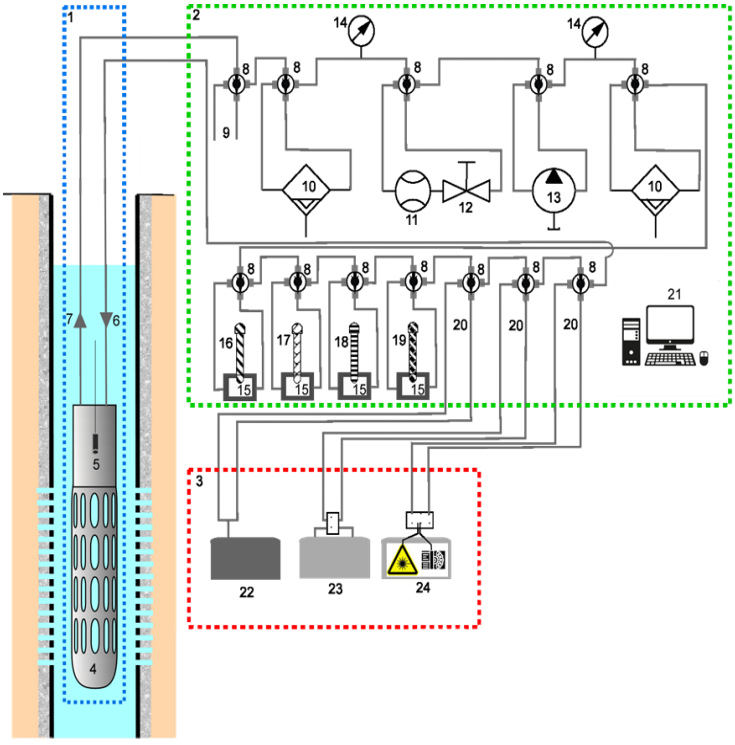
Géomonitoring de précision

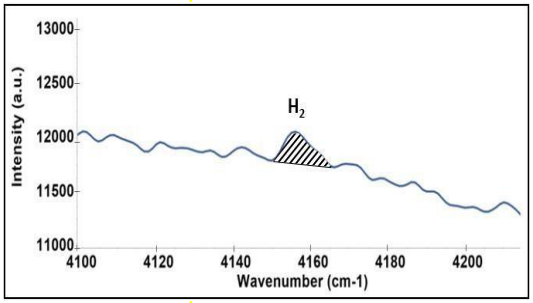
SysMoG® : System for measuring dissolved gases in aquifers

SysMoG® is a system for measuring the concentrations of all dissolved gases in aquifers up to 1500 m deep, the result of a collaboration with the GeoRessources laboratory of the University of Lorraine and the CNRS. The probe exists in two configurations depending on the application:

- **Continuous measurement:** The system consists of a probe for collecting dissolved gases in the borehole water, connected by two lines to a remote measurement module at the surface, all combined with a module of data acquisition module. The measurement module integrates various sensors and analysis equipment such as Raman or FTIR spectrometers capable of detecting a wide variety of gases in a closed circuit. The concentrations of dissolved gases are continuously monitored and allow a follow up of the evolutions in time, for the monitoring or the understanding of the geochemical phenomena. The implementation of the gas collection probe is done either in open borehole through a logging type device, or integrated in multi-packer completions isolating measurement intervals in a borehole.



1 Module A: Borehole gas probe
2 Module B: Gas circulation
3 Module C: Gas analysis
4 Borehole gas probe (Patent submitted)
5 Down hole pressure/temperature sensor
6 Gas circulation line injection
7 Gas circulation line extraction
8 Bypass valve
9 Flushing bypass
10 Water trap
11 Flow meter
12 Flow controller
13 Gas circulation pump
14 Surface pressure/temperatuer sensor
15 Flow through ell
16 Humidity and temperature sensor
17 Hydrogen sensor
18 Methane sensor
19 CO_2 sensor
20 Bypass for gas analysis device
21 Data acquisition system
22 Micro gas chromatograph
23 FTIR spectrometer
24 Raman spectrometer



*Principle SysMoG® continuous measurements - Raman spectrum measured in-situ in aquifer: Dissolved hydrogen 0,17 mg/*L

- **Dissolved gas sampling:** Solexperts performs dissolved gas sampling using its SysMoG ® probe operated by a logging winch to depths of 1500 m. The gas collection probe allows two 75 ml ampoules of dissolved gas to be collected at the desired depth. The gas samples brought to the surface are then sent to an approved laboratory for analysis..

SOLEXPERTS France SARL 10 allée de la forêt de la Reine – F-54500 Vandœuvre-lès-Nancy
Tél : +33 (0)3 83 94 04 55 Email : info@solexperts.fr www.solexperts.com