



ANALYTHIUM

KHALID LEMZOUJI
SENIOR ENVIRONMENTAL STATISTICIAN

CLOUD BASED INTERACTIVE APP FOR GW STATISTICAL TRENDING OVER TIME AND SPACE
(I.E., HOLISTIC PLUME EVALUATION)

WHO WE ARE

analythium.io



BLOG CONTACT

COVID-19

Check the app with daily updates!

Data science and ML solutions

Analythium empowers organizations to make data-driven decisions and boost operational efficiency by providing innovative data analytics, machine learning, and managed services solutions

SEE OUR DEMO APPS



WHAT WE DO

Our approach

Analythium's 4-step Discover—Enable—Act—Repeat (DEAR) approach maximizes ROI by positioning our data science and analytics solutions to best serve the unique requirements of your business

Discover

Identify high-value initiatives and ensure alignment with business needs through design thinking based discovery and prioritization

Enable

Establish robust foundation for advanced analytics by building scalable and automated data workflows to collect, store, and transform data

Act

Gain actionable insights through interactive data visualization, reduce your current and future risk by applying statistics, AI/ML, and optimization

Repeat

Integrate solutions into your existing infrastructure or use our managed services to realize business value in a repeatable manner

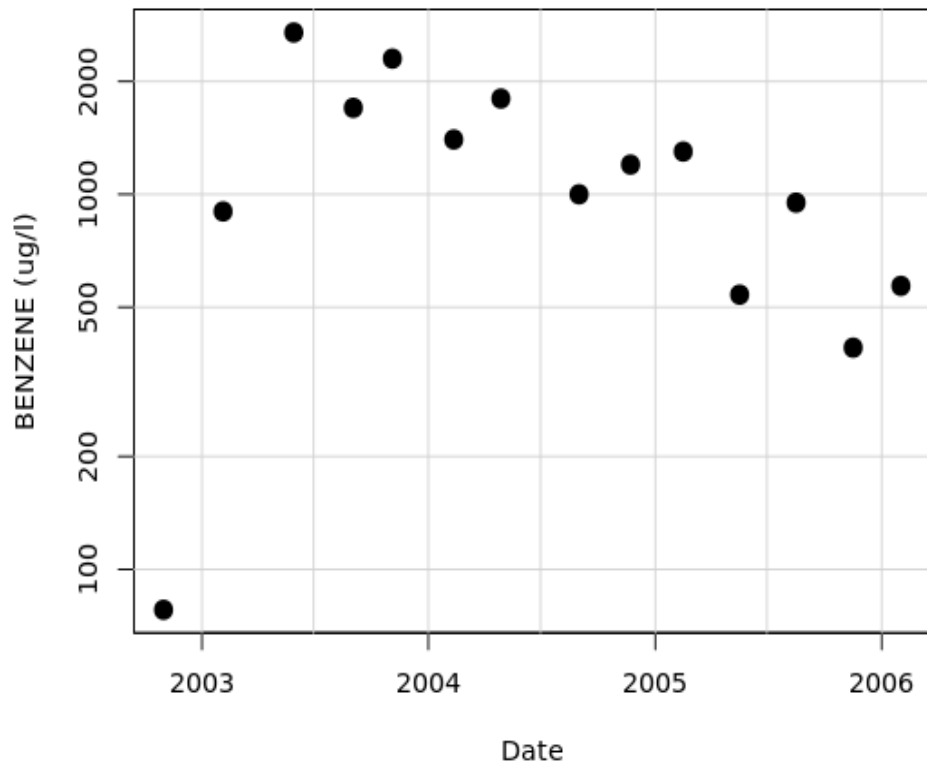
GW MONITORING VIA A SIMPLE WIDGET

Our Objective was to make the GW trending for our clients **SIMPLE** via a simple, standardized plots and tables created at the 'click of a mouse.

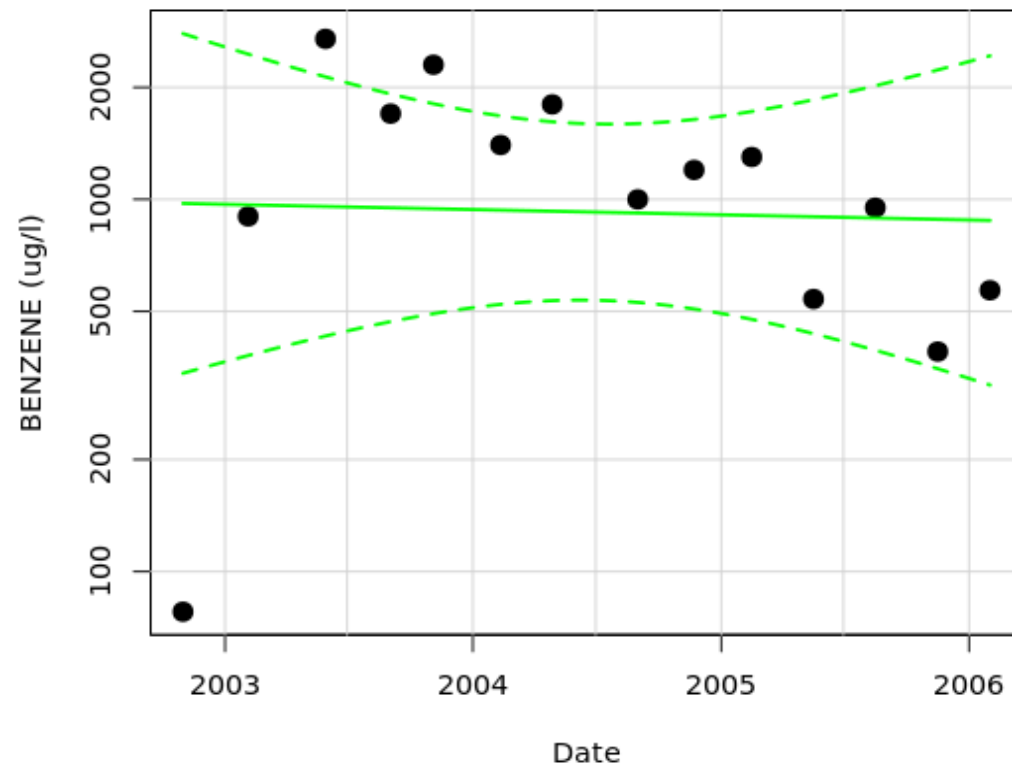


GW TRENDING: PREVIOUS PROCESS

MW-01



Mann-Kendall P-Value = 0.1 = No Trend

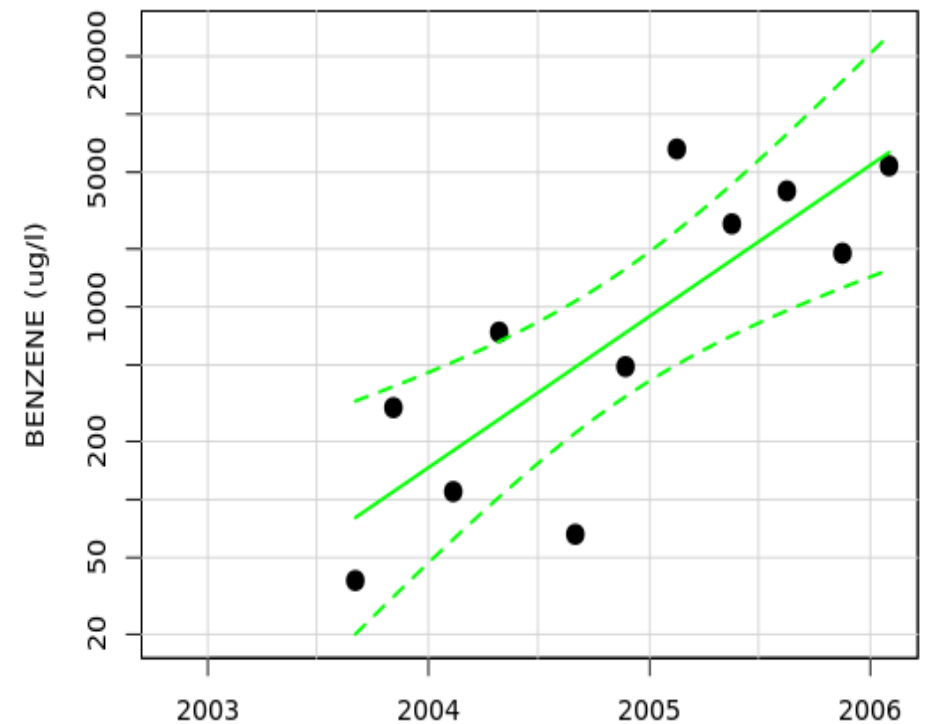


OBJECTIVE: WHERE IS THE RISK?

	<i>Benzene</i>	Toluene	<i>Xylene</i>
MW-1			
MW-2			
MW-3			
MW-..			

Big Picture

Mann-Kendall P-Value = 0.01 = Trend



Details

WHERE IS THE RISK?

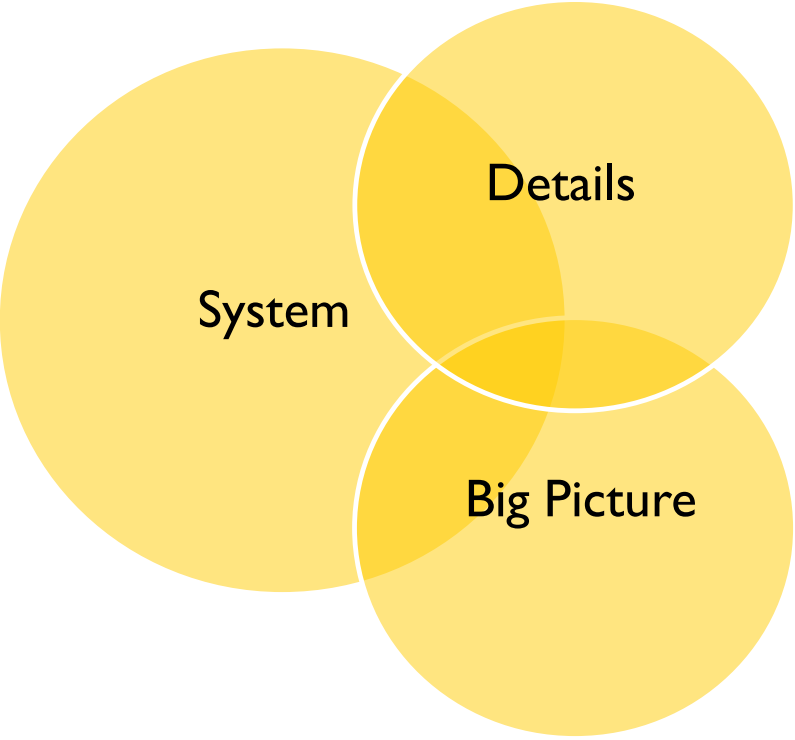
Site	# GW Wells	# Of Constituents
Site 1	3	15
Site 2	10	50
Site 3	25	125



HOW TO IDENTIFY IT ?

