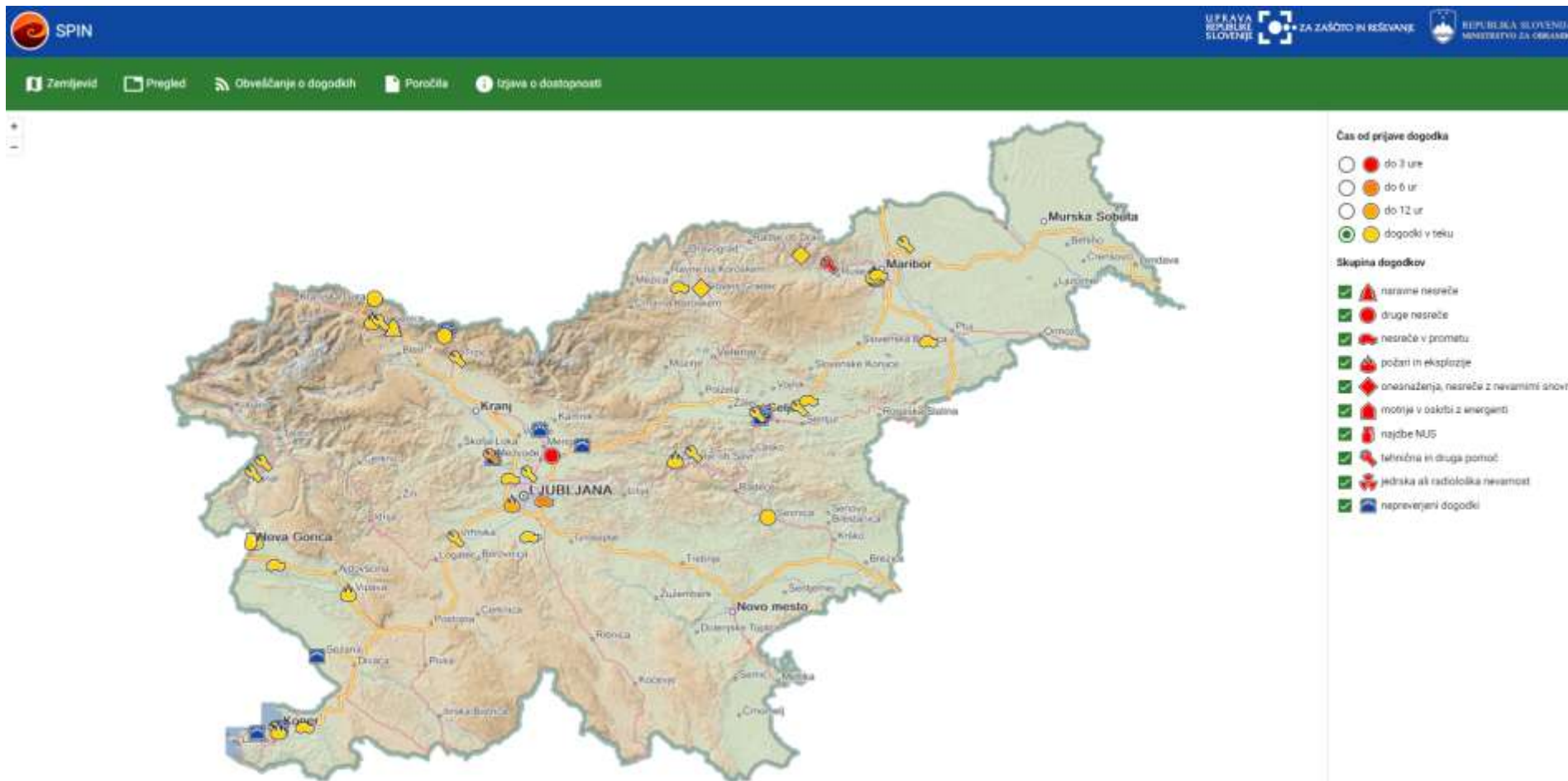
Števci prometa

Iskanje ...

