



# “Zekkei Explorer”: Forecasting the occurrence of natural phenomena

## - “Zekkei” becomes a tourism resource through analysis of observation data -

Three universities, Kitami Institute of Technology, Obihiro University of Agriculture and Veterinary Medicine, and Otaru University of Commerce, which were integrated into a national university corporation, Hokkaido Higher Education and Research System in 2022, are promoting the development of a “Zekkei Explorer” application that forecasts the occurrence of “Zekkei”, stunning scenery due to natural phenomena specific to Hokkaido.

In Kitami Institute of Technology, a research team led by Associate Professor Kazutaka Tateyama specializing in the study of polar and subpolar environments such as the Arctic Ocean, the Sea of Okhotsk and the Antarctic Ocean, has undertaken the establishment of an observation network in order to understand changes in the ecosystem in the Shiretoko Peninsula due to climate change. Since 2020, the research team has linked this observation network with “SINET (Science Information NETwork)”, an information and communication network, and DIAS (Data Integration & Analysis System) built and operated by the National Institute of Informatics, and this collaboration with a group led by Professor Masaru Kitsuregawa and Professor Eiji Ikoma of the University of Tokyo has allowed the research team to manage and analyze observation data collected on a real-time basis.

“Zekkei Explorer”, now under test release, performs real-time analysis of data collected by thermometers, combined weather sensors and cameras installed on the Shiretoko Peninsula, and forecasts the probability of a mirage occurring on the next day on an expectation level of 1 to 5. The project is aiming to extend the observation area and forecast periods, and forecast a wider variety of natural phenomena due to mirages such as a mock mirage of the sun, a superior mirage of sea ice, a sea of clouds, a diamond dust and a jewelry ice.

“Zekkei Explorer”, a three-university collaborative project led by an interdisciplinary research team in the humanities and sciences, is planned to be promoted as the “Zekkei Project” that will explore commercial applications in various fields. Discussion is underway on building a business model that makes use of stunning scenery for attracting more tourists to the region through enhanced cooperation with local governments and companies that operate the airport, hotels and tourist facilities.

By applying this technology for collecting and analyzing observation data, “Zekkei Explorer” has potential for even more uses such as creating VR or AR of stunning scenery, photographing animals and plants, facilitating the use of information and communication technologies in agriculture. and enhancing fishing safety.



Zekkei Explorer  
<https://diasjp.net/service/zekkei/>



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