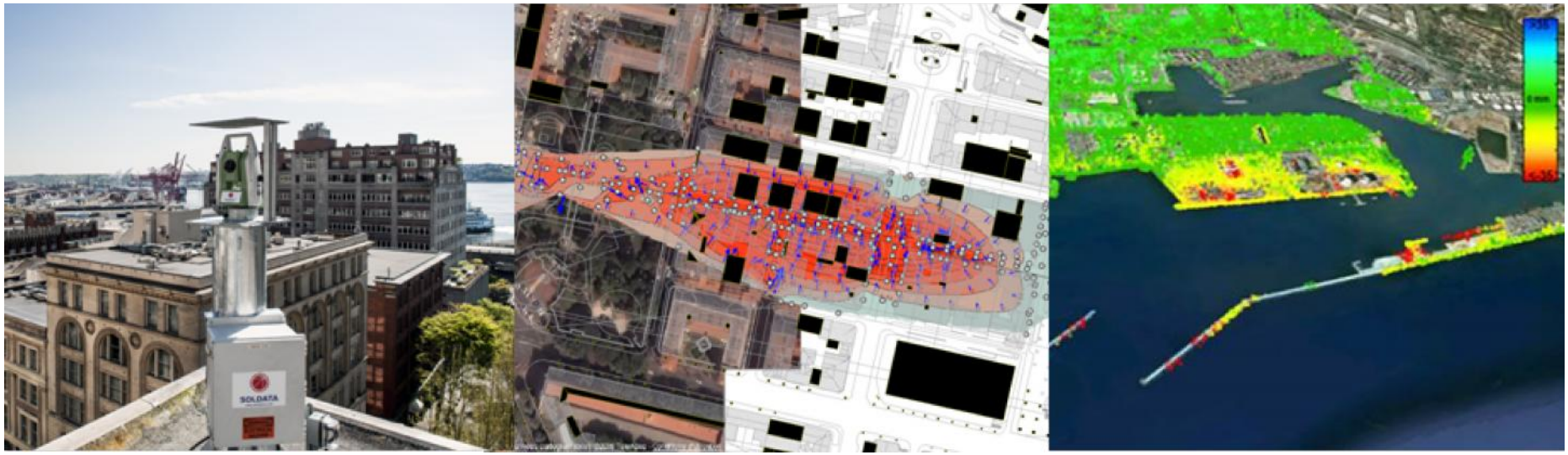


SOLDATA

Soldata

Strategies for data management

Presentation by Matthieu Bourdon
CSIC Emerging Technologies workshop event ("Big Data - The Art of the Possible")
10th September 2015, Institute for Manufacturing (IfM), University of Cambridge

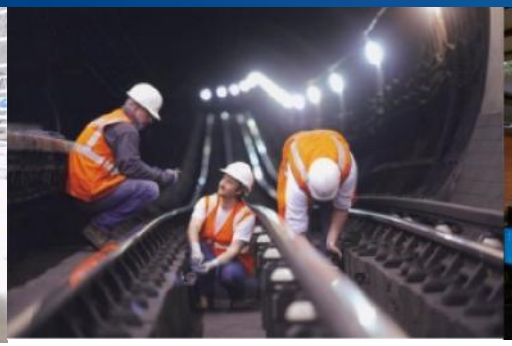
Detection & monitoring solutions

SOLDATA

Soldata : Your 6th sense for risk mitigation

Provision and management of integrated automatic monitoring systems help risk mitigation.

Unparalleled experience of more than 20 years making Soldata a worldwide leader in the field of geotechnical and structural monitoring.

SOLDATA

Soldata Group around the World

SOLDATA

SOLDATA GEOPHYSIC

SOLDATA ACOUSTIC

Soldata UK
London

Soldata France
Paris, Lyon,
Marseille,
Aix-en-Provence

Soldata in 2014

- **13** geographic subsidiaries
- **2** technical subsidiaries
- **40** M € turnover
- **300** employees

Soldata Poland
Warsaw

Soldata Ukraine
Kiev

Soldata Hungary
Budapest

Soldata Asia
Hong Kong

Soldata Latina America
Santiago de Chile

Soldata Northern America
Seattle,
Pittsburgh,
Los Angeles

Soldata Morocco
Rabat

Soldata Iberia
Barcelona,
Madrid,
Lisbon

Soldata Middle East
Abu Dhabi,
Dubai, Doha

Soldata

Soldata Oceania

Urban works monitoring

We provide the whole range of instrumentation solutions your project needs.

