

ITAC Meeting Minutes - Wisconsin Water Science Center September 24-26, 2013

Attendees: Scott Gain, Nate Booth, Terri Moore, Dane Ohe, Bob Avery, Kris Lund, David McCulloch, Bob Kimbrough, Kate Flynn, Gary Krammes, John Walker, Morgan Schneider, Tim Brown, Paul Exter, Lorna Schmid, Joe Nielsen, Burl Goree, Tim Brown, Paul Exter, Brian Reece, Jim Kolva, BJ Bour, Dorrie Gellenbeck, Gary Fisher, Scott Bartholema, Jim Kirk, Dan Cavanaugh, Yvonne Jenkins, WI WSC staff, CIDA staff

DAY 1

John Walker and Morgan Schneider welcomed ITAC to Wisconsin. They look forward to the exchange of information. Scott introduced himself to WI WSC and CIDA staff in attendance. Introductions were made around the room and on the phone.

WI WSC Overview – John Walker

- The main WSC office is located in Middleton with field offices in Rice Lake (1 FTE), Rhinelander (1 FTE), and Milwaukee (1 person field office).
- Teams – Information on projects can be found at <http://wi.water.usgs.gov/projects/index.html>
 - o Environmental Health – lead is Dave Krabbenhoft (10 people)
 - o Environmental Resource Assessment – lead is John Walker (6-8 people)
 - o Water quality monitoring – lead is Dan Sullivan
 - o Watersheds and Regional Studies – lead is Dave Saad
- There are 8 RGE employees (Research Advisory Council) spread across the teams. This is unique to Wisconsin.
- Climate change issues are important.
- Funding – from 2007-2013, there has been steady growth with an increase in funding (includes CIDA).
 - o \$16 million between two centers with >\$1 million carried over to next year.
- Many of our studies are interpretive studies (flood frequency network, Great Lakes Restoration, NAWQA) – approximately 85-90% of our work is comprised of studies; the rest is data collection.
- Cooperator match is at 72% (75/25 cost sharing) – we have been able to convince our cooperators that they are getting the same amount of data for the money they are paying.
- The Hydrologic Networks group collects data that can be used to make decisions (includes flood frequency network).
- WI WSC has the lowest streamgaging cost in USGS. Techs are efficient. “Good people doing good work.”
 - o All techs have some hydroacoustic equipment.
 - o The April 1 deadline for the annual data report is consistently met.
 - o CIDA is a good example. The group has grown into its own center. WiM may also see this happen. Their goal is to produce fast, stable, intuitive interfaces. Products include the Hurricane Mapper and Flood Inundation Mapper.
- Former groundwater team – ground water and surface water are all one resource. Look at the whole cycle. Focus is on societally relevant endpoints. We have a modeling center which uses about 550 CPUs for parameter estimations. We can help other centers calibrate their models.
- Water Quality Assessment Team – water quality monitoring at national and local scales, lake water quality work, stream water quality, nonpoint sources, and Great Lakes monitoring
- Watershed and Regional Studies – state and regional watersheds, NAWQA, SPARROW, geomorphology, sediments, loads from lakes, focused lake studies, urban and rural management

Center for Integrated Data Analytics (CIDA) Overview – Morgan Schneider - cida.usgs.gov

CIDA is dedicated to the deployment of high-end information technology products to enhance data storage and access methods against natural resources datasets. The CIDA emphasizes enterprise database and software development in collaboration with

USGS scientists and others to provide researchers, policy makers, and the general public access to environmental monitoring data and analytic products through web-based interactive geospatial displays and other decision support tools.

- Headquartered in Middleton, Wisconsin
- CIDA is now a part of the Office of Water Information, Operations – Morgan Schneider
- Infrastructure – Scott Lewein
 - Software Development Life Cycle (SDLC)
 - Agile manifest – individuals and interactions over processes and tools, working software over comprehensive documentation, customer collaboration over contract negotiation, responding to change over following a plan
 - Projects include coastal change hazards (Dr. Jordan Reid)
- Collaboration with USGS scientists and other agencies is important.
- About 30 staff and 5 contractors
- Technical areas of expertise – data warehousing, centralization, and standardization, transactional systems, spatial applications, search capabilities, web services, hosting, and real-time data dispersal
 - Project types include business apps, enterprise data management apps, portals and monitoring networks, decision support, data networks, mobile apps, consortia standards, geoinformatics and modeling, and infrastructure support.
- Focused on maturing service delivery
 - Foundations - virtualization, web technology, storage, storage, servers and backup, security
 - build a cross-functional team
 - these areas will be implemented more comprehensively
 - transparent management of workload
 - agility in prioritizing tasks and rapid response to mission leads
- CIDA builds a server for each project. We have a standard way to stand these up.
- Release planning moves big ideas into tangible goals and software; make sure goals can be met with each iteration – deliver production grade software.
- Projects – cida.usgs.gov/projects.html
 - Coastal change hazards portal – go.usa.gov/DVMV
 - GCMRC sediment
 - Helping the Grand Canyon Monitoring and Research Center – due to Glen Canyon Dam sediment
 - Historical and real-time hourly data over time; graphs and data can be downloaded based on selected parameters.
 - Reach sand budgets and adaptive management support – how does dam management affect where sand ends up?
 - National Water Census platform –
 - Data services – modeled streamflow, ET, aquatic bio, etc.
 - Processing services – Geo Data portal, HIT/HAT statistics
 - NWC Model Intercomparison Portal – 2 Web apps; collaborator data management support and tools
 - The GeoData Portal – Enterprise Geo processing – important for the National Water Census
 - Select datasets or processing – look at climate data, landscape data, and aerial statistics – pull large amounts of data that can be easily understood.
 - Driven by hydro-fabric (NHD/WBD) – common reference entities, geometry for visualization, network for rating and integration
 - Environmental data discovery and transformation – (EnDDaT) – cida.usgs.gov/enddat/ - online tool used to discover data from our natural environment. This tool accesses data from a variety of data sources, compiles and processes the data, and performs common transformations. It was built for those who need a consistent data format (for example, weather data)

IT Overview – Dave Owens and Karen Nelson

- o 130+ users; 400+ computer systems (Windows, Linux, Mac)
- o 1 main office and 4 field offices
- o 4 staff – Karen Nelson, Ryan Heath, Al Barber, and Gary Gill
- o Server Room
 - No failures
 - Switches updated about 4 years ago.
 - 6 servers dedicated to the WSC, but they are trying to get to 3 with virtualization
 - Collaborated with CIDA for file storage
- o Unique aspects
 - CIDA and WSC interaction and shared support; collaboration when there are network issues
 - Modeling array – 48 desktop computers that are upgraded every other year; 27 older blade servers
 - Faster hardware refresh
 - We need to figure out what to do in the future as desktops aren't the wave of the future
 - Belare is used for asset management – Can see all computers, IP configurations, hardware, software, RAM and software on individual machines. This helps IT staff target their efforts.
 - Campbell Scientific Data Loggers and software – LoggerNET, RTMC, Logger LINK
 - LoggerNET – data collection (we have over 250 stations that collect and process data)
 - RTMC – hoping that AQUARIUS will allow quicker dissemination and viewing of data which will allow quicker response to storms. Allows plots and helps techs determine where samples need to be taken.
 - Through the use of data loggers, the frequency of data collection increases. Field staff are freed from having to VPN to upload data. This has been critical to our success.
 - Test a wide variety of field devices and laptops
 - To date, we have gone with tablets that can be replaced every couple of years, however, the Toughpad may change this thinking.
- o Challenges and Concerns
 - Improve approval requirements for IT staff; terms run to 3 years before conversion to full time.
 - How do we get a better handle with on-boarding new staff? It took time to understand the process, and obtaining security clearances still takes a while.
 - DOI hardware purchasing contracts – This process takes an inordinate amount of time and limits what the center can accomplish. We cannot afford to do this with smaller purchases. Terri suggested asking Paul Exter about this.
 - Maintenance for Avaya phone system, LAN, HW, etc. is up to 20-30% of the cost of the equipment.
 - Loss of key USGS WAN support staff - The loss of Bob Wakelee and Tim Lee is huge. We need to increase advocacy. It is difficult to track down and identify problems. If we rely on ESN, these problems will not go away. These positions need to be backfilled. These are key positions.
 - VPN slowness – people give up when they can't connect. When USGS ran these systems, they were much more stable.
 - Workstation reduction – Some staff are more efficient with both a desktop and a laptop. The center is curious as to how DOI is doing their evaluation. May lose efficiency.
 - Windows 8 deployment – previously used Ghost. There was brief discussion on this topic with Bob Avery asking if they have looked at using Acronis (<http://www.acronis.com/>).
 - Field use of smart cards – We are not sure how best to convey the importance of the ability to use login/password to DOI.
 - Potential migration of file servers to the Cloud – WI WSC concern about the time this is going to take. Terri commented that there will be further discussion on the Cloud tomorrow.

