

258–279.5 mm, suggesting that the PMP estimate is suspect as it may be underestimated.

7.5.5.2 Weather system evolution method

For a large watershed along the upper reaches of the Changjiang River in China, a storm that occurred on 1–13 July 1981 was combined with one that occurred on 15–29 July 1982 using the evolvement trend analysis method to derive PMP (CJWRC, 1995).

The continuity of weather processes was analysed to determine whether synoptic situations of the two processes could be linked together and whether the former process could evolve into the latter.

7.5.5.2.1 Analysis of the possibility of synoptic situations evolvement between the two processes

The two processes selected to be linked together occurred on 13 July 1981 and 15 July 1982. The large circulation types of these two processes were similar. Locations of troughs and ridges at mid- to high-latitudes were nearby, as shown in Figures 7.6 and 7.7. Both the New Siberia region and Okhotsk featured ridges of high pressure, and between them were troughs. Subtropical anticyclones were latitudinally distributed. Ridge lines were between 25–26° N.

The differences between the 13 July 1981 and 15 July 1982 processes were: the troughs in 1981 were slightly more westward and northward than those in 1982; ridges of high pressure in the New Siberia region were slightly more westward; ridges were

north–south in 1981 and north–east–south–west in 1982; and subtropical anticyclones were more westward in 1982 than in 1981. According to synoptic meteorology experience and the rule that troughs and ridges at high latitudes move from the west to the east, northern ridge lines of high pressure will change from north–south to north–east–south–west during the eastward movement of ridges of high pressure, forcing troughs on the Baikal Lake to move south–eastward along the ridges. As a result, circulation types begin to change.

The weather system on 5–7 June 1956 was also very similar (see Figures 7.8 and 7.9).

7.5.5.2.2 Analysis of the possibility of circulation type evolvement

The circulation type on 9–13 July 1981 was the Baikal large trough type, but it changed into the dual-trough and single-ridge type from 14 July onwards. The circulation type on 15–20 July 1982 was also the dual-trough and single-ridge type. The two storms were identical not only in circumfluence type but also in rain types, which were both East Sichuan movement type. Therefore, linking 13 July 1981 with 15 July 1982 complied with observed atmospheric circulations.

7.5.5.2.3 Analysis of the possibility of storm weather systems evolvement

Weather systems of the storms on 13 July 1981 and 15 July 1982 were both shearing vorticity, and system locations were also similar. Low vortexes in 1982 were slightly weaker and more eastward than in 1981. As weather systems evolve from the west

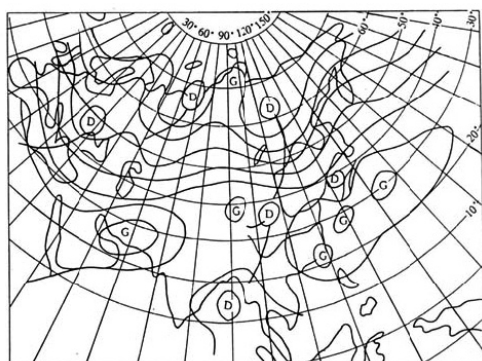


Figure 7.6. 500-hPa situation map for 13 July 1981 (MWR and others, 1995)

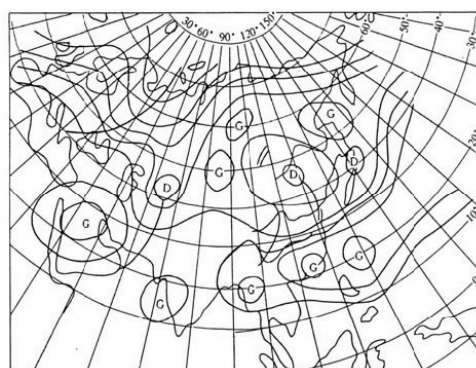


Figure 7.7. 500-hPa situation map for 15 July 1982 (MWR and others, 1995)