NEW MEXICO TECH

SCIENCE • ENGINEERING • RESEARCH UNIVERSITY

Search for our Cave and Karst Management Specialist

NATIONAL CAVE & KARST RESEARCH INSTITUTE

Fall 2024

New Mexico Tech is an EEO-AA Institution

Contents

Message from the Director

September 20, 2024

Dear Prospective Candidate,

I am pleased to announce the search for our Cave and Karst Management Specialist at the National Cave and Karst Research Institute (NCKRI), a research center of New Mexico Tech (NMT). This unique position will work out of the NCKRI National Headquarters Complex in Carlsbad, NM. As an NMT and NCKRI employee, this position will act as a liaison between the National Park Service and NCKRI to fulfill the NPS Natural Resource Stewardship and Science directorate.

In filling this position, we are excited to bring in a team member who:

1. Brings a breadth of knowledge of cave and karst resource management
2. Understands federal cave management practices and policies
3. Communicates effectively to identify and address cave and karst resource needs
4. Works collaboratively to address resource management needs

Should you have any inquiries related to this opportunity, please do not hesitate to contact me by email: benjamin.tobin@nmt.edu.

Sincerely,

Benjamin Tobin
Director
National Cave and Karst Research Institute
New Mexico Institute of Mining and Technology

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Posted: **September 27, 2024**

NEW MEXICO TECH
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POSITION ANNOUNCEMENT

TITLE: Cave and Karst Management Specialist **DEPT:** NCKRI

REG ☑ **TEMP** ☐ **FULL TIME** ☑ **PART TIME** ☐

STARTING RATE or SALARY RANGE $103,000 - $115,000
Employees being promoted to a higher classified position receive the minimum for the position or a pay rate adjustment of 8% whichever is greater.
All regular positions also entitle the employee to several benefits including health, dental, vision, life insurance, and retirement which is largely paid by New Mexico Tech for the employee and dependents.
INTERNAL POSTING THROUGH: Concurrent CONSIDERATION WILL BE GIVEN FIRST TO TEMPORARY AND REGULAR TECH EMPLOYEES WHO APPLY WITHIN THE 7 DAY INTERNAL POSTING. APPLICATIONS RECEIVED AFTER THE 7 DAY POSTING MARGIN WILL BE CONSIDERED WITH OTHER OUTSIDE APPLICANTS.

JOB DUTIES:

The incumbent will be a National Cave and Karst Research Institute (NCKRI) subject matter expert (SME) focused on the multidisciplinary management of caves and related karst systems. Under the supervision of the NCKRI Director, this position will collaborate with National Park Service (NPS) staff, NCKRI staff, other land managers, and academic researchers to ensure the fulfillment of the NPS Natural Resource Stewardship and Science directorate by providing support to parks, regions, and NPS networks on Cave and Karst (C &K) inventories, monitoring, management planning, data management, regulatory support, impact mitigation, and outreach programming.

Key responsibilities include: Providing professional leadership, advice, technical assistance, and guidance to NPS Natural Resource Stewardship and Science directorate, parks, and regions concerning the preservation and management C&K resources. Supporting, and facilitating NPS related C&K management at NCKRI and advising NCKRI staff on NPS-related research needs. Offering similar professional assistance to other Federal, State, local, and private groups involved in a wide, multidisciplinary range of C&K resource matters at the discretion of the NPS and NCKRI. Performing other NCKRI tasks as assigned.

REQUIRED QUALIFICATIONS:

Master's Degree required in Physical sciences, geological sciences, biological sciences, environmental science/management, or related fields. PhD preferred. 5 years relevant experience required. 10 years relevant experience preferred. Excellent ability to communicate C&K needs, goals, science, and policy, both orally and in writing, using standard computer software. Skill to plan and conduct credible C&K management**,** research, and training programs in cost-effective, efficient, timely, and professional ways. • Expert and adaptive multidisciplinary C&K knowledge, with the ability to apply scientific research methods to develop resource management and research programs. Demonstrated ability to effectively manage C&K data and information while maintaining appropriate levels of access based on legal and regulatory requirements. Ability to work on a team to achieve resource management goals. Mentorship/advisory experience.

Desired Qualifications: Knowledge of public land management policies (NPS -specific preferable), federal laws, and guidelines to develop, evaluate, and/*or* advise cave management program development and execution.