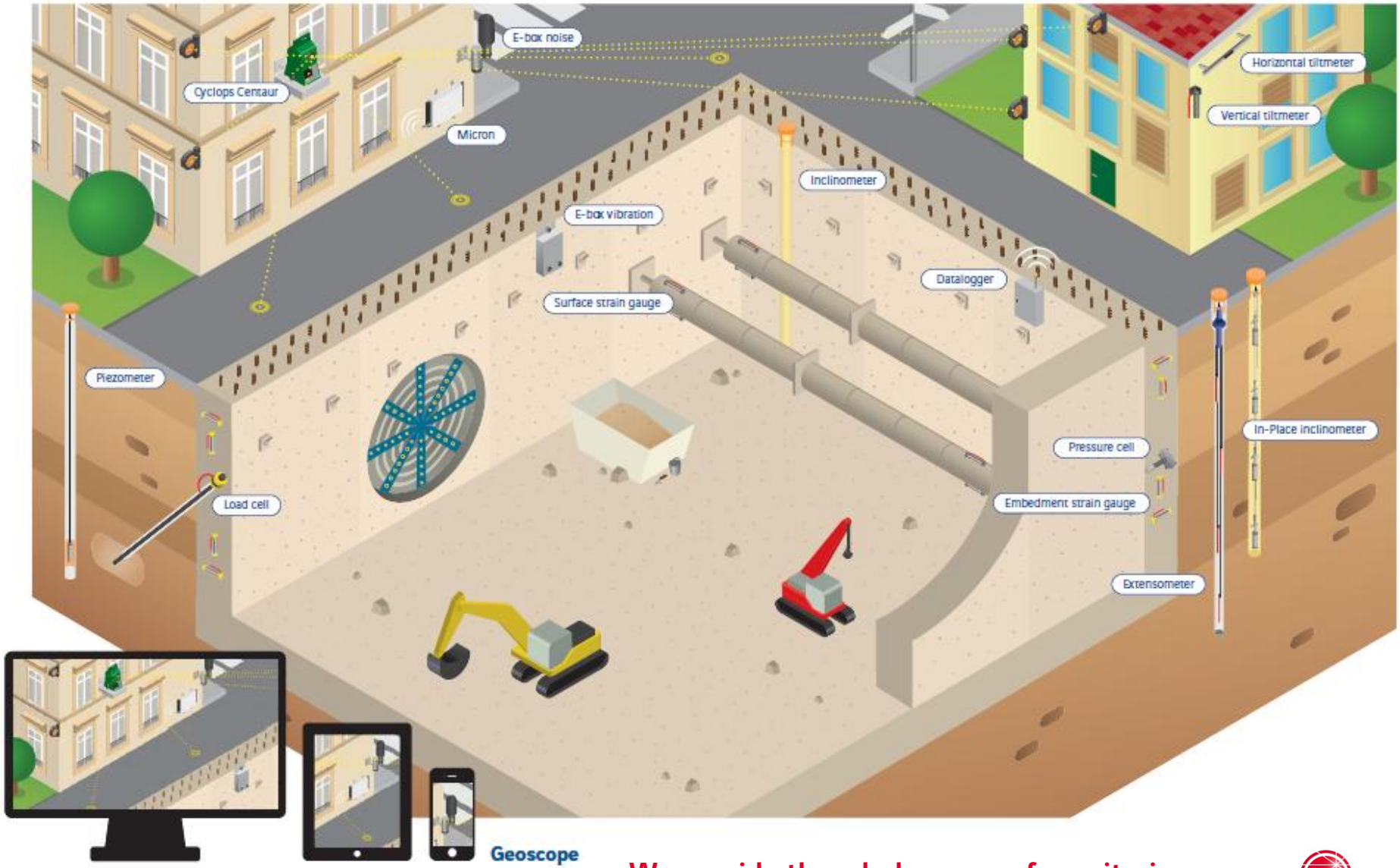
SOLDATA

Structural monitoring

We provide the whole range of monitoring solutions your project needs .

SOLDATA

Urban excavation monitoring



We provide the whole range of monitoring solutions your project needs .

SOLDATA

Mine monitoring

We provide the whole range of instrumentation solutions your project needs .

SOLDATA

Our detailed offer

Step 1

Design of the monitoring system
Tailored solution for the projects, context and budget

Step 2

Procurement and selection of instruments
Selection of the best instruments available

Step 3

Installation and configuration
Installation on site and configuration

Step 4

Monitoring and maintenance
Continuous monitoring with real-time data transmission and maintenance of the system

Step 5

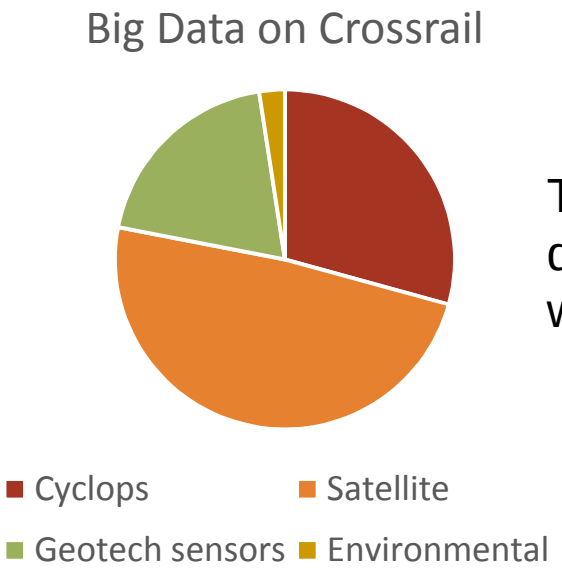
Data management
Data management and transmission in real time by our WebGIS system Geoscope, reporting

What is Big Data for Soldata ?

What is Big Data for Soldata

What is Big Data for Soldata ?

- C704 – max 210 ATS to process and maintain
- X9171– Satellite monitoring
- C510 – max 85 ATS to process and maintain
- C336, C208, C315, C411, C421, C502, C503, C512



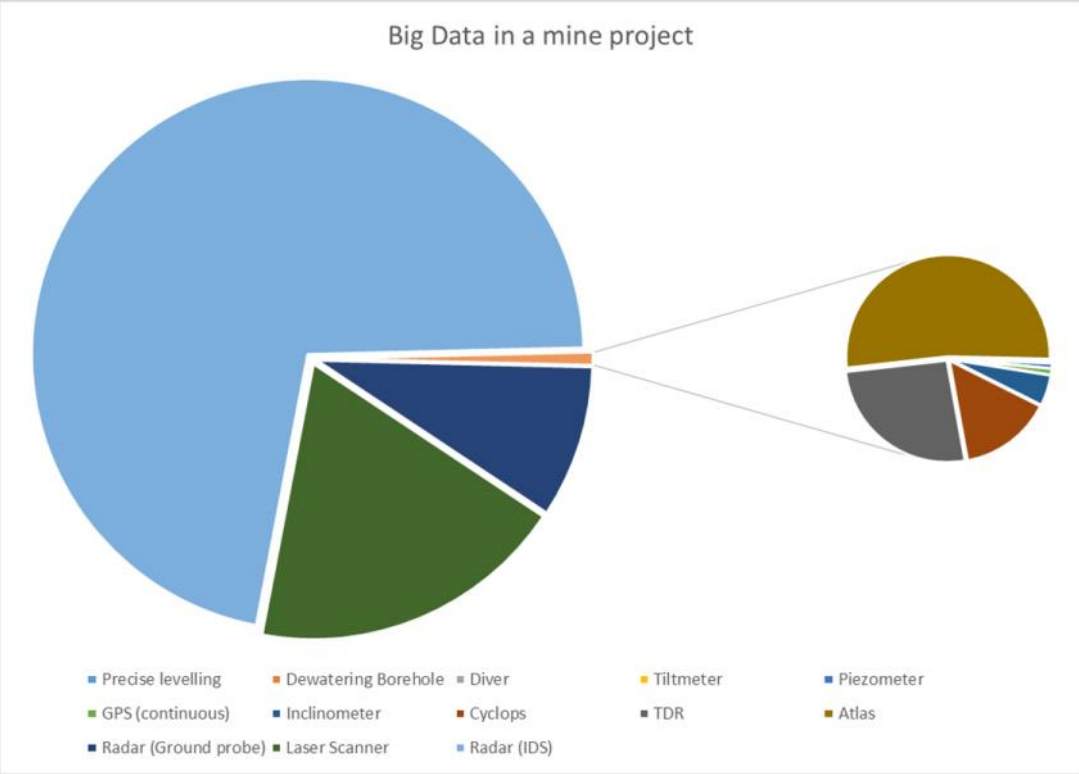
Total so far: around 2,5 To of data only for Crossrail projects where Soldata is involved

What is Big Data for Soldata ?

