

Networking for Mountain Sustainability

A Colorado Rocky Mountain Resources Guide

Colorado Rocky Mountain Networking: Initiatives, Resources and Opportunities

(First Draft)

Prepared by the Telluride Institute and the Aspen International Mountain Foundation



Mountain InfoZone

<https://mountaininfozone.world>

As Members of the United Nations Mountain Partnership



Colorado Rocky Mountain Networking: Initiatives, Resources and Opportunities is one section of a Report advocating for a next phase of local-global “**Networking for Mountain Sustainability**”, prepared by Telluride Institute and Aspen International Mountain Foundation, as members of the United Nations FAO Mountain Partnership, for public release via the Mountain InfoZone website: <https://mountaininfozone.world> .

© September 2022

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Colorado Rocky Mountains

Something stimulating is in the rarified air here in the high Rocky Mountains of Colorado.

The socio-ecological health of this mountain region is as evidently impacted as that of all other mountain areas of the world. As is the case everywhere, there are some good people, some good organizations and some good initiatives focused on this place. And opportunities to share in partnered research, education and grounded actions for greater effect, seem to be advancing.

While this Report attempts to take a global view of the many possible next phase mountain networking resources and opportunities, it also zooms into the mountain region that has spawned this Report and makes recommendations for pragmatic, example-setting partnerships, collaborations, initiatives and networking among the many organizations and entities currently working in the Colorado Rocky Mountain region.

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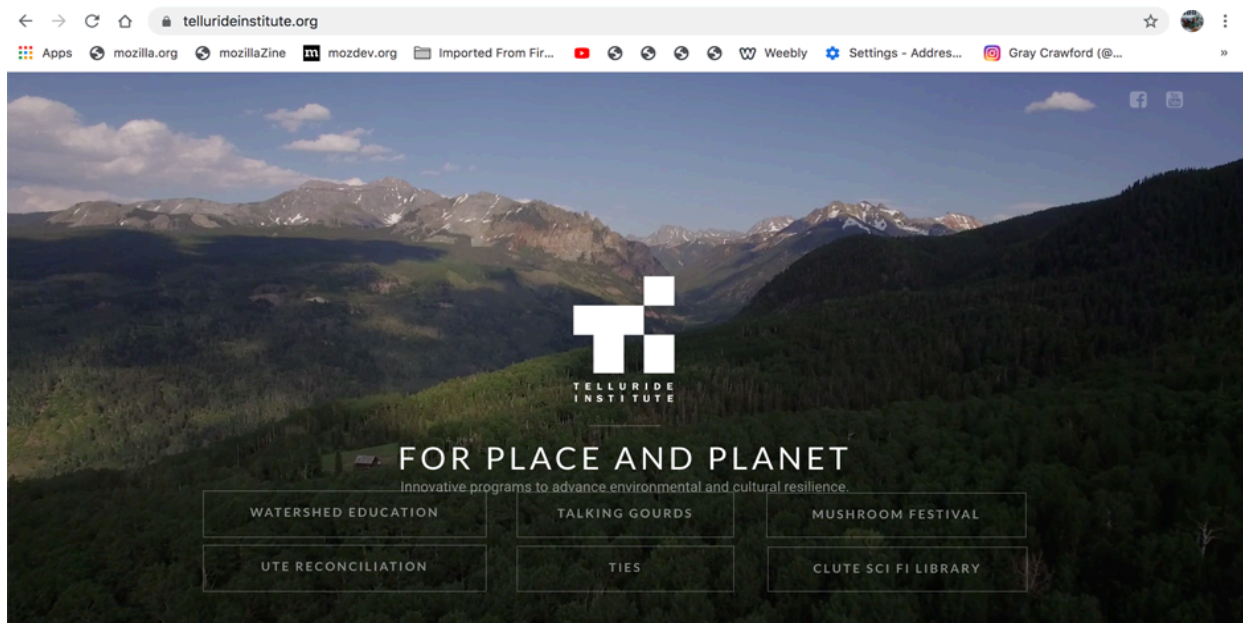
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Telluride Institute <https://www.tellurideinstitute.org/>

