

Establishment of a Basic Interactive Interpretation and Data Correlation System (IIDCS) at the Croatian Geological Survey

Belić, Nikola; Ferić, Pavle; Abatsiz, Ioannis; Kjaergaard, Lars Juul; Pedersen, Carsten Bo; Rasmussen, Erik Skovbjerg; Špelić, Marko; Budić, Marko; Sokač, Ivan

Conference presentation / Izlaganje na skupu

Permanent link / Trajna poveznica: <https://um.nsk.hr/um:nbn:hr:245:413170>

Rights / Prava: [Attribution 4.0 International](#)/[Imenovanje 4.0 međunarodna](#)

Download date / Datum preuzimanja: **2025-01-02**



Repository / Repozitorij:

[Repository of the Croatian Geological Survey](#)

THE ESTABLISHMENT OF A BASIC INTERACTIVE INTERPRETATION AND DATA CORRELATION SYSTEM (IIDCS)

AT THE CROATIAN GEOLOGICAL SURVEY

Nikola Belić^{1,*}, Pavle Ferić¹, Ioannis Abatsiz², Lars Juul Kjærgaard², Carsten Bo Pedersen², Erik Skovbjerg Rasmussen², Marko Špelić¹, Marko Budić¹ and Ivan Sokač¹

¹ Hrvatski geološki institut – Croatian Geological Survey.

*corresponding author: nbelic@hgi-cgs.hr

² GEUS Geological Survey of Denmark and Greenland

Keywords: Interactive Interpretation and Data Correlation System
Geological modelling, Zagreb geothermal aquifer, GeoTwin

The establishment of a basic Interactive Interpretation and Data Correlation System (IIDCS) at the Croatian Geological Survey is one of the main goals of the GeoTwin project. GeoTwin is a Horizon 2020 project intended and designed to twin the Croatian Geological Survey (HGI-CGS) with two world-leading geoscience research institutes; the Geological Survey of Denmark and Greenland (GEUS) and the British Geological Survey of the United Kingdom Research and Innovation (BGS-UKRI), leading to significantly strengthen HGI-CGS's research collaboration (<http://projects.hgi-cgs.hr/geotwin/>). GeoTwin project consists four Work Packages (WPs); (1) 3D geological surveying and modelling, (2) advanced groundwater flow and contaminant transport modelling, (3) geological hazards, and (4) geothermal energy.

Geological modelling of the greater Zagreb area and its deep geothermal aquifer is the main objective of WP1. The model is to be used for modelling of geochemical processes, fluid flow and heat flow modelling in the WP4. Zagreb geothermal aquifer is situated inside Triassic dolostones, dolomitic limestones, and Badenian bioclastic limestones of the Vrapče formation (AVANIĆ et al., 2018). Based on well data, Zagreb geothermal aquifer is situated in depths between (approx.) 800 to 900 meters, while interpretation of seismic data suggests very complex structural and stratigraphic relations.

Halliburton Landmark OpenWorks and DecisionSpace Geosciences software package was used for interpretation, modelling, and storing input data as well as for interpreted data.

