



EXCITE Transnational access to research facilities, third call for proposals: list of available facilities

INSTITUTE		FACILITY				EQUIPMENT				DETAILS FOR APPLICATION		
EXCITE partner	Facility	Facility manager	Facility address	Processing and acquisition software available at facility; other available services	Available equipment	Equipment type (EM or X-ray)	Equipment short description	Sample preparation offered?	Details on sample preparation	Maximum units of access per proposal	Access modality	Eventual period of equipment unavailability
1-UNIVERSITEIT UTRECHT (UU)	UU - EM Centre	Markus Ohl (m.ohl@uu.nl)	Yalelaan 1, 3584 CL Utrecht	Avizo, Aztec, Esprit, Zen, Atlas, Velox, GMS3, STEMx, Donovan, Zeiss Reconstructor	Thermo Fisher Helios Nanolab 3G (FIB-SEM)	EM	FIB-SEM with Cryostage, Nordlys EBSD, Oxford xxx EDS, Gatan CL,	NO			Remote and/or Physical	
					Thermo Fisher Talos F200X (STEM)	EM	200 kV (S)TEM. High-brightness X-FEG electron gun, high-resolution imaging up to 1.1 Å, electron diffraction, electron tomography, and high-sensitivity 2D EDX chemical mapping (Super-X)	NO				
					Thermo Fisher Spectra 300 (STEM)	EM	30-300 kV (S)TEM. Double aberration corrected microscope with a variable acceleration voltage (30, 80, 200 and 300 kV), enabling high-resolution imaging up to 50 pm both in TEM and STEM imaging mode. Equipped with EDX spectrometry for chemical mapping, and ultra-high-resolution electron energy loss spectrometry (UHR-EELS) enabled by its double monochromator and Gatan Continuum filter. It also has a direct-direction Gatan K3 IS camera allowing imaging of soft and beam-sensitive materials.	NO				
					Zeiss Gemini 450 (SEM)	EM	High-end SEM with low vacuum capabilities. Symmetry EBSD detector, Oxford xxx EDS, Delmic CL, Quorum Cryostage	NO				
					Zeiss Evo 15 (SEM)	EM	Environmental SEM with Peilier cooling stage, 2x Bruker EDS and automated mineralogy	NO				
					JEOL JXA-8530F Hyperprobe (EMP)	EM	Field Emission Electron probe microanalyser, equipped with 5 WDS spectrometers, SDD ED system, CL system (panchromatic imaging and xCLent hyperspectral CL)	NO				
					Zeiss Xradia 810 Versa (µ-CT)	X-ray	High-resolution X-ray tomography microscope system equipped with a 160kV high-energy, high-power microfocus X-ray source, several high-contrast detectors and a large flat panel detector as well as in situ experimental capabilities.	NO				
2-UNIVERSITEIT GENT (UGent)	UGent - UGCT	Laurenz Schröber, Laurenz.Schroer@UGent.be	Proeftuinstraat 86, 9000 Gent, Belgium	Octopus, VGStudioMax, Avizo, Dragonfly, µ-CT add-on modules are also available for direct observations of fluid flow and weathering experiment. Add-on modules can be made available after initial discussion with the beamline scientist prior to submission of the proposal. Add-on modules are available for fluid flow experiments under low confining stresses (max. 30 bar) and without temperature control. Both the fluid flow cell and the pumps can be made available upon request. Also a Deben CT5000 in-situ compression and tensile cell is available (deben.co.uk and doi.org/10.1007/s10064-018-01448-0), as well as a custom-made freezing cell (doi.org/10.1016/j.conbuildmat.2020.118515).	Nanowood (n-CT)	X-ray	This versatile multi-resolution X-ray tomography scanner is equipped with two separate X-ray tubes and two different X-ray detectors to allow for optimal scanning conditions for a very wide range of samples. The open-type Hamamatsu transmission tube is used for very high resolution CT scans, where a resolution of approximately 0.4 micron can be achieved (given very small samples), whereas the closed-type Hamamatsu directional tube head is used for larger samples. On the detector side, an 11 megapixel Photonic Science VHR CCD camera with a pixel size of approximately 7 ² µm ² is complemented with a large-area Varian flat-panel detector.	NO			Remote and/or physical	
