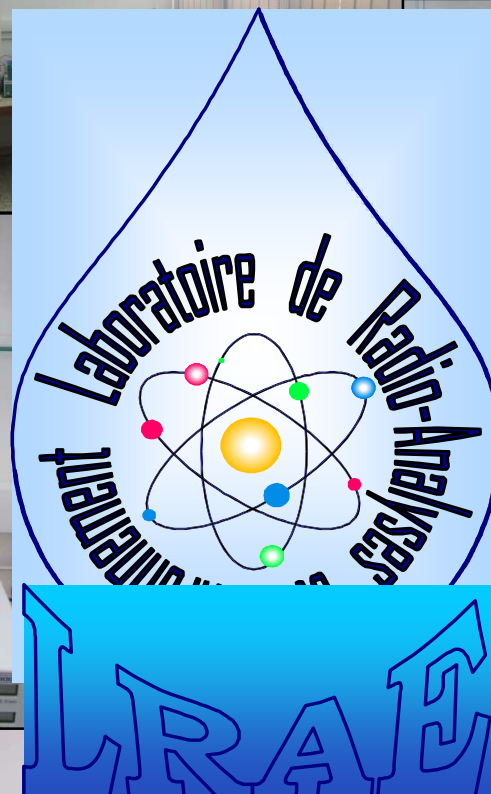






Laboratory of Radio-Analyses and Environnement

The laboratory was created in 1999 at the National School of Engineers of Sfax within the framework of the reorganization of research activities carried out by the Ministry of Research and Higher Education of Tunisia (During 1994 to 1999, it was the Research Unit "Isotope Geochemistry and Paleoclimatology).

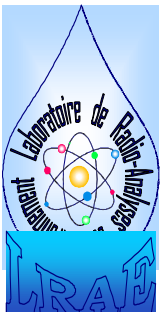
The staff includes multidisciplinary teachers, students, researchers and technicians from different institutions of Higher Education and Research.

- About 45 members: The **main** multidisciplinary research activities at LRAE have been focused on supporting **sustainable and Integrated Resources Management** (IWRM) through surface and groundwater characterization in Tunisia and evaluation of **aquifer's vulnerability to natural and human induced contaminants**.
- Since 1998
 - ❑ **more than 100 publications** in peer reviewed journals, on **Isotope Hydrology**,
 - ❑ about **25 PhD thesis and 40 Master defunded** in the **isotope hydrology and geochemistry**. Many other PhD and Master are in progress.



Regional Designated Centre (RDC)

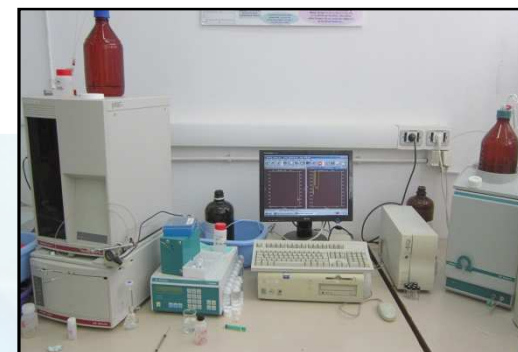
- ➔ **Since 2009** The **LRAE** have been selected as **Regional Designated Centre (RDC, under AFRA activities)** to play a leading role in AFRA and TC-IAEA projects as well as in the **application of isotope techniques in water resource** studies and management.
As **RDC** the LRAE is providing under AFRA and TC-IAEA projects:
 - ☐ Analytical support for Afra member state;
 - ☐ Training in the field of isotope hydrology;
 - ☐ Organize meeting and TRC and contributes as Lecture on Isotope Hydrology.
- ➔ **Since 2011** The **LRAE** (represented by his director) **is designed as the PSC** for the **RAF8048 and RAF7013 projects**.
- ➔ **Since 2009** The **LRAE** took also part for several inter laboratory comparison exercise for laboratories engaged in routine analysis of **^2H , ^{18}O and ^3H isotope** composition of water samples, controlled by IAEA-Isotope Hydrology Laboratory.



