Obituary

Professor Takao TOHMATSU (1932–1977)

On 19 November 1977, Prof. Takao Tohmatsu passed away suddenly at the age of 45. He was born on 13 June 1932 in Tokyo and graduated from the University of Tokyo in March 1955 after studying Geophysics in the Department of Physics. He continued his study and research work in Geophysics as a postgraduate student of the University of Tokyo, and, after receiving his MSc degree in March 1957 and his PhD in March 1961, he became a research associate in August 1963. When, in order to promote upper atmosphere research, the Geophysics Research Laboratory was established in the University of Tokyo's Faculty of Science, he was promoted to a lecturer in this Laboratory, and then to an associate professor in April 1966. From March 1974 he was a professor.

His scientific work was mainly the fundamental research in aeronomy, both theoretical and experimental. His early work dealt with airglow, and he observed 5577 Å airglow by a scanning photometer at Kakioka during IGY. He stressed the important influence of the global thermospheric motions on the airglow emission intensity. He established the formulation of radiative transfer applicable to the atmospheric emissions such as ultraviolet atomic oxygen and helium glows. Later, leading his collaborators, he studied the physico-chemical reactions in the earth's environmental space and interplanetary space. Some examples of his successful achievements are: theoretical and experimental evidence for ultraviolet helium glow in the earth's environmental space; detailed study of ionization processes in the upper atmosphere especially the importance of ultraviolet helium glow for maintaining the nighttime ionosphere and the primary processes of photoelectrons in the ionosphere; measurements of ozone and nitric oxide in the middle atmosphere. His last work included formulation for the transfer of infrared atmospheric emissions.

In order to promote most of his research subjects, he was engaged in national and international space observation programs by means of balloons, rockets and satellites. Through his efforts to develop observational devices, he presented, with his colleagues, reliable height-profiles of O₃ and NO densities in the stratosphere through thermosphere, in addition to a number of in situ

measurements of airglow emissions. He was a key person in the scientific subjects of the Japanese satellite TAIYO (launched in January 1974), and he had been asked to be the chief manager for the EXOS-C satellite mission, which is scheduled to be launched in 1983. He participated in international collaborative rocket experiments for space study in U.S.A., Canada and India. He was arranging the future plans of international collaborative work in space research.

In addition to these obligations, he contributed to the design of some new instruments for both ground and rocket observations for the Japanese Antarctic Research Expedition. He had also been asked to be a leader in the scientific group for the study of air pollution and its possible climatic impact. He was often invited to international meetings regarding this subject.

He served as a reporter of Topic II-2 (Neutral and Ion Chemistry and Solar Fluxes) in IAGA Division II and the IAGA/URSI Joint Working Group on the same subject. He was also an active member of COSPAR Panel 4.B on ion and electron properties. One of his recent duties was to organize the plan in Japan for the coming Middle Atmosphere Programme, and he presented a short report on the Japanese MAP plan on the occasion of the IAGA/IAMAP Seattle Assembly in August/September 1977.

It is really difficult to mention all of Prof. Tohmatsu's scientific achievements and his service to the scientific community. For the Society of Terrestrial Magnetism and Electricity of Japan, he served as a member of the Executive Committee from 1967-72 and again from 1977. He was asked to be a member of the Editorial Committee of the Journal of Geomagnetism and Geoelectricity from 1977. He was awarded the 36th Tanakadate Prize of the Society in May 1963, and the 11th Matsunaga Prize from the Matsunaga Science Foundation in December 1974 (through the recommendation of the society) as a young scientist with remarkable scientific contributions. His unexpectedly early decrease is a great loss for the present and future research in aeronomy and space experiments.

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