

Oregon GPS Users Group Minutes

June 20, 2008

Submitted by Lisa Lee

Gina Buckel, OGUG President, called the meeting to order at 8:30

Welcome and Introductions

Treasurer's Report – John Minor

Mike Lisowski, USGS – Cascades Volcano Observatory

2004-2008 eruption at Mt. St. Helens and the continuing inflation at the Three Sisters volcanic center, Central Oregon Cascade Range

Discussed pre-1980 activity at Mt. St. Helens that could be precursor of the 1980 eruption. Most recent unrest started in September 2004 and included new dome building and the rise of the 'whale', a dome within the new dome.

He described how the USGS team used GPS and other technology and to monitor and model the site as part of their ongoing study. His presentation also included graphs, charts, and photography that displayed some of the techniques they used in their studies.

Mike also discussed the continuing monitoring of the Three Sisters 'bulge' that was revealed with the use of radar interferometry (InSAR). A series of profiles across the uplift, derived from the InSAR data, shows that it hadn't started yet in 1996, got underway in 1997 or 1998, and then progressed at a relatively steady rate through 1999, 2000, and 2001. The Volcano Observatory, with permission from the US Forest service, established a network of campaign GPS stations, plus three continuous stations at The Husband in 2001, Mt. Bachelor in 2002, and The Wife in 2003. Seismologists finally got into the act in March 2004, when a swarm of about 300 earthquakes with a maximum magnitude of 1.9 occurred under the deforming area.

Mt St. Helens and So. Sister are both quiet for now, but monitoring will continue. As Mike said in his presentation, "This is not the end".

Dr. Douglas Johnson, OSU Dept of Rangeland Ecology & Management

GPS Tracking of Animals on Landscapes & Monitoring Vegetation Using GPS Positioned Photography

Dr. Johnson gave a presentation on the techniques and findings of his work using GPS tracking of elk, beef cattle, and goat herds. His interest was in the ecological and behavioral activities of animals on landscapes. This included impacts on vegetation from grazing and trampling, effect of managerial actions, habitat use by animals, social behavior within and between herds, and predator/prey interactions.

They are currently using three types of GPS trackers. These are high frequency/short duration tracking (1 second logging), lower frequency/long duration tracking (5 minutes to 1 day logging), and broadcast capable GPS loggers.

His work produced some interesting data, both in the activities of the animals and in the use of the various tracking methods.

His studies of vegetation monitoring involved using digital cameras, continuously-recorded DGPS positions and computer analysis to help ecologists in quantifying vegetation in specific areas.

**Allison Mead, GIS Specialist for Incident Support for Prineville District BLM
Aaron Dick, Northrup Grumman for USFS and BLM State office in Portland
GPS Fire Information and Its use within GIS in Tactical Incident Fire
Support and Regional Strategic Decision Making**

Presentation on the techniques, software, hardware, standards, and methods to transfer data quickly with GIS software for fire incident support. This includes the use of GPSed data for inclusion into standard maps in support of active incidents and also for regional decision making.

The presentation demonstrated the workflow and issues involved in gathering, processing, and dispersing the data needed for fire crews to manage an active wildfire, both in the field and at the Incident Command Center. An emergency situation requires the quickest turnaround of GPS field data as possible, and necessitates the coordinated efforts of field observers, operations and logistics units, fire behavior analysts, and the GIS specialists.

The collected data is also used for the post fire analysis. This includes fire modeling, burn severity, habitat impact, ownership issues, property damage, and congressional reporting.

**Laura Levy, GPS/GIS consultant, formerly with Winnemucca, NV BLM
Monitoring the Burning Man Event in Black Rock Desert**

Presentation on using the combined power of GPS & GIS to manage 25 permit stipulations on public lands involved in the Burning Man event, the largest permitted event on public lands in the United States.

The Burning Man event involved the construction of the temporary site of Black Rock City, population 16,258 people and 8557 vehicles. Federal mandate/stipulations required the protection of the playa surface and cultural resources, and compliance with camping and recreation use, fugitive dust and solid waste management regulations.

