HIDA OBSERVATORY OF KYOTO UNIVERSITY

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I. Introduction

Hida Observatory is affiliated with the Faculty of Science, Kyoto University and located at 137° 18′ E longitude, 36° 05' N latitude and 1276 m above sea level in the mountainous area of Hida, the northern part of Gifu prefecture. One and a quarter hours drive will bring you to the Observatory from Takayama city, which can be reached from Nagoya, a two hours ride on an express train. Here one will find the panorama of the Japan Alps which includes such mountains as Mt. Norikura at 3000 meters above sea level. This unpolluted natural environment affords significant reseach activities at Hida Observatory.

The main observational instruments are a 65-cm refracter and a 60-cm reflector for night work, and 60-cm Domeless Solar Telescope (DST) and Solar Flare Monitoring Telescope (FMT) for solar observation. The overview of the Observatory is given in Figure 1.

II. Domeless Solar Telescope (DST)

The Domeless Slar Telescope (DST) of Hida Observatory was installed in 1979 (Nakai and Hattori, 1985). The telescope is designed to attain the highest resolution that can be expected from ground-based observations and considered to be one of the most advanced in the world. In fact, the operation of the DST has provided a number of new findings on the structure of active solar phenomena. These facilities are available to guest investigators not only from all over Japan but also from other countries as well.

The DST is particulary distinguished from the ones of traditional type in the following five ways as seen in Figure 1: (1) It is placed on top of a 18-m-high tower. (2) There is no extra floor on the top of the tower. (3) It is domeless. (4) The telescope is in a vacuum. (5) The surface of the tower is cooled. An example of high reslution picture of an active region observed with the Zeiss Hα Lyot filter of 0.25 $\AA$ bandwidth is given in Figure 3 ,where the width of a spectrograph slit at the center of the picture is about 1 second of arc. An example of high resolution spectrum of chromospheri fine structures is demonstrated in Figure 4.

II. Flare Monitoring Telescope (FMT)

Fig. 1. Overview of the Hida Observatory. The Domeless Solar Telescope, the domes of the 65 cm refracter and the 60 cm reflector are standing from front to back.

Fig. 2 (a). The overview of the dome of the Flare Monitoring Telescope.

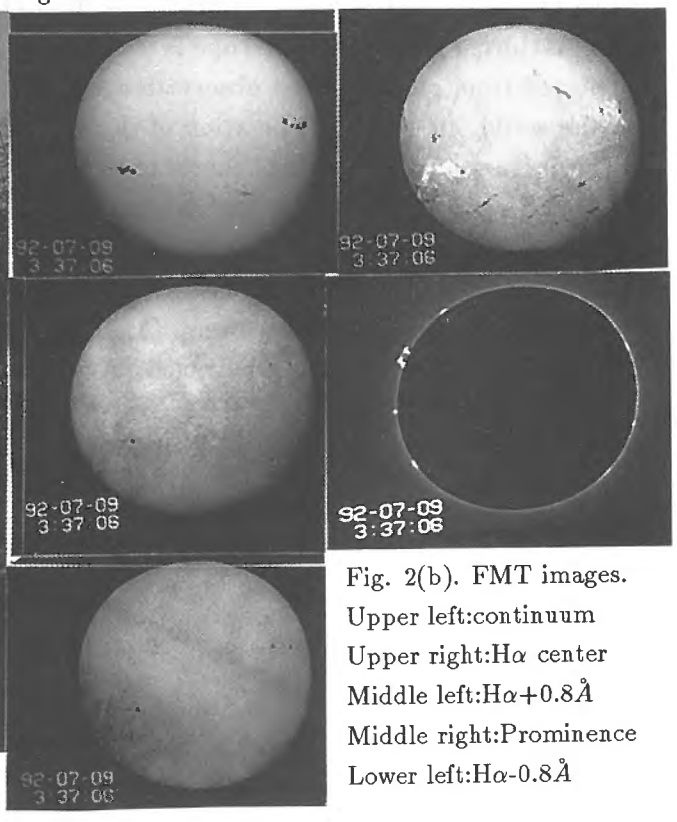

Fig. 2(b). FMT images.
Upper left:continuum
Upper right:Hα center
Middle left:Hα+0.8$\AA$
Middle right:Prominence
Lower left:Hα-0.8$\AA$

