

LOCAL WEATHER CONDITIONS NEAR WOODBOURNE AERODROME.

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The aerodrome is located in the centre of the Wairau Valley about nine miles from the sea. The valley lies in a direction approximately east-northeast to west-southwest. To the north and south of the aerodrome are ranges 3000 to 4000 feet in height, while further to the westward are many peaks between 6000 and 7000 feet. The presence of these ranges causes very marked local weather variations, and on the average it is found that flying conditions near the aerodrome are likely to be a good deal better than in neighbouring areas. The following is a brief summary of the local weather variations.

WIND:

Due to the orientation of the valley, most of the strong winds are from directions between west and northwest or between east and southeast; in fact strong winds from any other direction are extremely rare. West-erly or northwesterly winds often have marked Föhn characteristics causing very pronounced gustiness and very rough flying conditions. When there is a strong gradient wind from north or south the surface wind at Woodbourne is usually light and variable, although a small variation in the gradient wind from north or south will cause the wind in the valley to blow from NW, NE or SE. Perhaps the most striking sample of this occurs when, with a southerly gale blowing in Cook Strait, the wind at Woodbourne is light and variable, although with a southeasterly gale in the Straits the wind at Woodbourne is fresh or strong southeasterly. Severe southerly squalls are often a source of danger for aircraft flying about Cook Strait or along the east coast. Woodbourne is, however, sheltered from these squalls, though the landing ground near the bombing range at Lake Grassmere is very exposed to them. Several instances have occurred there of damage to aircraft caught on the ground by southerly squalls.

DIURNAL VARIATION OF WIND:

owing to the relatively large amount of sunshine at Blenheim, and the consequent high diurnal range of temperature, land and sea breezes are very common. Furthermore, the valley is responsible for a marked katabatic flow at night and an anabatic flow during the day. When pressure gradients are weak the land breeze and katabatic flow combine to give a westerly wind down the valley at night, which reaches its maximum velocity of about 15 m.p.h. in winter. Similarly the sea breeze and anabatic flow result in an easterly or northeasterly wind during the day, which may reach 15 m.p.h. in summer. The times of the wind changes are about 8 a.m. and 4 p.m. in the summer, and about 11 a.m. and 7 p.m. in the winter, the change usually being preceded by about an hour of light variable winds.

FOG AND CLOUD:

Radiation Fog very rarely covers the whole of the lower Wairau Valley although it often forms in a narrow belt along the Wairau River (4 miles north of the aerodrome). Patches of fog form also near the hills to the south, and may cover Omaka while Woodbourne remains clear.

Advection Fog: On isolated occasions sea fog forms in the Eastern Straits area with easterly winds, and this usually results in the fog drifting in over the lower Wairau Valley, especially during the evening. This will occur only with winds between northeast and southeast. In a similar manner, during anticyclonic weather, a layer of low stratus in the eastern straits will frequently drift in over the valley during the evening with the easterly sea breeze. When this occurs the cloud base is rarely below 1500 ft. except near the hills to the north and northeast of the aerodrome, where it may be down to 300 ft.

Turbulence Cloud: A layer of turbulence cloud often forms when the gradient wind is between northeast and southeast, but it does not occur with winds from other directions - assuming that no fronts are in the immediate neighbourhood. It should be noted that the stratocumulus layer

which forms in a northwesterly or northerly wind over the Sounds and over the hills between the Waimea and Wairau Valleys does not extend over the Wairau.

Convection Cloud: During the summer months the development of convection cloud in the afternoon is often very considerable. The convection is most pronounced when a moist unstable southwesterly stream covers the area. Though the sky may be clear of cloud in the early morning, the cumuli which form on the ranges in the forenoon develop in the afternoon into massive cumulonimbi. Heavy showers with occasional hail and thunderstorms then occur in the ranges and at times move across the valley. The showers cease soon after sunset, the cloud tops flatten out, and the sky becomes clear again by about midnight.