CIRMOUNT Strategic Plan

Version 040607

This document summarizes the status and plans for *CIRMOUNT*, with the purpose of serving as a context for achieving consortium goals, as corporate memory for proposed actions, and as a yardstick against which progress and accomplishments can be measured. The plan is meant to be an evolving document: New opportunities can be inserted into the existing framework, thereby providing perspective on how projects interrelate. The Plan summarizes *CIRMOUNT's* big-picture vision; an Appendix lists current achievements and potential actions, and is meant to be readily updated.

Background (Who are we? Where are we now?)

CIRMOUNT is a collaborative, open, science consortium comprising agency and university scientists, natural-resource specialists, and program managers dedicated to improving understanding of climate variability and change, and to enhancing the capacity to sustain western North American society.

CIRMOUNT responds to four urgent situations in western North America:

- Mountain regions are under-instrumented for measuring climate and other long-term changes;
- Research on western mountain climates & ecosystems is intensive, but poorly integrated;
- Demands on western mountain ecosystems are escalating, placing new and cumulative stresses on rural mountain communities and natural resources;
- Climate change has not been incorporated in mountain land-use planning and natural-resource management and policy.

At present *CIRMOUNT* is organized wholly as a grass-roots initiative, with no central program staff or support; a 15-member core team serves as the ad-hoc coordinating body. Given this, *CIRMOUNT* has achieved ongoing presence and recognition along several lines of activities. Its current capacity, however, is limited to what these individuals can leverage from other responsibilities. Further growth toward *CIRMOUNT's* goals will continue to be ad hoc and opportunistic unless more resources are obtained.

Consortium Goals (Where do we want to be?)

CIRMOUNT was founded to define regional vulnerabilities to climate variability and change in the unique landscapes that define western North American mountains; to measure and understand climate-driven changes in these regions; to develop information, products, and processes to assist natural resource decision-makers throughout the West; and to respond to the scientific needs and challenges of western society for mountain resources.

CIRMOUNT's core topical scope and foci are the intersection of climate, water, society, ecosystems, and western North American mountains, graphically summarized below (Fig. 1):

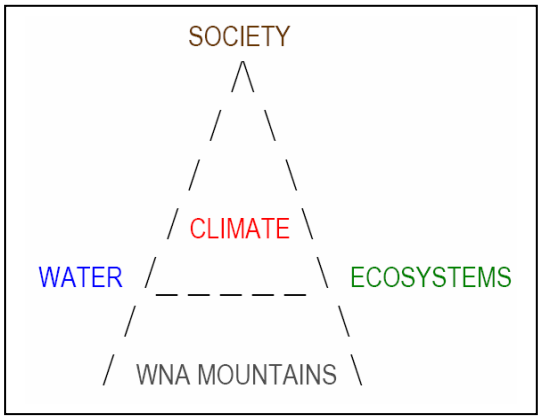

Figure 1. Key scope and foci of CIRMOUNT

CIRMOUNT's goals are to:

1. Promote coordinated mountain climate, hydrologic, and ecosystem monitoring;
2. Catalyze integrated mountain-climate and climate-related research;
3. Communicate science findings among researchers, natural-resource managers, policy makers, and interested public.
4. Develop long-term mountain climate and ecosystem databases and decision-support tools for natural-resource management.
5. Involve CIRMOUNT in international integrated mountain-climate research and related science-based policy initiatives.

In that CIRMOUNT has both disciplinary (monitoring; databases) and integrative (integrated research, decision-support) goals, projects will be needed that have depth as well as projects with breadth. All activities need not be integrated with each other, but all should address one or more CIRMOUNT goals. In some cases, the goal of a project or activity may best be met with integration, while in other cases, it may not. Ideally CIRMOUNT has a balance of both breadth and depth activities. To achieve both depth and breadth, CIRMOUNT must engage in collaborative partnerships with universities; federal, state, and local agencies; NGOs; and private sector interest groups.

APPENDIX: Work Plan (How do we get to our Goals?)

Opportunities to Achieve Goals

Below we summarize accomplishments and ongoing activities under each of *CIRMOUNT's* five goals. In the enumeration of opportunities that follow, "short term opportunities" are those that are available to CIRMOUNT given its current status. "Dream opportunities" are those that might be available should CIRMOUNT garner more resources,

Institutional Capacity

Improving CIRMOUNT's institutional capacity is not a consortium goal, but a means to get to its goals. To reach the significant goals will require greater institutional communication and capacity than present and dedicated program commitment.

