

The Principles of Surveying and Mapping



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- **Then and Now**
- **The (original) six principles**
- **8 Principles to Succeed**
- **Examples in Oil and Gas**
- **Aide Memoir**

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Six Principles – CEC IRS

- **Control** for new survey
- **Economy** of accuracy
- **Consistency** of practices
- **Independent** checks
- **Revision** of results
- **Safeguarding** of results

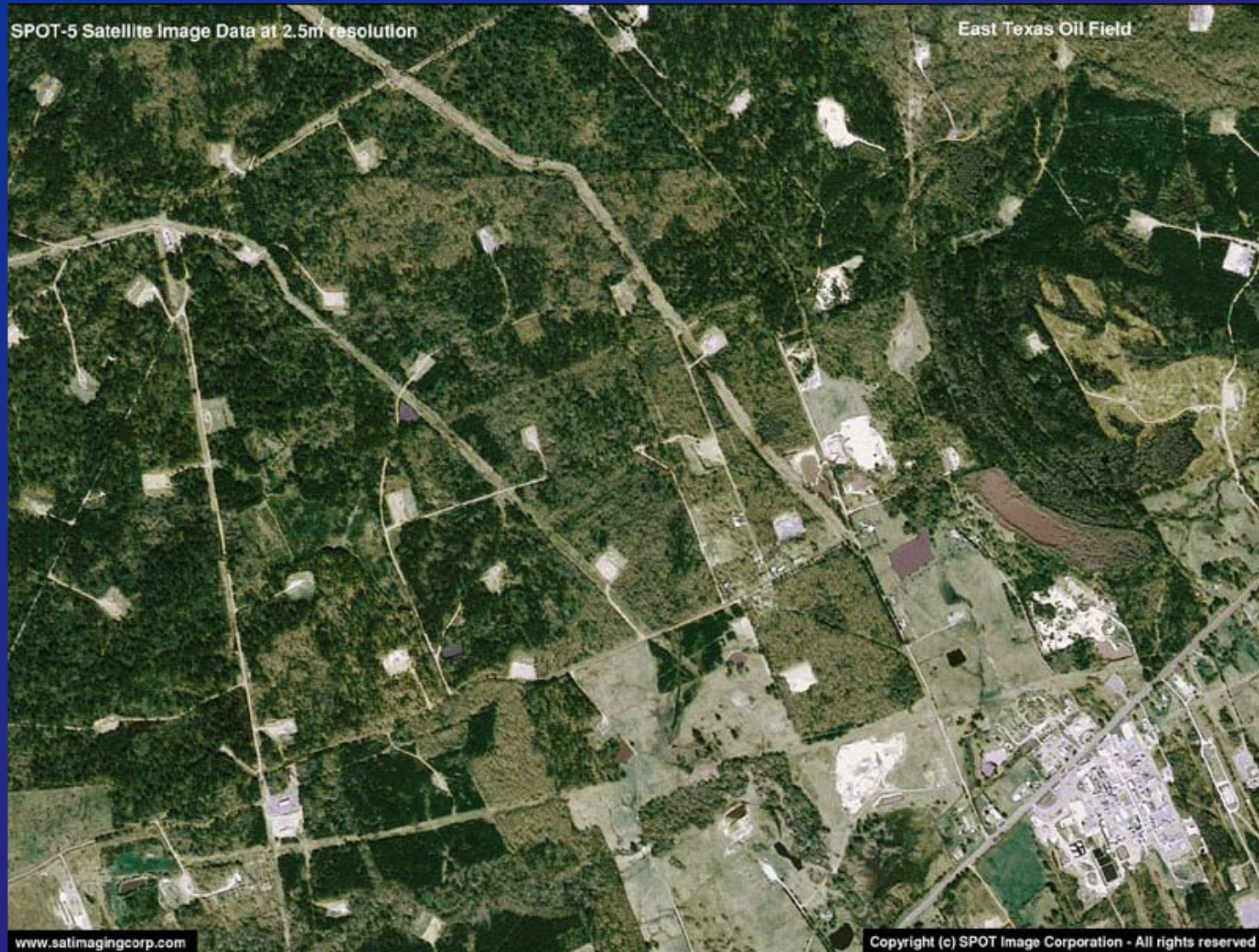
Eight Principles

- Control for new survey
- Economy of accuracy
- Consistency of practices
- Independent checks
- **Updates** by fieldwork
- **Security** of data
- **Data** Management (metadata and handling)
- **Economics** of project options

