



GIS Programs for Hand-held Computers

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By John Nowatzki, Geospatial Specialist
NDSU Extension Service

Hand-held computers, often called PDA's, provide users with opportunities to have real-time GIS/GPS in field situations. GIS (geographic information systems) software programs are computerized mapping programs used to display maps and other spatial data on computer monitors. The portability of hand-held computers facilitates outdoor use, and the addition of GPS (global positioning system) signals allow users to display maps with the real-time position shown on the maps.

There are several GIS software programs available for hand-held computers; some programs are written for specific uses and others are more general and have broader applications. Hand-held computer users find the programs vary widely in capabilities, ease of use, and applicability to specific uses. When choosing a GIS software program for a hand-held computer it is important to remember the field-use features you need for your application as well as the storage format for the data and how the data can be transferred to desktop computers. Many users collect spatial data in the field so they can use it for management decisions later, usually in a software program on an office computer.

Farmers use handheld computers with real-time GPS for many jobs including marking field and area boundaries, displaying yield data and remotely sensed images in the field, and as controllers for variable rate application equipment and guidance equipment. Some of the hand-held GIS programs include databases of crops, weeds, and crop inputs to facilitate dropdown menus that make field data collection more convenient.

Several GIS programs for hand-held computers are designed specifically for farm use including AgGPS® EZ-Map, Pocket DLog, and Site Mate. Others such as ArcPad and HGIS are designed for general use, but have features that make them very useful for farm and other industry-specific uses. I will evaluate several GIS programs for hand-held computers during the next weeks, beginning with ESRI's ArcPad.

ArcPad operates on Windows operating systems including Pocket PC and Windows CE. ArcPad uses the ESRI shape file format both to display GIS layers and to collect data. It supports MrSid, JPG, BMP and PNG image formats. Data collected with ArcPad is versatile because most GIS desktop programs support shapefiles. ArcPad supports NMEA, TSIP, Earthmate and PLGR GPS data formats. The NMEA format is a standard GPS data protocol format. The other GPS formats are proprietary formats of companies that sell GPS equipment.

ArcPad's screen display includes a position window that indicates the number of GPS satellites used, the signal strength from each one. The position window also displays the position coordinates, speed, elevation, bearing and the estimated position accuracy. The position coordinates can be set to display in several coordinate systems.

Since ArcPad is designed as a general use GIS program more learning is needed to use it than other hand-held GIS programs designed for specific industries. For example, creating layers involves a four-step process that must be done before the user can start collecting data. ArcPad can be altered to fit specific applications. Even though ArcPad requires learning some GIS software skills it is a good choice for collecting and displaying spatial and image data, and users willing to take the time to learn to use it will appreciate its many functions and versatility. ArcPad costs approximately \$400.