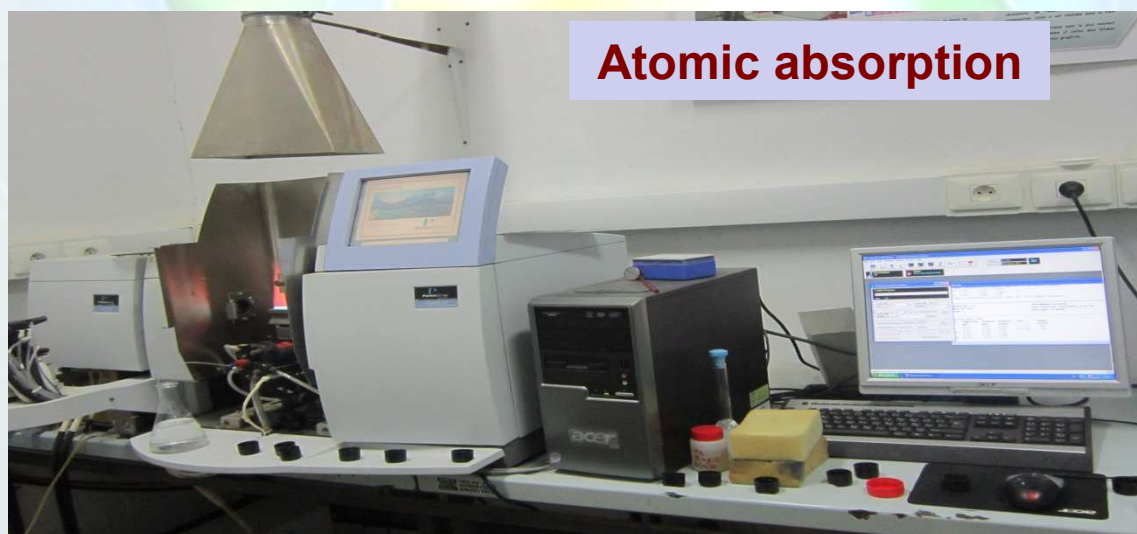
Chemical analyses

Analytical capacities

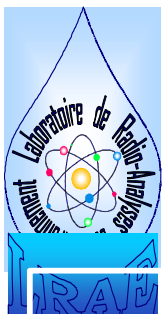
Ionic liquid phase chromatography



Atomic absorption



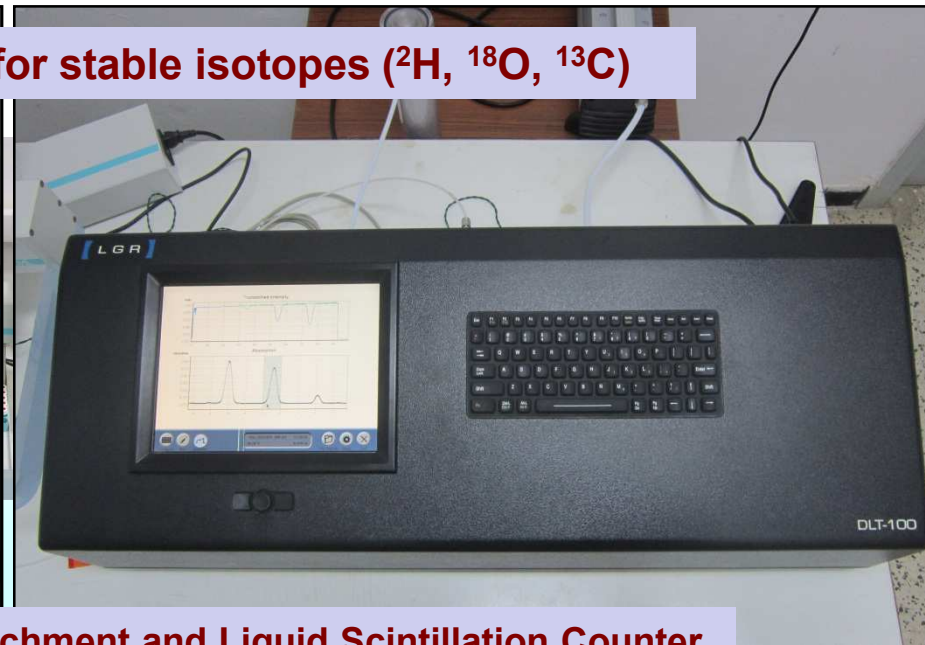
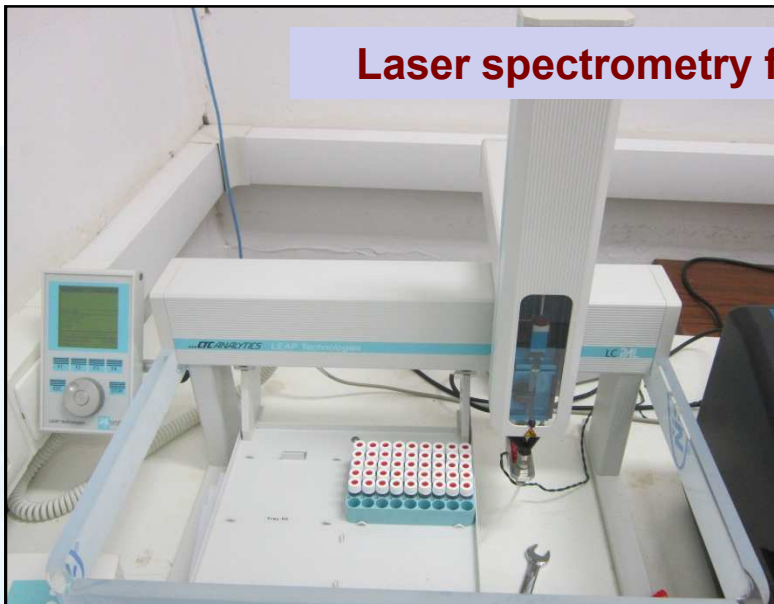
Major and trace elements are measured following standard protocols