Lab Report/ ESdat

Source/Region	lat	long	AREA	STATE	COUNTY	ZIP	ZIP4	ZIP5	ZIP9
Albuquerque	35.0811	-106.4750							
Albany	41.1511	-85.8690							
Albany	40.8511	-85.8690							
Albany	41.0811	-85.8690							
Albany	40.9011	-85.8690							
Albany	40.7211	-85.8690							
Albany	40.5411	-85.8690							
Albany	40.3611	-85.8690							
Albany	40.1811	-85.8690							
Albany	39.9911	-85.8690							
Albany	39.8111	-85.8690							
Albany	39.6311	-85.8690							
Albany	39.4511	-85.8690							
Albany	39.2711	-85.8690							
Albany	39.0911	-85.8690							
Albany	38.9111	-85.8690							
Albany	38.7311	-85.8690							
Albany	38.5511	-85.8690							
Albany	38.3711	-85.8690							
Albany	38.1911	-85.8690							
Albany	38.0111	-85.8690							
Albany	37.8311	-85.8690							
Albany	37.6511	-85.8690							
Albany	37.4711	-85.8690							
Albany	37.2911	-85.8690							
Albany	37.1111	-85.8690							
Albany	36.9311	-85.8690							
Albany	36.7511	-85.8690							
Albany	36.5711	-85.8690							
Albany	36.3911	-85.8690							
Albany	36.2111	-85.8690							
Albany	36.0311	-85.8690							



EXISTING SOLUTIONS

Software Package	Management System for several GW site	Statistical Trending	Simplicity / Interactivity	Save and Share	Integrable with existing database/system	Annual Cost in \$
Pro_UCL		X				0
Systat		X				0
PowerBI/ Excel			X		X	
JMP		X	X		X	1500
Analythium	X	X	X	X	X	1000

OUR SOLUTION

← → ↻ 🏠 analythium.io/login 🔍 📄 ☆



[BLOG](#) [CONTACT](#)

Sign In

Username

khalid@analythium.io

Password

••••••••

Sign In

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← → ↻ 🏠 apps.analythium.io/app/gw

Analythium

Site Management

Analysis

Sharing

Import CSV Data

Select the contaminant data and well

Data Name

EnviroTech

Contaminant Data File

Browse...

2.Chemicals.csv

Upload complete

Well Coordinates File

Browse...

1.Coordinate.csv

Upload complete

EXAMPLE

Coordinates

WellName	XCoord	YCoord	Aquifer
04-MW12	804147.097	5745372	A
04-MW13	804149.386	5745375	A
04-MW14	804151.676	5745379	A
04-MW15	804153.355	5745373	A
04-MW16	804157.323	5745372	A
04-MW17	804161.597	5745369	A
04-MW18	804166.329	5745368	A
04-MW19	804170.45	5745366	A
98-MW1	804085.66	5745399	A
98-MW10	804143.281	5745371	A
98-MW11	804107.64	5745379	A

+

Constituents

WellName	Constituent	SampleDate	Result
04-MW12	Anthracene	10/27/1998	0.0023
04-MW13	Anthracene	10/27/1998	0.0005
04-MW14	Anthracene	6/1/2000	< 0.0001
04-MW15	Anthracene	6/1/2000	< 0.0001
04-MW16	Anthracene	10/27/2000	< 0.0001
04-MW17	Anthracene	10/27/2000	< 0.0001
04-MW18	Anthracene	6/18/2001	< 0.0001
04-MW19	Anthracene	6/18/2001	< 0.0001
98-MW1	Anthracene	9/28/2001	< 0.0001
98-MW10	Anthracene	9/28/2001	< 0.0001
98-MW11	Anthracene	5/2/2002	< 0.0001

MANGE THE DATA (MANAGE, SAVE AND SHARE)

The screenshot shows the Analythium web application interface. The browser address bar displays 'apps.analythium.io/app'. The top navigation bar includes the 'Analythium' logo and the user name 'Khalid Lemzouj'. A dark sidebar on the left contains three menu items: 'Site Management' (with a folder icon), 'Analysis' (with a bar chart icon), and 'Sharing' (with a network icon). The main content area displays three site entries, each with a 'Delete' and 'Edit' button:

- Site AB - 1
- Site AB - 2
- EnviroTech



The screenshot shows the Analythium web application interface with a data table. The browser address bar displays 'apps.analythium.io/app'. The top navigation bar includes the 'Analythium' logo and the user name 'Khalid Lemzouj'. The sidebar on the left shows 'Site Management', 'Analysis', and 'Sharing' menu items. The main content area displays a table with the following data:

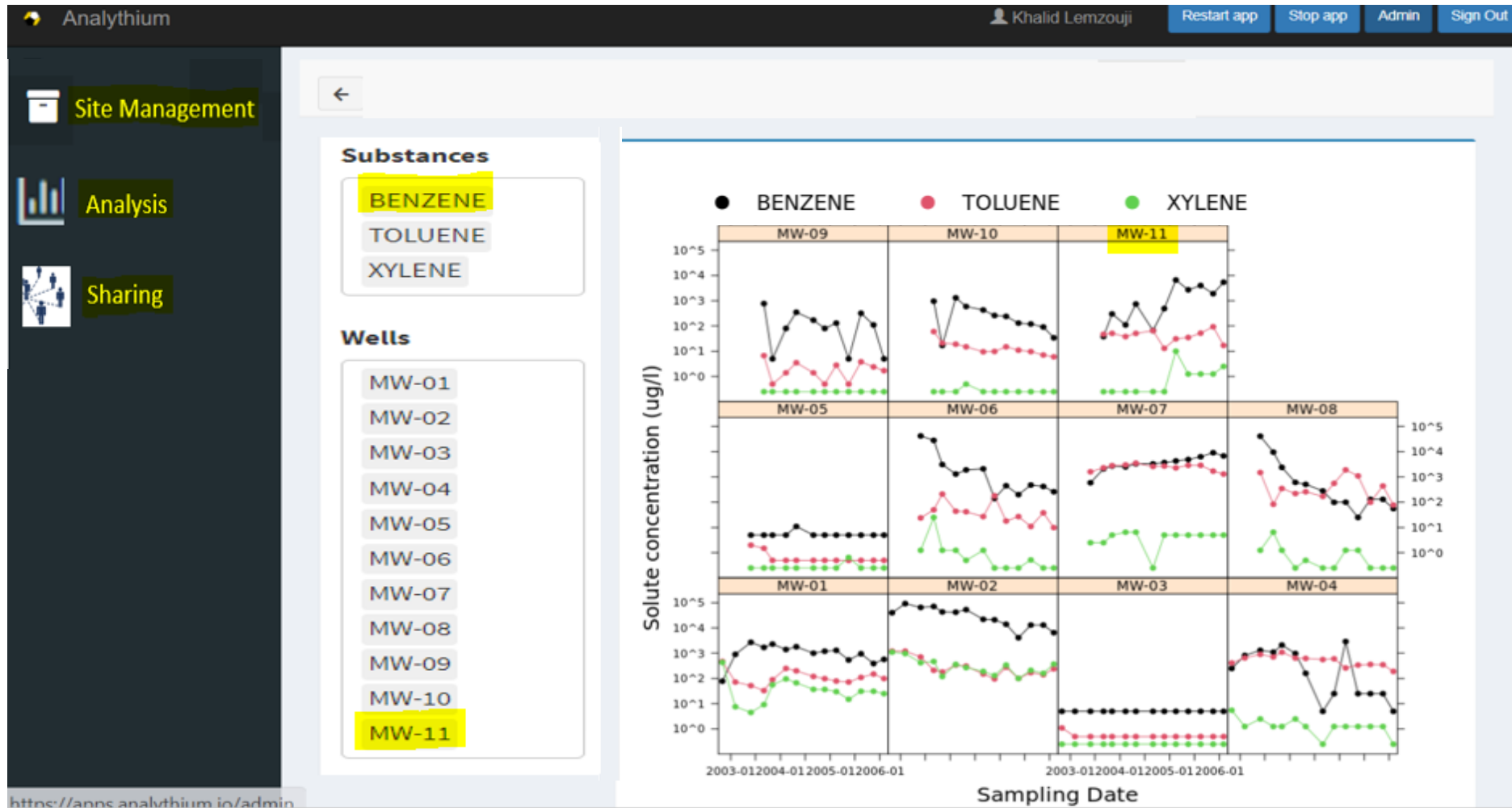
	WellName	Constituent	SampleDate	Result
1	MW-01	BENZENE	10/31/2002	78
2	MW-01	GW	10/31/2002	92.23
3	MW-01	TOLUENE	10/31/2002	470
4	MW-01	XYLENE	10/31/2002	430
5	MW-02	BENZENE	10/31/2002	40000
6	MW-02	GW	10/31/2002	92.3
7	MW-02	TOLUENE	10/31/2002	1200
8	MW-02	XYLENE	10/31/2002	1100
9	MW-03	BENZENE	10/31/2002	ND<10
10	MW-03	GW	10/31/2002	94.43

BIG PICTURE

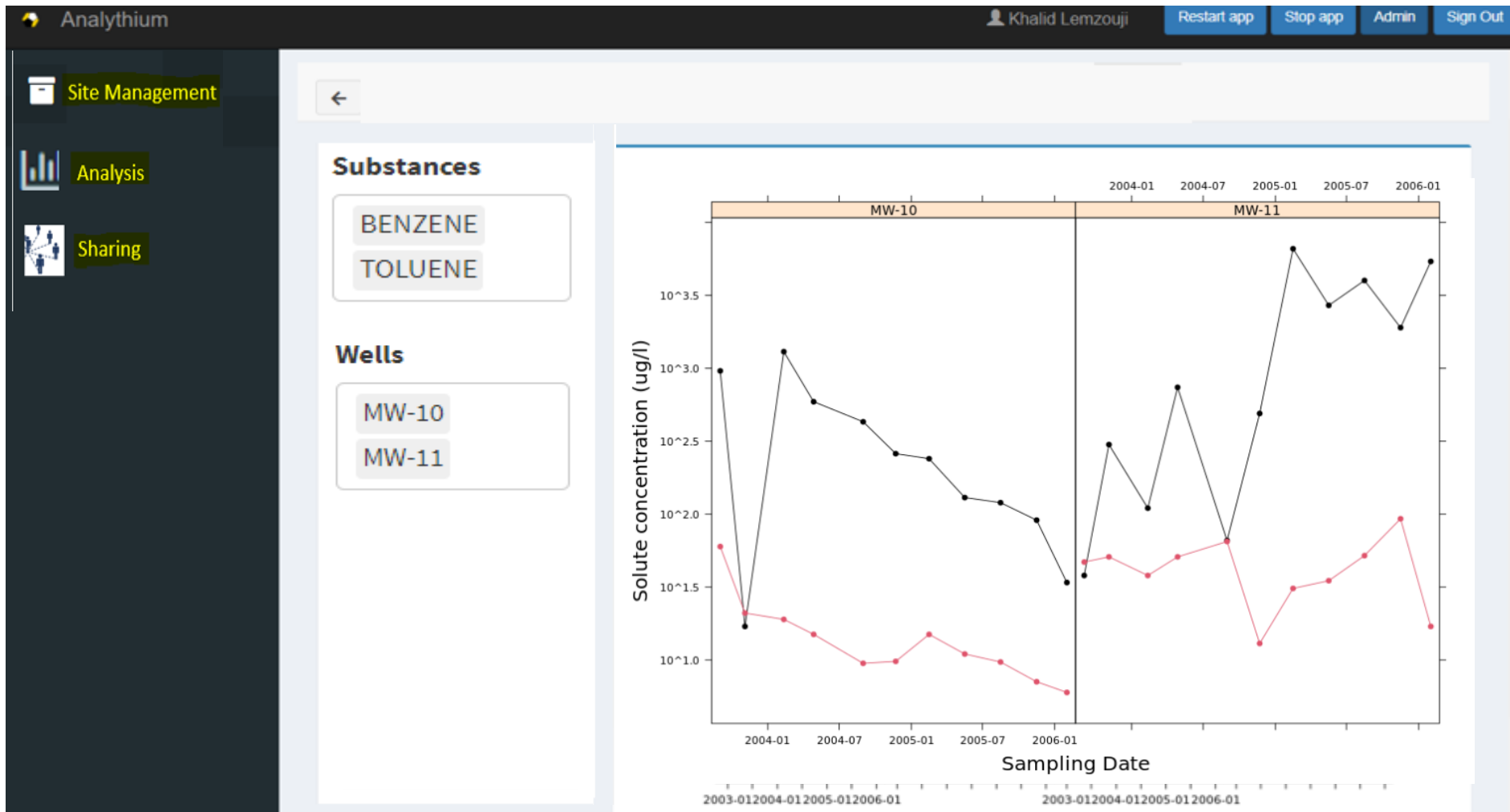
The screenshot shows the Analythium web application interface. The browser address bar displays `apps.analythium.io/app/gw`. The application header includes the name "Analythium" and the user name "Khalid Lemzouj". A green navigation bar contains the text "GroundWater" and a menu icon. A dark sidebar on the left lists three main sections: "Site Management", "Analysis", and "Sharing", each with a corresponding icon. The main content area is divided into two panels. The left panel features a section titled "Aggregate by" with a dropdown menu currently set to "Month". The right panel is titled "Trends & Thresholds" and displays a table for the period "Trend, 02-Jan-2006 to 01-Feb-2006".

