

North Dakota View Outreach Mini-grant Report
Implementation of GIS/Remote Sensing Capability at Educational
Institutions
RFP# 72-2006

Recipient: Turtle Mountain Community College, Belcourt, North Dakota.

PI: Audrey LaVallie, science instructor TMCC

Grant dates: November 2006 to August 2007.

Report date: September, 2007

Narrative: The North Dakota View outreach mini-grant (part of the larger America View grant administered by the University of North Dakota) was awarded to Turtle Mountain Community College in November, 2006. The grant provided for funding for three local high schools to receive GIS licenses and for training of high school teachers in fundamentals of GIS and mapmaking by instructors at TMCC. There was also funding provided for on-line ESRI tutorial training and travel for faculty members of the college in order to upgrade GIS capability and GIS-dependent programs and curricula at the college.

Broad objectives listed in the proposal:

1. Transfer of remote sensing tools and technology to educational institutions for use in developing curricula.
2. Promotion of use of satellite data to educators, scientists, community leaders and general public.
3. Increased and simplified access to remote sensing data and affordable programs.
4. Facilitation of growth of applications of remote sensing in agriculture, forestry, geology and hydrology.
5. Advance availability and timely distribution of remote sensing data to the public.
6. Tribal data sharing.

Specific objectives listed in the proposal:

1. To provide onsite educational licenses for three local high schools at a cost of \$500 per school through ESRI.
2. To provide 6-hour training sessions for local high school teachers interested in fundamentals of GIS and mapmaking skills by instructors at TMCC.
3. To provide online tutorial training through ESRI for instructors at TMCC.
4. Use of GIS-trained faculty in implementation of a NASA/USRA grant providing for GIS and remote sensing integration into physical science curricula at tribal colleges.

Current status of broad-based objectives:

1. Training of two faculty at TMCC in ArcGIS I and II classes has indeed allowed transferal of technology to Turtle Mountain Community College. This has translated into the offering of GIS I classes in spring 2006 and 2007. GIS II and GPS classes are also being designed for the future, facilitated by Stacie Blue, GIS instructor. She is also collaborating on a grant with UND to provide a certificate program in GPS/GIS at TMCC
2. Aerial photographs of the area have been imported as raster data for baseline maps of Rolette county and are used regularly by students in GIS classes. MODIS reprojection software has been installed on all computers in the GIS laboratory and satellite data will be downloaded when needed for GIS classes and for other course requirements. Collaboration with a NASA/USRA grant has allowed Audrey LaVallie, science instructor, to utilize raster maps and GIS skills in physical science curricula at TMCC. Raster maps from 1962 have been purchased and are being digitized by TMCC students and will be opened for public perusal and comparison as a display at the college in the future.
3. Access for local high school students, faculty and administrators to satellite and GIS data has been greatly simplified by providing for training for faculty in these fields and in negotiating purchase of GIS licenses. Outreach is planned to continue through visitation of TMCC personnel to high school campuses.
4. Tribal sharing is important in that many tribal colleges are understaffed and faculty are typically serving in several important capacities at one time. Training and findings in research are often shared as part of grant requirements. Currently, a number of tribal colleges are participating in the North Dakota View grant and the NASA/USRA grant and sharing of curricula and training techniques has already started.

Current status of specific objectives:

Most of the specific objectives of the North Dakota View mini-grant have been implemented, but not without a few surprises along the way. The high school licenses did not cost anything due to a North Dakota Career and Technical Education Office initiative, which provides free licenses to North Dakota high schools which request them. (Ray Hintz, Information Technology Supervisor, ND Career and Technical Education Office, State Capitol, 15th floor, 600 S. Blvd. Ave., Dept. 270, Bismarck ND 58505-0610).

The licenses were requested by the PI of this grant after contacting superintendents of the three nearest school districts: Belcourt, Rolla and St. John. All technical departments of the high schools were contacted as well to offset any problems in uploading the software. The schools were also contacted in terms of recommending teachers who

would benefit from short-term training in GIS fundamentals and seven individuals (from all three districts) were able to take the 6-hour training. Unfortunately, the regular GIS instructor at TMCC had resigned and Audrey LaVallie, PI of this grant, was able to provide the training alone. This left extra funding and three secondary science education students at the college were also able to take the training.

Funding originally intended for licenses was requested by Stacie Blue and myself for GPS equipment which would be necessary for GPS courses planned by Ms. Blue and our request was reviewed and allowed.

A small amount of funding had been available for ESRI tutorials for TMCC staff, but with the resignation of the main GIS instructor and reshuffling of department duties, no one was able to take the training. We will seek future funding to provide instructors here with online college credit GIS courses so that coursework for GIS certification can be offered to TMCC students in the future.

Implementation of GIS and remote sensing into coursework (other than GIS courses) has progressed steadily due to training of faculty and additional funding from a NASA/USRA grant. Raster maps from 1962 and 2003 are currently being compared and the differences digitized, so that the information will be available to the public at a future date. Further land use studies are planned, which will encompass sampling of tree/shrub species in forests and grasslands.

Budget expenditures:

<u>Category</u>	<u>Actual expend.</u>
Training stipends for high school teachers: (7 x \$240)	\$1680
Training stipends for TMCC education students (3 x \$120)	\$360
Consultant fee for trainer from TMCC:	\$750
GPS Garmin handhelds (5 @ 290)	\$1356
Indirect costs \$1080	\$700

Total: \$4846