EleMap LA-ICP-MS Laboratory

Terms and Conditions (Nutzerordnung)

The EleMap LA-ICP-MS Laboratory is part of the section 3.1 “Inorganic and Isotope Geochemistry” at GFZ - Helmholtz Centre for Geosciences. By using our facilities, you agree to the following terms and conditions:

Laboratory Equipment

The EleMap laboratory offers in-situ analyses of minerals and other geological materials for element concentrations and selected isotope ratios. This is accomplished with the use of a Teledyne Analyte Excite 193 nm excimer with an optional fast wash out system ARIS (aerosol rapid introduction system) and a HelEx II two volume cell. Analyses can be carried out with currently available Reference Materials, within the possible laser parameters, using the following routine methods:

1. Imaging (mapping), profile or spot analyses of minor and trace elements with an iCAP-RQ in glasses, sulphides (chalcopyrite, pyrite, sphalerite and galena), calcite and other carbonates, titanite and rutile.
2. Subject to sourcing of appropriate Reference Materials (RM) the facility is capable of developing:
   a) Imaging (mapping), profile or spot analyses of minor and trace elements with an iCAP-RQ in other phases.
   b) U-Pb spot analyses dating of zircon, apatite, monazite, rutile and titanite with an iCAP-RQ.
   c) In-situ profile or spot analyses of strongly interfered elements by utilizing reaction and collision gasses (He, N_2O) with an iCAP-TQ.

Preparation of samples

Analyses with the use of the HelEx sample cell can be carried out in samples in the following format and configurations:

- Thin-sections (4 slides of up to 49 cm or 2 slides of up to 98 cm) + 3 epoxy mounts (ca. ∅ 2,50 cm) and + 2 small RM epoxy mounts (ca. ∅ 1,0 cm).
- 9 epoxy mounts (ca. ∅ 2,50 cm) and + 4 small RM epoxy mounts (ca. ∅ 1,0 cm).

The EleMap laboratory is not equipped with facilities for sample preparation. Other facilities within GFZ offer the infrastructure for mineral separation, thin sections and mounts preparation to a limited extent. However, availability cannot be guaranteed and it is therefore preferrable to finish all the sample preparation before arriving at GFZ for the LA-ICP-MS analyses.
The samples must be collected within two months after analysis. After that time, we do not guarantee the storage of the remaining sample material.

Application for analytical session

Applicants will have to fill in the application form that can be found online or upon request with the lab manager. Applicants will have to provide an informal abstract explaining the aim of the study and all meta data, including coordinates of sampling. The lab manager will evaluate the feasibility based on this application. Samples are processed at the discretion of the lab manager considering maintenance schedule, urgency in data collection and type of analytical work.

Preparation of the analyses

Preparation of the lab and analytical work are usually performed by the laboratory staff, in accordance with the applicant. Prior to the lab visit the applicant is responsible for documenting the samples by the means of (SEM, microprobe) images for all possible areas/points for the analyses. Overview images of the separate samples are highly recommended. During the selection of the areas/points for the analyses there are three light sources available: coaxial, ring and transmitted. However, with certain materials i.e. carbonates and plagioclase vs. glass it may be difficult to find the areas to be analysed and good documentation is vital. Selection of the areas/points should be made by the user with assistance of the lab staff. When such selection cannot be performed by the user extensive documentation on the locations to be analysed must be provided previously to the analytical session. Misplaced areas/spots due to poor documentation are the responsibility of the user.

In some cases, remote access may be possible or trained users may perform analyses themselves. All guests/users are required to adhere to the general laboratory and safety regulations. Users are required to undergo an onsite training on how to operate the machines and/or use the laboratory facilities. Afterwards, users may work independently but will be supervised by the lab staff. It is up the laboratory staff whether such a status is granted, PhD students are encouraged to undergo such process.

Work safety issues

The users of the laboratories are instructed in the safety regulations before starting their work. The use of the laboratory may only take place after safety training by the laboratory staff. The user has to acknowledge with a signature the reading of the operating instructions, the hazard assessments and the user regulations of the laboratory.

Any breach of the terms and conditions, Laboratory Regulations or Occupational Health and Safety Regulations may lead to permanent exclusion from the laboratory use.