Inventory of slope stability instrumentation for an opened pit mine in Africa :

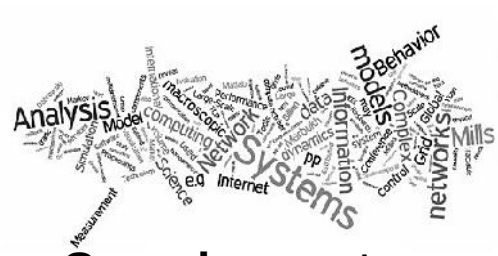
Type	Qty.	Data	Typical frequency
InSAR	1	4.5 million points	1 week
Radar (GroundProbe)	4	Up to 15 000 points each	6 minutes
Radar (IDS)	4	160,000	
Total Station (Prisms)	420	18 para	
Precise Levelling	31	3 param	
Laser Scanner	1	2.5 milli	
GPS (Continuous Operating Ref. System)	6	14 para	
Tiltmeter	8	19 para	
Inclinometer	6	Up to 4	
Piezometer	107	4 param	
Time Domain Reflectometer (TDR)	6	Up to 2	
Dewatering borehole	22	4 param	
Diver	16	3 param	

= 160 million data points per day



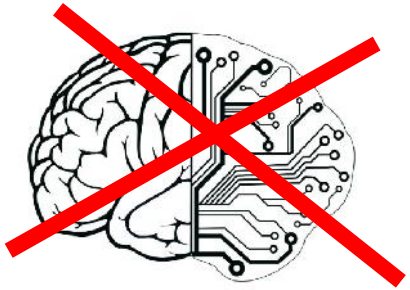
Big Data Strategy

How to work with Big Data ?



Complex systems

- Simple interface
- Information limited to the minimum
- Focusing on the real risks
- Alarms filtering
- Models to predict the future



Artificial intelligence

- Models, formulas, hypothesis,…

…TO BE APPROVED ?

Decision making

How to work with Big Data ?

Decision making

geoscope

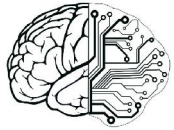
Collaborative tool

- Simple interface
- Information limited to the minimum
- Focusing on the real risks
- Alarms filtering
- Models to predict the future

Collaborative and integrated solution

Complex systems

… and still possibly clever !



How to work with Big Data ?

SOLDATA

Manual monitoring

Automatic monitoring

atlas cyclops centaur –cyclops–

Environmental monitoring

Monitoring Company No1

Automatic monitoring

Database No1

Monitoring Company No2

Manual monitoring

Database No2

geoscope Database

geoscope

SOLDATA

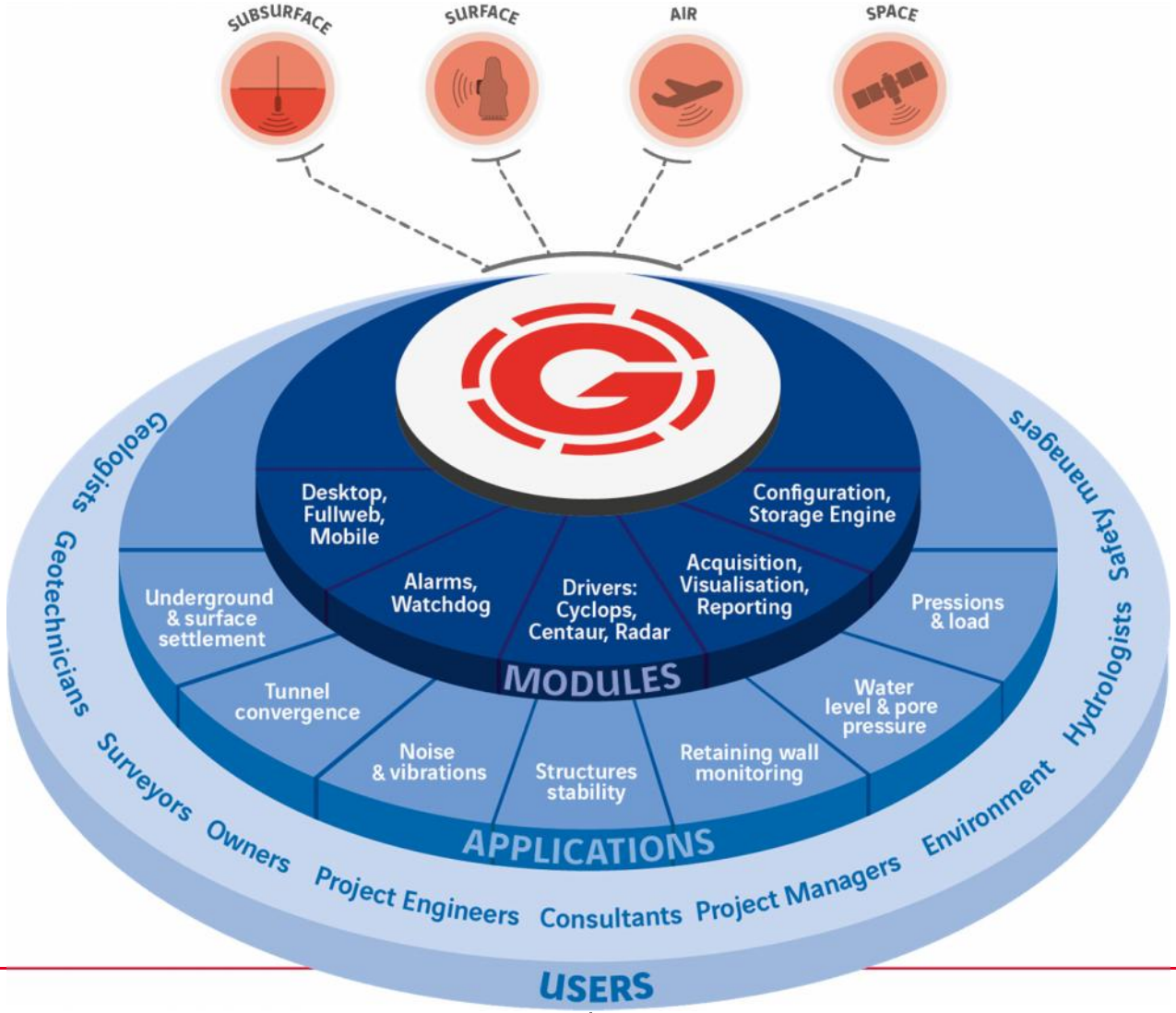
Visualisation Alarms Reports

GIS BIM

Documentation system

Maintenance journal

Collaborative solution



SOLDATA

Processing and visualisation

geoscope

Geoscope – Data visualisation in real time

+ Data processing and visualisation system

Collaboration

+ All data are available on one platform whatever the source or the sensor
+ Dynamic integration of information from third parties, no duplicated data
+ Specific information, customisation, and secured access for each group of stakeholders
+ Open external GIS, collaborative & BIM applications
+ Scriptable functions PC and mobile solution

