AARIS

Automated Airborne Remote Information System

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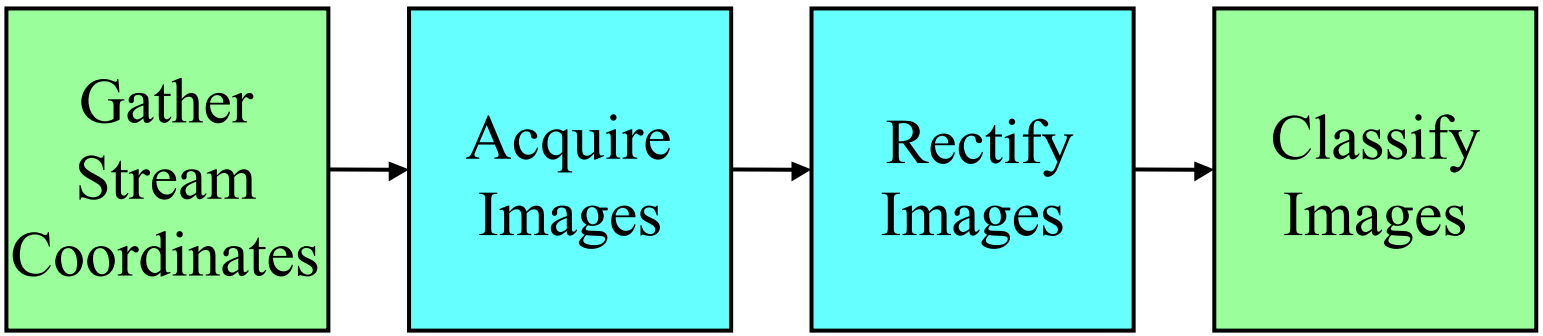
AARIS - Automated Airborne Remote Information System

- **Automated**
    - Low Cost
    - Quick Turn
- **Airborne Remote**
    - Vertical Color Digital Images
    - 0.25 to 2 m/pixel
- **Information System**
    - Orthorectified/Georeferenced Images
    - Database Files for Images to Ease Use and Cataloging
    - No Copyrights
        - Use each image for multiple uses without restriction

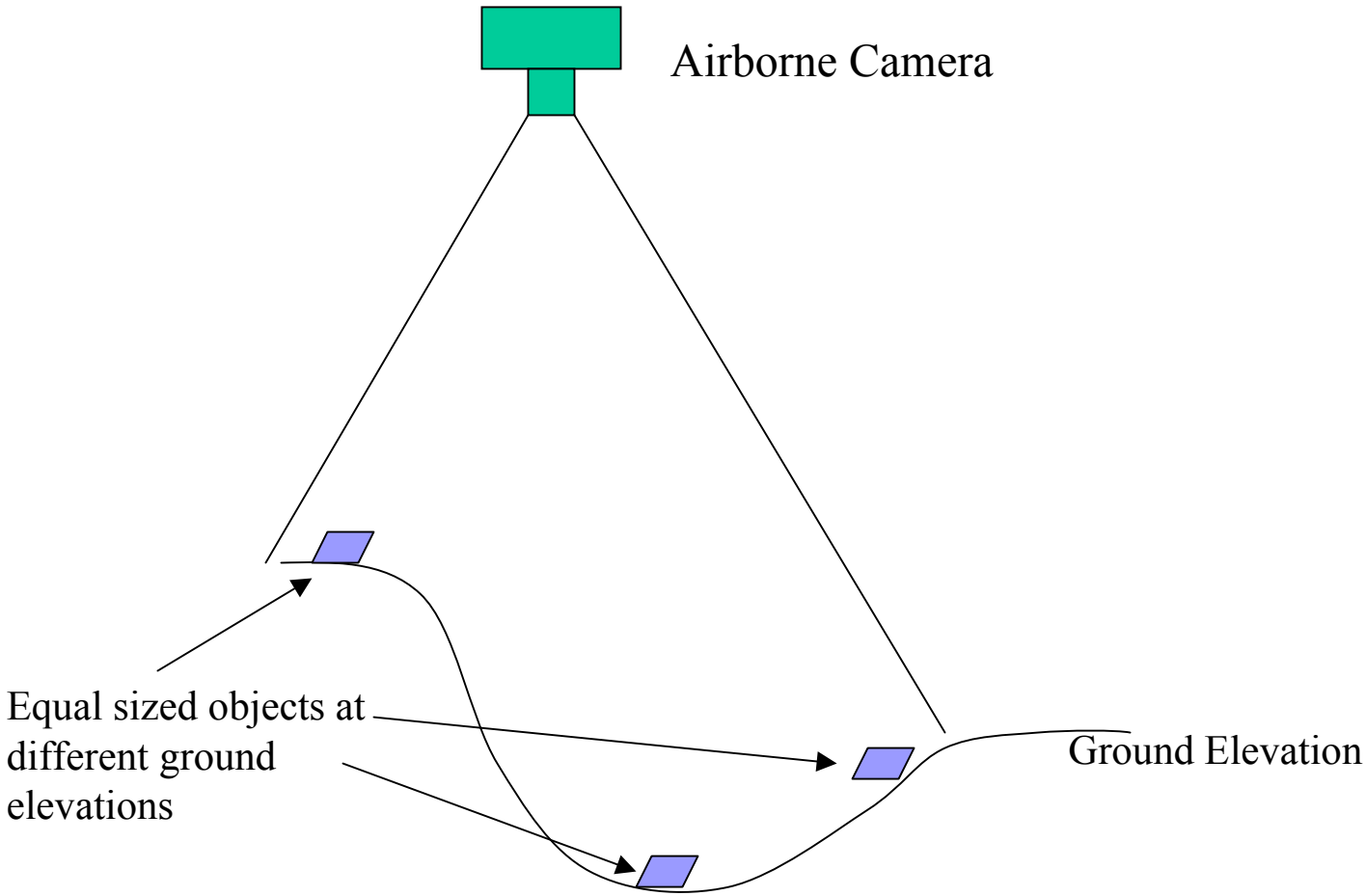
AARIS - Automated Airborne Remote Information System

- **History**
  - Initial use 1997 with film camera
  - Converted to digital camera 2002
  - In process to add GYRO and full automation
- **Users**
  - DOGAMI (1998 - 2003)
  - ODA (1999, 2001)
  - EPA (2000)
- **Future**
  - Seek niches where AARIS is appropriate

