

USERS RULES GTC PLATFORMS

The platform GeoThermoChronology (GTC) provides technical and human resources for the acquisition of analytical data.

It is composed of 6 laboratories under the responsibility of dedicated personal. Each laboratory has its own organization. A simplified form chart for each laboratory is given at the end of this document.

GTC platform directors:

Julien Carcaillet julien.carcaillet@univ-grenoble-alpes.fr 0611080921 (technical director)

Matthias Bernet matthias.bernet@univ-grenoble-alpes.fr 04763514075 (scientific director)

Sample mechanical processing:

Francis Coeur francis.coeur@univ-grenoble-alpes.fr 0613479222

Mineral separation:

Nouméa Boutin-Paradis noumea.paradis@univ-grenoble-alpes.fr 0476635964

Fission track laboratory:

Mélanie Balvay melanie.balvay@univ-grenoble-alpes.fr 0476635964

Matthias Bernet matthias.bernet@univ-grenoble-alpes.fr 04763514075

Cosmogenic nuclides laboratory:

Julien Carcaillet julien.carcaillet@univ-grenoble-alpes.fr 611080921

Nouméa Paradis noumea.paradis@univ-grenoble-alpes.fr 0476635964

Luminescence laboratory:

Pierre Valla pierre.valla@univ-grenoble-alpes.fr 0476635908

Nouméa Paradis noumea.paradis@univ-grenoble-alpes.fr 0476635964

(U-Th)/He laboratory:

Cécile Gautheron cecile.gautheron@univ-grenoble-alpes.fr 0689062499

Mélanie Balvay melanie.balvay@univ-grenoble-alpes.fr 0476635964

Before your arrival

Before working in one of the laboratories of the GTC platform, you have to:

- Plan in advance the time you want use the laboratory with the laboratory responsible
- Complete the ISTERre administrative requirements (registration, proof of liability insurance etc.) if you are a visiting scientist or otherwise affiliated with ISTERre, or if you are linked to partner laboratories,
- Have an internship agreement for students or a valid contract with ISTERre (e.g. CDD),
- Read and understand the present rules,
- Read the intern rules of ISTERre, know the emergency numbers and the Assistants de Prevention (risk prevention advisors), isterre-ap@univ-grenoble-alpes.fr
 - o – Rachel Martin 04 76 51 40 78
 - o – Sandrine Roussel 04 76 63 51 80

General information

- The usual opening hours of the building are Monday to Friday 7:00 to 20:00. Outside the opening hours and during weekends the building is under alarm and the access to the building and the laboratories is strictly prohibited for internship students and researchers with contracts or visiting scientists.
- The presence of the responsible (of the laboratory or the project) is compulsory (except with his or her explicit agreement).
- The working hours in the different laboratories are summarized in the laboratory chart. The access to technical rooms are prohibited during the weekends (Permanent and non-permanent staff).
- The work schedule is assured by the responsible of the concerned laboratory. He/She is the only person who organizes it to satisfy the request. Occasionally, a modification may occur at his/her initiative to insure the timely finishing of Ph.D. theses or master student research internships.

Communications

- All communications (congress, symposium and journal/book or webpage publications) must mention the collaboration with GTC. In the “method section”: *samples preparation was carried out at the ISTERre GeoThermoChronology platform (Grenoble, France).*

The technical partner will 1/ be co-authors if its participation concerns data production and their discussion in the scientific context or 2/ thank in the "Acknowledgments section": *We warmly thank [name] (GeoThermoChronology Platform, ISTERre) for technical support.*

Publication address: *Univ. Grenoble Alpes, Univ. Savoie Mont Blanc, CNRS, IRD, IFSTTAR, ISTERre, 38000 Grenoble, France*

CHARTER OF THE ROCK CHRUSHING LABORATORY

Name of the trainer	Francis Coeur
Name of the trained person	
Date of the training	

GENERAL INSTRUCTIONS	OK
Opening hours at ISterre (7:30 a.m. – 08:00 p.m. except week-end and bank holiday) Handling hours (07:30 a.m. – 04:00 p.m. with a trained staff member must be present at all times during handling)	
Do not eat, drink and smoke in the laboratory	
MANIPULATIONS	
Know the experimental protocol and identify all the samples	
Know the operating of the equipment before use: - Rock jaw crusher, disc pulverizer, agate pulverizer, sieving, oven, shaking table	
Order : Signal any damage of equipment or accidents and the end of consumables or products out of stock	
HEALTH AND SAFETY	
<u>Personal protective equipment (PPE)</u> : Ear plug, anti-dust mask	
<u>Accidents:</u> INFORM THE LABORATORY MANAGER! Emergency telephone number (switchboard), incident file to be completed (administration)	
<u>Equipment risk:</u> High temperature (oven) Risk of crushing (crusher) Risk of inhalation of dust	
<u>Cleanliness and storage</u> : bench, common spaces, used equipment and facility	

The trained person agrees not to intervene on the points where the competence is not acquired.