The Telluride Institute collaborates with leading artists, scientists, and educators to make change happen through freethinking research. We are an innovative non-profit organization that fosters the transition to a sustainable world. Crossing continents, politics, and disciplines, our programs demonstrate innovative, practical methods to build healthy communities and environments. We work to create and advance solutions that support the well being of environments, cultures, and communities. The Institute is a member of the UN Mountain Partnership

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Aspen International Mountain Foundation (AIMF) is a governing member of the UN Mountain Partnership. Since 2013, AIMF has served on the Steering Committee representing the North American, Central American, and Caribbean region. <http://www.aimf.org/>
<http://www.fao.org/mountain-partnership/about/steeringcommittee/en/>

The AIMF has been selected by the MP Secretariat, to host **Mountains Matter: Ideas to Action Building Alliances for Resilient Mountains**, Sept. 26-29, 2022, the sixth global Mountain Partnership Summit, at the Aspen Institute.

Karinjo Devore, President karinjoaspen@aol.com

Eric Smith, Board esmith@roaringparadise.com

Center for Mountain Transitions at Western Colorado University

<https://western.edu/school/school-environment-sustainability/>

<https://www.centerformountaintransitions.org/>

Masters in Environmental Management (MEMs). Students networking for mountain resilience. Around the world, students from MP member universities celebrated International Mountain Day by sharing their actions for sustainable mountain development. Through an online conference call, students representing seven countries and five continents discussed shared experiences in mountain communities and research-based activities that they are involved in. The event was coordinated by students of the Center for Mountain Transitions at Western Colorado U., whose goal is to establish a long-term network of MP university youth; the **ENVS Network**

<https://western.edu/academics/envs-network/> Contact: Ricardo Vazquez, PhD.

Dr. John Hausdoerffer, Dean, School of Environment & Sustainability Western Colorado University, Gunnison, CO jhausdoerffer@western.edu

Mountain Resilience Coalition (MRC) <https://mountainresilience.world/>

The Aspen International Mountain Foundation, Telluride Institute, and Western Colorado University's (Western) School of Environment & Sustainability have formed a triad of Colorado-based organizations called the Mountain Resilience Coalition. The MRC was formed in Rome, Italy during the December 2018 United Nations Mountain Partnership (UNMP) meeting. Rooted in UNMP membership, and guided by the UN's Sustainable Development goals, the MRC strives to accomplish thirty climate action plans by 2030 as well as net carbon neutrality by 2050 in the region they oversee. The Mountain Resilience Coalition partners with the vulnerable yet visionary places that form the United Nations (UN) Mountain Partnership's North and Central American and Caribbean region. We seek to give voice to all communities in the region and to model positive change at the table of UN events dedicated to mountain community health. This intersection of nonprofit and university commitments offers communication networks, expert research, and get-it-done project collaboration across cultures.

<https://www.tellurideinstitute.org/mountain-resilience-coalition/>

<https://www.centerformountaintransitions.org/mountain-resilience-coalition>

<https://www.facebook.com/MountainResilienceCoalition/>

Mountain Sustainability Indicators Toolkit is a project of the MRC.

Linda Giudice, Project Developer lfgiudice@gmail.com

In an effort to measure the extent to which mountain communities are progressing towards sustainability, MRC partners have developed the Mountain Sustainability Indicators Tool to

engage communities and mobilize action to achieve SDG targets. Participating mountain communities will receive capacity and technical support from Mountain Resilience Coalition experts and students, who will also help them develop solutions to enhance economic, social and environmental sustainability and resilience. Currently in its pilot phase in North America, the aim is to roll it out globally.

Mountain Studies Institute (MSI), San Juan Mountains (Silverton/Durango, CO),
info@mountainstudies.org <http://www.mountainstudies.org/>

Dr. Bob Milofsky, Board President, Retired Prof. of Chemistry, Fort Lewis College
Marcie Demmy Bidwell, M.L.A., Executive Director and landscape ecologist, specializing in learning landscapes and community restoration.