- Potential loss of local IT support – We cannot wait for days to get support. Our hope is that DOI does not take away IT support. We are willing to pay for this support, and hope that DOI will evaluate the loss of time.
- Loss of innovation – when everything is top-down, there are no new ideas coming up. The best ideas tend to float to the top. Putting all our eggs in one is a problem.
- Virtual desktops – Works well for administrative work, but not as well for science purposes.

Town Hall

DOI IT Transformation and Web Re-Engineering - Paul Exter

Paul provided background information on DOI IT Transformation (ITT) – Secretarial Order #3309 – noting that it is important to understand that the DOI CIO has many responsibilities. This is key to many transformation issues, as USGS is used to highly technical support. The CIO is in charge of ALL spending approvals over \$3000, and will seek to realign how IT services are designed, priced, and delivered through a catalog of services model across all DOI. Paul added that Secretarial Order 3309 is increasing its pace and is starting to phase services across all service towers as approved by each bureau Deputy Director under and Executive Steering Committee. These services will be phased in over time. Other things are being initiated where concerns lie. There are five service towers with the objective of centralizing IT services.

- End user – phones, etc.
- Hosting – web servers, computer rooms
- Information assurance – security, C&A, firewalls, patches
- Telecommunications – all telecommunications – phones, cell phones, WAN, LAN, cell contracts, radio infrastructure
- Service desk – in the future, the intention is to have a call-center; remote fix or dispatch

End User – Unified Messaging

- USGS mail and calendar migrations are completed to GafG. Outstanding issues – USGS archive migrations to Google, bulk email requirements, directory services transition, and decommission of all Lotus infrastructure (December 2013). Paul commented that this relates to Dave's concerns in that when we stand down, we cannot hire back. The Department will not approve changes in Human Capital. Paul also reminded everyone that the do-not-delete email order from DOI is no longer active.

Hosting – Data Center Consolidation

- DOI is active in awarding a Cloud Services contract. DOI does not want local offices to maintain servers and is directing all DOI bureaus to use a Cloud first methodology for hosting and data services (back-end services should be Cloud-based). The Department is working on guidance and a plan for migration. USGS will need to develop a Bureau strategy for consistent and efficient adoption. USGS Science Portal is being developed to allow a consistent process to review Cloud activities. May be available in late October.
- 6 core data centers (for all enterprise hosting in DOI) will be turned over to DOI – USGS Reston National Center, USGS EROS Center, BLM, IBC Denver DFC, BIA New Mexico, and BOR Sacramento. There is a DOI directive for 40% of all non-core data centers to be closed by consolidation with core data centers, migration to Cloud, or co-location with another federal or contractor-managed facility. This is critical for USGS, as we have 104. It is impossible (technically or cost wise) to meet this directive because of the amount of data processed locally. USGS IT Science Advisory Council (Bill Werkheiser is the lead) is working with DOI on how USGS can meet this requirement. USGS Science Continuity Survey will establish requirements for centers to maintain computing environments. Paul noted that centers should not fear this. The work they do is important.
- Information assurance – Continuous monitoring of all devices for security awareness, threat protection, compromise. This is a newly initiated effort after 2 USGS and 4 other DOI sites were compromised. In the planning stages of IBM

endpoint manager. Other services are being planned in the areas of unified service (help) desk, standard software and hardware contracts, and unified cellular wireless contracts (next year). Paul emphasized that USGS supports DOI ITT and is working collaboratively with DOI to ensure that the USGS mission is upheld through these activities.

- Cyber Security – There has been an increase in cyber security threats in DOI. After two attempts to compromise systems, DOI is uneasy about patch procedures (done at the local level). These sites had high vulnerability for months. DOI is critical of USGS. Paul emphasized that It is critical to do patches before DOI comes back and says they are taking over this function. Threat detection software will be implemented by April 2014.
- IT Workforce Assessment – September 2012 – each bureau director and DOI agreed to a record of decision (RoD) that calls for a build and recruit model for all ITT Human Capital staffing (no lift and move). Initial plans were that IT positions would potentially move to DOI. Those not selected for build and recruit models will become the responsibility of USGS. If USGS wants to keep these staff, they will be a USGS employee. All ITT staffing positions will be advertised to all DOI employees. An exception to this is a pilot rapid assessment for the hosting service area. A recommendation on whether a build and recruit model is efficient will be presented to bureau directors and is expected to be complete by Fall 2013. DOI is also collecting information on the staffing alignment of all ITT employees.

In closing, Paul reiterated that we must respect DOI's authority and goals. We are working with the Department to let them know there are challenges. USGS is not a consolidated bureau and our science needs are different. Paul noted that it is good for ITAC to put forth a memo on these types of issues.

Questions:

Question about cell phones – Do you expect the cost-savings to be worthwhile? Local providers have better coverage. Paul responded that this is common to USGS. DOI wants control of the number of phones and types of services. This is no different than Microsoft. DOI is aware that there are sharing arrangements. DOI perception is that everyone is doing something different for cell services. Some specific, customized service may be lost, but DOI will eventually try and work these things out.

How do we push issues up the chain? Paul responded that ITAC supports Water. Issues should come up through ITAC or the WMA. "We have concerns because of 1... 2... 3..." and present this to ITAC. Paul added that he cannot be negative. DOI is new to operations. We may see a decrease in service until they come up to speed on the issues. It's up to USGS to make this work and be supportive. Keep in mind, we can elevate issues when they are being impacted.

Dave Owens – with that spirit of cooperation, are there DOI contacts we can use? Paul responded that centers can contact their IT Liaison or his staff and emphasized that we should not put on the face that we are not cooperating.

Question about VPN latency – DOI is getting better with things. If you are having latency issues, elevate this to DOI level and they can troubleshoot VPN concentrator issues.

IT Liaison Update – Tim Brown

Tim introduced himself and noted that he is the point of contact for elevating IT issues. He added that he provides information from the top down – interface between the WSC and AEI management.

Tim commented that USGS is working to get their network scores better through IBM endpoint monitoring manager – for power and patch management. Tim added that we are currently preparing for possible shutdown.

Questions –

Is there a demo for the IBM endpoint manager? Tim responded, yes, there will be slides and WebEx trainings. We are implementing this with early adopters and then there will be a break. Phase 2 will encompass a week of deployment and then a break. Phase 3 is implementation. Tim added that he is not sure of the cost per machine.

Regarding VPN latency, Tim commented that he is not sure if everyone is aware there is VPN1 and VPN2. Typically, Reston is busier (it's the default). VPN2 is out of Denver and may offer faster connection.

At one point, SCCM was going to handle asset management, is that correct? Tim, yes, but there are things that it won't do. There are other features that the IBM endpoint monitoring manager has. Dave asked if SCCM will be phased out with Tim responding that centers cannot have more than one solution. They will probably need to do a gap analysis.

Tim asked if anyone has questions regarding shutdown noting he does not have much information.

- Dave Owens responded that the Center Director will brief the center on Friday.
- Will there be network monitoring? Yes, it won't be an abandoned ship. NWIS has its own COO plan.

ITAC Updates –

- **OWI Update – Nate Booth**

Nate gave a brief overview of the Office of Water Information (OWI) noting that he took over in May 2013. OWI is now 30% larger with the addition of CIDA. OWI is comprised of the Water Information Coordination Program (WICP) – Wendy Norton (Executive Secretary of ACWI), WAS – David McCulloch, National Water Information System (NWIS) – Dane Ohe, and now CIDA – Morgan Schneider. Terri Moore is the Deputy Chief of OWI. Peers are Office of Surface Water (OSW) – Robert Mason, Office of Groundwater (OGW) – Bill Cunningham, Office of Water Quality (OWQ) – Donna Myers.

ITAC has existed for a long time. It is a place to gather common ideas with the best of these ideas bubbling to the top. It now seems as if it is a protection mechanism. We should approach it more positively.

We are trying to be proactive and move forward with ITT.

- o AQUARIUS procurement will replace times-series. This is a major new system with new capabilities.
- o NWIS – manage site file, water use information, discrete data

We have a substantial science capability, and we have a way to bring data together. To support these efforts, Terri is starting to look at what we are going to run these on – support 2 (maybe 3) nodes with redundancy and will be looking at operations staff.

- **NWIS Update – Dane Ohe (Acting Chief)**

Recent successes

- o Migration to Oracle RDBMS completed and will allow us to leverage Oracle technology.
- o NWIS 5.1 Release – supports the NWIS Vision
- o NWIS Vision – discrete data aggregate underway, de-duplication was successfully tested, GUI development is underway (easily retrieve data across geographic location). Dane will provide more details on Wednesday.
- o NWISWeb – (public face) – mobile-friendly site released, improved user interface, plot multiple sites of parameter, plot multiple parameters for site, additional RT parameters, improvements to site mapper
- o SOS – quarterly reference list updates

Upcoming activities – coordinate with AQUARIUS time series software development (CARP), NWIS 5.2 release (August/September 2014) – bug fixes, 12-digit HUCs, some code improvements, improved thermoelectric data, water level data

NWISWeb –

- o Integrate with AQUARIUS for time series data
- o Integrate with NWIS Vision for discrete data
- o Print-friendly 12 month daily value summary
- o Active sites fix for the Mapper
- o My Water Data portal
- o Statistics web service

SOS –

- o Quarterly reference lists
- o FY14 risk assessment
- o FY14 security assessment and authorization

Special Projects Update – Gary Fisher

Gary introduced himself and gave an overview of the projects he works on.

