Co-Presenters: John Janzen, Ak-Chin Indian Community, Michell Carter, GISP, Seminole Tribe of Florida and MaryAnne Tong, Seminole Tribe of Florida

Title: Addressing

The Ak-Chin Indian Community, located in the Greater Phoenix area, has fully implemented addressing that is designed to assist the Community’s emergency dispatch system. Even though the Community is relatively suburban, it is a distinctly rural community with the majority of its area dedicated to agricultural activities. This presentation will discuss why the Community’s GIS office chose to address all road segments, including the farm access roads, and how it is expanding the addressing to accommodate new economic developments. Other areas to be discussed include how the data is verified and maintained and some challenges encountered along the way.

Presenter: Tom Pederson, Atkin Olshin Schade Architects

Title: Owe’neh Bupingeh Preservation Plan: Building on Grassroots GIS to Develop a Successful Housing Rehabilitation Project

American Indian communities once represented an astonishing diversity of cultural and environmental response to place. Federal policies toward Native Americans and modern U.S. development patterns have seriously deteriorated the ancient relationships they had with the earth and their own traditions. This presentation will highlight the issues facing long term sustainability and preservation for many American Indian villages, and the innovative efforts of the Ohkay Owingeh tribe in New Mexico to redefine their traditional community for the 21st Century through self-determined goals, creative partnerships, and community engagement.

The project reflects contemporary planning, design and preservation issues, utilizing innovative collaborations and redefining traditional values with contemporary needs. This will be an interesting and relevant presentation to learn about culturally appropriate design in Native American and other underserved communities, challenging attendees to expand their perspectives and provoke discussion of the role of the architect in preservation and design.

A key component of this project was the use of GIS technology to document the historic core of the pueblo. Beginning with a small grant from the New Mexico Historic Preservation Division in 2006, tribal youth were trained to use GPS and GIS to perform field documentation of the structures. The Ohkay Owingeh Education and Preservation Program continued over the course of the next four summers and the basemaps the students created were used in the evaluation of over 60 homes for rehabilitation. Their work was also used to successfully pursue additional grants to develop a planning and preservation plan used to rehabilitate 30 homes.

The presentation will cover training of the tribal youth to use GPS and GIS for field documentation of the historic core of the pueblo. It will discuss how the GIS was used to evaluate the homes to determine which should be renovated based on a conditions and criteria matrix.
**Presenter: Terrence Newsome, Information Exchange Broker-Southwest Region**

**Booz | Allen | Hamilton**

**Title: Overview of Federal Geospatial Programs and Resources**

Overviews of the U.S. Department of Homeland Security (U.S. DHS), the National Geospatial Intelligence Agency (NGA), and the Homeland Infrastructure Foundation Level Data (HIFLD) Working Group geospatial resources available to local, state, federal and tribal security partners will be given. Topics covered include geospatial viewers, such as DHS Earth (based on the Google Earth platform) and the OneView application, along with the Homeland Security Infrastructure Program (HSIP) Gold and Freedom datasets. Collaboration efforts by the HIFLD to the Regions (HTTR) team will also be discussed.

**Presenter: Steve Becker, CEP, Director, Transportation & Natural Resources, Cheesh'na Tribal Council**

**Title: Protecting Tribal Data: A Cultural & Intellectual Property Rights Approach**

There is a constant pressure from federal, state, and local agencies, researchers, consultants and others for access to Tribal data. This presentation will introduce some of the policy tools in the Tribal toolbox to develop tailored systems to protect Tribal data as cultural and intellectual property.

A Geographic Information System (GIS) is an incredibly powerful tool for the management and analysis of a Tribe's spatial and spatially-related data. However, with great power comes great responsibility. There is a constant pressure from federal, state, and local agencies, researchers, consultants and others for access to Tribal data. However, the culture of free data sharing that exists within the international GIS community is not necessarily appropriate for the data being generated by Tribes. Using a cultural and intellectual property rights (CIPR) approach, this presentation will introduce some of the policy tools in the Tribal toolbox to develop tailored systems to protect Tribal data.

