

CHATS WITH THE WEATHER MAN

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FOR BROADCAST PURPOSES ONLY

ANNOUNCEMENT: Now for our Chat with the Weather Man. Our old friend, Ob Server, has again been with the specialists of the United States Weather Bureau and again brings us word of recent developments behind the simple, matter-of-fact daily weather forecast which we read in the papers and hear by radio ----- And speaking of adventure --- But we'll let him tell you ----- Well, Mr. Ob. Server?

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Yes, there are thrills back of our weather forecast.

You know, the weather forecaster reaches beyond the clouds for some of the information on which he bases those daily weather predictions.

Of course, he has done that to some extent for years by means of recording instruments sent into the upper air attached to kites.

Recently, air-plane flights have been substituted for kite-flying, and it seems that some of the pilots who man the planes are daring weather adventurers, climbing to dizzy heights to get the daily record of conditions there.

In fact, Mr. L. T. Samuels of the aerological division of the United States Weather Bureau, tells me that the results of this new work have exceeded expectations. The pilots have gone much higher than expected. There have been few delayed flights on account of rough weather, in spite of the dangers.

There are four of these Airplane Weather Stations; one at Dallas, Texas; one at Omaha, Nebraska; one at Chicago, Illinois; and one at Cleveland, Ohio. Three kite stations were closed, when these new airplane stations were opened last July.

Each morning at about 5 o'clock Eastern Standard Time, pilots at these four airplane stations start on their daily weather recording trips which ordinarily take about an hour and a half to complete.

The planes are equipped with automatic instruments for recording the temperature, the relative humidity, and the barometric pressure. And each pilot also notes the time he enters and leaves clouds and notes any rain or snow aloft which does not reach the ground on account of warmer dry air nearer the surface. That latter information, Mr. Samuels says, is of great value to forecasters in determining the prospects for rain.

These weather planes rise slowly, at not more than three to five hundred feet a minute, so as not to throw off the weather recording instruments, which lag in making the record if the plane goes up too fast. The record coming down is not used, so the plane swoops down in 10 or 15 minutes from a climb that has taken more than an hour.

The use of planes gives the forecasters the upper-air information much earlier than it can be obtained by the use of kites. It takes three to four hours to send up the kites. That is, it takes about twice as long to get upper-air records by kite as by plane, and what is even more important for the weather scientists, the planes have been reaching double the altitude reached by the kites.

During August at the Dallas Airplane observation station the planes recorded air conditions up to 21,424 feet, while at Omaha in September, the pilot pushed his plane to 23,031 feet. Compare that with the Ellendale, North Dakota, Kite Station where the kites only reached an altitude of 10,500 feet, Mr. Samuels says, and you get some idea of the advantages of using airplanes.

This airplane observation work of the Weather Bureau is done on contract, the contracts being let to the lowest and best bidder at the several points selected as stations. The first contracts were awarded on the supposition that the average height reached would be about 13,500 feet, and 10 per cent extra was offered for each additional 1500 feet as an incentive for pilots to get records at higher levels, while a deduction was to be made for each 1500 feet short of 13,500 feet. If a pilot goes up less than 1500 feet he gets nothing at all.

So far, the pilots have averaged far above the expected 13,500 feet and earned much more by taking the added risks in the higher altitudes; for there are risks to this work.

I suppose you heard about that Cleveland pilot who ran into a huge thunderhead last August. He was on his daily weather recording climb, when he headed into that big mass of clouds 2500 feet thick, flying so the plane was practically level. Then things began to happen fast and furiously. Rising air currents within those clouds seized the plane. It shot up 1400 feet a minute on an extremely rough ride. The plane was completely out of immediate control. Then suddenly the plane reached the top of the thunderhead. It stopped its dizzy upward rush so quickly the pilot was almost thrown out of his seat. In fact, his parachute catching on the edge of the cockpit seems to have been all that saved him. His experience in that cloud, he thinks, may give some clue to many unexplained air accidents.

But the possibility of such adventures is not the only risk which may greet the pilots in the apparently serene upper air. The icing of planes flying in clouds has taken place during some of the hottest weather this past summer.

Of course, you know when planes fly into clouds or rain below the freezing point, the sub-cooled droplets congeal on the plane to form a coating of ice. We ordinarily think of the danger from that ice being the added weight. But Mr. Samuels tells me that the weight is not the most serious effect. There is even more danger in the mal-formation of the wing by the

accumulation of ice so as to effect the smooth flow of air over the wing. That is, the ice may practically change the design of the wing. Ice accumulating on the guy wires also makes them vibrate tremendously and may cause them to break, while ice on the propellor may throw it out of balance, and result in literally tearing the motor to pieces.

In spite of these risks, however, the pilots have made a wonderful record. Naturally, during the coming winter the difficulties may be greater, and the high average of daily high flights may be lowered.

However, each of these contract weather planes is required to be equipped with radio, and is in constant radio communication with the station below. In that way, the pilots keep informed of conditions on the ground, and if there is fog on the field, they can land elsewhere if necessary. Information of cloud height when the ceiling is low is especially important for pilots working near big cities where there is danger of running into high buildings or other obstructions.

Those records brought down by the airplane pilots are immediately worked up and telegraphed to the district forecast centers at Washington, Chicago, Denver and New Orleans, where they are received in time for the regular morning forecast, wired out to the various stations within the different districts.

In addition to their use in making the regular forecasts and the forecasts for use along our airways, these records are sent to the centers for computation and to be used in working out average conditions at the various elevations.

They are also valuable in special studies made relative to certain types of weather conditions, such as the distribution of those highs and lows which form so prominent a part of our daily weather maps. As Mr. Samuels says, we are always trying to find what we can of conditions in the upper air, not only because we are traveling through the air nowadays, but because conditions at the higher levels give us valuable clues as to what may happen in the way of weather here below.

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ANNOUNCEMENT: You have just heard the Chat with the Weather Man, presented by this Station \_\_\_\_\_ in cooperation with the United States Department of Agriculture. These chats, giving the most recent developments in weather science as gathered at the United States Weather Bureau, come to you every other Friday.

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# **National Oceanic and Atmospheric Administration**

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