

Development of Iitate Jovian radio spectrogram archive for a unit of integrated archives of multiple ground stations

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Jovian radio emission in decametric wavelength range (DAM, 20-40MHz) observed by ground stations and spacecraft has brought us various information on Jovian magnetospheric activity: The source field line of Io-related DAM is connected to Io in the inner magnetosphere. The energy of Io-related DAM is supplied by Io-Jupiter current system. The source field line of Non-Io-related DAM is connected to the outer magnetosphere. The intensity of non-Io-related DAM seems to be affected by the interaction between the outer magnetosphere and solar wind.

The merit of the ground-based observations is that high sensitivity antenna and high time resolution receiver can be employed without limitations of the equipment mass and downlink data rate, which often becomes issues in spacecraft observations. On the other hand, the demerit of the ground-based observation with single station is coverage: The ground station can not observe Jovian radio emission while the Jupiter is below the horizon. However, this demerit can be solved by combining datasets from multiple stations. Virtual Observatory (VO) could be a promising solution for such combined data analyses.

Wideband radio wave observation has been performed at Iitate station since 2000. The wideband radio spectrograms since 2004 have been already archived in CDF format. In addition, the metadata of them has been developed through the Inter-university Upper atmosphere Global Observation NETwork (IUGONET) project. They could be adapted to VO with a little modification. In the presentation, we will show the current status of the Iitate data archive and combined analysis results with Nancay Decametric Array (NDA) data as a sample use case.

Keywords: Jovian decametric radio emission, Virtual Observatory (VO), IUGONET project, Iitate observatory, Nancay Decametric Array (NDA), Metadata