**Presenter: Berne Jackson, Senior GIS Analyst/GIS System Manager, Coeur d’Alene Tribe**

**Title: ArcGIS Server Virtualization for Small Organizations**

If you have been paying attention to the computer news the past couple of years, much of the talk is about “virtualization” and “the cloud.” Cloud computing and its underlying technology, virtualization, will probably be the norm in the majority of organizations within three to five years. Although virtualization can be an intimidating term, it is simply a way to run several, sometimes very disparate, computer servers on a single piece of computer hardware. Large corporations have been using it for many years to bring efficiencies to their vast server farms.

Server virtualization is not just for the large organization any more. With the advent of Microsoft’s new release of its virtualization software, Hyper-V Server 2012, most system managers can now implement virtualization fairly easily and with less expense than using VMware’s ESXi. Often times, existing hardware can be upgraded with better processors and more memory for less money than buying additional servers. Virtualization can more efficiently manage existing computer power and storage.

Also, virtualized server time can also be purchased through one of the cloud computing vendors like Amazon. These servers live in some distant server farm that you never see, but managing them is similar to managing hard servers in your own server rooms. This presentation will cover the Coeur d’Alene Tribe’s GIS experience with moving their ArcSDE and two ArcGIS Server servers into the virtual world, and with using Amazon's AWS (Amazon Web Services) to host GIS data in the cloud.
Presenter: Volker Mell, GIS Coordinator, Confederated tribes of Grand Ronde

Title: Use of LIDAR data at CTGR

CTGR got High Resolution LIDAR data in October 2010 for the Reservation. The Lidar flight was organized by the Oregon Department of Geology and Mineral Industries. CTGR partnered with the USGS to pay for the flight over the reservation. The presentation will focus on the data processing and analysis in ARCGIS Desktop to create a new stream layer for the CTGR reservation. Other uses of the data will also be showcased: Cable corridor planning for logging operations, view shed analysis, Use of 1 foot contour lines in Engineering Department, Counting and measuring tree heights of all trees on the reservation (a process developed by Emmor Nile Oregon State Forestry). The presentation will also cover possible future uses of the data in Cultural resources.

Presenter: Esther Worker, Education Account Manager, Esri

Title: Spatial Literacy begins at the K-12 School level

Spatial literacy and GIS skill learning can start in Elementary, Middle and High School or through afterschool programs in 4-H. Learn how GIS professionals can be part of the spatial literacy opportunities for tribal and public schools in your geography. Several states already have statewide K-12 site licenses in place and lessons are available through the Esri Education portal at http://edcommunity.esri.com

Presenter: Deborah Kirk, Haskell Indian Nations University

Title: Visualizing the Cherokee Homeland through Indigenous Historical GIS: An Interactive Map of James Mooney’s Ethnographic Fieldwork

Indigenous perspective is often overlooked by scholars conducting research on the documentation and analysis of the historical geographies of Indigenous communities. This results in incomplete interpretations and further misrepresentations of Indigenous historical landscapes. Accurate data collection, its analysis, and the useful representation of that analysis for Indigenous communities and society as a whole, requires collaboration and interaction with the historical occupants of the land. As a Cherokee woman, it is my desire to model the historical geographies of my people through the combined analytical tools of Geographic Information Systems (GIS) and interactive mapping. My master’s thesis project will demonstrate that geospatial technologies (GT), when developed through Indigenous collaboration and methodologies, can lead to new insights regarding our understanding of the Cherokee homeland. The primary outcome of this project will be an interactive map of previously undocumented historic sites to be used for educational, historical, and cultural purposes by Cherokee people.

My thesis project will directly inform my future doctoral research, as well as my continued progress in my long-term goals to use GT to interpret and represent the historical geographies of the Cherokee people. The completed projects will support my intention to collaborate with Tribal Historic Preservation Offices, archeologists, researchers, and Indigenous people worldwide in the reconstruction of Indigenous geographies using GT. With the knowledge and understanding I gain from these projects, I hope to inspire and encourage American Indian students to learn geospatial technology in creative ways for the benefit of their communities.

