

# Laboratory List

Earth and Environmental Sciences							
Graduate School	Department	Research Group	Research Area	Job title	Name	Email	Research Interests
Environmental Studies	Department of Earth and Planetary Sciences	Earth Environmental Systems	Designing a sustainable Earth and social system, renewable energy technologies	Professor	高野 雅夫 Masao Takano	<a href="mailto:masao@nagoya-u.jp">masao@nagoya-u.jp</a>	Designing a sustainable Earth and social system based on the development of small-scale renewable energy technologies, for example, using micro-hydropower, geothermal energy, or woody biomass energy, and application of these technologies to revitalize mountainous areas
Environmental Studies	Department of Earth and Planetary Sciences	Earth Environmental Systems	Eco-physiological study of forest belowground ecosystem	Associate Professor	平野 恭弘 Yasuhiro Hirano	<a href="mailto:yhirano@nagoya-u.jp">yhirano@nagoya-u.jp</a>	Eco-physiological study of forest belowground ecosystem (tree roots and forest soil), particularly to clarify the effects of soil acidification and global warming, and the contribution of tree roots to the carbon cycle
Environmental Studies	Department of Earth and Planetary Sciences	Earth Environmental Systems	Interactions between human and environmental systems	Lecturer	宮坂 隆文 Takafumi Miyasaka	<a href="mailto:miyataka@nagoya-u.jp">miyataka@nagoya-u.jp</a>	Complex interactions between human and environmental systems, particularly in the context of desertification and protected area management, addressed by interdisciplinary approaches combining social and ecological field surveys, geospatial techniques, and computer simulations
Environmental Studies	Department of Earth and Planetary Sciences	Geology and Geobiology	Structure, properties, and evolution of mantle rocks, plate tectonics	Professor	瀧林 克尚 Katsuyoshi Michibayashi	<a href="mailto:michibayashi@nagoya-u.jp">michibayashi@nagoya-u.jp</a>	<ul style="list-style-type: none"> <li>Structural evolution of crustal and mantle rocks</li> <li>Structure and petrological properties of peridotite and seismic wave anisotropy</li> <li>Rheological properties and microstructure of rocks in a ductile field</li> <li>Mid-ocean ridges, trenches and subduction zones – sea- and land-based approaches</li> </ul>
Environmental Studies	Department of Earth and Planetary Sciences	Geology and Geobiology	Metamorphic and metasomatic rocks, Raman and IR spectroscopy	Lecturer	藤瀬 佑衣 Yui Kouketsu	<a href="mailto:kouketsu.yui@nagoya-u.jp">kouketsu.yui@nagoya-u.jp</a>	<ul style="list-style-type: none"> <li>Development of the analysis methods for rocks using Raman and IR spectroscopy</li> <li>Research on the formation conditions of metamorphic and metasomatic rocks</li> </ul>
Environmental Studies	Department of Earth and Planetary Sciences	Geology and Geobiology	Mass extinction events, biostratigraphy, geochemistry	Associate Professor	高橋 聡 Satoshi Takahashi	<a href="mailto:stakahashi@eps.nagoya-u.ac.jp">stakahashi@eps.nagoya-u.ac.jp</a>	Mass extinction events and their recovery process in the geologic past Biostratigraphy based on micro-fossils such as conodont and radiolarians Geochemical approaches to reconstructing the paleoenvironmental records
Environmental Studies	Department of Earth and Planetary Sciences	Geology and Geobiology	Carbonate sedimentology, Quaternary environmental changes	Associate Professor	ハンブレ マーク Marc Humblet	<a href="mailto:mhumblet@eps.nagoya-u.ac.jp">mhumblet@eps.nagoya-u.ac.jp</a>	Study of modern and fossil coral reef ecosystems; in particular, research on the responses of reef and reef communities to environmental and sea-level changes during the Quaternary
Environmental Studies	Department of Earth and Planetary Sciences	Geology and Geobiology	Evolution and diversity of mollusks	Lecturer	林 誠司 Seiji Hayashi	<a href="mailto:seijih@nagoya-u.jp">seijih@nagoya-u.jp</a>	Evolution and diversity of mollusks based on morphological and molecular phylogenetic analyses