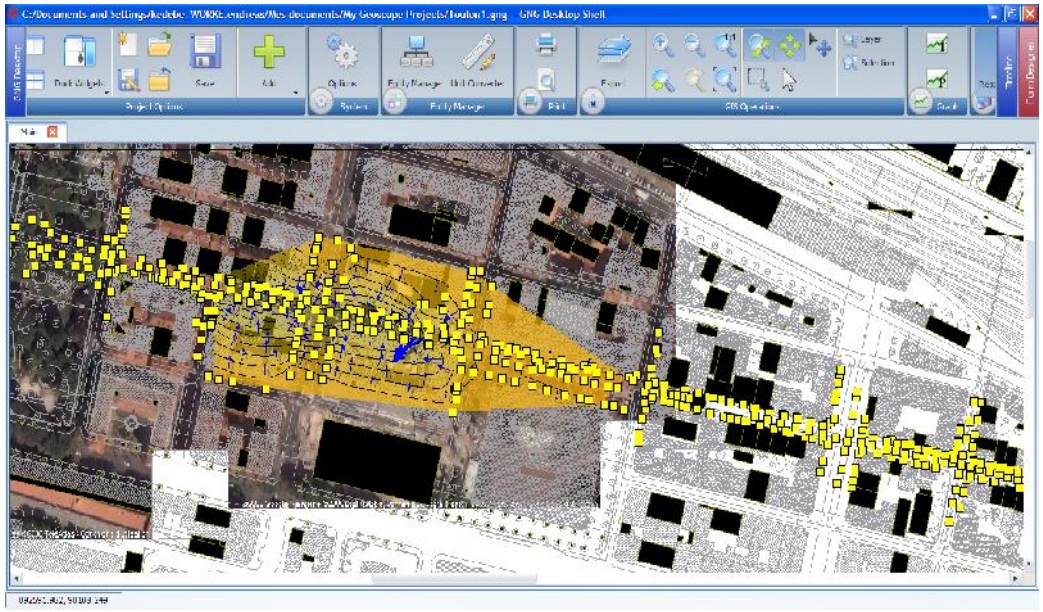
Geoscope – WebGIS system

Information platform with GIS interface

Adaptable, integrated and user-friendly

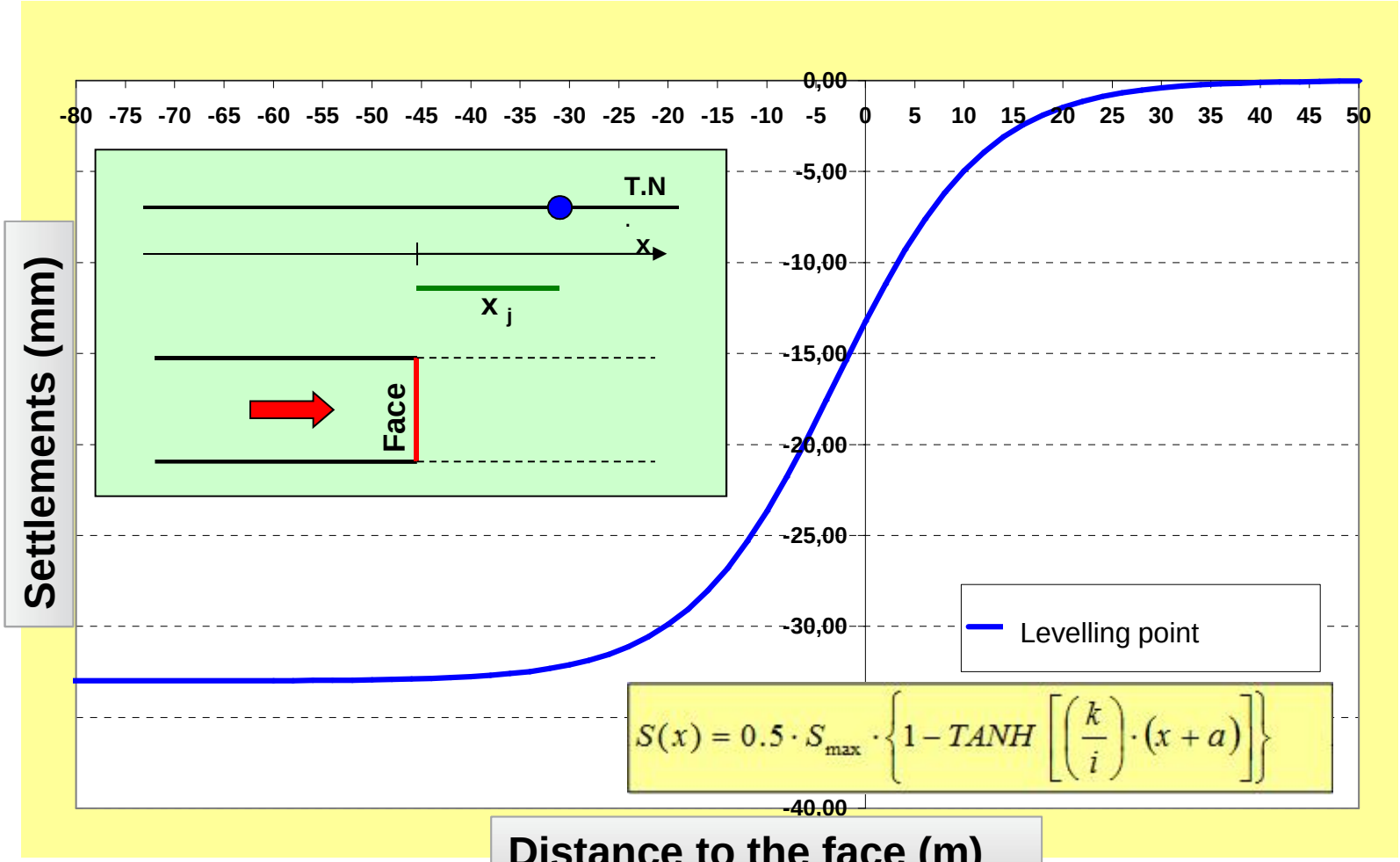
Decision making tool

+ Predictions for measurements (trends, calculation models, filters)
+ Customisation of graphical properties of entities, including assets
+ Calculation on-the-fly of contour lines.
+ Time Machine to present the data at different phases of the project.