Location:
Signatures: the trainer

date:
the Trained person and his supervisor

CHARTER OF THE MINERAL SEPARATION LABORATORY

Name of the trainer	Nouméa Paradis
Name of the trained person	
Date of the training	

GENERAL INSTRUCTIONS	OK
Opening hours at ISterre (7:30 a.m. – 08:00 p.m. except week-end and bank holiday) Handling hours (08:30 a.m. – 04:00 p.m. with a trained staff member must be present at all times to handle chemicals)	
Do not eat, drink and smoke in the laboratory	
MANIPULATIONS	
Know the experimental protocol and identify all the samples	
Knowledge of operating the equipment before use: - Frantz and Carpco magnetic separators, binocular microscope, vacuum pumps, fume hood, ultrasonic bath	
Order : Signal any damage of equipment or accidents and the end of consumables or products out of stock	
HEALTH AND SAFETY	
<u>Chemical products</u> : read the risk sheets LST, Acetone, CH ₂ I ₂ , Acetone, Ethanol, Niobium powder, Silver powder	
<u>Personal protective equipment (PPE)</u> : Coat, gloves, chemical box, face mask, hearing protection (earplugs + earmuffs)	
<u>Accidents</u> : INFORM THE LABORATORY MANAGER! Safety shower (365), eye wash station (365), absorbent cloths for chemicals (room 309), first-aid kit (361/365 and corridor), eye wash station in the lab, fire extinguisher (corridor), Emergency telephone number (switchboard), incident file to be completed (administration)	
<u>Equipment risk</u> : High temperature (oven) Risk of contact with chemicals Magnetic risk	
<u>Cleanliness and storage</u> : bench, common spaces, used equipment and facility	

The trained person agrees not to intervene on the points where the competence is not acquired.

Location:

Signatures: the trainer

date:

the Trained person and his supervisor

CHARTER OF FISSION-TRACK LABORATORY

Name of the trainer	Mélanie Balvay ou Matthias Bernet
Name of the trained person	
Date of the training	

GENERAL RULES	OK
Opening hours (7:00 a.m.– 08:30 p.m. except Week End and holidays) permanent staff, doctoral students, postdoctoral researchers, and staff on fixed-term contracts. For interns (M1, M2, etc.) from 8:00 a.m. to 8:00 p.m. Operating hours (picking and counting): 7:00 AM to 8:00 PM (full-time staff) / 8:00 AM to 8:00 PM (interns) *A staff member trained in handling chemicals must be present at all times * Mandatory communication (via cell phone) with a third party in the event of late picking or counting	
No eating, drinking and smoking in the lab (361 and 366)	
HANDLING	
Knowing the experimental protocols, record the data (lab notebook), and identify all samples	
Knowing devices operating before using : <ul style="list-style-type: none"> • Binocular, microscope, polishing machine, micro-lathe, mini saw, ultrasonic bath (room 361) • Microscope with automated stage and camera (room 366) 	
Orders : Report breakage, stocks last or approach stocks last of products or consumables	
HEALTH AND SAFETY	
<u>Chemicals</u> : Review the Safety Data Sheets (SDS) <ul style="list-style-type: none"> • 96% ethanol → Highly flammable / Irritant • Nitric acid (HNO₃) 5.5 mol/L → Toxic / Corrosive / Oxidizing • NaOH-KOH eutectic mixture at 228°C → Corrosive / Harmful • Hydrofluoric acid (HF) at 48% → Corrosive / Lethal: to be handled only by Mélanie 	
<u>Personal and collective protective equipment (PPE / CPE)</u> : Labcoat, gloves, safety glasses, face shield, earplugs, fume hood	
<u>Chemical wastes</u> : waste management and precautions (handling under fume hood with PPE)	
<u>Accidents</u> : Eye wash (room 361), safety shower (room 365), eye wash station (room 365) Absorbent cloths for chemicals (room 361), pharmacy (room 361 and 365), extinguisher (corridor), emergency phone numbers (door 361), incident card to complete (administration)	
<u>Radioactivity</u> : Use of weakly radioactive materials (radioprotection instructions on the door 366), do not touch the relevant materials (radioactivity symbol) in Lab 366	
<u>Device dangers</u> : <ul style="list-style-type: none"> • High temperature (oven and hotplate) • Risk of cutting (micro-lathe and mini saw) • Eye strain (binocular and microscope) Best practices for microscopy: proper settings, appropriate lighting, correct posture, regular breaks	
<u>Clean and tidy up</u> : benches, common areas, equipment and devices used	

The trained person agrees not to participate/take part on the items where the competence is not acquired.