Environmental Studies	Department of Earth and Planetary Sciences	Geochemistry and Cosmochemistry	Planetary formation, origin and evolution of life on the early Earth	Professor	三村 耕一 Koichi Mimura	<a href="mailto:mimura@eps.nagoya-u.ac.jp">mimura@eps.nagoya-u.ac.jp</a>	<ul style="list-style-type: none"> <li>Stability of organic molecules at high temperature and high pressure</li> <li>Experimental study of the behavior of volatiles and their isotopic composition during planetary formation</li> <li>Origin and evolution of life on the early Earth</li> </ul>
Environmental Studies	Department of Earth and Planetary Sciences	Geochemistry and Cosmochemistry	Planetary science, infrared spectroscopic analysis	Associate Professor	平原 靖大 Yasuhiro Hirahara	<a href="mailto:yasu@nagoya-u.jp">yasu@nagoya-u.jp</a>	Infrared spectroscopic analysis of interstellar molecules and planetary atmospheres, development of new astronomical observation devices, and laboratory study of short-lived molecular species important in cosmological chemistry
Environmental Studies	Department of Earth and Planetary Sciences	Geochemistry and Cosmochemistry	Isotope geochemistry	Associate Professor	浅原 良浩 Yoshihiro Asahara	<a href="mailto:asahara@eps.nagoya-u.ac.jp">asahara@eps.nagoya-u.ac.jp</a>	<ul style="list-style-type: none"> <li>Reconstructions of ocean paleocirculation based on geochemical analyses of marine sediments</li> <li>Paleoenvironmental reconstructions based on geochemical analyses of sedimentary rocks</li> <li>Dating and petrogenetic analyses of igneous rocks and ore deposits</li> </ul>
Environmental Studies	Department of Earth and Planetary Sciences	Earth and Planetary Dynamics	Seismology, volcanology, volcano and earthquake monitoring	Professor	熊谷 博之 Hiroyuki Kumagai	<a href="mailto:kumagai@eps.nagoya-u.ac.jp">kumagai@eps.nagoya-u.ac.jp</a>	<ul style="list-style-type: none"> <li>Volcano seismicity and mechanisms of volcanic eruptions</li> <li>Large earthquakes along subduction zones in Asia and Pacific regions</li> <li>Volcano and earthquake monitoring using seismological methods</li> </ul>
Environmental Studies	Department of Earth and Planetary Sciences	Earth and Planetary Dynamics	Study of planetary formation, evolution of small system solar bodies	Associate Professor	城野 信一 Sin-iti Sirono	<a href="mailto:sirono@eps.nagoya-u.ac.jp">sirono@eps.nagoya-u.ac.jp</a>	<ul style="list-style-type: none"> <li>Numerical simulations of the evolution of matter during planetary formation</li> <li>Theoretical study of the evolution of small system solar bodies, such as asteroids and comet nuclei</li> </ul>
Environmental Studies	Department of Earth and Planetary Sciences	Earth and Planetary Dynamics	Volcanology, geodynamics	Associate Professor	並木 敦子 Atsuko Namiki	<a href="mailto:namiki@eps.nagoya-u.ac.jp">namiki@eps.nagoya-u.ac.jp</a>	Physical volcanology, geodynamics, dynamics of geological fluid, rheology of complex fluids. I mainly use experimental approaches and sometimes combine them with field observations and theoretical approaches
Environmental Studies	Department of Earth and Planetary Sciences	Earth and Planetary Dynamics	Seismology, volcanology, numerical simulations	Professor	巖谷 威 Takeshi Sagiya	<a href="mailto:sagiya@nagoya-u.jp">sagiya@nagoya-u.jp</a>	<ul style="list-style-type: none"> <li>Theoretical and observational study of crustal deformation processes</li> <li>Research on earthquake occurrence cycles and fault slip behavior</li> <li>Study of seismicity, volcanism and tectonics in the Japanese Archipelago based on crustal deformation</li> <li>Crustal activity prediction based on numerical simulations and analyses of observational data</li> </ul>
Environmental Studies	Department of Earth and Planetary Sciences	Earth and Planetary Dynamics	Seismology, volcanology, disaster mitigation	Professor	渡辺 俊樹 Toshiki Watanabe	<a href="mailto:watanabe@seis.nagoya-u.ac.jp">watanabe@seis.nagoya-u.ac.jp</a>	<ul style="list-style-type: none"> <li>Visualization and monitoring of underground structures and physical properties using geophysical exploration methods</li> <li>Study of earthquakes and volcanoes using seismic wave field analysis</li> <li>Application of geophysical exploration to energy, environmental and disaster mitigation studies</li> </ul>
Environmental Studies	Department of Earth and Planetary Sciences	Earth and Planetary Dynamics	Dynamics and structure of the crust	Associate Professor	田所 敬一 Keiichi Tadokoro	<a href="mailto:tad@seis.nagoya-u.ac.jp">tad@seis.nagoya-u.ac.jp</a>	<ul style="list-style-type: none"> <li>Development of ocean bottom crustal movement observation systems</li> <li>Study of the structure and evolution of fault fracture zones based on seismological data</li> <li>Study of crustal heterogeneity based on seismic wave analysis</li> </ul>
Environmental Studies	Department of Earth and Planetary Sciences	Earth and Planetary Dynamics	Seismology, volcanology	Associate Professor	山中 佳子 Yoshiko Yamanaka	<a href="mailto:sanchu@seis.nagoya-u.ac.jp">sanchu@seis.nagoya-u.ac.jp</a>	<ul style="list-style-type: none"> <li>Research on earthquake occurrence mechanism (hypo-center, asperity map, tectonics)</li> <li>Study of volcanic phenomena based on seismic wave analysis</li> </ul>
Environmental Studies	Department of Earth and Planetary Sciences	Earth and Planetary Dynamics	Earthquake physics, plate tectonics	Associate Professor	橋本 千尋 Chihiro Hashimoto	<a href="mailto:hashi@seis.nagoya-u.ac.jp">hashi@seis.nagoya-u.ac.jp</a>	Theoretical study of crustal activities due to tectonic plate interactions, particularly themes related to physics of earthquake generation cycles and tectonic activities in plate boundary zones, numerical simulations of crustal activities in the Japanese Archipelago
Environmental Studies	Department of Earth and Planetary Sciences	Earth and Planetary Dynamics	Seismology, numerical simulations, GNSS-based research	Associate Professor	伊藤 武男 Takeo Ito	<a href="mailto:takeo_ito@nagoya-u.jp">takeo_ito@nagoya-u.jp</a>	<ul style="list-style-type: none"> <li>Research on crustal activity based on numerical simulations</li> <li>Study of the ionosphere, Earth and ocean tides based on GNSS observations</li> <li>Theoretical and observational study of earthquake occurrence cycles based on crustal deformation data</li> </ul>
Environmental Studies	Department of Earth and Planetary Sciences	Earth and Planetary Dynamics	Earthquake physics, plate tectonics	Associate Professor	寺川 寿子 Toshiko Terakawa	<a href="mailto:terakawa@seis.nagoya-u.ac.jp">terakawa@seis.nagoya-u.ac.jp</a>	<ul style="list-style-type: none"> <li>Theoretical study of tectonic loading process caused by plate motion</li> <li>Tectonic stress field in the crust</li> <li>Roles of pore fluid pressures in earthquake generation</li> <li>Interaction between volcanic activity and seismicity</li> </ul>
Environmental Studies	Department of Earth and Planetary Sciences	Earth and Planetary Dynamics	Volcano seismology	Lecturer	前田 裕太 Yuta Maeda	<a href="mailto:maeda@seis.nagoya-u.ac.jp">maeda@seis.nagoya-u.ac.jp</a>	<ul style="list-style-type: none"> <li>Waveform analyses of Mt. Ontake region</li> <li>ACROSS analyses at Sakurajima</li> </ul>
Environmental Studies	Department of Earth and Planetary Sciences	Chronology and Natural History	Cosmogenic nuclide dating, study of geological processes and environmental changes	Professor	北川 浩之 Hiroyuki Kitagawa	<a href="mailto:hiroyuki.kitagawa@nagoya-u.jp">hiroyuki.kitagawa@nagoya-u.jp</a>	Analyses of cosmogenic nuclides (e.g., <sup>10</sup> Be, <sup>14</sup> C, <sup>26</sup> Al, <sup>36</sup> Cl) for age determination of geological and archeological samples, and for gaining insight into geological processes and environmental changes, with a particular focus on lake sediments and archeological sites in Asia

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Earth and Environmental Sciences							
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Environmental Studies	Department of Earth and Planetary Sciences	Chronology and Natural History	Radiocarbon dating, isotope geochemistry	Professor	南 雅代 Masayo Minami	<a href="mailto:minami@nendai.nagoya-u.ac.jp">minami@nendai.nagoya-u.ac.jp</a>	<sup>14</sup> C application studies: <sup>14</sup> C dating of human bones and charred materials excavated from archeological sites, development of new methods for high accuracy <sup>14</sup> C measurements Other isotopic studies: nationwide Sr isotopic ratio mapping, paleodietary analyses based on C, N and Sr isotopic ratios in bones
Environmental Studies	Department of Earth and Planetary Sciences	Chronology and Natural History	Radiometric dating, spectroscopic analysis	Associate Professor	加藤 文典 Takenori Kato	<a href="mailto:kato@nendai.nagoya-u.ac.jp">kato@nendai.nagoya-u.ac.jp</a>	<ul style="list-style-type: none"> <li>CHIME dating and its applications</li> <li>Electron and X-ray spectroscopic analysis of rock minerals</li> </ul>
Environmental Studies	Department of Earth and Planetary Sciences	Chronology and Natural History	Paleogeography, plate tectonics	Associate Professor	東田 和弘 Kazuhiro Tsukada	<a href="mailto:tsukada@num.nagoya-u.ac.jp">tsukada@num.nagoya-u.ac.jp</a>	Field-based investigation of the paleogeographic evolution of Gondwana and the formation of the Eurasian continent with geological field surveys conducted in Mongolia, Russia, Antarctica, and Japan
Environmental Studies	Department of Earth and Planetary Sciences	Chronology and Natural History	Taxonomy and ecology of plants	Associate Professor	西田 佐知子 Sachiko Nishida	<a href="mailto:nishida@num.nagoya-u.ac.jp">nishida@num.nagoya-u.ac.jp</a>	Taxonomy and ecology of plants, particularly ecological study of closely related plants, interactions of plant organs and animals, and taxonomic study of tropical Lauraceae
Environmental Studies	Department of Earth and Planetary Sciences	Chronology and Natural History	Paleontology, paleoecology, functional morphology	Lecturer	藤原 慎一 Shinichi Fujiwara	<a href="mailto:sifjwr@num.nagoya-u.ac.jp">sifjwr@num.nagoya-u.ac.jp</a>	Research on the relationships between musculoskeletal morphologies of living animals and their locomotor abilities, and application in paleontology for the paleoecological study of extinct animals
Environmental Studies	Department of Earth and Planetary Sciences	Ecology	Behavioural ecology and marine contaminants	Professor	庄子 晶子 Akiko Shoji	<a href="mailto:akiko.shoji@nagoya-u.jp">akiko.shoji@nagoya-u.jp</a>	The behavioural ecology of free-ranging seabirds in relation to life-history strategies, and the examination of marine contaminants, both approached within a hypothesis-testing framework.
Environmental Studies	Department of Hydrospheric and Atmospheric Sciences	Global Environmental Variation	Paleoclimatology, dendrochronology	Professor	中塚 武 Takeshi Nakatsuka	<a href="mailto:nakatsuka.takeshi.m0@f.mail.nagoya-u.ac.jp">nakatsuka.takeshi.m0@f.mail.nagoya-u.ac.jp</a>	Reconstruction of multi-millennial and centennial climate variations using tree-ring oxygen and hydrogen isotopic ratios. Investigation of mechanisms of pre-industrial climate variations and climate-society relationships in the historical and archaeological viewpoints.
Environmental Studies	Department of Hydrospheric and Atmospheric Sciences	Global Geochemistry	Atmospheric chemistry, wet and dry deposition, Asian dusts	Professor	長田 和雄 Kazuo Osada	<a href="mailto:kosada@nagoya-u.jp">kosada@nagoya-u.jp</a>	Atmospheric aerosol particles and relating gaseous species, wet and dry deposition, Asian dusts, transformation of particles, based on laboratory experiments, data analysis and observation at remote, rural, and urban sites. Developing new methods to measure gases and particles in the atmosphere.
Environmental Studies	Department of Hydrospheric and Atmospheric Sciences	Climate Science	Paleoclimatology, glaciology	Professor	藤田 耕史 Koji Fujita	<a href="mailto:kozy@nagoya-u.jp">kozy@nagoya-u.jp</a>	Study of glacier fluctuations in mountainous regions of Asia, such as Himalaya and Tibet, based on observations of present-day conditions, numerical models of glacier dynamics, and analyses of ice cores.
Environmental Studies	Department of Hydrospheric and Atmospheric Sciences	Climate Science	Atmospheric chemistry, climatology	Professor	須藤 健悟 Kengo Sudo	<a href="mailto:kengo@nagoya-u.jp">kengo@nagoya-u.jp</a>	<ul style="list-style-type: none"> <li>Development of atmospheric chemistry-aerosol coupled climate model and Earth-System model (incl. ecosystem and carbon/nitrogen cycles)</li> <li>Study on stratospheric ozone change and its interaction with climate</li> <li>Study on global tropospheric chemistry and aerosols: interannual variability and long-term trend, focusing on interactions with climate and terrestrial ecosystem (incl. future projection)</li> <li>Evaluation of hemispheric-global-scale air pollution and its impacts on climate, health, and agriculture</li> <li>Development of emission reduction strategy for SCLPs (short lived climate pollutants like black carbon, ozone, and CH<sub>4</sub>) toward mitigating climate change and health problem</li> </ul>
Environmental Studies	Department of Hydrospheric and Atmospheric Sciences	Climate Science	Paleoclimatology, isotope geochemistry	Associate Professor	楠村 立 Ryu Uemura	<a href="mailto:ryu.umeura@nagoya-u.jp">ryu.umeura@nagoya-u.jp</a>	<p>Past climate and environmental changes by using isotope geochemistry. The target time period ranges from modern to Quaternary.</p> <ul style="list-style-type: none"> <li>Stable isotope analyses of polar ice cores for temperature reconstruction</li> <li>Isotope analyses of speleothems (and its fluid inclusions) to estimate past temperature and hydroclimate changes</li> <li>Developments of methods and present-day observations to understand the climatic proxy data</li> </ul>
Environmental Studies	Department of Hydrospheric and Atmospheric Sciences	Climate Science	Atmospheric chemistry, climate and aerosol modeling	Associate Professor	松井 仁志 Hitoshi Matsui	<a href="mailto:matsui@nagoya-u.jp">matsui@nagoya-u.jp</a>	<p>Global and regional modeling of atmospheric aerosols and their impacts on the Earth's climate change and environment.</p> <ul style="list-style-type: none"> <li>Development of a climate-aerosol model.</li> <li>Interactions between aerosols and radiation, cloud/ precipitation, cryosphere, and ocean/land biogeochemistry in the past, present, and future climate.</li> <li>Aerosol processes and transport on global and regional scales.</li> <li>Air pollution, air quality, and aerosol impacts on human health.</li> </ul>
Environmental Studies	Department of Hydrospheric and Atmospheric Sciences	Global Water Cycle Atmospheric Chemistry	Atmospheric chemistry, study of aerosols	Professor	持田 陸宏 Michihiro Mochida	<a href="mailto:mochida.michihiro.u7@f.mail.nagoya-u.ac.jp">mochida.michihiro.u7@f.mail.nagoya-u.ac.jp</a>	Research on the properties, behavior, and roles of atmospheric aerosols, which relate to the Earth's hydrological cycles through their role as cloud condensation nuclei. Outcome is expected to contribute to the understanding of the influence of aerosols on air quality and climate as well as hydrological cycles. Approach: field observations and laboratory experiments based on chemistry, with a focus on the relationship between the properties and composition of aerosols, and their formation and aging.
Environmental Studies	Department of Hydrospheric and Atmospheric Sciences	Global Water Cycle Atmospheric Chemistry	Oceanography, climate dynamics, numerical modeling	Professor	相木 秀則 Hidenori Aiki	<a href="mailto:aiki@nagoya-u.jp">aiki@nagoya-u.jp</a>	We have developed a coupled atmosphere-ocean-surface-wave model to investigate environmental problems and natural disasters in the Asia-Oceania region. We have also been investigating the dynamics of waves and eddies in the ocean and atmosphere focusing on equatorial climate variations.
Environmental Studies	Department of Hydrospheric and Atmospheric Sciences	Global Geochemistry	paleoenography, biogeochemistry	Lecturer	山崎 敦子 Atsuko Yamazaki	<a href="mailto:yamazaki.atsuko.x5@f.mail.nagoya-u.ac.jp">yamazaki.atsuko.x5@f.mail.nagoya-u.ac.jp</a>	Oligotrophic oceans account for about 60% of the ocean surface and are home to some of the world's most biodiverse coral reef seas. Our research aims to understand the interrelationships between climate change, geochemical cycles, and coastal ecosystems including humans, and to consider adaptation measures to climate change with people living in coral reef areas. The main methods used are fieldwork, geochemical analysis, and structural observation of corals, bivalves, and other biogenic carbonates to read environmental change and biological responses.