					HECTOR (µ-CT)	X-ray	The High-Energy CT system Optimized for Research or HECTOR is the workhorse of our systems. It is equipped with a 240 kV X-ray tube from X-RAY WorX, a PerkinElmer 1620 flat-panel detector and a rotation stage able to carry samples up to 80 kg. Mounted on a total of 5 motorized linear stages, this system covers a very wide range of samples with a best achievable spatial resolution of approximately 3 micron and an image resolution of 2048x2048 pixels. Two additional piezo stages allow for an exact positioning of the sample on the rotation axis.	NO				
					Medusa (n-CT)	X-ray	The very high resolution scanner Medusa combines a Photonic Science VHR detector with a large-area Varian flat-panel detector to allow for both low-density objects such as biological tissue, and high-density samples such as geomaterials. Both detectors are mounted on motorized linear stages for easy and fast switching and high accuracy. The setup also allows for a very long propagation distance of 1.4m, which can be exploited for phase-contrast experiments. The FeinFocus transmission tube allows for a resolution of approximately 0.9 µm and for X-ray targets of different material and thickness.	NO				
					EMCT (µ-CT)	X-ray	The Environmental Micro-CT or EMCT system is a rather unique, gantry-based high-resolution setup developed for fast CT scanning and in-situ monitoring. The design of a horizontal gantry allows for the installation of a large number of add-on modules such as flow cells, pressure stages, temperature stages, in a convenient vertical position without a limitation on tubes and wires. Furthermore, the components are chosen to enable fast and continuous CT scanning up to 5 full rotations per minute.	NO				
					TESCAN CoreTOM (µ-CT)	X-ray	A versatile micro-CT system optimized for multi-scale 3D and high temporal resolution 4D imaging from core samples down to pore samples. Key benefits: • Multi-scale imaging from core down to pore/grain scale • Volume-of-Interest Scanning (VOIS) • Scan up to 1 m tall cores • Fast scanning & high sample throughput • In situ integration option • Dynamic micro-CT acquisition with temporal resolutions < 10 seconds • Software tools for dynamic acquisition, reconstruction and visualization	NO				
					Core-Tom (tescan), with spectral detector	X-ray	Core-Tom (tescan), Resolution >5µm, Sample sizes < 15 cm diameter and < 90 cm high. Possibility to measure k-edge of elements inside sample. Possibility of in-situ / time-lapse studies that require large rigs.	YES	8			
3-HELMHOLTZ-ZENTRUM DRESDEN/ROSSENDORF EV (HZDR)	HZDR - HIE - Spectral-CT	Jose Godinho, j.godinho@hzdr.de	40, Chemnitz Strasse, 09599, Freiberg, Germany	Avizo, Dragonfly, Panthera	Core-Tom (tescan), with spectral detector	X-ray	Core-Tom (tescan), Resolution >5µm, Sample sizes < 15 cm diameter and < 90 cm high. Possibility to measure k-edge of elements inside sample. Possibility of in-situ / time-lapse studies that require large rigs.	YES		8	Physical	
4-HELMHOLTZ-ZENTRUM POTSDAM DEUTSCHESGEFORSCHUNGSZENTRUM (GFZ)	GFZ - PISA	Vladimir Roddatis, roddatis@gfz-potsdam.de	Telegrafenberg, D-14473 Potsdam	Velox, TIA, Digital Micrograph, Tomography, Nanomegas, Avizo, GSTEM, Dr. Probe, TEAM, TSL OIM, Slice&View	Themis Z (FEG-STEM)	EM	Thermo Fisher Scientific Themis Z (3.1); Cs S-CORR Probe Corrector (80-300 kV) (space resolution is < 0.06 nm at 300 kV); X-FEG electron source with a monochromator (energy resolution is < 0.3 eV); HAADF, DF2, DF4 and BF Detectors; STEM Imaging of light elements; SuperX energy dispersive X-ray spectroscopy system; Gatan Imaging Filter Continuum ER/1065 (EELS, EFTEM); TEM, STEM and EDX Tomography Data Acquisition Software; Low-dose Exposure Technique; Precession electron diffraction	YES	need to be discussed with local team	Needs to be discussed with local team	Remote and/or physical	
