

planning a far more critical element than it had been previously. The potential for errors inherent in manual calculation of waypoint coordinates and detailed fuel usage projections increased the level of risk for these projects.

The factors mentioned above, combined with the widespread availability of powerful personal computers with high quality graphics capabilities, led Intera to develop MISSION, a software package designed to automate all mission and flight planning tasks. The capabilities of the MISSION package were later expanded to include modules for in-flight tracking of mission performance and post-flight comparison of planned, reported, and actual data acquisition. These modules are not described in the current paper.

The remainder of this paper discusses the general hardware requirements and software design goals of the MISSION system and a detailed description of the capabilities of the various components.

HARDWARE REQUIREMENTS AND SOFTWARE DESIGN

Designed for use by both field and office based personnel, MISSION operates on a variety of MS-DOS based personal computers. Minimum system requirements include a hard disk, numeric coprocessor, and graphics capability. Intera uses MISSION on computers ranging from 8088 based laptops with low resolution graphics to powerful 80386 desktop machines with colour VGA graphics. Full mouse support is provided, however, a mouse is not required to use the software effectively. MISSION produces two types of output: text based reports such as costing summaries and flight plans, and graphical map representations such as ground coverage and flight routings. Text based output can be viewed on the screen, printed with any PC compatible printer, or stored in DOS text files which can be imported into word-processing software. In addition to screen display, graphics output can be produced directly on Hewlett-Packard plotters or other devices which can interpret Hewlett-Packard Graphics Language (HPGL) commands, such as the Hewlett Packard LaserJet III. Graphics output can also be written to text files, from which it can be imported into a variety of word-processing and desktop publishing packages.

MISSION is intended to be used by marketing staff, project planners, managers, and pilots. It is a tree-structured menu-driven system, designed to be "user-friendly" and accessible to all users. Each menu deals with logically distinct data or processes. All menus appear in separate windows on the screen. These windows are nested to provide a visual indication of the menu tree structure. In addition, there is a description of every menu available through on-line help which can be viewed at any time with a single key-press. A common criticism of menu based systems is that they slow down the more experienced user. To avoid this pitfall, MISSION was designed so that many of the more frequently used menus could be accessed with "short cut" keys.

MISSION PLANNING

The Mission Planning program (MP) is used to specify the sensor(s) and sensor geometry to be used on a project and the ground coverage to be attained. MP is designed to be used