OUTLOOK FOR APRIL WAVE SOARING EXPEDITION

by HAROLD E. KLIEFORTH

The Southern California Soaring Association is sponsoring a week-long "High and Wide Soaring Expedition" to Bishop, California, this spring when the Mountain Wave is at its best. As originally planned by the organizer, Vic Saudek, there were two tentative dates to he considered, 9 to 17 April and 16 to 24 April. The first period (Easter week) has been chosen partly for reasons given below and partly because it is a more convenient time for most of the participants. This article discusses the expected weather conditions and flight possibilities.

Since the secrets of long range meteorological forecasting have not been revealed to us, we shall have a look at the weather of past seasons — synoptic climatology we call it. Complete daily weather observations from the Bishop Airport are available only for the last twelve years. We learn from these, with manageable excitement, that there are big variations in weather from one year to the next and that April is a particularly capricious month.

SURFACE OBSERVATIONS

The "normal" (i.e., average) temperature maxima and minima are 70° and 36°F on 9 April increasing to 75° and 40° on 25 April. Maximum afternoon temperatures in the 80's and minimum early morning temperatures below freezing occur often in this period, though not on the same day.

There are frequently strong surface winds in April both associated with lee waves and, especially, with vigorous frontal passages from the north, usually on days following strong wave activity. Gusts may reach 40 or 50 knots with blowing sand.

During the last twelve years an average of 0.55 inch of rain has been recorded in April at the Bishop Airport - more than during either March or May. Rain has occured most frequently (4 out of 12 years) on the 20th and 25th and least frequently on the 15th and 16th (trace one year only) and the 24th (none). In 1956 it rained a total of 1.26 in. on six of eight days from the 11th through the 18th. In 1957 there were seven straight days with some rain from the 17th through the 23rd. In 1949, 50, 54, 58, and 59, precipitation was negligible during the two weeks considered.

It is obvious that one can leave his rain coat at home when coming to Bishop but one should not underestimate the significance of even a few hundredths of an inch falling in the Owens Valley. Unlike "the rain in Spain," the precipitation in this region falls mainly on the mountains and a few drops in Bishop usually mean clouds and showers shrouding the Sierra and the White Mountains and poor soaring conditions. Waves do not form in this kind of unstable air mass and it is too early in the season for sufficient solar heating for the development of usable thermals.

WAVE DEVELOPMENT

Unlike the surface weather elements we have discussed, lee wave occurrences are not so easy to determine from the records; indeed, they are not always easily recognized from visual phenomena. Some waves are dry with few clouds. Others have high arch clouds which might be recorded as simply cirrus. Often, when no wave clouds (lenticulars) are present, the wild-looking roll clouds might be mistaken for ordinary cumuli. In the last few years weather stations have been reporting smooth wave clouds by the letters ACSL (altocumulus standing lenticulars) in the hourly teletype sequence. Nevertheless, many wave occurrences (but probably no strong waves) go undetected. Thus the weather record of their frequency is conservative.

In the last twelve years during the period 10 through 26 April lenticular clouds have been recorded most frequently on the 13th (50% of the years); next often on the 16th and 17th (33% each); and 25% of the time on several dates (12, 14, 18, 20, 21, 23, and 24).

Now, if we make the dubious and statistically indefensible assumption that these twelve years are representative of the relative probabilities of occurrence of storms, wave phenomena, etc., we may summarize our expectations as follows:

Estimated chance of moderately strong to strong wave occurrence during the period:

April 12-14 inclusive .....55%.
April 16-18 inclusive .....65%.
April 20-21 inclusive .....35%.
April 24-25 inclusive .....30%.

Possible storms with precipitation during the period:

ABOUT THE AUTHOR

Harold Klieforth was the chief meteorologist for the Mountain Wave Project and is co-holder, with Larry Edgar, of the two-place world soaring records for altitude above sea level (44,255 feet) and altitude gained (34,426 feet). He is currently Field Director of the Air Force Cambridge Research Center's Geophysics Flight Group at Edwards AFB, Calif. He lives in Bishop and hopes to participate in the meteorological analyses and briefings for SCSA's April expedition.

Figure 1. View SSE from Bishop Airport on April 10, 1955, showing the Wave Project's P-R sailplane and pilot Larry Edgar ready for flight. Roll clouds and a high tenuous wave cloud are overhead. Note small, travelling (west to east) waves in high cloud deck to the south.

Photo: Betsy Woodward