	BENZENE	TOLUENE	XYLENE
MW-01	Green	White	White
MW-02	Green	White	White
MW-03	Blue	Blue	Blue
MW-04	Blue	Light Green	Blue
MW-05	Blue	Blue	Blue
MW-06	Green	Light Green	Blue
MW-07	Orange	Green	Blue
MW-08	White	White	Blue
MW-09	Green	White	Blue
MW-10	Green	Light Green	Blue
MW-11	Red	White	Blue

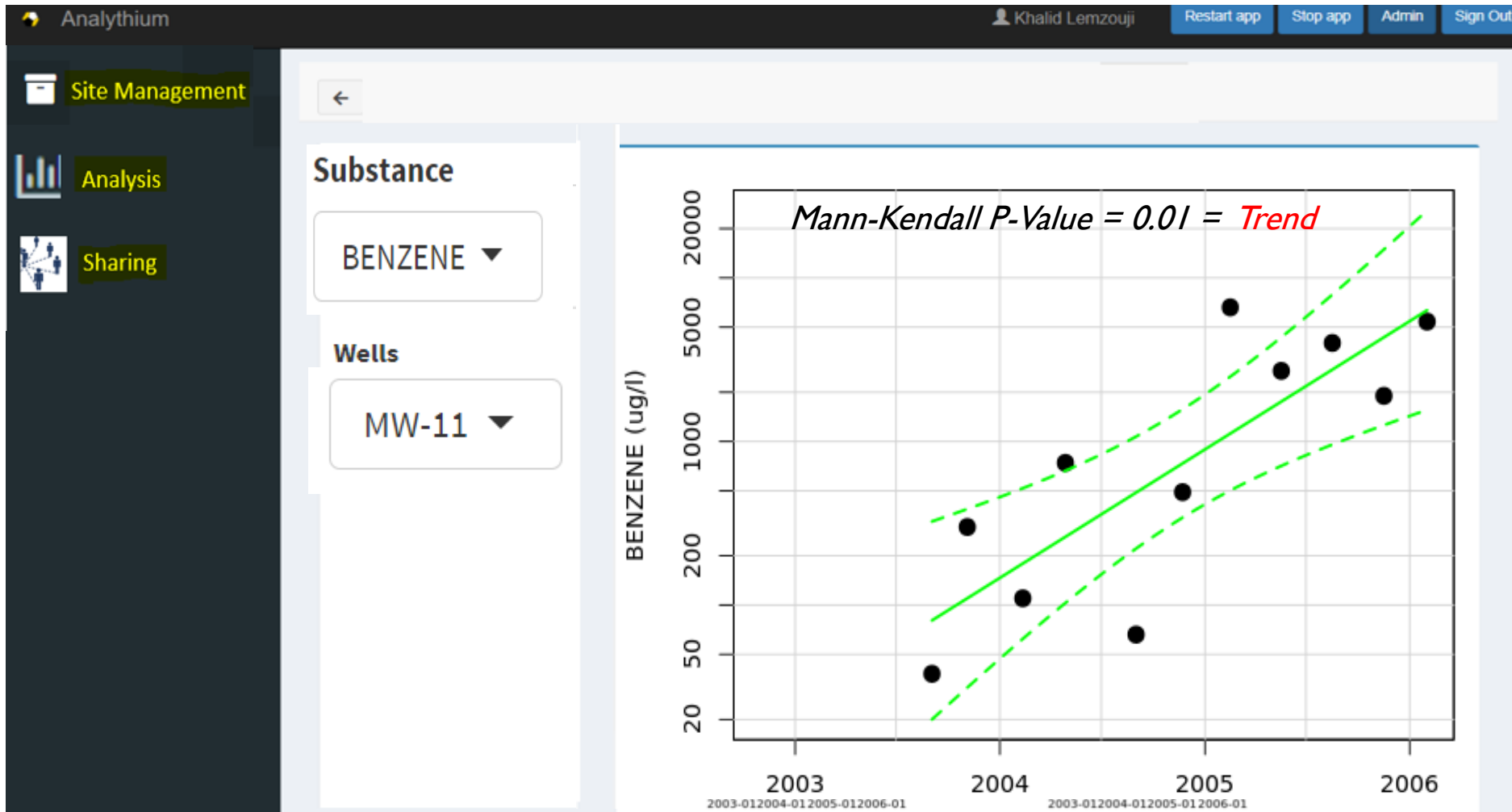
BIG PICTURE



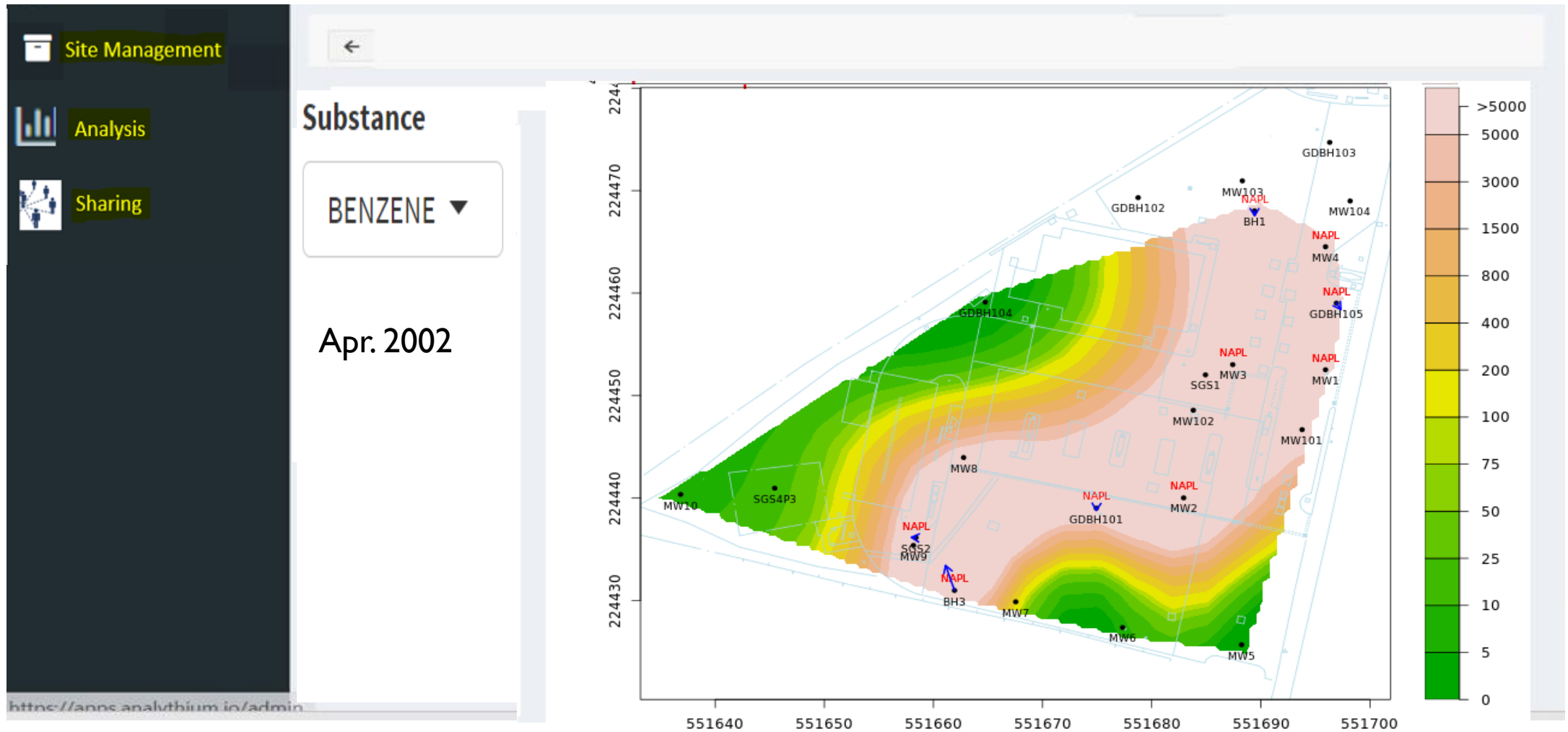
DETAILS



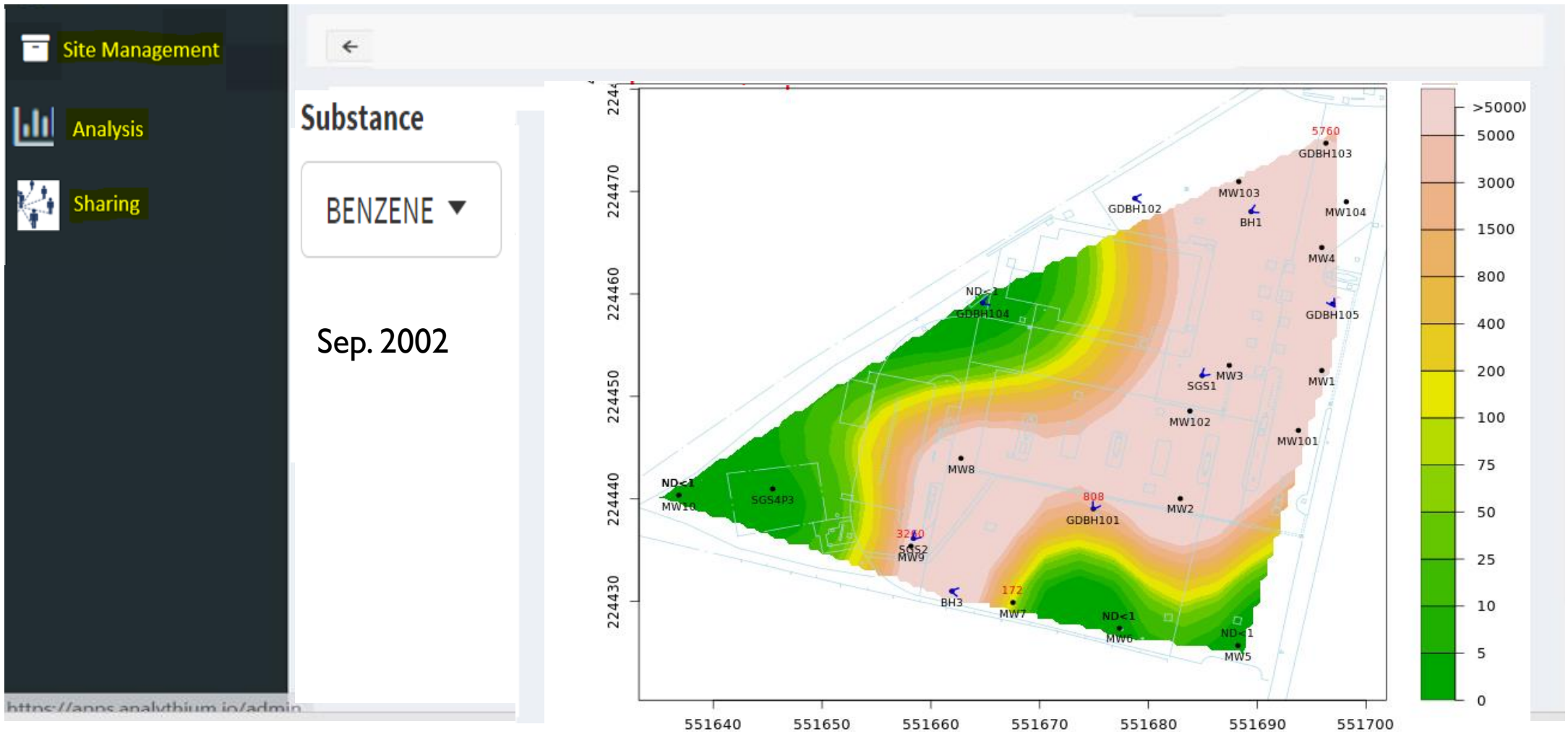
DETAILS



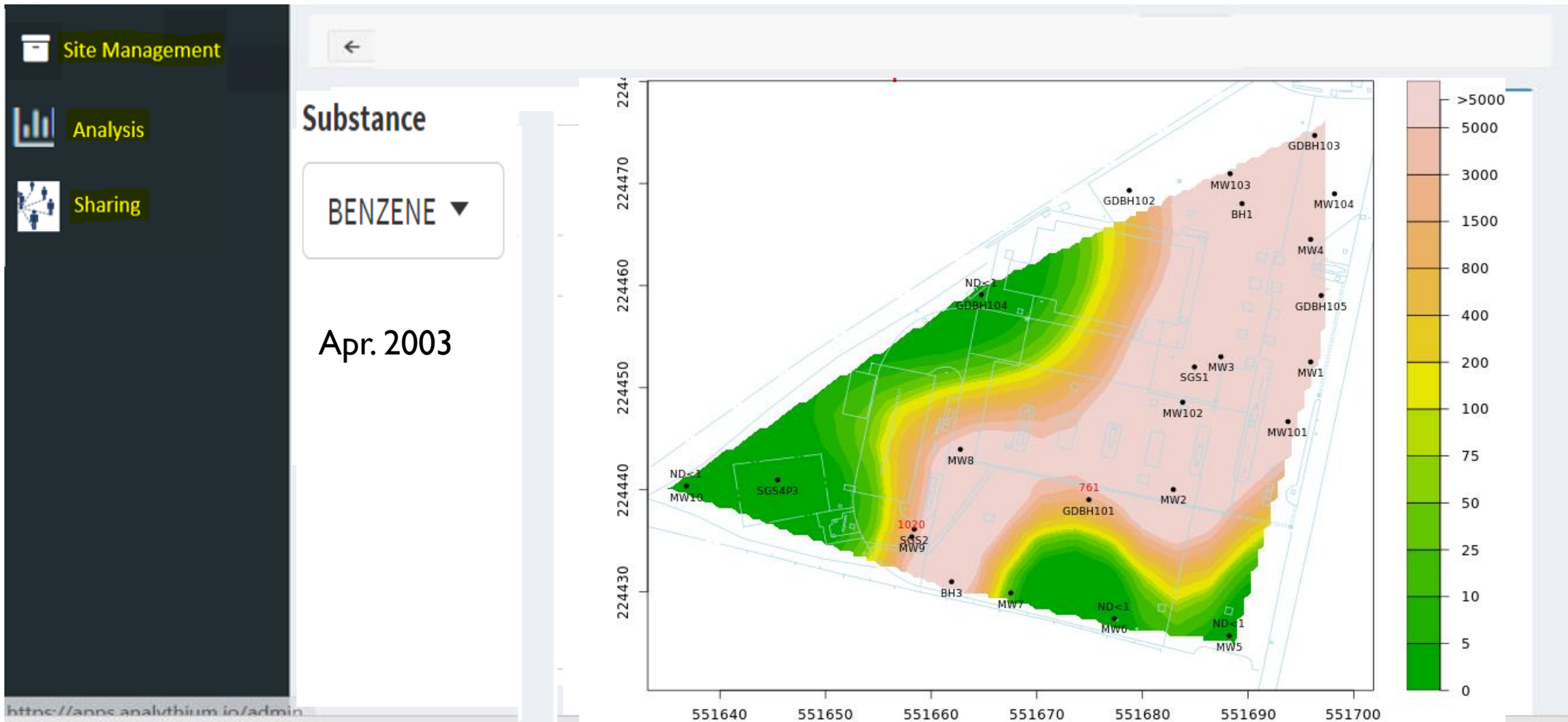
BIG PICTURE



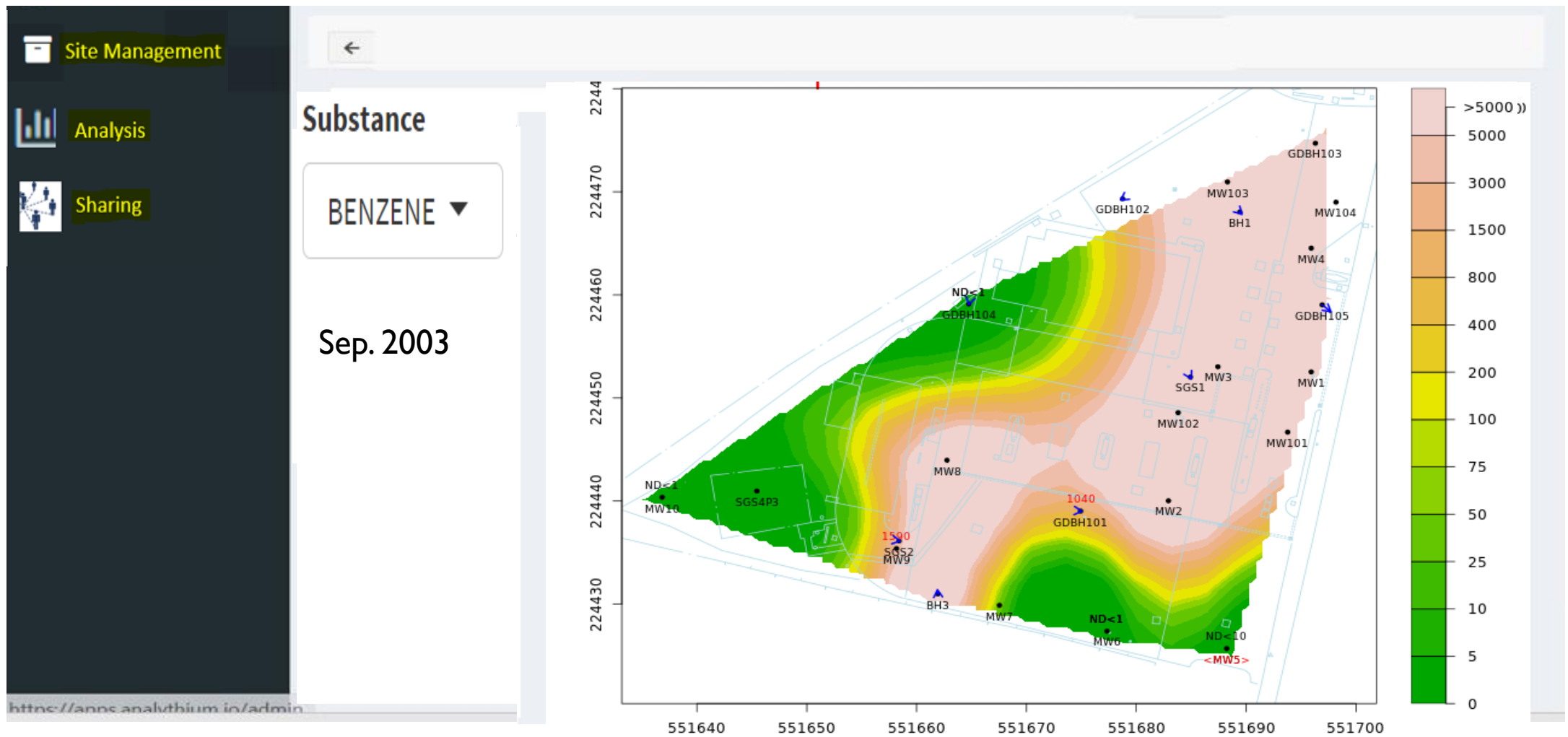
BIG PICTURE



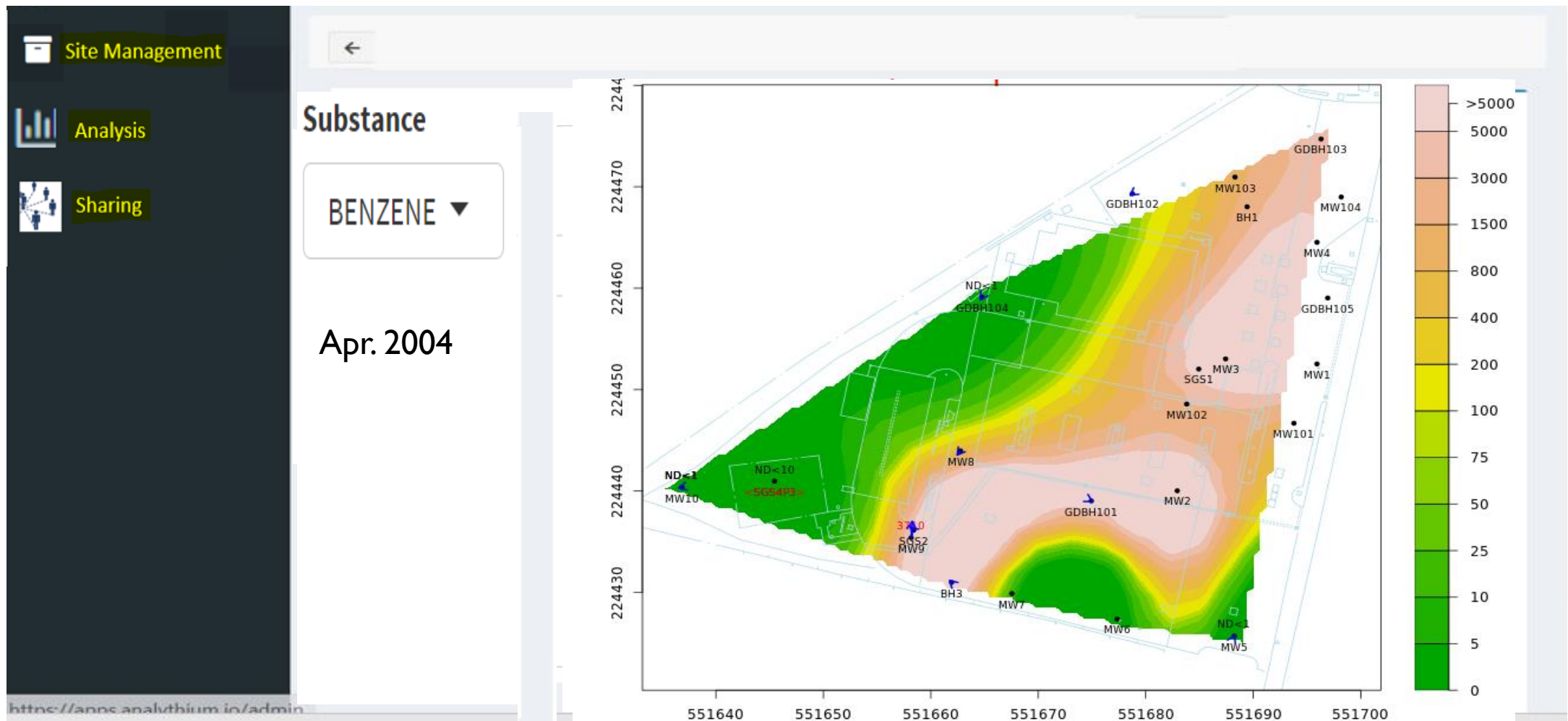
BIG PICTURE



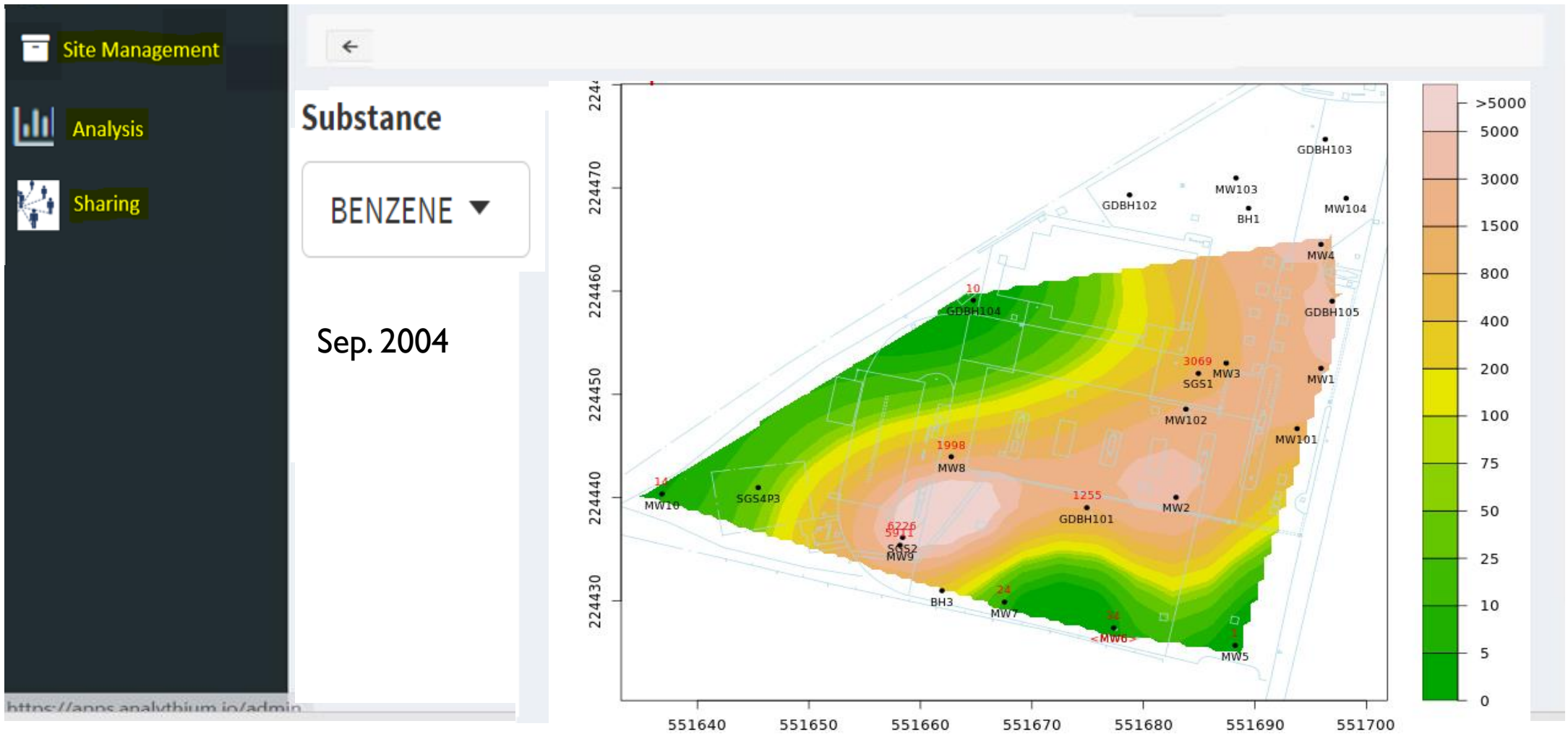
BIG PICTURE



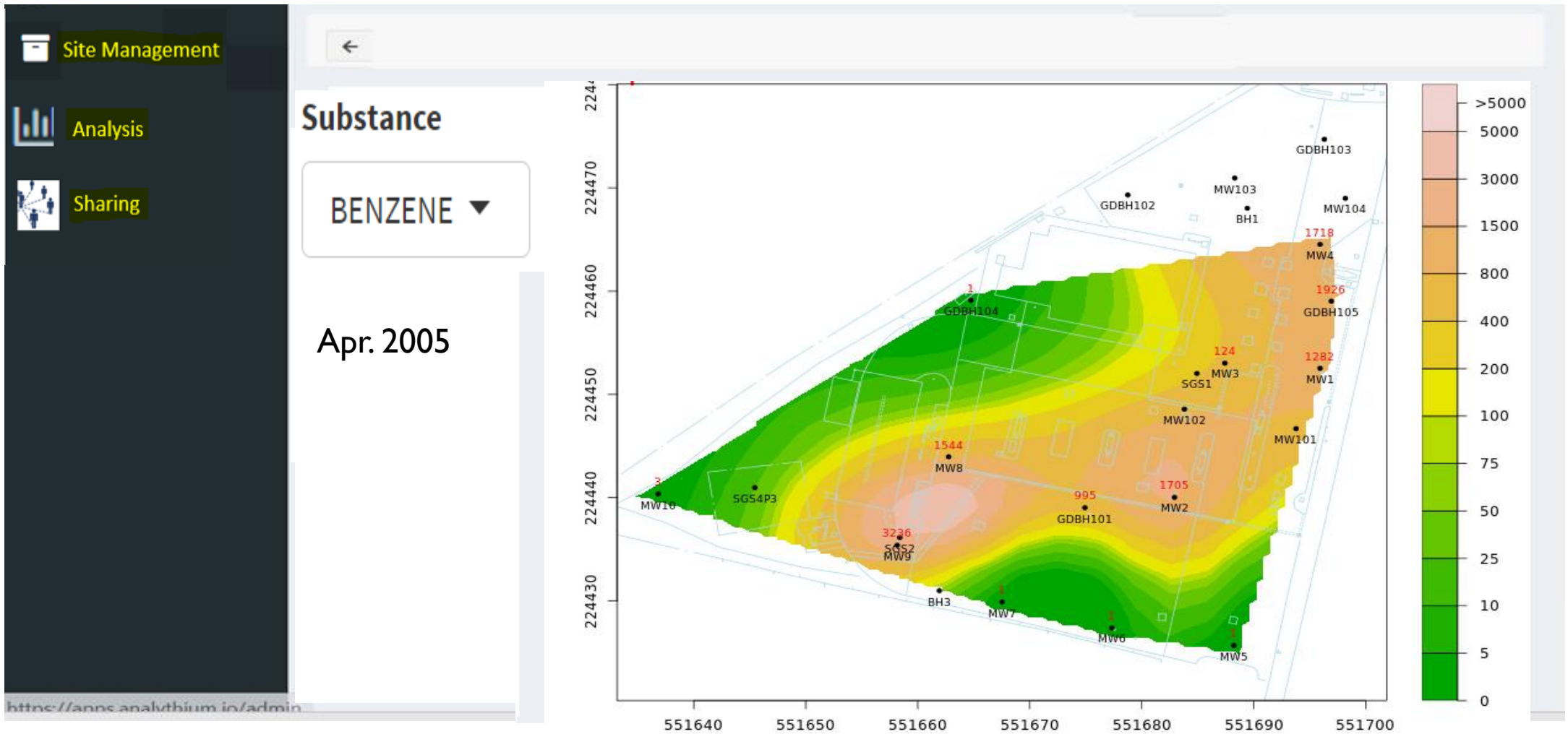
BIG PICTURE



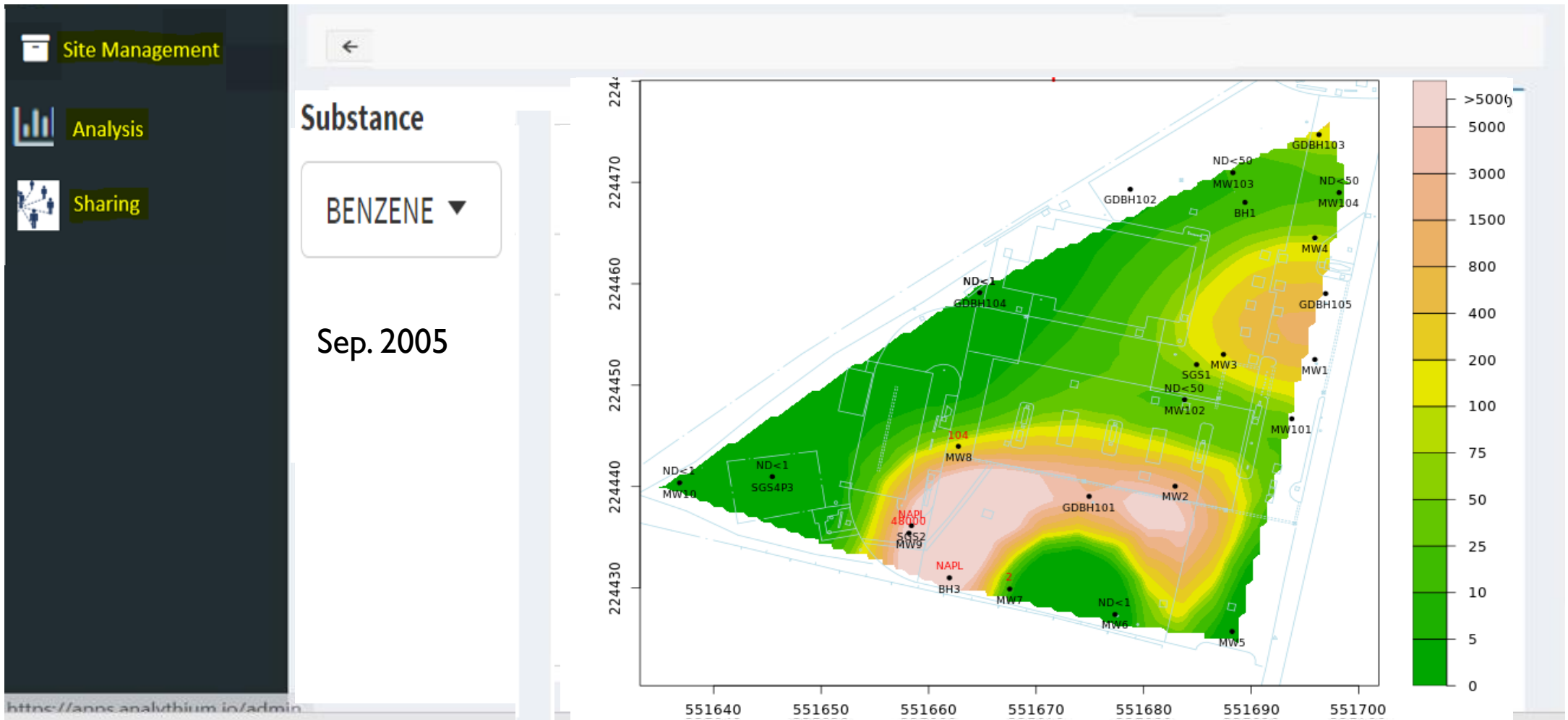
