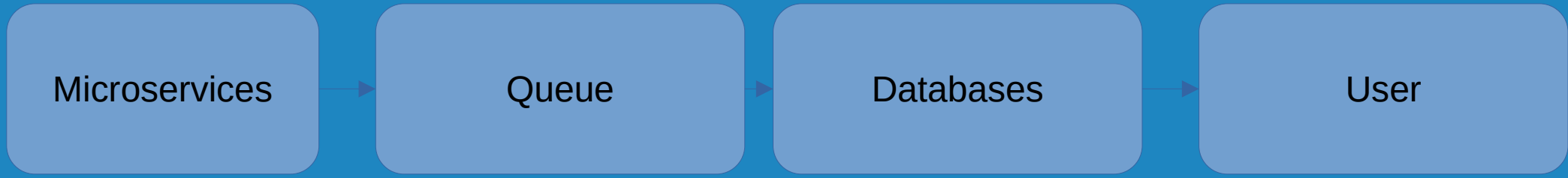
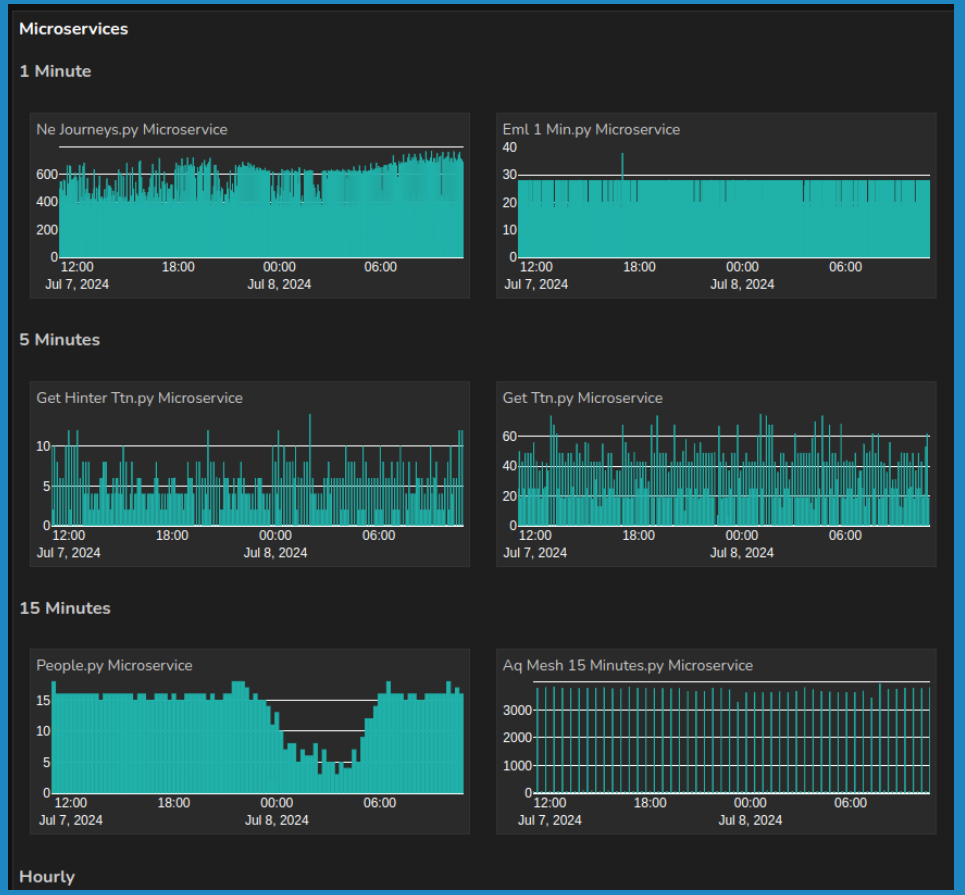
UO System