Focusing on my thesis project, I will discuss how Geospatial Technologies, such as ArcGIS, Remote Sensing, LiDAR, and “slippy map” cartography, can be used to create interactive, dynamic maps for “real time” and historical applications.
Co-Presenters: Everytt Begay, Navajo Nation Land Department
Robert Kirk, Dep. of Water Resources-Water Mgmt. Branch

Title: Managing our Land and Water Resources: A Navajo Nation GIS Approach

Navajo Nation Land Department – GIS Section:
The Navajo Nation covers over 17.5 million acres and resides in three states. The Navajo Land Department’s GIS Section manages all land transaction utilizing Geographic Information System (GIS). The biggest challenge that lies within the Division of Natural Resources (DNR) is sharing data and having access to critical data. With that in mind, DNR of the Navajo Nation is developing an enterprise Geodatabase to address these challenges of data sharing.

In this overview we discuss the challenges we have encountered from the beginning and the issues we face today. Take a glance of several projects the Navajo Land Department – GIS Section had been involved in and the overall outcome.

Navajo Nation Department Water Resources-WMB:
Managing and protecting the Navajo Nation water resources can be quite challenging, but critical and essential for the Nation’s decision making regarding water policies, water management and planning for the future. Utilizing modern GIS applications to archive wells, surface water, irrigation projects, water resources, water infrastructure, climate information, and geologic data, has eased the challenge of managing and protecting the Nation’s water resources.

GIS applications are utilized to map water resources, perform hydrologic analysis, model water supply versus demand, identify critical-need areas, Hydrologic Survey Report (HSR), flood-plain delineation, and climate analysis. GIS applications enable the creation of databases for the Navajo Nation’s wells, springs, climate information including weather, precipitation, surface water discharges, snow surveys, and groundwater levels.

GIS has become the cornerstone of securing our water rights, drought planning and mitigation efforts, and has improved the overall management of the Navajo Nation’s water resources for future generations.

Presenter: Ronald P. Maldonado, Program Manager Cultural Resource Compliance Section
Navajo Nation Historic Preservation Department

Title: GIS and Cultural Resource Management on the Navajo Nation

Many of the Navajo Nation Departments and programs use GIS to manage their information to facilitate the economic development. The use of GIS to establish a “Land” data base is an idea with in the Navajo Nation Division of Natural Resources, the data will be used to track, leases, rights of ways and land use for economic development. However, when it comes to the management cultural resources, this type of system must be a standalone. Approximately less than 1 million of the 16 million acres that make up the Navajo Reservation have been surveyed for cultural resources. With an average of 1400 archaeological survey reports received a year (approximately 27 per week), updating the land data base would be time consuming. The standalone GIS for cultural resource management would allow better planning showing what resources are in an area, and how they should be managed.

Presenter: Joseph Anderson, Frank Harjo, Gano Perez, Muscogee Creek Nation Geospatial Department

Title: Putting Edward Hastain’s Township Plat of the Creek Nation into a GIS

The introduction will begin with a history of the Muscogee Confederacy from the original homelands in Georgia and Alabama and then to the removal period to the territory now referred to as Oklahoma.
Post removal then takes us into the Allotment Era (Dawes Act) and the creation of Edward Hastain’s plat book of allotments for the Muscogee (Creek) Nation. A brief description will follow on the types of tribally owned land that exists in the MCN jurisdiction. The conclusion will discuss the process of putting his plats into a GIS.

**Presenter: Dr. Steve Berukoff, National Ecological Observatory Network (NEON), Inc.**

Title: National Ecological Observatory Network (NEON)

The National Ecological Observatory Network (NEON) is an NSF-funded, large facilities project aimed at understanding the drivers and feedbacks between climate change, land use change, and the effects of invasive species. NEON's charter is simple: build and deploy measurement and observations systems, acquire data, and provide high-quality, value-added data products freely and openly to any user community. We will describe the NEON approach to data collection and storage, some of the data products it will provide, and how the Tribal GIS community may leverage this novel continental-scale platform for understanding our environment.

