

A GPS Navigation Tool for Field Surveys in the Humanities: Prototype Experiments in Northeast Thailand

*NAGATA Yoshikatsu, Graduate School for Creative Cities, Osaka City University, Japan

Walailak SONGSIRI, Lek-Prapai Viriyapant Foundation, Thailand

nagata@media.osaka-cu.ac.jp

We have been developing an integrated spatial information system for social archaeology in Northeast Thailand, namely EcoNETVIS. This provides academic information on about one thousand archaeological sites with digitized images of topographic maps and aerial photographs through its Web page. In addition, we have started to develop a prototype field tool using a notebook PC and a GPS antenna which supports navigation to sites. This tool allows the user to superimpose aerial photographs and topographic maps of a site and to transpose layers of a base image and an overlay image. One important point to notice which is not widely known among local researchers in the humanities is that the geo-coordinate datum applied to topographic maps from the 1950s is different from WGS -84 datum used as a standard in most GPS receivers. The two differs by more than 400 meters. Locations of geographic material based on a legacy geo-coordinate datum must be adjusted to the standard datum before overlaying GPS information to provide a reliable navigation. Another important preparation to use this tool is to identify the location of aerial photographs from the 1950s as accurately as possible, since the flight paths shown on their index maps only allow us to locate them roughly. Aerial photographs have rich information for field surveys. For example, ancient river channels are not drawn on topographic maps but can be easily identified in aerial photographs. Several field experiments proved the effectiveness of our tool not only in navigating easily and accurately to ancient sites but also in understanding their wider geographical surroundings.