

Section 4. Whistlers and VLF Emissions

New Observatory A new observing station called Kagoshima Observatory ($30^{\circ} 31' 06''$ N, $130^{\circ} 46' 39''$ E, 533m high), which belongs to the Research Institute of Atmospherics, is now under construction in the Takakuma Mountains, about 20 kilometers south-east of Kagoshima on the Kyūshū Island. This Kagoshima Observatory, which is placed near the southern end of Japan, is a counter-part of Moshiri Observatory near the northern end of Japan. The observations of whistlers and VLF emissions are to be made simultaneously at three stations, including the home ground at Toyokawa. These observations are expected to produce fruitful data for research on the path of whistlers, the electron density in the upper atmosphere, and so on. For the effective use of these three stations, which form a triangle of the order of 1000 kilometers, the instantaneous location of the sources of atmospherics is now being planned. This project will be a great help not only for the study of whistlers, but also for various research project on atmospherics. The Kagoshima Observatory is also to be used as the earth station for rocket observations, i. e., the simultaneous observations will be made at the earth station and on the rocket launched from the Kagoshima Space Center, Tokyo University.

Whistlers and VLF observations at Toyokawa Due to the increasing man-made noise at Toyokawa, the observation of whistlers and VLF emissions has been interrupted since June 10, 1966. A new observing site is now being prepared not far from Toyokawa to take over the routine observations. The observed data are to be transmitted to Toyokawa through a telemeter system.

Observations at Moshiri Observatory Test observations of ELF radio noise has been made since last year for the purpose of identifying ELF radio emission. Improvement of the antenna and receiver is now being made. Routine observations are expected to begin in February 1967. The observation of low-latitude nose whistlers, the nose frequency being 55-70 kc/s as was reported in Vol. 13, will also be made at Moshiri, using a high-speed magnetic-tape recorder to investigate the electron density at altitudes of 300-6,000 km.

Observations by Rocket The observations of VLF radio noise were made twice in 1966 with the rockets L-3H-1 and L-3H-2, the latter having attained an altitude of 1700 km. Due to interfering noises, including the telemeter noise, available data are limited and still in analysis. The electrostatic waves are rather difficult to distinguish in contrast with the result with the result of L-3-2 reported in the preceding volume. The observation of radio noise in the ionosphere seems to be complicated and further experiments would be necessary to attain a definite conclusion.

Official Trip . . . Prof. A. Iwai will stay in Paris University (c/o Prof. J. Delloue) for half a year until the end of March, 1967.

Mr. M. Nishino, who has joined us since April 1966, is now staying at Showa Base in the Antarctic. He will stay there until January 1968 for the observation of whistlers and VLF emissions.

—Akira IWAI—

Publications (1966-1967)

- (1) Iwai, A., Ohtsu, J. and Tanaka, Y. : The Observation of ELF-VLF Radio Noise with Sounding Rockets L-3-2, K-9M-6, Proc. Res. Inst. Atmospherics, Nagoya Univ., **13**, 1 (1966).
- (2) Iwai, A. and Ohtsu, J. : VLF Radio Noise in the Ionosphere Observed by Japanese Sounding Rockets, Bull. Inst. Space and Aeronautical Science, Univ. Tokyo, **2**, 3(B), 1122 (1966).
- (3) Ohtsu, J. and Iwai, A. : Low Latitude Noise Whistlers, this volume.
- (4) Iwai, A. and Ohtsu, J. : Long Term Variation of Whistler Dispersions, this volume.
- (5) Ohtsu, J. and Kashiwagi, M. : On Harmonic Components of Tweaks, this volume.