

The Utilization of Equatorial Atmosphere Radar (EAR) and Global Precipitation Climatology Project (GPCP) in Indicating of Rainfall Intensity over Kototabang, West Sumatera, Indonesia

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This study is mainly concerned to the utilization of the Equatorial Atmosphere Radar (EAR) as one of the most important giant radar at the equatorial region. This radar is located at Kototabang, West Sumatera, Indonesia as a collaboration project between Research Institute for Sustainable Humanosphere (RISH), Kyoto University, Japan and the Indonesian National Institute of Aeronautics and Space (LAPAN). There are many studies using this radar, one of them is indicating of rainfall intensity at Kototabang and surrounded area. We selected this region, since Kototabang as one of the most important site for the *ground-truth* of the upcoming of Global Precipitation Measurements (GPM) satellite next.

The preliminary result of this radar is already done by Fukao *et. all* (2003). A similar study is also already done by Renggono *et. all* (2001), but they used the Boundary Layer Radar (BLR). Since, this radar is mainly used to observe wind velocity structure in three dimension, we wish strongly to give more attentions to the characteristics of horizontal-vertical wind velocity structure, especially during wet and dry season. Since we don't know exactly also when wet and dry season coming over this area, we applied the monthly of Global Precipitation Climatology Project (GPCP) data for twenty five years observation over Sumatera Island (1979-2004). Then, we found that wet and dry season over Sumatera Island, especially on the EAR site are occurred in November and July, respectively.

Then, we analyzed the daily of EAR data set started from January to December 2002 with good time and spatial height resolution. We concentrated on November and July, 2002, respectively. In the same time, we analyzed the Optical Rain Gauge (ORG) also to investigate the rainfall intensity of this period. We found a good agreement between EAR and ORG data, especially on determining when the rainfall over Kototabang is started and finished. From those figures we can see that rainfall usually occurred when the horizontal-vertical wind velocity variations larger than normal condition. This is occurred not only in wet season, but in dry season also. We are still developing this study, since EAR could not distinguish definitely the differences between continued rainfall and discontinued rainfall. We need more investigate the longer of EAR data analysis and most probably the BLR data also to obtain the significant statistical analysis since we assume that rainfall intensity over Kototabang is mainly coming from the convective cloud activities from this area only. We neglect affects from another rainfall that mostly comes from the surrounded area of Kototabang station.

Keywords: EAR, GPCP, ORG, GPM and Kototabang