+ Settlement during tunnel construction

Focus on :
PREDICTING THE FUTURE : DISTANCE TO FACE GRAPH



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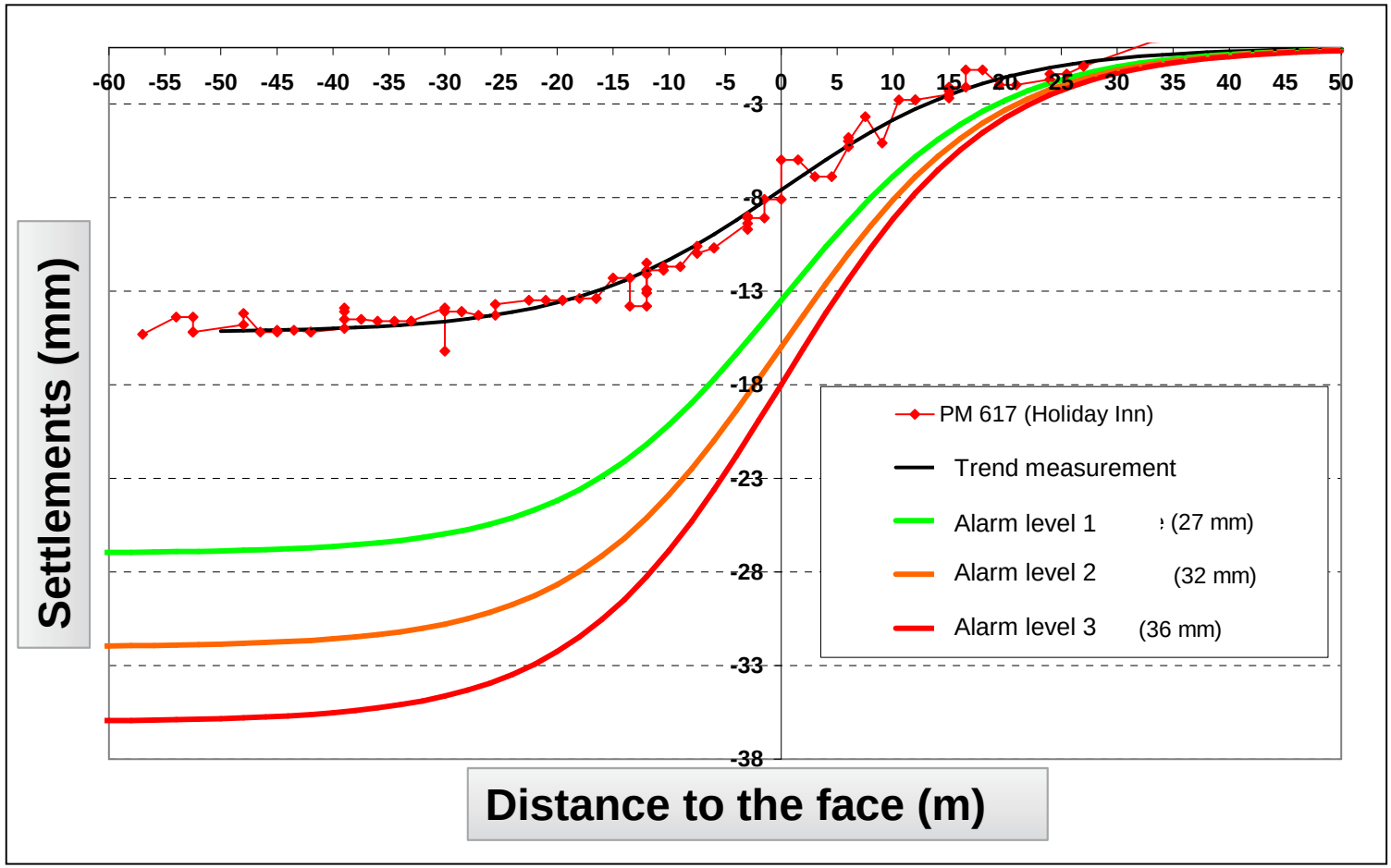