Microservices
Queue
Databases
User

Microservices

13 scheduled python scripts

GET requests to both 3rd party and sensor supplier APIs



Queue

- RabbitMQ

Queues

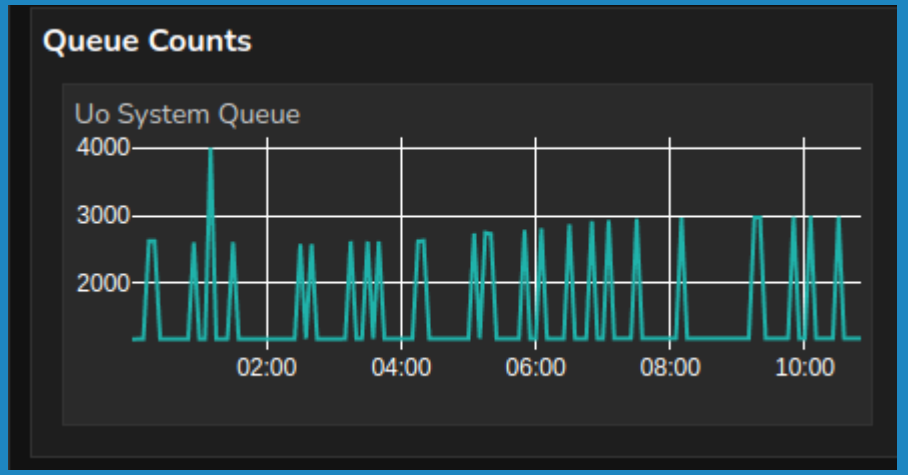
All queues (16)

Pagination

Page 1 of 1 - Filter: Regex ?

Overview				Messages			Message rates			+/-
Name	**Type**	Features	**State**	**Ready**	**Unacked**	**Total**	**incoming**	**deliver / get**	**ack**	
city.city_archive	classic		idle	0	0	0				
city.city_live	classic		idle	0	0	0	0.00/s			
city.sensor_data	classic		running	0	0	0		0.00/s	0.00/s	
fanned_archive_city_data	classic	D Args	idle	1,796	0	1,796	0.00/s	0.00/s	0.00/s	
fanned_city_data	classic	D Args	running	0	0	0	0.00/s	0.00/s	0.00/s	
microservice_setup	classic		idle	661	0	661	0.00/s			
nifi	classic		idle	0	0	0				
uo.dup_channel	classic		running	530	0	530	0.00/s	106/s	0.00/s	
uo.insert_channel	classic		running	0	0	0	0.00/s	0.00/s	0.00/s	
uo.live_row_update	classic		running	0	0	0	0.00/s	0.00/s	0.00/s	
uo.live_table_update	classic		running	0	0	0	0.00/s	0.00/s	0.00/s	
uo.microservices_setup	classic		idle	0	0	0				
uo.new_sensors	classic		running	0	0	0	0.00/s	0.00/s	0.00/s	
uo.script_run	classic		running	0	0	0	0.20/s	0.20/s	0.20/s	
uo.script_run_time	classic		running	0	0	0	0.00/s	0.00/s	0.00/s	
uo.skipped_channel	classic		idle	0	0	0	0.00/s	0.00/s	0.00/s	

