Investigation of solar energetic particle events by developing a new solar radio observation system

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We have developed a new radio observation system in the HF to VHF band (20 to 150MHz) in the Zao observation station, Tohoku University. This system enables us to investigate fundamental plasma processes of particle acceleration and plasma environment with the existing solar radio telescope 'AMATERAS' in the radial distance of about 0.1Rs - 3Rs from the photosphere, and could contribute to disaster science/space weather research by enabling to obtain early information on occurrence of solar energetic particle (SEP) events through detection of solar type-II radio bursts. The new system will consist of wide-band antenna array and high resolution spectro-polarimeter. So far, daily monitor of solar radio waves has been started since last autumn using one set of stacked antennas, and additional sets have been constructed in this summer. In the presentation, we will introduce aim and current status of this investigation research with some discussion on the relation of observed solar type-II bursts and SEP events.