

List of Instruments at CMC, Kochi University (As for April 2023)

Availability	○	Available
	△	Available under condition

Last modified: February 1st, 2023

□ Instruments using radiation & X-ray

Equipment/Apparatus/Device	Model	Manufacturer	Availability	Person in charge	Laboratory name	Remarks
Multi sensor core logger	MSCL-S	Geotek	△	M. Ikehara, T. Matsuzaki, M. Murayama	Core Logging Lab.	Radiation control
X-ray CT scanner	Aquilion PRIME Focus Edition	Canon Medical Systems Corporation	△	Y. Yamamoto, T. Matsuzaki, G. Uramoto, M. Murayama	Core Logging Lab.	X-ray control
XRF core scanner "TATSCAN"	JSX-3600CAZ TATSCAN-F2	JEOL	△	Y. Yamamoto, T. Matsuzaki, G. Uramoto, M. Murayama	Core Logging Lab.	X-ray control
X-ray diffractometer (XRD)	X'pert PRO	PANalytical	△	Y. Yamamoto, T. Matsuzaki, G. Uramoto, M. Murayama	X-ray & SEM Lab.	X-ray control
X-ray fluorescence spectrometer (XRF)	Magix PRO / PW2440/00	PANalytical	△	Y. Yamamoto, T. Matsuzaki, G. Uramoto, M. Murayama	X-ray & SEM Lab.	X-ray control
Micro-focus X-ray CT scanner	Xradia 410 Versa	Zeiss	△	Y. Yamamoto, T. Matsuzaki, G. Uramoto, M. Murayama	Geochemistry Lab.	X-ray control
XRF core scanner "ITRAX" *	ITRAX	COX Analytical Systems	×	Y. Yamamoto, T. Matsuzaki, G. Uramoto, M. Murayama	Geochemistry Lab.	X-ray control
X-ray analytical microscope	XGT-7200V	HORIBA	△	M. Iwai	Geochemistry Lab.	X-ray control Measurement available only during business hours (8:30-17:15)

