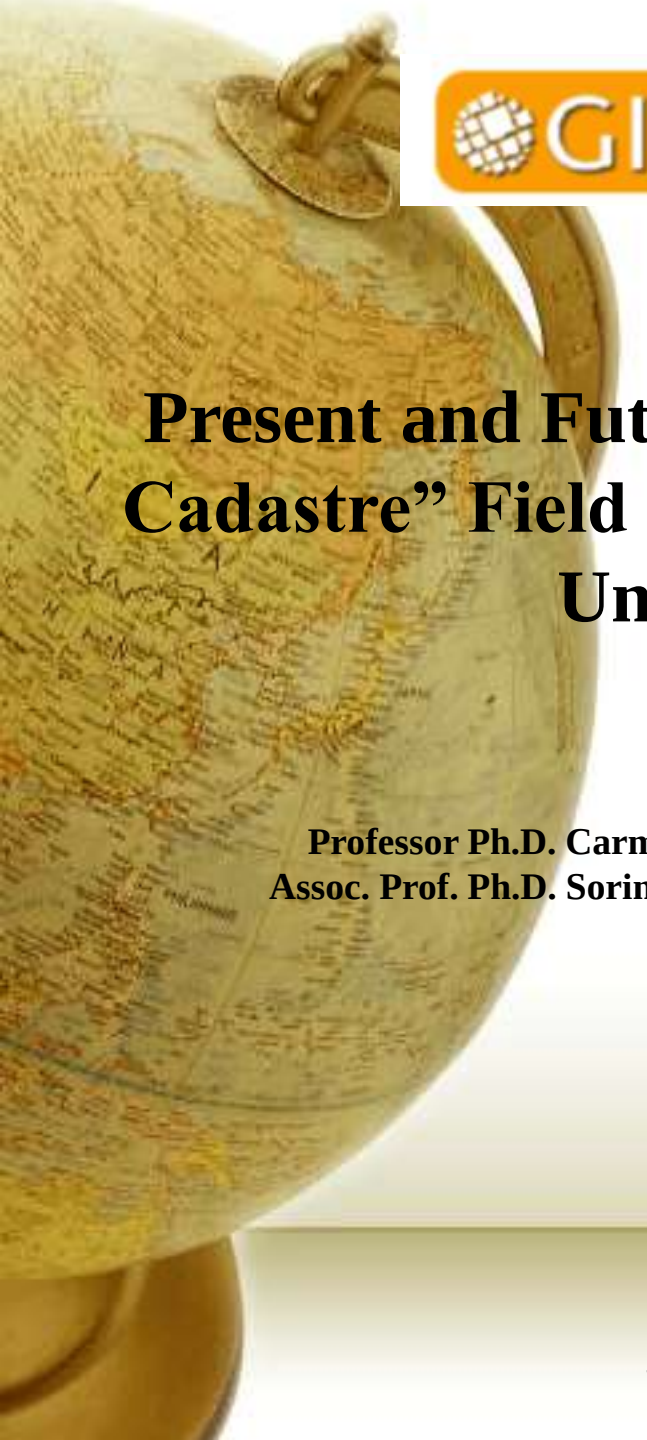


Politehnica University of Timisoara
Civil Engineering Faculty
Surveying and Cadastre

Present and Future of Educational "Geomatic and Cadastre" Field and New Perspective in Politehnica University of Timisoara.

Professor Ph.D. Carmen GRECEA, Politehnica University of Timisoara, Romania
Assoc. Prof. Ph.D. Sorin Ioan HERBAN, Politehnica University of Timisoara, Romania

sorin.herban@upt.ro

April 15-17, 2014
SZEKESFEHERVAR, HUNGARY

OUR HISTORY – ERASMUS INTENSIV PROGRAM SZEKESFEHERVAR 2011

ERASMUS INTENSIV PROGRAM -EPOCHE -THASSOS ISLAND 2013

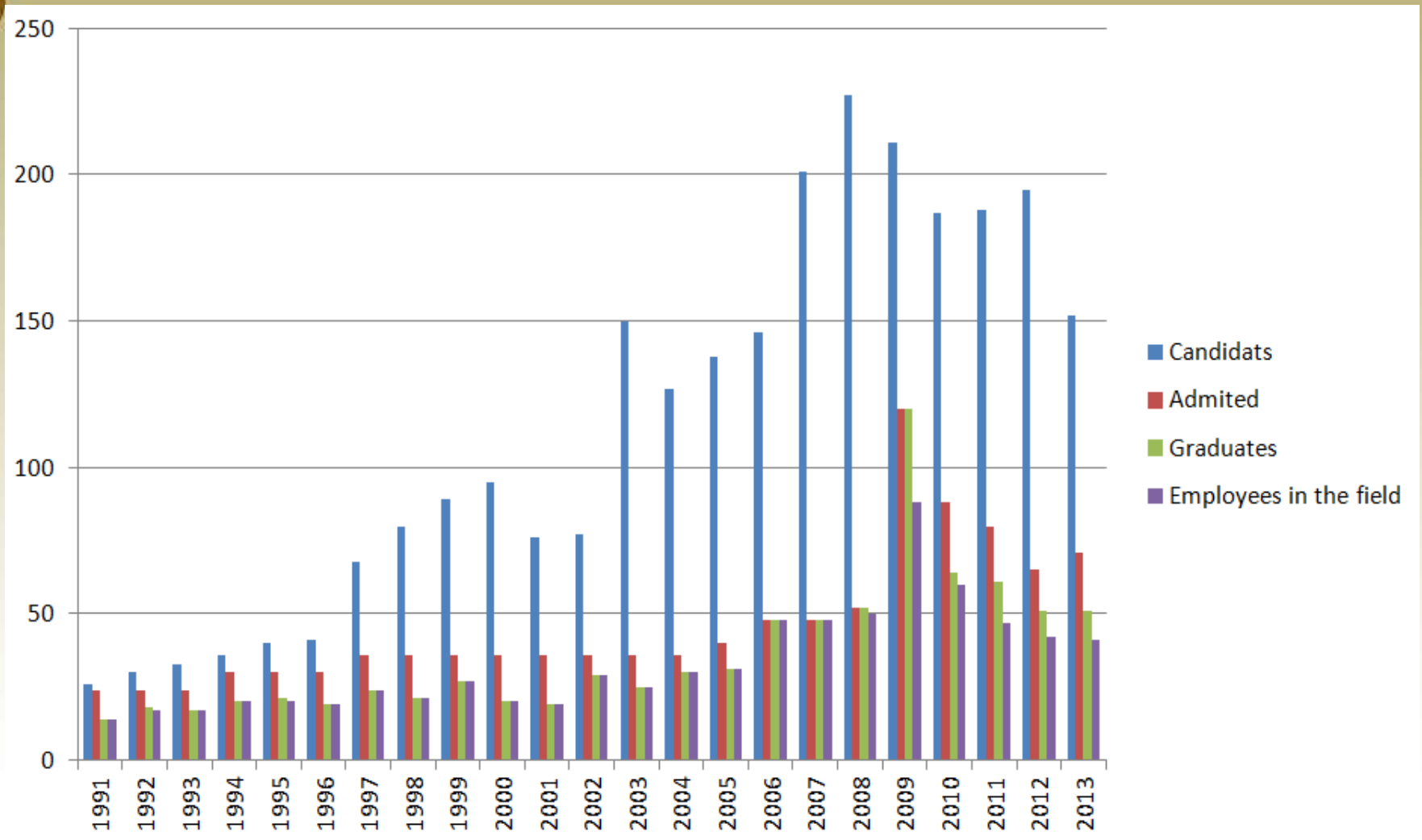
The branch of Surveying and Cadastre from the faculty of Civil Engineering offers full-time degree programs for bachelor and master .