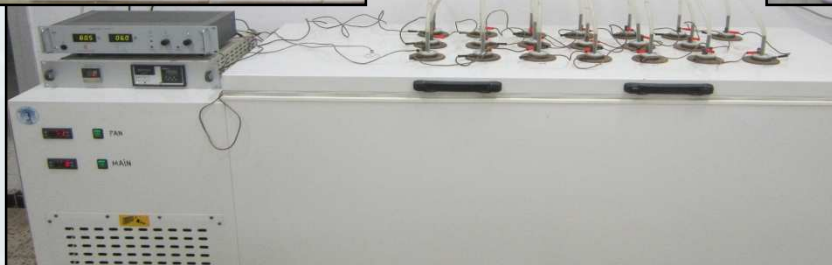
Isotopes analyses (^2H , ^{18}O , ^3H , ^{13}C)

Analytical capacities

Laser spectrometry for stable isotopes (^2H , ^{18}O , ^{13}C)



Tritium activity by Electrolytic Enrichment and Liquid Scintillation Counter



Liquid Scintillation Counter



Analytical capacities

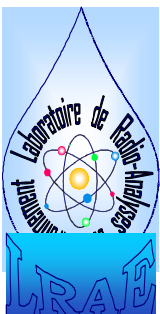
^{14}C analysis



Carbon-14 dating line Using Liquid Scintillation Counter (benzene)