					Tecnai F20 G2 X-Twin FEG TEM	EM	FEI Tecnai G2 F20 X-Twin (200 kV) (space resolution is < 0.3 nm at 200 kV); FEG electron source; HAADF Detector; Gatan Tridiem (EELS, EFTEM); EDAX energy dispersive X-ray spectroscopy system; TEM sample holders: Gatan double-tilt holder; Single-tilt tomography holder; low background double-tilt holder; Single-tilt rotation holder; Gatan double-tilt liquid nitrogen holder; Gatan heating holder.	YES	need to be discussed with local team			
					FEI Quanta 3D FEG	EM	A FEI Quanta 3D FEG is a state-of-the-art Dual Beam device. SEM column optimized for high-brightness & high-current at acceleration voltage from 2kV to 30kV and probe currents from 1pA to 65 pA. Magnifications: x30 – x1,000,000; SE & BSE detectors; Low-vacuum SED (used in low vacuum mode); EDAX TEAM software for EBSD and EDS. Maximum electron beam resolution - 0.8 nm at 30kV; Focused Ion Beam Column: Ion source - 1kV to 30 kV. Maximum ion beam resolution - 7 nm at 30kV. Omniprobe nanomanipulator. In situ Pt and C gas injection systems; Avizo Fire for 3D reconstruction in nanotomography.	YES	need to be discussed with local team			
					FEI Helios G4 (FIB-SEM)	EM	FEI Helios G4 Dual Beam Helios G4 UC. Resolution: 0.6 nm at 30 kV STEM, 0.7 nm at 1 kV, 1.0 nm at 500 V (ICD). Electron beam current range: 0.8 pA to 100 nA, accelerating voltage range: 200 V to 30 kV. Maximum horizontal field width: 2.3 mm at 4 mm WD. Ion beam current range: 0.1 pA to 65 nA, accelerating Voltage range: 500 V to 30 kV. Elstar in-lens SE/BSE detector; Everhart-Thornley SE detector (ETD); Retractable STEM3+ detector with BF/DF/HAADF segments; Gas Injection System; Easylift for precise in situ sample manipulation; AutoTEM wizard automated sample preparation	YES	need to be discussed with local team			



EXCITE Transnational access to research facilities, third call for proposals: list of available facilities

INSTITUTE		FACILITY				EQUIPMENT				DETAILS FOR APPLICATION			
EXCITE partner	Facility	Facility manager	Facility address	Processing and acquisition software available at facility; other available services	Available equipment	Equipment type (EM or X-ray)	Equipment short description	Sample preparation offered?	Details on sample preparation	Maximum units of access per proposal	Access modality	Eventual period of equipment unavailability	
5-UNIVERSIDAD DE GRANADA (UGR)	UGR - CIC - X-ray μ -CT	Encarnación Ruiz Agudo encaruiz@ugr.es	Campus Universitario de Fuentenueva, Paseo Prof. Juan Ossorio, s/n, 18003 Granada (SPAIN)	Scout&Scan TM, Scout&Scan TM Control Systems Reconstructor, Dragonfly TM, Velox, Digital micrograph	ZEISS Xradia 510 Versa (X-Ray μ -CT)	X-ray	X-ray micro-CT ZEISS Xradia 510 Versa. This high resolution μ -CT is able to analyze non-destructively a whole range of sample types (solid and/or liquid) and geometries. Extending synchrotron-caliber performance, it achieves 0.7 μ m true spatial resolution and voxel size of 70 nm. It has advanced absorption contrast along with innovative phase contrast. Multi-length scale capabilities enable to image the same sample across a wide range of magnifications, reducing dependence upon geometric magnification, thereby enabling to maintain submicron resolution down to 700 nm at large working distances. Additional capabilities: a) T-controlled stage; b) Mechanical testing device; c) Flow-through cylindrical stage.	YES	need to be discussed with local team	need to be discussed with local team	Remote and/or physical	01/08/23 -31/08/23	
	UGR - CIC - HRTEM				FEI TITAN (sub-nm resolution TEM, equipped for AEM analyses)	EM	High resolution transmission electron microscope, FEI TITAN with 300 kV acceleration voltage. The Titan microscope is a image-aberration-corrected STEM/TEM with .07 nm resolution, equipped with a high-brightness Schottky-field emission e-source, and a high-resolution Gatan Imaging Filter (GIF). It has two 2048x2048 slow-scan CCD cameras. The high resolution STEM is equipped with HAADF detector and EDAX energy dispersive X-ray for AEM analyses. Includes different sample holder, one of them a tomography holder with ± 80 degrees to minimize the missing wedge in 3D reconstructions.	NO		need to be discussed with local team	Remote	01/08/23 -31/08/23	