BIG PICTURE



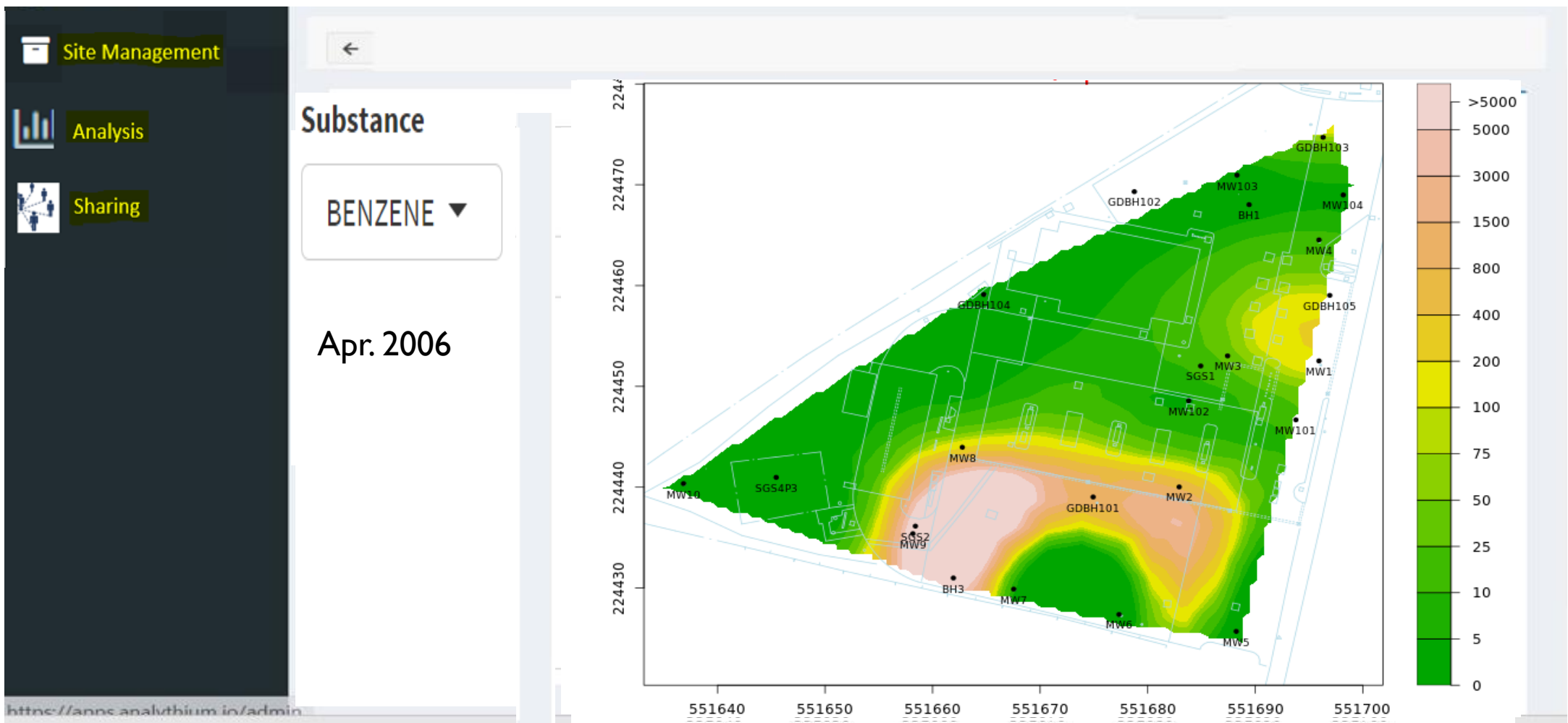
BIG PICTURE



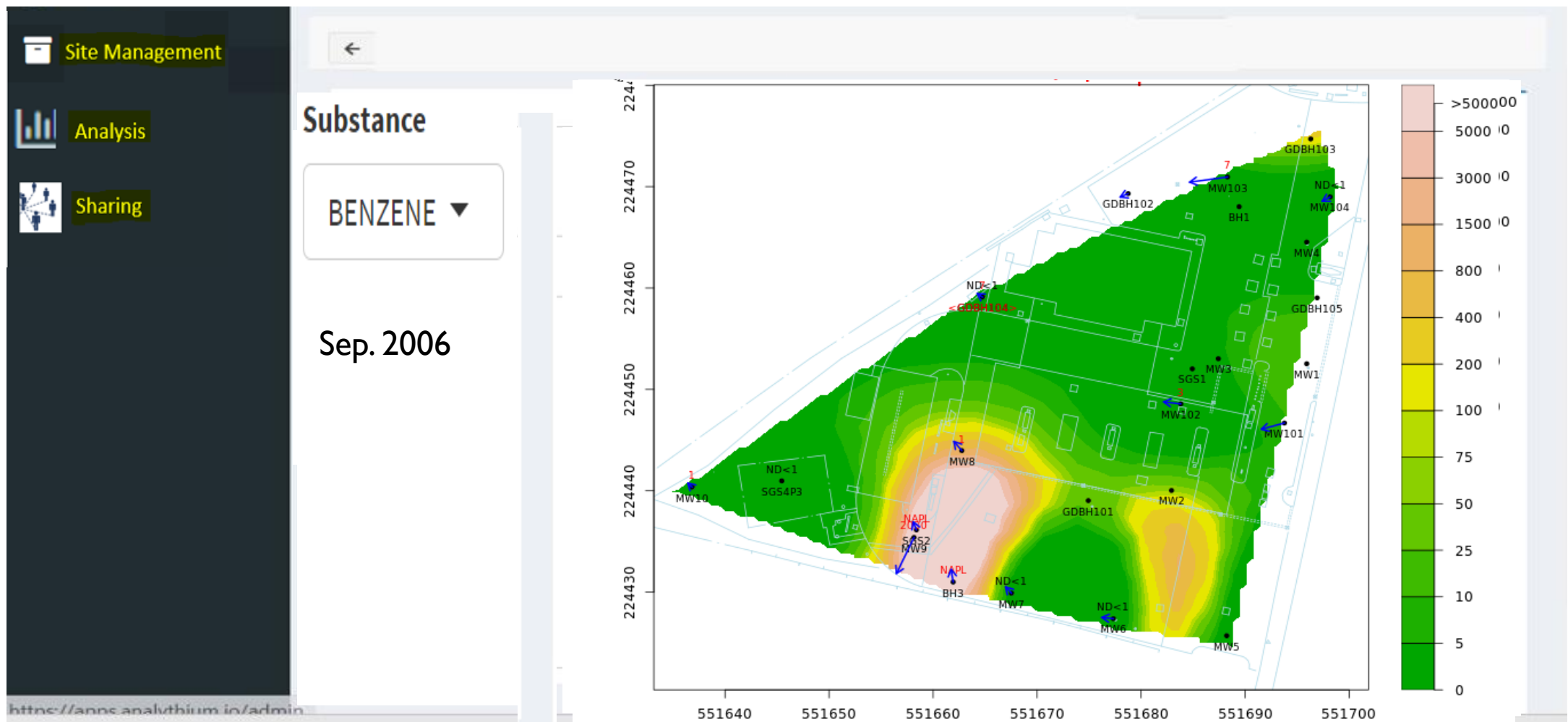
BIG PICTURE



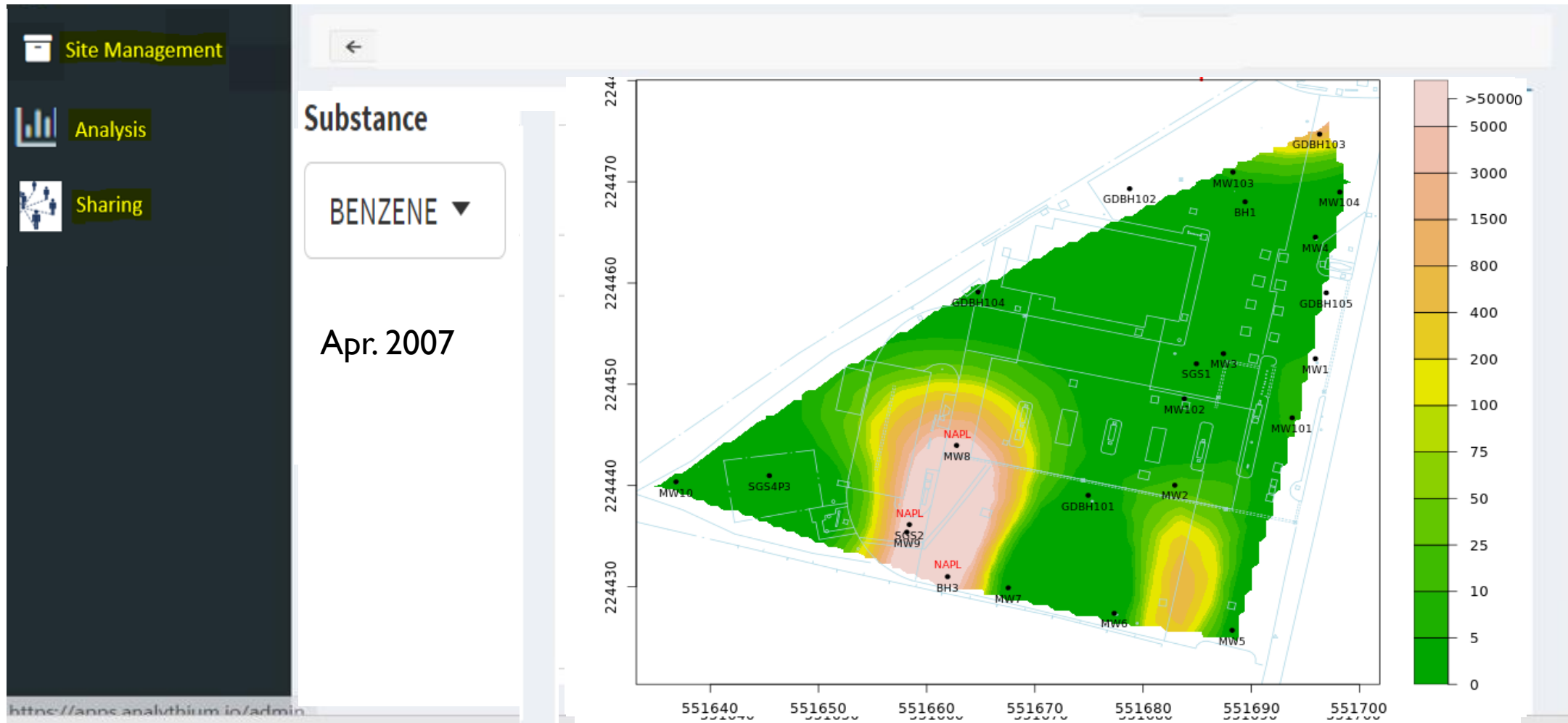
BIG PICTURE



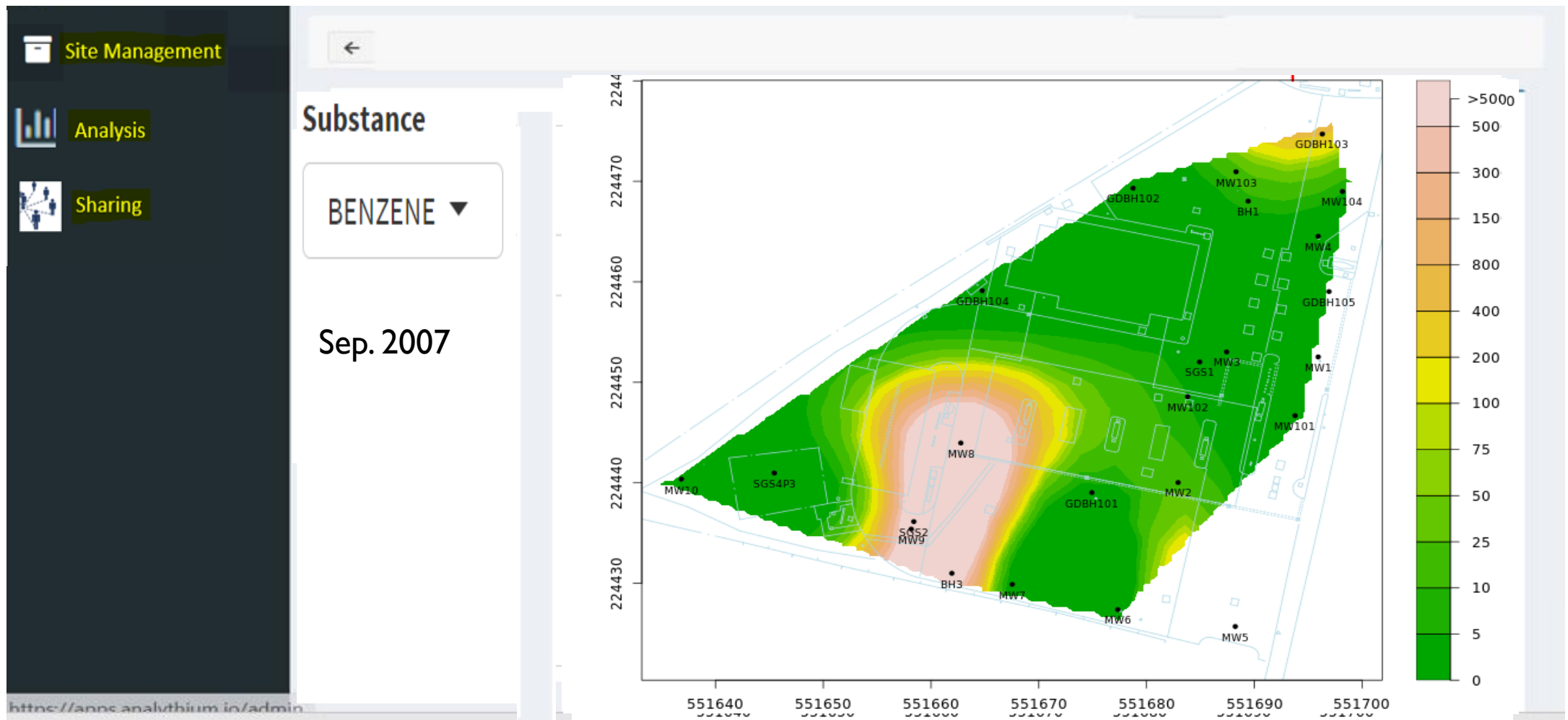
BIG PICTURE



BIG PICTURE



BIG PICTURE



SUMMARY

Existing solutions for GW trending are:

- Long
- Costly
- Complex

We developed a solution that is :

- Fast
- Interactive (provide big picture and details
- Cloud based : easy to access and share the result
- Integrable with any client system



KEEP THE CONVERSATION GOING WWW.ANALYTHIUM.IO/



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PAIN POINT

Site 1

	<i>Benzene</i>	<i>Toluene</i>	<i>Xylene</i>
MW-1			
MW-2			
MW-3			

Site 2

