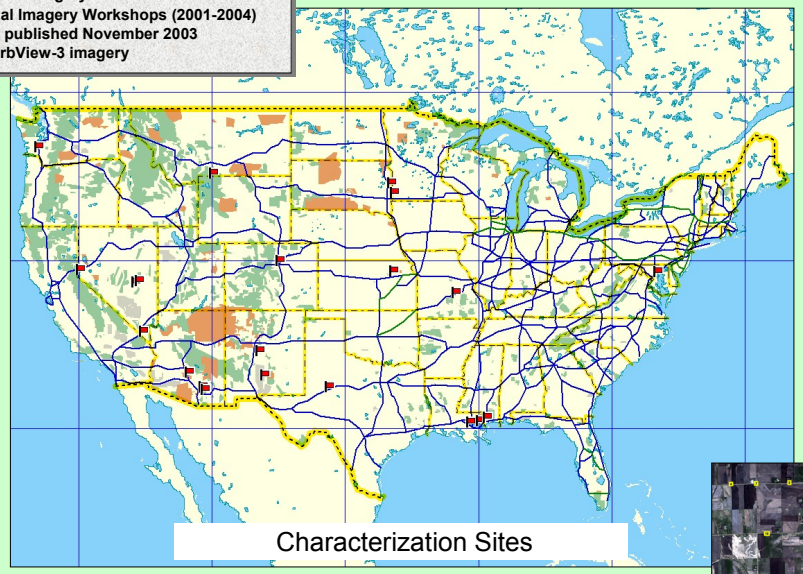
Joint Agency Commercial Imagery Evaluation (JACIE) Team

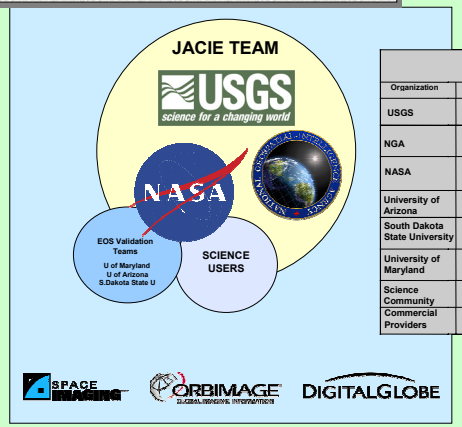
Activities

- Technical interchange meetings with data vendors
- Joint characterization of Space Imaging's IKONOS and DigitalGlobe's QuickBird imagery using various sites nationwide
  - MTF and spatial resolution
  - Image interpretability
  - Feature extraction utility
  - Geometric properties of imagery
  - Radiometric accuracy assessment
  - Comparison with Landsat 7 and other satellite imagery
- Four JACIE High Spatial Resolution Commercial Imagery Workshops (2001-2004)
- *Remote Sensing of Environment* Special Issue published November 2003
- Future joint characterizations of ORBIMAGE OrbView-3 imagery

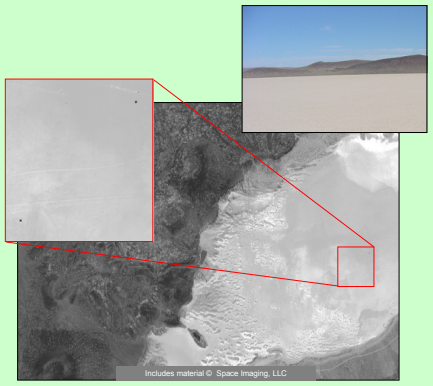
Purpose

- Join capabilities of NASA / NGA / USGS to characterize commercial remote sensing system performance
- Perform overall performance assessments leveraging from each agency's mission
  - NASA: System Characterization
  - NGA: Photogrammetry/Photointerpretability
  - USGS: Cartographic Assessment





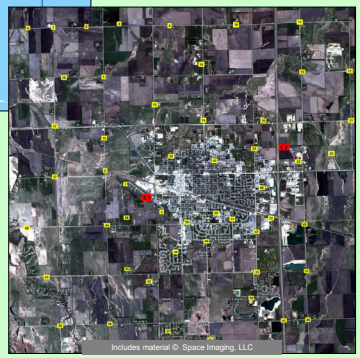
Characterization				
Organization	Spatial	Geometric	Radiometric	Application
USGS		x		
NGA	x	x	x	
NASA	x	x	x	x
University of Arizona	x		x	
South Dakota State University	x	x	x	
University of Maryland				x
Science Community			x	x
Commercial Providers	x	x	x	



IKONOS panchromatic image and zoom of radiometric characterization target area, acquired over Lunar Lake, NV, on July 13, 2001

Results

- Improvement in IKONOS data quality
  - Update of radiometric calibration coefficients to improve absolute radiometry
  - Update of block adjustment to improve geopositional accuracy
  - Update of MTF kernel application to improve image sharpening
  - Update of DEM processing to improve DEM elevation accuracy
- Improved communications with industry
- Minimized duplication of effort
- Reduction in costs incurred by both industry and government
- Improvement in DigitalGlobe's QuickBird data quality
  - Update of radiometric calibration



IKONOS image showing known GPS points of Brookings, SD

DigitalGlobe's QuickBird image of SDSU tarps for spatial resolution characterization

IKONOS four-meter RGB band image of Tucson, AZ, site for spatial resolution characterization, acquired on October 19, 2001

DigitalGlobe's QuickBird image of Stennis Space Center, MS, deployable radiometric tarps

IKONOS image showing Morrison Quad, CO, site used in geopositional accuracy characterization and DEM evaluations

True color, pan-sharpened, QuickBird imagery captured over Ivanpah, CA, on August 13, 2002