**Presenter: George Clark, New Mexico Department of Information Technology**

Title: Tribal Broadband: Issues and Opportunities

The National Broadband Mapping Program is now three years into a five year funding cycle by the National Telecommunications and Information Administration (NTIA). This initiative is mapping the availability of broadband technologies and identifying methods to extend adoption into areas having inadequate services. Provided will be a description of this program with regards to Native Nations and examples from New Mexico Tribes.

**Presenter: Gepetta S Billie, Tribal Planner, Santo Domingo Tribe**

Title: Renewable Energy: A Suitability Analysis for Wind and Solar Power for the Navajo Nation

The people of the Navajo Nation live on 26,000 square miles of reservation land in the Southwestern United States spanning across northeast Arizona, northwest New Mexico, and southeast Utah. Unfortunately, the area lacks basic infrastructure and utilities. Specifically, an estimated 18,000 families, or about one-third of the population, currently live without electricity. Life without electricity has posed many hardships for the Navajo people including health and safety risks especially for those living in the most remote areas of the reservation. In an effort to address this problem, the Navajo Tribal Utility Authority (NTUA) has begun developing a renewable energy program to meet the electricity needs of the people by using solar and wind energies as an alternative source of power.

This analysis was done as a final class project for the Community and Regional Planning Program at the University of New Mexico. This project investigates the possibility of developing renewable energy sources, namely wind and solar, as an alternative energy source on the Navajo reservation. Specifically, GIS is utilized to create maps that first demonstrate wind and solar resources as potential energy sources and then analyze potential locations for solar and wind energy projects on the reservation. This investigation draws on different resources including solar and wind resource data from the National Renewable Energy Laboratory, boundary, road and transmission line shapefiles from different sources, a map of existing power lines on the Navajo reservation from the Navajo Utility Authority, and shaded relief imagery from the U.S. Geological Survey.

I will explain how and where I got my data from and then show how I compiled the data in GIS through different layers and maps. I will also explain how I filled in holes in my data set by creating and/or editing shapefiles and georeferencing map images.
Presenters: Southwestern Indian Polytechnic Institute  
Margaret Porter, Primary contact, Raphael Perea, Student Mentor, Amanda Montoya, Intern, Romando Largo, Intern

Title: A Proposal to Support Undergraduate Research and Community Training in Applications of LTER and NEON Data at SIPI"

We are gearing up for work on National Ecological Observatory Network (NEON) from NSF, we will be using data from the EcoTrends-ED, LTER observatories. EcoTrends data are temporal data at each of the 50 sites; at the website there is no GIS layer for download.

SIPI students will be utilizing the “twenty-six research sites that constitute the LTER Network at present. The LTER Network includes a wide range of ecosystem types spanning broad ranges of environmental conditions and human domination of the landscape. The geographic distribution of sites ranges from Alaska to Antarctica and from the Caribbean to the French Polynesia and includes agricultural lands, alpine tundra, barrier islands, coastal lagoons, cold and hot deserts, coral reefs, estuaries, forests, freshwater wetlands, grasslands, kelp forests, lakes, open ocean, savannas, streams, and urban landscapes. Each site develops individual research programs in five core areas:

- Pattern and control of primary production;
- Spatial and temporal distribution of populations selected to represent trophic structure;
- Pattern and control of organic matter accumulation in surface layers and sediments;
- Patterns of inorganic inputs and movements of nutrients through soils, groundwater and surface waters;
- Patterns and frequency of site disturbances.

SIPI students will be directed and search data from the EcoTrends website to design projects that can be utilize from the EcoTrends, LTER data. Students will apply NEON and other datasets to ongoing projects and create infographics, data visualization and other ways to display data to help non-scientists to understand and interpret long term data.