WaterAlert (water.usgs.gov/wateralert) – A new interface, similar to the NWIS Mapper, was released on September 18. Additional updates are being made this week to include new “bells and whistles” and improved functionality.

WaterNow – This service provides a simple text or email message to the user with the data they want, however, it has not had a lot of use internally or externally. We are hoping for the usage to increase.

SIMS (sims.water.usgs.gov) – Everyone is on one national server. Prepares for element data service. This is the biggest app that will be replacing the annual data report. Job Hazard Analysis (JHA) is now Site Hazard Analysis (SAH). It is available in a condensed format that is DOI-compliant for safety. Safety information for measurements can be added. The cableway management system will be available in about a year.

Mobile Computing – MONKES, CHIMP, SWAMI, and Station Levels are moving to SV Mobile. They will be available as individual apps. We want to provide this on smart phones, but this will be next fiscal year because we need to develop a plan. There is a commitment to support handhelds through December 2014.

Annual Data Report (ADR) – Water Year 2013 is the last year for the annual water data report as we know it; not supported after June 30, 2014. The NWISWeb “12 month” report will start in 2014. Scripts are available, and some centers have already started. The report will look like the ADR, but the user will be able to produce a report for any 12 months. We are aware that some users have special needs. Old SDS’s will be transferred to Publications and will be available through the Pubs Warehouse.

Town Hall Questions –

Cloud computing questions will be better answered during Wednesday’s sessions.

A comment was made that there are other government cloud contract vehicles. Can we go through these? Tim Brown responded that we should wait for Karen Klima’s presentation on Wednesday.

It takes longer for IT approval at the higher level. Is there any information on this? Terri responded that the Department is scrutinizing everything. There is supposed to be a 30-day turnaround for approvals, but some approvals have taken from three to four months. It can put Paul in a bind to push these things to him, so we try not to put Paul in a position where DOI can come back at him. Terri added that if there is a critical issue, centers can provide a few lines of justification and she will push it forward.

There is frustration with the procurement process. Terri asked Paul if it is still okay to ask for justification to expedite the process. Paul commented that all procurement goes through USGS (Diane Wade – but Paul right now). Approvals are made every Friday and sent to the DOI Portal. DOI must approve all requests. However, they have one person doing this job. They have seen that it

takes about 60 days. If the issue is critical and may result in loss of functionality, we have an internal agreement with the Department and the Deputy Director. USGS might be able to approve in this instance – if it is absolutely critical. If not, then the requestor will have to wait for the DOI process to work out.

Terri asked about workforce planning. Do we need to look at those in the 2210 series and reclassify them? Terri added that she did a justification and is curious about this. Karen Nelson commented that she, too, is interested in this issue. Paul responded that we are still working with DOI on certain positions. It's important to remember that we're in a build and recruit model. The only jeopardy is whether these people are in the correct series and have the correct PD. Paul added that we should not try and shield or hide these staff from ITT. Paul noted that there are a variety of functions with no "real" home. He does not think this is the issue right now. Classifying what you do accurately is the most important thing.

Wisconsin Internet Mapping (WiM) Presentation – Gary Latzke

Gary gave an overview of WiM.

- Develops and implements web and mobile apps and provides online data services for a variety of projects and cooperators.
- 3 remote developers
- Gary presented a slideshow of the projects that WiM works on. Gary noted the importance of decision support systems. In having the ability to build apps, WiM helps fill this role.

USGS Storm Response evolution – Upper Ohio River pilot and Hurricanes Irene, Isaac, and Sandy – deploy 200-300 sensors per storm.

The Short Term Network (STN) application streamlines data planning and its data structure is designed to encourage, but not require, repeat visits to the same location.

Development and plans for the USGS STN

- Sandy supplemental work plan enhancements
 - o Upgrade to include new Sandy supplemental instrumentation
 - o Project Alert/DOI reporting
 - o Additional public products (long term website, help)
 - o Citizen science - collect photos from the public, partner with ASFP and FEMA
 - o Inundation guided look as data comes in
 - o Very long term – indirects and real-time modeling

Questions –

What is the thinking on new instrumentation? Marie responded that they are just starting to talk about it. The concept of Real-time (RT) is different for different agencies. We need to look at instrumentation needs and who our partners are.

Geospatial Platform – John Baeir

Federal government collaborative efforts are centered around the Geospatial Platform. John is doing work for DOI based on the Geospatial Platform. The platform is meant to be a single place where people can go to look for geospatial apps.

Components:

- shared infrastructure to host data and applications (AGOL)
- "one-stop-shop" to deliver trusted, nationally consistent data and services
- marketplace to allow agencies to search for datasets before spending resources on a new endeavor

- communities for collaboration (National Blueways, GeoConOps, A-16)

There are a number of side projects that come off of this effort.

- A search tool built to allow search of more than one portal at a time. Search catalogs in one central place.
- Shared hosting capacity.
- urban water mapping application
- Symbol store – central place to store mapping symbols.

US FGDC sponsored the GeoCloud initiative to coordinate the development, certification and deployment of a shared geospatial system by multiple federal agencies. Amazon was selected as the vendor.

Goal – Windows/ArcGIS platform

- Security requirements gathered and applied with the help of federal staff and esri
- Platform package includes windows 2008 server and ArcGIS server application suite
- Goal of 100% automation to take full advantage of AWS features

Make it as easy as possible without the need for a lot of IT staffing.

2 ways, use ESRI Cloud builder and GeoFormer – will eventually transfer over to geotransformation platform (geoplatform.gov)

Questions –

Can you comment on the status of Open Geo offering? Response – open geo offering will stay and will be used from Geoplatform. Graphic interfaces are not available yet - trying to make geoformer work with it. No control over ESRI Cloud builder.

On open geo, it's more technical from a Cloud perspective. Need to spin it up with more direct access to the Cloud.

HHS is part of the Geo Cloud, they have contractors. At USGS, Amey Rhab is working on automated platform building.

Is it open for business? Yes.

What is the billing model? It's a pilot program for the 1st year; you work in their account but don't pay. There is a submission process at the beginning of the year, and they select who gets a pilot. The bill is covered by FGDC during the 1st year. After that, they set up production accounts, and you pay. There are issues in some agencies with getting a Cloud contract. Now that the DOI contract is out there, this should be easier.

New and Emerging Technologies used by the Wisconsin WSC

Current accomplishments – data dissemination, data collection, analysis and research

Rigs to Reefs – artificial reef planning application

GLRI Priority Watersheds – this project has moved us toward moving watershed monitoring to other states.

History

- Edge-of-field monitoring began in 2001 with 4 edge-of-field sites on UW-Pioneer Farm
- Currently operating (WY13) between 3 states and 3 programs
- 10 edge-of-field, 3 subsurface tile, and 1 stream sites are planned for WY14

With monitoring at this level, we need adequate sampling to make sure we follow USGS protocols; we have adopted a flexible monitoring strategy.

- 2-way communication
- “smart” datalogger programming – allows interaction as the event is happening
- Alternative sampling
- Interactions between datalogger data, database, and computer programs

Rely on different programs. Using Campbell scientific programs, cooperators and other employees can keep up with what's going on at site.

Also need flexible data handling

- Splitting records would get costly if submit many samples – convert time paced samples into flow weighted sample by determining how much water to take from each sample; currently using internal programs
 - Using a USGS accredited lab is more cost efficient. Getting the data back in to our database can be a problem; it takes a while and is not easy to transfer
- Load calculation – load summaries, not traditional stream sites
- Adoption of monitoring methods by other Centers
- Transfer of data handling processes
- Incorporation of data modification process with the USGS database
- Conversion of current methods of data handling into R scripts – automation of R
 - Build off newly developed USGS R packages: dataRetrieval, USGSwsQW, USGSwsQWSR
- Utilize interaction potentials with USGS database to improve data formatting and conversions
- Enhance and speed up data analysis through automation (working with CIDA)
- Invest in method evaluation techniques to improve long-term costs and increase efficiency

R package development –

- USGS moving from S (commercial statistical software) to R (open source statistical software) in FY14
- “packages” are convenient ways to share code
- Starting to realize the potential of R

Laura discussed the functions of dataRetrieval

USGSwsQWSR – discussion of workflow and examples

- A suite of USGS packages developed by Dave Lorenz – now available in R
- Created to simplify the process of creating, evaluating, and running water quality surrogate regression models

WiM – Mike Fienen

- Working with calibration and uncertainty of models
- Motivation for High Throughput Computing (HTC) – computing power increases, ecological endpoints for hydrologic models (complexity is increasing); results in more complex models answering more complex questions

What WI WSC brings –

- Innovation –
 - Cutting edge and raising the baseline of what to expect in USGS
 - Important to know how to use the technology. Help people know what to expect from model calibration.