	<i>Cl</i>	<i>Metal.AS</i>	<i>PAH</i>	<i>Hydr</i>
MW-a				
MW-b				
MW-c				
MW-d				
MW-e				
MW-e				



PAIN POINT

	<i>Cl</i>	<i>Metal.AS</i>	<i>PAH</i>	<i>Hyd.</i>
MW-a				
MW-b				
MW-c				
MW-d				
MW-e				
MW-e				

	<i>Cl</i>	<i>Metal.AS</i>	<i>PAH</i>	<u><i>Hydr</i></u>
MW-a				
MW-b				
MW-c				
MW-d				
MW-e				
MW-e				



DATA AUTOMATION AND OUTPUT SHARING



PAIN POINT

Site	# GW Wells	# Of Constituents
Site A	3	15
Site B	10	50
Site C	25	125

	Ethylbenzene	Nitrate	Sulphate	Toluene	TPH
BH1					
BH3					
GDBH101					
GDBH102					
GDBH103	Green			Green	Green
GDBH104	Blue			Orange	Red
GDBH105					
MW1					
MW10	Blue				
MW101					
MW102	Green				Green
MW103	Red				Red
MW104	Green			Green	Green
MW2					
MW3					
MW4					
MW5	Blue			Blue	Light Green
MW6	Blue			Green	Green
MW7	Green			Green	Green
MW8	Red			Red	Red
MW9				Light Green	Light Green
SGS1					
SGS2					
SGS4P3	Blue	Light Green		Blue	Green



GroundWater

GroundWater



Site Management

Analysis

Sharing

Site Management

Analysis

Sharing



Aggregate by

Month

Trends & Thresholds

Trend, 02-Jan-2006 to 01-Feb-2006

	BENZENE	TOLUENE	XYLENE
MW-01	Light Green		
MW-02	Green		
MW-03	Blue	Blue	Blue
MW-04	Blue	Light Green	Blue
MW-05	Blue	Blue	Blue
MW-06	Green	Light Green	Blue
MW-07	Orange	Green	Blue
MW-08			Blue
MW-09	Green		Blue
MW-10	Green	Light Green	Blue
MW-11	Red		Blue

MW-10	Green	Light Green	Blue
MW-11	Red		Blue

SITE MANAGEMENT SYSTEM

apps.analythium.io/app

Analythium

Khalid Lemzouj

Site Management

Analysis

Sharing

