<table>
<thead>
<tr>
<th>Duties</th>
<th>Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Manage Projects</strong></td>
<td>A1 Clarify project scope / objectives with client</td>
</tr>
<tr>
<td><strong>Acquire Data</strong></td>
<td>B1 Search web-based image providers</td>
</tr>
<tr>
<td><strong>Validate &amp; Ground Truth Data</strong></td>
<td>C1 Inventory local knowledge of study area</td>
</tr>
<tr>
<td><strong>Prepare Data</strong></td>
<td>D1 Mosaic image / data</td>
</tr>
<tr>
<td>**Prepare Data (con’t)</td>
<td>D4 Correct image defects</td>
</tr>
<tr>
<td><strong>Extract Information</strong></td>
<td>E1 Filter image (edge enhancement, smoothing)</td>
</tr>
<tr>
<td>**Extract Information (con’t)</td>
<td>E10 Transform images (PCA, vegetation indices, band ratios)</td>
</tr>
<tr>
<td>**Extract Information (con’t)</td>
<td>E19 Develop batch processing scripts</td>
</tr>
<tr>
<td><strong>Assess Accuracy</strong></td>
<td>F1 Perform regression analysis</td>
</tr>
<tr>
<td><strong>Develop End Products</strong></td>
<td>G1 Recode / reclassify image</td>
</tr>
<tr>
<td>**Develop End Products (con’t)</td>
<td>G13 Prepare presentations</td>
</tr>
<tr>
<td><strong>Pursue Professional Development &amp; Outreach</strong></td>
<td>H1 Conduct presentations</td>
</tr>
<tr>
<td>**Pursue Professional Development &amp; Outreach (con’t)</td>
<td>H14 Mentor others</td>
</tr>
<tr>
<td><strong>Pursue Professional Development &amp; Outreach</strong></td>
<td>H2 Publish journal articles</td>
</tr>
<tr>
<td>**Pursue Professional Development &amp; Outreach (con’t)</td>
<td>H15 Participate in review panels (on-line &amp; in-person)</td>
</tr>
</tbody>
</table>
### General Knowledge
- Application specific knowledge (forestry, agriculture, natural resources, geography, geology)
- Cartography
- Data/software licensing
- Datum transformations
- Familiarization with remote sensing data resources
- Geodesy
- GIS technology
- GPS technology
- Histograms
- History of study site
- Information technology (IT)
- Managing very large data sets
- Map projections
- Measurement space (spectral)
- Natural history of study site
- Principles of sensor design for RS
- Probability
- Radiometric physics (principles for RS)
- Software
- Software & hardware management
- Spectral signatures (reflectance)
- Statistics

### Skills
- Analytical
- Communication
- Design
- Detective
- File management
- Information Technology (IT)
- Math
- Navigating graphical user interface
- Organizational
- Presentation
- Problem solving
- Spatial aptitude
- Visual interpretation
- Writing

### Worker Behaviors
- Attention to detail
- Creativity
- Focused
- Innovative
- Jack of all trades
- Multi-tasking
- Open-minded
- Patience
- Risk taker
- Take charge attitude
- Take initiative
- Teachable
- Tech savvy
- Tenacity
- Trouble shooter
- Willingness to learn
- Work independently

### Tools, Equipment, Supplies and Materials
- Aerial photographs
- Binoculars
- Camera
- Clinometer
- Clipboards
- Compass
- Densitometer
- Desktop computer
- Digital Elevation Models (DEMs)
- Digital images
- Fisheye lens
- Flagging tape
- Frag Stats / Patch Analyst
- GIS software
- GPS receivers
- Image processing software
- Laptop computer
- Large format color printer
- Laser range finder
- Leaf Area Index (LAI) 2000
- Manuals & books
- Measuring tape
- Personal Digital Assistant (PDA)
- Printer (small format color)
- Printer (large format color)
- Sensors
- Server
- Spectrometers
- Stereoscopy
- Topographic maps
- Tree diameter tape
- Vehicle (4-wheel drive)

### Future Trends and Concerns
- Growing emphasis on object based image analysis
- Increasing use of virtual globes & cities
- Higher temporal frequency for image data
- More active sensors
- More Lidar
- More variable data pool
- Rapidly declining costs
- Three-dimensional image creation

### DACUM Panel
- Charles Clancy, GIS/Remote Sensing & Geodesy Analyst, Chevron Energy Technology Company, San Ramon, CA
- Lawrence Fox III, Emeritus Professor and Senior Advisor, Institute for Spatial Analysis, Humboldt State University, Arcata, CA
- Kevin Koy, Manager, Geospatial Innovation Facility, U. C. Berkeley, Berkeley CA
- Laura E. P. Rocchio, Senior Outreach Scientist, Science Systems Applications Inc., Los Angeles, CA
- Cindy Schmidt, Research Scientist, San Jose State Foundation/NASA, NASA Ames Research Center, Moffett Field, CA

### DACUM Facilitators
- John Johnson, Facilitator
- Chris Lewis, Recorder
- Chris Cruz, West Valley College, Recorder

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**ECONOMIC & WORKFORCE DEVELOPMENT**

The California Community Colleges Economic and Workforce Development Program (EWDP)

**Produced by:**

California Community Colleges Geospatial Information Support - an Industry Driven Regional Collaborative Project (IDRC)

**Date:** August 20 & 21, 2009