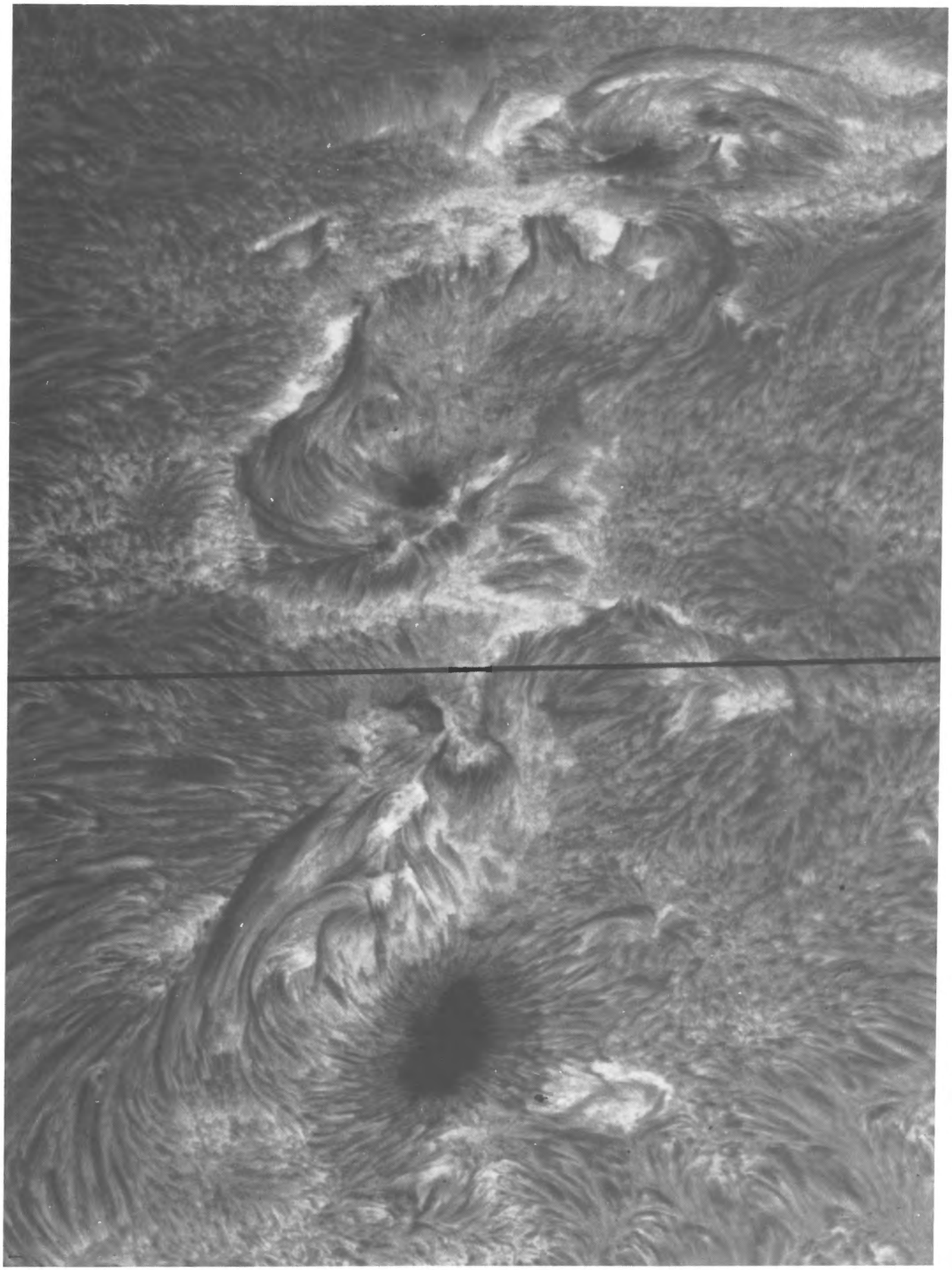

Fig. 3. An example of high resolution Hα image of an active region obtained with the Zeiss Lyot filter of Domeless Slar Telescope.