\*ITRAX: No new application will be accepted FY2023 due to breakdowns

□ Other Instruments

Equipment/Apparatus/Device	Model	Manufacturer	Availability	Person in charge	Laboratory name	Remarks
Color spectrophotometer	CM-700d	KONICA MINOLTA	○	G. Uramoto, M. Murayama	Core Logging Lab.	
Core image scanner		Alphacom	○	M. Ikehara	Core Logging Lab.	
Ultrasonic propagation velocity measuring instrument	Sonic-Viewer SX	OYO Corporation	○	M. Iwai	Core Logging Lab.	
Bead sampler (desktop)	3491A1	Rigaku	○	Y. Yamamoto, T. Matsuzaki	Rock Processing Lab.	
Muffle furnace	FO810	Yamato Scientific	○	Y. Yamamoto, T. Matsuzaki	Rock Processing Lab.	
Planetary ball mill	Pulverisette-5	FRITSCH	○	Y. Yamamoto, T. Matsuzaki	Rock Processing Lab.	
Desktop mini press frame	CDM-20M	RIKEN	○	Y. Yamamoto, T. Matsuzaki	Rock Processing Lab.	
Magnetic separator	Type LB-1	Nichika	○	Y. Yamamoto, T. Matsuzaki	Rock Processing Lab.	
Horizontal lapidary machine	PW-2	IMAHASHI MFG	○	T. Okumura	Rock Cutting Lab.	
Desktop mini corer	SC-3	Natsuhara-Giken	○	T. Okumura	Rock Cutting Lab.	
Diamond cut saw for medium sample	TS-200PS	IMAHASHI MFG	○	T. Okumura	Rock Cutting Lab.	
Diamond cut saw for large sample	AC-18	IMAHASHI MFG	○	T. Okumura	Rock Cutting Lab.	
Geological lapping machine for preparing thin sections	Prepa-Lap MG-300	Maruto	○	T. Okumura	Rock Cutting Lab.	
Geological lapping machine for preparing fine thin sections	Doctor-Lap ML-180	Maruto	○	T. Okumura	Rock Cutting Lab.	
Geological lapping machine for preparing thin sections	Roto pol Type 05236112	Struers	○	T. Okumura	Rock Cutting Lab.	
Diamond cut saw for small sample	MC-110	Maruto	○	T. Okumura	Rock Cutting Lab.	
Pass-through superconducting rock magnetometer for U-Channel samples	Model 760R (U-channel)	2G	○	Y. Yamamoto	Paleo & Rock Magnetism Lab.	
Superconducting rock magnetometer for discrete samples	Model 755	2G	△	Y. Yamamoto	Paleo & Rock Magnetism Lab.	
Automated spinner magnetometer with alternating field demagnetizer	DSPIN	Natsuhara-Giken	△	Y. Yamamoto	Paleo & Rock Magnetism Lab.	
Thermal demagnetizer	TDS-1	Natsuhara-Giken	○	Y. Yamamoto	Paleo & Rock Magnetism Lab.	Possible to have vacuum heating in around 10 Pa
Alternating field (AF) demagnetizer	DEM-95	Natsuhara-Giken	○	Y. Yamamoto	Paleo & Rock Magnetism Lab.	
Spinner magnetometer	SMD88	Natsuhara-Giken	○	Y. Yamamoto	Paleo & Rock Magnetism Lab.	
Magnetic balance	NMB-89	Natsuhara-Giken	○	Y. Yamamoto	Paleo & Rock Magnetism Lab.	
Magnetic property measurement system (MPMS)	MPMS-XL5	Quantum Design	○	Y. Yamamoto	Paleo & Rock Magnetism Lab.	
Vibrating sample magnetometer (VSM)	MicroMag 3900 VSM	Lake Shore (PMC)	○	Y. Yamamoto	Paleo & Rock Magnetism Lab.	
Pulse magnetizer	MMPM10	MagneticMeas.	○	Y. Yamamoto	Paleo & Rock Magnetism Lab.	
Alternating gradient magnetometer	MicroMag 2900 AGM	Lake Shore (PMC)	△	Y. Yamamoto	Paleo & Rock Magnetism Lab.	
Three frequency kappabridges for measurements of magnetic susceptibility	MFK1-FA, CS4, CS-L	Agico	○	Y. Yamamoto	Paleo & Rock Magnetism Lab.	Impossible under Ar atmosphere
Peritapycnometer	PPYC-KU	Quantachrome	○	G. Uramoto	Sedimentology Lab.	
Inductively coupled plasma atomic emission spectrometer, desktop style (ICP AES)	Optima4300DV CYCRON	PerkinElmer	○	K. Okamura, T. Ueda	Marine Environmental Lab.	Argon(Ar) gas: 1500JPY/hour
Gas chromatograph ( for dissolved gas measurement )	GC-2014	SHIMADZU	○	K. Okamura	Marine Environmental Lab.	
Precise mercury analyzer for liquid samples	MD-700B	KYOTO ELECTRONICS MANUFACTURING	○	K. Okamura	Marine Environmental Lab.	
Density/specific gravity meter	DA-650	KYOTO ELECTRONICS MANUFACTURING	○	K. Okamura	Marine Environmental Lab.	
3D printer	MARK TWO	Markforged	○	K. Okamura	Marine Environmental Lab.	Nylon: 100JPY/cm <sup>3</sup> Carbon: 1500JPY/cm <sup>3</sup>
3D printer (for ABS resin)	da Vinci 2.0 A Duo	xyz printing	○	K. Okamura	Marine Environmental Lab.	ABS resin: 30JPY/m
3D printer (for PLA resin)	da Vinci mini	xyz printing	○	K. Okamura	Marine Environmental Lab.	PLA resin: 20JPY/m
Conductivity temperature depth profiler with turbidity sensor (CTD-T)	XR-620	RBR	○	K. Okamura	Usa Marine Biological Institute	
Laser processing machine ( Podea )	Podea	Podea-01 Type G	○	K. Okamura	Usa Marine Biological Institute	
Laser processing machine ( Oh-Laser )	Oh-Laser	HAJIME CL-1	○	K. Okamura	Water Chemistry Lab.	
UV-VIS spectrometer with temperature and pressure controller	V-650	JASCO	○	K. Okamura	Water Chemistry Lab.	
Fluorometer with temperature controller	FP-6500	JASCO	○	K. Okamura	Water Chemistry Lab.	
Pressure resistant tester	ST-08	KIMOTO ELECTRIC	○	K. Okamura	Water Chemistry Lab.	
Isotope ratio mass spectrometer (IR-MS)	MAT253	Thermo Finnigan	○	M. Murayama	Inorganic Geochemistry Lab.	
Stable isotope analyzer (IR-MS) for carbonate and water analysis	IsoPrime	GV Instruments	○	M. Ikehara	Inorganic Geochemistry Lab.	
Stable isotope analyzer (IR-MS) for carbonate microanalysis	isoprime precision	elementar	○	M. Ikehara	Inorganic Geochemistry Lab.	

