

## An observational study on lightning activities over the coastal region of Sumatra, Indonesian maritime continent

\*Jun-Ichi Hamada<sup>1</sup>, Jun Matsumoto<sup>1,2</sup>, Shuichi Mori<sup>2</sup>, Masaki Katsumata<sup>2</sup>, Fadli Syamsudin<sup>3</sup>, Kunio Yoneyama<sup>2</sup>

1. Faculty of Urban Environmental Sciences, Tokyo Metropolitan University, 2. Japan Agency for Marine-Earth Science and Technology, 3. Indonesian Agency for the Assessment and Application of Technology

Indonesian maritime continent (IMC) is an archipelago of large and small islands with complex terrain surrounded by warmer sea water. Convection and lightning activities over the IMC is very active in the tropics and acts as a global heat source of large-scale atmospheric circulation. In this study, we investigate lightning activities over the IMC by using worldwide lightning location network (WWLLN) data and sounding and weather radar data of pre-YMC (Years of the Maritime Continent) campaign observation on and off western coast of Sumatra, IMC in November-December, 2015.

As described in previous studies, diurnal cycle of lightning with clear land-sea contrast is predominant over the IMC. Frequent lightnings are observed over the Sumatra in the afternoon/evening, whereas the night/early morning peaks are predominant in the off coastal region of southern Sumatra and Malacca straight. Intra-seasonal variations of lightning are also observed in relation to the phases of MJO (Madden-Julian Oscillation). The causes of the spatial and temporal lightning variability in the coastal heavy rainfall region will be discussed by using in situ observation data. In addition, we will introduce an ongoing lightning observation project in Philippine, one of the maritime continent.