Site AB - 1

Delete

Edit

Site AB - 2

Delete

Edit

EnviroTech

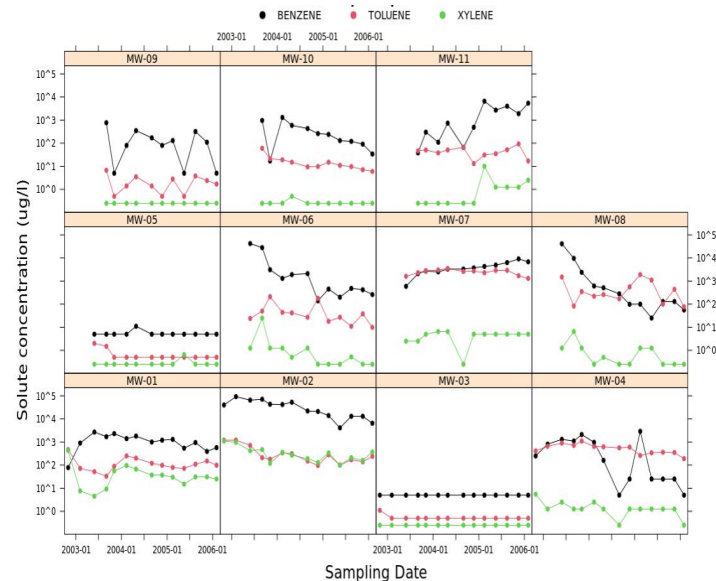
Delete

Edit



WORKFLOW OF THE APP

WellName	Constituent	SampleDate	Result
04-MW12	Anthracene	10/27/1998	0.0023
04-MW13	Anthracene	10/27/1998	0.0005
04-MW14	Anthracene	6/1/2000	< 0.0001
04-MW15	Anthracene	6/1/2000	< 0.0001
04-MW16	Anthracene	10/27/2000	< 0.0001
04-MW17	Anthracene	10/27/2000	< 0.0001
04-MW18	Anthracene	6/18/2001	< 0.0001
04-MW19	Anthracene	6/18/2001	< 0.0001
98-MW1	Anthracene	9/28/2001	< 0.0001
98-MW10	Anthracene	9/28/2001	< 0.0001
98-MW11	Anthracene	5/2/2002	< 0.0001



Data Upload

Trending

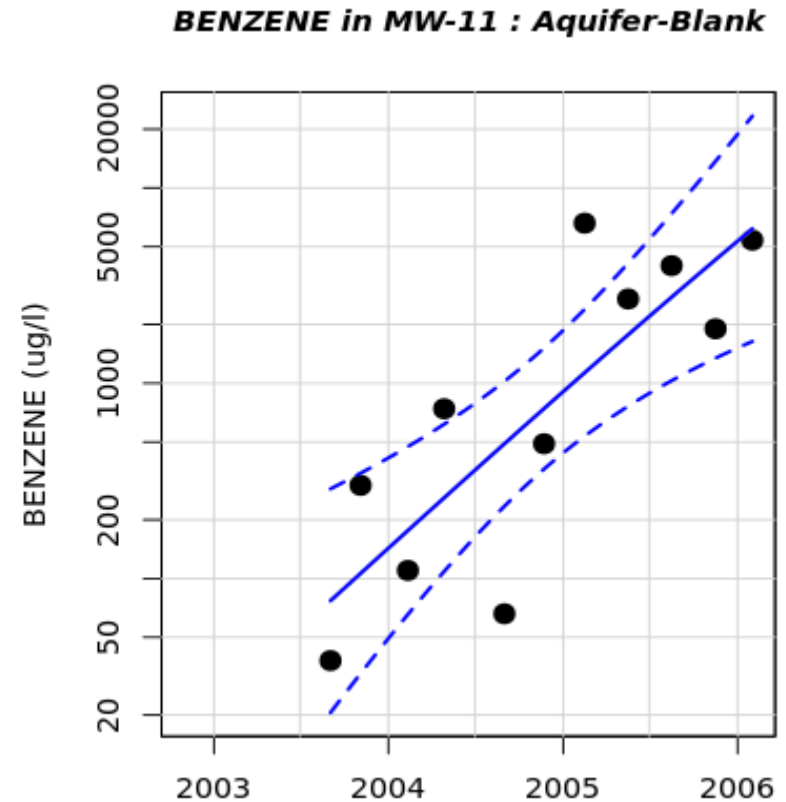
Live Sharing



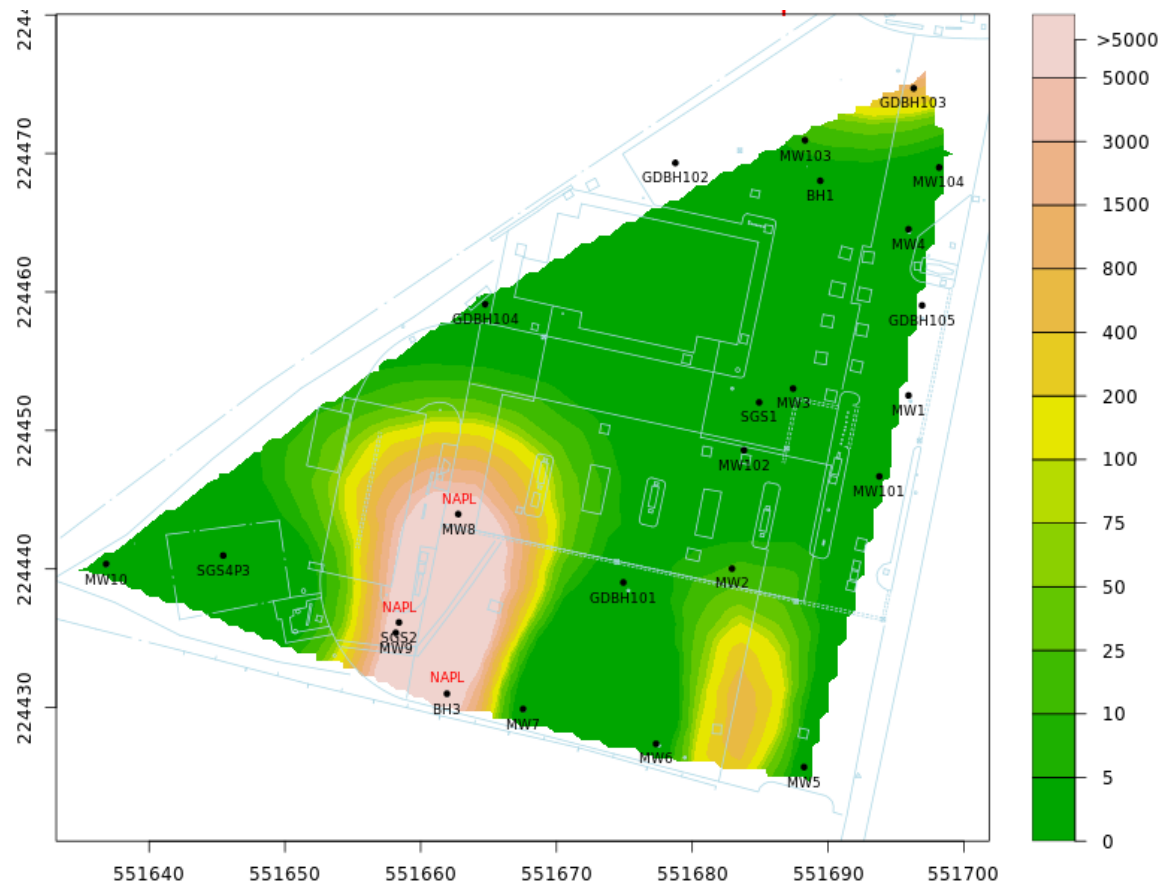
TRENDING TEST REPORT (MANN-KENDAL TEST)

