

Large equipment and facilities

Instrument	Model	Usage	Year	Responsible staff	Location
C-N-S Analyzer	Elementar Vario Max CNS	Measurements of carbon (TC and TIC/TOC), TN (Dumas combustion method) and TS. Combustion <1150° Celsius. Autosampler available.	2012	Rikke Brok Jensen	1674-234
Scanning electron microscope (SEM)	Tescan Vega	-	2022	Trine Ravn-Jonsen, Rasmus Andreasen	1674-141
X-ray diffraction (XRD) Cu-tube	Panalytical X'Pert Pro PW3050/60	Identification of crystalline materials or clay minerals by means of powder x-ray diffraction. Clay minerals (<0.002mm) are concentrated by sedimentation. 3 steps clay: Untreated, treated with ethylene glycol as well as after heating (to 500° Celsius).	2006	Trine Ravn-Jonsen, Rasmus Andreasen	1674-141
Sedimentation cylinders and pipettes	"Andreasen"	Sedimentation analysis (Stoke's Law) by using the "Andreasen pipette" on material <0.063 mm. Used for particle sizing of very fine material or as the preparatory step for XRD analysis of clay minerals.	-	Charlotte Rasmussen	1672-040
X-ray fluorescence (XRF) core scanner Cr- or Mo-tube	Itrax, COX Analytical Systems	Qualitative detection of elements from AI to U in sediment cores. Also provided is RGB image, X-ray photograph and magnetic susceptibility.	2012	Trine Ravn-Jonsen	1672-030
Micro-XRF (table top) Rh-tube	Bruker - Tornado M4	In-situ determination of major and trace elements in rocks, metals, artifacts and powder. Spatial resolution 20um.	2016	Rasmus Andreasen	1672-338
Core logger	GEOTEK MSCL-S	High resolution imaging, magnetic susceptibility, gamma density measurement (radioactive Cs-137) etc. on marine sediments.	2025	Christof Pearce	1672-039

For further info contact head of laboratories, Charlotte Rasmussen



Titrator	Titralab, Radiometer autoburette ABU900, TIM900 titration manager	Measurement of alkalinity and chloride.	1996	Trine Ravn-Jonsen	1674-138
Laserdiffraction	Sympatec HELOS	Determination of particle size distribution by light scattering. VIBRI/GRADIS module for dry material and QUIXEL module for wet. Available lenses: R1 (0.18-35.0 µm), R4 (1.8-350.0 µm) and R7 (18.0- 3500 µm). Quartz flow cells, sizes 2 or 6 mm (QUIXEL module). 31 classes.	1997	Charlotte Rasmussen, Trine Ravn-Jonsen	1674-132
Sieving machines	Pascall inclyno	Used for separation purposes and to determine particle size for various experiments. Used with 20 cm or 8-inch sieves (Endecott), mesh sizes normally 0.032-16mm. Brass or steel.	-	Trine Ravn-Jonsen	1672-020
Differential Thermal Analysis (DTA)	Netzsch	DTA and TG (thermogravimetry) for experiments on e.g., clay or powder. Temperature <1150° Celsius.	2014	Rikke Brok Jensen	1674-234
Cosmo-lab, Semi-clean	-	Dating of sediments using cosmogenic isotopes (Be-10 and Al-26). Preparatory processes include sieving, magnetic separation, floatation, treatment with "Aqua Regia", boiling with phosphoric acid, HF/HNO ₃ leaching, oxidation, ion exchange, target preparation.	2015	Birte Eriksen, Rikke Brok Jensen	1674-238
Multi-collector inductively coupled plasma mass spectrometer (MC-ICPMS)	Nu Plasma II	High precision isotope analysis, including Fe, Si, Rb/Sr, Sm/Nd, Lu/Hf.	2015	Rasmus Andreasen	Isotope lab
Quadrupole inductively coupled plasma mass spectrometer (Q-ICPMS)	Agilent 7900	Trace and ultra-trace element analysis from solution or laser ablation.	2015	Rasmus Andreasen	lsotope lab
Laser ablation	Resonetics M 155, 193nm ArF Excimer laser	Ablation of samples, and sample introduction to both Q-ICPMS and MC-ICPMS.	2015	Rasmus Andreasen	lsotope lab

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High pressure liquid chromatography (HPLC)	Agilent 1260 Infinity	Speciation measurements (e.g. As, I).	2015	Rasmus Andreasen	lsotope lab
Gas chromatography and mass spectrometer (GC-MS) with pyrolysis unit	Agilent	LOC lab	2019	Arka Rudra, Rasmus Andreasen	1674-138
Gas chromatography and mass spectrometer (GC- MSD and FID)	Agilent 5977C	Biomarker lab	2023	Rachel Lupien, Christof Pearce, Trine Ravn-Jonsen	1674-138
Gas chromatography and isotope ratio mass spectrometer (GC-IRMS)	Thermo Fischer	Biomarker lab	2024	Rachel Lupien, Rasmus Andreasen	1674-138
Accelerated Solvent Extractor (ASE)	Thermo Scientific Dionex ASE 350	Biomarker lab	2023	Rachel Lupien, Trine Ravn- Jonsen	1674-138
Pyrolyses and oxidation	Hawk by Wildcat Technologies	Determination of S1 (free oil), S2 (kerogen yield), S3 and S4. Available options are T _{max} , kinetic calculations, TOC, "carbonate carbon" (CC) and other parameters. He is carrier gas for pyrolysis, hydrogen is used as FID fuel and hydrocarbon free air as FID fuel and oxidation carrier. Sample size normally 0.050 g of <0.250mm (mesh size 60) of ground material. Maximum temperature is 850° Celsius. Autosampler fits 126 steel crucibles.	2018	Arka Rudra, Rasmus Andreasen	1674-138
High pressure Asher (HPA-S)	Anton Paar	High-performance acid digestion, mainly for PGE analysis. Fits 5 samples simultaneously.	2019	Rasmus Andreasen	1672-042
Ring shear	WILLE GEOTECHNIK	Mechanical experiments with continuous deformation of unconsolidated (soft) sediments.	2001	Jan Piotrowski	1672-039



Preparatory equipment	-	Crushing, grinding, sawing, Wilfley table etc.	-	Various	1672-046,
					1672-047, 1672-042
Epoxy lab	-	Facility to make casts, polish etc.	-	Rikke Brok Jensen	1674-236
Biomarker	-	Investigation of organic biomarkers in marine and lake sediments as proxies for past climate and ocean conditions. Procedures include preparation of sediment samples for GC-MS analyses by solvent extraction and separation into fractions of different polarities and other parameters. Compounds of interest include IP25, leaf waxes, PAHs, fecal sterols, and more.	2023	Rachel Lupien, Christof Pearce, Trine Ravn-Jonsen	1674-138
Micro-tephra	-	Detection of volcanic ash in low concentrations (crypto-tephra) in marine and terrestrial sediment deposits for dating purposes. Techniques involve sieving, heavy liquid density separation, optical microscopy etc.	2019	Christof Pearce, Trine Ravn- Jonsen	1672-242
<i>Micro-thermometry</i>	Linkam	Attached to a Nikon microscope we have computer-controlled equipment to determine homogenization temperatures and salinity of melt- and fluid inclusions. 2 stages are available: 1) THMSG600 (temperature range from -190° to +600° Celsius) and 2) TS1400XY (temperature up to +1400° Celsius).	2011	-	1672-338