Liquid Scintillation Counter

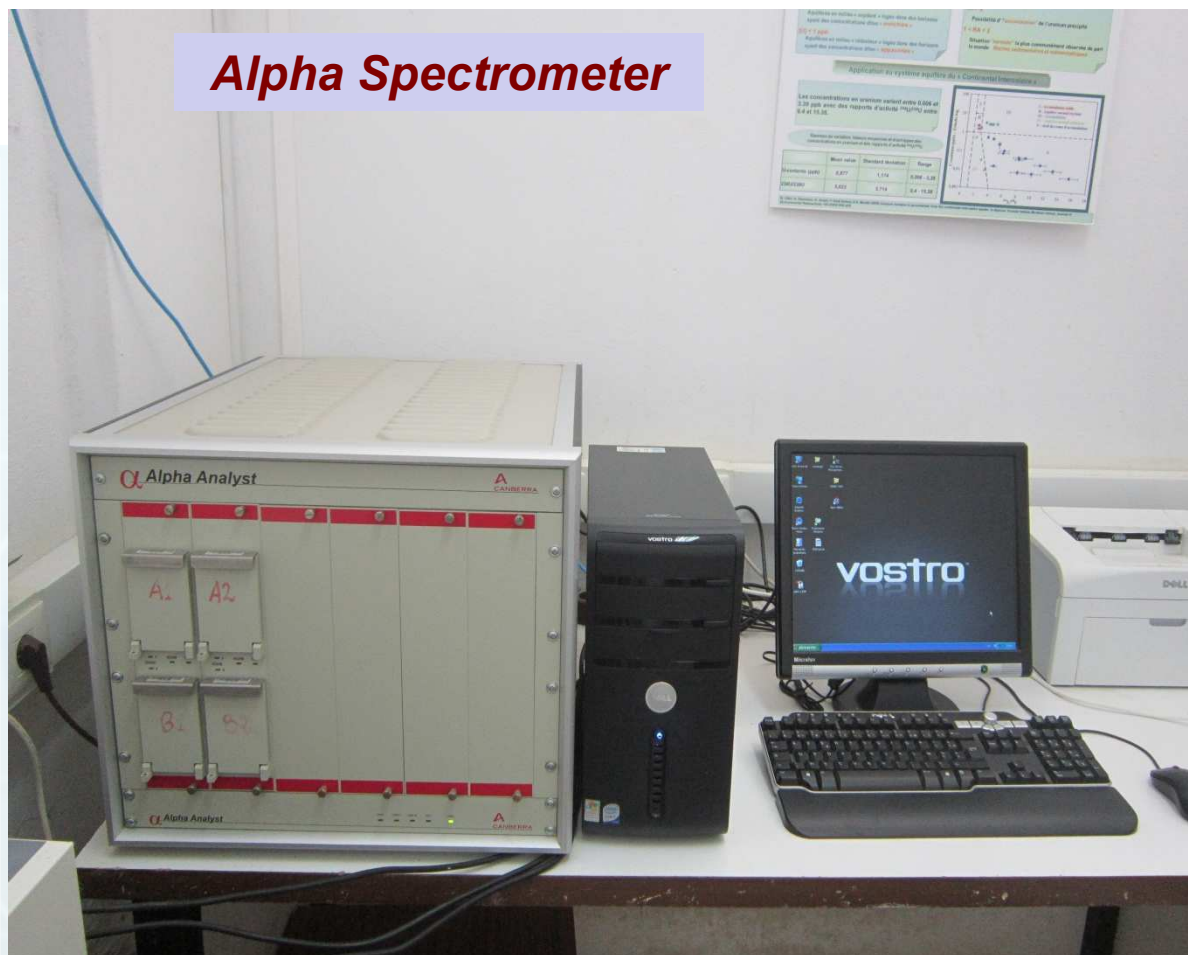




Alpha Spectrometer (U/Th)

Analytical capacities

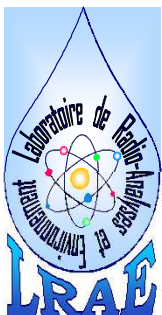
Alpha Spectrometer



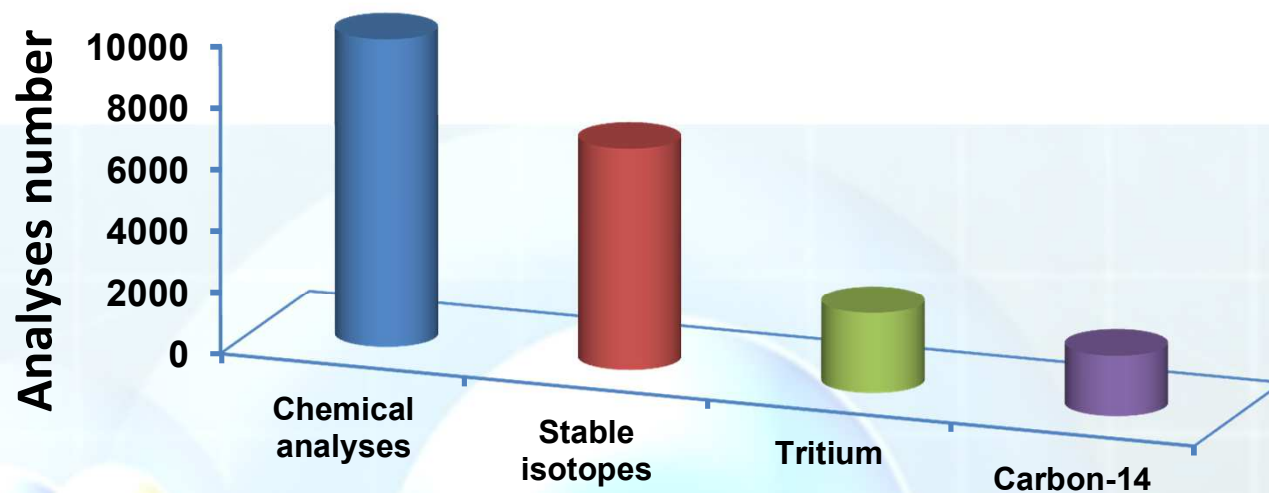
Alpha Spectrometer Analyst for
Uranium and Thorium isotopes measurement