Add a new queue

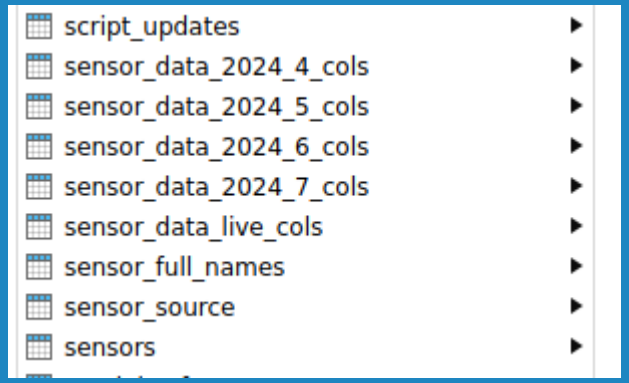


Databases

- ~~We don’t need columns {key:values}~~
- Columns are useful

Databases

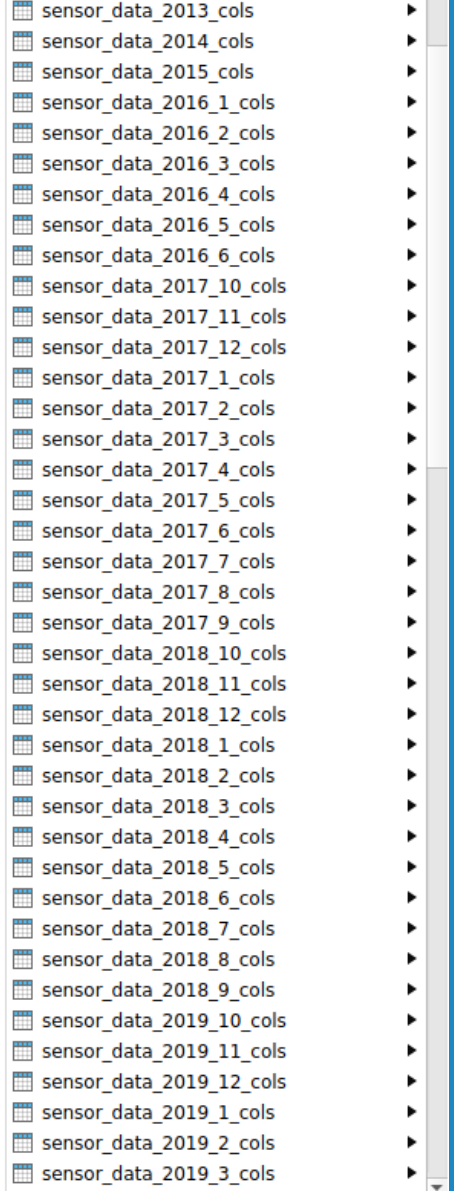
- Postgresql + PostGIS
- Python brokers



Databases

Archive DB

Temporal Aggregates



- Archive rows

  3,963,995,675
- Live rows

  78,655,283

UO API v1.1

Raw Sensor Data

Get Sensors

GET
https://newcastle.urbanobservatory.ac.uk/api/v1.1/sensors/data/json/

Parameters

Data

Data Variable
Variables to retrieve data for

Field	Format	Example
data_variable	Text	Temperature

Time Slice

Last n days
Selects Data from the last n days

Field	Format	Example
last_n_days	Integer	3

Start & End Times
Time slice for which data in queried

Field	Format	Example
starttime	strftime "%Y%m%d%H%M%S" or "%Y%m%d" (http://strftime.org/)	20150101
endtime	strftime "%Y%m%d%H%M%S" or "%Y%m%d" (http://strftime.org/)	20160101