Experience working in caves with varying levels of access from accessible show caves to unexplored cave passages. Experience collaborating with research scientists to ensure published outcomes of research are directly applicable to resource management.

Apply to: nmtjobapps@npe.nmt.edu OR NMT/ HR 801 Leroy Place Brown Hall Box 000, Socorro, NM 87801

New Mexico Tech Profile

In 1889, Socorro was a mining boom town, wild, raucous, and, at a population of about 4,500, one of the largest towns in New Mexico. The Territorial Legislature, wanting to boost New Mexico's economy, decided to found a School of Mines to train young mining engineers, and Socorro was the ideal location. Silver and lead ores taken from the nearby Magdalena Mountains were processed at the smelter owned by German immigrant Gustav Billings, and the new School of Mines would allow young mining engineers to train near the eventual site of their work.

The New Mexico School of Mines (NMSM) proudly opened its doors on Sept. 5, 1893, with one building, two professors, and seven students. Courses offered included chemistry and metallurgy.

The college grew a bit, but remained small through the next couple of decades, with a curriculum that focused on mining, metallurgy, chemistry, and related fields. For a while, around the turn of the century, the School of Mines also served as Socorro's "prep school" or high school, for anyone who wanted more than the eight grades of education which the local school system then offered.

In 1927, a new division was added to the NMSM, called the New Mexico Bureau of Mines and Mineral Resources. (The name has since changed to "New Mexico Bureau of Geology and Mineral Resources.") Functioning as the state geologic survey, the Bureau's job was to explore and map the resources of the state and make the information available to mining businesses and the general public. The Bureau n ow functions as a state geologic survey, with their main job expanded to include the investigation of geologic hazards, such as landslide and earthquake hazards, and the analysis of water resources.

During 1930s, NMSM enrollment increased as more people sought a college education during the Depression. Graduating classes now numbered in the dozens, rather than the handfuls. Petroleum engineering was added to the curriculum and quickly acquired more students than mining engineering. The college's president, Edgar Wells, was instrumental in obtaining funds from federal programs such as the WPA to increase the number of buildings on campus. Several of the campus' classic mission-style buildings with red tiled roofs date from this period.

In another landmark, the School of Mines had its first woman graduate, Irene Ryan, in 1939. The college had never had a "men only" policy and never had a formal date when it "went coed," but in the world of the 1890s, women didn't attend a college that called itself a "school of mines." By the 1930s, things had changed, and by the end of the decade, mining companies were anxious to hire female (non-draftable) mining engineers.

However, with the coming of World War II, enrollment at the School of Mines dropped precipitously, as potential students entered the military instead. Richard H. Reece, who was president of the school from 1942 to 1946, arranged with the military for an Army Specialized Training Program (ASTP) at the School of Mines. This was a program designed to give special college training to young men already in the military. Many colleges and universities across the nation had similar units. The ASTP supplied the great majority of students to the School of Mines during the years 1943 to 1945. Under this program, the school's traditional emphasis on engineering courses gave

way to a greater focus on physics and mathematics.

After the war, the school's enrollment jumped, with the return of veterans; in 1947, enrollment was 213. In 1946, the school acquired a dynamic new president, E. J. Workman, and its character changed.

Workman was a physicist, primarily interested in atmospheric electricity. During the war, like many physicists, he had worked on weapons development. On assuming the presidency of the School of Mines, he brought with him a research group which worked on weapons testing and analysis (the Terminal Effects Research and Analysis group, or TERA) and also the determination to build a research center for the study of thunderstorms, his primary peacetime interest. Out of Workman's dreams and labor rose Langmuir Laboratory for Atmospheric Research, a mountaintop laboratory for the study of thunderstorms.

Workman brought a new emphasis on scientific research to NMSM. He added a Research and Development Division, recruited a more diverse faculty with a strong research bent, and, in 1951, altered the college's name to "New Mexico Institute of Mining and Technology." TERA attracted defense research. Workman built faculty housing and began construction of a golf course in the desert. College enrollment remained steady, at about about 200 students per year during the 1950s, and many of those students were interested in petroleum engineering, which was then a booming area.

Also during Workman's time, a hydrology program was founded, which grew to be one of the foremost in the world. Workman added a graduate program, which produced Tech's first Ph.D. in 1956.

