



## **Interdisciplinary class on the asymmetric seasonal march from autumn to the next spring around Japan at Okayama University (Joint activity with art and music expressions on the seasonal feeling)**

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There are many stages with rapid seasonal transitions in East Asia, greatly influenced by the considerable phase differences of seasonal cycle among the Asian monsoon subsystems, resulting in the variety of “seasonal feeling” around there. For example, the “wintertime pressure pattern” begins to prevail already from November due to the seasonal development of the Siberian Air mass and the Siberian High. The intermittent rainfall due to the shallow cumulus clouds in such situation is called “Shi-gu-re” in Japanese (consisting of the two Chinese characters which mean for “sometimes” (or intermittent) and “rain”, respectively) and is often used for expression of the “seasonal feeling” in the Japanese classic literature (especially we can see in the Japanese classic poems called “Wa-Ka”). However, as presented by Kato et al. (EGU2014-3708), while the appearance frequency of the “wintertime pressure pattern” around November (early winter) and in early March (early spring) is nearly the same as each other, air temperature is rather lower in early spring. The solar radiation, however, is rather stronger in early spring. Such asymmetric seasonal cycle there would result in rather different “seasonal feeling” between early winter and early spring. Inversely, such difference of the “seasonal feelings” might be utilized for deeper understanding of the seasonal cycle of the climate system around Japan. As such, the present study reports the joint activity of the meteorology with music and art on these topics mainly in the class at the Faculty of Education, Okayama University.

In that class, the students tried firstly the expression of the both selected stages in early winter and early spring, respectively, by combination of the 6 colors students selected from the 96 colored papers, based on the Johannes Itten’s (1888-1967) exercise of the representation of the four seasons. Next, the students’ activity on the music expression of what they firstly presented by the colors was performed with use of the various small percussion instruments. Finally, activity of the art was made again, with adding the degree of freedom for the color expression. From the students’ works, we could find out what they intended to present about the asymmetry between early winter and the early spring. In addition, the students’ expressions of the seasonal feeling seem to be based not only on the mean seasonal state but also on a specified phase in the day-to-day variations embedded in the seasonal march. This would suggest the possibility to use the art expression activity in the class for the study on the seasonal cycle of the climate systems with the various multi-scale aspects. Furthermore, the present joint activity might also contribute to providing the study materials for the ESD (Education for Sustainable Development).