Oil and Gas Applications

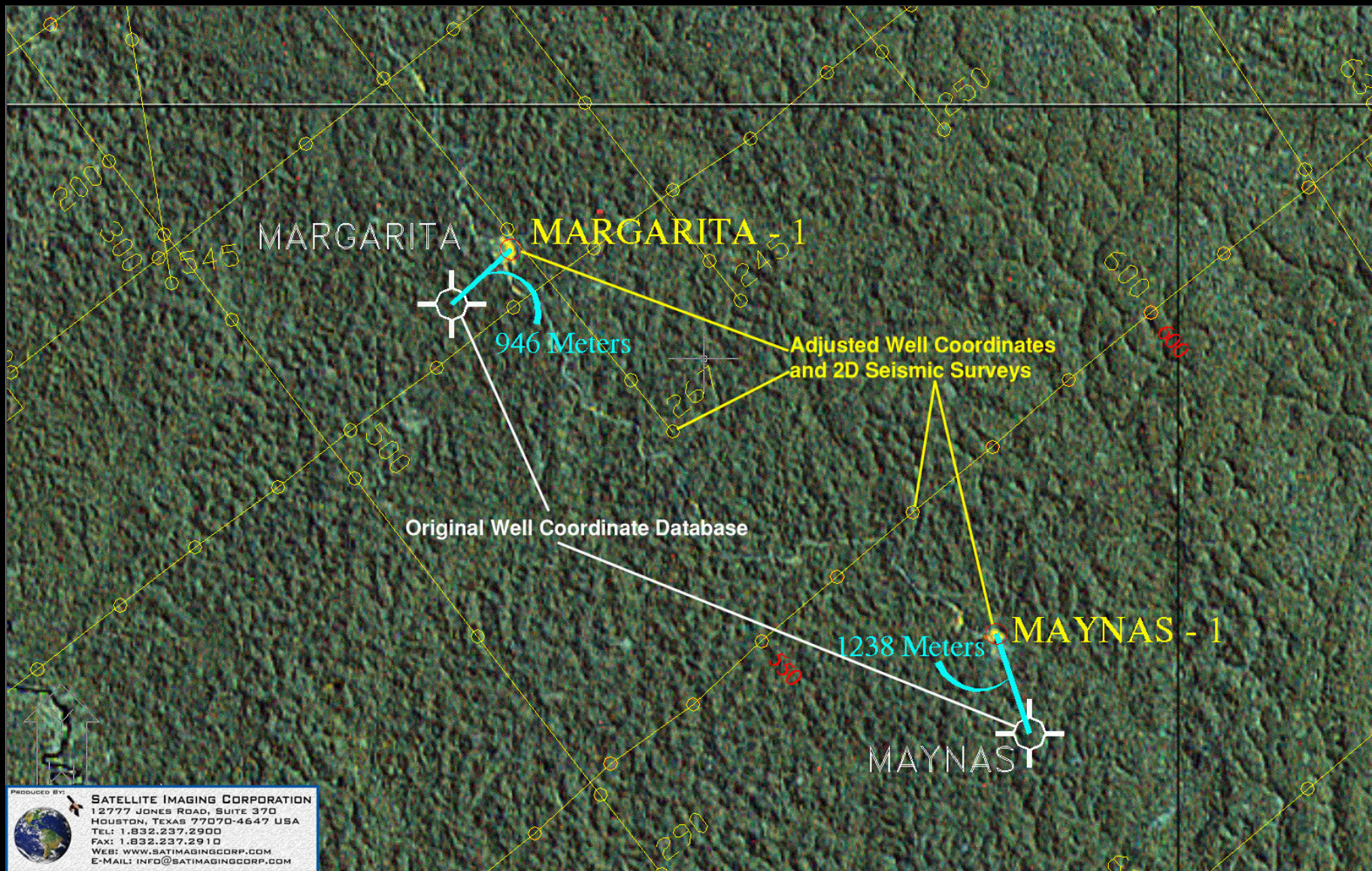
- **2D and 3D seismic surveys**
- **well locations**
- **corridor mapping e.g. pipeline**
- **site selection, construction and monitoring**
- **facilities mapping**
- **base mapping for project GIS**

Example: Well Locations



Reasons for Mislocation of Wells

- Accuracy and reliability of original measurement systems
- Miscalculations and poor QC
- Error in transformation of co-ordinate systems
- Transcription errors
- Data entered wrong
- Transposing legacy data to new technologies
- Inadequate documentation



