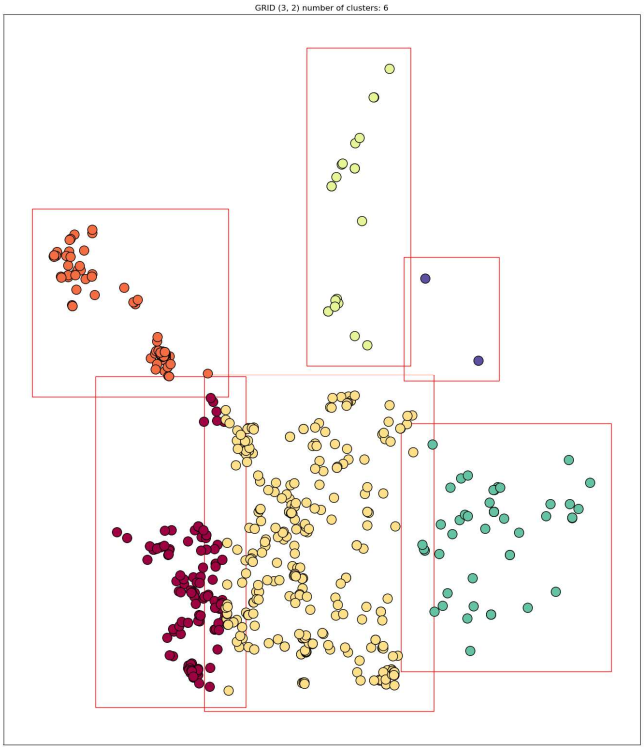

Fig. 8 Clustering result of GRID(3,2)

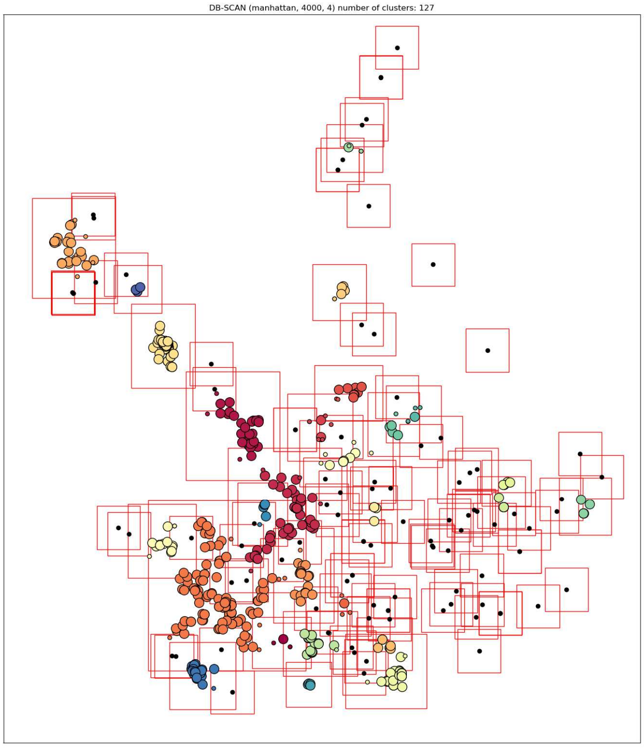

Fig. 9 Clustering result of DBSCAN(4000, 4)

IV. CONCLUSIONS

In this paper, we have studied constructing meteorological fields based on a spatial clustering for regional vulnerability assessment. In the experiments, DBSCAN-based methodology has a total area of only 19.5% compared to bruteforce methodology. The DBSCAN algorithm showed good performance on the average of the overlap ratio, and utility ratio for clustering results. Through this study, it was possible to perform clustering for chemical handling companies that affect each other.

If a vulnerability assessment study is conducted using this, it will be possible to construct a scalable system using parallel processing of distributed environment becomes possible. In addition, since the cluster is composed of the minimum bounded rectangle (MBR), if the overload of the computation is additionally caused due to the excessive size of the meteorological field, the intensity of the computation may be reduced by partitioning the MBR.

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