correspondence

Micromet programs in East Antarctica and Thailand

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The Earth Sciences Laboratory of the U. S. Army Natick (Mass.) Laboratories has been conducting micrometeorological programs in two of the most severe climates that normal individuals would try to avoid, the extreme cold dry climate of interior East Antarctica and the hot humid climate of Southeast Asia. The program in East Antarctica, under the sponsorship of the National Science Foundation, has been conducted at Plateau, a station located at 3624 m (11,890') at 79°14'S, 40°30'E. It is the United States counterpart to the extreme cold Russian station in Antarctica, Vostok. Although Plateau appears to have a colder mean annual temperature than Vostok, the absolute minimum record still belongs to the Soviet Union, -88.4C (-127.1F), compared to Plateau's -84.6C (-123.1F). The program in Southeast Asia is located on the so-called but misnamed Korat Plateau, 175 km north-east of Bangkok at an elevation of 530 m (14°30'N, 101°55'E). This program is sponsored by ARPA, and became operational in the summer of 1968.

Plateau was established as a small scientific station in the austral summer of 1965-66 when the Navy flew in prefabricated, preassembled housing units in C130s. During 1966, Martin Sponholz of the University of Wisconsin and ESSA conducted surface and upper air observations for ESSA, radiation measurements for the Natick Laboratories, and refraction studies for the University of Wisconsin. In 1966-67, the University of Melbourne joined forces, and efforts were doubled both in personnel and in programs. The observers in the second year were Michael Kuhn of the University of Innsbruck and veteran Australian Antarctic citizen, Bob Dingle. At that time Natick Laboratories increased their program by installing a 32-m micrometeorological system, and Melbourne initiated a glacial-meteorological program. All of the above programs continued through 1968 with the observers being Tom Frostman of the University of Wisconsin and George Rubin de la Borbolla of Mexico via the Michigan Technological University.

The micrometeorological program at Plateau is probably the largest and most exciting one that has ever been established in the polar regions. A 32-m tower was erected and instrumented by Leander Stroschein of the Natick Laboratories in December and January of the 1966-67 summer. This tower was instrumented with temperature, wind speed, and wind direction sensors at ten heights (32, 24, 20, 16, 12, 8, 4, 2, 1, and 0.5 m) as well as additional temperature sensors at 0.25, surface, -0.25, -0.50, -1, -2, -5, and -10 m. All 40 channels on the tower can be interrogated in a matter of a few seconds, although ordinarily the data acquisition system scans all channels once every three minutes. Probably the most interesting phenomena observed has been the systematic backing of the wind with heights. This backing is on the order of tens of degrees in the first 30 m. Some cases are most extreme,

FIG. 1. Aerial shot from atop 103-foot micrometeorological tower at Plateau, East Antarctica, showing the pollution of the air from main camp (in the middle of the photo) and the summer overflow camp (off to the right of the photo). Plateau is located at an elevation of 3624 meters (11,890 ft) at 79°14'S, 40°30'E, which means that it lies approximately 700 miles beyond the South Pole in the heart of East Antarctica.

and there are cases where the 2-m wind direction is 180° different from that at half a meter height. The 1967 data are currently in the process of being analyzed at the Natick Laboratories by Eugene Wong and Leander Stroschein, who are working with Dr. Heinz Lettau of the University of Wisconsin. Tom Frostman will join the analysis team when he returns from the Antarctic in February 1969.

Plateau station was closed by the United States in January 1969, so there were two years of nearly continuous micromet data from the high altitude, high elevation, cold dry desert station. The only major break in data occurred in March of 1968 when a disastrous camp fire wiped out the best generator and necessitated cannibalizing spare parts from two down generators to get back into operation. Meteorologist Tom Frostman was overcome by carbon monoxide poisoning during the camp fire, but was not seriously affected.

In addition to the micrometeorological program, Leander Stroschein had established a large solar radiation program in the summer of 1965–66, which was active for the three years of the station's existence. Michael Kuhn, a student of Dr. Herfried Hoinkes at Innsbruck, has taken over the responsibility of the reduction and analyses of the radiation data. This is being handled at both Natick and in Innsbruck, and is sponsored by the National Science Foundation.

Mention should be made of the overall TREND program in Thailand.¹ It is a multidisciplinary study of a representative vegetation and climate which are somewhat analogous to those on the Pacific side of the Canal Zone where the Army Tropical Test Center is located. Micrometeorology is the core program, but extensive vegetation studies are being carried out within the study area. Soils are also being studied in some detail, although this is a poor area on the whole to make pedological studies as the soils are so thin. Scientists in the fields of microbiology, mycology, ecology, and entomology are also working on this large project.

TREND's field station consists of some 15 buildings, with complete housing and messing facilities, as well as power plant and water supply system. It is probably the best appointed tropical research station in existence, and it is the only micrometeorological program in Southeast Asia which is operated by "friendly nations." Meteorologists interested in visiting the station to conduct special projects should contact Paul Dalrymple at the U. S. Army Natick (Mass.) Laboratories.

¹ See news and notes, Environmental data program in Thailand, *Bull. Amer. Meteor. Soc.*, **49**, 1096–1097.

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