GEOFIT

SMART GEOTHERMAL

SMART GEOTHERMAL SYSTEMS

EXTERNAL TRAINING SERIES

20 & **27** **September 2022**
11 **October 2022**

More information on these **Online events**, visit:

https://geofit-project.eu/

ABOUT GEOFIT

GEOFIT is an EU-funded research project focussing on the use of shallow geothermal energy for heating and cooling of buildings. It specifically addresses retrofitting, therefore tackling the specific issues one has to face while designing, installing and operating a geothermal system in an existing building (Ground source Heat Exchanger – HEX, Heat Pump – HP, heating and cooling emission system).

GEOFIT aims to answer to the challenge by developing **easy-to-install and efficient underground coupling systems**, including historical buildings, to make geothermal energy a standard source of heat and cold in building renovation.

WHAT TO EXPECT

GEOFIT is approaching its final stage, and upon the completion of the demonstration activities, it is time to present and share the results, and bring all the experience gained to potential stakeholders.

GEOFIT is organizing **three virtual trainings** addressed to professionals and researchers in the field of geothermal energy, renewables and construction sector who wish to learn more about **Smart Geothermal Systems.**

EXTERNAL TRAINING SERIES AGENDA

20 September 2022 – First Training

GEOFIT TRAINING ON GROUND SOURCE HEAT EXCHANGERS AND GEOTHERMAL HEAT PUMPS

Time: 10 - 12 CEST
Speakers: *Henk Witte (Groenholland)* and *Michael Lauermann (AIT)*
What to expect?

This webinar will present the research, development and assessment of various typologies of heat pumps and ground source heat exchangers (GHEX) studied in the EU-funded project GEOFIT which focuses on geothermal retrofitting across a range of building typologies (residential, tertiary, educational).

Regarding GHEX, different typologies have been studied such as vertical and horizontal boreholes, slinky HEX, and earth baskets. Test campaigns were performed both in the lab and at the pilots and optimal geometries were studied aiding to the development of an engineering tool for optimal sizing of the GHEX which will be presented.

Regarding heat pumps, different typologies of electrical and heat-driven Heat Pumps (HP) have been optimised and implemented to include high temperature HPs with low GWP refrigerants, off-the-shelves HPs integrated in residential retrofitting projects, and hybrid HPs using gas and heat to supply heating and cooling. Results from analysis, prototyping and fielding will be presented.

REGISTRATION HERE

27 September 2022 – Second Training

GEOFIT TRAINING ON ON-THE-GROUND EXPERIENCE WITH FOUR PILOTS

Time: 10 - 12 CEST
Speakers: *Antonio Galindo (Comsa), Romain Lhomer (Nobatek), Claudia Fabiani (UNI PERUGIA), Avril Ní Shearcaigh (CFOAT)* and *Anna Mundet (Sant Cugat Municipality)*
What to expect?

This webinar will present the field implementations of four pilots from the EU-funded project GEOFIT.

- A residential single-family-house on the Aran Island (Ireland). The building was insulated, provided with an innovative radiant floor heating and with an electric heat pump connected to a vertical borehole.

- An elementary school in Sant Cugat (Catalunya, Spain). A large vertical boreholes field is supplying heat to an electric heat pump replacing some of the existing gas boilers. The horizontal connection boreholes field – technical room was achieved via horizontal directional drilling. A high temperature radiant ceiling system is providing free cooling in summer exploiting the vertical boreholes.

- An office building in Bordeaux (France). A vertical borehole coupled to earth baskets are providing heat to a hybrid driven heat pump (gas- and electricity-driven) in an office building. The heat pump also provides cooling in summer.

- A historic building in Perugia (Italy). The Sant'Apollinare Fortress was already equipped with a radiant floor heating system, which is now being supplied by a gas-driven heat pump. The heat pump also provides cooling in summer. Slinky geothermal heat exchangers have been installed.

The pilots in GEOFIT have resulted in a series of lessons learned and validation of scientific progress. Sharing these experiences is a key objective of the webinar.

REGISTRATION HERE

GEOFIT TRAINING ON RADAR TECHNOLOGIES FOR GROUND INSPECTION AND STRUCTURAL HEALTH MONITORING, THERMAL LOAD ESTIMATION OF BUILDINGS AND USE OF DIGITAL TWIN MANAGEMENT SOFTWARE (GEOBIM)

Time: 10 - 12 CEST

Speakers: *Guido Manacorda (IDSGEO), Fabio Giannino (IDSGEO), Joan Tarragona (EURECAT, Alessandro Piccinini (NUI Galway), Andrea Frazzica (CNR ITAE), Giuseppe Dino (CNR ITAE), Hugo Viot (NOBATEK), Henrikki Pieskä (KTH), Adriaan Brebels (iLECO)* and *Mikel Borràs & Juan Ramón (IDP)*

What to expect?

This third and final training webinar will present a set of supporting technologies and processes for geothermal retrofitting resultant of work carried out in the EU-funded project GEOFIT. Topics and results to be presented include:

· The use of Ground Penetrating Radars for soil inspection and Ground-Based Syntethic Aperture Radar for structural health monitoring / site quality assurance (with respect to risk)

· Novel approaches and models to simulate the energy load of retrofitted buildings including the validation process

· An advanced energy management system capable of making decisions based on energy tariffs

· A newly developed digital twin environment called GEOBIM that including models of ground source heat exchangers

These technologies and their associated services / processes have been validated during the GEOFIT scientific program and pilot activities.

REGISTRATION HERE

GEOFIT (GA792210) is an integrated industrially driven action aimed at deployment of cost effective enhanced geothermal systems on energy efficient building retrofitting.

For more information, please visit:

https://geofit-project.eu/