The monitoring involved pre-event planning to collect defensible data in order to have ample information about project issues and meeting resource protection goals.

One of the main features of the event involved the construction and burning of “art burns”. These fanciful and artistic structures, some several stories high, are built to be burned. GPS data and photos were collected at these sites, both pre- and post-burn, to make sure the desert was protected from damage.

The results of the monitoring allowed for real-time management during the event, created a record of ongoing inspections, met the requirements for stipulation monitoring, and provided knowledge management for decision making for future planning. It also produced some amazing photos of the wild and wacky event.

The monitoring team returned to the site of the event a month after the last vehicle left the site to ascertain if there had been any permanent damage to the playa as a result of the event. With the exception of a few dust berms, the site was found to have returned to its pre-event character and could only be located with the use of GPS navigation points.

Rudy Persaud, Federal Highway Administration
LCDR Jacob Ramos, NDGPS Hardware Installation Manager, USCG
Status of National Differential GPS (NDGPS)

The NDGPS team consists of the US Coast Guard, the Army Corps of Engineers, the US Dept of Agriculture, NOAA, the US Dept of Transportation Federal Highway Administration and Federal Railroad Administration, the US Dept of Interior.

The Inland NDGPS provides real-time differential correction; proven sub meter accuracy; 99% availability. Provides single coverage on the ground over 92% of CONUS and double coverage over 65% of CONUS.

DOT complete assessment of the need for inland component of the NDGPS. DOT has completed the requirements assessment, and decided to continue inland NDGPS operations. The next steps for the Interagency Team will be to jointly develop a fund-sharing mechanism among Federal Agencies with requirements, and free of user fees, per US space-based PNT policy.

The assessment affirms the value of the service and the NDGPS requirements. It also affirms that no other existing PNT augmentation meets the accuracy requirements for multiple terrestrial applications.

LCDR Ramos gave an update on the Maritime / Nationwide DGPS. There are currently 86 operational sites managed by the nationwide DGPS partnership. The

USCG funds and maintains 39 coastal sites; USDOT operates 38 inland sites, and the US Army Corps of Engineers maintains 9 sites that cover inland waterways.

There are eight sites needed to fulfill the requirements for IOC single coverage goals in CONUS. These are planned for St. Mary's, WV, Bliss, ID, Tucson, AZ, Carlsbad, NM, Sage Junction, ID, Marshal, TX, Big Lake, TX and Patten, ME. These new sites will bring total coverage to 99%.

He went on to explain the procedure for prepping the new sites and gave an update on the progress being made on the new sites. They are all in various stages of development, and are moving towards completion.

Ron Singh, ODOT Geometronics Manager/Chief of Surveys
The Oregon State Plane Coordinate System: End of an Era?

Presentation discussing the limitations and problems with the current Oregon State Plane (OSP) and Local Datum Plane Coordinate Systems (LDPC), and possible solutions. The problems of linear and angular distortion due to earth curvature and height above ellipsoid were discussed, as well as specific problems with the current systems.

The SPC does not represent ground distances, nor does it minimize distortion over large areas. It also does not reduce convergence angle, and does not support modern surveying accuracy requirements. The problems with the LDPC include small low distortion area, coordinates look similar to State Plane, it is not truly geo-referenced, and each project is on its own local coordinate system and loosely tied to the State Plane.

Reasons for changing systems were explained, and possible options were discussed. There was lively conversation with the audience about the different solutions and what would be required to make the change official and legal. ORS 93 would need to be revised, which would require legislation.

It was clear from the conversation that this topic is provocative and controversial, and the solution will not be an easy one to implement. It will require a collaborative effort with Federal, State, Local, academic, and private parties all involved. The reasons for changing the coordinate system are valid and compelling. The solutions will be challenging and complicated, but possible to bring about if agreement can be reached within the geo-spatial community.

The meeting was adjourned at 4:00.