

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

Name	Supervisor	Title	Abstract
Yusuke IKAWA	Shinji SHIMODE	Seasonal and year-to-year variations in the surface copepodid population and egg production rate of two species of Eucalanidae in Sagami Bay, Japan	In this study, we investigated the relationship between length of surface occurrence period of <i>Eucalanus californicus</i> and <i>Eucalanus hyalinus</i> and surface environment, and egg production rate (EPR) experiments were also conducted. We conducted monthly zooplankton samplings for four years from 2013 to 2016 in Sagami Bay, Japan. From the result of surface occurrence period and analysis of spawning strategy, it was suggested that the appearance pattern of both species and the EPR may differ. It is considered that these differences reflect the difference in the environments of the two distributed areas.
Tetsuro IWASAKI	Ryoji WANI	Morphological analysis of Late Cretaceous phyllocerastids from the Yezo Group, northwestern Hokkaido	The ontogenetic trajectories of septal spacings in phyllocerastids (<i>Hypophylloceras subramosum</i> and <i>Phyllpachyceras ezoense</i>) that occurred from the Yezo Group in the northwestern Hokkaido were analyzed. <i>H. subramosum</i> were classified into three types. The abundances of three types change from bottom to top of the stratigraphic horizons. <i>P. ezoense</i> were classified into two types. These two types were possibly sexual dimorphism.
Kana OTAKA	Shinji SHIMODE	Seasonal fluctuation and body color change of planktonic copepod Sapphirinidae in the north-western part of Sagami Bay, Japan	The purpose of this study was to clarify the emergence trend of Sapphirinidae and to reevaluate the body color change of adult males in Sagami Bay. Our result suggested that the time of appearance varies depending on genus and seasonally flowing into the Sagami bay. <i>Sapphirina nigromaculata</i> was not affected by light conditions, and the body color change was found to be controlled by circadian rhythm.

Nanami KONDO	Akiko SAKAI	Phylogenetic relationship between topographical niche selection and traits in Japanese Acer	Topographic complexity affects various environments and plants had evolved their traits for advancing into their current topographic position, topographic niche. In this study, the phylogenetic relationship between topographical niche selection and traits was examined. As a result, species inhabit concave grounds with larger Trunk Inclination, which would response to disturbances. Also, effective light capture prioritize in shaded condition and height growth in light condition. Finally, Leaf C/N would change along various environment mediated topography and radiate even within closely related species.
Hayata SAKURAGI	Masahiro ISHIKAWA	Elastic wave velocity change caused lawsonite decomposition in blueschist at 1.0GPa and up to 550°C	<p>We investigated compressional (Vp) and shear (Vs) wave velocities in lawsonite blueschist to evaluate the effect of dehydration reaction on Vp/Vs ratio under the condition of lawsonite dehydration.</p> <p>Vp and Vs markedly dropped over 350°C during temperature ramping while Vp/Vs ratio stayed constant. After the experiment, 11.3 vol.% of lawsonite contained in the sample broke down and formed anorthite newly.</p> <p>For the reason of constant Vp/Vs ratio, many pores were in the breaking lawsonite and near anorthite, and we inferred that released H2O was trapped in these pores. So dehydration reaction proceeded without Vp/Vs ratio changes.</p>
Takayuki SUGIMOTO	Akiko SAKAI	The relation between growth substrate and phylogenetic group of bryophyte	Bryophytes grow on various substrates such as soil, rock, and trunk that differ according to the species. We investigated relations to the species composition of bryophytes, growth substrates, environmental gradients and phylogenetic groups. As a result, the species composition strongly correlated with growth substrates, and was affected by the forest area around the surveyed area as one of the environmental gradient. Whereas, in the phylogenetic study, the morphological characteristics tended to be preserved rather than the growth substrates.

<p>Yusuke TAKAGI</p>	<p>Akira MORI</p>	<p>Biodiversity and ecosystem multifunctionality relationship in natural plant communities: with a context of climate change</p>	<p>I suggested that plant species richness can contribute to maintain ecosystem multifunctionality through the effect of high-performance plant species even under climate change.</p>
<p>Mizuki MAEDA</p>	<p>Akira MORI</p>	<p>The roles of root necromass in post-fire recovery processes of soil and vegetation</p>	<p>I focused on the roles of root necromass in post-fire recovery processes of soil and vegetation. Even after the high intensity wildfire, the root necromass remained on soil surface layer. Moreover, the root necromass was associated with the increment of soil microbial biomass and vegetation coverage directly or indirectly. Hence, it was suggested that the occasional addition of root necromass derived from the forest fire played an important role as a driving element for post-fire recovery of soil and vegetation.</p>