

USDA IMAGERY PLANNING & COORDINATION MEETING – December 8-9, 2010

Wednesday, December 8, 2010

Welcome

Ron Nicholls, Director, APFO

Welcomed attendees to meeting and commented that previous day's session was very productive with Contractor cooperation and sharing of information.

Planning Meeting Objectives

Kent Williams, Deputy Director, APFO [NAIP Review and Planning Final - PDF](#)

The primary purpose of this meeting is for coordination and application of learning from the 2010 season through the collection of expertise in the room. Would like to discuss elevation and satellite contracting services, archiving imagery, and ensure continuity of planning.

- Reviewed status of 2009 Meeting Action Items

NAIP 2010 QA Review

David Wheeler [NAIP Review and Planning Final - PDF](#)

- APFO uses process of viewing imagery of states grouped into geographical areas; tiles and CCMs together form a complete state, allowing the evaluation of consistency from year to year and stabilized to evaluate quality
- Most regions came in as would be expected with water from flooding in the northeast and humidity in the central Midwest; TX was better than usual with no lines from season changes, whereas OK had marked variation in appearance due to season color difference—60 day difference in seasons vs TX with overlapping seasons
- Differences in images also due to sensor changes and atmosphere; RI was blocky, potentially due to a sensor issue; however contractor attributes it to water
- Imagery appears to be improving over time
- All imagery is run through Python scripts before being placed on web service (scale based view, timely for GIS and inspection purposes)
- Many tiles in RI won't pass radiometric inspection of raw QQs and CCMs
- Formal QA for 2009 season was just completed. A thorough inspection is done only on a sampled percentage.

- Discussion of QQ's vs. CCMs as deliverables. Improved color balance? Kevin Clarke doesn't receive complaints regarding lack of color balance; timeliness is more of a priority. When color balancing is the priority green roads and brown fields are possible.

- Brenda Simpson started using SharePoint last year for tracking problems with NAIP. This allows passing of issues around for response and action. She encourages FSA users to input problems for tracking. Matchup of imagery from year to year so far is the primary problem. She is interested in options for encouraging input/tracking and monitoring of problems, i.e. a button on the site for problems, etc.

Lessons Learned – Summary

Kent Williams [NAIP Review and Planning Final - PDF](#)

Need for DVD/CCM:

- File size is a problem for big counties.
- Evaluate deliverables
- FSA is moving to Thin Client
- NRCS field is not able to access web service and still needs hard image for mobile capability. Still valuable due to ease of use (no processing or converting needed). Doesn't need DVDs.
- FS needs the DVDs to obtain area of interest due to difficulty of using DOQQs for this. Use for FS has been dictated by what is offered. Infrared band use by FS, DOQQ won't be ideal for remote sensing. Need minimized artifacts and seam lines in imagery for best observation of variation on the ground.
- Suggestion to eliminate delivery of multiple versions and provide once inspection completed.
- Currently up to 9 months between availability of accepted DOQQs and color balanced CCMs
- Web service will be authoritative data source
- Trusting consumer to self select product with some education
- Clip and ship available, increase compression - 90 days vs. 30.

Suggestion for acquisition by regional blocks rather than states

- Reduce duplicate coverage along state boundaries
- Impact with Thin Client web services
- Regional may work in some areas where crops are more consistent, such as ND, SD and some Midwest. Best to rely on state specialists to determine the flying season
- Smaller New England states are grouped together unofficially by flying season. Discussion of grouping states in source selection process vs. soliciting up front. Current method seems to be working. May be topic for future working group action item.
- Grids vs. DOQQ for higher resolution acquisition was suggested as a possibility

Metadata and Legal use of Imagery

- Date accuracy issues—with mixed sensors, multiple images containing same date
- Pixels can't be certified with feathering
- Raw Resource imagery could be used in court
- Landsat has been used in court cases; RMA uses satellite data for large crop suits
- Issue of cost vs. frequency of need. Accurate date good for disaster recovery.
- Is current Metadata adequate for 2012-2017 & can we pay for additional accuracy
Accurate acquisition date and camera used currently in shape file

Distribution of NAIP Imagery

Dave Parry [NAIP End User Distribution 2010 - PDF](#)