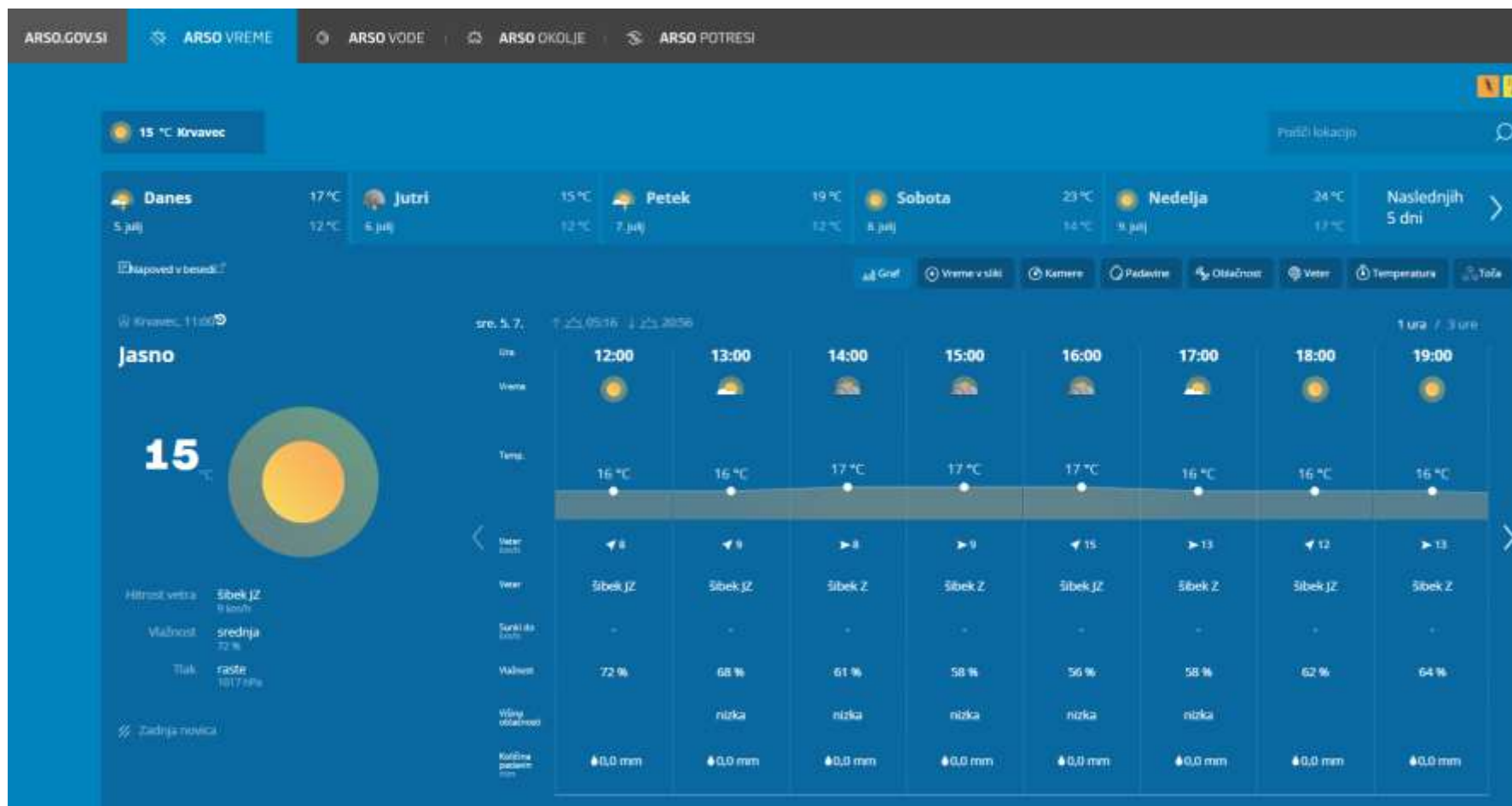
lokacija	smernost	pas	število (n/uro)	hitrost (km/h)	razmik (s)
AC-A1	izvoz iz KP		60	74	58.2
AC-A1	izvoz iz Lj		36	68	79.6
AC-A1	izvoz iz R.Kozarje		156	51	20
AC-A1	izvoz iz R.Malence	vozni	456	64	8.8
AC-A1	izvoz iz R.Malence	prehitevalni	324	70	13.9
AC-A1	uvoz proti R. Kozarje		216	52	21.8



