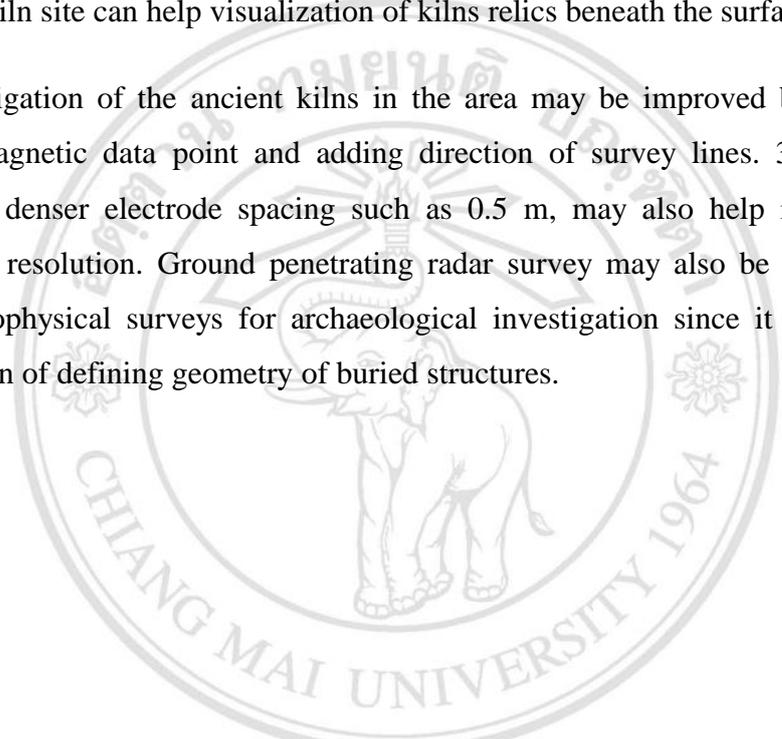# CHAPTER 5

Conclusions

Magnetic and 3D resistivity data in the study area were interpreted to reveal unknown locations of kiln structures at the Intakhin kiln site, Intakhin Subdistrict, Mae Taeng District, Chiang Mai Province. The interpretation of magnetic data reveals that kiln features correspond to magnetic properties of rocks in the study area. Derivatives and analytic signals were enhancements in addition to the magnetic data. Using these techniques improved data resolution.

In Areas 1 and 2, strong magnetic anomalies are associated with kiln bodies in vertical gradient data and the boundary of the kiln in horizontal derivative data. Anomalies of analytical signal maps clearly defined the edges of kiln bodies. The 3D electrical resistivity data were inverted to create a 3D inversion model, in order to exhibit kiln structures. The inverted resistivity data were divided into horizontal and vertical slices to determine values and appearances of the kiln anomalies. The resistivity values of the kilns were relatively high, where in Area 1 the resistivity was $50 - 100$ Ohm.m, and Area 2 the resistivity was $250 - 350$ Ohm.m. The dimensions of anomalies are approximately 2x3 m, which corresponds to the actual size of the previous excavated kilns. Kiln structures were more clearly traceable in 3D volumetric resistivity values beyond transparency in the visualizations. These techniques are thus a powerful tool to help mapping kiln locations. These techniques can therefore be applied to further locate kilns within the same study area. The anomalies of area 1 were located in the southeast and the northwest, at depths of 0.5 - 1.5 m, at position 497880E/2121635N. The anomalies in area 2 were located between the southeast to the northwest at depths of 0.5 - 1.5 m at position 497814E/2121660N.

Although the anomalies from buried magnetic noise in the shallow subsurface that can be seen on the magnetic data make the interpretation more difficult, the dimension of magnetic anomalies appear to be the same size as the kilns. The 3D resistivity data were measured in 3D manner, therefore the data provide a higher resolution for determining the main features of the kilns. The positions and dimensions of magnetic gradient anomalies can be correlated with the positions of the resistivity anomalies, thus the integration of magnetic gradient survey and 3D resistivity survey in the Intakhin kiln site can help visualization of kilns relics beneath the surface.

Investigation of the ancient kilns in the area may be improved by increasing density of magnetic data point and adding direction of survey lines. 3D resistivity surveys with denser electrode spacing such as 0.5 m, may also help improve data interpretation resolution. Ground penetrating radar survey may also be an additional option of geophysical surveys for archaeological investigation since it provide very high resolution of defining geometry of buried structures.