Sensor Type

urban observatory
evidence for change

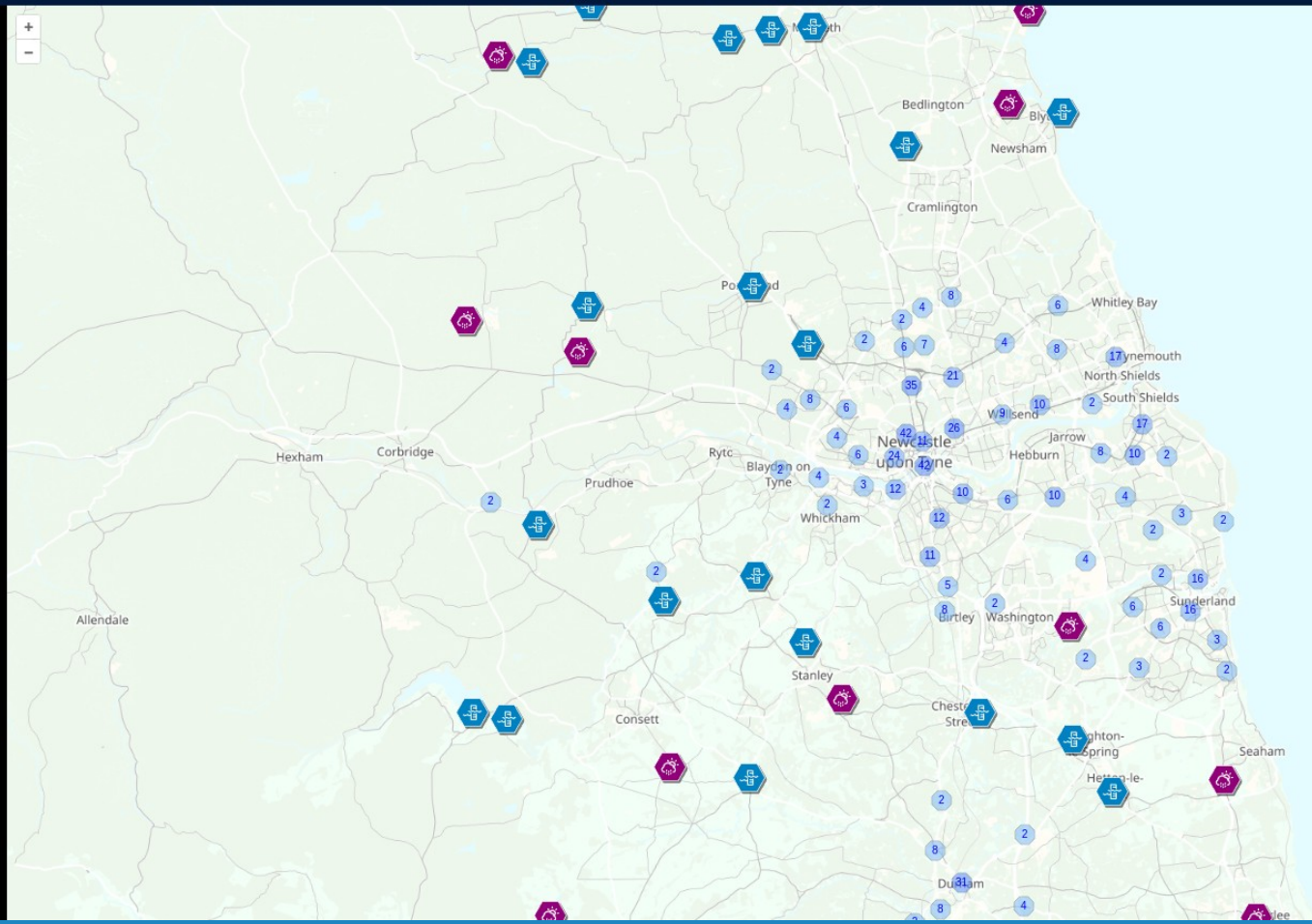
Portal | Graphs | API | Data | Dashboards

Sensor Clusters

- 2-9
- 10-24
- 25-49
- 50+

Sensors

- Air Quality
- Building
- People
- Sensor Metrics
- Vehicles
- Water Level
- Water Quality
- Weather



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Portal | Graphs | API | Data | Dashboards