- From Gateway FY09, county selection 139,000; high concentrations in S. CA and northern plains
- Media ordered from CSS was mostly statewide orders of counties, 1,619
- Of county imagery downloaded, most of the imagery was in farm areas
- Prior year downloads rapidly decrease with new imagery available; 94k (near 60%) 2010
- Would be interesting to look at use of historical NAIP
- Some surveys came back from partners regarding web mapping services and imagery distribution; OR 37 million page hits
- Would like to formalize providing data as part of the agreement with partners and standardize NAIP statistics in a downloadable format, Web map, no PII, for quantifying purposes only; impose a minimal burden on collecting agencies.
- Need distribution points for data collection to determine trends.
- Watermarking discussed as a tracking method; can be destroyed with basic image processing.
- ESRI will provide data; not likely to receive data from Google

NAIP Funding Strategies

Kent Williams [NAIP Review and Planning Final - PDF](#)

- NAIP currently impacts agency operations. Funding comes from FSA S and E budget, therefore leadership has to prioritize among competing expenses. Refresh of equipment, etc.
- Need a consistent cost share model, based on land interest = \$30 of funding for every \$100 funded by FSA.
- The needs of FSA should be priority for funding secured by FSA
 - FSA doesn't require ½ meter or 4 band. Funding of buy-ups by partners allows more Federal \$ to cover more states

- Leverage with partners without having partners driving the acquisition
- FSA has covered cost of reproduction. May need to be changed
- Cost Share Proposal 2012-2017
 - Based on agency area of interest
 - Ag land & private funded by FSA/NRCS 50/50
 - Forest land by FS (which is close to current contributions by the FS)
 - NPS, BLM, FWS, Reservations, by USGS (pooled from supported agencies)
 - Funding targets for the proposed model chart see naip-review and planning final.pdf
 - Attempt to obtain funding from other non-cost share agencies using data, including FEMA, Census, DHS
 - Need solid data of utilization for discussions with agencies
 - Challenge in obtaining funding without losing control of the program
 - Determine Refresh rates for users
 - FSA's 3-year cycle is the least need based on funding. The need for refresh is more frequent.
 - IFTN with federal funding would cut down on cost of coordination with a standardized product meeting many needs, with buy-ups for special needs, streamlined acquisition. Can't get funding
 - Additional suggested funding options:
 - Use a slide like FSA Metrics to obtain funding from partner agencies (statistic factors)
 - Attract additional cost share by determining use
 - Hard use data to show value to Congress to obtain direct funding
 - Impacting entitlement programs with visual data
 - The thought of having proof deters dishonest action
 - Copyright data to restrict 3rd party distribution.
 - Cost Recovery:
 - Partner agencies encourage purchase of QOs from FSA rather than release for free to outside entities
 - Estimated direct sales of QOs would be \$3.17 million for annual coverage of CONUS, \$1.05 million annually for 3 year program
 - Considering discontinuing free downloads from USDA Geospatial Gateway, est \$5million from commercial users.
 - License similar to Digital Globe which prohibits reselling data without compensation
 - License outside USDA customers

- Washington, Colorado, and Delaware have shown interest in half meter
- Anticipated funding 2011: \$10M FSA; \$4M from partners = \$14.4M
 - Tier 1 states covered by known funds
 - Tier 2 states (remaining from prior year) estimated \$16.9M
 - Tier 3 states if funding comes through estimated \$28M

Business Models

Stephen Lowe [EGMO NAIP Pres Bus Model v1 Lowe - PDF](#)

Discussed components of business models to evaluate changes and enhancements to current processes; establish value networks; create sustainable program growth; approach to innovation; obtain partner funding. The models were tied to current issues of funding the NAIP/IFTN program. Issues of innovation within boundaries defined by other agencies, as well as the Service Bundle approach and the USDA Geospatial Maturity Model.

NAIP Delivery/Access Services

Lori Uhlhorn, Kevin Clarke [NAIP Delivery - PDF](#)

- USDA Internal
 - State based image services available on Image Server, for all 1m acquisitions from 2005 thru 2010
 - 2010 year still waiting for CA and NV datasets to be fully delivered from contractor
 - Once 2010 year winds down image services for 2003 and 2004 will be stood up
 - For 4-band acquisitions separate Natural Color and CIR services are available, with a single 4 band service supported if requirements dictate
 - For USDA organizations not part of SCA (FSA, NRCS, RD) access thru organization's firewall on ports 3982 and 3983 must be configured
 - Image Server connection URL: imagery.apfo.usda.gov
 - Services will support access by USDA Desktop applications utilizing ArcGIS Desktop versions 9.2, 9.3, 9.3.1, and 10.0
- Public Facing
 - Currently have state based image services available, via ArcGIS Server, for most recent 1m acquisition for each state
 - Only Natural Color services available
 - No support for OGC access protocols – WMS and WCS
 - ArcGIS Server Connection URL: <http://gis.apfo.usda.gov/arcgis/services>
- National Scale NAIP Cached Service
 - Currently in progress on deploying ArcGIS 10 for prototyping caching scenarios
 - Expectation for cache availability for USDA web mapping applications – Summer 2011