Short-term Opportunities

1. Schedule regular monthly conference calls with Coordinating Group for research and project updates as well as strategic and logistics communication, , using this strategic plan as the yardstick by which we measure the utility of proposed actions.
2. Develop a business plan for CIRMOUNT: How are we going to keep growing?
3. Add new members to core coordinating group as appropriate.
4. Forge links to RISAs through NIDIS.

Dream Opportunities

1. Secure funds for program support (program coordinator and operating funds).

<u>Potential future organizational structures for CIRMOUNT:</u>

1. An open, voluntary, science consortium that functions thru a collection of voluntary coordinators?
2. A powerful (able to sway resources, to generate new resources) program construct (with funded office, program coordinator, advisory board, supported to coordinate communications, develop promotional material, and facilitate other funding for integrated projects?
3. A science advocacy initiative?
4. A consortium of agencies/institutions rather than solely of individuals? (e.g., CUAHSI)
5. A Western (or National) Mountain Research Center

Goal 1: Promote coordinated mountain climate, hydrologic, and ecosystem monitoring

Activities under this heading contribute to the acquisition of continuous, multi-disciplinary data on the state of mountains in the West. Effective, efficient, and coordinated monitoring networks are the essential vehicles for CIRMOUNT's other research and decision-support goals. In collaboration with other groups, CIRMOUNT has leveraged progress on this goal. These should remain high priority, with attention on integrated monitoring networks.

Recent Achievements/Ongoing Activities

1. See list of longterm climate installations on web (MONET work group)
2. See list of longterm alpine-plant monitoring stations (GLORIA) on web (GLORIA work group)

Short-term Opportunities

1. Secure support for additional installations in highest priority locations (per WRCC network goals)
2. Install 4 new GLORIA target regions as planned for 2007-2008; coordinate development of WMRS GLORIA Master Station coordinated projects and plan for 2009 Symposium
3. Develop regional cross-disciplinary observations/data inventory ("report card" on levels of availability, integration, etc.).
4. Assess tradeoffs and complementarities of remotely-sensed and ground-based data acquisition.
5. Define a sufficient coordinated monitoring network for Western mountains: what do we need where for how much?
6. Develop a (demonstration?) intra-regional comparison of streamflow/hydrologic observation methods in selected, diverse mountain settings.
7. Promote a CIRMOUNT-produced scorecoard/report-card for Western mountains.

Dream Opportunities
1. Promote installation of one or more western mountain CUASHI-like hydrologic observing station.
2. Implement a coordinated monitoring network for Western mountains (building on existing agency and university efforts, filling in gaps and providing a governing structure)

Goal 2: Catalyze integrated mountain-climate and climate-related research
Activities under this heading contribute to the implementation of research that elucidates the functioning of the coupled human-earth system in Western mountains. Such research must proceed through focused disciplinary projects ("depth") executed within an explicit interdisciplinary framework ("breadth"). To date, CIRMOUNT's progress has been primarily in focused (depth) efforts. While these are important, attention is needed now to promote integration and initiate projects to synthesize across fields and geographic regions.

Recent Achievements/Ongoing Activities
1. Six Working Groups established; variable and inconsistent success and progress.

Short-term Opportunities
1. Submit proposal to National Center for Ecological Analysis and Synthesis for CIRMOUNT research synthesis group on, "Implications of Climatic Change for Elevational and Latitudinal Ecological Gradients in Western North America".
2. Organize a dialog with selected decision-making stakeholders to specify the social and politically relevant outputs of integrated research: what questions can science answer that the body politic really cares about?
3. Plan how existing efforts such as WMI, NEON, National Phenology Network can contribute to an interdisciplinary framework.
4. Develop a western-mountains version of the GLOCHAMORE research strategy as one step toward defining exactly what an integrated Western mountain research program should address.
5. Foster one or more little clusters of integrated studies (preferably across latitudes) – e.g., could start with those areas we work (Sierra, Cascades, GNP) and build out.

Dream Opportunities
1. A unified interdisciplinary research program for Western mountains ("CCSP for the West", new money).