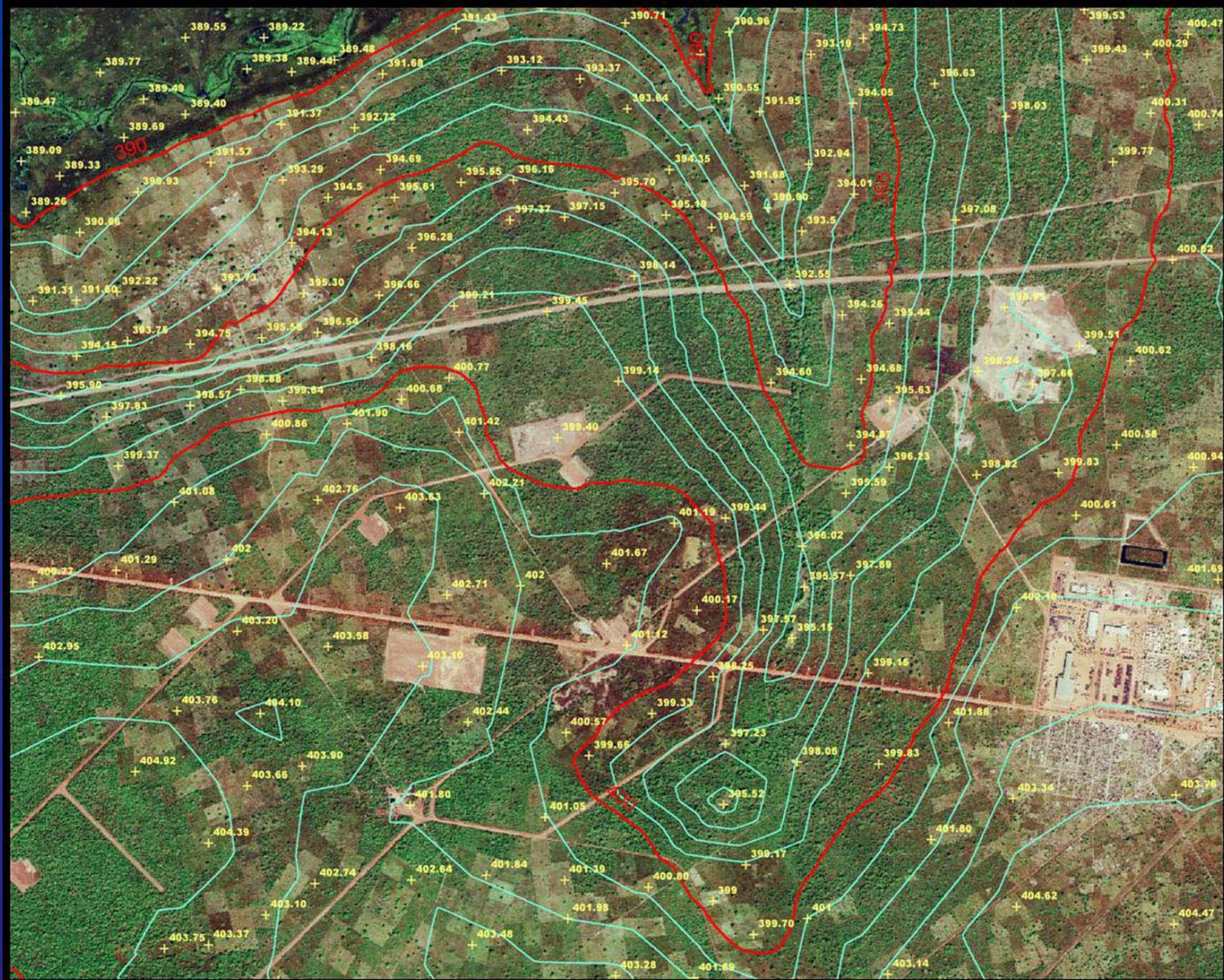
Extracted Culture Data from Satellite Image for GIS



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Extracted culture: Topography



Construction Progress Mapping (7 Months)



Eight Principles – I, SUCCEED

- **I**ndependent checks
- **S**ecurity of data
- **U**pdates
- **C**ontrol for new survey
- **C**onsistency of practices
- **E**conomy of accuracy
- **E**conomics of project options
- **D**ata Management

- Surveying and mapping still use geometry, engineering, mathematics, physics
- Technologies continue to change significantly



- Fundamental principles are the same !