- Resource Data Gateway, CCM's only under eAuth2
- Earthwhere (?sp) available to partners and federal agencies for emergency response. QOs, all NAIP years, customizable, 90 days
- Aerial Imagery catalog, QOs only, not customizable, can search without order or account set up
- Vault scans georeferenced orthos/index partially done. Allows for locating imagery. In jpg format if not georeferenced. Will ultimately be a link in the catalog for historical data
- Working on option to download portion of CCM (ftp) rather than obtaining DVD

Ground Control Data Base

Zack Adkins [2010 Absolute - Control -PDF](#)

- Used to inspect NAIP imagery, began 2006
- Beginning 2008 absolute accuracy specification transition for states
- Housed in Oracle db at APFO, jpg's, OPUS
- Not given out to contractors or released to public
- Geospatial obtains control point data, reviews, loads, maintains, determines impacts of horizontal velocity (plate tectonics)
- About 39k points; 74% Federally obtained; 99% free
- All points in an area are typically used unless the area is very dense in points
- Accuracy within 1 meter, 30cm or better using GPS
- Also used to inspect other imagers, including AK
- Relative accuracy was used in the past based on USGS DOQOs
- Panels are not typically used because they are temporary

Hyper Spectral Imagery Evaluation

Joan Biediger [DG - PDF](#)

- Evaluation of satellite imagery to replace holes in NAIP, including Hawaii, resource, remote sensing, usefulness to FSA
- Due to APFO workload would be best to secure radiometrically balanced image
- 2 meter would need to be pan sharpened to meet NAIP requirements; ArcMap will pan sharpen on the fly; would be more efficient to secure the pan sharpened image due to time/workload constraints and practices
- Higher resolution would be useful for Resource projects
- 8 band ideal for image classification, improved classification accuracy; best for vegetation analysis; broad agricultural considerations
- Multispectral imagery not fine enough for NAIP and Resource; 8 band imagery requires more storage; relatively small user group that would take advantage of the 8 bands.
- Satellites do not have capacity of doing a single state, companies are not interested in partnering in the program; they are able to compete
- Best for filling in gaps

USDA Remote Sensing Report

Glenn Bethel [First -SIA -Spot- Data Buy - PDF](#)

- New buzz in carbon market; difficult to do compliance

- 65K ESRI licenses allow field to do GIS without being GIS
- MODIS and AWIS have been primary focus; MODIS for global ag monitoring
- VIIRS and NPP only afternoon acquisitions; MODIS has been providing AM, but is going away
- Remote sensing is best on a wider swath—AWIFS has worked well based on swath width
- RMA sites gone
- Spot Data Buy
- Earth Explorer free to all levels of govt: season of collection, Spot 5 10 meter resolution; AK and HI for FS use; FAS hasn't funded, may end up being re-solicited
- NGA has over \$7.3 billion over 10 years in imagery licensed for use; monthly acquisition; not orthorectified; dissemination period 24 hours.
 - Need PUM (proper use permission) based on use from NGS to get into WARP
 - Issue with enforcement type use
 - 1st use vs. 2nd use (2nd use less restrictive)
 - Working with NGA
- Achieving and Sustaining Earth Observations through the Office of Science and Technology Policy [OSTP - SAG - PDF](#)
 - OSTP and OMB approved and administration priority
 - Space assets decreasing
 - Landsat 20 meter 5 day coverage
 - Hasn't been revisited in 2 years
- Disaster imagery for Haiti and the oil spill was discussed [Bethel Disaster 2010 -PDF](#)
 - Large amount of imagery flown and donated for Haiti; to view gathering of people
 - Large amount of radar imagery for oil spill; NOAA flew coast with mid-format sensor & spot imagery from DOD
 - Vexcel used NAIP spec as best practice for Bing Maps
 - IR through Microsoft looks good

Thursday, December 9, 2010

APFO Contracting Report

Geoffrey Gabbott – Overview [USDA Contracts \(Master\) - PDF](#)

- Admin fee 3% for NRI (78% of total); 8% for Resource (22% of total); difference in time required to manage contracts by contracting and QA staff
- 8 Year trend in contract award totals; NAIP has had huge impact; \$41M 2010
- NAIP 73%; NRI-WRP 22%; IT purchases 3%; Resource 2% of contract dollars

