



Deep U-tube heat exchanger breakthrough: combining laser and cryogenic gas for geothermal energy exploitation

WEBINAR

Does Deep Drilling need A Revolution ?

Introduction to the **DeepU project** and the webinar agenda

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Geoserv



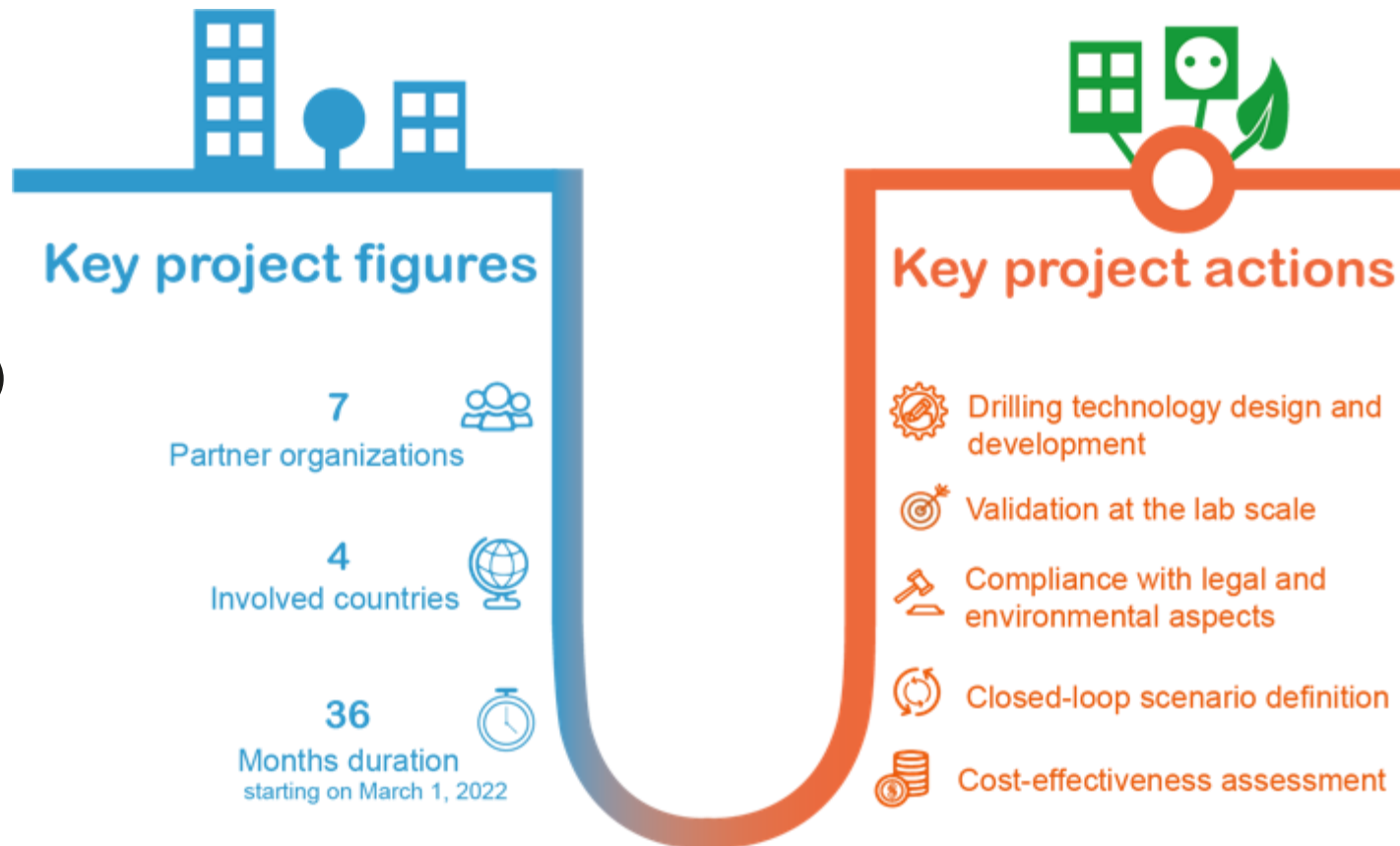
Consiglio Nazionale
delle Ricerche

www.deepu.eu



The DeepU Project Objectives and main actions

- Development of **laser drilling combined with cryogenic gas flushing**
- Extracting energy from **deep (>4 km)** U-shaped or other closed-loop heat exchangers
- **Reducing the costs** of drilling
- Making accessible **geothermal energy anywhere**



