



SANPIC

Salzburg Airport Noise Pollution
Impact analysis to City demographics





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Project Duration

SANPIC Project Idea



OVERVIEW



Salzburg Airport noise pollution impact analysis to city demographics (SANPIC)



It is an open access application that visualizes the noise pollution emitted by airplanes in and out of Salzburg Airport, and how it affects areas surrounding the facility.



The app will display the noise data of the last 24 hours obtained from Salzburg Airport website at their Maxglan-Sud sensor



The app will also display the historical (January to May 2020) noise of the airplanes flying around Salzburg and the average of each month.

OVERVIEW

With the app, users can



Choose which establishments related to certain demographics (e.g. kindergarten, hospital, elderly care houses) can be viewed on the screen through the layers option.



Based on the proximity of these establishments to the airport, an estimation by the user can be made if it is too near or too far to be affected by the airport noise pollution.



SANPIC app will help them decide better in urban planning construction and can help in mitigating certain effects of noise pollution to certain groups of people.

OBJECTIVES

Project SANPIC aims to provide a visual representation of the noise pollution occurring in Salzburg Airport due to the incoming and outgoing flights in the facility, and its impact towards the inhabitants of the city.



To deliver an interactive webmap application



Noise pollution of January to May 2020 flights around Salzburg with the corresponding sound range, noise data collected from Salzburg Airport website is visualized



Layers of establishments, population data and public facilities are also included in the app



SANPIC app will visualize the noise pollution surrounding the airport.

BENEFITS

The purpose of SANPIC is to provide an interactive webmap app that can:



Help the government, stakeholders and even the public, understand spatial implications of urban planning set-ups around Salzburg airport



Provide public awareness on the noise pollution an airport facility brings particularly affecting specific demographic groups such as the elderly and kids



Identify future problems that may arise around the facility, support regulations and improve facilities