John Mootz – 2010 NAIP

- 30 states; 6 prime contractors
- 1 meter resolution
- Digital orthophotography accurate within 6 meters to ground
- All states acquired in 4-band
- Products (30 day delivery from season end)
 - CCM (Compressed County Mosaics) with seamline shapefiles
 - DOQQ (Digital Orthophoto Quarter Quads)
- All imagery acquired by Oct 12
- \$30M total; 5 year IDIQ expires 2011
- Film vs Digital Sensor trend; digital 11% 2003 to 0% 2010
- Mixing sensors (discussed previous day)

Michelle Clifford – 2010 Resource

- Increasing square miles in direct digital acquisition
 - Cost of infrastructure to manage imagery can make transition to digital difficult for FS
 - Some FS field still prefer contact prints
- Average cost per square mile slightly less than film @ \$38.74 2010
- 2010 and ongoing project status
- Coordination of ArcGIS 10 upgrade with FS; not approved for USDA yet
- Prefer internal drives
- Contractor scanning of film projects had issues with quality and stretching; working on best practices

Jacque LaCroix – 2010 Small Area Contracts

- Over 10 years of imagery; established program with specific requirements
- NRI Study project for film with digital; one year contract
- NRI program has had resistance in moving to digital – prefer film
- Slowly transitioning to digital
- Valley Air Photos new to NRI; Skyview re-entered NRI this year
- HI long flying season through December from award
- \$8.8M; over 90K sites total – 70K NRI; 18K WRP; 2K other

Agency Reports

Dorsey Plunk – NRCS [2011-NRI-WRP Vendor - PDF](#)

- Obtained all NRI sites except for those in restricted area
- WRP name change to Stewardship Lands
 - Approximately 2 million acres currently
 - Same scale, 6" resolution desired; requires flight line; APFO does flight planning
 - Photos are scanned and made into seamless mosaic
 - Happy with ortho work provided by vendor
 - 2010 Special study to compare analog to digital
 - RS labs will use 2000 sites & collect both traditional and digital data, using 4th band to look at trending differences in the method by which the data is collected.
 - \$40 premium price significant increase in cost; not budgeted to absorb
- 2011 Project Forecast
 - NRI sample similar to prior years; new 2-year contract, film-based, varying scale
 - WRP larger; 20K exposures for 12K easements
 - Working with ARS on digital high resolution 15cm, 4-band, ortho-rectified, max resolution possible, land cover classification, 2 weeks within data collection in field to collect data to determine if they can eliminate going into the field.
 - 1 Meter accuracy, but nothing available to verify that. Will look into establishing control points in field via GPS when out.

Tony Kimmet – NRCS [USDA NRCS Dec2010 Agency - PDF](#)

- NRCS plans to buy up 4 band (IR) \$550K, assuming 2-tier states are collected; total contribution \$1.9M (\$1.45M partnership).
- NRCS has begun surveying field on use of NAIP imagery. Initial survey was informal, received 12/13 responses within 1 week, indicating positive support of the program. Plans to conduct more detailed formal survey that would assist in getting funding for NAIP by showing general program reliance on it and will work with APFO on methodology for delivering survey results. Suggested a check-off of all programs where orthophotography is used, frequency, CIR vs. NC.
- Conservation Delivery Streamlining Initiative. Field staff in field less than 25%. Goal is to make that closer to 75% by making geospatial data easier to use.

- NGA and USGS have been asking for data on Kodiak Island
- LiDAR good for climate change. Soils caving in AK due to melting. Soil scientists using elevation data to conduct soil tests; BLM for pipeline; USGS for climate.
- Pan sharpened satellite image with false color provides more info than traditional color.
- Spot 5 would need to be orthorectified with AK DEMS. Existing DEMS have mountains displaced by up to 2 miles. Photo derived DEMS are not recommended. IFSAR and LiDAR best accuracy.
- Yukon Flats was obtained through APFO at a savings over World View 2 (\$380k vs \$450-800K)
- \$4.5M in elevation and imagery funding
- Puerto Rico partner w/FS, NGA, USGS, Navy, etc. getting DEM; Hawaii 4-band digital orthoimagery data distribution (100% complete), Oahu in film.
- Discussed Enterprise premium license (all fed, state, local, non-profit, university, private citizens) for free use of Digital Globe DG2 on Gateway. Imagery cannot be resold.
- Discussed Kaho'olawe Island rehabilitation and NRCS involvement, soil erosion, coral reef task force. Utilized WV2, pan sharpened, coastal blue, can see 60-90 feet deep into ocean (NOAA)
- 16 bit radiometric balanced data WV2 for 7 sites, largely remote, in west for soils and geography (soil mapping)
- Increasing priority for elevation data. 2004-2010 \$11M; 2010 \$5M of state pooled funds. LiDAR/IFSAR could be as high priority as orthoimagery
- 2011 depending upon funding (see slides)
 - NAIP ½ meter buy up if funds available
 - High resolution, multi-spectral, hyper-spectral special project orthoimagery
 - AK imagery and DEMS
 - NAIP requirements vary from region to region
 - Partnerships with USGS, NGA
 - Outside Conus areas