Mountain accidents data



Weather data



Data dashboard

Data is stored and processed in backend system

Data dashboard for data visualisations

Data aggregation

- Different data sources

Better insights for better and faster decision-making:

- Reports
- Different data sources and counting methods have their advantages and limitations.

Welcome, Vesna

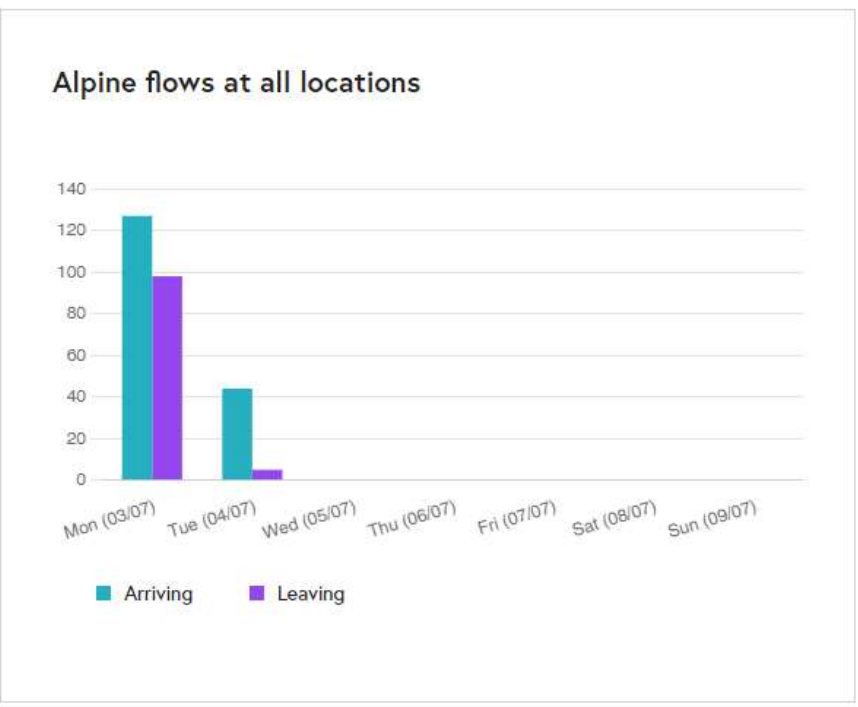
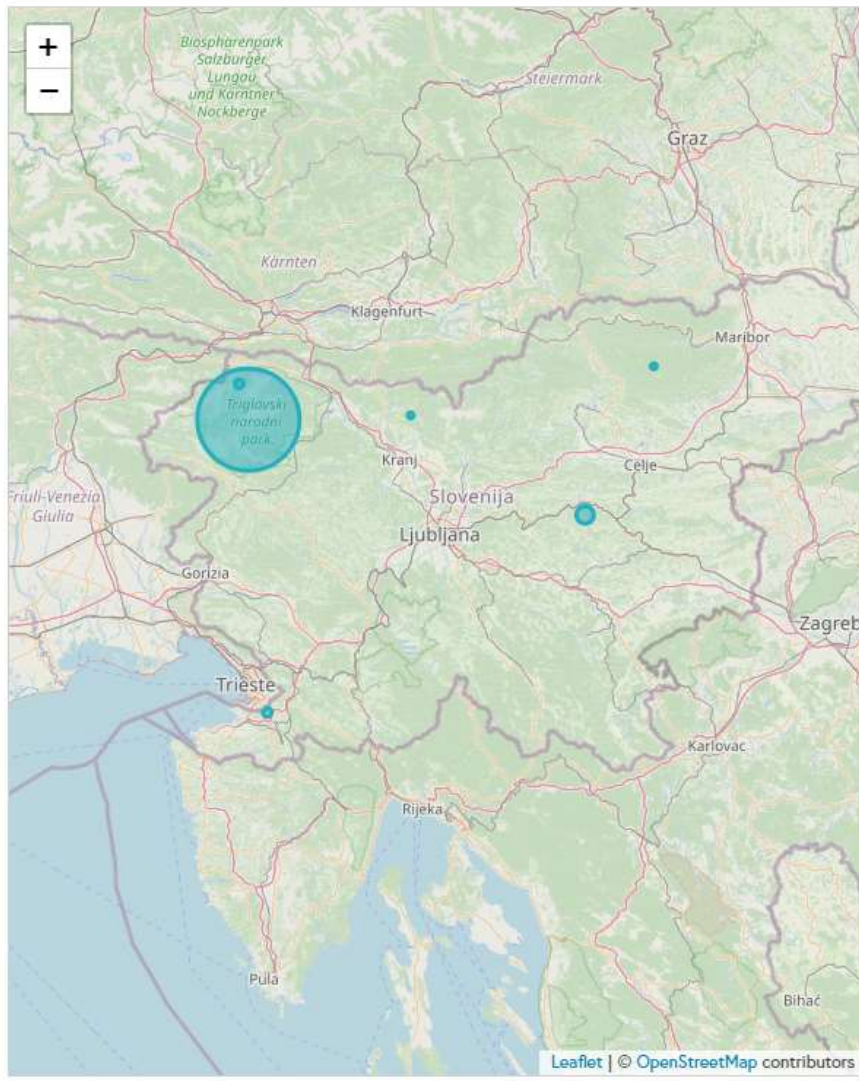
171
Arrived
this week