Place :
 Signatures : The trainer

Date :
 The trained person and his supervisor :

CHARTER OF THE COSMOGENIC NUCLIDE LABORATORY

Name of the trainer	Julien Carcaillet/ Nouméa Paradis
Name of the trained person	
Date of the training	

GENERAL INSTRUCTIONS	OK
Opening hours at ISterre (7:30 a.m. – 08:00 p.m. except week-end and bank holiday) Handling hours (8:15 a.m. – 07:00 p.m. with a trained staff member must be present at all times to handle chemicals)	
Do not eat, drink and smoke in the laboratory	
MANIPULATIONS	
Know the experimental protocol and identify all the samples	
Knowledge of operating the equipment before use: - Magnetic separator, shacking table, oven, ultra-pure water system, ultrasonic bath, hotplates, oven	
Order : Signal any damage of equipment or accidents and the end of consumables or products out of stock	
HEALTH AND SAFETY	
<u>Chemical products</u> : read the risk sheets HCL, H ₂ SiF ₆ , HNO ₃ , HF, NH ₄ OH, HClO ₄ , Ethanol, Niobium powder, Silver powder	
<u>personal protective equipment</u> : Lab coat, gloves, goggles, face shield, fume hood, closed-toe shoes, arm sleeves, cartridge respirator, hearing protection (earplugs and earmuffs)	
<u>Accidents</u> : INFORM THE LABORATORY MANAGER! Portable shower (room 361), eye rinse (365), safety shower (365), eyewash station (365), absorbent cloths for chemicals (361), pharmacy (361/365), fire extinguisher (corridor), Emergency telephone number (361), incident file to be completed (363 + administration)	
<u>Equipment risk</u> : High temperature (oven and hot plates) Chemical product contacts Inhalation Risk (BeO) High magnetic field	
<u>Cleanliness and storage</u> : bench, common spaces, used equipment and facility	

The trained person agrees not to intervene on the points where the competence is not acquired.

Location:

Signatures: the trainer

date:

the Trained person and his supervisor

CHARTER OF THE LUMINESCENCE LABORATORY

Name of the trainer	Pierre Valla/Nouméa Paradis
Name of the trained person	
Date of the training	

GENERAL INSTRUCTIONS	OK
Opening hours at ISterre (7:30 a.m. – 08:00 p.m. except week-end and bank holiday) Handling hours (08:00 a.m. – 06:00 p.m. with a trained staff member must be present at all times to handle chemicals)	
Do not eat, drink and smoke in the laboratory, no phones or computers allowed	
MANIPULATIONS	
Know the experimental protocol and identify all the samples	
Knowledge of operating the equipment before use: Vacuum pumps, Oven, ultrasonic bath, Separation column, Shaking table, Neon light, Air blower	
<u>Order:</u> Signal any damage of equipment or accidents and the end of consumables or products out of stock	
HEALTH AND SAFETY	
<u>Chemical products</u> : read the risk sheets LST, H ₂ O ₂ , HCl	
<u>Personal protective equipment (PPE)</u> : Coat, gloves, safety goggles	
<u>Accidents:</u> INFORM THE LABORATORY MANAGER! Eye wash station in the lab, Safety shower (365), Absorbent cloths for chemicals (room 309), first-aid kit (361/365 and corridor), fire extinguisher (corridor), Emergency telephone number (switchboard), incident file to be completed (administration)	
<u>Equipment risk:</u> High temperature (oven) Contact with chemicals	
<u>Cleanliness and storage</u> : bench, common spaces, used equipment and facility	

The trained person agrees not to intervene on the points where the competence is not acquired.