6-CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE (CNRS)	CNRS-INSU - CrystalProbe-Montpellier	Fabrice Barou fabrice.barou@umontpellier.fr	Geosciences Montpellier, cc.060, Univ. Montpellier, Pl. Eugene Bataillon, 34095 Montpellier cedex5, France	Aztec software, MTEX, Channel 5	CrystalProbe FE-X500 (FEG-SEM with EDS detector and EBSD camera)	EM	FEG-SEM equipped with a Symmetry EBSD camera and EDS detector from Oxford Instruments. Inclined column allows the mapping of relatively large areas (few cm ²). Instruments & an EDS detector allowing simultaneous crystallographic and chemical mapping of thin sections or polished sections (up to 4x3 cm). The maximum resolution of crystallographic maps on geological materials is around 0.05 μ m, and the acquisition frequency can reach 500 Hz	YES	need to be discussed with local team. Prefer to have the sample preparation done at the facility to avoid losing time during TNA with poorly polished samples	need to be discussed with local team	Remote and/or physical		
7-UNIVERSITETET I OSLO (UIO)	UIO - IKO - MicroCT	Liebert P. Nogueira l.p.nogueira@odont.uio.no	Institute of Clinical Dentistry Geitmyrsveien 69, 0455 Oslo, Norway	Bruker CTAn, Dataviewer, Dragonfly Availability via VDI Virtual Machine	microCT Skyscan 1172	X-ray	microCT Skyscan 1172, resolution 2 μ m in voxel	NO	Take contact with the engineer responsible for preparation demands	need to be discussed with local team	Remote and/or physical		
	UIO - IKO - NanoCT				nanoCT SkyScan 2211	X-ray	nanoCT SkyScan 2211, resolution 300 nm in voxel	NO	Take contact with the engineer responsible for preparation demands	need to be discussed with local team	Remote and/or physical		
	UIO - GEO - SEM	Siri Simonsen siri.simonsen@geo.uio.no	Department of Geosciences, University of Oslo, Sem Sælands vei 1, 0371 Oslo, Norway	Bruker Esprit 2.3; CrossCourt4 Rapide (HR-EBSD); Odemis (CL)	FEG-SEM with dual EDS, high-resolution EBSD and cathodoluminescence (CL) system with spectral analysis, HR-EBSD	EM	Hitachi SU5000 FEG-SEM including low-vacuum mode. Dual Bruker Quantax Xflash 30 EDS system, Bruker e-Flash high resolution EBSD system with Argus, software CrossCourt4 Rapide for high-angular resolution EBSD (HR-EBSD), Delmic Sparc cathodoluminescence system with spectral analysis. Sample prep facilities: carbon coater Cressington 208C, vibratory polishing machine QPol Vibro (for EBSD samples).	YES	Only carbon coating is offered	need to be discussed with local team	Remote and/or physical		
9- THE CHANCELLOR MASTERS AND SCHOLARS OF THE UNIVERSITY OF CAMBRIDGE (UCAM)	CAM - WEMS	John Walmsley, jcw80@cam.ac.uk	Department of Materials Science & Metallurgy University of Cambridge Charles Babbage Road Cambridge CB3 0FS	INCA/AZtec, Atlas, Avizo and open-source software such as Hyperspy	FEI Tecnai F20 FEGTEM	EM	TEM, STEM and imaging, Scanning Electron Diffraction (SED) with precession (Nanomegas) and electron tomography. In situ-studies are enabled by Gatan OneView camera combined with heating (DENS Wildfire) and liquid (Protophys Poseidon) holders.	NO	need to be discussed with local team	need to be discussed with local team	Remote and/or physical		
					FEI Tecnai Osiris 80-200	EM	TEM imaging and fast chemical mapping in scanning transmission electron microscope (STEM), its primary beam energy is 200keV, with a lower energy of 80 keV for materials sensitive to knock-on damage. FEI's Super-X system provides high collection (>0.9 sr solid angle) and high count rates (>250 kcps) EDS analysis. Electron Energy Loss Spectroscopy (EELS) using Gatan's Enfinium ER 977 spectrometer allows Scan Module for Dual EELS (sequential low-loss and high-loss spectrum acquisition) and RangeEELS.						