103
Left
this week



127
Monday, 3.7.2023
most visits in a day



Most visited days

Monday, 3.7.2023	127
Tuesday, 4.7.2023	44

Least visited days

Tuesday, 4.7.2023	44
Monday, 3.7.2023	127

Flows data

All locations



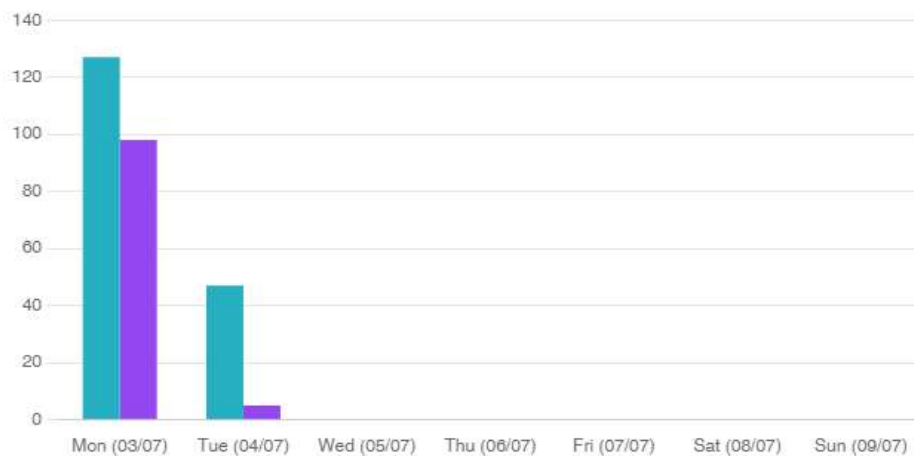
03/07/23 - 09/07/23

Alpine flows