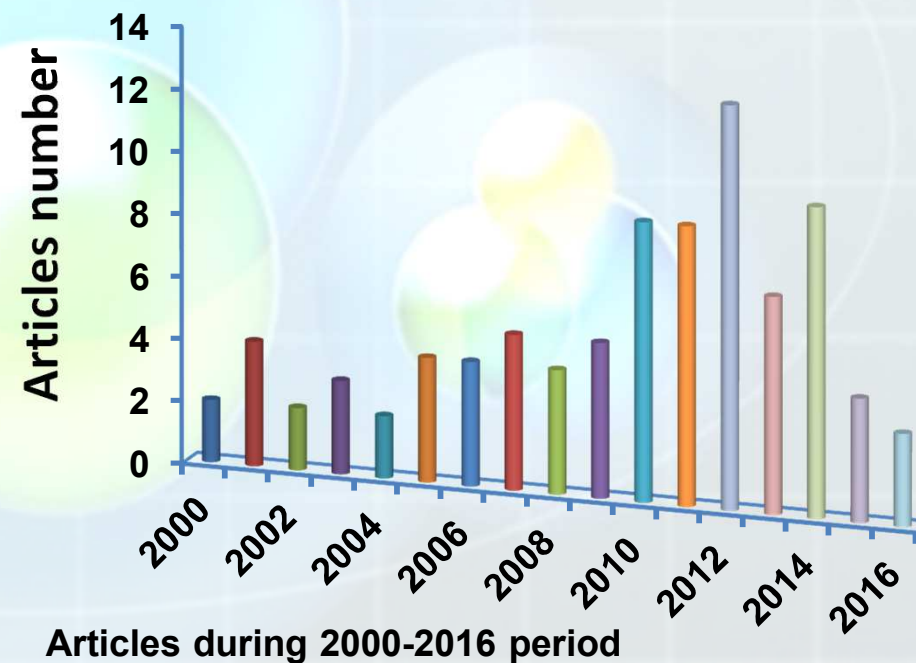
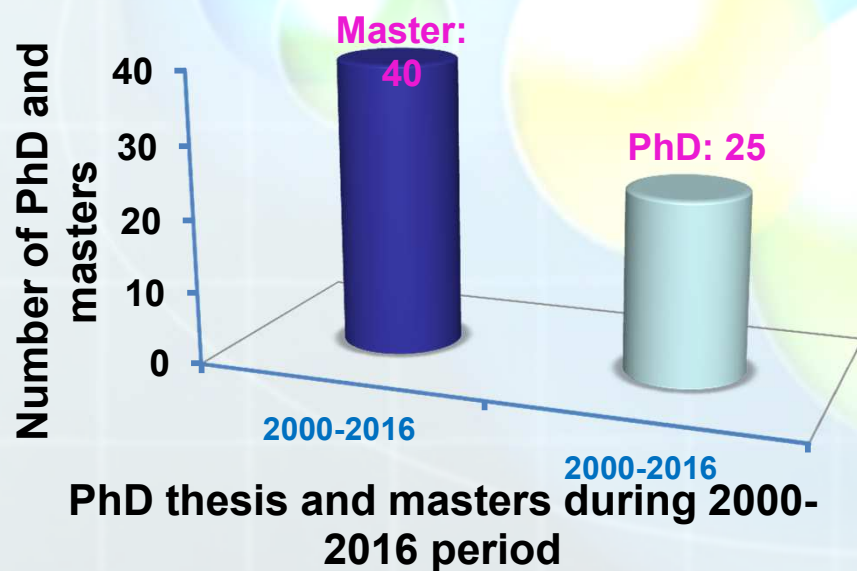
Electrodeposition
equipment