Project duration: 44 months
Hop-on extension: July 2023



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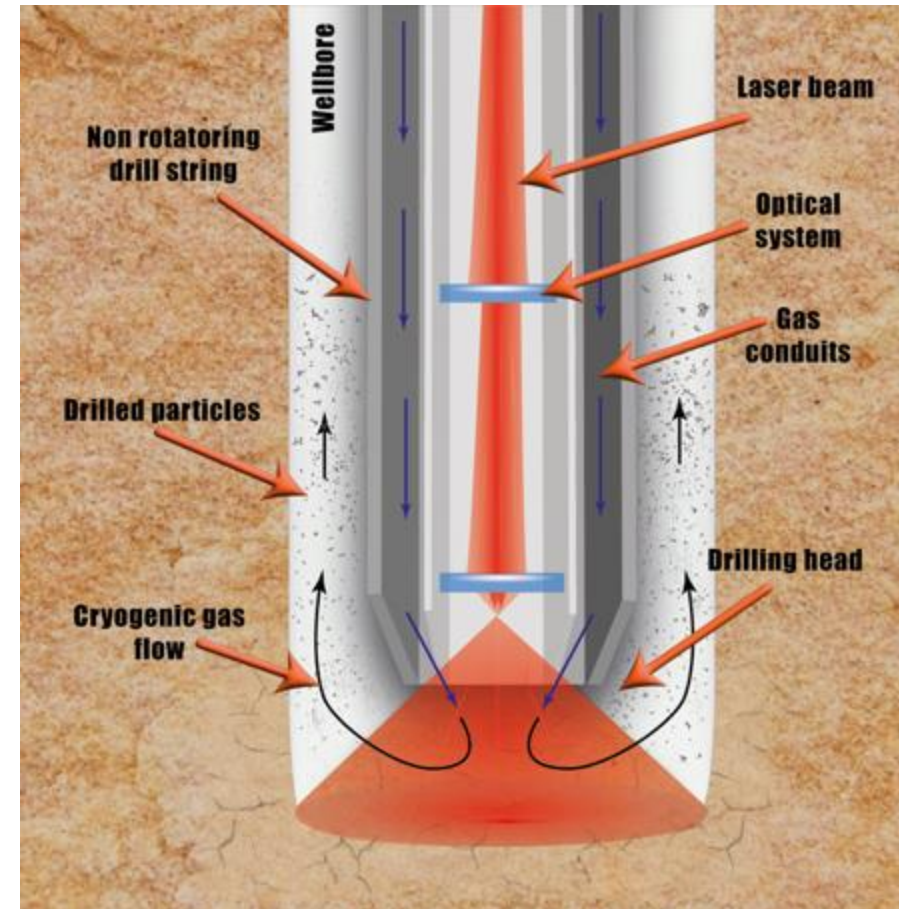
INNOVATIVE DRILLING TECHNOLOGY

A **laser** propulsion drilling method is combined with **cryogenic gaseous flushing** for cooling the laser drill head, borehole walls and bringing the cuttings to the surface

Improved Rate Of Progress
Reduced drilling time and cost

In case a glazed layer is formed on the borehole walls, the borehole is physically isolated from the surrounding formations without requiring further casing activities.

Reduced time and casing cost



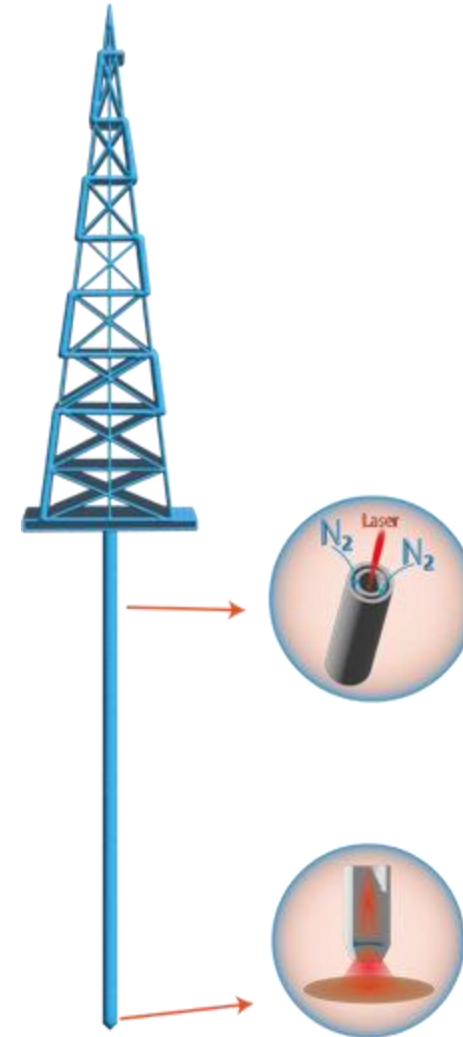


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The DeepU Team

7 international teams work on different aspects of DeepU Project, such as:

- Laser driven drill bit
- Gas flushing system simulations and drill string design
- **Scaled model** of U-tube heat exchanger
- Petrophysical characterization of drilling process
- Standards and regulatory integration
- Exploitation planning and IPR management
- Communication
- Management





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The Webinar Agenda

- ☐ *Drilling Deeper Faster - State of the Art*
Kevin Mallin, GeoServ, Ireland
- ☐ *Drilling rocks with laser, Sci-fi or new reality? A DeepU case study*
Pawel Slupski, Padova University, Italy
- ☐ *Laser drill cryogenic system*
Maciej Chorowski, Wroclaw University of Science and Technology, Poland
- ☐ *Environmental and regulatory aspects*
Riccardo Pasquali, GeoServ, Ireland
- ☐ Q&A from audience



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Thank You for Your Attention

We would be delighted to hear from you

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