



A case study on the cyclone activity around Europe from winter to spring of 2000 (From the view of comparison with that in East Asia)

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The extratropical cyclone is one of the basic systems that characterize the weather and climate in mid-latitude area, where the mean meridional temperature gradient is large. However, this activity is deeply influenced by the seasonal transition and regional differences of the mean atmospheric fields. Diversity of cyclone's characteristics such as baroclinic instability wave, polar lows and slow-moving cold vortexes is also seen within the mid-latitude area. For example, the seasonal transition of the large-scale fields is rather widely different in European region from that in East Asia where the influence Asian monsoon is very great. It is also noted that the cyclones developed in the other region might effect greatly the weather in Europe. On the other hand, detailed knowledge of the daily cyclone activity would help to understand deeply the differences of regional climatology among various areas including seasonal transition and geographical characteristics. After such interest, Takigawa and Kato(EGU 2015) made a preliminary study on the cyclone activity in Europe . We used the NCEP/NCAR re-analysis data for 2000 and pointed out that not only the daily systems but also the intraseasonal-scale systems were also dominant in winter and summer. Thus the present study will examining the case for 2000 with special attention to the features from winter to spring.

In winter, submonthly-scale intraseasonal variation of the Icelandic Low was change. In the stage when Icelandic Low with such intraseasonal-scale approached northwestern Europe, several lows passed eastward around with a few days interval the southern edge of Icelandic low with relatively strong baroclinicity. It is remarked that their center pressure was rather low (below~980hPa).

After April, when the seasonal mean Icelandic low had disappeared, different types of the intra-seasonal-scale cyclones and anticyclones were dominantly observed. In the lower SLP stage of the intraseasonal variation in Europe, the low pressure centered the southern-east of England in the middle of April has the equivalent barotropic structure and persisted for about ten days on the daily maps. On the other hands, high pressure area extending from England to northern coast of Germany also persisted for about half month. The southern half of that higharea was also of equivalent barotropic structure with warmer air there.

In the poster presentation at EGU2017, we will also compare the cyclone activity in East Asia where the weather and climate system are greatly affected by the global-scale Asia monsoon, and so on.