Liability

GFZ continually strive to provide high-quality data. Nonetheless, GFZ shall not be held liable in the event that results from our facility are subject of subsequent revision. Furthermore, we will not be held responsible for samples lost in transit.

GFZ shall not be responsible to the user for any indirect or consequential loss or similar damage such as, but not limited to, loss of profit, loss of revenue or loss of contracts, provided such damage was not caused by a wilful act.
If damage to the laboratory equipment is caused by faulty operation or negligence of the user, the damage must be remedied timely by the user.

Data protection

All of the data produced within the EleMap laboratory must undergo quality control and assurance, and be approved by the laboratory manager. All raw data and logs will be available to the user upon request. Data treatment can be carried out by the user or lab staff, but must be agreed upon beforehand during the application process. If the data processing requires the use of the Iolite software, all of the results will be stored in a designated computer which can be accessed by the user. The user may not access data from other users on any laboratory computer, nor copy or duplicate them. The final results will be sent to the user after final check and approval by lab staff.
The use of external storage media is prohibited at all times on any of the laboratory computers.

Charging structure

a. Collaborative projects

In case of a collaborative project the GFZ becomes a partner in the research project. Beyond preparation, analysis and evaluation of data the GFZ staff will help in interpretation, planning and co-authoring. The GFZ will not charge for the analysis within a collaborative project. However, we accept contribution to laboratory supplies, consumables or technical maintenance. In situations where a new method is developed within EleMap with Reference Materials sourced by the user, sufficient material must be provided to EleMap to allow for future analysis and that will remain property of Elemap.

b. Commercial projects

This applies to non-academic institutions, industry partners.
The applicant may choose whether they prefer a purely commercial or collaborative project. In the case of a commercial project, the EleMap will prepare a quotation. Charges may vary depending on the type of analyses. This includes preparation, analysis and evaluation of data.

c. Funded research projects

The upkeep (staff, maintenance, supplies etc.) of the EleMap is cost-intensive. If you are planning to analyse samples at the EleMap within third party funding, we kindly ask you to consider us in financial planning. We can provide you with quotations and advice on financial or scientific planning. Please contact the lab manager in advance. In situations where a new method is

developed within EleMap with Reference Materials sourced by the user, sufficient material must be provided to EleMap to allow for future analysis and that will remain property of EleMap.

Publishing of data

a. Collaborative projects and Funded research projects

The data produced in this lab are collaborative, i.e. the lab manager is co-author on the publication of the results, unless otherwise agreed upon in written. The laboratory staff is to be mentioned in the acknowledgements. The manuscript needs to be seen by the respective laboratory manager before submission. Publications shall indicate that laboratory work was done at the "Elemental Mapping by LA-ICP-MS Laboratory (EleMap) at GFZ Potsdam".
The analysed data must be published within two years as a Scientific Technical Report Data (STR Data) in the GFZ data repository with the applicant/user as first author and the data set will be given a citable Digital Object Identifier (DOI). The interpreted results should be published in an international peer reviewed journal and the data needs to be cited following scientific practice. The published article should at least be available by Green Open Access. After two years, if the data has not been published, the applicant/user must contact the laboratory staff and report the status of the data. The lab manager may extend the time for up to another year. After two years (or three at the latest) the GFZ will publish the data as Scientific Technical Report Data (STR Data) in the GFZ data repository. In this STR the applicant/user will be recognized as co-author and the data set will be given a citable Digital Object Identifier (DOI). Thereafter, the data needs to be cited following scientific practice.
Users agree to follow the DFG recommendations for the publication of scientific data ('Guidelines for Safeguarding Good Research Practice', Deutsche Forschungsgemeinschaft, 2019).

b. Commercial projects

If the data were produced as part of a purely commercial project the applicant is not required to publish the data unless otherwise agreed upon in written. In case the data are published, the same rules apply as for the collaborative and funded research projects.

By signing the "Analysis Application Form", the applicant agrees with these Terms and Conditions. The application may be valid without a hand-written signature (e.g. digital signature).

Further questions and analysis application, please contact: Dr. Valby van Schijndel
email to: valby@gfz.de