Workman retired in 1964, and under subsequent presidents the college began to grow in size and subject matter. Graduating classes went from about 50 people per year to over 200. A computer science department was founded circa 1965, one of the first in the country. The Tech Computer Center was started at about this time. Astrophysics joined atmospheric physics as a major interest, especially after the National Radio Astronomy Observatory built its Very Large Array 60 miles west of town. By the late 1970s, astrophysics was important business in Socorro. The proximity of the VLA helped attract astrophysicists to New Mexico Tech's faculty.

In 1977, Tech added another division, the Petroleum Recovery Research Center, whose mission is to study improved methods of recovering oil. The PRRC's home, Kelly Hall, and Jones Hall, home of the Chemistry and Materials Engineering Departments, were built during the late 1970s.

Macey Center, a theater/conference center, opened in 1982, adding to the cultural life of the campus. The Performing Arts Series also began at about this time.

In the late 1970s and early 1980s, campus enrollment grew to about 1500, partly because high oil prices made a career as a petroleum engineer look attractive to many young people. But the field dried up in the mid-80s, and, to diversify the offerings, new programs were added. Electrical engineering and business administration departments were added, and growing numbers of students were attracted to environmental engineering, which also grew.

In terms of academic growth, some new majors and areas of study were added in the 1990s and early 2000s. Chemical, mechanical, and civil engineering have been added as majors. Two specializations have been added to the Master of Science in Engineering Mechanics: one in explosives engineering and one in engineering mechanics. The business department grew into a Management Program, offering master's program in engineering management, delivered off-campus via distance-education. Tech's offerings in the humanities have been expanded to include Hispanic studies, theater, poetry, and art history.

Increased offerings plus increased capabilities of Distance Education have boosted New Mexico Tech's enrollment to an all-time high of 1891 in the fall semester of 2005.

Research at Tech expanded enormously during the 1990s and early 2000s, with the acquisition of government contracts to support new divisions. With the ending of the Cold War, TERA changed its name to Energetic Materials Research and Testing Center (EMRTC), which is using its expertise to expand into areas such as anti-terrorism testing and training, land mine detection, and safety testing of explosives.

Two geophysics research centers, PASSCAL and EarthScope, have been added. Magdalena Ridge Observatory, in the design and planning stages, will be a state-of-the-art astronomical instrument. The Institute for Complex Additive Systems Analysis (ICASA) studies behavior, vulnerabilities and predictability of complex systems. The National Cave and Karst Research Institute facilitates speleological research, enhances public education, and promotes environmentally sound cave and karst management.

New Mexico Tech has jokingly been called a research institution that happens to have a university. In reality, it's not far from the truth. However, the vast majority of research projects have a strong student component. Nearly all professors in every academic department maintain active research projects that involve undergraduate students. Also, more than 400 graduate students are conducting research – along with their academic advisors and committees – to finish their master's and doctorate degrees. NMT conducts applied research in explosive technology, explosive materials engineering, information security, and modeling and simulation for numerous U.S. Government agencies, including the Departments of Defense, Homeland Security, Justice, State, Transportation, and Energy.

New Mexico Tech recognizes the importance of research projects to prepare all students for their career. Therefore, all researchers, even those who are not tenure-tracked faculty members, are strongly encouraged to hire students and give them active roles in projects. In all the engineering departments, seniors finish their undergraduate careers with a "capstone" project. In Senior Design Clinic, students often work with off-campus sponsors who present a challenging project to Tech students. These sponsors often become active partners, mentoring and advising seniors. Senior Design truly gives students a taste of what they will experience once they enter the workforce

New Mexico Tech has placed an emphasis was placed on following a trajectory that goes beyond STEM, offering students insights, inspiration, and opportunities into the entrepreneurial world. This emphasis was encapsulated in a new institutional brand: STE^{2}M – science, technology, engineering, entrepreneurialism and mathematics, or STEM raised to the exponent of entrepreneurialism. Established under this new brand were the Office of Innovation Commercialization, Annual Inventors and Entrepreneurs Workshop, and Summer STE^{2}M Experience. Together these efforts seek to provide students, faculty, and staff with effective ways of realizing ideas to better humanity and monetize the intellectual property developed at New Mexico Tech.

NCKRI Overview

Vision and Values
The National Cave and Karst Research Institute (NCKRI) will be the world's premier cave and karst research organization. NCKRI promotes and performs projects of national and international application, of the highest quality and integrity, through dedicated staff and partners.