Bachelor Specialization – Land Measurements and Cadastre

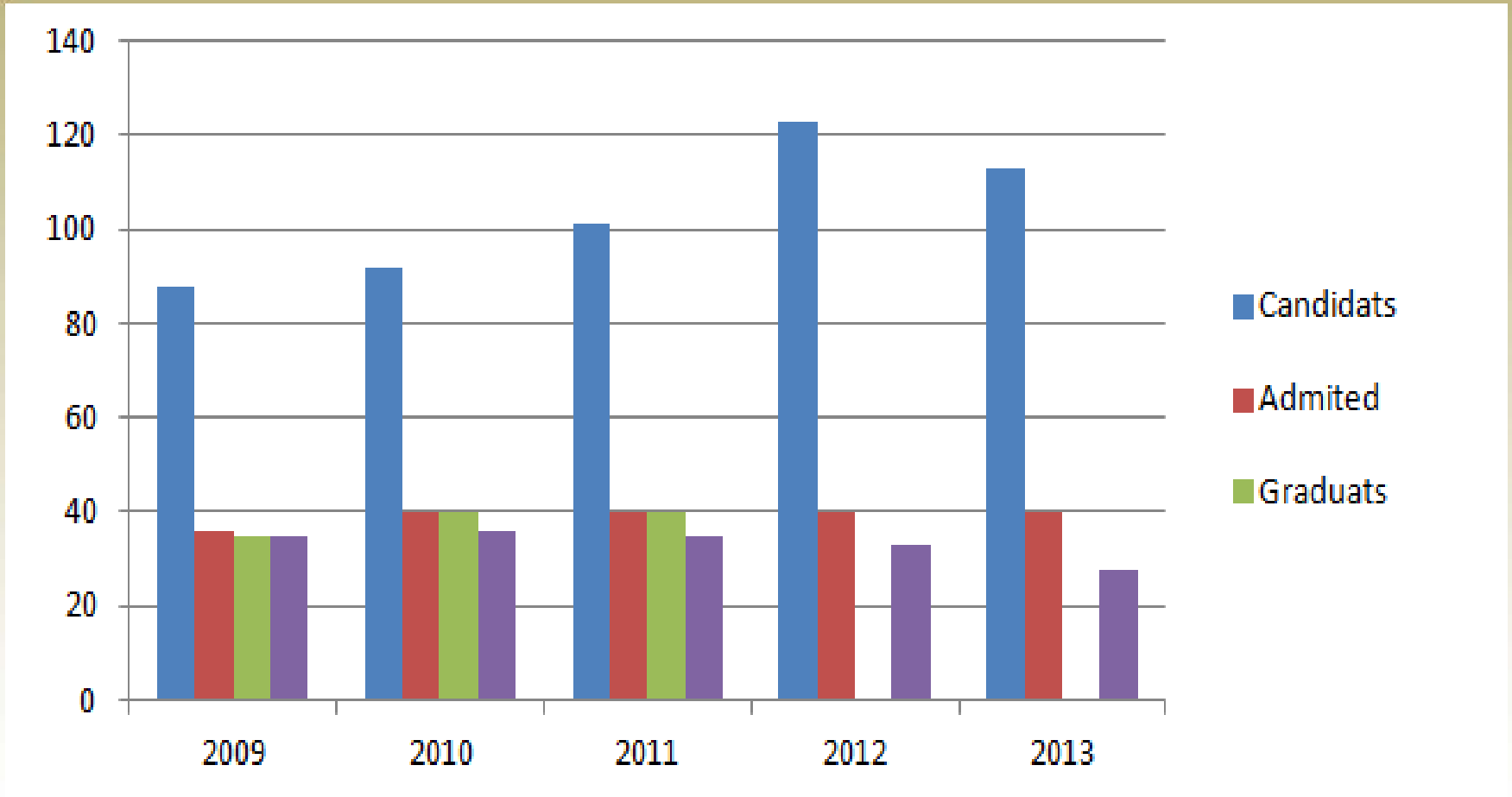
Master Specialization – Cadastre and Evaluation of Immovables

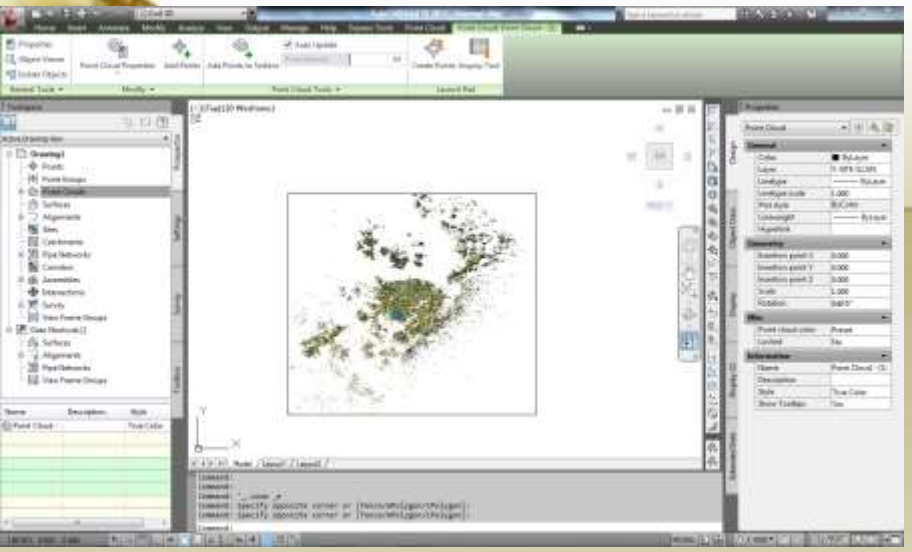
Doctoral Degree – Interdisciplinary research in the fields of Civil Engineering and Geodesy

