Geophysical Research Abstracts
Vol. 16, EGU2014-3708, 2014
EGU General Assembly 2014

Asymmetric seasonal march from autumn to the next spring in East Asia (Toward interdisciplinary education on the climate systems and the "seasonal feeling" such as around the Japan Islands area)

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There are many steps of 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 the Japan Islands. 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, although the air temperature around the Japan Islands is still rather higher than in midwinter. On the other hand, since the southward retreat of the warm moist air mass in the western Pacific area delays rather greatly to the advances of those northern systems. Thus it would be interesting to re-examine the whole seasonal cycle around the Japan Islands at the view point of how the phase differences among seasonal marches of the Asian monsoon subsystems affect the variety of the seasonal cycle there, together with their effects on the "seasonal feeling". As such, the present study will examine the asymmetric seasonal march from autumn to the next spring through midwinter around the Japan Islands as an interesting example, and will also report the joint activity with music, and so on, toward the development of an interdisciplinary study plan on such topics for the students in junior high school, high school and the faculty of education of the university.

The wintertime weather pattern, i.e. precipitation in the Japan Sea side and clear day in the Pacific side of the Japan Islands, prevails from early November to early March, reflected by the seasonal cycle of the Siberian Air Mass and the Siberian High. However, the air temperature shows the minimum from late January to early February around the Japan Islands. In other words, although the dominant weather patterns around November and in early March are nearly the same as each other, air temperature is still lower in early March (early spring). In spite of that, the solar radiation is rather stronger in early March. Comparison of "seasonal feeling" expressed in the Japanese classic poems called "Wa-Ka", the Japanese school songs, and so on, between those seasons was also made, referring to the asymmetric seasonal march as just mentioned above. We would like to introduce also the results of the trial of the class at Kurashiki-Seiryo High School or Faculty of Education of Okyama University. We should note that the present joint activity might also contribute to providing the study materials for the cultural understanding, which is one of the important elements for the ESD (Education for Sustainable Development).