Organization and Mission
NCKRI was created by the US Congress in 1998 in partnership with the National Park Service, State of New Mexico, and the City of Carlsbad. NCKRI is a research institute of New Mexico Tech and operates via a cooperative agreement with the National Park Service (NPS).

NCKRI's original enabling legislation, the National Cave and Karst Research Institute Act of 1998, 16 U.S.C. §4310, identifies NCKRI's mission as to:

1. further the science of speleology;
2. centralize and standardize speleological information;
3. foster interdisciplinary cooperation in cave and karst research programs;
4. promote public education;
5. promote national and international cooperation in protecting the environment for the benefit of cave and karst landforms; and
6. promote and develop environmentally sound and sustainable resource management practices.

History
Three exceptional cavers with a passion for protecting the abundant research opportunities and diverse resources found in caves, forged the path that led to the creation of the National Cave and Karst Research Institute (NCKRI)

In the early 1980s, Jim Goodbar, Ronal Kerbo, and Jerry Trout, were the respective leads on caves and karst for the Bureau of Land Management, National Park Service, and the US Forest Service. They saw a need for a single source of information and expertise to deal with cave and karst resource issues effectively. This need launched the idea of NCKRI.

While the initial concept of NCKRI was as a federal agency for use by other federal agencies, they realized that these needs expanded beyond those of the federal government. Public and private sectors needed a reliable go-to source on caves and karst. They soon found many partners locally, around the State of New Mexico, and federally, who also saw those needs. Most notable were Carlsbad mayors Bob Forrest and Gary Perkowski, State Representative John Heaton, and US senators Jeff Bingaman, and Pete Dominici. Together, they began long-range planning to make their idea a reality.

Cooperative Agreement
New Mexico Tech operates NCKRI through Cooperative Agreement P24AM01864 which is between the university and the NPS. This cooperative agreement expires September 5, 2029. New Mexico Tech has operative NCKRI through a cooperative agreement for nearly 20 years.

This cooperative agreement furthers the science of speleology, fostering interdisciplinary cooperation in cave and karst research program, promotes public education, promotes national and international cooperation in protecting the environment for the benefit of cave and karst landforms, and promotes and develops environmentally sound and sustainable resource management practices.

In 2002, NMT became the primary partner collaborating with the NPS to oversee and administer the Institute. NMT is a public institution of higher learning within the State of New Mexico. In 2004, NCKRI was founded and NMT hired a

permanent Executive Director to lead the Institute. The Institute established its headquarters building in Carlsbad, New Mexico with the assistance of the City of Carlsbad, the State of New Mexico, and the NPS.

It is mutually agreed that the NPS and NMT will cooperate in helping NCKRI carry out the intent of Congress as directed in 16 USC §4310 note, including, but not limited to, furthering the science of speleology, fostering interdisciplinary cooperation in cave and karst research program, promoting public education, promoting national and international cooperation in protecting the environment for the benefit of cave and karst landforms, and promoting and developing environmentally sound and sustainable resource management practices.

The objective of this agreement is to further the National Cave and Karst Research Institute Act of 1998 with the National Cave and Karst Research Institute (Institute or NCKRI), and to provide a means for transferring federal funds from the NPS to NMT for that purpose. Through collaboration with the Geologic Resources Division of the NPS, NCKRI aims to meet the objectives of the act and assist the NPS in meeting its objective to develop and implement science-informed stewardship of cave and karst resources to reduce impacts and protect visitor values.

The collaboratively agreed to goals for NCKRI for the period 2023-2029 are as follows:

- Facilitate and conduct research in cave and karst science
- Be the nexus to translate research and stewardship in cave and karst science between federal agencies, universities and public education
- Develop resources and translate research to optimize stewardship of cave and karst natural resources
- Develop financially sustainable partnerships and research projects

Other Information of Interest

- Office of Research: https://www.nmt.edu/research/
- Human Resources: https://www.nmt.edu/hr/
- Campus Rankings: https://www.nmt.edu/rankings/index.php
- Academic Programs: https://www.nmt.edu/programs/index.php
- Student Data: https://www.nmt.edu/academicaffairs/research/studentdata.php
- Employee Data: https://www.nmt.edu/academicaffairs/research/employeedata.php