PROGRAM OF SURVEYING AND CADASTRE IN THE POLITEHNICA UNIVERSITY OF TIMISOARA BACHELOR DEGREE MTC

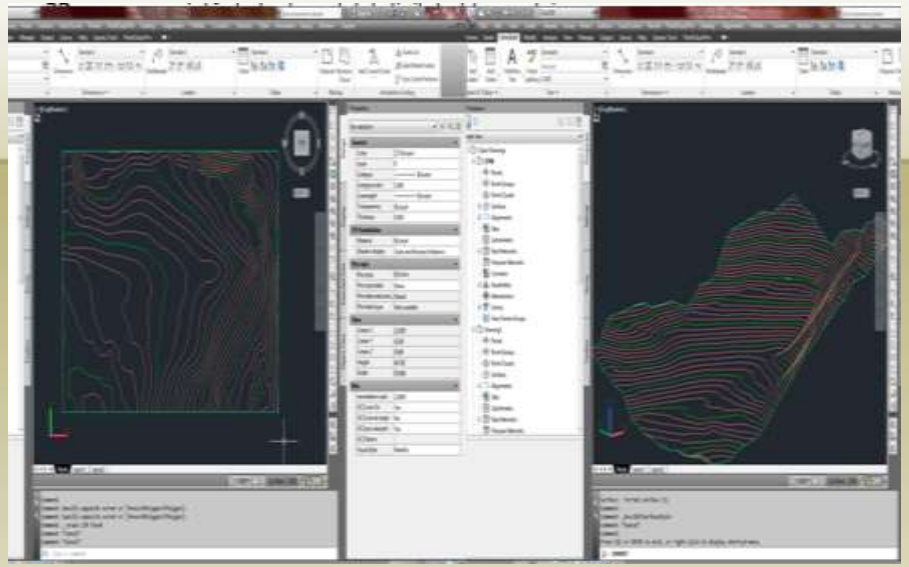


PROGRAM OF SURVEYING AND CADASTRE IN THE POLITEHNICA UNIVERSITY OF TIMISOARA MASTERAL DEGREE CEBI



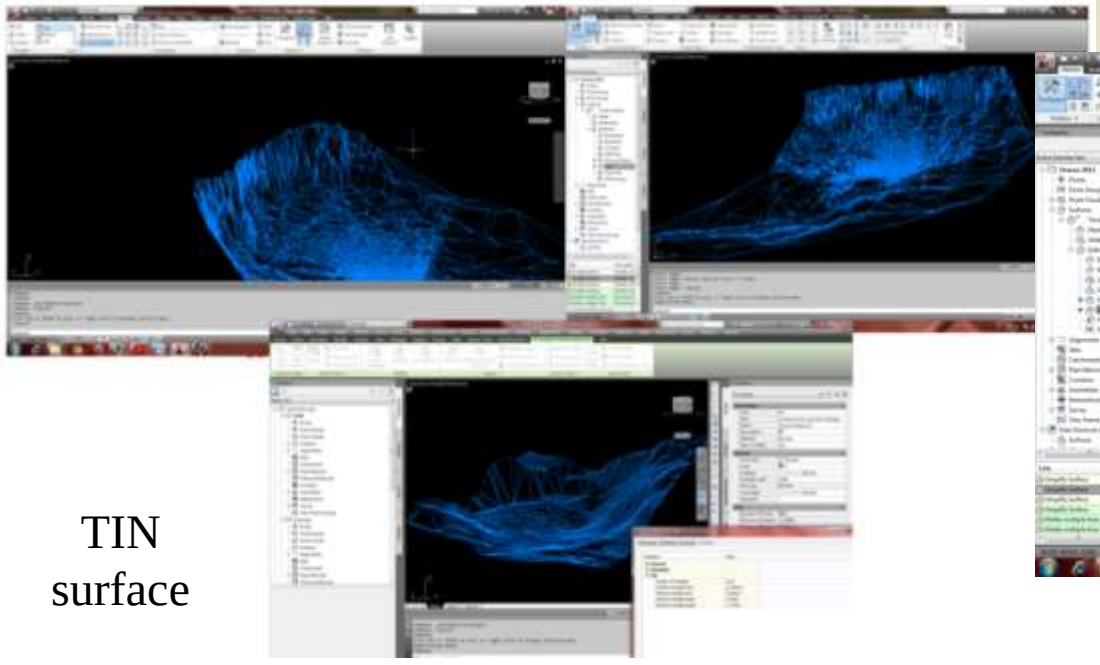


The point cloud loaded in Civil 3D

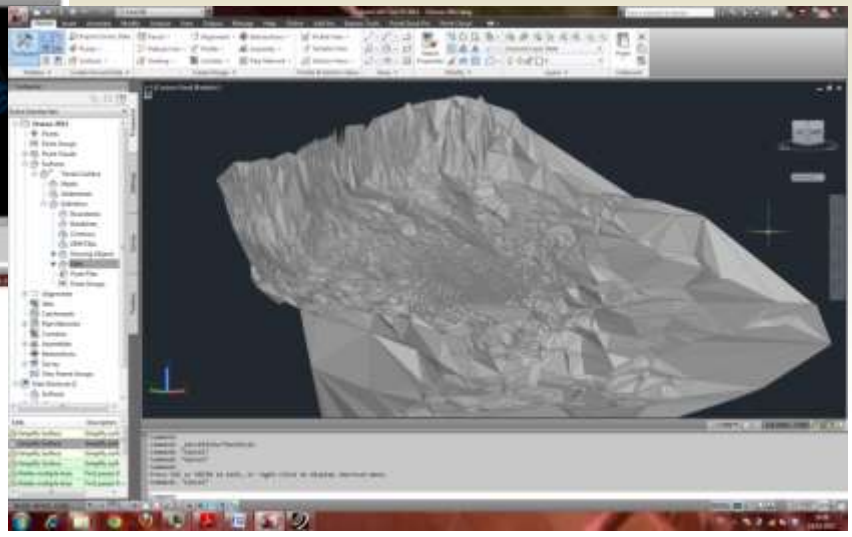


Processing of the scanned data

The 3D surface represented through contour lines



TIN surface



Solid surface

Monitoring of special constructions

The main geometric elements of the viaduct:

•length 69,30m;

•width 12,85m;

•maximum height 13,21m;

•minimum height 7,00m, towards Lugoj city and 9,4m towards Orşova city;

•thalweg arch, for water discharge, made of reinforced concrete, with a 12,50m opening.

