

Earth and Environment Notes

METEOROLOGY

Clear Air Turbulence Probed

Clear air turbulence, suspected of being the cause of several major airplane crashes, has been detected by microwave radars in a research program centered at Wallops Island, Va.

The radar sightings were confirmed by simultaneous airplane flights into the areas under observation.

Results suggest that the dreaded turbulence, formerly largely undetectable, can be picked up and located precisely by radar in time to warn airline pilots to avoid it.

"This appears to be the first time that aircraft and microwave radars have simultaneously probed the same regions of the atmosphere and confirmed the close relation between radar echoes from high-altitude clear air and turbulence for aircraft in flight," according to the scientists in charge.

However, the four authors of the report in the Aug. 18 *SCIENCE* note, the technique is presently limited by the restricted range—less than 30 kilometers—of present detection capability. Further, they note, the radar technique does not yet include means for determining the intensity of any given patch of CAT.

However, they observe, the prediction that CAT must be strong enough to affect aircraft before becoming detectable on radar seems to be borne out.

"Additional experiments are clearly necessary before the practical utility of radar as a detector of CAT can be established," they caution.

The scientists are: John J. Hicks and Isadore Katz of the Johns Hopkins University Applied Physics Laboratory and Claude R. Landry and Kenneth R. Hardy of the Air Force Cambridge Research Laboratories.

PEST CONTROL

Capri Free of Fruit Flies

The island of Capri, off the coast of Italy, has been found to be completely free of any native fruit flies, according to Dr. David Nadel of the International Atomic Energy Agency.

That information was a side result of a large scale experiment on Capri to test the vitality of radiation-sterilized fruit flies used in eradication programs. The flies had been sterilized in Israeli and Austrian laboratories and flown to Capri where they were released and their survival rates carefully observed.

Dr. Nadel reported to a pest control panel in Vienna that indications are that Capri's annual wild fruit fly infestation comes from mainland sources and does not originate on the island.

The experiment on Capri was begun last April by the Italian Government with the International Atomic Energy Agency, Food and Agriculture Organization and the Israel Atomic Energy Agency.

METEOROLOGY

Atmospheric Radiations to be Charted

Infrared and ultraviolet radiations from earth's atmosphere will be charted precisely by intensity, altitude

and season by two satellites to be prepared by Massachusetts Institute of Technology scientists.

Among the radiations to be charted will probably be the infrared emissions from carbon dioxide molecules which have a uniform density distribution in the atmosphere. MIT scientists, headed by Glenn Ogletree of the Instrumentation Laboratory, are also developing data requirements for ultraviolet measurements.

The two project PROFILE satellites will be flown at different seasons in 1970 and 1971 in order to record seasonal variations in the radiations. They will be guided, in part, by surplus Apollo guidance equipment as well as earth-based radar.

Sensors in the satellites will profile the radiation from the thin band of atmosphere—the limb—that appears to encircle the earth as it is viewed from space. Eventually, U.S. Air Force engineers, for whom the project is being carried out, hope to use the precise knowledge of the radiations to orient their space vehicles.

BOTANY

New Strains of Sugar Cane

Three new strains of sugar cane that will make possible an extension of the growing season in Florida have been developed by the University of Florida's Agricultural Experiment Stations.

All three varieties, according to Dr. J. R. Beckenbach, are nonflowering. Two are early maturing strains developed especially for use in colder areas.

A third, created to be late maturing, can be grown in warmer areas well beyond current seasonal limitations. Dr. Beckenbach says this strain produces yields substantially exceeding other strains.

SEISMOLOGY

Alaska Tsunami System Ready

The Alaskan Tsunami Warning System, a part of the new nationwide Natural Disaster Warning system, will go into full operation Sept. 2.

That is the date of the dedication of the system's nerve center, the Palmer Seismological Observatory, reportedly one of the finest facilities of its kind in the world.

The system ties together data from the Palmer Observatory with reports from two seismic auxiliary stations, observatories at Sitka, College and Adak and seven tide measuring stations.

It will be linked via teletype with the Pacific tsunami warning system and the International Tsunami Information Center in Honolulu. Vital information will also be sent to the National Earthquake Information Center in Rockville, Md.

Besides its function as a tsunami warning system, the network will be used for seismological research. It is run by the Environmental Science Services Administration.