Forest Service [Rocky Mountain RS Dec2010](#)

Melinda McGann – Region 2

- From Bill Belton, \$2M 2010; \$1.8M this year (\$1.46M to NAIP & \$300K to AK projects)
- 4 Month detail to RSAC; belongs to interagency groups that meet quarterly, sharing information on data acquisitions
- Rocky Mtn. Region covers 12 forests, 5 grasslands, 5 states
- NAIP DOQQ in change detection via ERDAS

- LiDAR being done in San Luis Valley looking at geothermal features by Dept of State, borders FS lands, but may not participate
- Multispectral, hyperspectral, thermal, RADAR, LiDAR
- ENVY (sp?) best for hyperspectral data
- ENVY, PCI, ERDAS license at web farm
- Image segmentation first for classification. Citrix doesn't support stereo view
- Trouble with where to put stereo imagery and how to use it
- Shoshoni scans in 2006 at 600 dpi
- 2008 began digital resource with Bighorn; requesting prints from APFO and sharing data with NPS (park located in center of forest)
- Prefer filename in white
- 16 bit allows for better information manipulation; 8 bit no opportunities to manipulate only black or white
- Prefer 16 bit; best info from color and IR, having both options is beneficial
- Black Hills done by FS with exception granted by APFO for riparian studies, flood studies (with DEMS), mapping, abandoned mines, oil drilling, fire. Looking at stocking level using 3, 6, and 12" to see at what level they can be seen without sending crews in
- Scaling back 2011
 - San Juan NF and Comanche and Cimarron GL with 2010 funding – Resource
 - Use Landsat (free)
 - Some ASTER (archive not where needed)
 - MODIS
 - AWiFS, posters for forests
 - SPOT
 - Managing Digital
 - Purchasing a NAS for digital imagery; 36 TB data over last two years
 - Working on location for central access of stereo
 - Image catalog on each for footprint
 - Interested in archiving data
 - Landsat good for change detection; used in tree cutting case 30m data

Tom Mellin – RSAC SW Region

- 5-6 years on first region-wide vegetation mapping project. 11 NFs and 3 GLs didn't have existing vegetation information. 2 image analysts mapped in 6 years. Maintenance updates now. Landsat based, acquired before 3pm. Scene shifts to minimize imagery processed to capture entire forest on one scene. Image segmentation.

- 3 Licenses of eCognition (sp?) were \$5-7k each, now \$9k each. Not used for classification, best for segmentation. Updates don't add much to segmentation.
- Also used DOQQs, B&W and Color, and NAIP, Resource (canopy cover, vegetation composition)
- NAIP for landscaping and life-form level, not enough contrast for canopy and undergrowth; too green for WS. Useful in GIS.
- Moving into digital Resource, still issue with level of detail
- Color in AZ, NM; IR for stand delineations
- Used eCognition, consistent and quick
- For Lincoln stand delineation, near IR layer important. 2009 imagery had too many artifacts in imagery, putting artificial lines where they shouldn't be. Ended up using 2005 imagery where quality was better.
- Would use AWIFS if Landsat was gone, and NAIP also. Every 2 year CIR and NC and active Resource
- 5-8 year update reductions in vegetation MTBS info collected 1 year post fire
- Region 1 uses CIR NAIP for vegetation mapping in addition to multispectral with Landsat, WV2 image and LiDAR. Extra bands are good to pick out species yellow and near red.
- SPOT good where available. Need Everett to give them time frame for one good cloud free image.
- WARP site really clunky, user unfriendly. Image date not date of acquisition, date processed, which varies—even 1 year later
- UCDP (commercial data purchases)
- Wants to test out NGS acquisition turn-around time
- Primarily free imagery, Resource, NAIP