					FEI Titan3 80-300	EM	Aberration corrected, monochromated, atomic resolution Scanning Transmission electron Microscopy (STEM), Conventional TEM imaging modes are accommodated with two 2k CCD cameras: one in the Gatan Tridigm spectrometer/imaging filter for energy-filtered TEM (EFTM). A rotatable Mollenstedt-Ducker biprism allows for off-axis holography and a Lorentz lens allows field-free imaging of magnetic specimens.						
					TF Spectra 300	EM	Aberration Corrected atomic resolution, monochromated, Scanning Transmission Electron Microscope. The instrument offers EDS (Thermo Fisher Super-X) and high energy resolution EELS analysis (Gatan Continuum 1066). Magnetic imaging, Lorenz magnetic imaging, electron holography Scanning Electron Diffraction (SED) (including Quantum Detectors Merlin direct detection camera). The primary Aberration Corrected atomic resolution, monochromated, Scanning Transmission Electron Microscopy (STEM). The instrument offers EDS (Thermo Fisher Super-X) and high energy resolution EELS analysis (Gatan Continuum 1066, 0.15 eV or better). A rotatable Mollenstedt-Ducker biprism allows for off-axis holography and a Lorentz lens allows field-free imaging of magnetic specimens. Scanning Electron Diffraction (SED) with precession (Nanomegas) capability includes a Quantum Detectors Merlin direct detection camera. The primary beam energy is 300 kV and the system is also aligned at 80 kV and 40 kV.						
					FEI Helios Nanolab SEM/FIB	EM	Dual beam Focused Ion Beam (FIB) Scanning Electron Microscope (SEM) instrument SEM/FIB, TEM lamella sample preparation (Omniprobe), Pt, Teos, and Carbon Deposition. FIB/SEM tomography, EDS and Electron Backscattered Diffraction analysis are provided, with Oxford Instruments detectors.						
					HR: ZEISS CrossBeam 540 SEM/FIB	EM	Dual beam Focused Ion Beam (FIB) Scanning Electron Microscope (SEM) instrument SEM/FIB, Pt, Teos, and Carbon Deposition. FIB/SEM tomography.						
					ZEISS GeminiSEM 300	EM							
CAM - ES M.DS - EEG Electron MicroProbe	David Wallis dw584@cam.ac.uk	Department of Earth Sciences, Downing St, CB2 3EQ, Cambridge (UK)	ThermoFisher Maps (SE/BSE/CL imaging); ThermoFisher iMeasure, iDiscover, NanoMin (EDS + BSE); Bruker Esprit, MatLab-MTEX (EDS, EBSD); Jeol FEG EPMA - Jeol software and Probe software.	Field-emission gun electron probe microanalysis (FEG-EPMA)	EM	Newly installed (Oct 2021) Jeol JXA-HP200F is fitted with 5 WDS spectrometers, 1 Jeol EDS, 1 PanCL and Transmitted/reflected Optical microscope. Cold finger and plasma cleaner available. EDS/WDS combined accurate analysis. Stage mapping allows for large areas analysis (up to 90mm ²). Thin sections (28mm x 50mm x 1.5mm) and round stubs (both 25.5mm and 30mm diameter) are suitable. The FEG source allows for trace element analysis with large probe currents (1nA to 10microA) and high-resolution imaging in conjunction with very high magnification, small area chemical analysis allowing for particles <100nm to be chemically mapped.	NO	N/A	need to be discussed with local team	Remote and/or physical			
CAM - ES M.DS - SEM QEMSCAN				FEI QEMSCAN 650F (FEG-SEM) with electron backscattered diffraction (EBSD) and cathodoluminescence (CL)	EM	Quantitative Evaluation of Minerals by Scanning electron microscopy (QEMSCAN): this EDS based method aids in phase mapping, modal proportion analysis, particle and mineral grain size and shape among other things using the iDiscover software package. Mapping with EBSD: Bruker e-FlashHR. Typically used to explore phase id, grain size and morphology distributions, grain orientation, texture, and strain deformation at 100nm to cm scale.	NO	N/A	need to be discussed with local team	Remote and/or physical			