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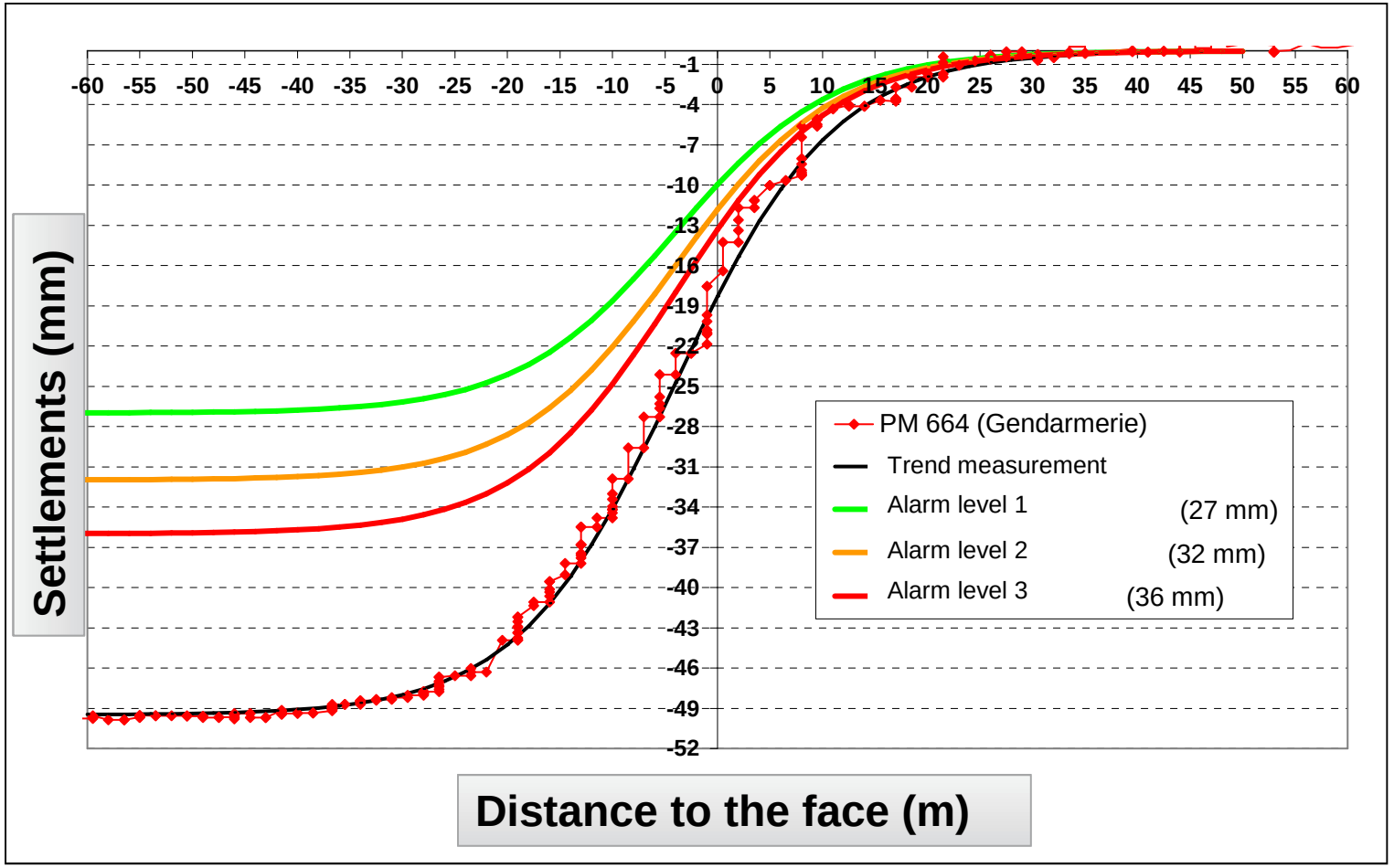
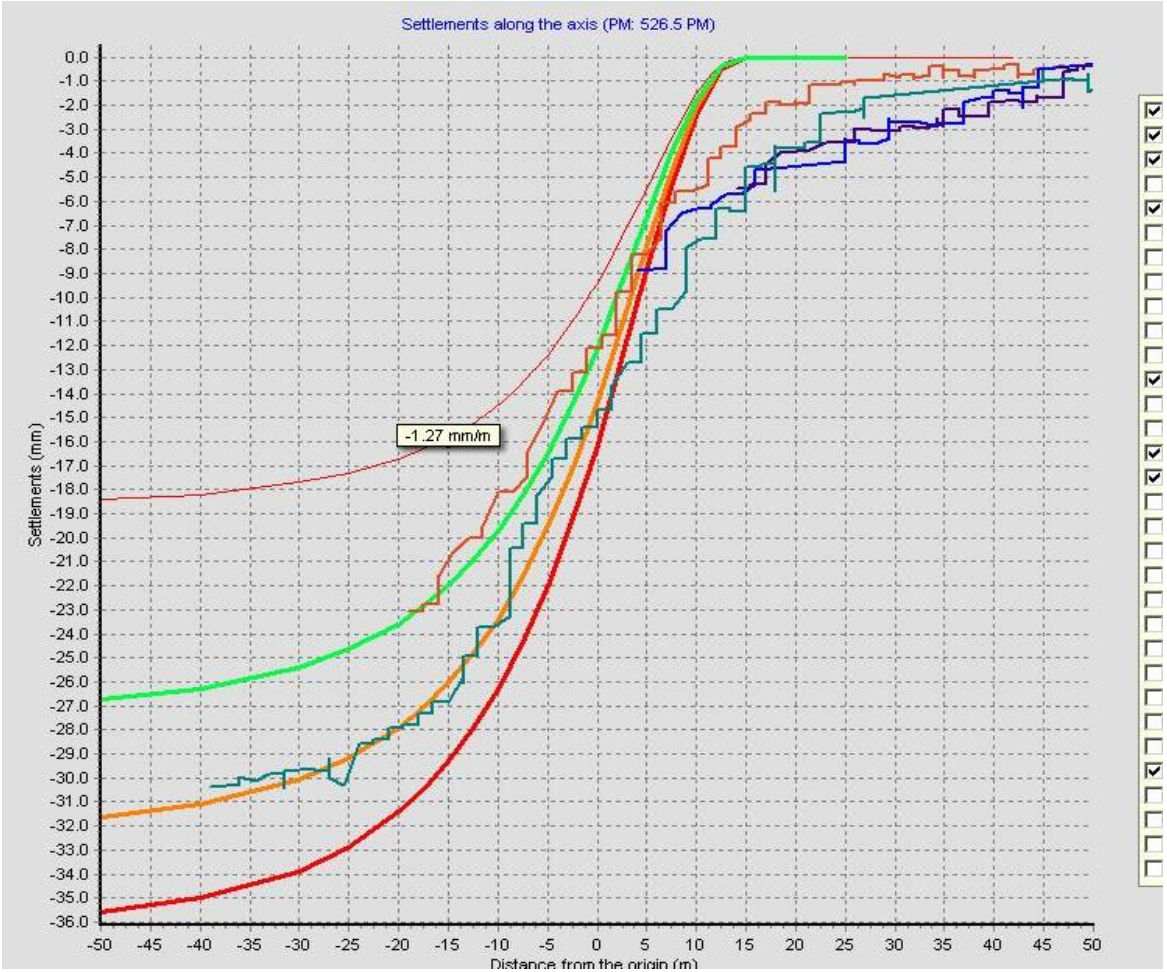
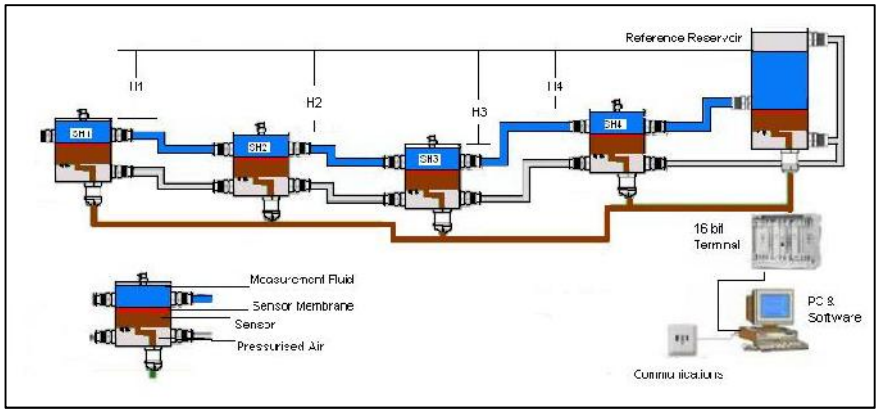