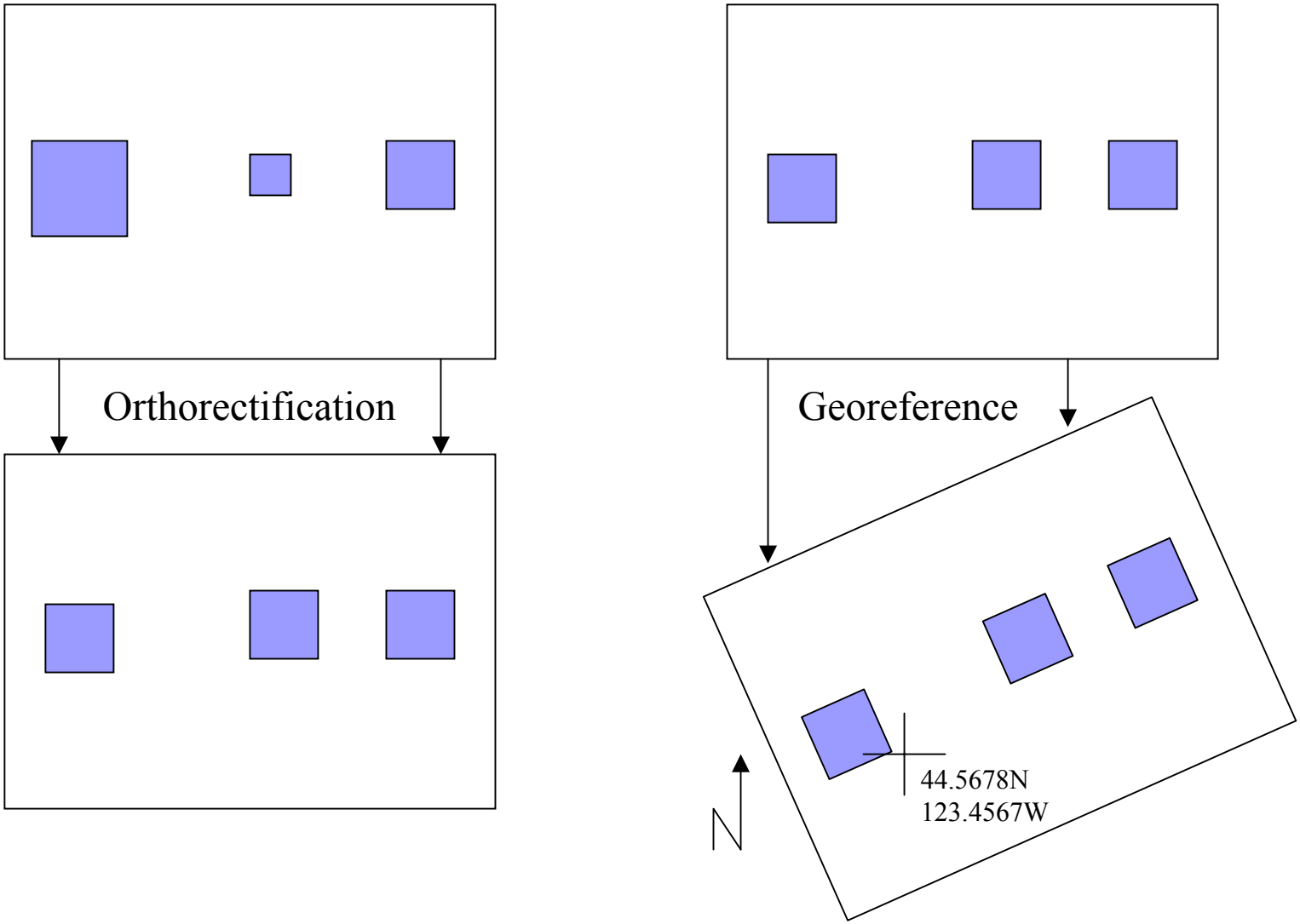
Remote Sensed Data Acquisition Process



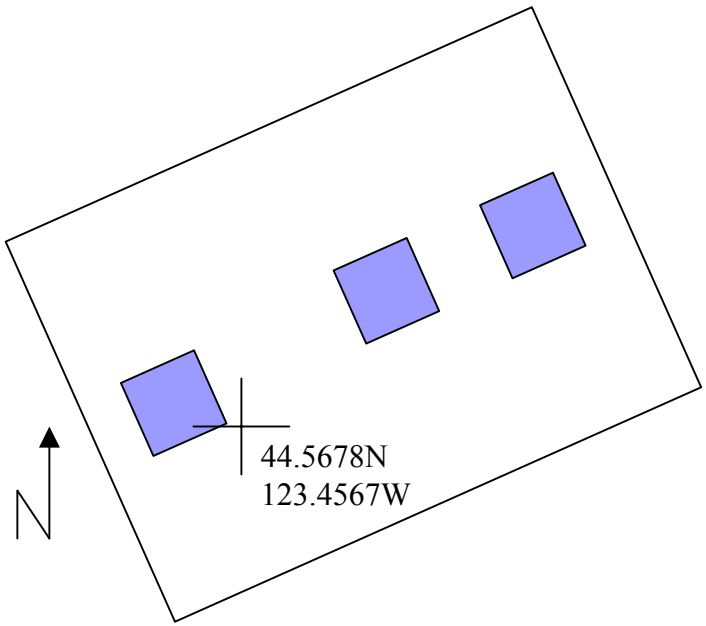
Converting 3D to Accurate 2D Images

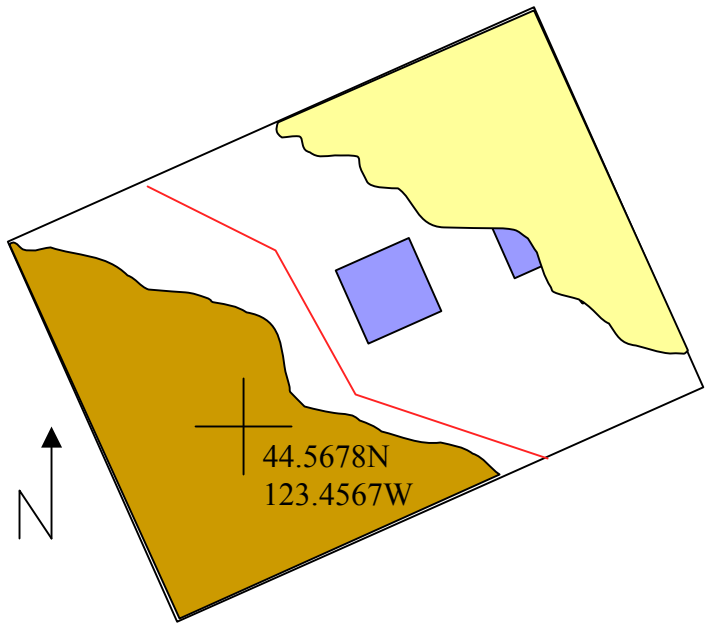


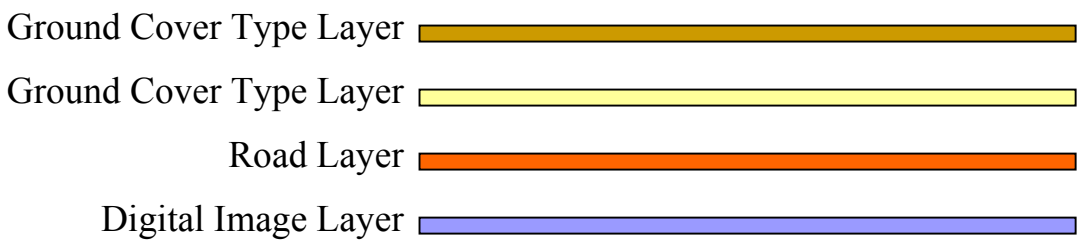
Converting to Orthorectified and Georeferenced Images



