

President Milton Glick and Provost Mark Johnson  
President's Office  
University of Nevada, Reno  
Reno, NV 89557-001

Dear Drs. Glick and Johnson,

I know that you, like many other state agency and university administrators across the nation, are having to deal with large budget cuts and I would not presume to offer advice on what must be a very difficult process of prioritizing your many programs, most of which I have little or no knowledge. However, I do have fifty years of experience in geodetic science (geodesy), and would like to share some thoughts with you on the current status and future prospects of academic programs and research in that field.

Perhaps I should start by briefly summarizing my background. In 1961, I entered the US Air Force as a Geodetic Officer and my primary duty was to make astronomic latitude, longitude and azimuth observations at ICBM sites. After leaving the Air Force, as a graduate student and Research Geodesist I helped develop a lunar laser ranging (LLR) observatory at the University of Arizona and then led the development of a second generation LLR observatory at the University of Hawaii. Recruited by the National Geodetic Survey to help modernize their geodetic surveying program, I eventually became the Director of the NOAA Geosciences Laboratory and led the development of a global network of very long baseline interferometry (VLBI) stations, managed the commercialization of a one microgal absolute gravity meter developed by JILA, and conducted the first civilian aircraft flight precisely navigated with GPS. After retiring from NOAA I helped found a Geosensing Systems Engineering (GSE) academic program and the NSF National Center for Airborne Laser Mapping (NCALM) at the University of Florida (UF).

After 14 years at UF, in January of 2010, we relocated our GSE program and NCALM Operational Center to the University of Houston (UH), because cuts and legislative restrictions of the UF budget were limiting the progress of our program. The increases in state funding, faculty and staff, and laboratory facilities provided by the UH enabled us last year to collect the most research quality airborne laser mapping data of any year since the founding of NCALM. The increase in federal funding received by UH for NCALM research is actually more than their annual investment, and has helped UH move toward its goal of becoming a first tier research university. And we are currently initiating research on hurricanes and the environmental impacts of oil production, using NCALM remote sensing instruments that will benefit all of the residents of Texas in the years ahead. The actions of the Florida Legislature actually reduced federal funds flowing into the state, caused internationally known professors and researchers to leave the state, and reduced the services the state can provide to its residents.

Geodesy is enjoying the early years of what I am convinced will prove to be a 'golden-age.' It took the geodetic community about four decades from the beginning of the space age in 1957 to develop the global geodetic infrastructure to a level that now enables us to determine the positions of points nearly anywhere on earth with sufficient accuracy and temporal resolution to address such issues as the change in sea level, subsidence associated with the withdrawal of subsurface fluids, erosion and

transport of material in streams, crustal motions in seismically active areas, quantitative estimates of fuel in forests and underbrush, erosion of beaches, and too many more applications to list here. The ability to create 'bare earth' maps of areas covered with forests is literally revolutionizing areas of science far beyond the traditional boundaries of geodesy, including geology, hydrology, biology, and archeology. I am attaching a file containing a recent paper on the mapping of an ancient Maya village located in Belize, in an area obscured by a tropical jungle.

With the Nevada Bureau of Mines and Geology (NBMG), UNR should be well positioned to take a leading role in this golden age of geodesy. The Nevada Geodetic Laboratory (NGL), led by Geoff Blewitt and Han-Peter Plag, is widely respected for its research involving the use of space geodetic techniques to study scientific problems of regional and global significance, including tectonic and geothermal activity across Nevada and global patterns in surface mass loading and global-scale plate tectonic problems. My most recent interaction with Geoff has been serving on the National Research Council (NRC) Committee on the National Requirements for Precision Geodetic Infrastructure, and he made major contributions to the report written by that committee.

In my opinion it would be a major blunder, similar to that made by UF, for UNR to jeopardize this world class laboratory by significantly cutting its funding—you could wake up one day to find that the entire team has accepted an offer to move their program to another state. I don't know the exact numbers, but I would be surprised if, as with NCALM, the NGL did not bring more federal funding into Nevada each year than the state invests in the program, and the residents of Nevada certainly must benefit from the research conducted and results published that impact the economic development, public safety, and quality of life in Nevada. There must be other programs in the state that do not yield comparable returns on the tax payers' investments, and could be reduced or terminated without sacrificing federal funds, causing internationally known professors and researchers to leave the state, or reducing the services the state provides to its residents.

If I can be of any assistance to you please do not hesitate to contact me.

With Best Regards,

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