METEOROLOGY

Summer Clouds Seeded

Evidence suggestive of important changes in natural cloud processes caused by seeding with silver iodide has been found. General air circulation linked to ocean temperatures.

➤ SEEDING CLOUDS with silver iodide strewn from airplanes may increase the chances of lightning in summer clouds over the Santa Catalina Mountains.

Drs. A. R. Kassander and L. J. Battan, director and associate director of the University of Arizona's Institute of Atmospheric Physics, reported to the American Meteorological Society meeting in New York results of a cloud seeding program in Arizona.

On 16 days in 1958 when seeding was done, 1,265 lightning strokes were counted, while on non-seeded days only 138 were seen. The probability of this result by chance is less than two percent.

The cloud seeding program, supported in part by the National Science Foundation, involves throwing silver iodide into clouds on one of two successive days according to a randomized scheme arranged beforehand. This means, in effect, that the determination to seed a cloud is made on the basis of a coin flip, a procedure adopted to prevent biasing of results and permit application of statistical tests.

The seeding was done at between 18,000 and 20,000 feet along a track upwind from the mountain range. The silver iodide particles were carried into the cloud area by winds.

For the years 1957 and 1958, comparisons were made of rainfall on 32 seeded and 32 non-seeded days. Although rainfall averaged higher on seeded days, statistical tests showed this result could have been due to chance. However, Drs. Kassander and Battan believe the results are "suggestive." They conclude the evidence shows that seeding caused important changes in natural cloud processes.

Strong Winds Revealed

➤ BOTH U. S. and Russian scientists have recorded extraordinarily high winds in the atmosphere, the Meteorological Society meeting was told.

Charles L. Jordan of Florida State University said airborne balloons showed unusually strong winds of 255 miles per hour at 9,000 feet over Bermuda on March 28, 1955.

Adam Kochanski of the Air Force's Air Weather Service said Russian records for July, 1957, the first month of the International Geophysical Year, showed exceedingly strong westerly winds of about 120 miles an hour occasionally occurred at heights of some 18 miles above the earth's surface. Normally the winds at this level are easterly at about 25 miles an hour.

Mr. Kochanski also reported that the Russians had found unexpectedly high variations in temperature at the 18-mile altitude, ranging from 136 degrees below zero Fahrenheit to only 16 degrees below. Such a large variation means extreme density changes at this height.

He said the Russian IGY records for one month contained 1,960 temperature observations and 325 wind observations for levels 18 miles and higher. Records made by instrument-carrying, high-flying balloons at 70 stations are available twice daily, he reported.

Ocean-Air Link

➤ THE PROBLEMS of finding sardines and other fish in the eastern North Pacific were linked to the general circulation pattern of the atmosphere by a Weather Bureau meteorologist.

Jerome Namias, head of the Bureau's extended forecast section in Suitland, Md., reported to the American Meteorological Society meeting in New York that he had found a relationship between the long-period air circulation and surface temperatures of the ocean. Mr. Namias' report was made in his absence by Dr. Donald Gilman, also of the extended forecast section.

West Coast fishermen in recent years have been catching many kinds of southern fish much farther north than usual. Mr. Namias' new theory is expected to make it possible for scientists to predict where the warm, fish-containing waters will be by calculations based on how the atmosphere is behaving.

The water temperatures in the eastern North Pacific have been running from three to six degrees Fahrenheit warmer than seasonal normals, Mr. Namias calculated from records made by the U. S. Fish and Wildlife Service. He then calculated the deviations of the wind from normal, using meteorological charts.

When the winds during a period of several weeks consistently blow in a direction different from normal, Mr. Namias reasoned, they would transport warm water to new regions. Another factor, his report said, is the cold water from lower layers that rises to replace the warm surface water blown away. Also, Mr. Namias found evidence that during the summer of 1957 the ocean surface received slightly more than the normal amount of solar radiation.

Mr. Namias then examined the relationship between water temperatures and those of the overlying air in the first 10,000 feet of the atmosphere. About half of the warming of air currents along the West Coast appears due to the warmer water, he found. The other half is because the same long-period conditions that produce shifts in the location of warm water also produce warmer air.

The warm water also serves as a reservoir of heat, acting through a feedback mechanism to influence the weather, Mr. Namias said.

From the summer of 1957 through the spring of 1958, he spotted a correlation between the slow, progressively eastward movement of an upper air trough with its associated cyclonic activity and surface water temperatures.

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ARCHAEOLOGY

Excavate in Jungle to Learn About Mayans

➤ ARCHAEOLOGISTS have begun full scale excavations in the Guatemalan jungle to uncover secrets of the Maya civilization.

The site, known as Altar de Sacrificios, is near the merging of the Rio Pasion and Rio Chixoy Rivers in the Department of Peten, Guatemala. This area in Peten was occupied as far back as 500 B.C. but the jungle-overgrown buildings and most of the pottery and other objects date from the classic period of Maya history, from 200 to 900 A.D.

Dr. Gordon R. Willey, Bowditch Professor of Central American and Mexican Archaeology, of Harvard's Peabody Museum, is directing the work. He is being assisted by A. Ledyard Smith, assistant curator of Middle American Archaeology at the museum. The men will study the pattern of the "cities" and attempt to determine why the Mayas suddenly abandoned this area of Middle America around 900 A.D.

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PSYCHOLOGY

Teen-Age Miss Does Follow Mom's Advice

➤ THE YOUNG TEEN-AGE miss prefers to follow Mom's advice rather than the advice of friends, a Cornell University study indicates.

Researchers tested 194 ninth and tenth grade girls at Ithaca (N.Y.) High School. The students were instructed to write eight stories in which the wishes of their mother conflicted with the wishes and behavior of their friends. In addition, each girl was given a test of home and family adjustment.

Conflicts in the stories centered around choice of boy friends, girl companions, types of evening activity, hour of returning home at night, clothes, smoking, use of earned money and use of allowance.

The results also show that, in general, girls from better educated families do not follow their mothers' advice as frequently as girls from families with less education. No relationship was found between the number of brothers and sisters of the girls and the frequency with which they did what their mothers wished.

The research project, carried out by Virginia S. Bersohn under the chairmanship of Prof. Harry Levin, also indicated that older girls take their mothers' advice more often than younger girls.

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