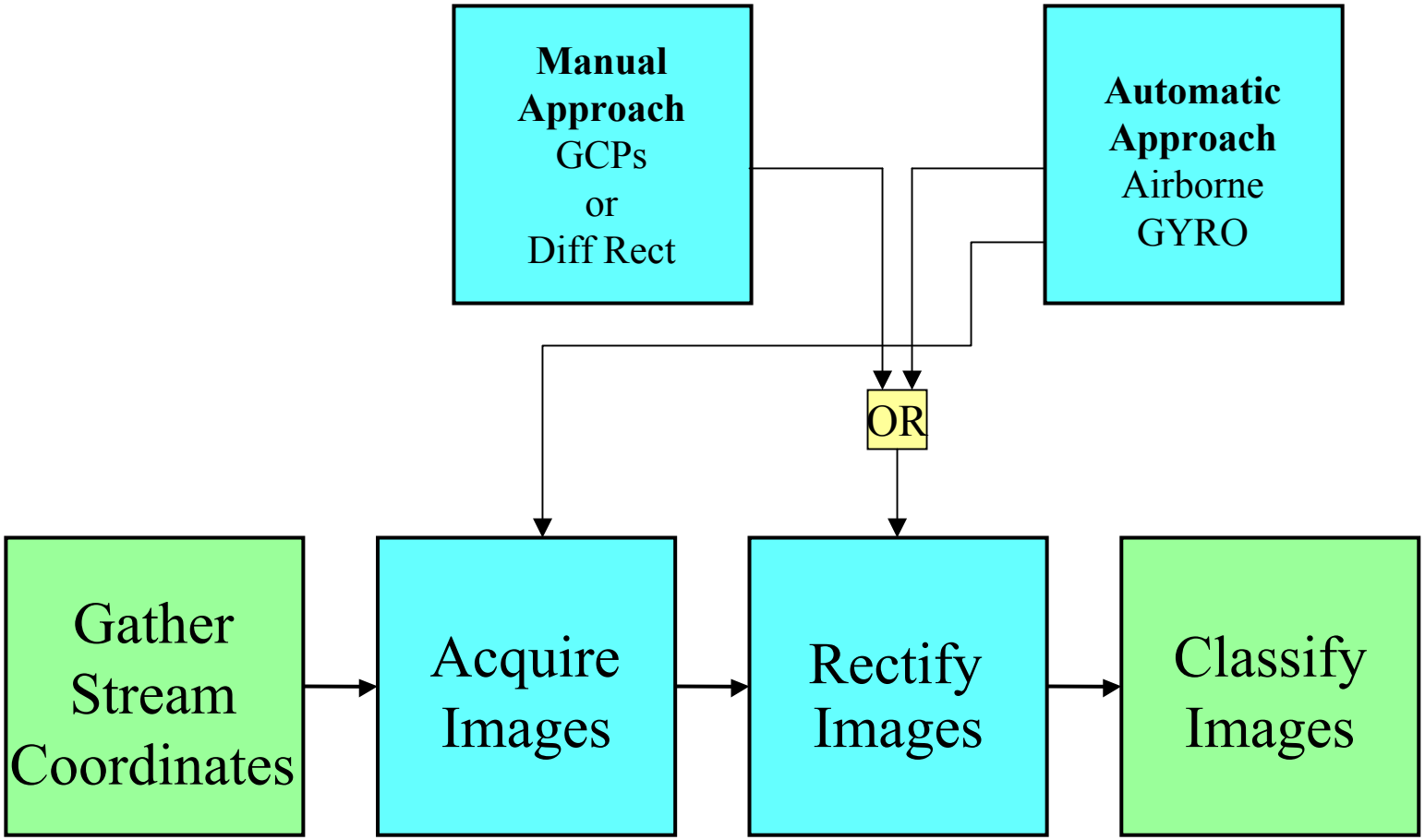
Using Rectified Images with GIS Layers



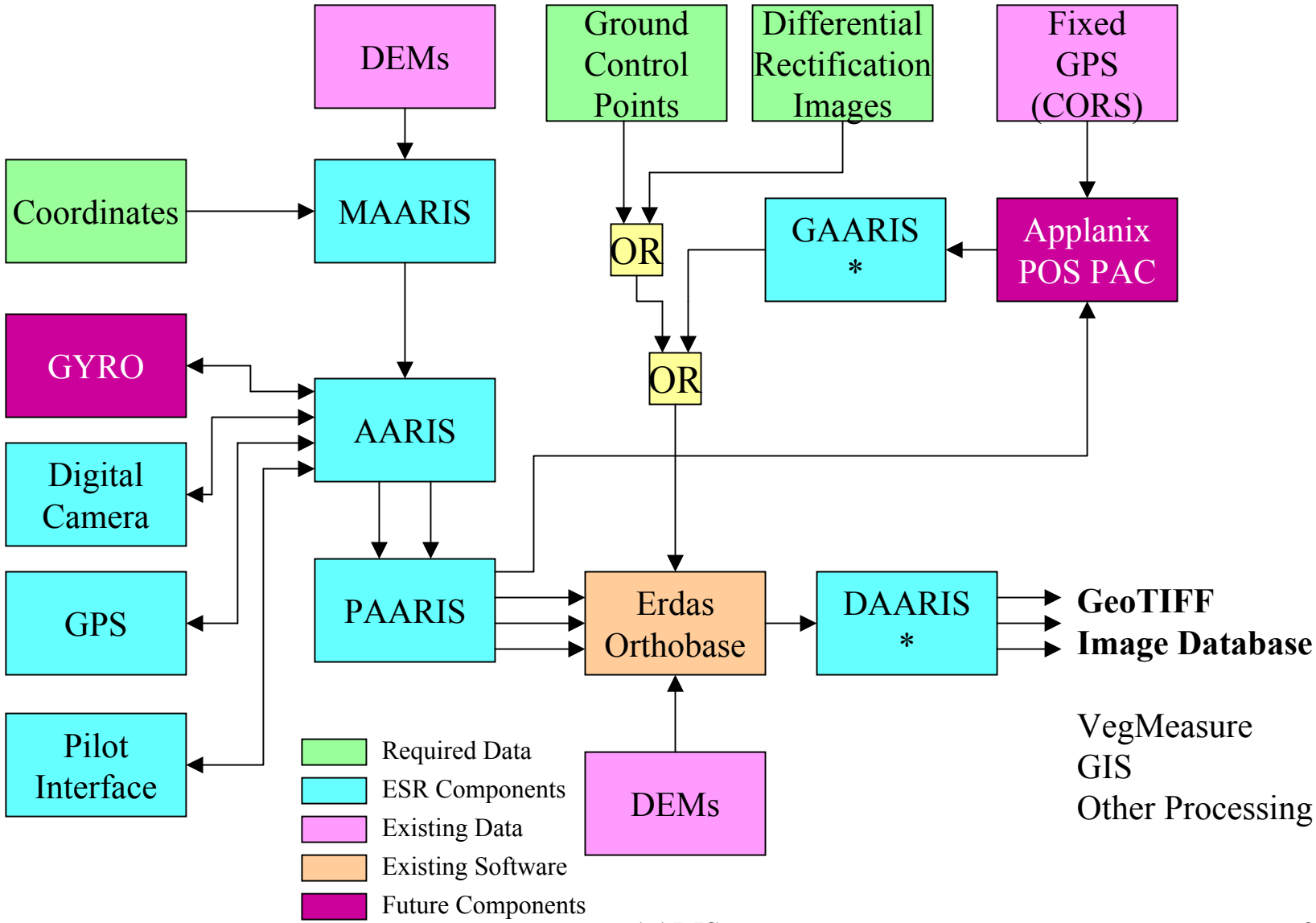




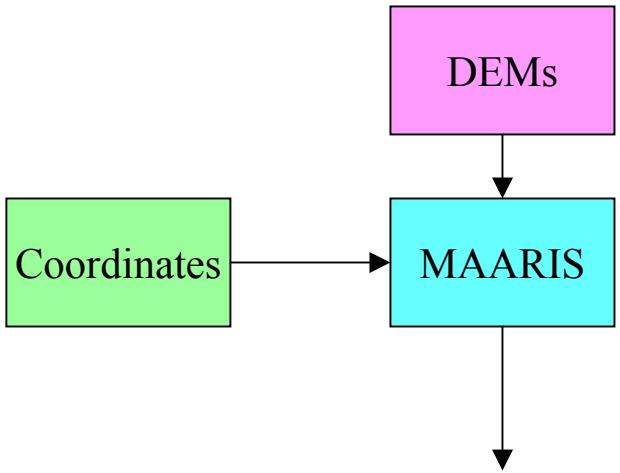
Manual or Automatic Rectification