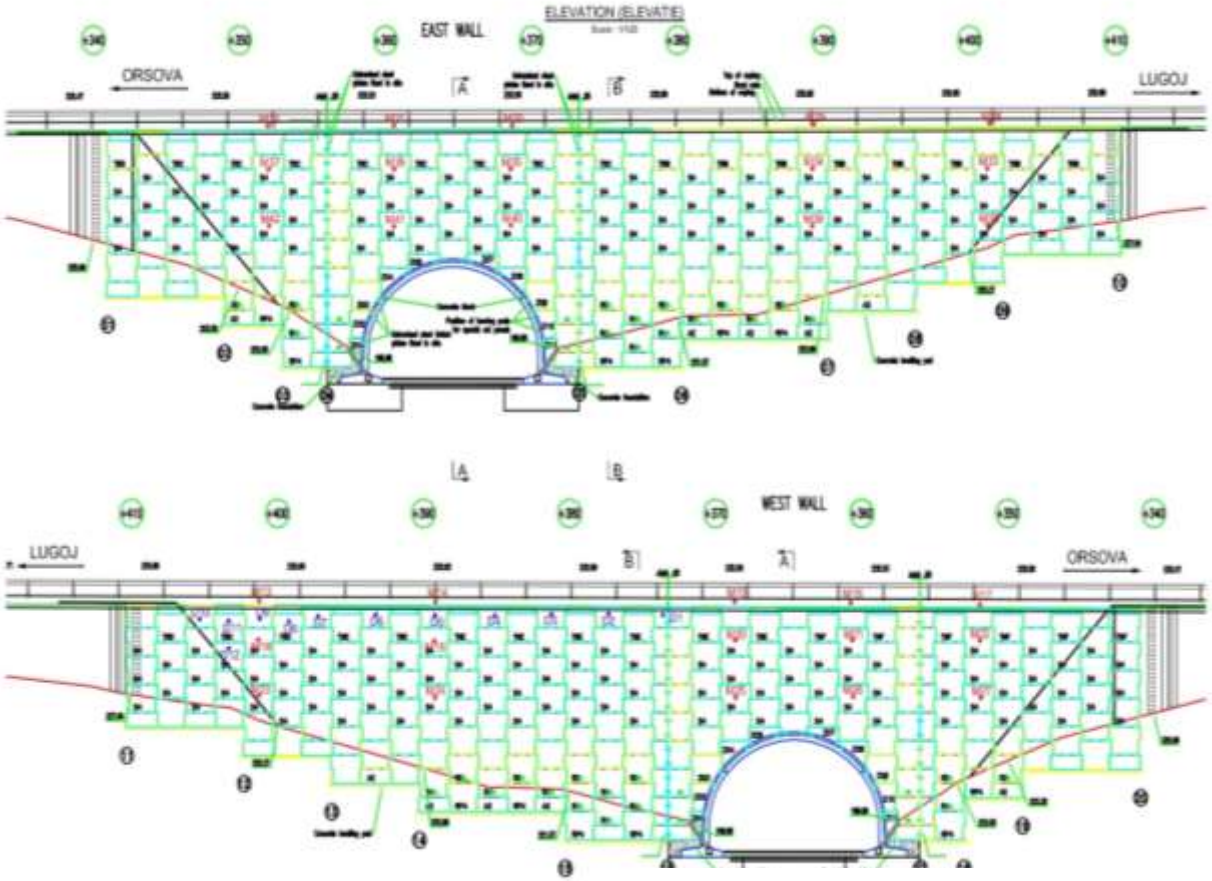
Monitoring benchmark placed on the parament

Terrestrial laser scanning: with the view of obtaining a spatial image of the earthworks or of the reinforced earth wall support.

Viaduct monitoring

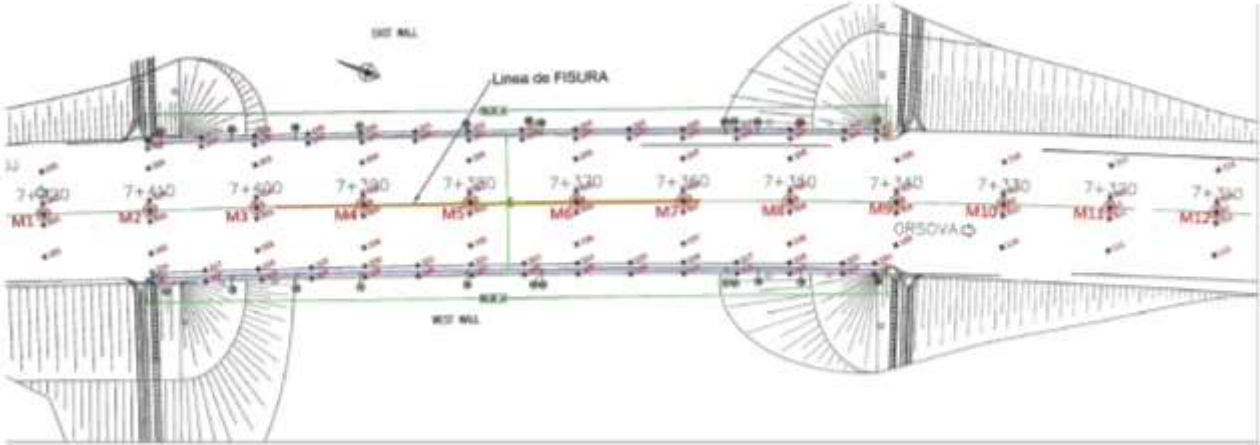
Traditional approach: Topo-geodetic campaigns using the total station at a pre-set interval of 10 days.