Help the public in better urban planning decisions

SANPIC Project

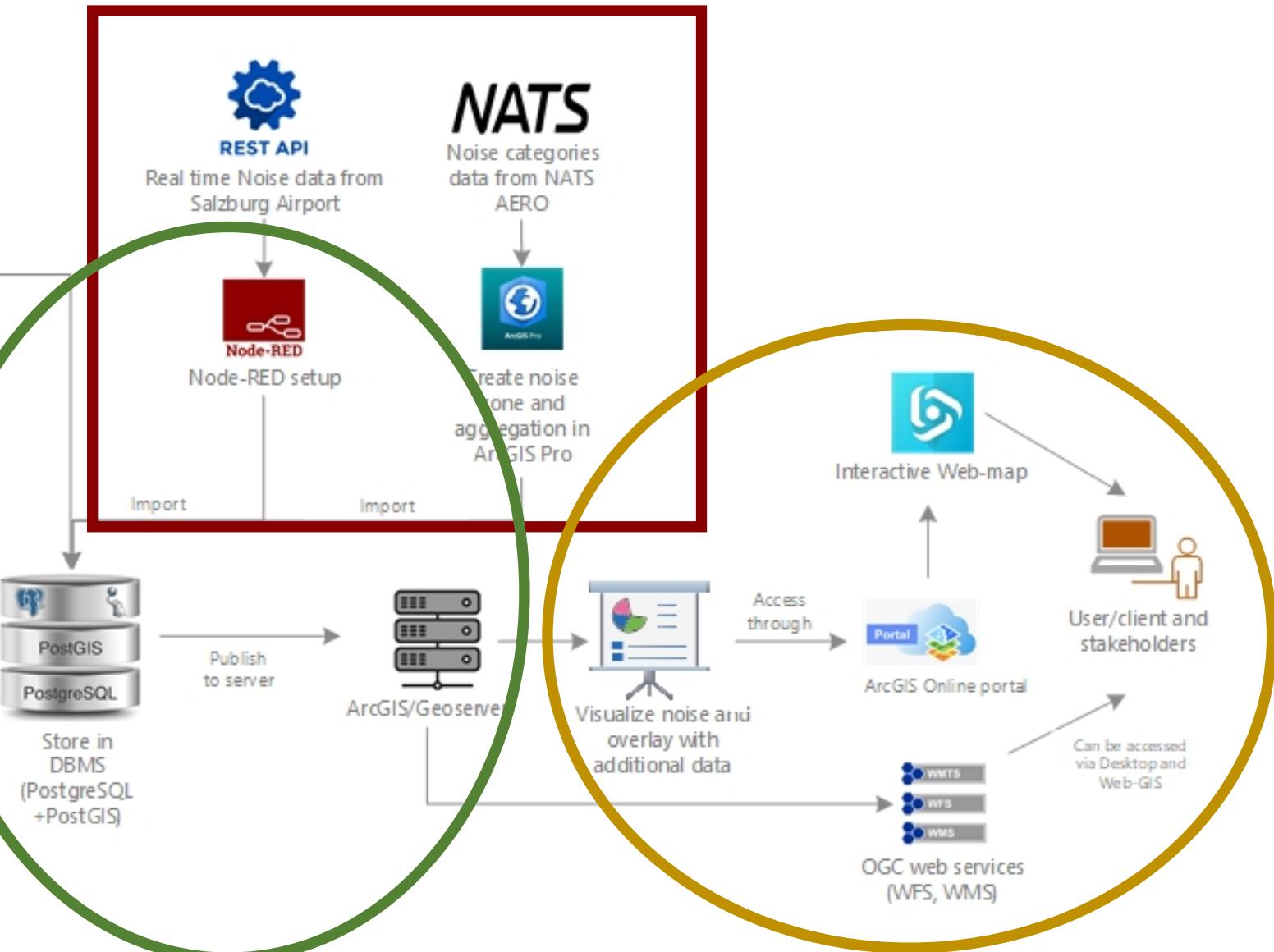
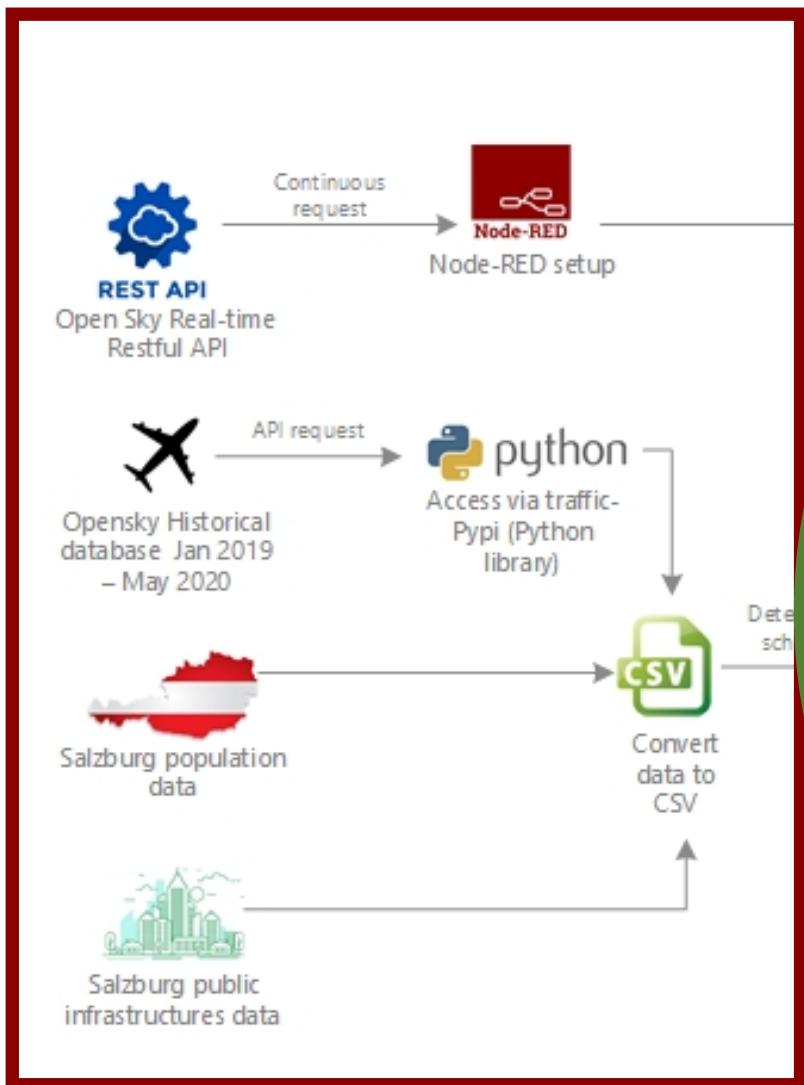
APPROACH AND METHODS