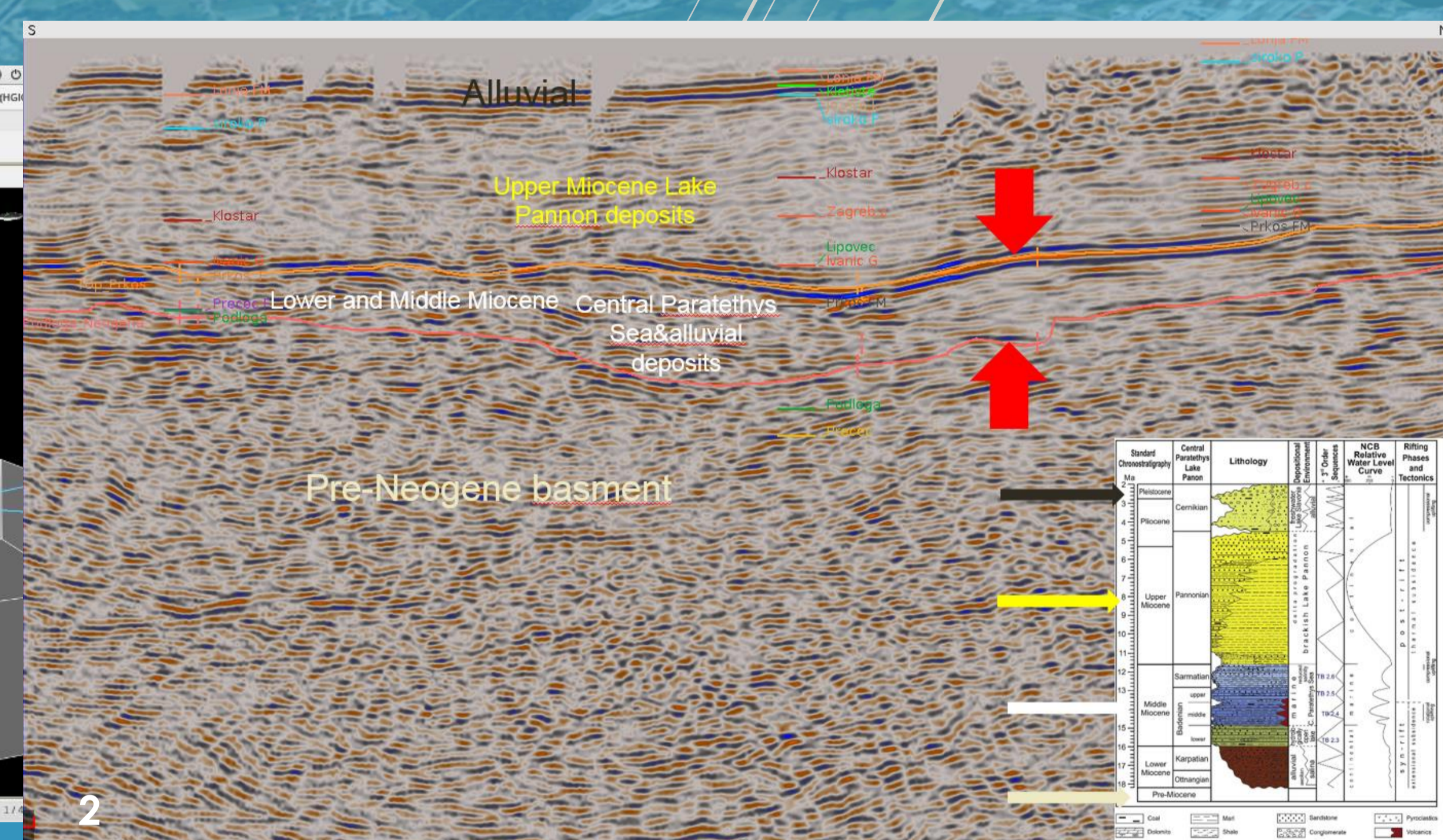
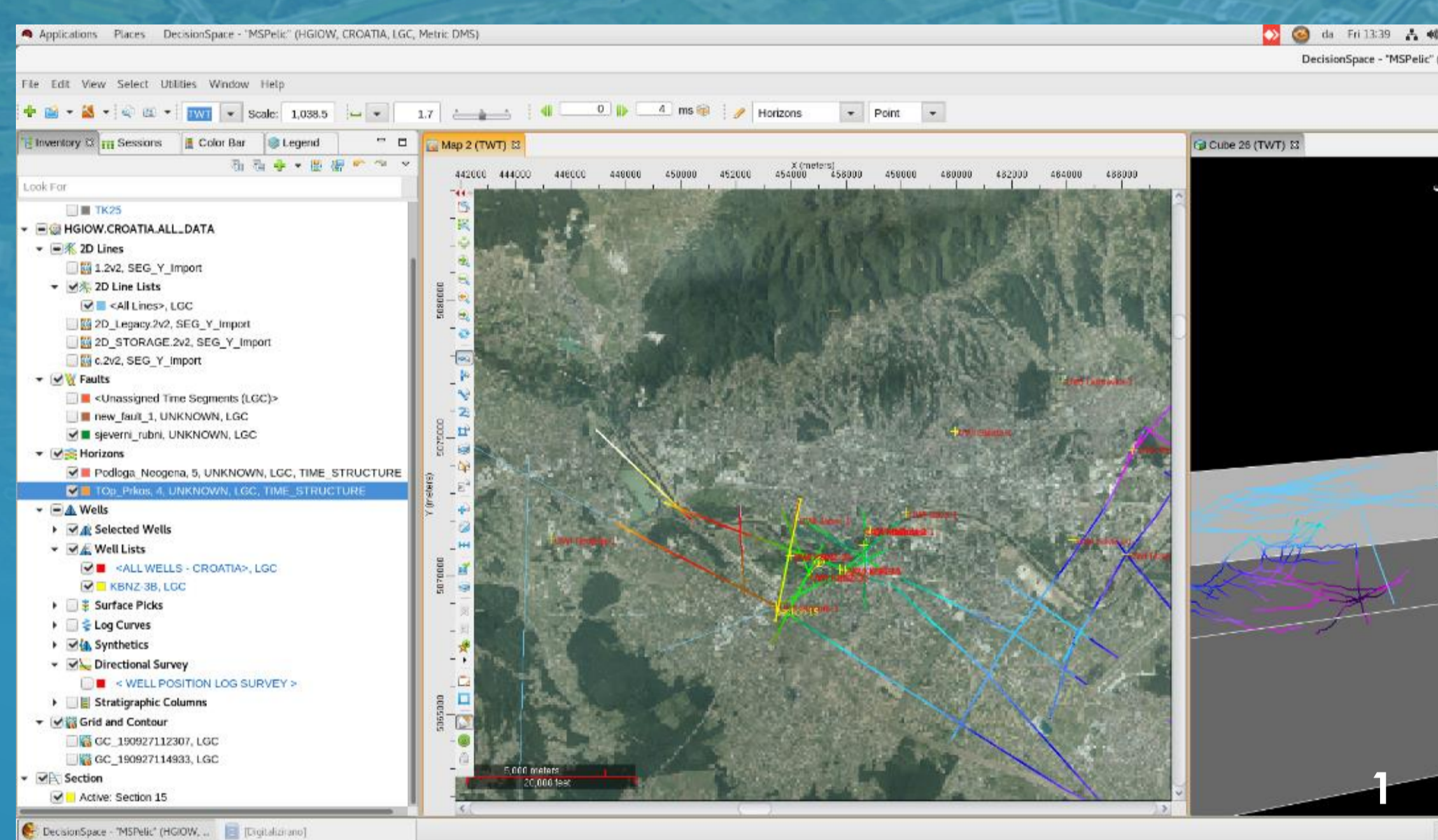