Focus on :
PREDICTING THE FUTURE : DISTANCE TO FACE GRAPH

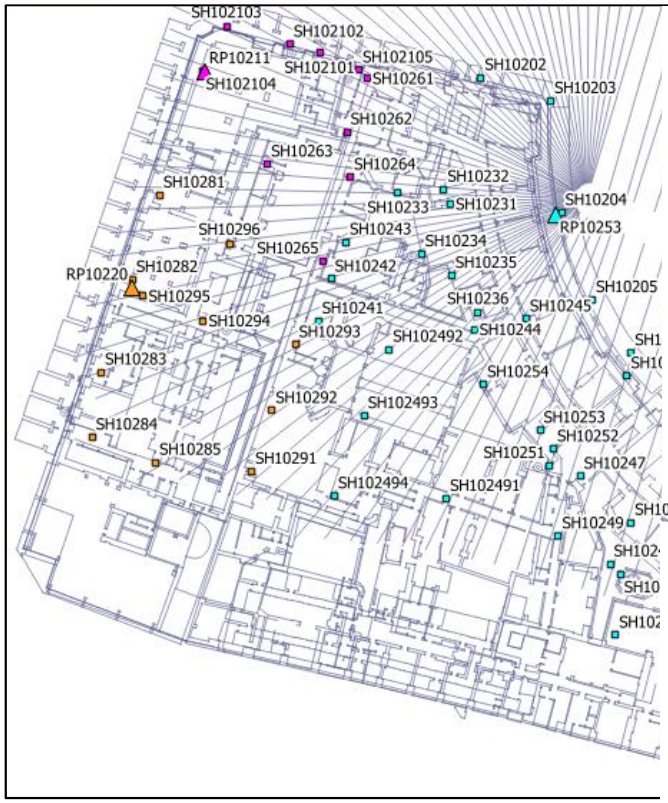


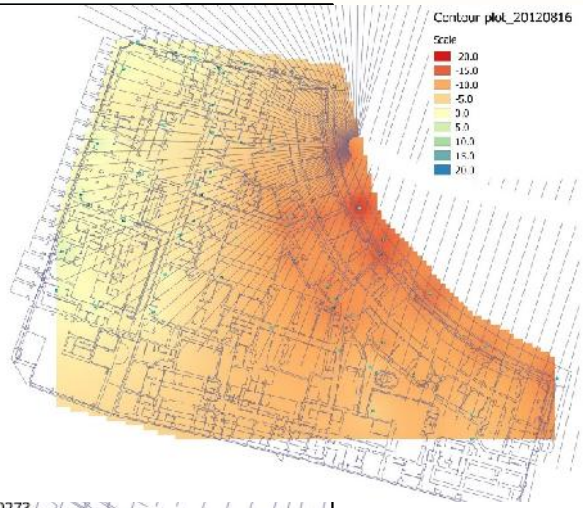
Focus on :
Compensation grouting

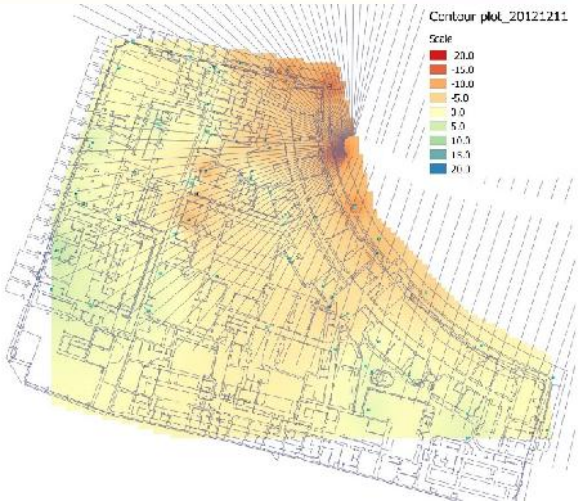


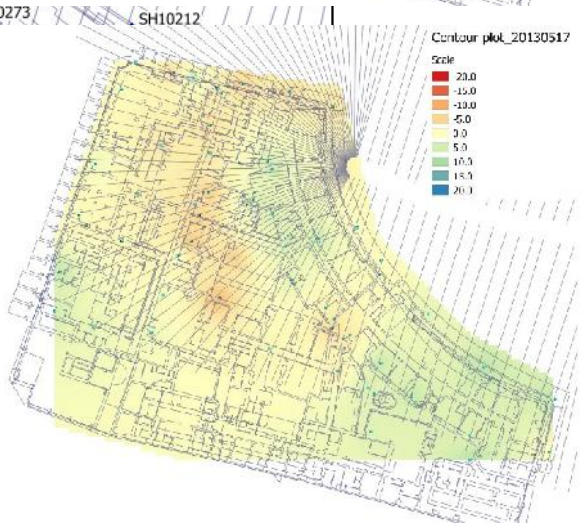
8 buildings
43 water cell systems
302 water cell sensors