- Infrastructure – skilled management; We have IT and management support. Have the expertise; power and heat are a challenge. Have the necessary infrastructure.
- Integration – education/empowerment; some want to learn to do this themselves, Strategic partnerships are important. Work with UWI, other countries, with HTCondor, and Open Science Grid (a consortium of universities providing extra computing power for open science grid, only Linux, however)

With great power comes great responsibility. There are high expectations, but there is a valuable place for these resources.

Next steps

- flocking (make one condor pool aware of another)
- Some financial implications they aren't aware of yet

DAY 2

Integration of Bureau Science and Finance Systems: Site Funding Application – Brian Reece

Brian discussed the integration of financial and streamgaging systems through his site funding application. Sally Holl (Project Chief) and a student programmer (Justin Robertson) helped with this effort.

Providing credit to our cooperators is important. This can be hard to accomplish, especially in a large center. It requires knowledge of the agreements that are in place for those providing funding to us. Through a lot of effort, Texas got an extensive list of customers, partners, and cooperators. This information can be hard to find in centers. Brian's application allows for Texas to see the details of agreements the center has with their cooperators. The application makes the information available at our fingertips and provides a lot of search functions. The system allows mapping of sites as well as other reports and provides details that might not otherwise be seen because they are only available through spreadsheets.

We have nationalized the system to some degree through a pilot - tx.cr.usgs.gov/NationalFunding – with 5 states.

- Goal – gage funding pilot phase – obtain data from local science centers and build a national application. In parallel with the pilot, a Gage Funding Steering Committee was put together. Are there efficiencies to be gained? Identify why we would embark on this and how to implement such a system.
- Five individual databases were initially set up. They were aggregated to a single system in June 2013. We now have a national system – nationally aggregated database, nationally integrated web application, web service-ready data.
 - o Features – search, ability to connect to local document library (integrate with local workflows), data integration – agreements, customers, contacts, site details; data transparency (Center Director, Data Chief, AO can all see agreements, neighboring states can view agreements, sites, maps); controlled edit access, custom Home (dashboard) for where you are located.

It is a challenge to get this type of project moving so we can all benefit from it. Within the cooperator station funding system, there are a lot of systems “talking” to one another. The system pulls from NWIS, FBMS, SIMS, etc. It is a challenge to make all of these systems work together.

Center Recommendations

- Maintain and expand exceptions reports – how to avoid being on the “nasty list”, critical to assuring complete, accurate, timely data (ex. RT sites w/out funding)
- Involve admin in overall workflow (updates needed more than once a year; a once a year data call will not work)
- Create robust web services

National Recommendations

- Develop a consistent name for the product

- Establish a “central data steward”
- Formal getting started manual
- Formal communication to the field
- Sub-committees make decisions about specific considerations (ie, multi-year agreement handling, collection code standardization)

From a national standpoint, require that this application be the data collection platform for USACE and NSIP agreements

- Independent of complete center adoption
- Improve business processes with national agencies
- Improve data accuracy
- Consistently track \$46 million annually

Considerations-

- Timeline for nationwide release – immediate upon establishing a central data steward and maintenance mechanism
- Multi-year agreement handling – how do we track these? What are the business/reporting requirements? Which approach is selected?
- Studies/research funding details – what codes are used for funded items? Basis+ connections?

Spin-off – agreement document generator (not critical for a national release), but there may be a center-by-center interest in this functionality. Some people will be starting from scratch.

There is not much effort to get started other than commitment. Efficiencies have been gained through the pilot process.

Nate commented that this is impressive and commended the work that has been done. How does this work with synchronization with Basis and does it work with FBMS to synchronize? Brian responded that in TX, he has a query to dump the FBMS locally. This is easily done nationally, but is being done locally for TX.

Myths

- “Use bureau mandated systems (FBMS and Basis+)” – Those systems are not accessible outside of admin. The gage funding application will improve compliance with using Bureau systems.
- “This work is duplicative” – Center workflows are disconnected and happening within individual stovepipes. This system ties all these workflows together and makes them consistent and transparent.
- “I have my spreadsheets; I can make that agreement in 10 minutes” – workflows developed by others are not easily portable to other WSCs or to new people.

Brian has full FBMS and Basis access to make things work in his center. Brian now has access to all agreements in the TX WSC Cooperative Funding Report. He can see account by account where funds will be going. Brian dumps the national list of basis accounts daily. He added that a web service would be awesome, but we’re not there yet. He pulls data for about nine states now.

Nate commented that the discomfort is that we have a challenging approach WSC by WSC, and we are now adding a third piece of information.

This is a powerful tool for WSC directors – provides information at fingertips.

NWIS Vision – Dane Ohe

Dane gave an overview of the NWIS Vision.

Three-phased approach will allow time for NWIS to learn new techniques. We are trying to solve a lot of things that are inherent to the way that we do business. The Vision is endorsed by Bill Werkheiser and Jerad Bales.

- Phase 1 – aggregated read-only internal system (in progress)
- Phase 2 – public read-only national system (make the best data available)
- Phase 3 – build an aggregated transactional system

Why the NWIS Vision?

- Make all discrete data available from a single source
- Enhance data integration and sharing – end duplicated infrastructure, save money and personnel time, eliminate inconsistent data presentations

Our large complicated system has become brittle. We need to implement newer technologies and make changes more responsively to meet user needs. The Vision will allow us to remove/reduce the NWIS footprint in the WSCs (aligns with ITT) and dovetails with end of service life for WSC oracle servers. By phase 3, the need for these servers in WSC will not be there.

CARP is reliant on NWIS data. Architectural discussions are ongoing. Vision and CARP initiatives will be woven together.

Changes are being made for the next NWISCore release to accommodate site identification for AQUARIUS. Dane diagrammed how we will get there noting that Phase 2 will build on Phase 1. Only the best data will be moved forward. In Phase 3, a national transactional database will be built to replace the current 45 servers thereby reducing the NWIS footprint.

A lot of progress has been made. Successes include an internal read-only database, identifying and managing duplicates. The next part of Phase 1 is to rank the data and build a GUI retrieval system. Doing this manually would have been a challenge.

- Benefits
 - o Aggregated dataset for internal use
 - o Automated method for identifying and ranking duplicates
 - o Consistent national view of the NWIS dataset
 - o Creates the framework for Phase 2
- Achievements
 - o More NWIS products released in FY13 than previous single FY releases.
 - o NWIS 5.1 – transaction logging for aggregation
 - o Extraction, transfer, and load (ETL) for Phase 1 internal database
 - o Internal aggregation of NWIS discrete data – right now, there are hourly updated from all WSCs to the aggregated database. WSC copy of data is the authoritative (NARA) copy.

De-duplication is separate from the production database. Duplicate data handling directly affects the data and is complicated. Without de-duplication, we cannot move forward. The next big step is to identify what the best data is from our large pile of data.

Why is duplicate data a problem?

- It biases statistical analyses (same data is included more than once)
- Incorrect analyses from stale copies
- Incomplete analyses
- Time consuming to sort out
- Potentially embarrassing (different data presented in multiple USGS products)

We are trying to improve the quality of the provenance of NWIS data and provide a single source for everyone to use. A lot of resources are spent trying to get to the data that is needed.

Automatic de-duplication takes about 45 minutes to run and is run on the hour. After de-duplication, the data is put into a production server where algorithms are applied to each data topic. Flags are set according to de-duplication approach. We will have a traceable approach as we move forward.

Vision GUI is the “skin” on the apple. As we move forward, more capability will be added. A sneak peek for the NWIS DBA group is planned before the January/February release.

- Retrieval access to Vision internal aggregated database
- Everyone will have access
- New retrievals for regional and multi-state areas
- New retrievals that will combine data from multiple disciplines

Questions –

Nate asked if there is a scoring system and can people review how this scoring system works in their system. Nate’s impression is that this is still a moving target where different data may be promoted. What is the thinking on locking it down at some point? Dorrie responded that she foresees that we’re going to do this, and there will be 6 months to a year where there is a lot of activity, and folks will ask why their data is not the best. Dorrie hopes this creates discussions. This is the first time the data have been untangled this way. At some point, this will go away, and they will become willing to move forward. We may not need to lock it down, but will naturally be able to move forward. Dorrie added that she is not sure it can ever be locked down. By Phase 3, no duplicates will be taken.

Kris concurs with Dorrie. For certain projects, you will want to look at the data. There may be additional information to add on even if it’s not the best information. The goal is for the final copy to have the best data. Education of DBAs will help.

Nate – do we have reports that show how big the duplication problem is? Dorrie responded yes, she has a slide on this for the major categories, and she is doing weekly reports so we can see how this changes over time.

