



Workshop on the Danube Region Geothermal Concept (DanReGeotherm)

*Budapest, 28 November 2013
Geological and Geophysical Institute of Hungary*

CROATIA

Tamara Marković, Staša Borović, Radovan Filjak

Croatian Geological Survey

Main deep geothermal reservoirs



DEEP AQUIFERS HYDROTHERMAL SYSTEMS

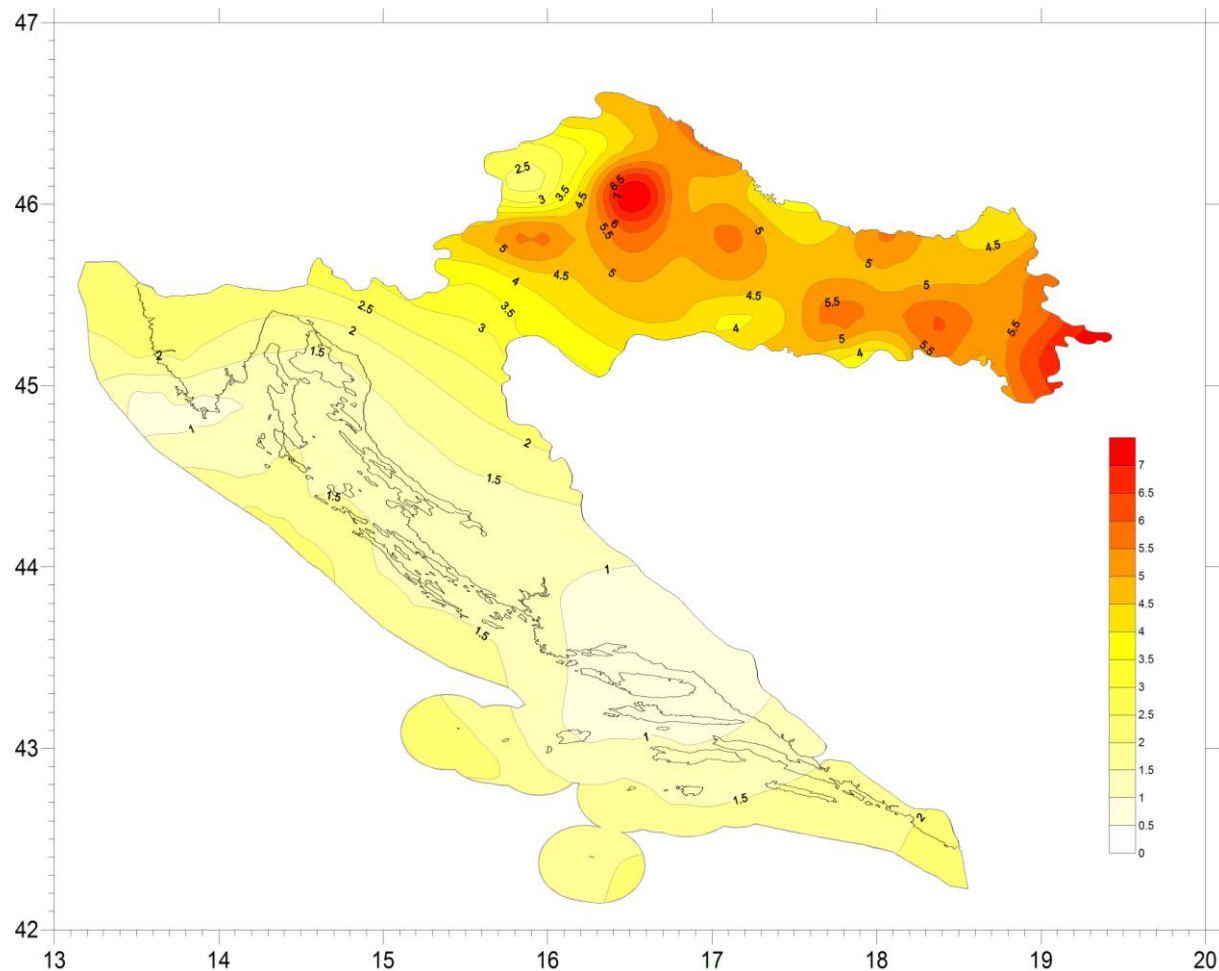
- sedimentary basin conditions
- synclinalorium fractured by many faults (Mura, Drava, Sava and Slavonija–Srijem depressions)
- a single fold and a marginal fault
- sandstones, dolomites, metamorphites
- $T < 20 - 65^{\circ}\text{C}$
- $T = 50 - 200^{\circ}\text{C}$

