

Global e-VLBI project leading to moon-earth baseline VLBI observation of Jupiter's decametric radio emissions

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Jupiter is one of the most powerful radio sources at decametric wavelengths. The radio emission frequency range is from about a few MHz to 40 MHz. Jupiter's decametric radiation is considered to be the result of a highly complex interaction between Jupiter's plasma and its magnetic field. The physics of the Jupiter's radio emitting region has not yet been completely understood. The important parameter of this research is the coherent size of Jupiter's radio source, which can be determined by VLBI (Very Long Baseline Interferometry) observations. In Japan, LFAST (Lunar Low Frequency Astronomy Study Team) is proposing moon-earth baseline VLBI for investigation of Jupiter's radio source based on the moon lander project. This will be the first step of moon based low frequency radio astronomy. For this project many VLBI stations on the earth will be needed. We have a plan to construct a sophisticated e-VLBI global network for research of Jupiter's decametric radio source. This e-VLBI is based on extremely fast data sampler units and Internet connections between observation stations. The outline of this research project will be presented.