The monitoring methodology

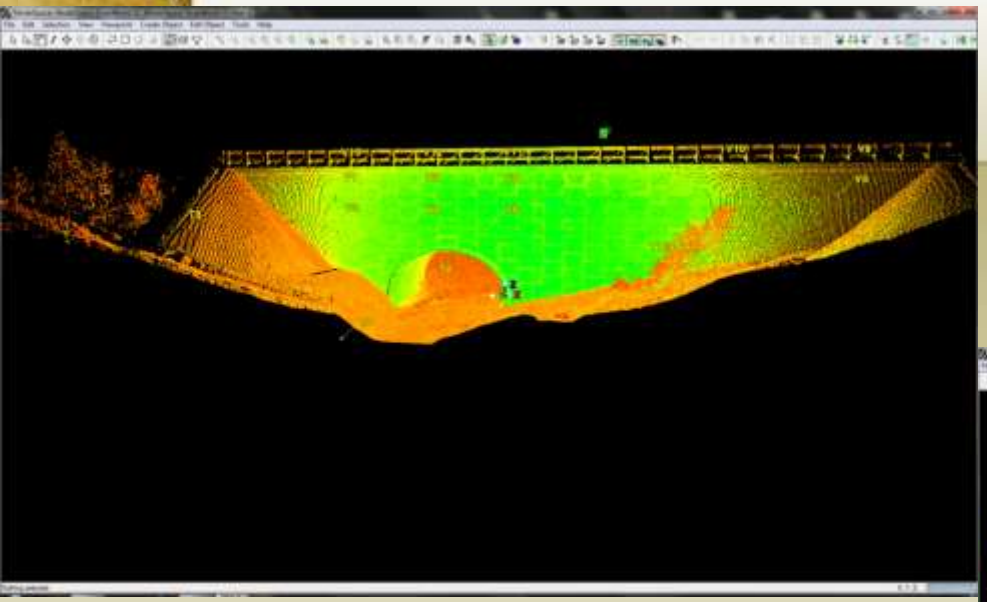


Positioning of the monitoring
Positioning benchmarks on the paraments

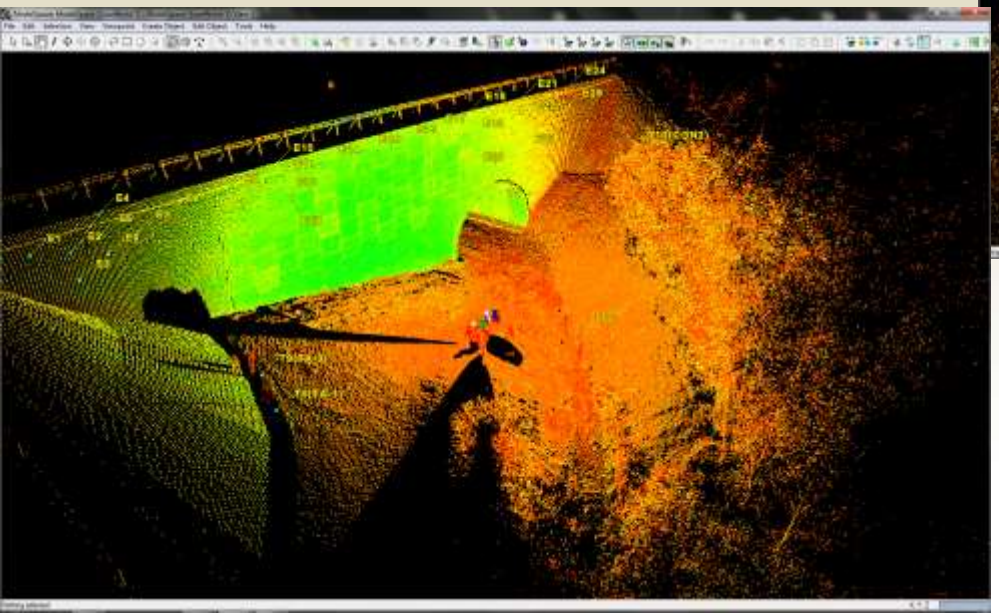
Positioning of the monitoring benchmarks on the road axis



