

Development of Jupiter Radio VLBI System over the Internet

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Frequency-time dynamic spectra of Jupiter's decametric radio emission display a complex structure on several different time scales. One of the characteristic spectral patterns on a time scale of a few tens of seconds are the modulation lanes discovered by Riihimaa in 1968.

We developed a model for the mechanism responsible for their production in which the free parameters can be adjusted to provide a very close fit with the observations. [Imai et al.,1992a,1992b,1997,2002]. This modulation lane method can be very powerful tool for the remote sensing of the spatial information of the Jupiter's radio sources.

We proposed the new Jupiter radio VLBI with the simultaneous modulation lane observations to study the fine structure of Jupiter's radio sources. Our VLBI system over the Internet for the Jupiter radio makes VLBI observation possible in real time by using JGN2, which is a next-generation experimental network on the Internet.

The VLBI system consists of the servers including the VLBI sampler board, and 10MHz Rb Oscillators locked by GPS system. The signal of Jupiter radio is filtered by the frequency range from 26 to 28MHz and digitized by using high order sampling technique without frequency conversion.

The development of this VLBI system will be presented.