

New solar radio telescope in NICT - II

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Solar radio burst is one of the most important events for not only space weather forecasting but also investigating high-energy phenomena in solar corona. The GHz solar radio waves are synchrotron radiation emitted by high energy electrons at lower corona. On the other hand, the MHz solar radio bursts, especially type II and III bursts, are radiated via mode conversion of Langmuir waves excited by high energy electrons. These high energy electrons are accelerated at reconnection regions in solar flare and shock waves in solar corona. Therefore, MHz and GHz solar radio waves are closely related each other through the accelerated high energy electrons. So, wide frequency range (MHz to GHz) radio wave observations with high time resolution are required to comprehensively understand high energy phenomena in solar corona. We have been operating solar radio spectrograph called HiRAS for over twenty years in Hiraiso Solar Observatory, National Institute of Information and Communications Technology (NICT), but the system has been decrepit and radio wave environment in Hiraiso is getting worse. So, we have developed a new solar radio telescope in Yamagawa radio observation facility, NICT. The frequency range and time resolution in the system is 70MHz to 9.0GHz and 8 msec. In this presentation, we introduce situation in progress for our new solar radio telescope.

Keywords: Solar radio waves, Solar corona, Radio spectrograph, Space weather