



9 January 2020

Dear Dr. Tavera:

We are writing this letter in support of the law to expropriate the land around the Jicamarca Radio Observatory (JRO). This Peruvian law will address concerns regarding the protection, and safety of JRO, and control the environmental noise and external electromagnetic interference that can degrade the performance of this unique facility. We write as the Science Steering Committee for the US National Science Foundation Coupling Energetics and Dynamics of Atmospheric Region (CEDAR) community. CEDAR represents the broader scientific community that engages in space science research of Earth's Upper Atmosphere enabled by Jicamarca. We are grateful for the chance to endorse expropriation. Below, we consider a couple of categories of the uniqueness of JRO to the scientific community: Educational impacts and effect on the larger worldwide scientific infrastructure network.

Educational Impacts:

- Broader impacts on undergraduate and graduate education in STEM fields and other local socioeconomic factors are unmatched benefits of JRO. Jicamarca plays a unique role in training Peruvian and international students and early-career scientists who continue their professional path into academia, industry, and government.
- Jicamarca impacts current research of students, postdocs, young scientists, and more established scientists in Peru, and the rest of the world who carry out very sensitive experiments at the facility. The high-quality data from the powerful radar probes are being threatened by heavy local traffic that brings with it radio interference. Such interference which will have major adverse effects on users spread across the world.

Scientific Impact:

- The National Science Foundation and the astronomy and space science physics communities have identified space weather research and fundamental physics as areas of high priority. The Jicamarca observatory makes important contributions in all these areas and provides unique measurements at the altitude where Earth's atmosphere meets space.

- The Jicamarca radar is the most sensitive and accurate instrument in the World for assessing the Earth's upper atmosphere and ionosphere at low magnetic latitudes. Jicamarca has been a steady source of discoveries. For example, Jicamarca continues to make progress in our understanding of natural phenomena that affect the Global Positioning System (GPS), which constitutes a primary human navigation platform for both commercial and civilian applications. Higher spatio-temporal GPS resolution is even more critical for the future as our society moves into autonomous-based vehicles.
- Similarly, the impacts of meteoroids and Upper Atmosphere variability captured by Global Circulations Models depend on high-quality data obtained with Jicamarca. These studies have a direct impact on Climate Change research.

Please let us know if you need further information about the importance of Jicamarca to CEDAR science efforts.

Very Sincerely

A handwritten signature in black ink that reads "Delores J. Knipp". The signature is written in a cursive, flowing style.

Delores J. Knipp, PhD, Research Professor
University of Colorado, Boulder
On Behalf of the CEDAR Science Steering Committee