Main deep geothermal reservoirs



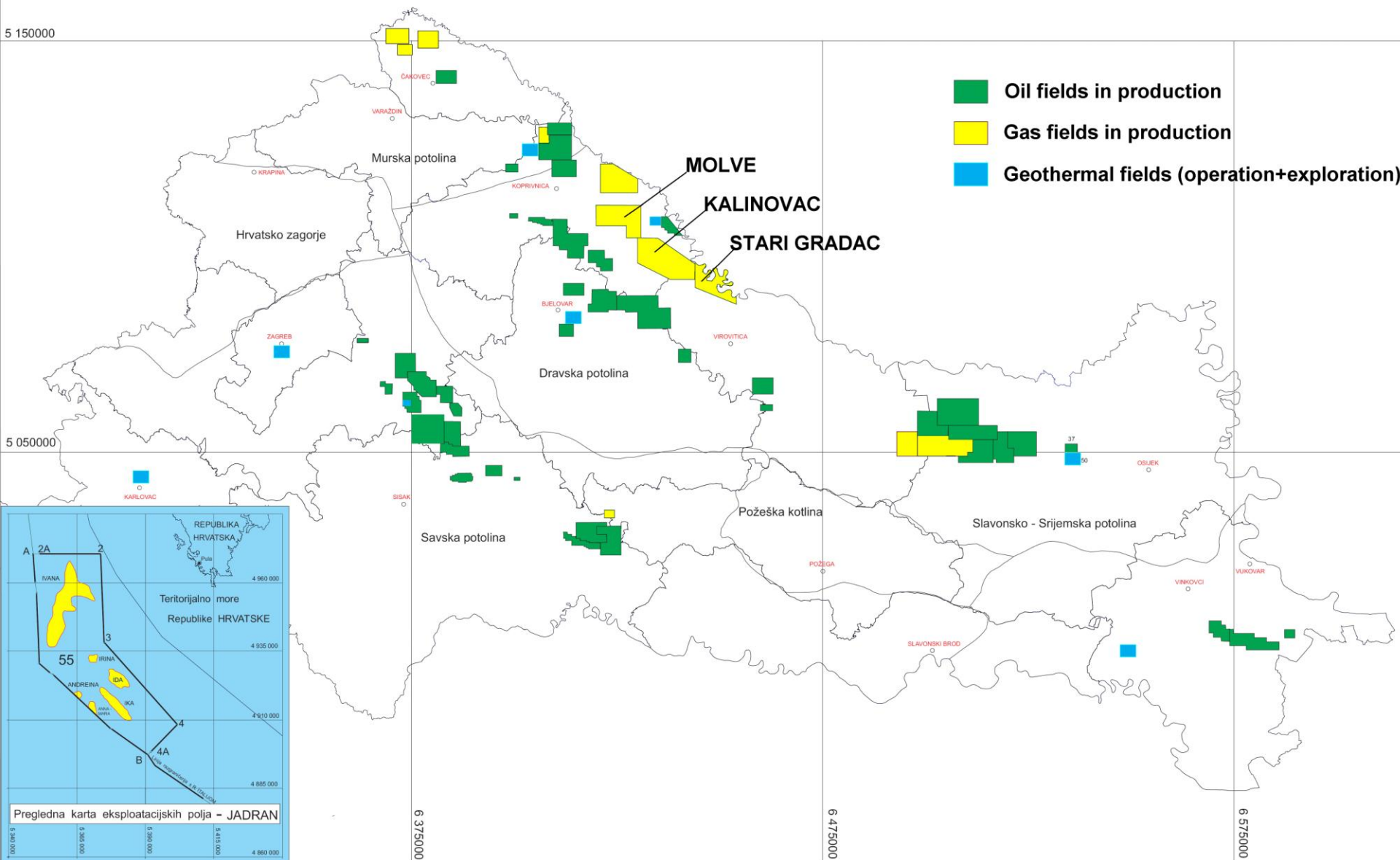
- Two significantly different geothermic regions
- Dinaric region – low heat flow and temperature gradient
- Pannonian part – favorable geothermal conditions – average heat flow is 76 mW/m², and geothermal gradient 0,049 °C/m

Main deep geothermal reservoirs



Geothermal
gradient map
(according to Jelić)

Main deep geothermal reservoirs



Main types of current utilization of geothermal energy



foto MK 2011.

Data policy

- National geothermal spatial data sets are partial, dispersed and not available to the public
- A large quantity of data was gathered in the realm of the GEOEN project of geothermal energy utilization by the Energy institute Hrvoje Požar (many data regarding the potential for utilization were published, but spatial data sets are not publically available)
- Data gathered and organized into spatial data sets as a part of the project Geothermal map of Croatia at Croatian geological survey – not available to the public
- The data about geothermal aquifers acquired during hydrocarbon exploration were gathered by national oil company INA and are the property of the Republic of Croatia and administered by the Ministry of economy
 - data is currently being transferred to Croatian geological survey, but the regulation concerning data utilization and availability is still not defined.

Main stakeholders of geothermal projects

Stakeholder name	Type	website	contact person	email/availability
Croatian geological survey	Research institute	www.hgi-cgs.hr	Tamara Marković Staša Borović	tmarkovic@hgi-cgs.hr sborovic@hgi-cgs.hr
Faculty of mining, geology and petroleum engineering	Faculty	www.rgn.hr	Domagoj Vulin Tomislav Kurevija	domagoj.vulin@rgn.hr tomislav.kurevija@rgn.hr
Ministry of economy	Authority	www.mingo.hr		
Energy institute Hrvoje Požar	Research institute	www.eihp.hr	Danica Maljković	dmaljkovic@eihp.hr
INA – MOL ???				

Thank you for attention!