Location:

date:

Signatures: the trainer

the Trained person and his supervisor

CHARTER FOR THE PREPARATION OF (U-Th)/He SAMPLES

USE OF THE LABORATORY WET ROOM

Name of the trainer	Cécile Gautheron ou Mélanie Balvay
Name of the trained person	
Date of the training	

GENERAL INSTRUCTIONS	OK
Handling hours (08:00 a.m. 12:00 a.m.– 13:00 16:00 p.m.)	
Do not eat, drink and smoke in the laboratory	
MANIPULATIONS	
Requirement to fill out the online reservation schedule: “Labo Francis” column	
Be familiar with the experimental protocols and identify all samples	
Understand how the equipment works before use: <ul style="list-style-type: none"> • Dremel, Abich mortar, micro-saw, and circular saw* *See the regulations regarding the use of the circular saw	
Do not touch any equipment that is not intended for the preparation of (U-Th)/He samples	
<u>Order:</u> Signal any damage of equipment or accidents and the end of consumables or products out of stock	
HEALTH AND SAFETY	
<u>Personal protective equipment (PPE):</u> Ear muffs, earplugs, dust mask, protective face shield, DATI REQUIRED (Lone Worker Protection System)	
<u>In case of an accident or incident:</u> NOTIFY THE LABORATORY SUPERVISOR: Francis COEUR (phone number on the lab door) Emergency phone number (on the electrical panel), incident report form (available at the front desk), first-aid kit (in the hallway), fire extinguisher, safety shower, and eye wash station outside	
<u>Hazards associated with power tools:</u> <ul style="list-style-type: none"> • Risk of cuts (Dremel, saw, jigsaw) • Risk of inhaling dust 	
<u>Cleanliness and tidiness:</u> Workbench, sink, equipment and appliances used, floor (vacuum cleaner available)	

The trained person agrees not to intervene on the points where the competence is not acquired.

Location:

date:

Signatures: the trainer

the Trained person and his supervisor

CHARTER OF THE RARE GASES (U-TH)/HE LABORATORY

Name of the trainer	Cécile Gautheron ou Mélanie Balvay
Name of the trained person	
Date of the training	

GENERAL INSTRUCTIONS	Vu
Office hours: 7:00 a.m. – 8:30 p.m. (excluding weekends and holidays) for permanent staff, doctoral students, postdoctoral researchers, and staff on fixed-term contracts. For interns (M1, M2, etc.): 8:00 a.m. – 8:00 P.m. Lab hours (He line): 7:00 a.m. – 7:00 p.m. for permanent staff / 8:00 a.m. – 6:30 p.m. for interns.	
Do not eat, drink and smoke in the laboratory	
MANIPULATIONS	
Understand the experimental protocols and identify all samples Understand how the equipment and software work before use	
<u>Order:</u> Signal any damage of equipment or accidents and the end of consumables or products out of stock	
HEALTH AND SAFETY	
<u>Chemicals:</u> Review the Safety Data Sheets (SDS) <ul style="list-style-type: none"> • 96% ethanol → Highly flammable and irritating • Liquid nitrogen: Dewar flasks (25 L, 3 L, 500 mL) → Risk of nitrogen burns and risk of oxygen deprivation 	
<u>Personal Protective Equipment (PPE) and Collective Protective Equipment (CPE):</u> Latex/nitrile gloves → handling in an ultra-high vacuum and use of ethanol Cryogenic gloves and safety goggles → handling of liquid nitrogen O2 detector → risk of anoxia: presence of nitrogen (and helium, but in small quantities) Earplugs → machine noise PPE and CPE specific to laser hazards (Class 4): EYEWEAR MUST BE WORN WHEN OPENING THE ENCLOSURE CONTAINING THE LASER Warning light on the outside (above the door) and special curtains on doors and windows	
<u>In case of accidents or incidents:</u> Safety shower (Lab 105), first-aid kit (Labs 105 and 110), fire extinguisher (hallway), emergency exit (GM Lab), emergency phone number (Door 109), incident report form (administration)	
<u>Required training on laser hazards:</u> Laser Safety Officer: Julien Léger → Mandatory briefing before any use Level 1 or 2 training with a certified provider (Laser Conseil) – At least one Safety Thursday session	
<u>Hazards associated with degassing lines:</u> <ul style="list-style-type: none"> • High temperature (furnace): risk of burns • Numerous electrical connections (cables): risk of fire, electrocution, and/or burns • Class 4 laser ($\lambda=1080$ nm and $\lambda=800$ nm): risk of irreversible burns to the eyes and body 	
<u>Cleanliness and tidiness:</u> Tables, equipment, and appliances used; adjoining room; floor (vacuum cleaner available)	

The trained person agrees not to intervene on the points where the competence is not acquired.

Location:

date:

Signatures: the trainer

the Trained person and his supervisor

The laser reference: