The Movement of an Upper-Level Vortex over Western Europe

By

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With 6 Figures

Summary. Details of the movement of an upper-level vortex are given. This vortex first followed a westerly course towards the North Sea Area but altered its track rather suddenly and proceeded on a southeasterly course later. This change can be described by the interaction between the vortex and a shallow surface depression.


Résumé. On rapporte ici sur les particularités de translation d'un cyclone en altitude. Ce dernier s'est déplacé tout d'abord du nord-ouest de la Russie vers la Mer du Nord. Sa trajectoire s'incurve brusquement sur l'Angleterre pour se diriger vers le sud-est. La modification de la trajectoire s'explique par l'action combinée du cyclone en altitude et d'une faible dépression au sol.

At the end of March 1958 an upper-air vortex formed over northwestern Russia. The vortex subsequently moved westwards along the southern border of the Baltic and it continued on its westerly course to the North Sea. Arrived over northern England on April 4, 1958, it sharply turned to the south. Then it moved over the Irish Sea and the Channel into France. It reached Italy on April 7, and from there moved away to the Balkans.

As the turning of the track on April 4 came rather unexpected, the synoptic evolution has been investigated in some detail.
Already in 1937 Scheffag [1] demonstrated that upper-level vortices (or "cold pools") follow the air flow existing near the surface of the earth. Many investigations on upper-level vortices have been published since that time (see for instance the references given by Weiman [2]) but only in some of these the movement of the vortex has been considered (Buschner [3]). It therefore seemed of sufficient interest to study the movement of the upper-level vortex over western Europe during the end of March and the beginning of April 1958.

On March 29, 1958, this upper-level vortex developed near Leningrad. It was a cut-off from an upper-level trough that had moved over Spitzbergen into northern Russia. The vortex formed near a ridge of