The **Watershed Education Program (WEP)** is a partnership of MSI and Telluride Institute, on the Telluride Valley Floor Wildlife Monitoring Program.

Contact: Michelle Furi michelle@mountainstudies.org

- Forestry and watershed fieldwork in the forests surrounding Dolores, Durango, Pagosa Springs, Silverton and Telluride.
- Evolve community perceptions through education about living with wildfire through place-based efforts and a virtual forest and fire learning series.
- Improve existing partnerships and launch new ones that support the future of conservation in the Four Corners region through Connecting for Conservation programs.
- Use data-driven science and information to inform local, state, and national audiences about mountain watersheds, forests, and systems in the Southwest
- Generate powerful maps with partners that will inform landscape management priorities and decision making
- Host local experts and regional scientists in our Virtual Learning Series
- Engage in dialogue about current and future forest and watershed conditions in the Southwest w/ policy makers, land managers, private forest mgrs, research partners + the public.

New Wildlife Monitoring Cameras in Telluride, CO

<http://www.mountainstudies.org/impact/new-wildlife-monitoring-cameras-in-telluride-co>
https://www.tellurideneews.com/news/article_d26ab4de-6b36-11eb-80b3-171278db8db5.html

Mountain Studies Institute, Sheep Mountain Alliance, and Telluride Institute's Watershed Education Program started a citizen science wildlife monitoring program on the Telluride Valley Floor. A total of 10 wildlife cameras were placed in five different zones. These infrared cameras capture images of all wildlife that passes through the trigger zone.

Project Manager, Garrett Smith of Telluride Institute garrett@tellurideinstitute.org or michelle@mountainstudies.org or vista@sheepmountainalliance.org

Eco Action Partners, since 2007, has provided solutions to create sustainable mountain communities in the San Juan Mountain region. It is a sustainability organization that tracks the regions greenhouse gas emissions and provides programs that reduce energy and waste.

Emma Gerona, Executive Director emma@ecoactionpartners.org

Eco Action Partners currently runs programs throughout the greater San Miguel County and Ouray County region to accomplish greenhouse gas reduction, focusing on energy, waste, and food efforts. Staff and volunteers actively support sustainability in our community through programs such as our Green Business Certification Program, Greenlights LED Light bulb Program, Truth or Dare Community Challenge, Zero Waste Teams at Telluride's festivals, regional events, and more.

Mountain Sentinels <https://mountainsentinels.org/>

Julia Klein, Julia.Klein@colostate.edu www.warnercnr.colostate.edu/~jklein

Associate Professor in the Department of Ecosystem Science & Sustainability and Research Scientist at the Natural Resource Ecology Laboratory at Colorado State University, Ft. Collins.

Network activities include organizing workshops, holding monthly webinar discussions (“Virtual Coffee”), conducting synthesis activities across mountains, inspiring action-oriented science, catalyzing new partnerships, developing educational materials, being a resource for interdisciplinary and transdisciplinary approaches, talks and multi-media presentations at academic meetings and to the public. Funded in part by the National Science Foundation.

Mountain Sentinels is using coupled models to explore current and future conditions and as tools for communication, learning, and decision-making. We are identifying best practices for successful transdisciplinary approaches effectively linking science with policy and practice to better address critical challenges and problems. Our network goals include:

1. Expand an international network of linked mountain biophysical & social science researchers and diverse stakeholders.
2. Explore & evaluate transdisciplinary modeling frameworks for mountains globally.
3. Promote international, transdisciplinary approaches linking science with policy & practice.

Mountain Sentinels is hosting the Sept. 23-25 **Moving Mountains Summit** in Basalt, CO.