EXCITE Transnational access to research facilities, third call for proposals: list of available facilities

INSTITUTE		FACILITY				EQUIPMENT				DETAILS FOR APPLICATION		
EXCITE partner	Facility	Facility manager	Facility address	Processing and acquisition software available at facility; other available services	Available equipment	Equipment type (EM or X-ray)	Equipment short description	Sample preparation offered?	Details on sample preparation	Maximum units of access per proposal	Access modality	Eventual period of equipment unavailability
11-UNIVERSITE DE PAU ET DES PAYS DE L'ADOUR (UPPA)	UPPA - DMEX - High resolution tomography	Pascale Senechal, pascal.senechal@univ-pau.fr	UPPA-DMEX, Avenue de l'université, BP 1155, 64013 Pau, France	ORS Dragonfly and open source software such as Fiji	ZEISS Xradia Versa 510 (X-ray μ -CT), with possibility to perform in situ/in operando analyses	X-ray	The Zeiss Xradia Versa 510 offers voxel sizes ranging between ~250nm and ~40 μ m (unbinned data) on respectively millimeter to centimeter-sized samples. The system is equipped with a 4Mpx CCD detector. An in-situ stage enables 4D experiments. Test cell to be provided by the user.	YES	we can drill sample cores from consolidated rock samples. The resulting sample sizes range from ~1.5mm up to 5cm in diameter.	48 hours	Remote and/or physical	29/07/2023 - 20/08/2023
	UPPA - DMEX - High speed tomography				Tescan UnitOM XL (X-ray μ -CT), with possibility to perform in situ/in operando analyses and chemical mapping (prototype)	X-ray	The Tescan UnitOM XL offers voxel sizes ranging between ~1 and 150 μ m (unbinned data) on millimeter to decimeter-sized samples. The system is equipped with two detectors, an 8Mpx flat panel detector and a spectral line detector with up to 128 channels. An in-situ stage enables 4D experiments. Test cell to be provided by the user.	YES	Sample height respectively ranges from 1cm up to 5cm	36 hours	Remote and/or physical	29/07/2023 - 20/08/2023
12-ISTITUTO NAZIONALE DI GEOFISICA E VULCANOLOGIA (INGV)	INGV-OV - X-ray MicroCT	Lucia Pappalardo, lucia.pappalardo@ingv.it	Via Diocleziano 328, 80125, Napoli	Zeiss Scout & Scan and Zeiss XRM reconstructor; image processing and simulators (Avizo/PerGeos, Dragonfly/ORS, ImageJ/Fiji, Python libraries, Pore3D, Blob3D, 3DViewer)	Xradia 410 Versa 3D (X-Ray μ -CT)	X-ray	Micro-CT system (Zeiss Xradia 410 Versa) equipped with a microfocus X-ray source capable of energies from 40 to 150 kV. Detectors with magnifications ranging from 0.4X to 20X (resolution down to 0.9 μ m). Imaging mode in absorption and phase contrast. Device to perform high temperature-high pressure in-situ experiments and time-resolved (4D) imaging.	YES	Need to be discussed with local team	7 days	Remote and/or physical	
	INGV-RM1 - FESEM/EMPA	Manuela Nazzari, manuela.nazzari@ingv.it	Via di Vigna Murata 605, 00143, Roma	Jeol and Oxford Aztec software	JEOL JSM-6500F (FEG-SEM)	EM	The Electron Microscopy Laboratory is equipped with a JEOL JSM-6500F Field Emission Scanning microscopy. The JSM-6500F is a high performance analytical FESEM integrating Oxford AztecLive Ultim Max 40 energy dispersive X-ray analyzer for live electron images and live X-ray chemical imaging. Moreover, the Large Area Map software allows the acquisition of large sample areas at high magnification by means of a collage of images Specifications: • Resolution: 1.5nm • Accelerating voltage: 0.5-30 KV • Maximum probe current: 200 nA • Magnification: from 40x (WD10 mm) to 500.000x • Specimen stage: five axis drive eucentric goniometer stage • Maximum specimen size: 50 mm x 40 mm	YES	Need to be discussed with local team. Polishing and coating equipments available.	need to be discussed with local team	Remote and/or physical	