SDI IMPLEMENTATION



WORKFLOW



WORKFLOW

COTS



Geoevent, Server,
ArcGIS Pro, ArcGIS Online

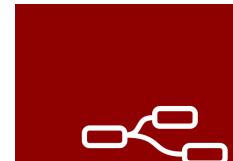


OGC

WFS

WMS

Open Source



Node-RED



SANPIC Project CHALLENGES



CHALLENGES (RISKS)



For Airport Noise from Salzburg Airport website

- ❖ Node-Red cannot store username and password from our DBMS
- ❖ Python code could not be integrated in Node-Red
- ❖ Geoevent server was unstable/down.
- ❖ Cannot publish the raster data to Geoserver (WMS)
- ❖ ArcGIS server could not be accessed
- ❖ Cannot add WFS layers from Geoserver to ArcGIS online

CHALLENGES (RISKS)



For Historical Airplane data and its noise

- ❖ Took time to download historical data through Python
- ❖ Visualization of data
- ❖ Matching of airplane noise to the historical data
- ❖ Geoevent server was unstable/down.

CHALLENGES (RISKS)



For Real Time Flights

- ❖ NodeRed configuration technicalities.
- ❖ Geovent server was unstable/down.
- ❖ Tried to integrate the real-time data to PostgreSQL using NodeRed but did not work

CHALLENGES (RISKS)



Final Product

- ❖ Could not add the OGC web services layer to the dashboard so we had to do it manually.
- ❖ Could fetch real time data of noise from Salzburg Airport but displayed graph in dashboard does not automatically update.

SANPIC Project RESULTS



DASHBOARD (<http://arcg.is/GeOun>)

Salzburg Airport Noise (Maxglan Sud) in the last 24 hours

| Time | Noise (dB) |
|-------|------------|
| 09:00 | 82 |
| 12:00 | 92 |
| 15:00 | 88 |
| 18:00 | 82 |
| 21:00 | 73 |

Last update: 4 hours ago

| Mean Airplane Noise (January) | Mean Airplane Noise (February) | Mean Airplane Noise (March) | Mean Airplane Noise (April) | Mean Airplane Noise (May) |
|-------------------------------|--------------------------------|-----------------------------|-----------------------------|---------------------------|
| 66.1 | 51.5 | 61.7 | 49.2 | 59 |

