



## **Analysis on seasonal retreat of Siberian High (with attention to the characteristics of the Siberian High between late winter and midwinter)**

Tatsuya Hamaki and Kuranoshin Kato

Graduate School of Education, Okayama University, Okayama City, Japan  
(hama0520tatsu@gmail.com)(kuranos@okayama-u.ac.jp)

According to Kato et al. (2009), the rapid seasonal increase in the air temperature mean the Japan Islands area in East Asia occurs due to the Siberian High from March to April. However, seasonal retreat processes of the Siberian High from winter to spring, in relation to that of the Siberian Air mass, have not been systematically understood yet.

Thus Hamaki et al. (EGU2014-4752) pointed out by the case study for 1984, that the appearance latitude of the daily Siberian High did not change so much from January (the appearance frequency of strong high pressure in itself decreases in April), although its relative location to the southern edge of the mean Siberian Air mass was rather different between midwinter (~early February) and early spring (late February to early March).

Based on this preliminary study, we will further perform the analyses on the above phenomena in the present study by using mainly the NCEP/NCAR reanalysis data and the daily weather maps at the surface level provided by JMA, with the focus mainly on the difference between the daily characteristics of the Siberian High in midwinter and early spring. The case for 1984 (cold winter around Japan Islands), 2007 (warm winter around Japan Islands) and 2011 (normal winter Japan Islands) will be mainly examined.

Although the mean sea level pressure (SLP) decreased a little from midwinter to early spring around the southeastern Siberia (~40-60N/80-120E), the sub-monthly intraseasonal variation of SLP was found up to the end of March 1984. It is interesting that this SLP variation corresponded to the alternative enhancement and the weakening of the daily Siberian High, not to the development of low-pressure center even in that minimum SLP phase. Then, the composite analysis the atmosphere fields were performed for the maximum and phases of the sub-monthly SLP variations in that area.

In midwinter, the center pressure of the Siberian High at the maximum SLP phase was extremely high with considerable westward extension of the cold trough at 500hPa level. It is noted that there existed the relatively strong Siberian High even in the SLP minimum phase. On the other hand, although the center pressure of the Siberian High was rather high in the SLP maximum phase, 500hPa fields at that phase resembled for that in the minimum phase in midwinter. These results suggest the 3-dimensional structure of the Siberian High might be rather different in early spring (the stage before the complete weakening of the Siberian High in April) from midwinter.