Bart Matthews – FS SW Region 3

- Covers 11 forests, 22 million acres. Candace Bogart unable to attend due to migration to Enterprise data.
- 2009 Kaibab and Lincoln flown, rejects successfully obtained 2010. GSTC made DOQQs—Kaibab completed and will be on image server. New Mexico and Arizona servers will have it posted for other clients and public
- 2010 Santa Fe. Caldera was largest private holding mid forest
- NAIP is main product used
- Collecting airborne GPS
- Decision to move to digital is up to the forests
- Issues with film scanning and standards for inspection
- In the process of getting a past resource project scanned through APFO, detail needed to delineate riparian zones. 10-year cycle per forest for imagery. Will need ortho made (either GSTC or vendor)

- 2011 Coronado NF (Sky Islands), will meet with leadership team next month for decision on project approach (APFO Resource).
- Restoration project 4-Forest Registration Initiative (FRI) for Tonto, Coconino, Apache Sitgreaves, Kaibab
- 2 DMC projects for sites doing big thinning treatments, then fly again in a couple of years to see results. Thinning 16" diameter or less and using for biomass for energy and wood pellets and other wood products. Density with touching tree crowns encourages fire spread
- IDIQ for mapping services to various contractors for \$300K2010. Half A&E based surveying contract from ARRA funds for Prescott
- Shultz fire, flagstaff, followed by a storm and big flooding event with child death.
- Coronado fire. Will go back and fly to determine lost of infrastructure
- DMC on Coronado, 4 band, riparian mapping, 8 bit airborne/GPS/IMU, no color correction or dodging.
- 5 tornados on Coconino Oct 6. Used SPOT to see pass of tornado
- Santa Fe 3 big fires, flown over summer through Resource—should pick up
- Digital – understand advantages of 16 bit, do not have resources to handle the amount of data. Have 20TB NAS drive that can't be used for imagery. 2TB raster data at data center limit. 8 bit possible. Current access issues with NAS drive. Once set up, offsite tape backup storage nightly. Compressed available to everyone. Uncompressed available upon request. Copy for supervisor office and for district.
- Civic culturists still prefer the film contact prints
- Would pay for archiving and interested in central storage

Land Use Projects

Brian Vanderbilt [USDA Plan DL Land Change - PDF](#)

- Land change, remote sensing projects supporting FSA
- Devils Lake ND, basin with no natural drainage, growing over 50-60 years. Now open and flowing into Cheyenne and Red rivers
 - Digitizing imagery and basic analysis
 - Lack of spectral data, water shallow and green – no remote sensing
 - Manual digitizing, then analysis
 - Looked at surface water coverage, digitizing boundaries from 1959 index, 1978 data
 - Loss of agricultural land, encroaching on a town
 - Can pinpoint growth using vectors in ArcGIS
 - 195K acres from 56K; 35K CLU under water 97-09
 - Project done in a 3-5 day period
- Tremendous value of historical data. Recommend archiving all imagery indefinitely

- Could obtain number of farms from CLU data
- Archiving digital data more costly than film
- Value as a product, not well known as available
- Accessibility issue—multiple years of data available and scanning capability speed project time.

Archiving Data

Ron Nicholls & Lori Uhlhorn [Archiving Services - PDF](#)

- NITC identified by USEC CIO as sole geospatial data warehouse for USDA
- NITC annual cost for 11.6TB project = \$25k
- Infrastructure at APFO was 2 PB of data; annual NITC bill would be \$3m/year
- \$165k investment in ingestion equipment has life expiration of 2012
- Ingestion process
 - Scripts save 35% of QA time up front
 - Copies to 3 tapes; two taken off site
 - Process too check hard drive integrity on regular basis
- Industry guidelines: most partners pay infrastructure costs
- Current direction unsustainable; \$3m/year too costly
- Fire data is stored by EROS for fraction of price (FS)
- Propose working group for policy and direction to take to Dept
- Cloud Computing as option:
 - Third party web facilities
 - Pricing \$.15/gb to start, then add service, data type, users, bandwidth
 - Variety of vendors available, including Microsoft, Amazon, AT&T, etc.
 - Less costly than NITC
 - Factor of 14 from one analysis
 - ?Stored like film is stored at APFO; Resource kept offline
 - Online ability – instant access
 - Backup strategy that's reasonable—differentials are done nightly off site, inventoried every three months
 - Not cost effective to keep all backup online
 - NITC wouldn't include hardware refresh; cloud would
- USDA on 5-year cycle
- 10-20 film images of any given spot (10.5m images); 6 PB of data in film vault
- Recommendations for approach:
 - Organize service plan to approach provisioner, identify services, analytics of work
 - CIO of each agency need to approach with business impact and ask for alternatives from the department
 - Agency vs Department driving storage method/requirements
 - Consistency and quality of service at a reasonable cost