Last update: 4 hours ago

SANPIC_MAP

Salzburg Airport Noise Pollution Impact Analysis to City Demographic

Find address or place

Map data © OpenStreetMap contributors, Map layer by Esri

POWERED BY esri

WFS Get Capabilities Request Link | Rest URL for Real Time Airplane Traffic

WMS/REST Noise January Request Link | WMS/REST Noise January Request Link

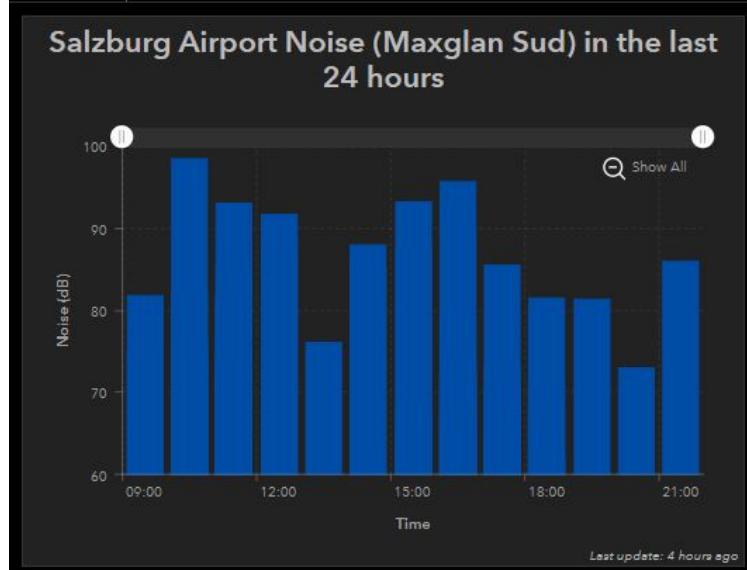
WMS/REST Noise February Request Link | WMS/REST Noise February Request Link

WMS/REST Noise March Request Link | WMS/REST Noise March Request Link

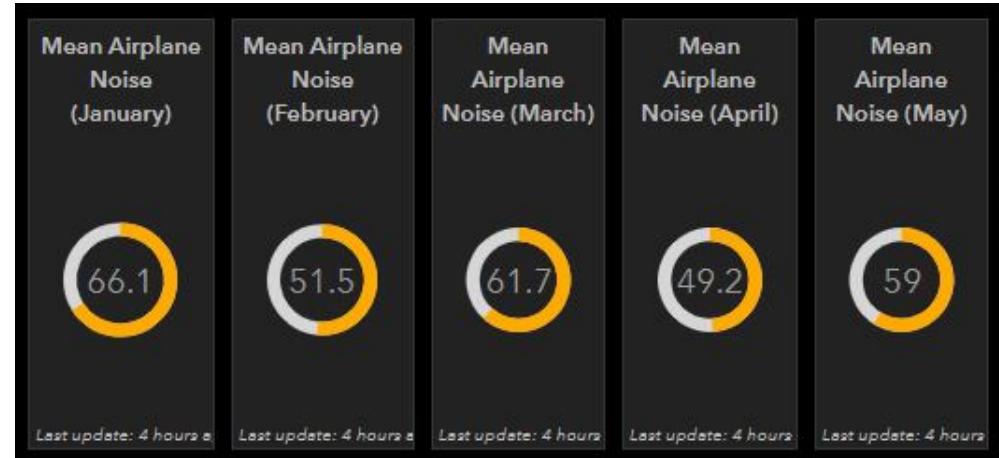
WMS/REST Noise April Request Link | WMS/REST Noise April Request Link

WMS/REST Noise May Request Link | WMS/REST Noise May Request Link

DASHBOARD (<http://arcg.is/GeOun>)