□ Other Instruments

Equipment/Apparatus/Device	Model	Manufacturer	Availability	Person in charge	Laboratory name	Remarks
# Thermal ionization mass spectrometer (TIMS)	TRITON	Thermo Finnigan	△	K. Okamura (T. Ishikawa, JAMSTEC)	Inorganic Geochemistry Lab.	Only Sr, Nd; Ask us more details
Laser diffraction particle size analyzer	Mastersizer 2000	Systemex	○	G. Uramoto	Inorganic Geochemistry Lab.	
UV-VIS spectrometer	UV-2550PC	SHIMADZU	○	M. Ikehara, T. Ueda	Organic Geochemistry Lab.	
Gas chromatograph (GC)	Agilent 6890N, 7890B	Agilent	○	M. Ikehara	Organic Geochemistry Lab.	
Carbon analysis coulometer	UIC CM5012	UIC	○	M. Ikehara	Organic Geochemistry Lab.	
Organic elemental analyzer	Flash EA1112	Thermo Finnigan	○	M. Ikehara	Organic Geochemistry Lab.	
High-speed solvent extraction device	Dionex ASE-350	ThermoScientific	○	M. Ikehara	Organic Geochemistry Lab.	
High-speed concentration device	Turbo Vap LV	Zymark	○	M. Ikehara	Organic Geochemistry Lab.	
Ultrasonic homogenizer	Sonifier	Branson	○	M. Ikehara	Organic Geochemistry Lab.	
Gas chromatograph/mass spectrometer with thermal desorption equipments (GC/MS)	Agilent 6890+5973N	Agilent	○	M. Ikehara	Organic Geochemistry Lab.	
Elemental analyzer/isotope ratio mass spectrometer (EA/IRMS)	Finnigan DELTA plus Advantage	Thermo Finnigan	○	M. Ikehara	Organic Geochemistry Lab.	
Gas chromatograph/combustion isotope ratio mass spectrometry (GC/IRMS)	Finnigan DELTA plus XP	Thermo Finnigan	○	M. Ikehara	Organic Geochemistry Lab.	
# Double-focusing high resolution ICP multi-collector mass spectrometer (ICP-MC-MS)	NEPTUNE	Thermo Finnigan	△	K. Okamura (T. Ishikawa, JAMSTEC)	ICP-MS Lab.	Only Pb; Ask us more details
Quadrupole inductively coupled plasma mass spectrometer (ICP-MS)	iCAP Q ICP-MS	ThermoFisherScientific	△	Y. Nishio	ICP-MS Lab.	Argon(Ar) gas: 1500JPY/hour
Laser ablation system (213nm) for iCAP ICP-MS	LSX-213 G2 +	Teledyne CETAC	△	Y. Nishio	ICP-MS Lab.	Helium(He) gas: 2000JPY/hour
Field-emission scanning electron microscope (FE-SEM)	JEOL JSM-6500F	JEOL	○	M. Iwai, G. Uramoto	X-ray & SEM Lab.	If you wish to use EBSD, please indicate in the application form
Sputter coater (Pt)	JFC-1600	JEOL	○	Y. Yamamoto, T. Matsuzaki	X-ray & SEM Lab.	
Osmium coater	Neoc-ST	Meiwafosis	○	G. Uramoto	X-ray & SEM Lab.	
Critical point dryer	JCPD-5	JEOL	○	Y. Ujiiie	X-ray & SEM Lab.	
Electron probe microanalyzer (EPMA)	JEOL JXA-8200	JEOL	○	Y. Yamamoto, T. Matsuzaki	Spectrochemical Analysis Lab.	
Carbon coater	IB-29510VET	JEOL	○	Y. Yamamoto, T. Matsuzaki	Spectrochemical Analysis Lab.	
Micro laser raman spectrometer	T64000	Horiba Jobin Yvon inc	○	Y. Yamamoto, T. Ueda, T. Matsuzaki	Spectrochemical Analysis Lab.	
Gamma-ray spectrometer	GWL-120-15	Niki Glass	○	M. Murayama	Spectrochemical Analysis Lab.	
DNA sequencer	ABI PRISM 3130xl	Applied Biosystems	○	Y. Ujiiie	Molecular Biology Lab.	
Thermal cycler	GeneAmp PCR	Applied Biosystems	○	Y. Ujiiie	Molecular Biology Lab.	
Anaerobic glove box	Type C	TOYOBO/COY	△	Y. Ujiiie	Microbiology Lab.	
Autoclave	KT-2346	ALP	○	Y. Ujiiie	Microbiology Lab.	