<https://mountainsentinels.org/moving-mountains-summit-2022/>

Institute of Arctic and Alpine Research (INSTAAR) , University of Colorado, Boulder, CO

<http://instaar.colorado.edu/>

As the University of Colorado's oldest institute, inaugurated in 1951, INSTAAR has a long history of responding to pressing environmental issues. It's traditional focus has been on polar and alpine regions, where effects of global change are especially pronounced. In recent decades, research has broadened to include environmental challenges that span local, regional, and global

scales. Research topics vary widely and include Quaternary and modern environments, human and ecosystem ecology, biogeochemistry, landscape evolution, hydrology, oceanography, and climate. INSTAAR's research activities integrate field studies, state-of-the-art laboratory experiments, sample analysis, and numerical and laboratory modeling. Field sites are located across all seven continents and the world's oceans. The Institute's expertise across disciplines helps to generate influential science that can inform public and policy decisions and move us toward a more sustainable society.

Rocky Mountain Biological Laboratory <https://www.rmbl.org>

In Gothic, north of Crested Butte, CO.

RMBL invests in its people and places, its communications systems, and its physical plant. Scientists take full advantage of the research done by previous RMBL scientists using modern bioinformatics tools. They track the environment year-round using automated sensors. While training the next generation, they develop a comprehensive understanding of biological processes that illuminates all ecosystems. RMBL serves as a unique resource for policy makers who need to understand a changing and complex world.

Ian Billick, PhD, Executive Director. Shannon Sprott, GIS/GPS Coordinator.

NEON <https://www.neonscience.org/>

The National Ecological Observatory Network is a major facility fully funded by the National Science Foundation. NEON is a continental-scale observation facility operated by Battelle Labs and designed to collect long-term open access ecological data to better understand how U.S. ecosystems are changing. NEON monitors ecosystems across the U.S. **Domain 13: Southern Rockies & Colorado Plateau**, Boulder, CO

National Park Service, Northern Colorado Plateau Network, Dusty Perkins, Ph.D., Program Mgr., Environmental Studies Dept., Western State CO U., Gunnison, CO.

<http://science.nature.nps.gov/im/units/ncpn> dustin_w_perkins@nps.gov

The Colorado Avalanche Information Center (CAIC), in Silverton, CO has been testing satellite imagery to detect avalanches. The technology is building a more accurate library of avalanche activity over a winter season, and year over year.

Satellites, airplanes and lasers are tracking Colorado avalanches

Eye-in-the-sky technology is bringing avalanche science into the 21st century, enabling forecasters with better tools for predicting threats in Colorado's backcountry.

<https://coloradosun.com/2021/03/01/satellites-colorado-avalanches-airborne-snow-observatory>

The system was developed by a team from the **Norwegian Research Center**, NORCE, using synthetic aperture radar, or SAR, mounted on the European Space Agency's two **Sentinel-1 satellites**. When a slide was detected it was automatically reported to Norwegian avalanche forecasters. Because the SAR device emits microwaves toward the Earth's surface, rather than sensing natural light, this method allows satellites to capture images on cloudy days or at night. **Markus Eckerstorfer**, the NORCE researcher who developed the data processing chain, in 2018 received funding from the ESA to test the method in Colorado, teaming up with CAIC.

Jeffrey Deems, a researcher at **University of Colorado** and co-founder of **Airborne Snow Observatory** (an offshoot of NASA's Jet Propulsion Laboratory), uses LiDAR mounted on aircraft to measure snow in basins across the western U.S. While the goal of these flights is to map how much snow—and therefore water—a river basin holds so that water managers can better plan how to allocate runoff, they also detect avalanches.

Colorado Broadband Networking

Colorado is home to some of the largest telecommunications companies in the U.S., including (Lumin, CenturyLink, Zayo, Dish and CableLabs). Yet, many small rural Rocky Mountain communities continue to be on the wrong side of the digital divide. Until a few years ago, the Colorado State Legislature, taking incumbent 'telco' lobbyists' money, outlawed community or municipal broadband networks, even if commercial providers offered poor or no service. This has changed in most recent years, and now over 100 Colorado towns and counties are deploying or planning networks. Changes in legislation, policy, access to new federal and state funding and sound investment strategies can foster new, opportune networked realities over the coming years.

With new federal broadband infrastructure funding opportunities and State funds and initiatives, Colorado is now becoming a national example for rural and mountain areas networking.