Nate commented that NAWQA has done this in years past. One thing that is ugly is when data copies across time zones. This makes it hard to recognize duplicates. Dorrie – this was taken into consideration. This was more an issue for QW.

Nate asked if there is any discussion to do this across site identification. Dorrie responded yes, this comes up. We will need to sit down and discuss the rules for this.

Active participants include NWIS DDU staff, NWIS SOS staff, CIDA personnel (Vision GUI), NWIS DBA “lunch group,” NAWQA Program, and WMA discipline offices and WSC personnel.

Internal issues

- Losing full-time resource for NWIS Vision GUI
- Unplanned resource allocations to CIDA for collaboration on NWIS Vision GUI to keep on schedule
- Sources of strategic direction are unclear
- Balancing the needs of all constituencies in the WMA
- Integration with other new systems

We rely heavily on volunteers for user groups. This puts us on shifting sands at times. Balancing our needs as we move forward is important. Moving forward together is important. Looking to the future, this will not be a straight road. We will have to deal with obstacle as they happen.

In the near future

- De-duplication algorithms will be finalized in September

- “beta” version of the database available in early October
- The GUI for internal USGS users to retrieve data from the national aggregated database will be available in early 2014.
- Developers may gain access to retrieve from the aggregated database during the beta period -

We have started talking about Phase 3. We’re not sure what it looks like yet, but the basic plans have been identified – aggregated transactional system, GUI input and management interface, and integration with AQUARIUS product. Detailed planning will begin soon. Benefits:

- Removes the need for creating duplicate sites
- Removes the need for a distributed system (decreases footprint)
- Timing could coordinate with next server replacement in WSCs
- Aligns with DOI/USGS IT Transformation plans

We get a lot of questions about the NWIS Vision. Help with communications would be helpful (achievements, what's coming, and how the WMA is affected). Provide input from constituencies – user groups are helpful, but do not represent all users of the data. Open data policy – increase access to the results of federally funded research – could potentially create duplicates of our data. NWIS is officially recognized as a repository by NARA. Dorrie commented that she is not sure how this will play out over time, but she wants ITAC to be aware of the potential impacts (including how the WMA manages data and our efforts to streamline data). This may require tracking in NWIS for each change to the database and individual piece of data. The change to continuous records processing and removal of the annual data report makes tracking this more necessary as the annual data report would have satisfied this requirement. Nate is aware of this issue, but ITAC should also be made aware. Can ITAC help determine how best to respond to this upcoming policy?

Questions – Dane recommended that questions be brought to him offline.

Commercial ADAPS Replacement Project (CARP) Status Report to ITAC – Joe Nielsen

Joe updated ITAC on the status of the CARP project. We are in the third of seven development quarters. Every question raised initiates a task order for work within these phases. This is an agile process; it takes effort, but is working, and we are happy with the results. Because some things are not scoped beforehand, we have to adjust how the work gets done and determine how it fits in with our initial budget. We will be meeting with AI in October, at which time, a top down analysis of the remaining quarters will have been completed.

Architecture

- Being coordinated with OWI infrastructure needs
- Initial development / test environment is operational
- Primary location for SW is EROS. There will be one, but possibly two, backup nodes (will mirror NWIS Vision)
- Moving forward with analysis of replication strategy and redundancy needs. Will evaluate network performance with AQUARIUS in our network.

NWIS Integration

- Telemetry integration is well advanced
- Making progress with site file integration. This is more complicated and requiring more resources than initially thought.
- Getting started with NWISWeb integration – scoping the actual work. Other NWIS integration strategies are in place and discussions continue.

Data Migration

- Starting to get a handle on WSC cleanup tasks

- o Special parameters
- o Data at duplicate sites will be an issue
- o Decide what to do with non-OWI databases
- o Communication will be forthcoming

Training

- “Supertrainers” have been identified and notified. They will provide hands-on training. They will be brought into the development process over the next year or so, and they will become experts with the software.
- Telecourses will also be used as a training mechanism
- Curriculum planning has begun.
- Meeting in Orlando in January.
- Trickier issues to deal with:
 - o How to pay for training? Will Water pay all or will WSCs pay?
 - o Travel quotas and limitations. How do we accomplish on-site training with restrictions in place?
 - o Facilities – no more than 2 staff per computer. Some WSCs have limitations with regard to training facilities.

Rollout

- Mockup to ensure the process works and fits our timeframe. Working on details. The mockup will help determine if the rollout holds up – need to consider potential hazard events and other issues
- We will do 3 pilot rollouts staggered 2-3 months apart with a 7-month rollout for the actual process
- 2-3 WSCs per week with room for adjustments
- 2-week intensive transition period (migration training) for each WSC with a second training session one month later

Communications

- Gearing up for the Data Chief's meeting (if it happens)
- DBA webinars – get started on cleanup tasks
- Demo the system – reach out to advanced users, discussions with the Water Science Field Team (WSFT) and technical offices
- Data conference
- Joe is writing up a plan for Nate's review.

Budget and timeline

- 2014 budget requires more money. We have a lot to do. There are a lot more people onboard. New money will have to come from somewhere else. Joe commented that he has a \$3 million budget for next year thanks to support from Gene Summerhill and other WMA support.
- Risks to January 15 release date –
 - o Reassessment of software development
 - o Project funding
 - o Architecture – we cannot go live until all issues are resolved and the software has the performance that we need (redundancy, fail overs, etc...)

Mobile Computing – Gary Fisher and Burl Goree

Gary gave an update on Special Projects

- Handhelds will be supported through 2014

- Burl commented that he wants to make sure everyone understands that the mindset is that what exists today is the mobile platform. All apps have been updated. We need to be able to support what we have today before moving .
- Gary commented that they will be working on a workplan for 2014. Input is welcome.
- Nate asked about the date for SVMobile. Burl responded that they will be testing the app by the end of the calendar year. He feels that the test builds will be able to be wrapped up and put out. Joel is the primary coder for SVMobile and he will most likely move it forward faster.
- The goal is to balance the needs of each WSC

WaterAlert

- ESRI based Mapper
- Updates are being made this week
- Strategic plan for WaterAlert is in review

SIMS

- one national server (preparing for element data service)
- In one way or another, SIMS is a part of most things we do.
- Provides crucial information to many applications
- Needs a strategic plan that links to the bigger picture

ADR

- The 2013 ADR is the last year for the ADR as we know it. No support after 6/30/2014.
- The ADR will be folded into NWISWeb as a 12-month report
- Old SDs will be transferred to Pubs

Site Funding Application

- Site funding application steering committee evaluated and recommended the best path and timeline for establishing a new nationwide application to track data-collection funding and related agreement details
- Subcommittee recommendations sent to Nate for discussion with Senior Staff
 - o Implement in all WSCs over 1-3 years
 - o Come up with a lexicon that matches administrative and WSC needs. It needs to be useful and able to provide queries by multiple paths.
 - o Agreement to "activate" a site in the system
 - o Provide ongoing support at national and WSC levels
 - o Make use of existing databases
- Don't reinvent the wheel or have redundant databases. Make full use of existing databases.

Questions –

Kris –will the new SIMS webservices take the place of manuscript ADR? Gary responded that we can now customize how information is presented in NWISWeb.

Kris – are there any new elements for SIMS? Gary responded that we can always add. Working on revisions history currently – merging previous two elements. This has been a long-term function of the ADR. We need this.

Bob Kimbrough – If the ADR goes away, will there be a requirement to have reports ready by April 1? Gary responded that his recommendation to Senior Staff is that a deadline (target date) is needed to finish the previous year. Data Chiefs will want this so it was recommended.

Mike Rehmel commented that he was on a group as part of OSW that talked about OSW interaction with SWAMI. There seem to be a lot of resource issues. Mike reiterated that it is important to get on a good platform. Improving accuracy and efficiency is a huge gain. Is there a resource issue to accomplish this? Gary and Burl responded that only so much can be done with the resources that we have. Regarding strategic plans for SIMS, we need to think outside of the box. Burl added that they have tried to seek more money, but it's not easy in these hard budget times. These aren't easy decisions. We need to discuss these issues with Nate. Adding resources can complicate the process. Nate commented that the Field Computing user group is a major mechanism for expressing issues and bringing needs forward. Nate asked for Gary and Burl to put together a work plan. Mike added that this is important and provides a good opportunity to improve data quality.

Scott Gain asked what our priority is and commented that recent OSW discussions in Mississippi, Tennessee, and other WSCs indicate that handhelds are not the way to move forward. Tablets are the better way to progress. Burl responded that we need to support what users have now and appreciate canvassing to see what users would like to go to. We are trying to spin up apps so they run on PCs. Burl referenced Gary's graph and noted that 45% of use is from PDAs. We cannot lose that 45%. Scott commented that resources are being used for keeping up, most handhelds will be gone. If we drop the current support for apps, we run the risk of falling back on electronic data capture processing. Kate asked why we would go backwards to handhelds. Burl responded that this is not seen as a backwards move. A comment was made that writing something that is platform neutral is a good way to go.