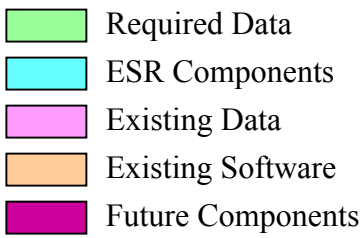
AARIS Components



Preflight Planning



MAARIS
Map software for
preflight planning.



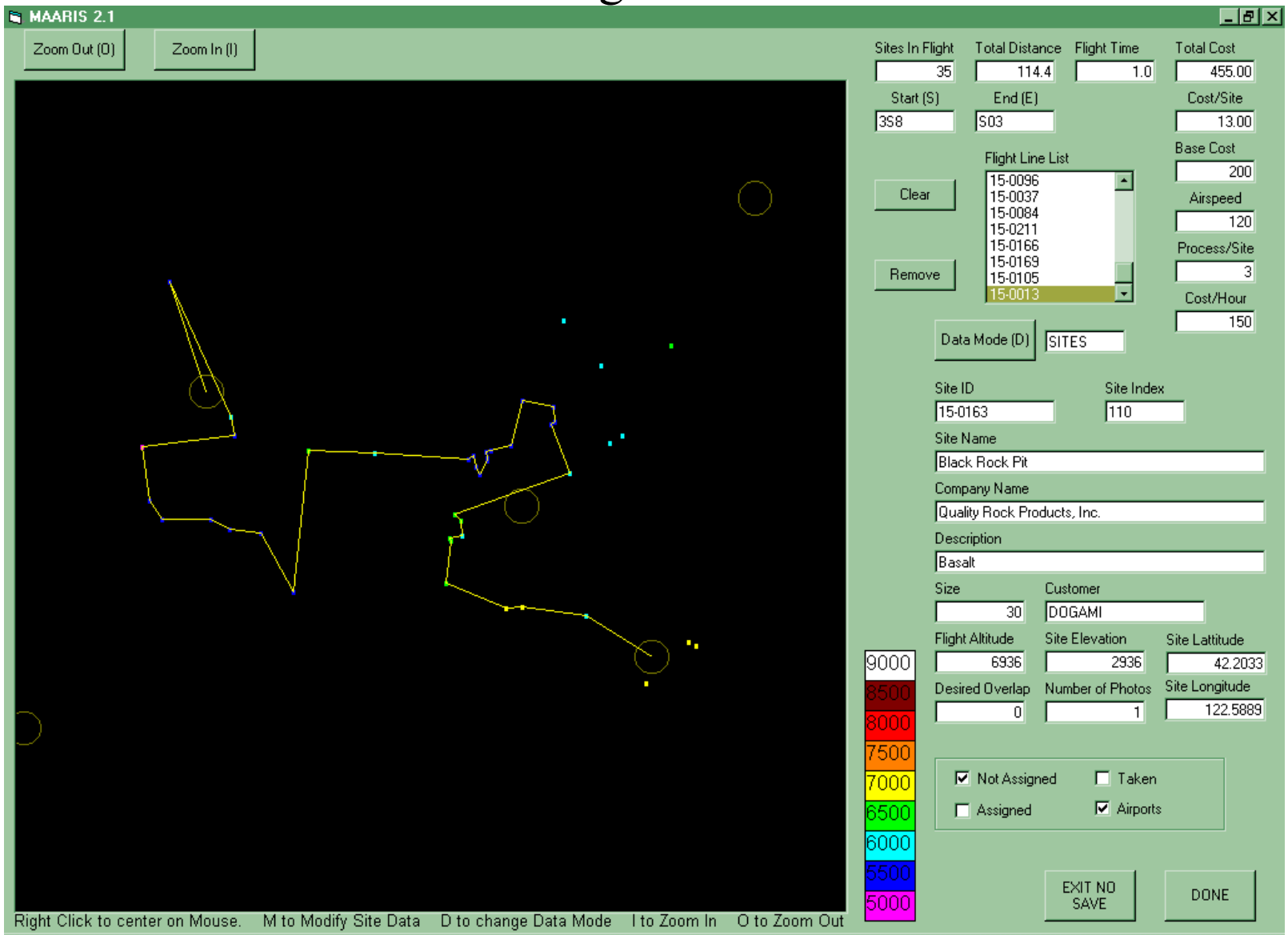
1) Supplied coordinates define site location.

