

APPENDIX B

MISSION: AIRBORNE REMOTE SENSING PROJECT PLANNING SOFTWARE

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ABSTRACT

Intera has developed an IBM-PC compatible based software product for airborne remote sensing project planning. The software, called MISSION, assists in both planning and operational aspects of airborne remote sensing data acquisition projects. MISSION includes two modules which automate the following tasks:

- 1) Mission Planning - sensor and sensor geometry parameter definition, determination of data acquisition lines to achieve desired ground coverage.
- 2) Flight Planning - integrating specified data acquisition lines with takeoff, landing, and alternate airport data and aircraft characteristics.

Intera has used MISSION to support all phases of remote sensing projects in ice-reconnaissance, satellite simulation, radar mapping, geophysics, search and rescue and infrared survey application areas.

INTRODUCTION

Intera has been conducting and managing airborne remote sensing data acquisition projects for over 15 years. Sensors that have been used include: cameras, infrared linescanners, various geophysical sensors, single side-looking synthetic aperture radars (SARs) and dual sided SARs and side-looking airborne radars (SLARs). These sensors have been mounted on platforms ranging from single engine Cessnas to a Challenger jet. Application areas in which Intera has been involved cover the entire range of airborne remote sensing: traditional air photo, infrared heat loss surveys, forest fire mapping, geophysics, radar terrain mapping, ice surveillance and patrol, satellite simulation research and development, and search and rescue.

It became apparent to Intera several years ago that traditional manual mission planning methods were time-consuming and inaccurate, being based on drafting data acquisition lines or ground swaths on a map and interpolating coordinates from the map grid. The use of side-looking SARs further complicated the process by introducing more complex sensor geometries where the flightline (the aircraft track) is shifted sideways from the image line (the centre of the sensor ground swath). Furthermore, the introduction of high performance jet platforms operating in remote areas made the flight planning component of project