Water Systems Workflow and Portfolio – Gary Fisher and Nate Booth

Nate introduces Gary Fisher's data collection diagram noting that Water has a lot of systems and applications. We do have some duplication of systems and applications. The long-term objective is to review these systems and applications and find ways to create efficiencies

Gary - We may want to break up the diagram a little to create more separation, but it's designed to show data flow from collection to delivery. We collect a number of different types of data.

Understanding Cloud Computing – Bob Avery, David McCulloch, Scott Lewein

There are a multitude of services being used and a lot of ways to leverage cloud services.

Core characteristics - Broad network access – mobile devices, rapid elasticity, measured service, resource pooling

Terri asked David McCulloch how he is using the Cloud. David noted that his experience is different. He selected a vendor (Amazon reseller) from app.gov. The NWIS Mapper has been running there for three years. David added that costs can be reasonable if you watch your usage. For example, our development servers are turned off over the weekends.

WiM and CIDA have a DOI contract in place for hurricane response

Cloud Computing Update – Contract and Concerns – Paul Exter and Karen Klima

Karen gave a brief overview of her background. She noted that hosting is a primary area of activity. Karen serves on the DOI Hosting Team and will be focusing on the DOI Cloud contract. She is the primary point of contact. Karen added that a USGS Cloud Kit is being stood up and will be demo'ed by Lorna Schmid. Nate commented that we are looking for guidance.

Status of the contract:

- Contract has been awarded for a couple of months and will be available no later than November
- There will be a web site to explain services (7 services will be provided with multiple vendors). The site will be released after the new fiscal year.
- Paul commented that as a bureau, nothing more than a cloud contract has been awarded.

- Karen is under a non-disclosure agreement

Paul – Is there an opportunity to explain “x” number of vendors today? Karen responded not today. The information will come be sent out.

Paul – Locations, projects, and programs with existing Cloud services will continue on the path they are currently on until we pursue opportunities to see if they fit within the DOI Cloud framework. New projects wanting to use Cloud services will need to wait. Paul added that the bureau is working on processes and procedures, but he does not have a specific date for when these will be available.

Scott Lewein – what will happen with the status of day 1 task orders? Paul responded that this is a good question to ask the Department. The current hosting staff is two people. We won't see things come out quick to the Bureau, much less WSCs. Scott added that he is getting a lot of calls from vendors, but he is under non-disclosure rules as well.

Carolyn Emmanuelli expressed curiosity about how the plan is going to move forward. Paul responded that he does not know any details. There are a lot of questions remaining; for example, renaming domain names, transfer of sites and bandwidth, technical issues, etc... The process needs to come full circle before it will be available to the Bureau.

Reference Cloud Computing Questions and Responses (located at the end of the minutes)

Lorna Schmid gave a demonstration of the Science Support Portal (Cloud toolkit) being put together.

Questions –

Harry – As I hear this, it is clear this is a front-end to DOI-negotiated Cloud offerings. Lorna responded yes.

Harry – Cloud tabs/offerings – there is no guarantee you will end up with the same base provider. Response – We do not have the answer yet. Harry expressed his concern that if there is no consistency with who is providing services on the back end, there will be issues. Karen and Lorna understand Harry's concern.

Lorna – We will have a form where folks can express what their interests are with the Cloud. Content will be populated in this manner. Karen added that the DOI Cloud contract website will be interfaced with the Cloud toolkit that Lorna is demo'ing.

Mobile Application Framework – Lorna Schmid

Lorna gave an update to her previous ITAC presentation on the Mobile Application Framework. In January 2013, DOI gave the thumbs up to USGS' approach. We have documented recommendations and are poised to implement our USGS mobile framework. The framework is based on a life-cycle approach to management – facilitate and expedite the development and deployment process, workflows meet industry standards, exploit a more formalized mobile community, dependent on common training, adaptable to future changes. Lorna noted that the four phases of the mobile product workflow will tie into fundamental science practices.

Lorna clarified the differences between native and mobile apps and mobile web. There is a Mobile Community Share that is open to all USGS where documentation, working documents, a draft inventory and more are available.

FY14 path to success: Framework implementation

- Coordination across AEI, CDI, Office of Communications and Mission Areas to establish a supported mobile framework
- Build a USGS gateway app that will point to other USGS apps and be available in native and non-native formats. Provide links to all other apps that have gone through the approval process.
- To make this a reality, we should adopt USGS mobile apps as official products, finalize the inventory and the code repository (GitHub), establish governance, review and approval tools, and establish a policy matrix that supports Web, social media and other products with overlapping policy requirements.

- o Building out the GitHub and using it for data, content, and code, it should help ensure code integrity and agility.
- o Will help with moving between public and private cloud services easily.

There is a meeting scheduled tomorrow with the mobile framework team to continue documenting activities. She commented that she has buy-in support from Rich Frazier. OCAP, Enterprise Information, and CDI acknowledge the importance of sound management of mobile application deployment. Lorna will follow up with management to identify roles.

Questions –

Terri asked what the feedback is on this as it is seen as roadblocks being put up. Lorna responded that it depends on who you talk to what answer you get. We need to support this so we can empower WSCs to take advantage of the offerings it provides.

Terri – What is the timeline for getting something added? Lorna responded that she does not think the timeline will be difficult – identify the processes, the project manager or developer will write a description and meet with the community to obtain feedback and determine if something similar is already being done. If there is enough buy-in, the app will then be entered into IPDS.

Terri asked who the community is with Lorna responding there is a mobile app. Community.

How is this distinguished from other mobile app development? Lorna responded that it should not be.

Why would a developer bring an app to the community if I already have a sponsor? Why should I use this process if there is another way? Lorna responded that we should be scrutinizing these from the perspective that in taking advantage of the features of a device, the security implications go up. Lorna added that we do not want this to come across as a committee, but a community. Products should have to be reviewed so they meet the requirements for USGS products.

Kate asked why they are trying to usurp the policy on distributing apps. Lorna replied they are not usurping the policy. She added that Bob Swanson is on the team. We have used policies that Water has in place. Kate asked if Water's policy is inadequate and is USGS replacing it. Lorna responded that there is no USGS policy with Kate stating that there is a Water policy. Lorna added that there is no formal process. Roadblocks are coming up because there is no process. She sees the same thing with Cloud. Nate commented that from a voluntary standpoint, this is good. If enforced, then there needs to be a policy. The current policy is incomplete. Is a voluntary community capable of providing approval? Lorna responded that in order to be successful with the mobile framework, we need to put processes in place so that it is a supported environment. The idea of going to the community is not to receive permission, but to provide an opportunity to build a better app, see if there is already similar activity underway that can be leveraged, or perhaps collaborate with someone who is already doing that work.

Who pays for it? Response – according to Rich Frazier, overhead

Lorna commented that she would appreciate a follow up conversation.

Scott commented that he is curious how this process promotes creativity.

Nate added that there is demand to help USGS innovate in this area. We want to ensure a level of professionalism. As far as ITAC, maybe we can work with you at the policy level. We will follow up with Lorna. Check with Bob Swanson, Burl Goree, and Gary Fisher to see if they can help clarify the issue. **ACTION** – Terri will contact Bob Swanson. Lorna commented that she would like to sit in on the call.

Electronic Data Archiving Update – Jim Kolva

Jim Kolva updated ITAC on the progress that the Task Force has made since his last update.

Jim gave a brief overview of the Task Force. The purpose of the group is to define what we think should be archived (original data – anything collected in the field, site visits, levels, information used to calibrate instruments, supplemental information that is mandatory, other helpful information), compare existing archive structures that were deemed exceptional during technical office reviews, and to develop a consistent structure for folders and directories.

The Task Force meets every two and a half weeks. This allows the group to proceed, but at a slower pace. Jim shared the proposed data archive structure – a consistent structure based on the WSC. The group has also looked at coming up with a consistent naming structure.

Questions –

Kris Lund asked if there is a timeline for an official policy. Jim responded that the Task Force work looks to be done by January 1, 2014. They hope to have a policy to WMA management for issuance by then.

Open Data Policy and Science Base – Sky Bristol

In February, an OSTP memo (OSTP Memo 2013-02-22) came out that directed agencies that receive over \$100 M in research funding to deal with our research in a couple of ways. USGS responded on behalf of DOI. Keith Kirk and Sky worked on the response.

In USGS, we talked about our USGS pubs which have been open for a while. We talked about things that we need to do to improve this; for example, we talked about what to do with journals.

A May 9 Executive Order 2013-05-09 (M 1313) addresses research data in open access, but also talks about business data – needs to be open and accessible, need cataloging, metadata, data inventory, standard formats, online services.

- Driven by what's found at project open data – online discussions
- It's a rapid developing and moving target. Have target deadlines to meet and will be reporting out in November.