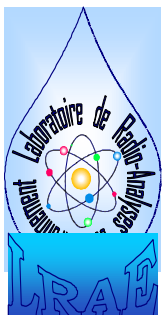


Analyzes, Education and research

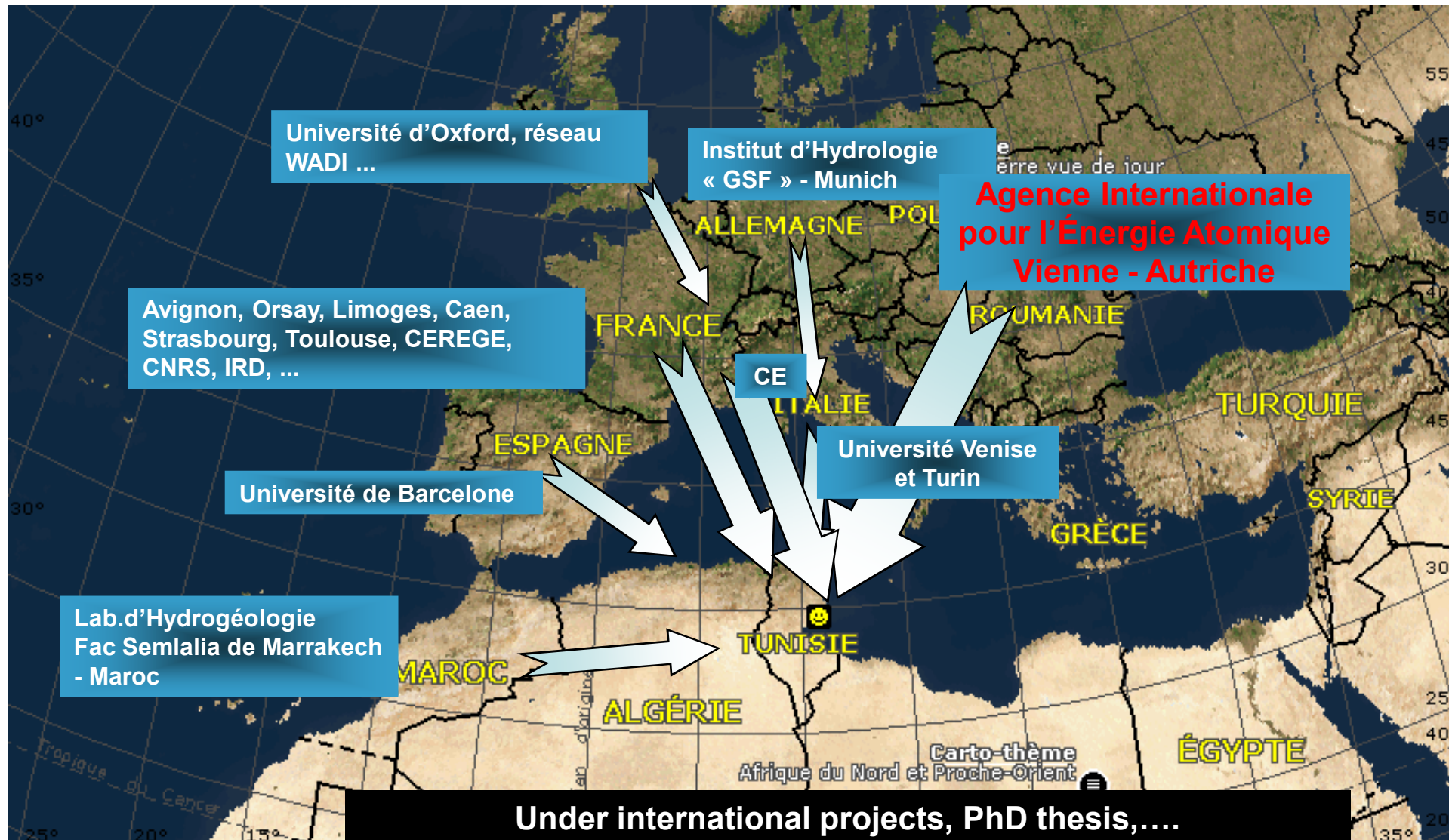


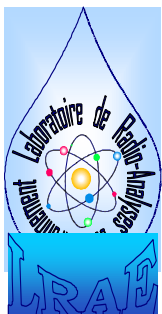
Analyses during 2008-2016 period





International cooperation





Training and Fellowship , Expertise



The laboratory is accredited by IAEA, and received until now **90** fellows from several African countries.

