

The re-analysis of the EM data associated with the 2014 eruption, Aso volcano.

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On Aso volcano, magmatic eruption was occurred at Nov. 2014, first time in 21 years. Around the Nakadake 1st crater, which is the most active crater of Aso volcano, we conducted continuous geomagnetic field observation (since 1991). From these observations, we obtained the data which suggest the subsurface thermal state had drastically changed before the beginning of the eruption. From the continuous geomagnetic field (total field) observation, significant temporal change was observed. This temporal change began from Oct. 2014, one month before the eruption. The sense of this change is demagnetization and it suggests subsurface temperature was increased. This change was continuing to the end of Apr. 2015. In our study, we re-analysed the data of the temporal change of total field on the period of Oct. 2014 to Apr. 2015. In this study, we tried to decompose the observed change into regional geomagnetic change, periodic change and smoother trend with removing the noise influence based on the method proposed by Hujii and Kanda (2008). As the result, we obtained a clear trend which means the total field change related to the volcanic activity in very high resolution. From this result, it is possible to obtain important information about the magma movement related to the eruption of 2014. In our presentation, we will show the detail about our observation data and results of the data decomposition as well as the model for the movement of subsurface heat sources which is derived by the equivalent source analysis.

Keywords: geomagnetic total field, volcano-magnetic change, thermal demagnetization