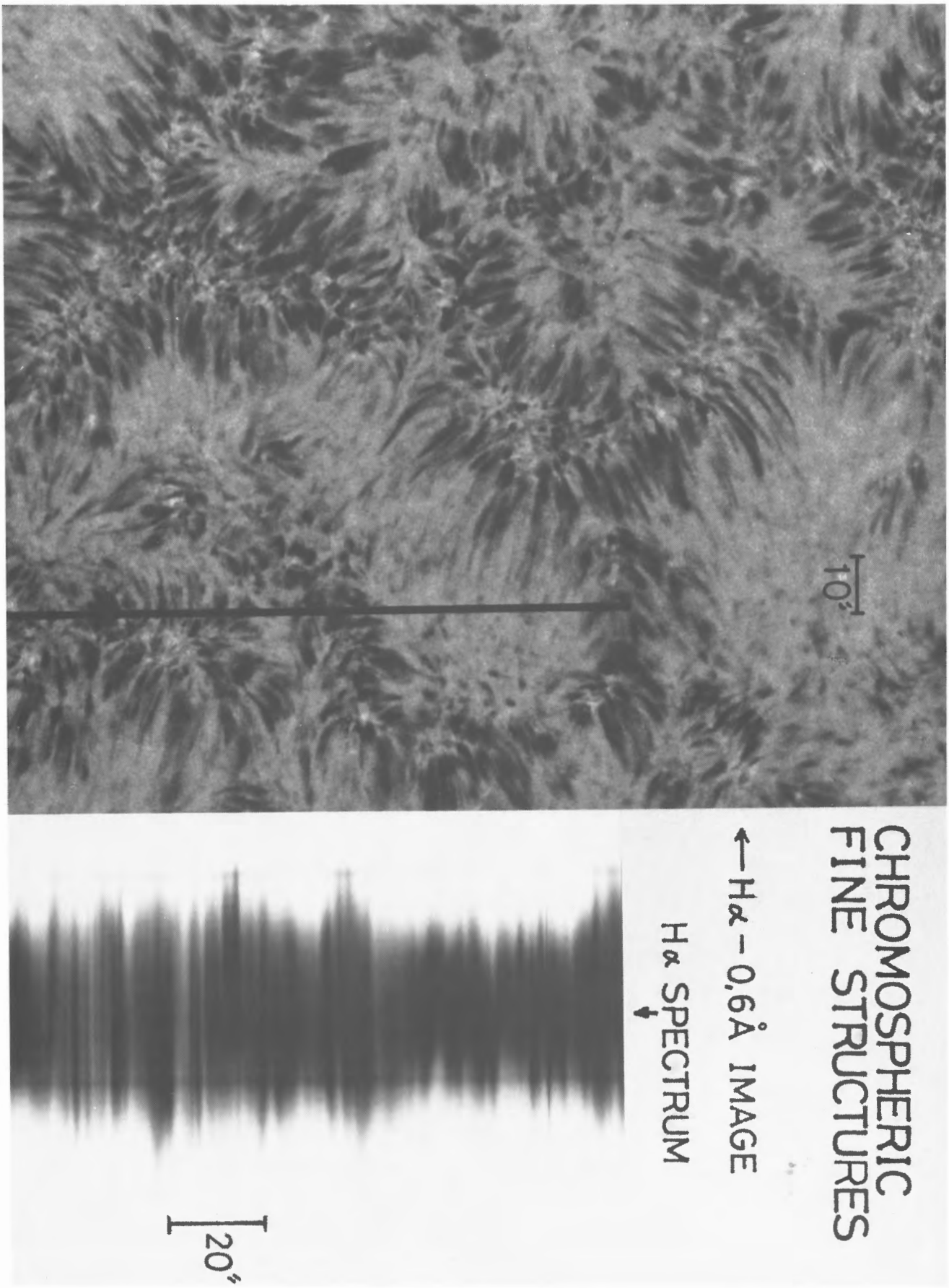

Fig. 4. An example of high resolution spectrum and filtergram of chromospheric fine structures obtained with the vertical spectrograph of DST.

The Flare Monitoring Telescope (FMT) was built to study the causal relation between solar flares, prominence eruptions, and the interplanetary and geomagnetic storms financed by the Japan STEP (Solar Terrestrial Energy Program) project (Kurokawa et al. 1992).

The overall feature of the dome of the FMT is demonstrated in Figure 2 (a). The FMT consists of six small telescopes, namely, four Full Disk Telescopes, one Prominence Telescope and one Photoelectric Guiding Telescope. They are assembles in a large fork arm which is driven with a telescope control unit. The bjective lens of each telescope is 64 mm in diameter. The four Full Disk Telescopes observe full solar images in four different wavelengths, those are, Hα line-center, Hα+0.8$\AA$, Hα-0.8 $\AA$ and continuum. The Prominence Telescope observes solar prminence outside the solar limb with two occulting cones and a Hα filter of 3$\AA$ bandwidth. These five solar images, whose examples are shown in Figure 2 (b), are continuously recorded with five CCD cameras and five time-lapse video-tape-recorders.

References

Kurokawa, H., Nakai, Y., Funakoshi, Y., Kitai, R. 1992, *STEP GBRSC NEWS* , vol.**2**, No.**2**, p.6.

Nakai, Y. and Hattori, A. 1985, *Memoirs of the Faculty of Science, Kyoto Univ.,* vol. **36**, No. **3**, p.385.