2. A confederated interdisciplinary research program for Western mountains (Western Mountain Initiative with more institutions: existing budgets within different agencies, perhaps some augmentation; governance via MOU).
3. National Science Foundation grant for integrative research.
4. Identify, develop, and circulate a CIRMOUNT-blessed set of global-warming scenarios for the West.

Goal 3: Communicate science findings among researchers, natural-resource managers, policy makers, and interested public.
CIRMOUNT's strength to date has been in communication projects. The current efforts have proven valuable and warrant ongoing support and priority. Given the present institutional capacity, however, managing these activities competes with ability to achieve other goals.

Recent Achievements/Ongoing Activities
1. Conferences: MCSS, MtnClim 2005, MtnClim 2006; plans for MtnClim 2008
2. Special Sessions: AGU 2004, AGU 2005, AGU 2006
3. Publications: MNT, Biannual Newsletter, misc. pubs and reports
4. Electronic: Website developed, Email Distribution List

Short-term Opportunities
1. Technical sessions or symposia in other scientific venues (ESA, AIBS, AAG, AAAS)
2. Continue Mountain Views Newsletter
3. Write 3-5 CIRMOUNT Issue and/or Vision Papers
4. Produce a trio of place-based research "factsheets" (e.g., Yosemite, Grand Cyn, Glacier NPs)
5. Develop a plan for communication with managers: which agencies in which venues on what aspects?
6. Investigate and develop, if appropriate, a strong and longterm relationship with the Institute for Journalism and Natural Resources (http://www.ijnr.org/ look at: http://www.ijnr.org/programs/expeditions95-04.htm)

Dream Opportunities
1. NPR Radio Expeditions segment highlighting CIRMOUNT-associated research
2. Regular and ongoing promotion of research results aimed specifically at the key planning and budgeting processes of key federal and state agencies.

Goal 4: Develop long-term mountain climate and ecosystem databases and decision-support tools for natural-resource management.
Increasing focus at the national, state, and local levels on the need to develop adaptation and mitigation strategies calls for heightened input from science. CIRMOUNT has positioned itself as significant science support to natural-resource management in the West. In the near future, the demand for "solutions" should translate to opportunities for CIRMOUNT to become more active in resource planning and projects.

Recent Achievements/Ongoing Activities
1. Post MtnClim Manager's Workshops: 2005, 2006
2. Leveraged activities with USFS: Portland Manager's Conference 2005; Westwide Climate Initiative
3. Participation in CCSP products.

4. Paleoclimate Work Group products (see web)
5. Climate monitoring databases (see MONET and WRCC web)

Short-term Opportunities
1. Active participation in emerging federal and state efforts (USFS, NPS, W Governors, others)
2. Begin a dialog with RISAs to find common ground and ways to work together and leverage on each other's activities
3. Begin actively establishing at least one integrated database effort, possibly associated with a National Integrated Drought Information System (NIDIS) effort.

Dream Opportunities
1. Annual state and federal interagency conferences reviewing progress in database and DDS development related to climate change and its impacts.

Goal 5: Involve CIRMOUNT in international integrated mountain-climate research and related science-based policy initiatives.
Activities under this heading contribute to dialogue and exchange with researchers in other mountain regions to accelerate our common understanding of the coupled human-earth system in mountain regions.

Recent Achievements/Ongoing Activities
1. CIRMOUNT endorsed as pilot regional consortium by MRI
2. CIRMOUNT participation at Open Science Conference (Scotland); and CONCORD (Argentina)
2. Collaboration with American Cordillera Transect (ACT) Project

Short-term Opportunities
1. Active participation of WMI research sites and researchers, (and other CIRMOUNT associates) within the American Cordillera Transect.
2. Dialogue with European researchers responding to the Seventh Framework Program call on climate change impact in vulnerable mountain regions.
3. Exchange program (sabbaticals) with on-going research programs in other regions of the world, especially Northern Eurasia Earth System Partnership Initiative and Monsoon Asia Integrated Regional Study.
4. Assessment of synergy between CIRMOUNT observation efforts and specific GEOSS (Global Earth Observation System of System) work task.

Dream Opportunities
1. Active participation in 2010 MRI global conference on global change research in mountain regions
2. CIRMOUNT contribution to MRI newsletters, workshops and governance.