Trend, 01-Feb-2006 to 02-Jan-2006

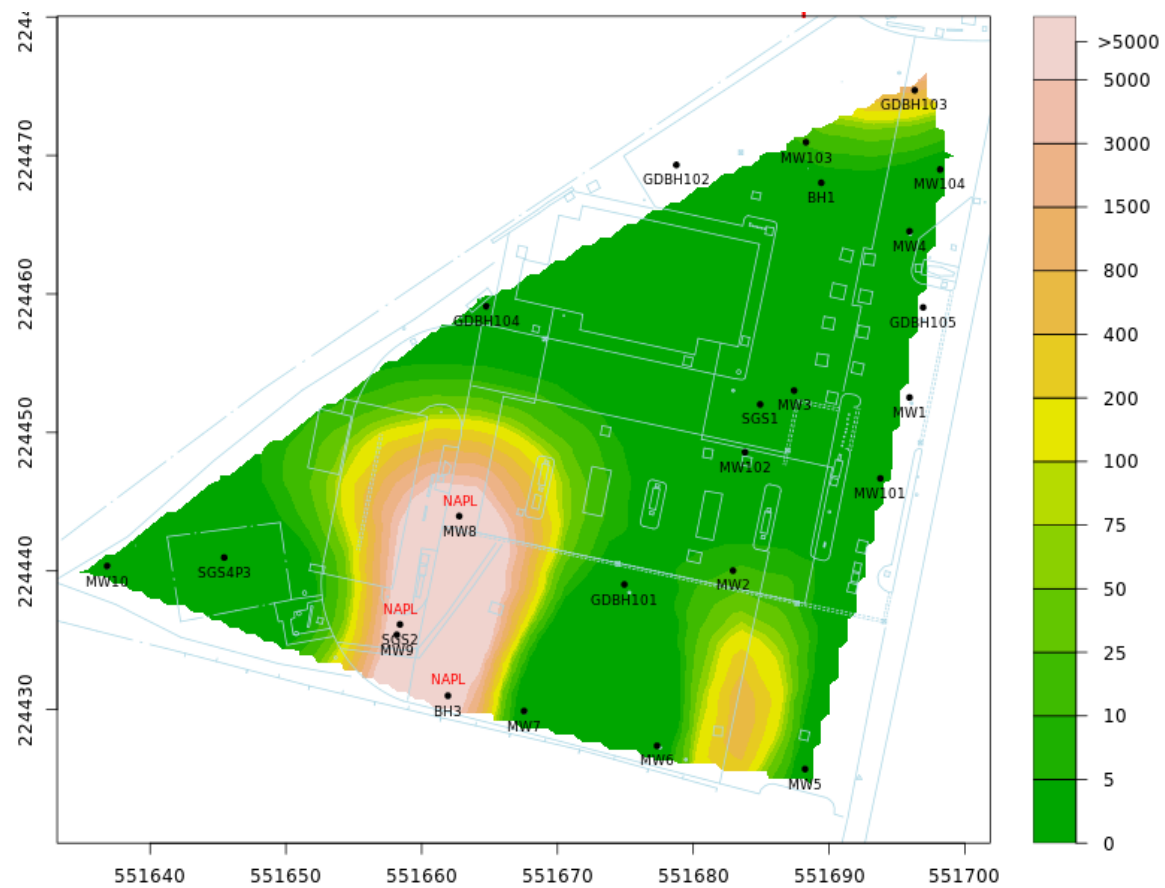
	BENZENE	TOLUENE	XYLENE
MW-01	Light Green		
MW-02	Green		
MW-03	Blue	Blue	Blue
MW-04	Blue	Light Green	Blue
MW-05	Blue	Blue	Blue
MW-06	Green	Light Green	Blue
MW-07	Orange	Green	Blue
MW-08			Blue
MW-09	Green		Blue
MW-10	Green	Light Green	Blue
MW-11	Red		Blue



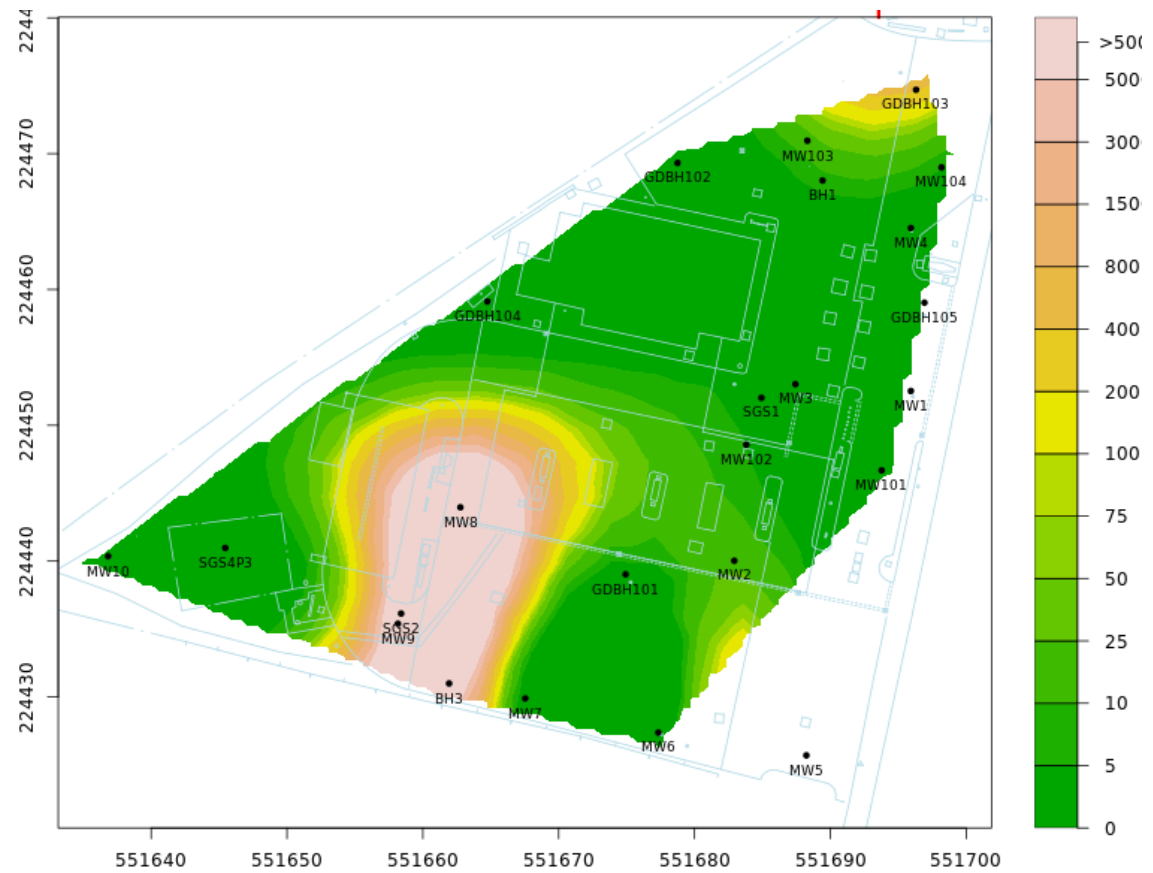
PLUME STABILITY



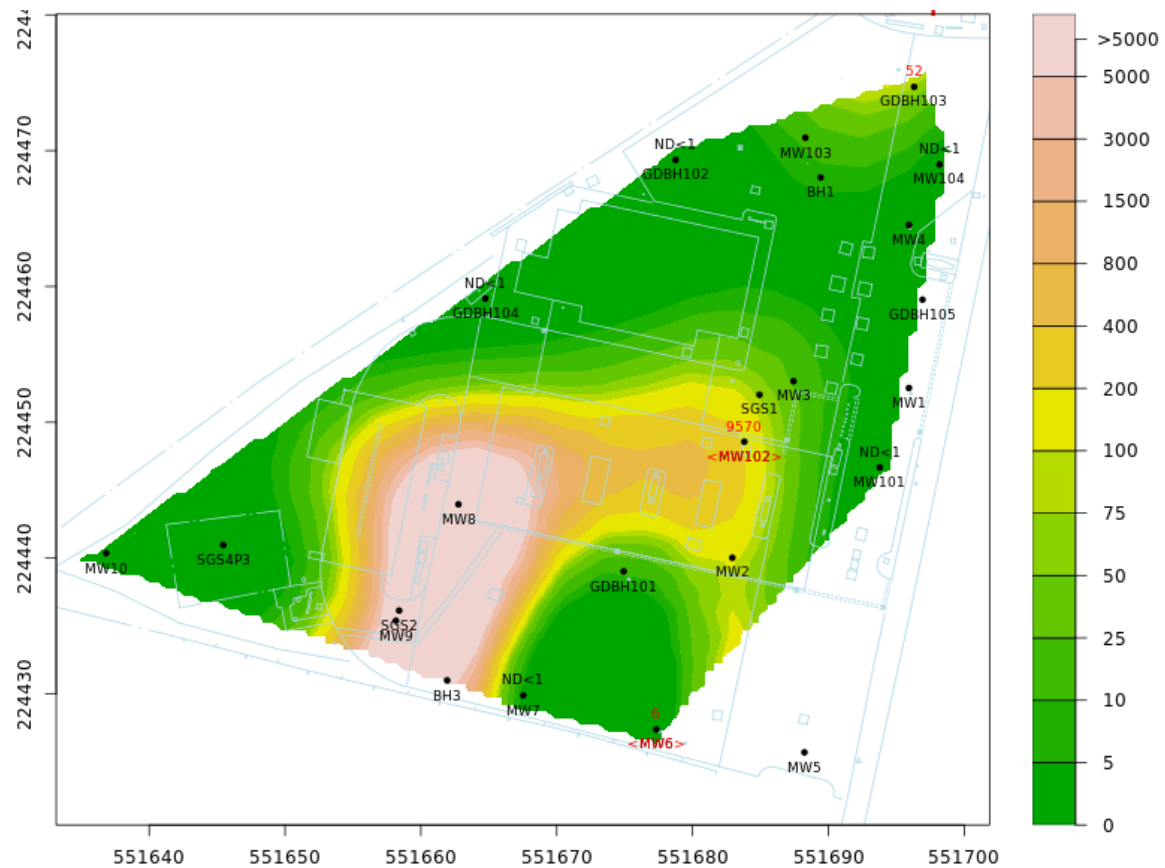
PLUME STABILITY



PLUME STABILITY



PLUME STABILITY



PLUME STABILITY