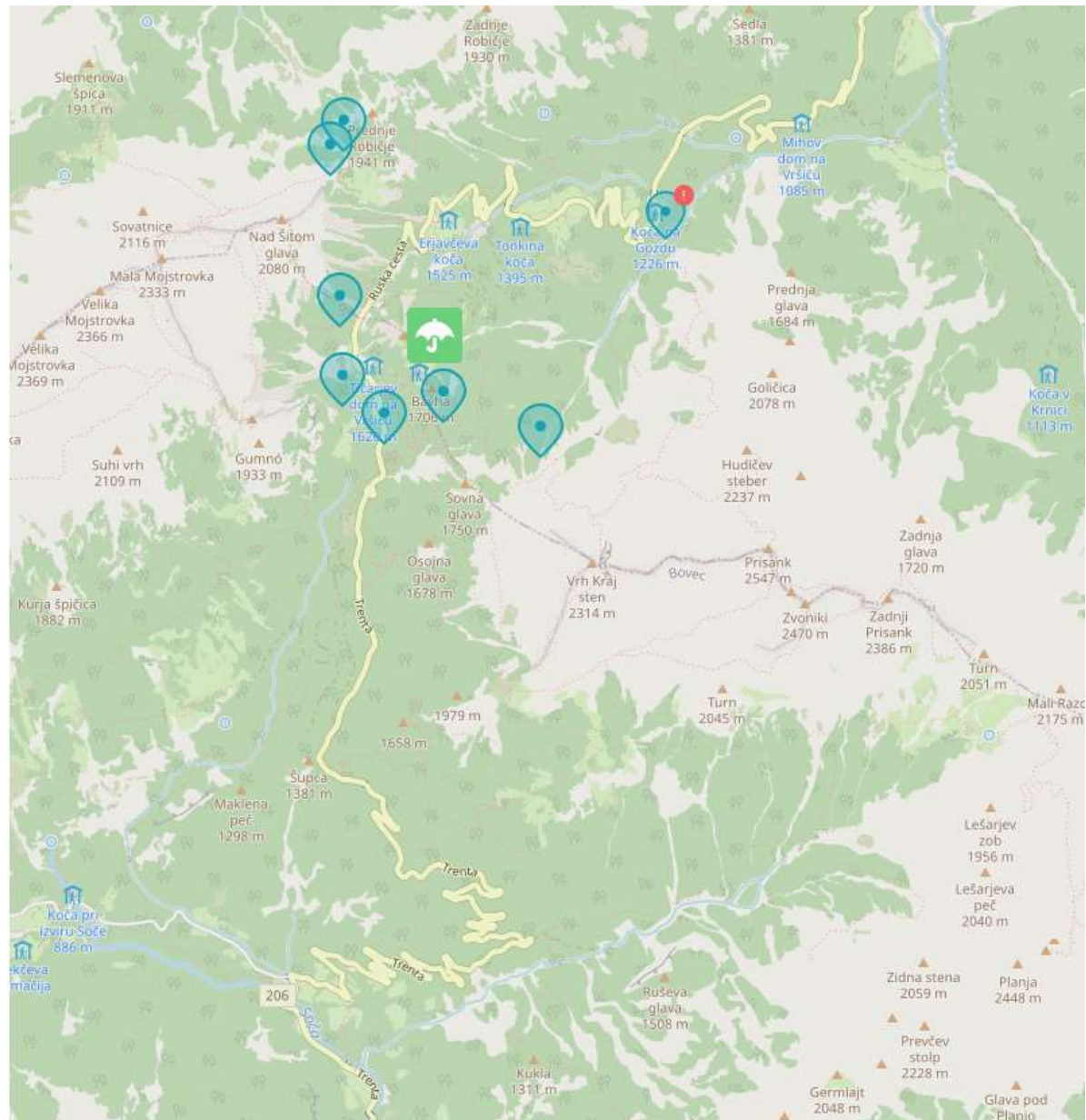
Display: **absolute**

All arriving: **174** All leaving: **103**



■ Arriving ■ Leaving

Kum Lovrenška jezera Osp Storžič Triglavski narodni park Vršič



ANY QUESTIONS?

REGINNA^{4.0}

Vesna Kobal

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