

IFSTTAR

The French Institute of Science and technology for transport,
development and networks

Laboratory of Soils, rocks and geotechnical structure

Contact details

Champs-sur-Marne, France

<http://www.ifsttar.fr/en/welcome/>

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General description of the activities

The laboratory of Soils, rocks and geotechnical structures of IFSTTAR is specialised in field testing, laboratory tests and monitoring of geotechnical structures with advanced monitoring techniques (foundation pile static load testing, deformations of soil retaining walls, etc.). Energy geostructures are being studied with numerical modelling and scale model.

Overview of facilities**Laboratory testing facilities**

- Warm plate and needle for thermal conductivity and diffusivity

Field testing facilities

- model of small district (400 m² and 3 m depth) equipped with thermo-active geostructures (three box representing diaphragm walls and a group of nine piles) submitted to a control groundwater flow which is called SENSE-CITY. One of the goal is to better understand heat transfer in presence of groundwater flow and interaction between two or more thermo-active geostructures
- Within SENSE-CITY: optic fibre and PT100 for temperature measuring in soils and concrete, PT100 for temperature measuring in heat transfer fluid, pore pressure and groundwater flow velocity measuring, etc.

Computational capacities

- FLAC3D (TH modelling)

Key projects

- SENSE-CITY (under construction):
 - o 2017 – 2019
 - o Small district model equipped with thermo-active geostructures
 - o Project website (mainly in French): <http://sense-city.ifsttar.fr/en/>

Key references**Additional information, remarks**

<i>Ongoing PhD theses, research</i>
<ul style="list-style-type: none">- <i>Thermo-active geostructures: impact of groundwater flow on heat transfer and thermal interaction at district scale, 2016-2019, Yvon Delerablee, Antea Group/IFSTTAR</i>

<i>Potential supervisors for thesis, PhD thesis, ...</i>
<ul style="list-style-type: none">- Sebastien Burlon, sebastien.burlon@ifsttar.fr- Philippe Reiffsteck, philippe.reiffsteck@ifsttar.fr