

Investigation of global electromagnetic coupling from polar to equatorial ionosphere

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Kyushu university group operates global geomagnetic field observation through MAGDAS project and electric field observation by using multi-point FM-CW Radar from polar to equatorial ionosphere. Based on these observational data, we investigate global electromagnetic coupling from polar to equatorial ionosphere, including magnetosphere-ionosphere coupling at polar region, formation of global ionospheric current system, vertical coupling between atmosphere and ionosphere, day-side and night-side electromagnetic coupling of plasma dynamics around dip equator, global distribution of ULF pulsations, diagnoses of plasma sphere by using FLR. We are also working on theoretical research for clarifying above electromagnetic coupled system, and feed-back effect of ionospheric dynamics to magnetospheric dynamics. In this talk, we will introduce progress and new direction of our research project.

Keywords: Polar equatorial electromagnetic coupling, atmosphere-ionosphere-magnetosphere vertical coupling, global obserbation