High speed refrigerated micro centrifuge	MX-300	Tomy	○	Y. Ujiiie	Microbiology Lab.	
Autoclave	KS-323	Tomy	○	Y. Ujiiie	Microbiology Lab.	
Fluorescent microscopy	BX-51-34-FLD1-SP&DP-50-B	Olympus	○	Y. Ujiiie	Microbiology Lab.	
Fluorescent objective microscope	SZX12-RFL3-1&DP12-B	Olympus	○	Y. Ujiiie	Microbiology Lab.	
Fluorescent phase contrast microscope	BX-51-34-FLD1-SP	Olympus	△	Y. Ujiiie	Microbiology Lab.	
Small incubator	BR-33FL/MR	TAITEC	○	Y. Ujiiie	Microbiology Lab.	
Shaking thermostat bath	Personal Lt-10F/SX	TAITEC	○	Y. Ujiiie	Microbiology Lab.	
Refrigerated centrifugal vacuum concentrators	DNA120	Thermo Quest	○	Y. Ujiiie	Microbiology Lab.	
High performance liquid chromatograph		SHIMADZU	△	Y. Ujiiie	Microbiology Lab.	
Universal photo microscope	Axiophoto2(PH2-DIC)	Zeiss	○	M. Iwai	Microscope & Imaging Lab.	
Universal photo microscope	Axiophoto2(PH2-FL/Ph/DIC)	Zeiss	○	M. Iwai	Microscope & Imaging Lab.	
Universal photo microscope	Axioplan 2 Imaging E(P2IE-FL/Ph/DIC)	Zeiss	○	M. Iwai	Microscope & Imaging Lab.	
Stereomicroscope	Stemi SV6(SV6KL2-R)	Carl Zeiss MicroImaging Japan	○	M. Iwai	Microscope & Imaging Lab.	
Stereomicroscope	Stemi SV11(SV11-R)	Carl Zeiss MicroImaging Japan	○	M. Iwai	Microscope & Imaging Lab.	
Polarizing microscope	Axiolab Pol(LABPOL-T/RS)	Carl Zeiss MicroImaging Japan	○	M. Iwai	Microscope & Imaging Lab.	
Polarizing microscope	Axiolab Pol(LABPOL-T1)	Carl Zeiss MicroImaging Japan	○	M. Iwai	Microscope & Imaging Lab.	
Polarizing microscope	Axioplan2 Imaging Pol (P2IPOL-T/R2)	Carl Zeiss MicroImaging Japan	○	M. Iwai	Microscope & Imaging Lab.	
Polarizing microscope	Axiophoto2(PH2-FL/Ph/DIC)	Carl Zeiss MicroImaging Japan	○	M. Iwai	Microscope & Imaging Lab.	
Inverted fluorescent microscope	Axiinvert(V200M-FL/PH/DIC)+AxioCam HR	Carl Zeiss MicroImaging Japan	○	M. Iwai	Microscope & Imaging Lab.	
Digital microscope	VHX-2000	Keyence	○	M. Iwai	Microscope & Imaging Lab.	
Cooling/heating temperature control stage		LINKAM	○	Y. Yamamoto	Microscope & Imaging Lab.	
Refractive Index Measurement using the Thermal Immersion Method	RIMS2000	Kyoto Fission Track	○	M. Ikehara	Microscope & Imaging Lab.	
Stereomicroscope for the observation of two people	StemiSV11	Zeiss	○	M. Iwai	Micropaleontology Lab.	
Fluorescent microscopy with simple polarizer	BX-51	Olympus	○	T. Okumura	Micropaleontology Lab.	
Polarizing microscope with image combining system	DM6000 / PowerMosaicPlus	Leica	○	M. Iwai	Geochemistry Lab.	
Core splitter			○	G. Uramoto	Machine Shop	
Core liner cutter			○	G. Uramoto	Hallway (Platform)	
Liquid nitrogen freezing system		Taiyo Toyo Sanso	△	Y. Ujiiie	B-Sampling Room	Ask us more details
Freeze dryer (large)	FD-550	EYELA	○	M. Iwai	Sampling Lab.	
Freeze dryer (small)	FRD-82M	IWAKI Asahi Techno Glass	○	M. Iwai	Sampling Lab.	

List of Instruments at Kochi, JAMSTEC

Equipment/Apparatus/Device	Model	Manufacturer	Availability	Person in charge	Laboratory name	Remarks
# Secondary ion mass spectrometer at high spatial resolution (NanoSIMS)	NanoSIMS 50L	CAMECA	△	M. Ito, JAMSTEC	Ion Microprobe Lab.	