- Query NITC/ITS to determine why factor of 14; govt should compare to commercial provider
- Need to address FS and NRCS requirements
- Approach solution as community
- 65K GIS users in USDA need to access data; should be centrally located rather than on individual desks
- Demonstration or event pilot to present need
 - Metrics and service level to determine the IT needs
 - Working group and data set (Melinda data set)
 - Geo Cloud pilot, GSA contract for web services
- Stephen Lowe volunteered to define action item

IFTN

Stephen Lowe [IFTN -PDF](#)

- History
 - DOI in leadership as chair for FGDC – Prioritization
 - OMB – restructuring existing business model. Funding alternatives such as green book, sharing cost burden with all consumers of imagery. Imagery included in Whitehouse initiatives
 - Develop business case in context of applied solution
 - IFTN RFI produced 1 or 2 points
 - Increase new public service model rate of adoption, expand and enhance business model
 - Roll of NGA assets
 - Manipulation of data vs. USGS with little or no manipulation
 - Couldn't get MOU with DOI
 - OMB 300-53 couldn't be done in time for 2012
 - IFTN discussed as agenda item in Federal user conference
 - Being asked to contribute to FDGC DLOB (slide)
 - GeoCloud solution, GSA contract on Amazon hosted—look at replicating environment for USDA
- Current Status
 - Need project manager for IFTN – John Mootz unanimously nominated
 - \$1.3M (?or \$3M) funding
 - MOU's with Managing Partner
 - Gain support for green book allocation/collection
 - Reorganization of USGS, level of interest was not there to support the business case for IFTN. Also hearing USGS is going forward on IFTN.
 - Kept NAIP separate of out of concern for lack of funding for IFTN
 - USGS seat on FDGC gives them more of an "in" with OMB
 - High Resolution program NGA funding. Intention was to enlarge across the state, cycle, DHS stays on schedule. USGS more of the

“face” of the program. 133 cities money coming from NGA Clear 30 and other programs influenced decision around participation DHS, NGA, NOAA, Commerce. Requirements not normalized, investigation hasn't been done regarding viability and sustainability. NGA review wasn't recommending funding of Clear 30.

- Opportunity for USDA to go to OMB to talk about maturity of NAIP.
- Department made recommendation regarding RFI
- 2011 Focus
 - Creating enterprise strategy for geospatial
 - Enterprise data quality management – department policy should represent existing work done
 - Resources coming for prototype development, work with Melinda to get rid of data storage cupboard
 - Appeal to administrators to influence thinking on value of solutions

Vault Project

John Stadelman [Preservation & Accessibility - PDF](#)

Preservation and accessibility for vault

- Currently scanning 40TB/year. Maintained for 30 days or longer, then dumped
- Only scanning on demand basis
- Need to focus on long-term solution
 - 15-20 points georeferenced on mostly flat scanned
 - Project team cross functional
 - Scans piggy backed from existing project demand – one exposure or whole roll?
 - 5 scanners and 2 employees
 - Prioritizing lull scans – oldest first
 - MOU with EROS for missing film
 - End of life of oldest rolls of film for business case – estimated 100 years
 - Digitizationguidelines.gov as a resource
 - Vault back to 1955; prior archived. No longer sending to Archives—retrieval cumbersome process and needs to be stored in ideal conditions & film condition questionable
- Printing [Print Options - PDF](#)
 - Can print about 700 analog prints/day
 - Different digital file types to work with
 - Digitally enhanced, 8-bit, ready to print with minor corrections 300-350/day

- Ottoway, Bighorn, with no correction, 16-bit, sampled down to 42mb, convert to 8-bit 2-5 minutes/file; 50/day. Used IMU data for Bighorn orientation in spreadsheet.
- Propose digitally enhanced file as a product
- Ottawa 8-bit, 4-band, separate file as jpg or tif to scale 1:15,840 with added titling DMC square

Satellite, Elevation, Emergency, Camera Calibration

Geoff Gabbott [Satellite Lidar Disaster - PDF](#)