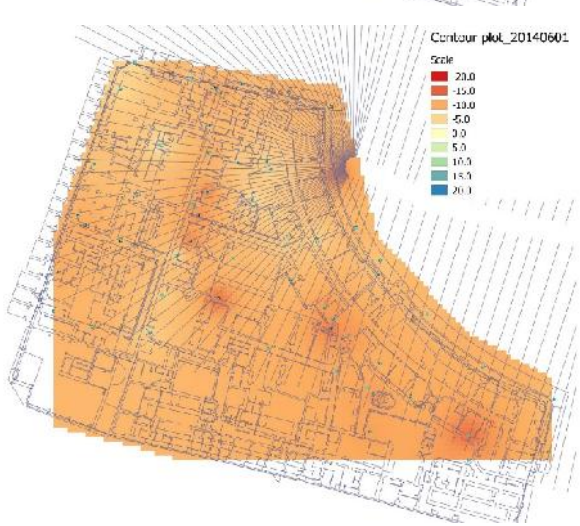
Focus on :
Compensation grouting











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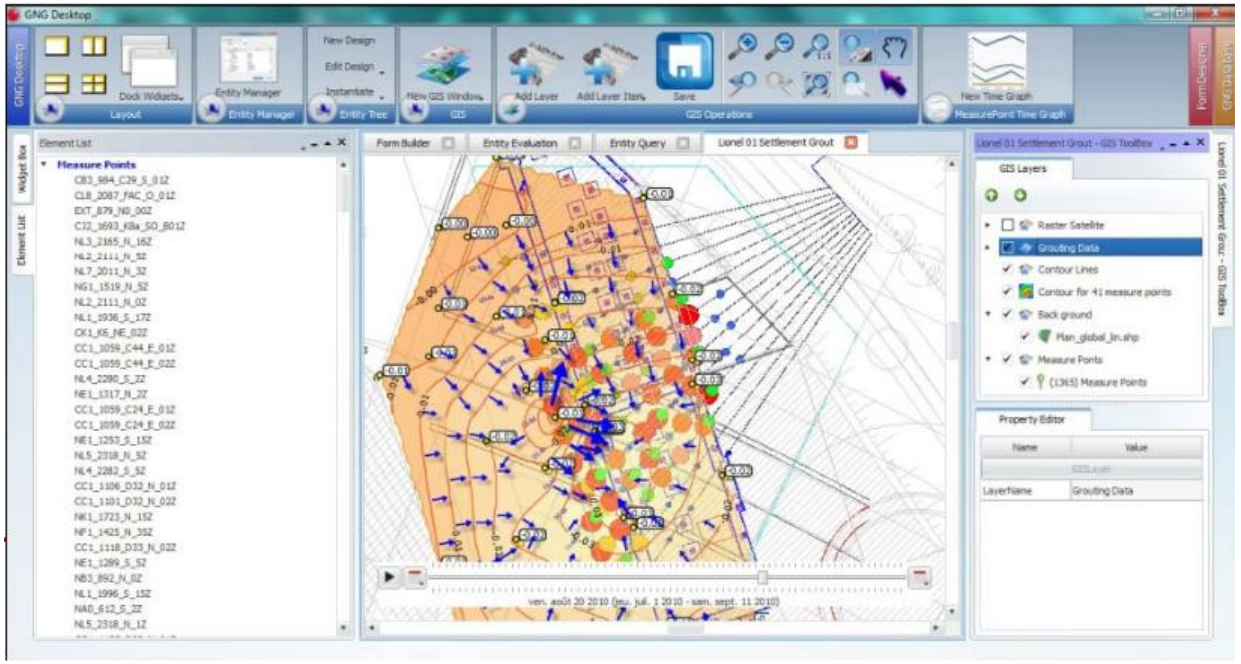
Compensation grouting

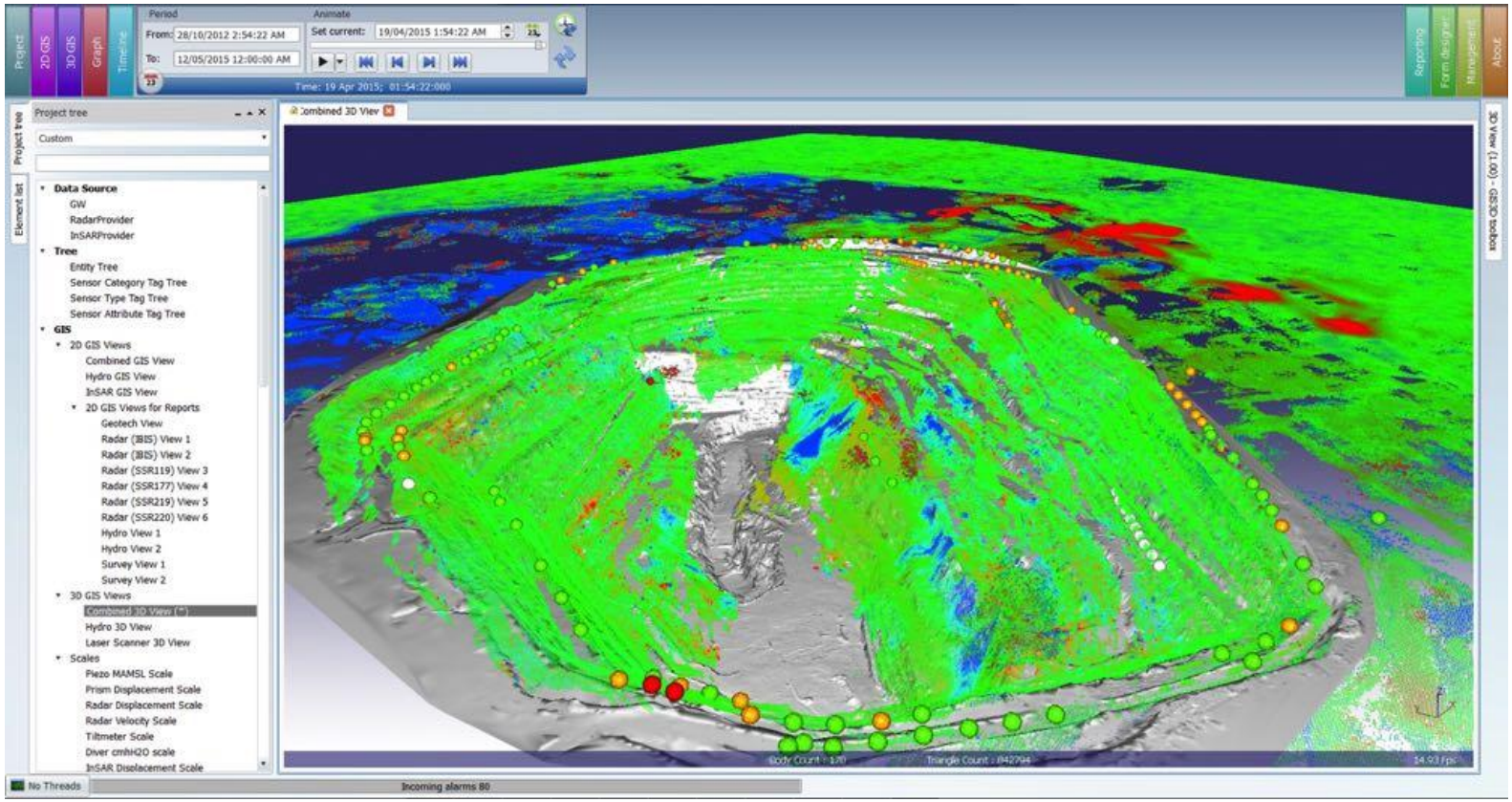


Focus on :
Mine Industry

GEOSCOPE GIS plan view showing integration of geotechnical sensors and Systems (Radars,prisms,tiltmeter&inclinometers)

Focus on :
Mine Industry

GEOSCOPE 3D view showing integration of radar,
InSAR and prism data



Strategies for data management

Thank your for your attention.