2) DEMs supply site ground elevation.

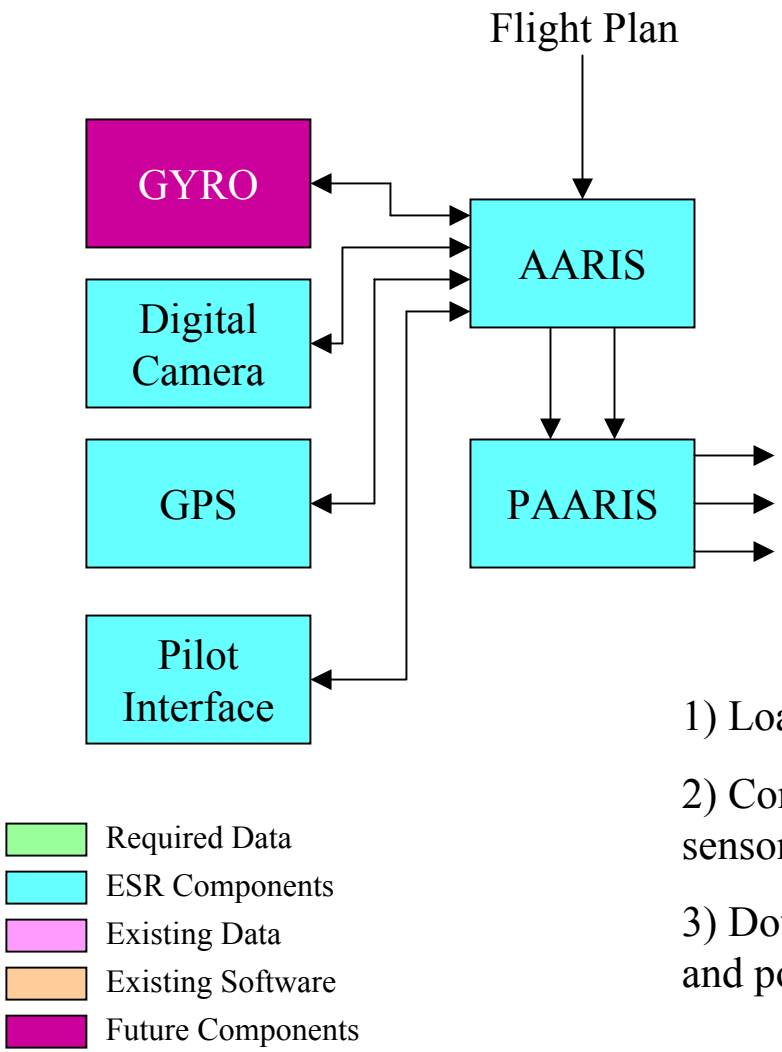
3) MAARIS is a graphical map program that simplifies flight planning.

4) MAARIS provides flight plan data to AARIS.

MAARIS Flight Plan Screen



Airborne Data Acquisition



AARIS
Automated Airborne Remote Information System

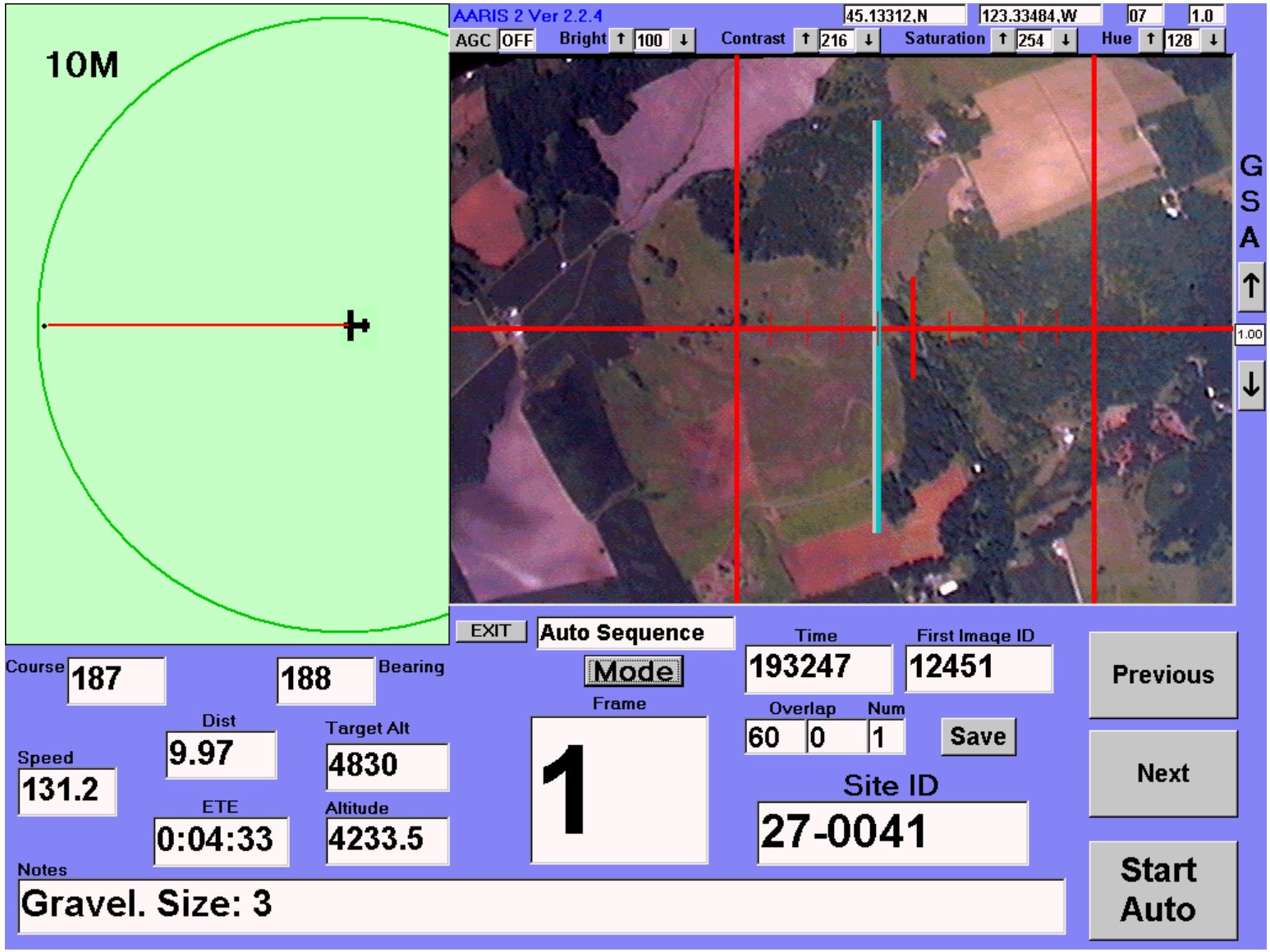
PAARIS
Post flight software to reformat data and prepare it for the next steps.

