

METEOROLOGY

Speed Weather Forecasts

The development of the World Weather Watch would provide information from around the world so that weather can be accurately forecast in advance—By Ann Ewing

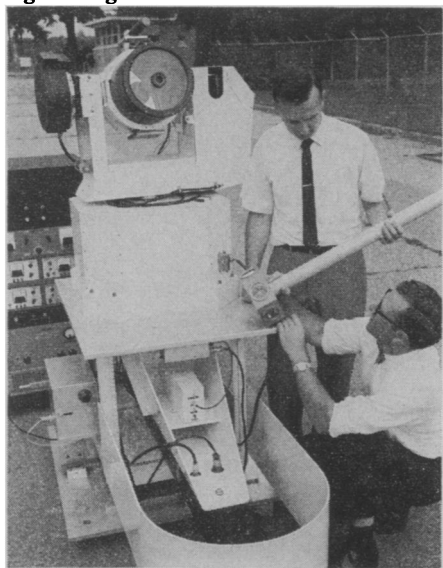
► WEATHER FORECASTS two weeks in advance are within man's reach, as is the ability to determine whether or not large-scale weather modification and control is possible.

Realization of these goals awaits the full development of a World Weather Watch and the achievement of more complete understanding of how the entire ocean of air surrounding earth moves and interacts.

Reliable weather predictions two weeks or more in the future would be one of the "most significant achievements of modern science and technology," the National Citizen's Commission Committee on Meteorology reported to The White House Conference on International Cooperation in Washington, D.C.

The Committee found that the largest single obstacle to long-range weather predictions, as well as to determining the feasibility of large-scale weather modification, is the lack of weather information over the entire globe. This information is now gathered daily from only 20% of the world's surface.

To overcome this obstacle, the United States was urged to take the leadership in development of the World Weather Watch, now being planned by the World Meteorological Organization.



Sperry Rand

LASER RADAR—Engineers are making preparations to test an experimental model of an infrared-aimed laser radar developed by Sperry Rand Corporation laboratories in Great Neck, N. Y. The system could be used as a precise position indicator of aircraft and for monitoring flight tests.

The World Weather Watch will be an international system to bring the atmosphere of the entire planet under complete surveillance, using the most modern tools available, including satellites, giant computers and high-speed communications.

Essentially the same conclusions were reached by a special panel of the National Academy of Sciences that investigated the feasibility of global observations.

The World Weather Watch will consist of "two broad, continuous and parallel streams of action," the International Cooperation Committee reported. The first involves the introduction of proved technology into the existing international weather system.

The second stream is to simultaneously pursue the work of research and development on new technology. This second

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Weather, Legal Problem?

► IF MAN CAN TAMPER with the weather at all, and he is already changing it unintentionally, then now is the time to search out and find solutions for the legal problems involved.

An urgent call for an immediate and thorough study of weather modification and the law was sounded in Boston by Edward A. Morris, a trial attorney in the San Francisco law firm of Bronson, Bronson & McKinnon, who specializes in litigation involving science.

Mr. Morris charges that unless scientists become "active leaders in the legislative and legal aspects of weather modification, we can expect crippling legislation, unwarranted litigation and undue interference with scientific field research."

If a good solution is not reached within the next few years, he contends, many of the decisions will be made by persons not "informed or qualified" to make such decisions. Mr. Morris also insists the "force and money" that the magnitude of the problems warrant must be used to find solutions.

As an example of the problems involved, he cites those created in trying to steer hurricanes. What agency, Mr. Morris asks, is going to be given the power to decide which way to divert a hurricane? Who will pay the damages to homes in South Carolina if the decision is made to steer it from Florida? Or who will pay for damages to the homes in Florida if the agency decides not to steer it away?

The necessity for legal regulation of weather modification is not limited, however, to catastrophic storms. Clouds are now being sprinkled with silver iodide and dry

prong is essential to reduce the cost of the World Weather Watch.

The Committee called the new technology "truly exciting." One observation method now being developed and scheduled for an operational test soon in the Southern Hemisphere is the horizontal sounding balloon. Small, lightweight balloons, filled at super-pressure, sweep around the world at a relatively constant altitude, carrying sensors to measure temperature, pressure and humidity.

Satellites would periodically fix each balloon's position, thus showing the speed and direction of winds.

Besides the balloons, the new technology includes satellites, automatic meteorological ocean buoys, mathematical procedures for creating models of the atmosphere, and electronic computers having speeds a hundred to a thousand times faster than those today.

The most far-reaching advances in meteorology will come only through an understanding of the general circulation of the entire atmosphere, which is a single global physical system. To acquire this knowledge, the Committee urged a vigorous general circulation research program, concurrent with the World Weather Watch and equally important.

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ice to remove fog at 18 airports in the United States. When man learns how to remove warmer fogs, a nearby crop of artichokes could suffer from too much sunshine when highway departments try to keep roads fog-free. Who pays what to whom in such an event?

Another crop problem could arise if future supersonic aircraft, flying at 70,000 feet between large cities every hour, produce condensation trails that form a permanent high cirrus layer under which the sun is never seen and plants therefore are changed.

The "piecemeal approach" to solving the legal problems of tampering with the weather, intentionally or unintentionally, has already started, Mr. Morris warns. Powerful lay groups of special interests with no real scientific background "are pressuring legislatures into action," he charged in a report to the American Meteorological Society.

Mr. Morris also urges attention to the international aspects of changing the weather. Agreement should be easier and concessions more readily made when no one country yet has the power to change the climate of other countries, he notes.

The study Mr. Morris advocates should also explore the desirability of creating a new agency, perhaps along the lines of the Atomic Energy Commission, that might "eventually plan weather by zones or by days, sell or buy weather to or from other agencies, possibly even make decisions as to the 'best' weather for certain times and places."

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