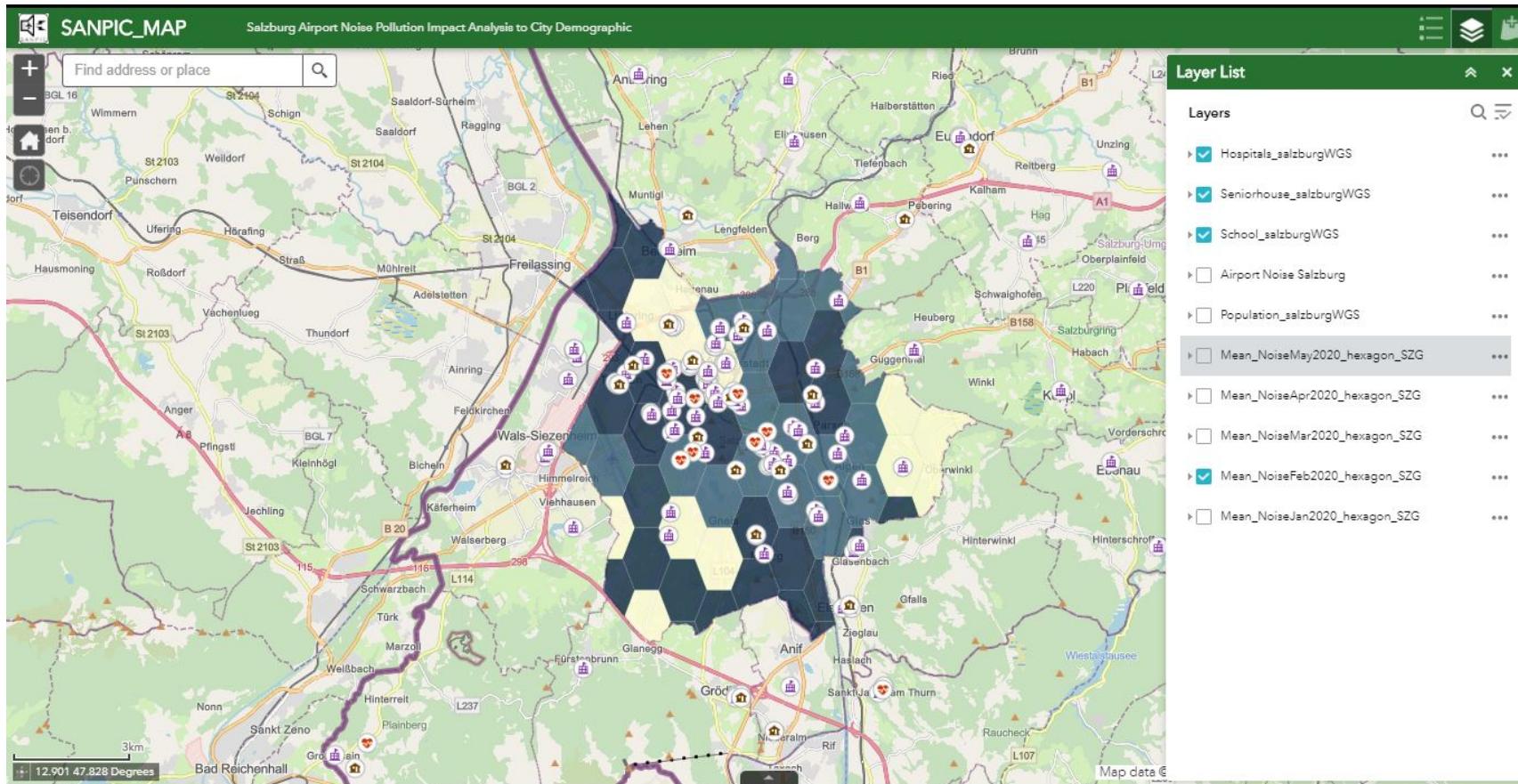


Salzburg Airport Noise from Maxglan-Sud in the last 24 hours



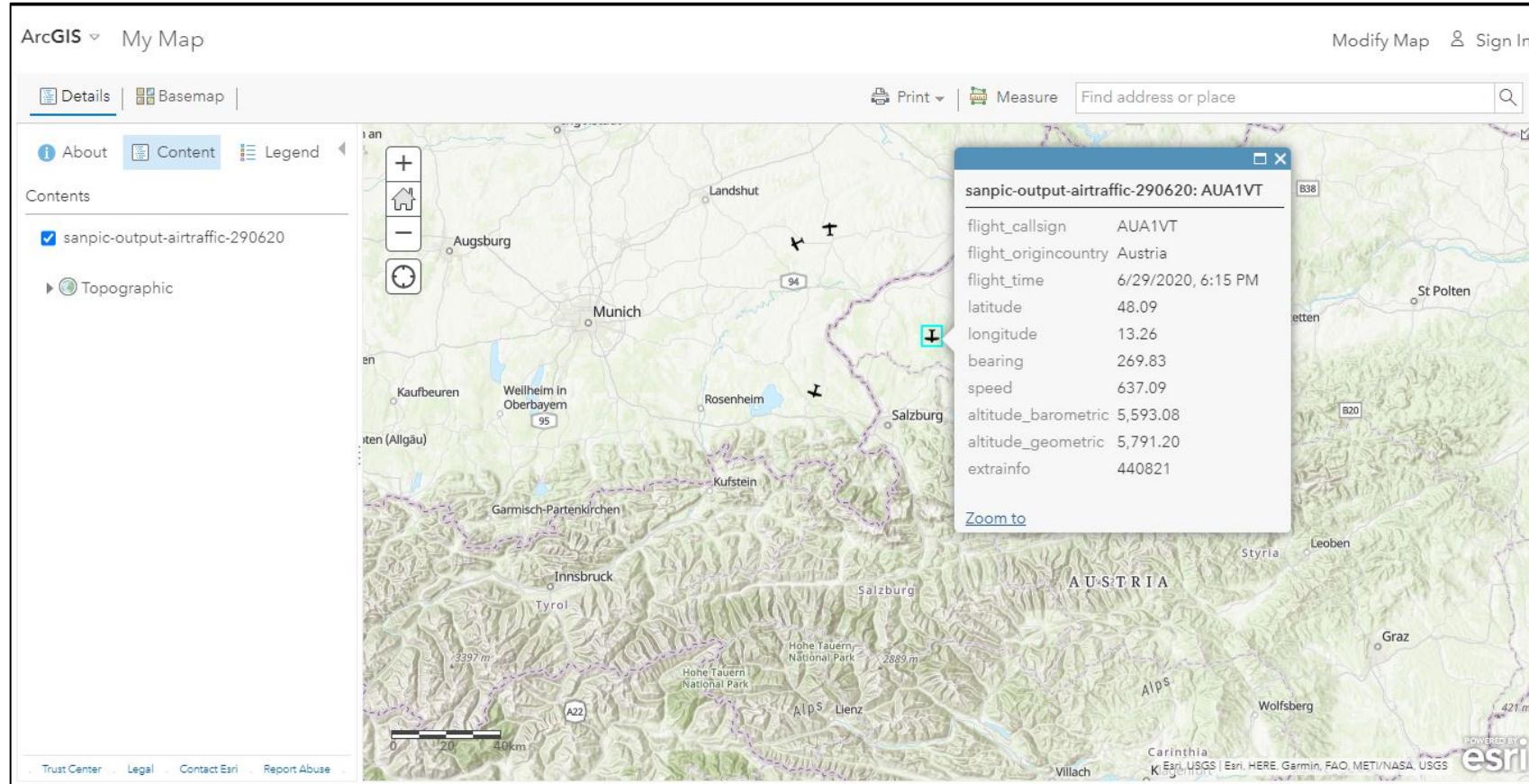
Mean Airplane Noise for the historical data ranging from January to May 2020

DASHBOARD (<http://arcg.is/GeOun>)



Interactive Webmap App with features such as showing and adding layers.

DASHBOARD (<http://arcg.is/GeOun>)



Just to show that we accessed the real-time flights around Salzburg.

DASHBOARD (<http://arcg.is/GeOun>)

[WFS Get Capabilities Request Link](#)

[WMS/REST Noise January Request Link](#)

[WMS/REST Noise February Request Link](#)

[WMS/REST Noise March Request Link](#)

[WMS/REST Noise April Request Link](#)

[WMS/REST Noise May Request Link](#)

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[WMS/REST Noise March Request Link](#)

[WMS/REST Noise April Request Link](#)

[WMS/REST Noise May Request Link](#)

Links to guide users to the OGC Web services

DASHBOARD



DEMO

(<http://arcg.is/GeOun>)

RECOMMENDATIONS



Add more stations of the Salzburg Airport noise data, historical airplane data and noise



Increase the degree of automation (e.g. using more scripting languages)



Integrate the whole system in one platform as much as possible



Add more analysis and features (e.g. impact of noise to each public facility or demographic)

E N D



S A N P I C

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demographics



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