- FAS satellite imagery contract no longer available as of Sept 30 – requirements had to be in by July. Broad spectrum of products/services available; price per image; no inspection done. Through Arctic Slope 5% fee; Arctic Slope provided imagery and kept archive. Funds were transferred to FAS up front and used as needed. Could request contractor to match up images. FAS no longer middleman for contracts.
- NRCS has largest need for satellite, esp. for islands, AK, and Continental US
- GWAC
- USGS contract – imagery competed—get whatever contractor is chosen by USGS
- Availability at archives to meet needs varies between contractors
- FS needs satellite imagery; needed sole source with DG – only contractor meeting needs
- APFO has typically guaranteed a minimum when establishing a contract – may not need based on prior contract with FAS; will obtain a copy of FAS contract
- BPA method as an option also
- APFO should pursue developing a satellite contract

- Elevation is not currently coordinated or centralized; potential economies of scale through APFO
- Was asked by Hans Fisk to look into it
- NRCS and FS procuring individually; no requirement for FSA
- FEMA \$20-23M to go into NED (?)
- APFO has been researching receipt and ingesting of data
- FS interest is forest structure data; RSAC has mission parameters to address – best success with USGS; need for emergency response and end of FY for fire assessment – vehicle would be helpful there. Suggestion to send request for requirements to Steve Nachero (?sp)
- Need for elevation should continue
- Fee for USGS vs. fee from APFO
- APFO will be ready shortly to address
- A couple of months for requirements to IDIQ

- Brian doing study – more complex magnitude than imagery; most is LiDAR some IfSAR for AK; benefit vs. cost; derivative product to use as benefit for imagery on NED
- Emergency – without funding, can't establish a contract.
- FEMA receives funding and requirements get mingled. Need to meet with new FEMA RS coordinator to communicate need for imagery.
- Stereo requirements in NAIP contract that can be utilized.
 - Best to know of need before contracts are awarded
 - Very low price
 - Requirements in contract that it is flown in stereo, but not delivered. When Contractors know early in season, less than 10%, even 5% increase in cost
 - Statebound
 - Could do a secondary contract to get one forest; copying files early in production
 - 1 Meter stereo – would need to know of some interest in January to modify contract before RFP goes out.
- Difficult for USGS to sustain camera calibration service
 - Two year supply of glass plates remaining, new purchase cost @ \$9k each – 10 year supply for \$144k
 - Remaining workload of cameras not likely to support investment – steady decrease
 - Increase from \$5.2-7.2k to \$10k to calibrate a camera
 - Depend on calibration reports – adjustments need to be made with use of analog cameras.
 - Announcement will be made
 - USGS proposed NRCS to take over lab as option
 - 3 years between calibrations was a workload determination
 - Shipping to the lab caused more changes to camera than staying in the plane
 - Could use them for 5 to 10 years even with just minor changes to the camera, and unless there was damage to the camera, insignificant to photogrammetry
 - Not yet decided; looking at adjusting contracts this year

Wrap Up

Kent Williams

- FS enjoyed being part of vendor meeting and sharing of info

- Normally don't have NAIP post mortem at and of IDIQ period – could do conference call with webex capability for this portion (FS suggestion); time set aside for regions would not have been adequate had all regions attended
- Hotel better than APFO – better space

2009 Action Items Still Pending

- Imagery requirements from agencies for disaster response, contact list at a minimum (Glenn Bethel)
- Article in other publications about land use change, historical imagery and agriculture projects to expand past just geospatial world (APFO)
- Review formats of NAIP deliverables and the delivery system (David Davis, Kent Williams)
- Sharing data or transmitting data to GSTC (Bill Belton and Lori Uhlhorn)

2010 Action Items

- NIR standards in place hopefully for 2012. Standard for IR band (Glenn Bethel), Tom Mellin, RSAC FS Region 3 volunteered also.
- Mixing sensors in a single DOQQ
- Determine NAIP product deliverables
 - CCMs, etc. web servers
 - Possibility of delivery through web service; location APFO vs. vendor site; access and contract issues
- Determine requirements for image data metadata
 - Retain raw sensor data, seam line shape file, etc.
- Restricted areas
 - Need to brainstorm other options
 - Common database for contacts, etc.
- NAIP vendor analysis
 - Come up with some broad brush categories
- Evaluate larger sample size for NAIP pre-production samples
- APFO Contracting to look into setting up a contract for satellite imagery – pattern FAS
- Archiving costs – Stephen Lowe will do a pilot
- Elevation evaluation – Brian Vanderbilt
- USFS interest in stereo NAIP 2011 – Melinda McGann
- Formalize return of NAIP use data from partners
 - Downloadable and web map
 - Intended to impose minimal burden on collecting agencies
 - No PII
- FS Regions would like more info on APFO services available and contacts
- Meet with new FEMA RS coordinator to communicate need for emergency imagery and provide information from meeting (Glenn Bethel)

