In 2015, a legal framework was implemented in the Brussels-Capital Region (BCR) where passive construction has been mandatory with an obliged heat demand not exceeding 15 kW\textpercm2. Since 2015, the interest in installing shallow geothermal systems has significantly increased. However, limited knowledge of ground conditions, lack of public awareness and the urban nature of the Brussels area restrict the development of shallow geothermal systems despite the high potential of this technique in the RBC. The BRUGEO project aims to facilitate accessibility and the efficient use of shallow geothermal energy in the BCR specifically for commercial and residential sectors. Thanks to Brussels ERDF (European Regional Development Fund) funding a consortium of all major actors in geothermal energy were brought together (ULB, Brussels Environment, BBRI, VUB, and GSB). During the four years project (2016-2020), specific actions promoting the geothermal potential were addressed: 1- Collect existing data related to the knowledge on Brussels subsurface (geological, hydrogeological, and geothermal data) and consolidate them in a single database; 2- Conduct new laboratory and field tests in order to complete geological analyses and to assess geothermal parameters; 3- Map the geothermal potential for open and closed systems. The Geological Survey of Belgium (GSB) has created, during the last 7 years, a GIS based 2D-3D geological model of the BCR underground. 9266 drillings and geotechnical data collected in and around the BCR have been used to create the Brustrati3D model generating interpolated top and base surfaces for 19 geological layers representing the whole lithostratigraphic sequence from Quaternary to the Paleozoic basement. An important exploration phase was included in the first two years of the BRUGEO project to acquire new data improving the geological and hydrogeological knowledge of BCR. Several in-situ parameters are measured by e.g. new piezometers implementation and monitoring, pumping tests, cores sampling, logging and enhanced thermal response tests (eTRT). These measurements are implemented as far as possible on future private projects by a win-win approach. The idea is to be grafted on existing projects to
increase the data acquisition and to avoid purely exploratory drilling that are expensive and not used later for any geothermal exploitation. So far, the BRUGEO consortium has also conducted three exploration drillings to assess the lithology, the structure, the groundwater flows, and geophysical properties of the Cambrian basement (Brabant Massif). In parallel, laboratory measurements are achieved to characterize the determinant thermal parameters of the Brussels underground. From all the subsurface data collected, the BRUGEO consortium aims at mapping the geothermal potential of the BCR. This web-based mapping, accessible to design offices, installers of geothermal systems, citizens, public and private stakeholders or regional and municipalities administrations, will make it easier to foster the use of geothermal energy. The web portal will consist of an interactive decision support and a design tool based on maps built thanks to the geoscientific 3D models and geothermal parameters assessed during BRUGEO. The results are expected to be published online in March 2020.