



DELIVERABLE D7.6

Report on the first year activities

Subtitle

Lead Beneficiary: WP leading partner acronym

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TABLE OF CONTENTS

EXECUTIVE SUMMARY	5
1. INTRODUCTION	6
1.1 SUMMARY OF THE CONTEXT AND OVERALL OBJECTIVES OF THE PROJECT	6
1.2 WORK PERFORMED FROM THE BEGINNING OF THE PROJECT TO THE END OF THE PERIOD COVERED BY THE REPORT AND MAIN RESULTS ACHIEVED SO FAR.....	6
1.3 PROGRESS BEYOND THE STATE OF THE ART, EXPECTED RESULTS UNTIL THE END OF THE PROJECT AND POTENTIAL IMPACTS (INCLUDING THE SOCIO-ECONOMIC IMPACT AND THE WIDER SOCIETAL IMPLICATIONS OF THE PROJECT SO FAR).....	7
1.4 POLICY RELEVANT EVIDENCE OF YOUR PROJECT	7
2. WORK CARRIED OUT BY THE BENEFICIARIES AND OVERVIEW OF THE PROGRESS.....	9
2.1 OBJECTIVES.....	10
2.2 EXPLANATION OF THE WORK CARRIED PER WP	10
2.1.1 WP1: Gas flushing medium for geothermal deep drilling	10
2.1.2 WP2: Scaled model U-tube heat exchanger	12
2.1.3 WP3: Petrophysical characterization of rock samples	15
2.1.4 WP4: Standards & Regulatory Integration.....	18
2.1.5 WP5: Exploitation planning and IPR management	20
2.1.6 WP6: Dissemination and Communication	21
2.1.7 WP7: Management	23
3. PROJECT NEXT STEP	24
3.1.1 WP1: Gas flushing medium for geothermal deep drilling	24
3.1.2 WP2: Scaled model U-tube heat exchanger	25
3.1.3 WP3: Petrophysical characterization of rock samples	25
3.1.4 WP4: Standards & Regulatory Integration.....	25
3.1.5 WP5: Exploitation planning and IPR management	25
3.1.6 WP6: Dissemination and Communication	26
3.1.7 WP7: Management	26
REFERENCES	27

TABLE OF FIGURES

FIGURE 1: THE LASER BEAM ON THE ROCK SAMPLE BEFORE STARTING THE DRILLING OPERATION	8
FIGURE 2: DEEPU PROJECT ORGANIZATION.....	9
FIGURE 3 (A) DRILL PIPE AS A WHOLE, INCLUDING THE DRILL HEAD; (B) CROSS-SECTION THROUGH THE DRILL PIPE, WITH THE OUTER AND INNER TUBES AND THE FLEXIBLE CRYOTUBES (IN DARK BLUE); (C) CRYOTUBE WITH A SO-CALLED JOHNSTON MALE AND FEMALE COUPLING.....	12
FIGURE 4 (A) EXPERIMENTAL SET-UP IN A PRESS CONTAINER; FIRST DRILLING RESULTS IN A SANDSTONE (B) AND A GRANITE (C) BLOCK WITH THE COPPER TUBE LEADING THE NITROGEN GAS FLOW AT ROOM TEMPERATURE TO BLOW THE MELTED ROCK PARTICLES OUT OF THE BOREHOLE.	14
FIGURE 5: LASER DRILLING ON LIMESTONE; (B) GRANITE ROCK FIRST BLOCK COMPLETELY PENETRATED BY LASER DRILLING AND (C) DRILLING OF THE GRANITE ROCK SECOND BLOCK	14
FIGURE 6: THE 8 ROCKS SLABS SENT TO UNIPD FOR THE PETROPHYSICAL CHARACTERIZATION.	16
FIGURE 7: LASER DRILLING EFFECT ON ROCK SAMPLES AND MELTED MATERIAL FOUND AT THE BOTTOM HOLE WITH THE PRODUCTION OF GLASS FOR SANDSTONE AND GRANITE, TO BE ANALYSED IN DETAIL BY THIN SECTIONS.	17
FIGURE 8: COMPOSITE EXAMPLE OF TYPICAL GEOTHERMAL LICENCE STAGES AND APPLICATION REQUIREMENTS. BLACK BOXES HIGHLIGHT TOPICS DIRECTLY RELATED TO DEEPU TECHNOLOGY HOWEVER ACTIVITIES SUCH AS EIAR AND FIELD DEVELOPMENT PLANNING ARE RELATED ALSO.	19
FIGURE 9: (A) DEEPU LEAFLET FRONT; (B) DEEPU BROCHURE FRONT.	23

LIST OF TABLES

TABLE 1: CRITICAL TEMPERATURE, TRIPLE POINT TEMPERATURE, BOILING POINT TEMPERATURE, MELTING POINT TEMPERATURE AND CRITICAL PRESSURE VALUES FOR THE FOUR CRYOGENIC GASES CONSIDERED	11
TABLE 2: ROCK SAMPLES DRILLED WITH ONLY LASER RECEIVED BY UNIPD	16

ABBREVIATIONS AND GLOSSARY OF ACRONYMS

Acronym	Extended definition
CA	Consortium Agreement
D	Deliverable
DCM	Dissemination and Communication Manager
D&C	Dissemination and Communication
DPM	Data Management Plan
EC	European Commission
FAIR	Findable, Accessible, Interoperable and Reusable
GA	Grant Agreement
HE	Horizon Europe
IPR	Intellectual Property Rights
M	Month
PC	Project Coordinator
PDEC	Plan for Dissemination and Exploitation including Communication activities
PM	Program Manager
PO	Project Officer
SC	Steering Committee
VRE	Virtual Research Environment
WP	Work Package

EXECUTIVE SUMMARY

The DeepU project started in March 2022 and will run for three years. It involves six participants coordinated by the University of Padua, Italy. The project structure is based on seven work packages (WPs). Five of these (WP1 to WP5) address the technological and scientific development of the project and are assisted by two WPs devoted to dissemination and communication (WP6) and management (WP7). DeepU is expected to achieve technical and environmental/standardization innovation goals. The former focuses on developing a lightweight drill string to transport the cryogenic gas and sheath the laser beam (WP1) and creating a scaled U-tube heat exchanger model by deflecting the laser beam using a special mirror optics (WP2). The latter aims to assess the thermal effects of the laser beam and cryogenic gas on hard/soft rocks in terms of borehole wall vitrification (WP2-WP3), to characterize the drilling residues generated by the laser (WP3), to define the regulatory aspects and the environmental, health and safety (EHS) evaluation of the DeepU technology (WP4), to assess the commercial attractiveness of DeepU (WP5).

This deliverable report on the first 12 months of project activities.

The introduction focus on (i) summarizing the context and overall objectives of the project, (ii) showing the work performed from the beginning of the project to the end of the period covered by the report (12 months) and the main results achieved so far, (iii) presenting the progress beyond the state of the art, the expected results until the end of the project and the potential impacts.

Then, the core of this deliverable highlights the activities performed on the first year of the project, pointing put the main achievements reached up to now, in agreement with the project workplan. Proceeding by WP, an overview of the work carried in each WP is provided, together with an explanation of the main outcomes.

Finally, an overview of the next Project steps taking into account the cooperation between different WPs is presented.

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