						JEOL JXA-8200 (EPMA; 5 WDS spectrometers, EDS detector)	EM	The Electron Microprobe Laboratory is equipped with JEOL JXA-8200 electron microprobe, with five wavelength dispersive spectrometers (12 crystals), an energy dispersive spectrometer and transmission illuminator. The instrument is designed to measure qualitatively composition of a solid polished material on a microscale with high precision (within one percent relative for major constituents) and low detection limits (commonly a few tens to few hundreds ppm). Sample of interest can be as small as a few microns across. Built on the base of scanning electron microscope it has all the capabilities of SEM too. Specifications: • Minimum probe dimension: 2.5nm • Accelerating voltage: 15-30 KV • Probe current: 5-200 nA • Samples type: thin sections and one-inch epoxy-samples	YES			
13-TECHNISCHE UNIVERSITEIT DELFT (TU Delft)	TU Delft - CITG - Medical(Macro)-CT scanner	Prof Pacelli Zitha, p.l.j.zitha@tudelft.nl	Department of Geoscience and Engineering, Stevinweg 1, 2628CN Delft, The Netherlands	Phoenix reconstruction software, Avizo 3D analyses software, Matlab/Python routines	Siemens macro-CT scanner (scanning of dm-sized sample at mm-scale resolution)	X-ray	Lab-scale computed tomography scanner to image large samples focused on in-situ testing and imaging of materials. Rocks/Samples with diameters of 15 cm and length of over a meter can be scanned in tens of seconds at a resolution of at minimum 500 micrometer.	YES	Need to be discussed with local team	Need to be discussed with local team	Remote and/or physical	
	TU Delft - CITG - Micro-CT scanner				Phoenix Nanotom μ -CT scanner	X-ray	Lab-scale micro computed tomography scanner to characterize microstructures of a wide variation of materials. Samples with diameters of 1 mm to up to 5 cm can be scanned at a resolution of at minimum 1 micrometer.	YES	Need to be discussed with local team	Need to be discussed with local team	Remote and/or physical	
14-NORGES TEKNISKNATURVITENSKAPE LIGE UNIVERSITET (NTNU)	NTNU - RECX - Radiografi	Katharina Scheidl, katharina.scheidl@ntnu.no	Høgskoleringen 5, Realfagbygget D5-170 7491 Trondheim	Nikon Inspect-X and CT Pro, VGStudio Max, open-source image processing software	custom-built X-radiography (4- μ m spatial resolution with frame rates up to 6 per second)	X-ray	Custom-built setup, VISCOM XT9100 microfocus source (Mo, Ag or Cu), Vosskuhler CCD-camera, SCINT-X pixeled scintillator - optimized for 17 keV radiation, 4- μ m spatial resolution with frame rates up to 6 per second	NO		15 days	Remote and/or physical	
	NTNU - RECX - Tomografi				Nikon HT225 μ -CT scanner	X-ray	Nikon XT H 225 ST, 225kV UltraFocus reflection target (Mo, W, Ag, Cu) and 180 kV transmission target, Perkin Elmer 1620 flat panel detector, 300 μ m to 10 μ m resolution - depending on the sample size, max sample size 30 cm/50 kg	NO		15 days	Remote and/or physical	
15-THE UNIVERSITY OF EDINBURGH (UEDIN)	UEDIN - Micro-CT	Dr Ian Butler, Ian.Butler@ed.ac.uk	School of Geosciences, The King's Buildings, James Hutton Road, Edinburgh EH9 3FE	Acquisition code written in-house. Processing codes include Avizo, Dragonfly (academic license only) and open source software (e.g. ImageJ)	custom-built μ -CT scanner	X-ray	Bespoke Instrument. 160 kV transmission/reflection source. Micos UPR-100-Air rotary table for sample/cell masses up to 2 kg, Perkin Elmer 0822 XRD, a-Si, 16 bit, 1 MP flat panel camera (Gadox scintillator), Rad-Icon shadocam 4K, CMOS, 12 bit, 4 MP flat panel camera. Sample size up to 100 mm diameter. Long samples acquired in multiple scans.	YES	Cutting and preparation of small cores (3-10 mm diameter) from rock (or similar engineered materials e.g. cement)	4 days	Remote and/or physical	