Presenter: Kerry Lyste, Cultural Resources GIS Analyst/ Database Administrator  
Stillaguamish Tribe of Indians

Title: How to Build an ArcGIS Server Environment

The Stillaguamish Tribe is located in northwest Washington. Relatively small in size, but spread out among several departments in different locations, one of the classic GIS questions was presented: How do we have information more reliably at our disposal to make decisions?

A committee was formed over a year ago to build an intranet mapping application for the Board of Directors. Many lessons have been learned, and we are now preparing to launch our own application. What do you need to consider, and what are some of the choices you need to make in building your own server? What is the difference between a “file geodatabase” and sql server? And, what are the differences between some different front-end applications like Flex, Silverlight, or HTML5?

This is a presentation from a GIS veteran, but hardly an expert in servers. I have learned a great deal especially about Server Object Containers and the difference between a service and an application. I will be able to show some of our products and go through the basics in building your own web application. There will also be opportunity to address questions like: “why should we build a server application?” , “should we use ArcGIS Online?”, and “how do we keep our data secure”?
Presenter: Scott Collins, UNM

Title: Extreme Drought in Grasslands Experiment at the Sevilleta LTER

My presentation will include an overview of the Sevilleta Long-term Ecological Research Program, an introduction to our Macrosystems Biology research project, and a brief description of potential student research opportunities in RS/GIS and other areas.

Presenters: U.S. Geological Survey, National Geospatial Program
Lance Clappitt, Tracy Fuller, Carol Giffin, Carol Oster gren, Stephen Shivers, David Vincent

Title: The National Map Viewer, U.S. Topo and The National Map Services

The National Map Viewer provides an accessible display to view and download geographic information for the nation. The US Topo is the next generation of topographic maps. This presentation will provide an overview and demonstration of The National Map Viewer and the US Topo as well as available The National Map data services.

In the second half of the 20th century, the foundation of the U.S. Geological Survey’s (USGS) mapping program was the 7.5-minute topographic map. This map series was declared complete in 1992 and by the late 1990’s the USGS mapping program began to focus its attention on digital data to support geographic information systems (GIS). Today, the results of these efforts can be seen in key products managed by the National Geospatial Program. The National Map Viewer is the USGS’s geographic information system (GIS) application designed to provide easy access to this new geospatial information. The viewer is a Web-enabled portal to all of the geospatial information contained in The National Map. The Viewer not only supports on-line access to the geospatial information, but also allows the download of digital data and creation of cartographic products. The US Topo represents a new type of national map series. Arranged in the traditional 7.5-minute quadrangle format, US Topo maps look and feel like traditional paper topographic maps yet provide modern technical advantages that support wider and faster public distribution and enable basic, on-screen geographic analysis. The Viewer and US Topo along with a suite of map services are part of a unified portfolio that benefits geospatial information users throughout the Nation. To find out more visit: http://nationalmap.gov/

Co-Presenters: Gabe Lovasz, Geographic Information Systems Manager, ManTech International Corporation
Carol Oster gren, US Geological Survey National Geospatial Program

Title: The Western Regional Partnership Web Mapping Application

The Western Regional Partnership (WRP) provides a proactive and collaborative framework Federal, State, and Tribal partners to develop solutions and support initiatives to aid in the protection of natural resources, promoting sustainability, homeland security and military readiness.

The Western Regional Partnership (WRP) provides a proactive and collaborative framework for senior-policy level Federal, State, and Tribal leadership to identify common goals and emerging issues in the States of California, Arizona, Nevada, Utah, and New Mexico. The WRP addresses these challenges by developing solutions and support initiatives to aid in the protection of natural resources, promoting sustainability, homeland security and military readiness. To aid planning efforts using a single visualization and mapping platform, the WRP has developed the WRP web mapping application, and associated project database, which leverages datasets provided through by the WRP’s Federal, State, Tribal, and NGO partners. The WRP portal (https://wrpinfo.org/) provides land managers, project managers, regulatory agencies, and others the tools for robust analysis, data awareness, data download, project awareness, policy and best practices, and other critical information.