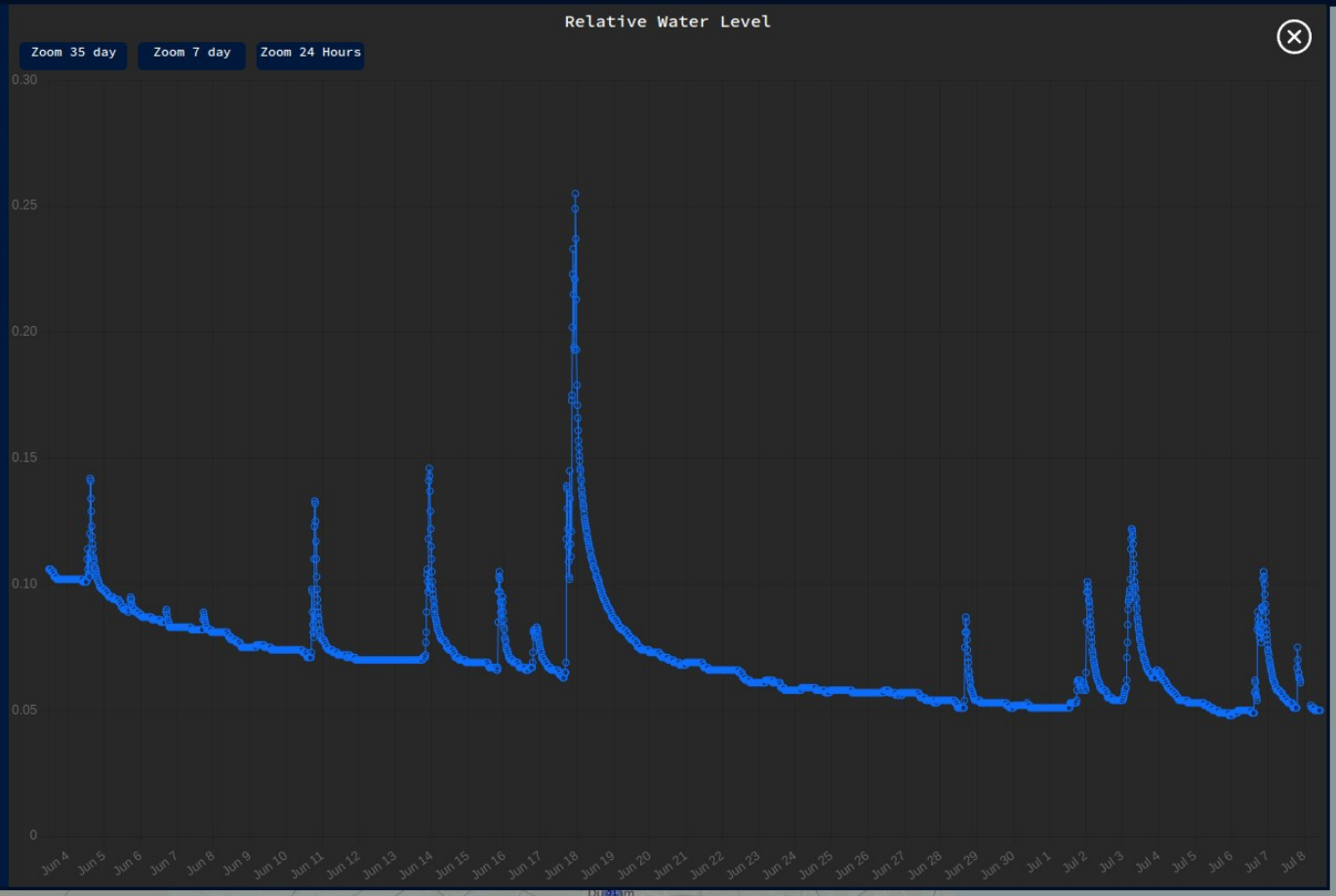
Sensors

PER_ENVIRONMENT_EA_023018

Water Level Data

	Relative Water Level	0.05 m	11:30:00 8 Jul 2024
	Water Level	63.37 m	11:30:00 8 Jul 2024