1) Load flight plan data.

2) Conduct flight acquiring images and all sensor data.

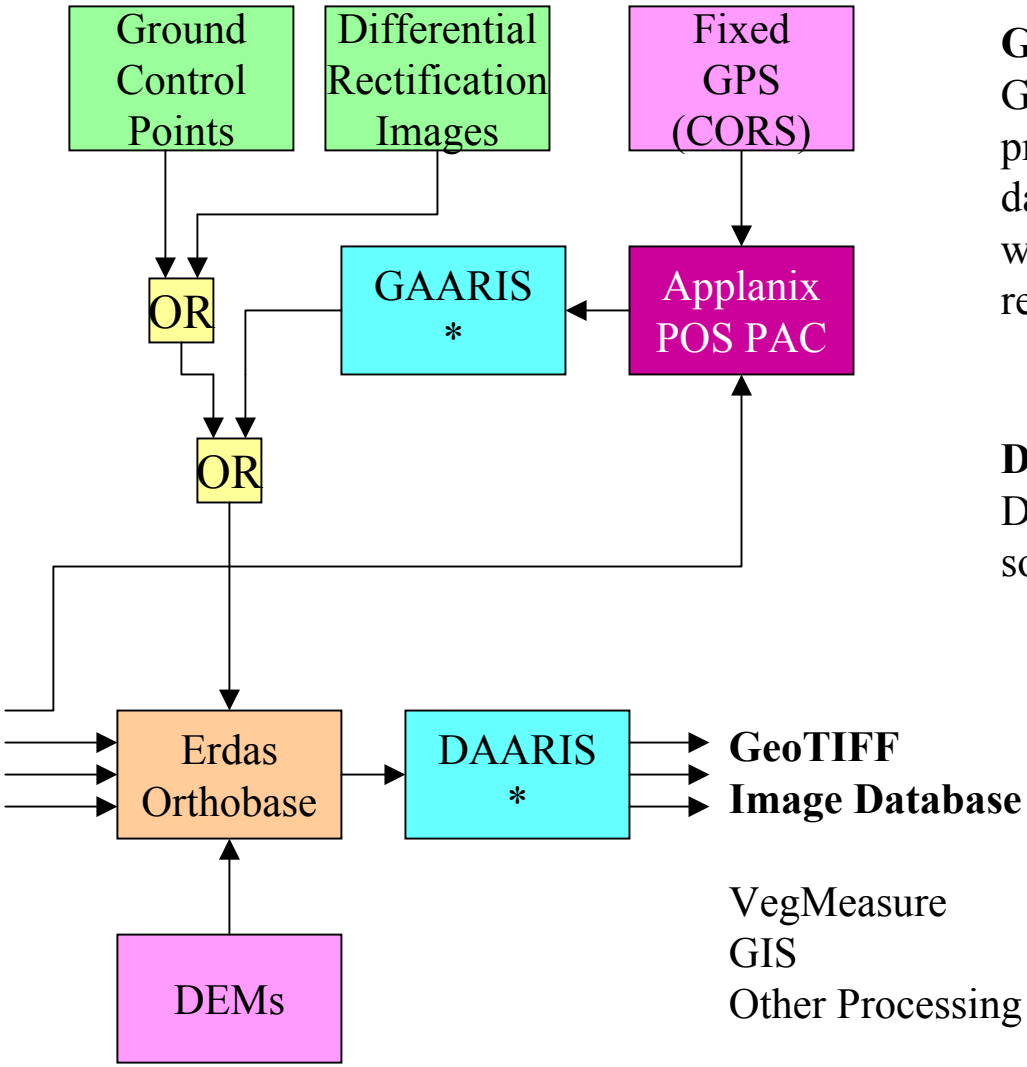
3) Download all data and images from aircraft and post process to prepare for next steps.