Effort – big earth data initiative (BEDI) – proposed FY 2014 – addressed the issues of research data, open access, high – value obs, metadata, cataloging, online services, standard formats – resulted in more money in budget, but this won't happen due to other budget issues

There has been a push for the government to make their data more open.

Nate is on a group at USGS to look at how we implement Big Earth Data – run under the auspices of the US Geode.

This relates to USGS in terms of updates to data management policies through fundamental science practices.

Sky discussed the big picture of things and how they overlap. For USGS, it comes back to what we put into the Core Science Systems strategy. Eventually, we're trying to find ways to bring everything together into a framework. All of this ties back. If we do our job right, then a lot of things being done by the government and pushed by OSTP will be a natural outfall.

Science Base –

Sky demonstrated how entries are made into Science Base (www.sciencebase.gov) and the output from those entries. Science Base is a catalog of resources, but it's providing a repository. Science Base can handle any kind of file you want to put in. We have quite a few groups experimenting with this. We also have a full-scale test going with ecosystem science centers – experiment within the Science Base environment to work with and manipulate their data. From an IT perspective, we are heading into the direction of being able to host off of Amazon services. There is a practical limit of 2 GB upload through the USGS gauntlet right now. The major problem as a bureau that we need to tackle is to flesh out the level of responsibility for

managing the different artifacts that we have and how do to fund this appropriately. How do we hand it off at a higher level? There are questions from the organization and business model level. New partners are welcome to jump in with us.

Questions –

Does the system have a way of processing to give up more formal metadata – cdxgm? Sky responded that fields get mapped to the Science Base record. Original metadata gets stored. Generate out of science base stored metadata, get an ISO XML. We are continuing to work on this and bring additional attribution into this.

Can you put data in Science Base without having the corresponding publication added? Sky responded, yes, we are working on the different routes that can be used to release the data.

What's needed in Water to continue to innovate in IT? Discuss needs and options for a Programming and Web Forum -- Pete Cinotto and Nate Booth

Pete led the discussion and gave WI WSC staff a brief overview of his concept for a Programmers Forum.

- Pete noted collaborative tools such as GITHUB and Science Base that have been developed.
- He showed some of the resources that are being used in KY. Code is documented for sharing and working on. The KY WSC is putting their code on the GITHUB.
- Trying to follow Nates lead with the GITHUB and use it. The tools are there for our use.

Pete's thought is that through the forum, there may be a way to make tools known and develop a way to interact and collaborate non-competitively.

Pete - Where does ITAC want to take this now that tools are coming online?

Kate commented there was initial success, but there became no institutional commitment to support the effort. If there is no commitment to support it, then it's only good through the life of the passion of the person promoting it.

Pete commented that the product is the working together.

Nate commented that he and Scott share the principal of wanting to encourage a culture of innovation in Water. Software engineering is part of this, and we should support these efforts in some way. Kate is also correct. There are some worthwhile things to spread across in some way. In conversations along these lines, it's related to software life cycle development. Nate referenced presentations that CIDA has given. Nate added that it is important to determine how we balance this with all of the other information that exists outside of USGS.

Scott commented that the relevance of the conversation is interesting. We're talking about the business of our entire agency. He disagrees with the notion that our basic business isn't creativity. How to maintain it is an issue. Scott added that he has heard some things that he really likes already. It is good to bring ideas into the general discussion at a low level in our organization. Identifying a more effective way to identify ideas may be a way to proceed. Don't get too hung up on a particular outcome. Nate responded that he thinks the CDI has been effective in bringing ideas in from the outside and sustaining conversations. It might be useful to look at this as a model. Science Base is also a good example of building a community – have standardization around our data sets... and have a clear road map.

Develop a "marketplace" where ideas can be contributed. This fits in with the idea of the GITHUB. We need to adjust our structure to accommodate and encourage it. Maybe we want to fold these ideas into program reviews (not technical reviews). Program reviews are a way to get ideas and share them with other centers.

The challenge within our organization is that we're not leveraging the technology available. The culture of our organization also plays a role – we should all respect each other and encourage each other in our careers, but this doesn't always happen.

Terri noted that ITAC is one of most effective teams... provides a mechanism to share ideas and technologies. Terri sees things over and over that someone is doing elsewhere. At CIDA, we see cutting edge technology. Terri commented that she often wonders why it isn't more well-known what CIDA is doing. Maybe we could have more webinars. These have been very successful. We're not sharing the technology that we come across. Terri feels we should get back to doing this and not keep reinventing the wheel. She is trying to come up with ideas on how we go about doing that.

Kris commented that webinars become professional – mini presentations / high quality. A less structured way to host a webinar would be valuable – on a smaller, more informal level.

Additional discussion in the room led Terri to suggest that we discuss this more during tomorrow's session.

Scott commented that people do share, but we don't have a good process for sharing information professionally – there are no concrete ideas. He suggested that sometimes you have to start smaller – sponsored activity of a group – maybe do a pilot... not a formal process, but one that can be described. See if the level of communication can be increased. How do we take that model and move it to a high performing group?

Dane commented that talking about sharing our resources is all well and good, but he doesn't even know what those resources are. From a selfish standpoint, he would like to know what talent exists – what skillsets are there. It would be great to have a larger pool to choose from. Pete responded that he has a start on this. He has a list of high-end programmers. This provides a nucleus to build off of. Those who don't program full-time may stand to benefit more.

Scott asked if ITAC is committed and at what level to make connections through broader dissemination to people... not just developers, but the Survey as a whole. Also, is there a first step that we can find value in? We need a concrete step to start recognizing that it's an agile process. What can we do to help provide information and assistance? Organizational level has always mattered to Scott. Take the best of what we have and model a program to address some things. This may be the single largest problem we've ever had – how do we find a signal in all of the “noise.” It's hard to know what the goal and end point are sometimes.

Regarding innovation, virtualize whenever possible (networks and storage); when you introduce that, you reduce the complexity from the hardware. This is how the Cloud. Secondly, we should collaborate more – network virtualization, charge-back models, and security are in there as well.

DAY 3

Discussion of Charter and Goals – ITAC

ITAC discussed updates to its charter and goals.

- Dane commented on the last bullet; noting that this wording is from when Water could do their own development and procurement.
- Terri suggested wrapping the goals into the Charter. ITAC agrees this is a good idea, and we should include IT Transformation.
- David McCulloch commented that when ITAC started, it was in an advisory role (provide guidance to Centers). That role has changed, and has not been in an advisory capacity for a while.
 - We need to validate the business needs of WSCs and apply this to ITT
 - David provided an example of ITAC's role with Google Maps API. David wrote the policy memo, but AEI and DOI are not able to keep up. Their priorities are not meeting our needs.
- Scott commented that he continues to try and understand when we're OWI or when we're ITAC. In a way, ITAC is a stakeholder group to ensure OWI has support for its projects. We have information on what people care about. Having a group with a broad representation means you aren't just dreaming this stuff up.
- Nate commented that most resources go to NWIS and CIDA. We want to have a crosscutting way to address priorities.

- Scott's thoughts – ITAC helps with OWI goals. ITAC is a group that helps others move forward. There is also the reverse flow of information back to ITAC to consider. Scott also noted that ITAC has launched position papers about unique needs.
- Nate feels there is a middle ground; a mechanism for pushing back on issues. Scott responded that it is tricky to figure out where we can hit with the right information to change an outcome.

ACTION – ITAC will review its Charter and Goals. Provide comments to Nate.

River Tracking Camera Discussion – ITAC

OWI's contract with Below the Surface is coming to a close. Nate talked to Jared Criscuolo in May or June. Jared acknowledged that the camera is great; the hard part is dealing with data, content, etc... Jared was working with Google to process the data. Nate would like a demo to show that Jared can do what he said he can do with the data. Nate will have Shaun follow up with Jared and his partner to see where things stand. Nate commented that USGS is the appropriate place to brand this, but he is uncomfortable with whether USGS would be as involved as we would like. We may move to working with Google directly and look into in-house data processing. We need to talk to a Federal contact about Google.

Scott asked if it would be better to loan the camera to another group; connect with someone else – American Whitewater, REI. It's a good idea to think about a pilot at an interesting place. People with money, like the Corps of Engineers - where they can see what's going on all the time, may be interested in this effort. Nate responded that we need to improve the technology and see what's required, build political momentum, and build a business model. It's important to not create a bad relationship, but we do not want to continue without a return.

Videohosting Update – Dave Cahoon

Dave commented that he tries to see what is on the landscape that can be brought back to USGS and tested. Scopia Dave gave a demonstration of Scopia (<http://www.radvision.com/Products/Video-Conference-Systems/Desktop-Video-Communications/SCOPIA-Desktop-Video-Conferencing/>). Scopia has both audio and video bridge capability, but does not work simultaneously with WebEx. It allows desktop and/or application sharing. Dave commented that the Scopia solution requires no expensive equipment and works similar to WebEx. Dave is hoping to get Scopia added to the BPA. Advantages to this tool include integrated recording and streaming, MAC and Windows support, iPhone and iPad capability, clear video, unlimited number of mobile devices, supports high definition and video, no firewall issues, and the flexibility to stream and record. Scopia is easy to use and anyone can join.