Figure 2: GeoTwin participants at the Landmark Geosciences Forum in Budapest; (From left to right), Marko Budić, Pavle Ferić, Ioannis Abatsiz, Jakob Lanstorp, Lars Juul Kjærgaard, Peter Britze, Nikola Belić and Carsten Møller Nielsen.

Figure 3: HGI-CGSs Marko Špelić working on Interactive Interpretation and Data Correlation System (IIDCS) at the Croatian Geological Survey.

Acknowledgements:

HGI-CGS' and GEUS' scientists, participating in the implementation of Task 1.2,3 of the GeoTwin project and their Management, would like to express their sincere appreciation to the European Commission and the H2020-WIDESPREAD-05-2017-Twinning Programme for their approval of the GeoTwin project and for their continuous financial support that is vital for the overall successful implementation of the project.

HGI-CGS' scientists participating in the implementation of Task 1.2,3 and their Management would like to express their sincere appreciation to their GEUS partners: Ioannis Abatsiz, Lars Juul Kjærgaard, Carsten Bo Pedersen, and Peter Britze for their fruitful cooperation, guidance and assistance in establishing an IIDCS at HGI-CGS and for their dedication and tireless efforts in sharing their experience and knowledge in administrating and using the DecisionSpace Geosciences facilities.

Mr. Adrian Gheorghita from Halliburton-Landmark Company is thanked, for making possible to use and testing of the Landmark System "in-house" at no cost on the basis of a "one-year academic software license" donated by Halliburton-Landmark for use during the GeoTwin project.

The certified expert Mr. Roberto Nobrega, also from Halliburton-Landmark, is thanked for his kind help and patience during the Landmark System Mentoring Course, as well as, the people at Landmark's customer support for their help and guidance during the installation, and introduction in using the Landmark System.

Ms. Tatjana Durn at Croatian Hydrocarbon Agency is thanked for her kind assistance to HGI-CGS and the GeoTwin project in particular. Her fruitful cooperation and efforts were most important in receiving the Agency's permission to use the requested data for carrying out the GeoTwin showcase study in the greater Zagreb area.

The IIDCS is built primarily for the GeoTwin project, and will be used for the interpretation of geophysical and geological data, the advanced reservoir modelling, and finally, for building an Initial 3D reservoir-properties model for the greater Zagreb area. It is also the intention of GeoTwin to use the IIDCS for introducing the digital storage, organization and management of all kinds of geophysical, geological and petrophysical data available at the Croatian Geological Survey. Modelling of Geological Basins is typically based on integration of deep seismic and borehole data. In order to have systematically arranged data needed for the interpretation and modelling, it requires establishment of a basic Interactive Interpretation and Data Correlation System (IIDCS).

References:

AVANIĆ, R., ŠIMUNIĆ, AN. & PEH, Z. (2018): Geology of the Croatian Zagorje Region.- U: RMAN, N., MARKOVIĆ, T. & BRENCIĆ, M. (ur.): 5. Slovenski geološki kongres, Post congress field trip book, 35, Ljubljana.

PAVELIĆ, D., KOVAČIĆ, M. (2018): Sedimentology and stratigraphy of the Neogene rift-type North Croatian Basin (Pannonian Basin System, Croatia): A review, Marine and Petroleum Geology vol. 91, p. 455-469.

Google Sat. Images: <https://www.google.hr/maps>

Aerial Images: <https://geportal.dgu.hr/wms/>