AARIS Flight Screen



AARIS System in Aircraft

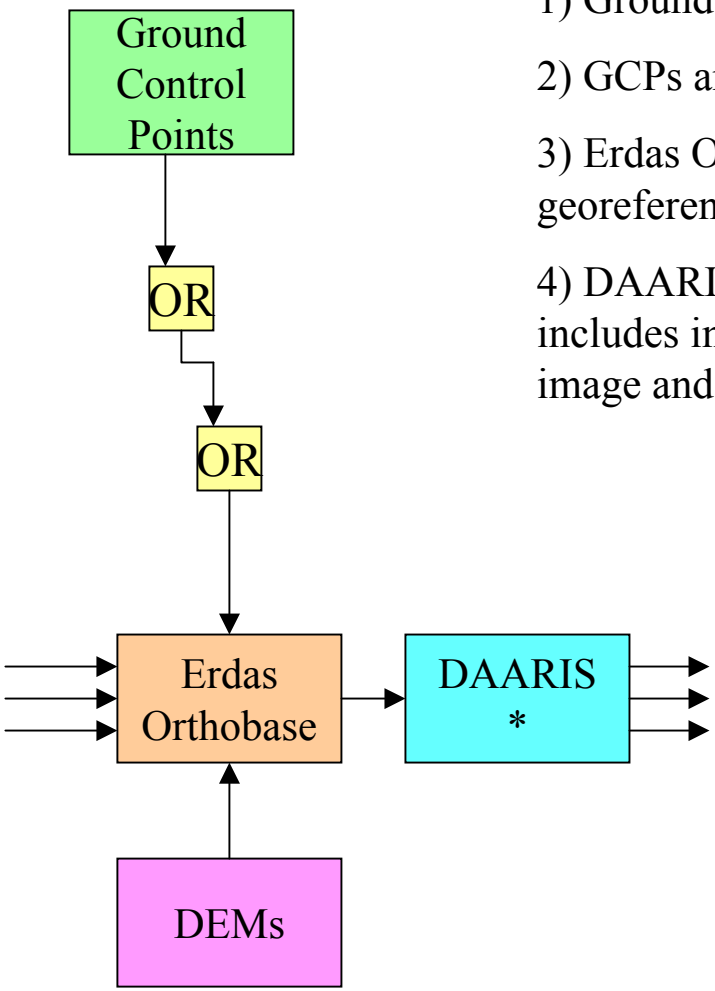
Post Flight Processing Options



GAARIS
Gyro data post processing to convert data from POS PAC to what Erdas Orthobase requires.

DAARIS
Database creation software.

Using Ground Control Points



1) Ground control points (GCP) are acquired.

2) GCPs are identified on each image.

3) Erdas Orthobase is used to orthorectify and georeference each image.

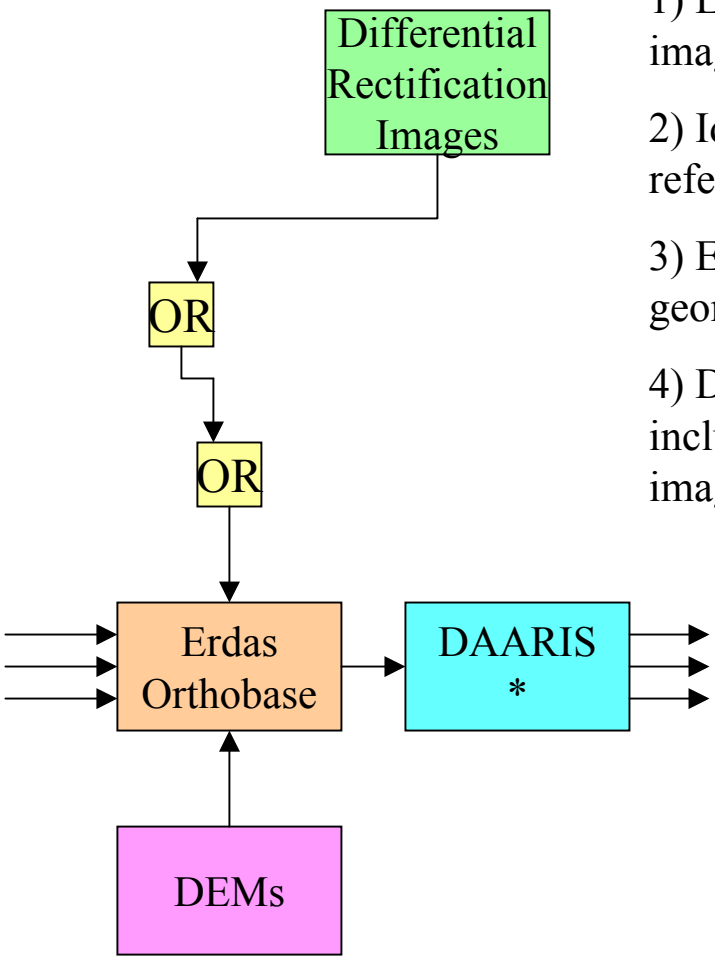
4) DAARIS is used to create a database file that includes information about each image to ease image and data management.

GeoTIFF
Image Database

VegMeasure
GIS
Other Processing

Required Data
ESR Components
Existing Data
Existing Software
Future Components

Using Differential Image Rectification



1) Load appropriate differential rectification image.

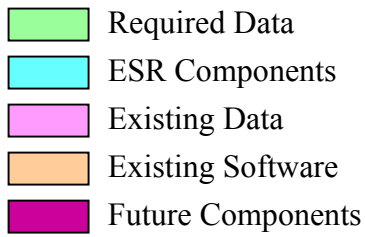
2) Identify GCPs on each acquired image and reference image.

3) Erdas Orthobase is used to orthorectify and georeference each image.