Scanning of the viaduct

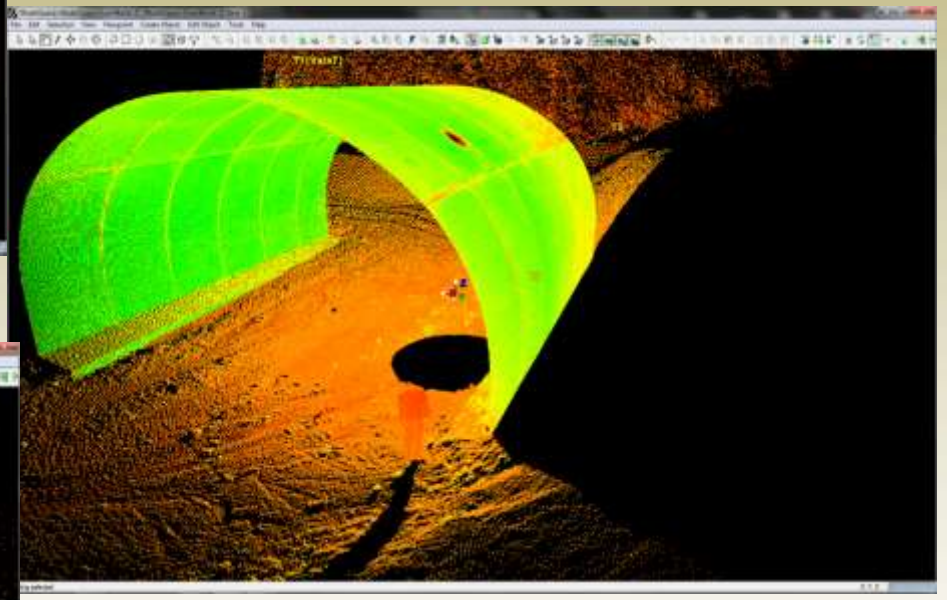


3rd station point – downstream



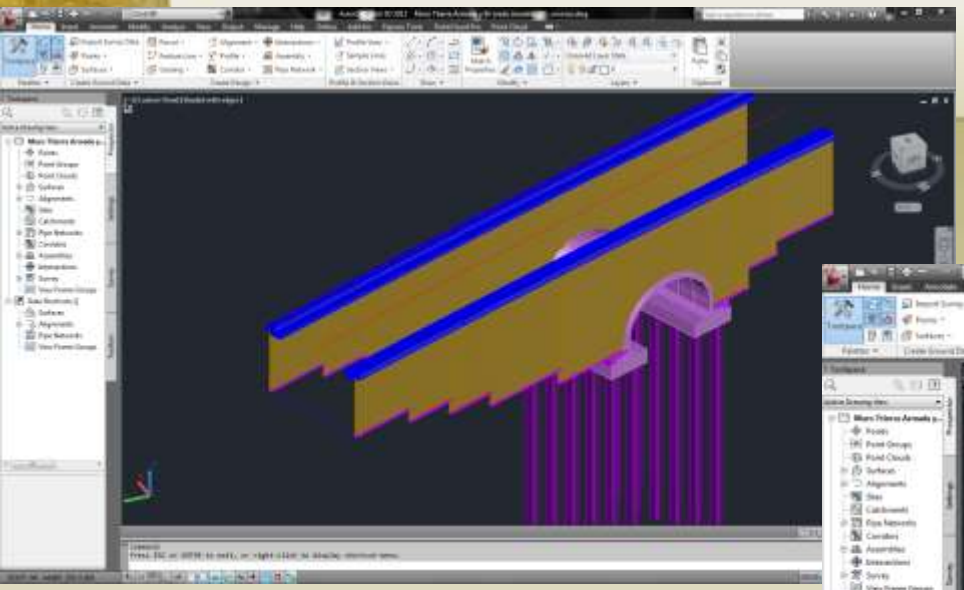
1st station point – upstream

3 point clouds obtained after the scanning campaign

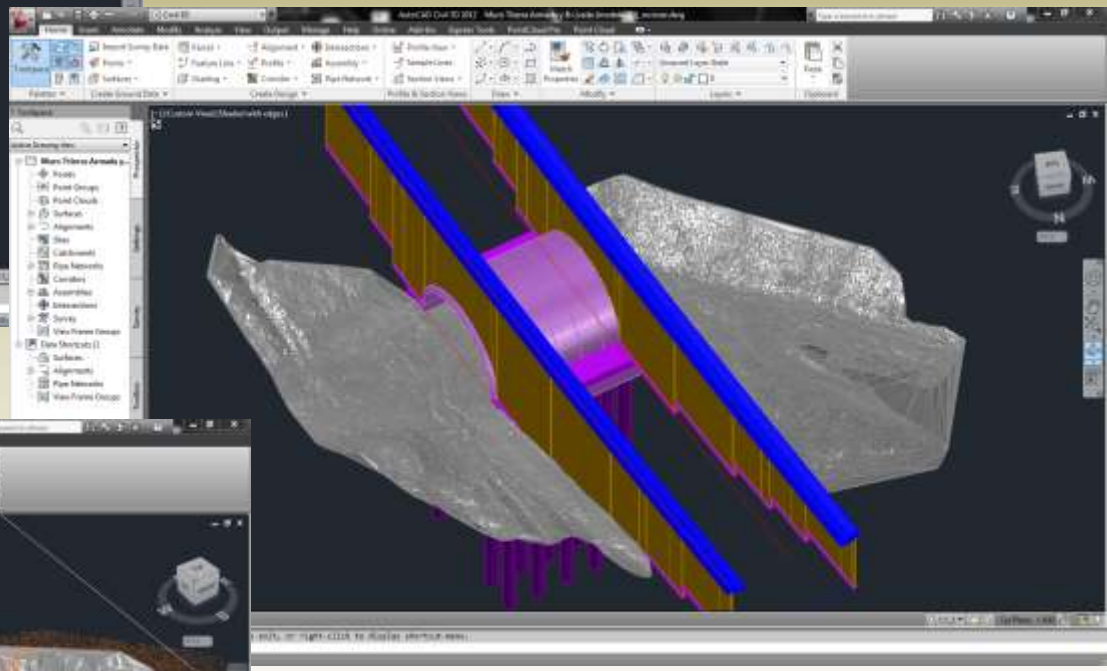


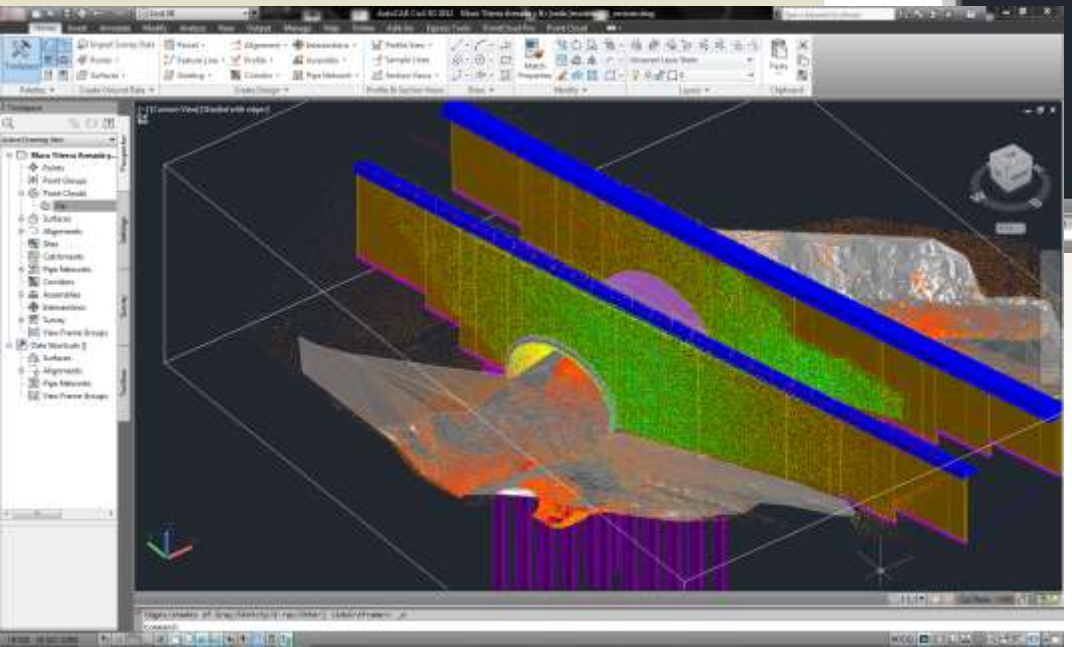
2nd station point – thalweg arch

Overlapping 3D model obtained through scanning with the one initially designed



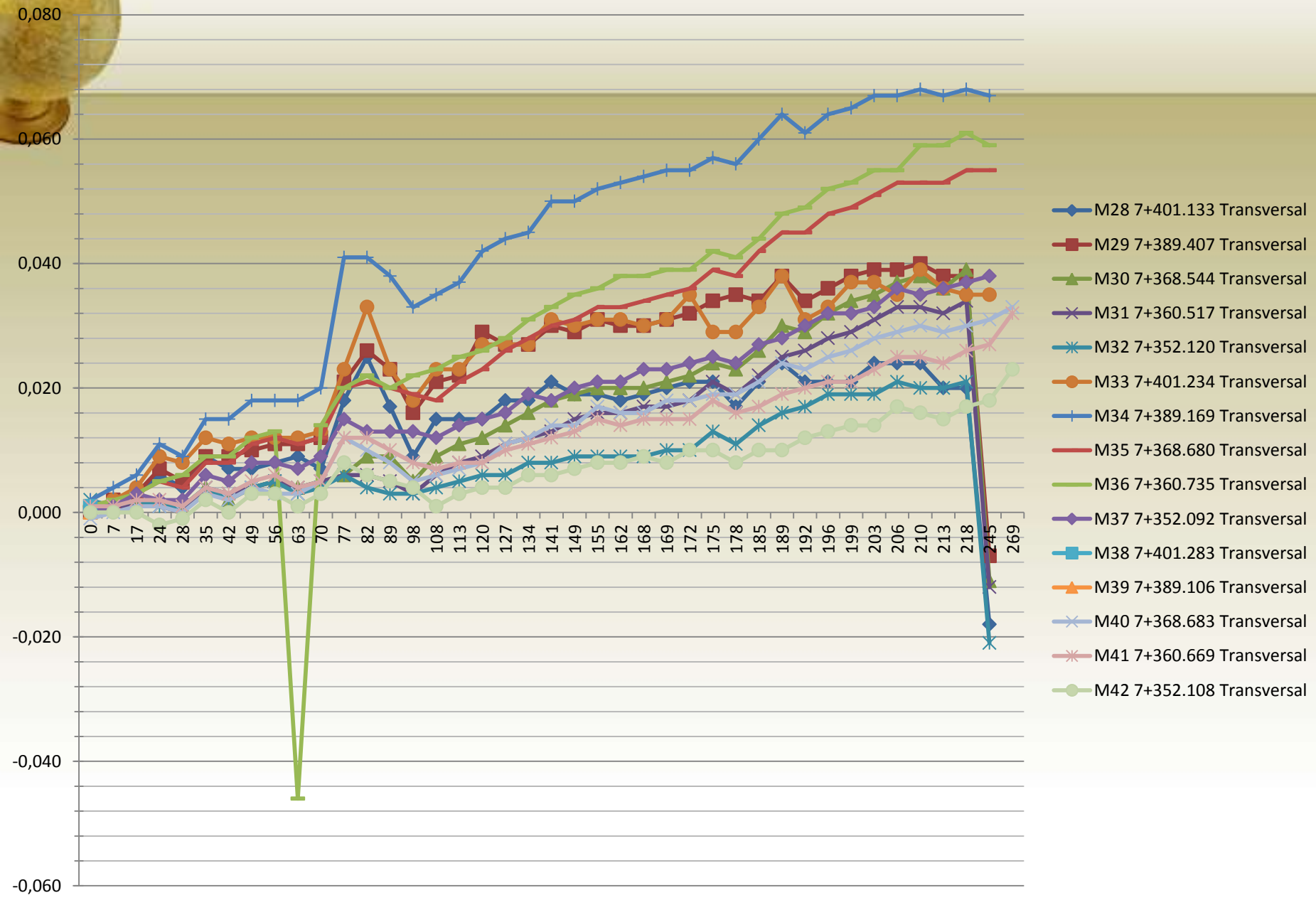
TIN + 3D Model of the Viaduct



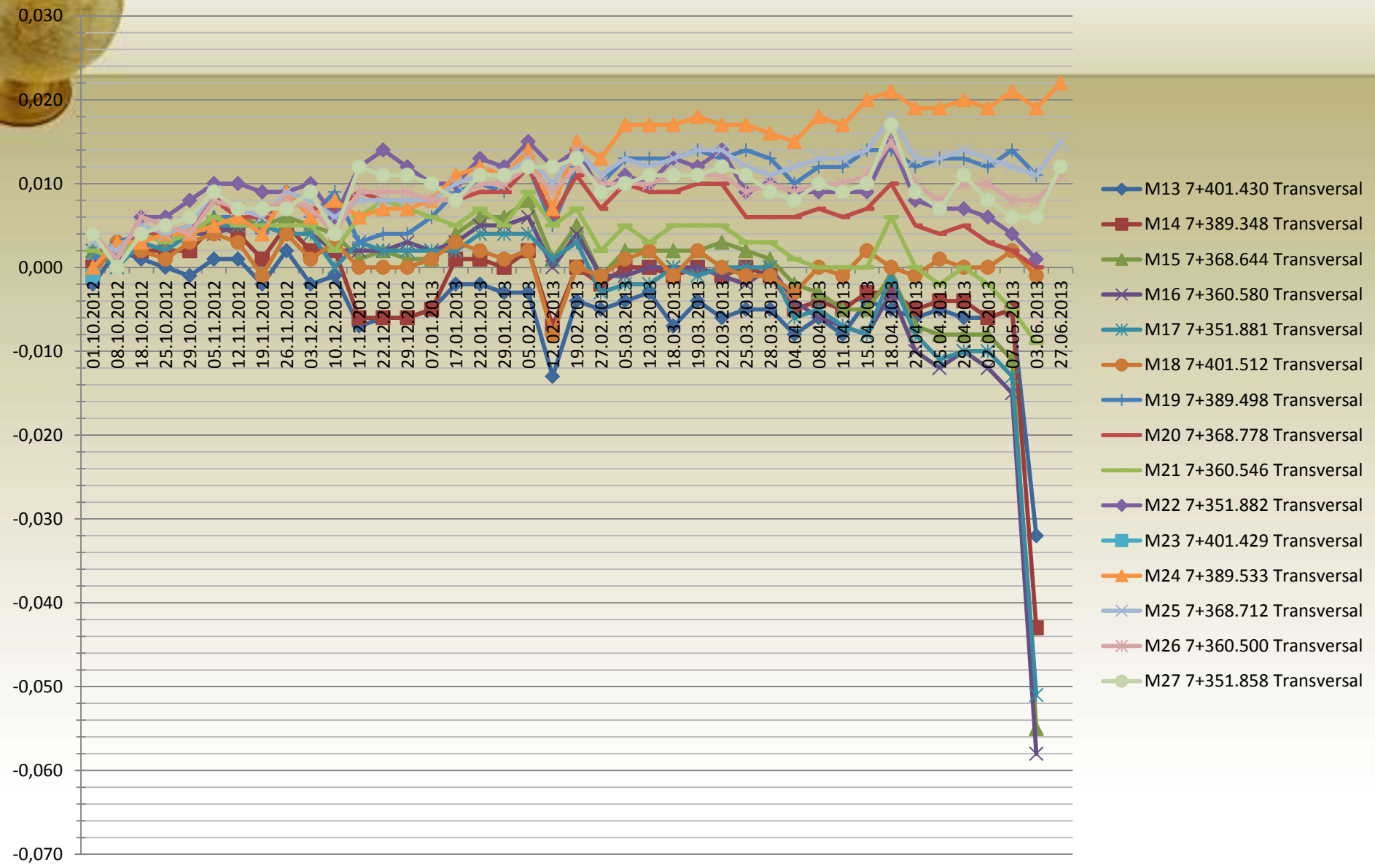


The designed 3D model overlapped to TIN and the point cloud

Evolution of the displacements at the viaduct “Valea Mică” – upstream parament



Evolution of the displacements at the viaduct “Valea Mică” – downstream parament



The Impact of Mining on the Environment

Across multiple and varied mining activity produced negative effects on the environment, as follows:

- **Topography changes, landscape degradation and displacements manifested by houses and industrial facilities operating areas;**
- **Occupation of large areas of land for mining activities, storage of minerals, industrial facilities, access roads etc.., surfaces which are thus totally unusable for other purposes, for a long time;**
- **Rivers polluted surface and groundwater contaminated;**
- **Noise, vibration and radiation scattered in the environment, with a strong adverse action.**

Building area affected due to sinking

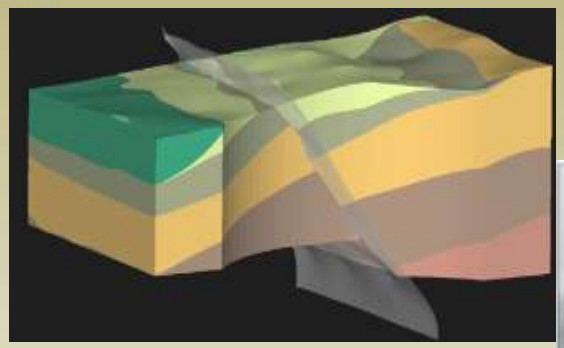
Subsidence of land surface due to the groundwater exploitation

