

## IN MEMORIAM

ZENZABURO SUEMOTO, 1920–1991

To our great regret, Prof. Zenzaburo Suemoto, the former director of the Tokyo Astronomical Observatory of the University of Tokyo (now the National Astronomical Observatory of Japan), passed away on December 5, 1991 of a heart attack. He was a member of the Editorial Board of the journal *Solar Physics* from its first volume through 1976. The Japanese solar physics community has lost one of its leaders of most profound insight. He was not only a deep thinker as a scientist, but also an excellent organizer who had insight into a person's capability in performing a scientific undertaking. He was able to advance large research projects as well as to carry out his own personal research.

He was born in Toyama Prefecture, Japan, on August 28, 1920. After graduation from the University of Tokyo in 1943, he was appointed a research associate at the Tokyo Astronomical Observatory of the University of Tokyo at Mitaka. He was in military service for two months, beginning in March 1944, but soon returned to the Observatory because of the policy for retaining excellent researchers and students in scientific functions during wartime.

After World War II, conditions for the supply of parts and material for observational work at the Observatory were dreadful. The young Suemoto was able somehow to continue the observations, repairing the disabled telescopes by cannibalizing parts from disused old instruments. He also built a self-registering microphotometer by using parts of an old comparator and other things. Using these hand-made instruments, he made a superb investigation of solar active regions and was awarded a Doctorate from the University of Tokyo in 1951.

He was then sent by the Ministry of Education to Cambridge University Observatory for two years. He studied the physics of the solar chromosphere under Professor R. O. Redman, who was well-known for having determined the kinetic temperature of the chromosphere to be around 30 000 K. Redman and Suemoto analyzed flash spectra taken at the Khartoum total solar eclipse of February 25, 1952, and concluded that the kinetic temperature of the chromosphere did not exceed 10 000 K, the accepted value today. During his stay at Cambridge, he made observations of faint absorption lines with a Fabry–Pérot interferometer in the Solar Tunnel of the Cambridge University Observatory, and discovered the convective circulation of granular motions.

After he returned to Mitaka, he constructed a broad-range spectral camera capable of recording 3600–6600 Å on a photographic film 1 m long in a single exposure, and took many spectra of solar flares. From the analysis of the Balmer



ZENZABURO SUEMOTO, 1920–1991

lines from  $H\alpha$  through  $H14$ , obtained with this spectrograph attached to the Mitaka Tower telescope, he found that a flare consisted of filamentary structures as thin as 10 km. He also constructed an ingenious instrument to investigate the solar chromosphere at solar eclipses: he tried to compress the image in the direction parallel to the dispersion. The velocity change with height in the chromosphere was studied by using this grazing-incidence spectrometer very effectively at the total solar eclipse of October 12, 1958 at Suwarow Island in the Pacific. These spectra are cited in standard textbooks of solar physics even today.

The years 1950–1960 marked the beginning of non-solar astrophysics in Japan, under the leadership of the late Prof. Y. Hagihara. Suemoto worked with Prof. Y. Fujita, the late Prof. T. Hatanaka, and Prof. K. Osawa, to establish the basis of the present-day astrophysics of Japan, ranging from optical nighttime astrophysics to radio astronomy, and to the initial phases of space research using balloons and

rockets. Optical astronomy has developed via the Okayama Astrophysical Observatory into the 'Subaru' 8 m telescope project, now in preparation for installation on Mauna Kea. Radio astronomy has developed at the Nobeyama Radio Observatory. Space astronomy has developed, with the cooperation of Prof. M. Oda and others at the Institute of Space and Astronautical Science, into a series of successful satellites including the most recent one, YOHKOH.

Prof. Suemoto spent his time after his retirement in 1982 with continued research freed from administrative obligations, and often came to the Observatory to talk about his findings about the hotter regions in the intergranular areas in the photosphere, among other things. He enjoyed observing the night skies with his hand-made telescope with his wife at home. He also enjoyed Schumann's music and Goethe's poetry until the time of his death.

E. HIEI and Y. UCHIDA