Questions –

Terri asked when Dave thinks this will be available. Dave responded that Avaya is giving a rough estimate of November, but test trials are free for 90 days.

ACTION - Terri will provide Dave with the names of some testers. (Terri, Dane, Nate, Gary, Kris, Scott, Carolyn Emmanuelli)

How will Centers order it? Dave responded that they can order the number of ports they need, but can get extra. The system is flexible.

Terri asked how many connections Dave has. Dave responded that he has 40 high definition connections, but can get more.

Dave noted that when users first go in with the link, they should drag it to their desktop (it's a plug-in). Save the link in their browser rather than go through the app. Dave wants ITAC and others to use Scopia and see if it's usable.

Terri and Nate commented that they need to talk about buying a "pool." Need to determine if we use a combination of Scopia and WebEx or stop using WebEx.

Dave Cahoon and Kevin Clark are the points of contact for questions.

Nate asked if it's possible to buy on a case-by-case basis with Dave responding that 90 day trials are free. Kris commented that a field office would provide a good test environment. We would need to determine the best way to handle costs of implementation.

Webinar Planning – Gary Krammes

Terri commented that we have not done a lot of webinars. The suggestion was made to cross advertise our webinars across Mission Areas and to constituents. Terri added that a lot of our ideas have come from WSCs, but ITAC has not been to a Center in a while.

Kris commented that the most recent DBA brown bags have tied into scheduled updates. Kris added that basic UNIX would be good for new DBAs. Dane added that the NWIS survey indicated strong interest in a DBA class. There is now enough interest to hold a class and they will be moving forward on setting something up. Dane added that they have a UNIX class that can be stripped down and host it online due to travel restrictions.

Gary Krammes suggested that we do you-tube-like snippets.

Other suggestions from the discussion – Oracle for DBAs with no Oracle background, Data Archiving policy, Geospatial technologies, David's map cache presentation in conjunction with other communities, ESRI trainings

Nate commented that we are trying to cultivate innovation. Hosting a platform challenge may be a good way to do this. Have WSCs present ideas on a challenge/theme (for example, give me a cheap way to monitor X, webcams in the field, etc...) through short webinars.

Nate – There is an emphasis in headquarters on matrixing headquarters with the technical offices. Work with Pixie Hamilton on enabling science and support across the Cooperative Water Program.

Meeting schedule, member rotations – ITAC

Scott gave a virtual handshake to Pete and thanked him for his time on ITAC. We will send Pete's plaque to him. Pete will suggest replacements and will participate through December.

Presentation of Bob Kimbrough's plaque took place on Tuesday. Bob will be on ITAC through the December call.

Other membership issues – Scott will serve as ITAC Chair until January 2014. Michael Lewis will take over as Chair. Scott has agreed to stay on for another year. Nate suggested that ITAC have an RGE member (Mike Fienen was suggested)

Next meeting – Our next calls are scheduled for October 16, November 20, and December 18. Nate commented that with the current budget climate, we can try for two face to face meetings, but one may be more realistic. Terri suggested looking at New Mexico as the next site with New Jersey after that.

Nate commented that he would like to see more interaction and discussion. Terri commented that presentations this time were longer. Typically, a lot of the Town Hall involves major interaction from Center staff. We need to make sure Centers know that we want to get questions from them. This time, there was not a lot of turnaround with questions from the field as has been typical in the past.

Action Items – ITAC

Mobile Framework – Talk to Bob Swanson and follow up with Lorna regarding the framework.

Review charter and goals by October 16 call. Submit comments to Nate.

Videohosting – Scopia demo was given by Dave Cahoon, and Terri provided Dave with names of testers.

Stream View – Nate has made contact with Below the Surface. We will wait to hear back on movement. There are other possibilities coming in February.

Geotagging photos – Terri asked Paul Exter about access to Picasa. ITAC asked Paul to call in and comment with Paul responding that Picasa is not part of GaFG. It is a stand-alone Cloud offering in line with ITT. What is Water's agenda? The issue is having the ability to archive field photos. If we cannot figure out a way to deal with photos in the Cloud, then we have failed. Nate added that this should be easy to do in the Cloud, and he thought that Keith Kirk got it approved for someone. Terri will check with Keith Kirk and added that this may be a good example of something for which we may want to write a business case. We can look into it if there is enough interest.

Paul asked if we have really pushed the need for use of Picasa. He suggested requesting a written explanation from DOI as to why we cannot use Picasa. GaFG is a locked system – there are only four certified applications for Federal use. Nate commented that it would be cheaper to use the Cloud than to build an in-house solution. Paul recommends putting together a one-pager justifying why Water wants to use Picasa. Paul will also talk to the DOI Google contact.

Programmer's Forum – Model and pilot a small project across WSCs. The short-term objective is to come up with a way to give WSCs an idea of existing information and who they can collaborate with. What is being committed to GITHUB? Nate suggested an addition to the charter – help WMA come up with a way to cultivate and sustain next generation products. Gary Krammes asked how we extend this to other communities. The response was that the community will build itself, but how do people find out about the group. Pete commented that other communities exist. This effort should begin with a smaller core group of people. It will grow from there. Nate added that we need to think about how this bumps up against and fits with WRET efforts. The Web resources part of this action will be removed.

Cloud Hosting – The contract has been awarded. We are waiting on guidance from the Department.

Attachment

Cloud Computing Questions and Responses (Paul Exter responds)

How do we deal with slow LAN/WAN infrastructure used to connect to the Cloud?

- We will need to look at this on a WSC by WSC basis and establish a baseline. Centers may need to upgrade their telecommunications circuits. Three of five gateways are congested. Paul thinks that we will see that this was not thought about until it occurs. He is not sure this has been addressed.

How are security issues being managed within the Cloud?

- This is no different than GaFG. It's certified through FISMA; selections will be passing FISMA tests – secure configuration. They have not figured out telecommunication circuits to the Cloud – are solutions inside or outside of our network?

Are Cloud performance metrics clearly above what can be provided on a LAN?

How is ROI measured?

- We need to work with DOI on this. Kent Morgan commented that we are looking at decision-support tools.

How do external Cloud services integrate with internal Cloud and conventional services?

- Nate commented that to him, this deals with network architecture
- Paul and Karen responded that they do not have an answer to this; they asked DOI last week. Karen commented that she would work to get responses.

Is there a plan to upgrade WAN services to field offices to accommodate Cloud adoption?

- We need to do this, but there is no plan in place. Paul and Terri have discussed this, but only for Water. No one has been tasked with this.

What is the impact on our GS/2210 community?

- We are still working with DOI on certain positions. It's important to remember that we're in a build and recruit model. The only jeopardy is whether these people are in the correct series and have the correct PD. Paul added that we should not try and shield or hide these staff from ITT. Paul noted that there are a variety of functions with no "real" home. He does not think this is the issue right now. Classifying what you do accurately is the most important thing.

Would it be possible to assess LAN/WAN performance issue to discover bottlenecks in advance of external Cloud implementation?

- Regardless of the Cloud, we need to exercise and test the network before implementation. This is important for NWIS. Paul will work with NWIS staff.

What kind of virtualization training is available for our IT specialist community?

We are thinking about setting up monthly sessions. Any training will be announced through mechanisms we now use as well as the Cloud toolkit. Karen is working on training sessions (to start in the November timeframe).

How will Cloud computing integrate with our scientific community?

- Discussed before the call.

How does Cloud computing fit with IT Transformation?

- DOI will announce its cloud-first policy. For the most part, DOI does not want offices, programs, or Centers in the hardware business; want to use services. Push local configuration last. Work with them next year on performance issues. Expertise in centers will help.

Harry House – At DOI, with cloud first policy, one group is working on six supercenters. Is there any one group trying to push over others? Paul – in core data centers, not sure if we know how they will align. From a direction perspective, nothing is given to USGS. Paul added that the most recent flood will challenge them to rewrite anything they have written.

Karen – DOI is still giving thought on how the six data centers will work. She hopes that the hosting strategy will be released soon. DOI is meeting with USGS in early October. We're hoping they will bring their hosting plan. Centers with staff will become DOI-like in nature. Many data centers need modernization.

Nate asked how we can provide justification for procurements while preparing for the cloud. We're hoping to have things go through more cleanly. Paul responded that he is not sure how we can make them cloud-ready.

Paul added that he is in meetings with Bill Werkheiser every few weeks. Paul tries to keep him abreast that programs are unhappy. Paul recommended that centers make sure Bill and Diane Wade know about outages and other impacts.

Questions that were not addressed –

How has reliability been addressed?

Privacy and security?

Our Bison Connect is a form of cloud computing. We've seen outages since its implementation. How do they compare to the track record of Lotus Notes?

Are there plans to incorporate any WAN improvements to make cloud computing more efficient? For example, QOS, IPv6, etc.?