Water Pollution

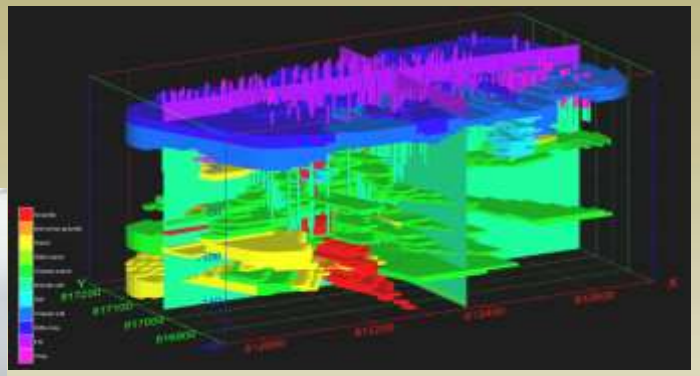
Noise and vibration

RESEARCH RESULTS

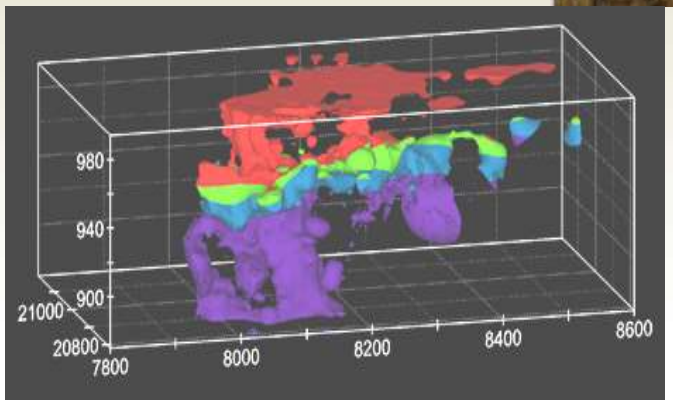
<u>3D Modeling solutions in mining</u> is useful for preliminary studies of resources evaluation, monitoring underground waters, developing feasibility studies, simulation of mineral dehydrating by advection in mines, research regarding the mine's impact on the environment etc.



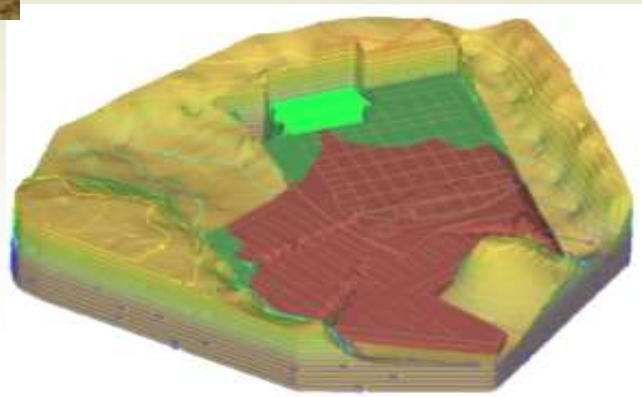
Volumetric analysis of geological layers



Geologic analysis of the layers for urban development



Geostatic modeling of the blanks in relation to the type of underground layers



3D modeling of the mine area based on topo-geodetic measuremets and geological

Strategic Partnerships

- Hungary
- Germany
- Greece
- Romanian Universitis
- Norway - UMB - SEE program with Norway
  - Proposed Research Program
- China - Wuhan University of Technology
  - Strategic cooperation

….

Before Thank You!

HORIZON 2020 CALLS -
LAST UPDATED 13th December 2013

http://ec.europa.eu/research/participants/portal/page/funding

Funding Call	Call Identifier	Budget €Mn	Deadline	2014 JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	2015 JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
HORIZON 2020 - SME INITIATIVE																											
SME INITIATIVE (STAGE 1)	Various	TBA	18/06/2014																								
SME INITIATIVE (STAGE 2)	Various	TBA	09/10/2014																								
FAST TRACK TO INNOVATION	TBA	TBA	TBA																								
HORIZON 2020 PILLAR 1 - SCIENTIFIC EXCELLENCE																											
FET	FETOPEN-1	154	30/09/2014																								
FET Flagships - Graphene	Consortium Extension	8.7	05/02/2014																								
HORIZON 2020 PILLAR 2 - INDUSTRIAL LEADERSHIP																											
Information and Communication Technologies	H2020-ICT-2014 / H2020-ICT-2015	613.5	23/04/2014																								
Nanotechnology & Advanced materials - 1 stage	H2020-NMP-2014/2015	484.7	06/05/2014																								
Nanotechnology & Advanced materials - 2 stage	H2020-NMP-2014/2015		06/05/2014																								
Biotechnology - 2 stage	H2020-BIOTEC-2014/2015	83.7	12/03/2014																								
PPP: Factories of the Future	H2020-FoF-2014/2015	261	20/03/2014																								
PPP: Energy-Efficient Buildings	H2020-EeB-2014/2015	113.5	20/03/2014																								
PPP: Sustainable Process Industries	H2020-SPIRE-2014/2015	137.3	20/03/2014																								
SPACE	Various	213.5	26/03/2014																								
HORIZON 2020 PILLAR 3 - SOCIETAL CHALLENGES																											
Health, demographic change, well being - 1 stage	H2020-PHC-2014/2015	1,086.30	15/04/2014																								
Health, demographic change, well being - 2 stage	H2020-PHC-2014/2015		11/03/2014																								
Food Security, agriculture, marine, maritime - 1 stage	Various	460.9	26/06/2014																								
Food Security, agriculture, marine, maritime - 2 stage	Various		12/03/2014																								
Energy - secure, clean, efficient - Energy Efficiency	H2020-EE-2014/2015	1,132.70	20/03/2014																								
Energy - secure, clean, efficient - Low Carbon Economy - 1 stage	H2020-LCE-2014/2015		01/04/2014																								
Energy - secure, clean, efficient - Low Carbon Economy - 2 stage	H2020-LCE-2014/2015		01/04/2014																								
Energy - secure, clean, efficient - Smart Cities	H2020-SCC-2014/2015		07/05/2014																								
TRANSPORT - SMART, GREEN, INTEGRATED - 1 stage	Various	717.5	27/03/2014																								
TRANSPORT - SMART, GREEN, INTEGRATED - 2 stage	Various		18/03/2014																								
SOCIETY - INCLUSIVE, INNOVATIVE, REFLECTIVE	Various	235.8	29/04/2014																								
CLIMATE - RESOURCES AND RAW MATERIALS - stage 1	Various	649	08/04/2014																								
CLIMATE - RESOURCES AND RAW MATERIALS - stage 2	Various		08/04/2014																								
SECURITY	Various	356.1	13/05/2014																								
EUROSTARS	N/A	328	13/03/2014																								
	TOTAL BUDGET (EU)	7,036.2																									

Confirmed call deadline:
Estimated call deadline: