

List of Dissertation Abstract (Environment and Natural Sciences Earth and Ecology Course)

Name	Supervisor	Title	Abstract
Yuto ISAWA	Akiko SAKAI	Altitudinal changes in maximum height and height at maturity, with effects of competitive species - a study on subalpine conifers on Minami-Alps	Decrease in tree size with altitude rise is predicted from life history theory due to adaptive change of life history schedule. However, most of the reports is for pure forests, unknown in the case of mixed forests. Therefore, the above theory was examined in the case of Minami-Alps National Park where coniferous mixed forests spread. As a result, in the presence of competing species, there were possibility that: 1) the adaptive change such as schedule of resource allocation to reproduction were weakened; 2) in order to overcome the competition to sun light, growth was prioritized.
Tomohiro ICHIKAWA	Ryuichi MAJIMA	Fossil cold-seep authigenic carbonates and the depositional environment — A case study of the Lower Pleistocene Koshiha Formation exposed at Segami-Shmin-No-Mori, Yokohama City —	I studied lithofacies and authigenic carbonates of the core from the ancient cold-seep site of the Koshiha Formation (the Lower Pleistocene) exposed on the Segami-Shimin-No-Mori, Yokohama City. I found a conglomerate bed in the core depth 5.00~5.20m that is composed of authigenic carbonate gravels and chemosymbiotic bivalve fragments within the matrix concreated by authigenic carbonate minerals, based on the lithofacies and XRD analysis. This occurrence suggests that the seep site had suffered an explosive gas charge and the seepage had continued thereafter.
Yuki IWACHIDO	Takehiro SASAKI	Factors maintaining biodiversity under the nature-oriented park use of satoyama ecosystems in urbanized landscapes	Recently, many satoyama ecosystems have a problem of abandonment due to population decline more than disappearance due to rapid urbanization. In this research, we focused on nature-oriented park use of satoyama ecosystems for securing biodiversity conservation as one means to respond to abandonment, and examined the differences in diversity and species composition in agricultural use and its factor. Although we showed the possibility of conserving biodiversity by implementing moderate management of park use, it is necessary to pay attention to the fact that possibility differs depending on the taxa.
Yuki KAGAWA	Masahiro ISHIKAWA	Sintering of xenolith from Kurose alkali basalt, Southwest Japan	It is required to make fine-grained polycrystalline rock if we reproduce the phenomena in deep underground in a laboratory experiment so that we elucidate the mechanism of earthquakes and plate tectonics. In this study, sintering experiments were carried out to create fine-grained polycrystalline of xenolith from deep underground. After milling, crystalline of xenolith decreased. But after hot pressing was carried out at high temperature and high pressure, the crystalline increased and we could obtain fine-grained polycrystalline xenolith.

Yoshitaka KAWAKAMI	Ryoji WANI	Comparison of shell morphology between Late Cretaceous ammonoid <i>Gaudryceras tenuiliratum</i> with different habitats	The ontogenetic trajectories of septal spacings in <i>Gaudryceras tenuiliratum</i> that occurred from the Yezo Group in Hokkaido were analyzed and compared between different environments. The results suggested that the ontogenetic trajectories of septal spacings in <i>G. tenuiliratum</i> were not affected by the difference of habitat environments. On the other hand, the ontogenetic trajectories of septal spacings changed through the geological times. These changes were possibly affected by the change of shell shapes in <i>G. tenuiliratum</i> .
Hidetomo SHIMIZU	Ryuichi MAJIMA	Authigenic carbonate precipitated in and around the burrows — A case study of the ancient seep site of the Middle Pleistocene Kakinokidai Formation (Kazusa group) at Kawayatsu, Kimitsu City, Japan	Methane derived authigenic carbonate concretions occur from the Middle Pleistocene Kakinokidai Formation, a forearc basin fill sequence, exposed at Kawayatsu area, Kimitsu City, Japan. The authigenic carbonates precipitate around and within the burrows that are identified with <i>Thalassinoides</i> . Aragonite precipitated in the burrow as a geopetal-like structure, high-magnesian calcite and dolomite in the matrixes around the burrow. The occurrences of microcoprolites <i>Palaxius</i> and isolated callianassid propodus evidently suggest that the burrows were produced by callianassid decapods. I reconstruct a carbonate precipitation processes on the basis of both the influences of the anaerobic oxidation of methane and callianassid activities.
Kousuke TACHIBANA	Takehiro SASAKI	Indication of indirect cultural ecosystem services using Japanese nature programs : big data mining approach	In this research, we focused on "indirect cultural ecosystem services" via media. We gathered information of NHK 's nature programs and examined the relationship between the geographical distribution of the program and the environmental / social factors. In addition, we analyzed the program content sentences using the text mining method. As a result, we found that the program was relatively located in the mountainous area. Our results implied that the value of nature added by humans formalizes their perceptions of nature. It is important to think about indirect cultural ecosystem services that will increase in the future as the lifestyle changes more modernization.
Kazuki NOBA	Ryoji WANI	Analysis of the septal distance in the cuttlebone of Sepiidae	Cuttlefishes (Sepiidae) accretionary form septa within their cuttlebones throughout ontogeny. The septal distances were measured in five species of modern Sepiidae and the ontogenetic trajectories of the septal distance was compared in this study. The results demonstrated that the ontogenetic trajectories of the septal distance can be divided into three types. These types are consistent with the genetic classification with DNA analyses in the previous study. This consistency suggests that the ontogenetic trajectories of the septal distance in Sepiidae can be used as an indicator of the closeness of the genetic lineage.

Takashi FUSHIMA	Shinji SHIMODE	Estimation of egg production rate of <i>Calanus sinicus</i> from preserved samples	<i>Calanus sinicus</i> is one of the dominant planktonic copepods in coastal zooplankton communities and plays an important role of the secondary production in the mid latitude area of the NW Pacific. Investigating egg production of <i>Calanus sinicus</i> is important. Our purpose is to propose a model for estimation of <i>C. sinicus</i> EPR from preserved samples.
Yuta HORIGUCHI	Akiko SAKAI	Deflection transition of vegetation under feeding pressure of sika deer ( <i>Cervus nippon</i> )	In recent years, damage to forest ecosystems by sika deer ( <i>Cervus nippon</i> ) has been reported throughout Japan. It is thought that similar damage is occurring in Aya UNESCO Eco Park, Miyazaki Prefecture. In this study, it is suggested that clear-cutting of planted forests under the feeding pressure of sika deer increases the prevalence of <i>Daphniphyllum macropodum</i> , resulting in biased transition of vegetation. In addition, as a result of examining the growth and reproduction characteristics of <i>Daphniphyllum macropodum</i> , it has been suggested that the stable state is maintained in the dominant forest of <i>Daphniphyllum macropodum</i> .
Kayo YOSHIDA	Masahiro ISHIKAWA	Sintering of fine grain polycrystals using natural enstatite	In order to deform by diffusion creep, sintering experiments were carried out to prepare fine grained enstatite polycrystals. By using a bead mill pulverizer, natural enstatite single crystals was pulverized to the order of 0.1 $\mu\text{m}$ . By sintering the bead mill pulverized powder under atmospheric pressure, we succeeded in sintering a polycrystalline enstatite having a particle size on the order of 0.1 $\mu\text{m}$ to 1. $\mu\text{m}$ .
Yuji YOSHINAGA	Shinji SHIMODE	Strategy of egg spawning of the planktonic copepod <i>Calanus sinicus</i> in Sagami Bay, Japan	<i>C. sinicus</i> is known to spawn during night. However, in Sagami Bay, our recent preliminary study raised possibility that <i>C. sinicus</i> spawns eggs during both day and night. To investigate the possibility, this study examined strategy of egg spawning of <i>C. sinicus</i> in Sagami Bay. Our result suggests that strategy of <i>C. sinicus</i> might is chosen by depth of possibly hatch, opportunity of feeding and pressure of predator.