

New Frontier of Jupiter Decametric Radio Research

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Jupiter decametric radio emissions have been studied for a half century since their discovery in 1955. Many observational and theoretical works have been made by scientists. There have been many contributions to help in solving the problem of the mechanism of Jupiter decametric radio emissions. However the mechanism has not yet been fully understood because of its highly complex phenomena.

Japan has contributed to knowing the key parameters of Jupiter radio source by using the unique measurement method called **the modulation lane method**. By using this method we now know the emitting cone has a fixed opening angle and comes from active radio regions. This method opened the new frontier of Jupiter decametric radio research. This frontier stresses the detailed physical process involved in the emitting sources including the measurement of more precise source locations, sizes, and beaming structure (latitudinal shape). It also answers the question of the outstanding problem of the De effect. We still need to answer the question of the relationship between UV and IR aurora and Jupiter radio emissions.

Japan has started a feasibility study of a spacecraft mission to Jupiter and establishment of Very Long Baseline Interferometry (VLBI) between the Earth and the moon lander. Also an Internet Jupiter radio VLBI global network has been proposed as a future aid in establishing the moon-Earth baseline interferometry.

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