View Sensor Page



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Graphs

Portal | Graphs | API | Data | Dashboards

PER_AIRMON_MONITOR915

PER_AIRMON_MONITOR914

PER_AIRMON_MESH1761150

PER_AIRMON_MESH1910150

PER_AIRMON_MESH1915150

PER_AIRMON_MESH1916150

PER_AIRMON_MESH1919150

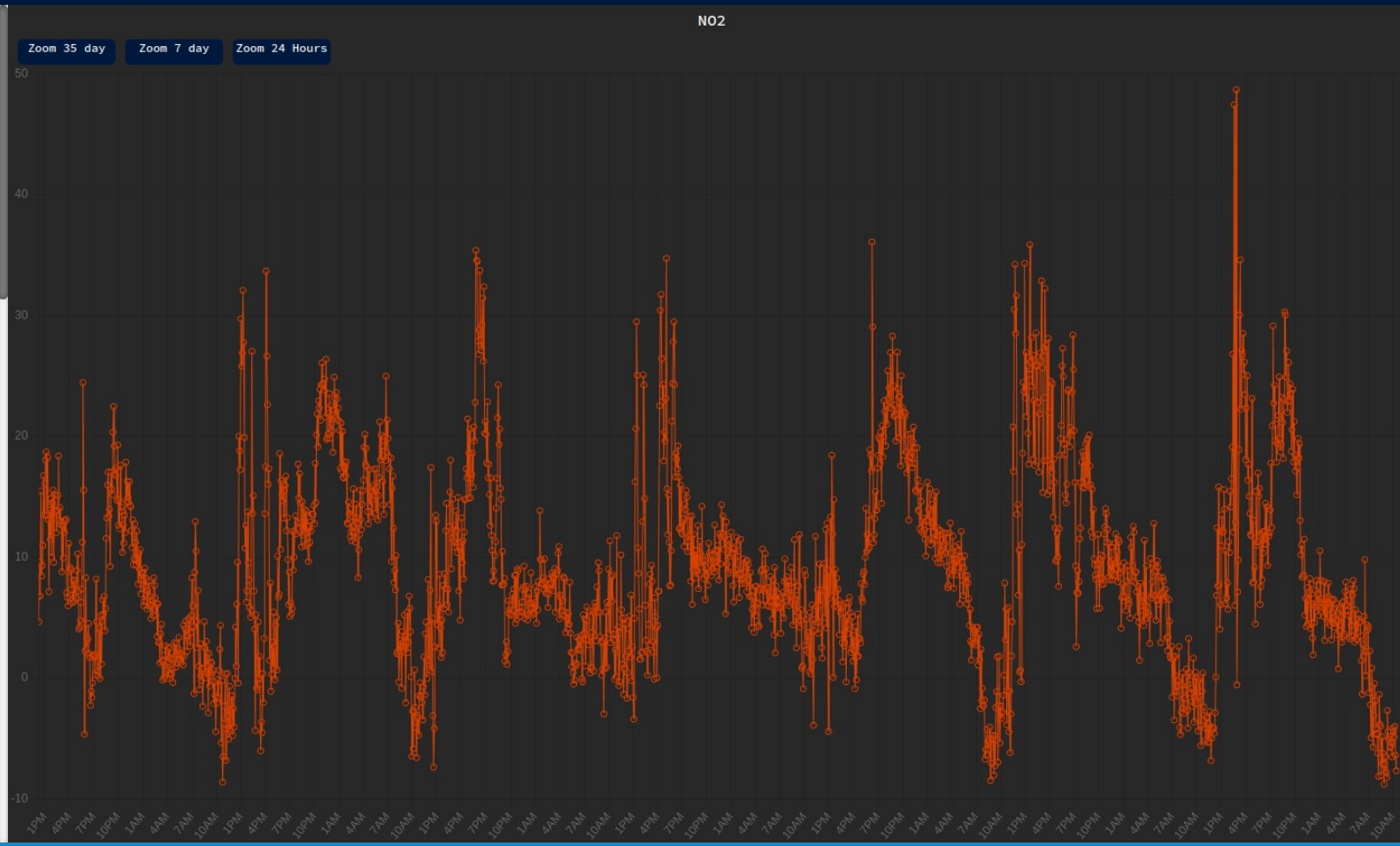
PER_AIRMON_MESH1922150

PER_AIRMON_MONITOR1048100

PER_AIRMON_MONITOR1056100

PER_AIRMON_MESH1957150

PER_AIRMON_MESH1964150



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Portal | Graphs | API | Data | Dashboards

Last 35 Days

Raw Archive Data

Aggregated Data

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evidence for change

Portal | Graphs | API | Data | Dashboards

Air Quality

- CO
- CO2
- NO
- NO2
- NOx
- O3
- PM 4
- PM1
- PM10
- PM2.5
- Particle Count
- VOC

Building

- Internal Humidity
- Internal Temperature

People

- Walking

Sensor Metrics

- Battery

Vehicles

- Journey Time
- Plates In
- Plates Matching
- Plates Out

Water Level