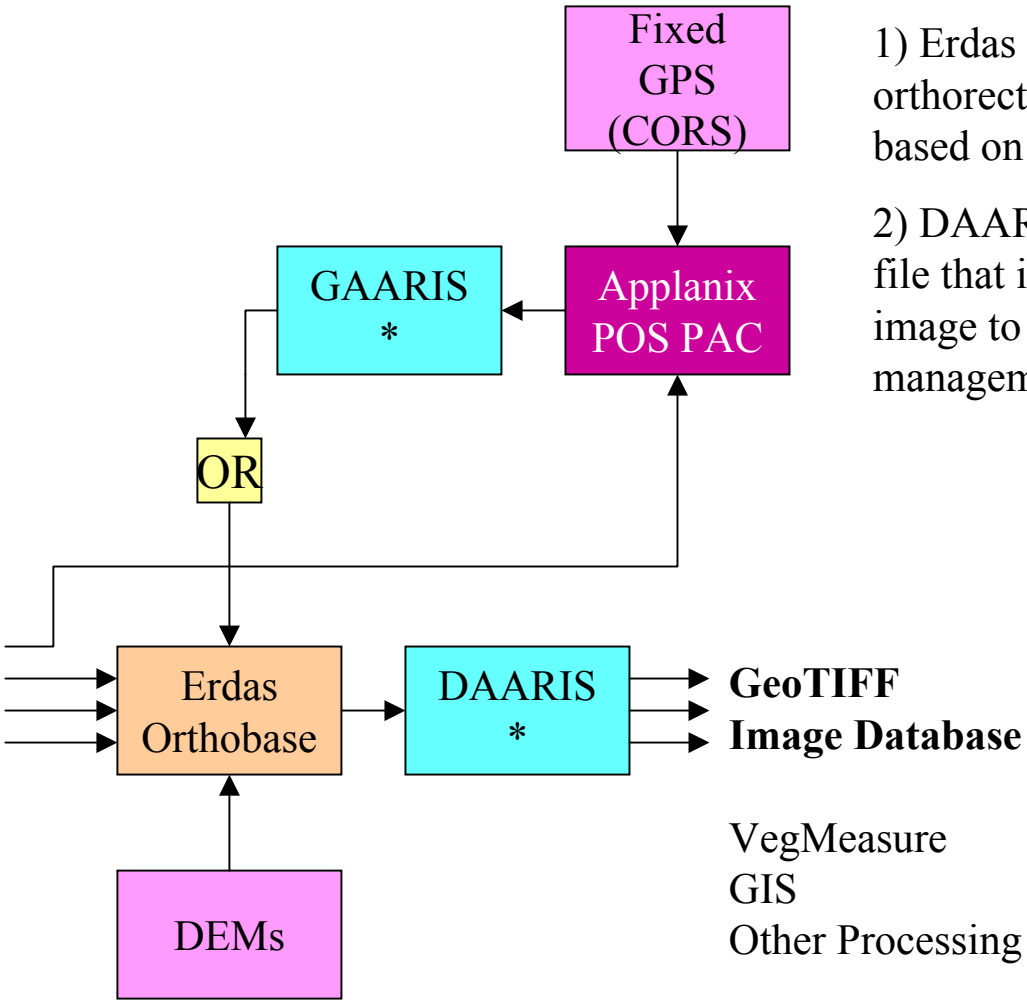
4) DAARIS is used to create a database file that includes information about each image to ease image and data management.

GeoTIFF
Image Database

VegMeasure
GIS
Other Processing



Automated Direct Georeference



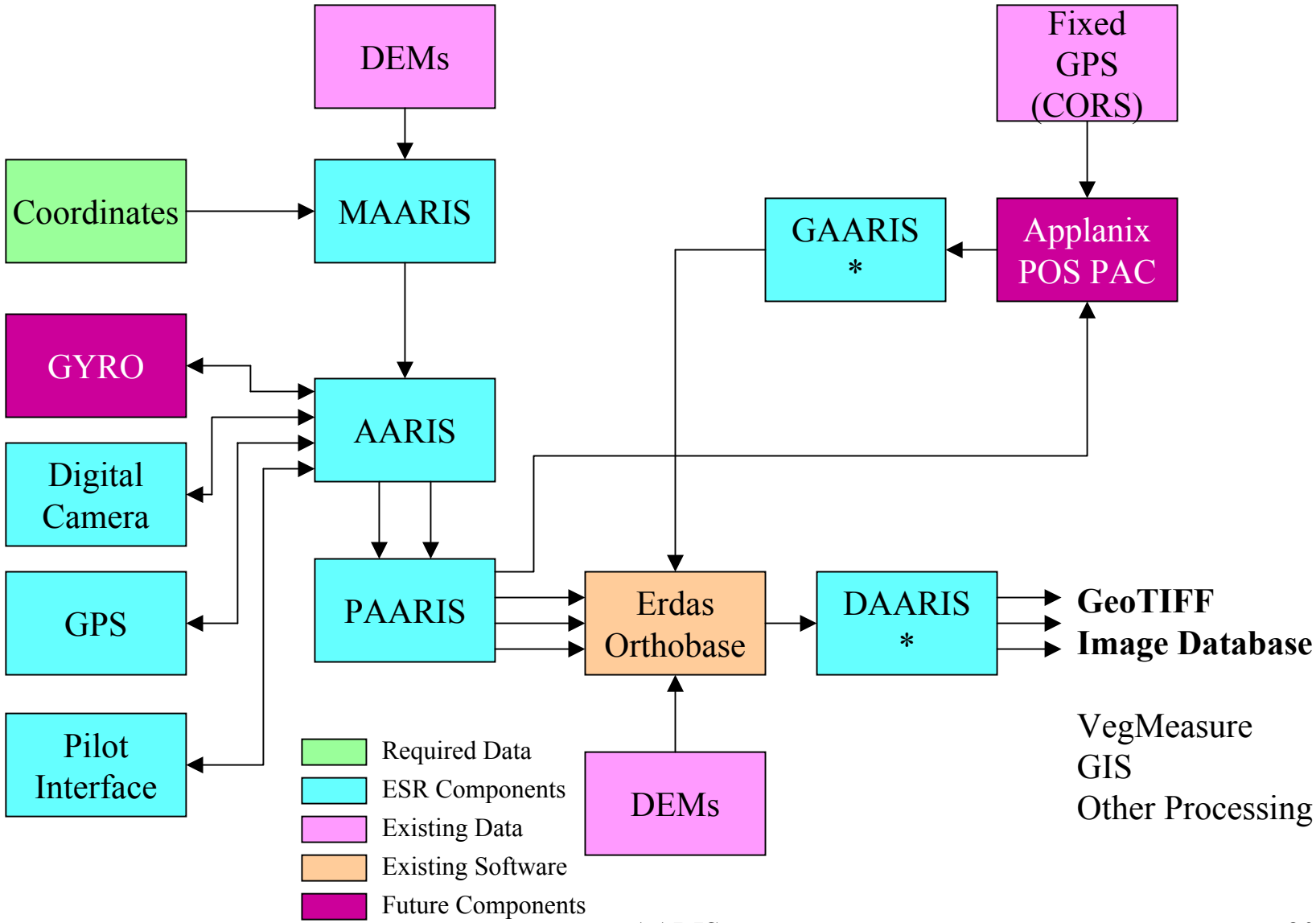
1) Erdas Orthobase is used to orthorectify and georeference each image based on gyro data and DEMs.

2) DAARIS is used to create a database file that includes information about each image to ease image and data management.

Comparison of Rectification Options

Rectification Option	**PROS**	**CONS**
Ground Control Points	Low initial cost	Very expensive per image CGPs Manual operation Very long turn around
Differential Rectification	Low initial cost	Expensive per image Manual operation Long turn around
Direct Georeference	Low cost per image Quick turn around	High initial cost to setup

AARIS Components



AARIS - Automated Airborne Remote Information System

- **Tune System to Fit Specific Applications**
- **Low Cost**
- **High Quality**
- **Quick Turn Around**
- **Easy To Use Database File**
- **No Copyright, No Restrictions**
- **Pay Only When Images Are Delivered**