

On February 12, 1961, during the second period mentioned above, a wave occurrence was reported at 1719 EST 35 miles southeast of Roanoke, Virginia. The pilot reported up-drafts and down-drafts of 2,000 to 3,000 ft./min. with abrupt stops at the top and bottom over a distance of 12 miles. These vertical motions are comparable with those found in the vicinity of mountain ranges in other parts of the world as described by Corby (1954) and Kuettner (1953). Colson (1954) found that vertical currents of 3,000 ft./min. or more have been observed in the Bishop, Calif. area of the Sierras.

6. CONCLUSIONS

It would be interesting and valuable to investigate, at all elevations, the vertical motions which are present when satellite pictures reveal the presence of an extensive field of well-formed mountain lee waves. Future sailplane flights, in waves over the Appalachians, especially if they should occur at the time of satellite cloud pictures, can add valuable data that will increase the knowledge of the airflow over these mountains. The area to the lee of the mountains in West Virginia and Virginia offers good soaring possibilities and also the possibility of supplying the data needed to interpret satellite cloud pictures more fully.

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12,000-FOOT GAIN IN THE ALLEGHENY WAVE

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The accompanying story of a soaring flight in the Allegheny Wave is of particular interest as it relates to the preceding article concerning TIROS satellite photos of wave clouds in the same area. Unfortunately, no TIROS photos were taken of this area on the date of the flight.

The first Saturday of the Cumberland Soaring Group's two week end camp opened with the day's weather overcoming our disappointment in having no visiting sailplanes. For the past five years, since the Cumberland, Maryland, group's beginning, we have been fascinated by the frequent lenticulars overhead. During the 1961 and '62 seasons, several pilots made unusual gains in smooth lift off of our ridge on the order of 5000 to 7000 ft. In late '62, we decided to more or less formally explore the wave, as these flights had confirmed its existence. I was fortunate enough to make 12,000 ft. M.S.L. from a 5000-ft. tow in September of 1962. On July 20, 1963, the first day of our camp, Joe Woodard in the Ka-8, made a gain of 9600 ft., to 12,600 ft. M.S.L., Doctor R. K. Poling made 11,800 ft. M.S.L. in his 1-23H, and the L-K took me to 12,000 ft. again, all from 3000-ft. tows, still no Gold badge gains, but it sure proved we indeed did have a good wave and that our absent guests had really missed a swell day of wonderful soaring.

Saturday, August 24, 1963, opened with an unpromising overcast at 1500 ft. and 2 miles visibility in fog with a light southeast breeze. This weather held until lunch time when we apparently had the passage of a weak cold front. About 1:30 EDT, the sky over the field was still overcast, but to the west over the ridge, a low roll cloud formed and the wind went to the west, still at only a few knots. The best thing of all was a thin blue line of sky just where experience had shown our normal wave window to be.

We smoked the barograph, rolled out the L-K and with George Nash towing and the Moore Electric variometer clicking, we went into our predetermined tow pattern. We were not to be cheated this time, so the tow was terminated just to the windward of the ridge at a bare 1000 ft. above the field (1800 ft. M.S.L.). After losing a couple of hundred ft., I found the ridge lift to be definite but turbulent and weak. Finally reaching 3300 ft., I headed into the wind to try for the wave, but none was found so back to the thermals off of the ridge for another 1000 ft. and another try. This time weak, turbulent, constant lift was found in the wave area and worked to the base of the first lenticular at 6600 ft. where I dove out into the clear to the windward again and found the positive smooth lift, about 2 ft. per sec. that finally took me to 13,600 ft. and topped out under a cirro cu deck that stretched far to the west. On the way up, the cloud downwind appeared as a solid dark cliff of gray shale with lenticular clouds sticking out like ledges. A sheer cliff of cloud 10,000 ft. high. The wave window was only 2 miles wide, the clouds upwind topping the mountains and solid overcast to 8500 ft. High broken cirrus against a brilliant blue sky made the view spectacular.

13,600 ft. M.S.L. made a 12,000 ft. gain. Elated, I started to let down, heading south where the wave clouds appeared to have a more classic pattern. Over Keyser, West Virginia, 20 miles south of the release point, high thin lenticulars and 3-ft. per sec. lift and brilliant blue sky called for a try at my diamond. But after picking up 1000 ft. gain back almost to 10,000 the ominous closing of the window below caused me to leave and return to Cumberland. The decision was reached none too soon, as the descent from 7000 through 3000 was through a hole with the spoilers open at 85 mph. The hole seemed to be filling rapidly as I

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