

## SCIENTIFIC RESEARCH AND COLLECTING PERMIT

Grants permission in accordance with the attached general and special conditions

United States Department of the Interior  
National Park Service

Sequoia and Kings Canyon



**Study#:** SEKI-00153

**Permit#:** SEKI-2018-SCI-0039

**Start Date:** Jan 17, 2018

**Expiration Date:** Dec 25, 2018

**Coop Agreement#:**

**Optional Park Code:**

### Name of principal investigator:

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### Name of institution represented:

University of California, Merced

### Additional investigators or key field assistants:

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### Study Title:

Water balance & carbon cycling across the snow line in forested landscapes

### Purpose of study:

The purpose of the project is to describe water and carbon cycle interactions between the land surface and the atmosphere in forests and meadows near the rain-snow transition. The study uses both remotely sensed and ground-based information. All studies will use existing hydrologic observatory instrumentation and infrastructure based in the Wolverton Creek and Marble Fork of the Kaweah watersheds, which will be maintained at previously approved levels of operation.

In Long Meadow, a meteorological station may be reinstalled after snowmelt at the same location as last year. The Long Meadow meteorological station will be outfitted with an eddy correlation set up on a tripod occupying an approximate footprint of 3m x 3m. The included sonic anemometer runs a small fan at times, with noise similar to a notebook computer fan. The instrumentation may be visible from the trail as in past years.

Existing weather stations and distributed sensors will be maintained and repaired. We anticipate additional research presence this year as the 10-year old instruments are replaced, streamlined or removed as needed. We are wrapping up the well portion of the study and plan to remove the meadow wells this summer, permitting labor availability.

### Subject/Discipline:

Atmosphere / Climate / Weather

Other

Water / Hydrology

### Locations authorized:

Wolverton Basin and Long Meadow. As in past years, we plan a temporary installation for the summer/fall in Long Meadow of an eddy-covariance equipped micrometeorological station (344606 m E 4051056 m N). The met station instruments will be deployed on a tri-pod no more than 3 m high and 3 m in diameter and be powered by a 95W solar panel and battery. The tri-pod will be secured to the surface using 12-18" spikes.

The Panther meteorological station and Panther snow pillow are located at 346513mE 4050450mN (UTM 11). Additional ground-truthing and verification will be performed in this first year of the snow pillow operation. The Panther Met station was substantially damaged in the 2017 winter and is currently non-operational. Previous instrumentation was secured to a makeshift steel pole-as-tower. We would like to replace this with an aluminum tower with a triangular base. This would include moving the anchor holes. A proposal with diagrams and pictures is attached in the documents section.

Finally, we wish to continue discussions that began last year to establish student- or citizen- based research efforts, in cooperation with Park staff and staff from the UC Natural Reserve System. Possible options would be snow depth surveys (either at one point across a large area, or at frequent intervals at limited points), snow density surveys, or phenology observations. Proposed locations are within 2.5 km of the Wolverton parking lot, focused between Panther Meadow and Clover Creek.

**Transportation method to research site(s):**

By vehicle to the sites in Wolverton, by foot (including skis or snowshoes) and pack stock on the trails.

**Collection of the following specimens or materials, quantities, and any limitations on collecting:**

**Name of repository for specimens or sample materials if applicable:**

Repository type: Will be destroyed through analysis or discarded after analysis

Objects collected:

Up to 1500 liters of snow and water may be collected, during the 2018 season, and chemically analyzed at the Environmental Analytical Laboratory, UC Merced, at Lawrence Livermore National Laboratory, or on site. The samples will be either destroyed in analysis or archived, for future analysis. Currently, planned sites for this project are on the Sierra National Forest, but may add sample from ongoing sites at Wolverton basin and Long Meadow as well.

**NPS General Conditions for Scientific Research and Collecting Permit (available at the RPRS HELP page) apply to this permit. The following specific conditions or restrictions, and any attached conditions, also apply to this permit:**

**\*\*ENTRANCE FEE WAIVED\*\***

**General Conditions**

1. Notification - Check in at nearest ranger station at start of field season, and show Research and Collecting Permit. Carry the permit with you when conducting research.

2. Health & safety - Like other visitors, research permit holders are responsible for their own and their team's health and safety when in a national park. All natural areas pose risks, therefore be prepared in advance to eliminate or mitigate those risks. Let someone know your itinerary, communicate if it changes, and establish an action threshold if your party fails to communicate as expected. Consider what is needed if an emergency occurs and take the appropriate actions to insure that those needs will be met. Permit holders need to exhibit a degree of self reliance and responsibility for their own safety commensurate with the difficulty of their chosen activities.

3. Illegal marijuana cultivation activities occur year-round and in any isolated area between 500 and 10,000 feet in elevation. Cultivators pose a threat because they are usually armed and instructed to protect their illegal product. Other hazards include open pits, pesticides, and fertilizers. Researchers must pre-plan to avoid known hotspots and to know how to respond if they encounter a grow site. Review the Marijuana Safety Flyer and discuss the issue with your team. Let Park Rangers in the Marijuana Interdiction Group (559.565.4298) know where you will be traveling so they can warn you of any known problems in that area. If you encounter any marijuana cultivation, camps, irrigation line, unauthorized heavily used trails, or people that look like they may be involved in cultivation, leave the area and contact Park Dispatch (559.565.3195). Do not approach or linger in even apparently old or inactive sites; do report them to the Science Coordinator and to the Marijuana Interdiction Group as soon as possible.

**4. Wilderness Guidelines & Permits –**

• Research permittees are required to obtain a Wilderness Permit for overnight stays away from developed areas. These permits are issued via email and at several locations in the parks; Cedar Grove, Grant Grove, Lodgepole, Ash Mountain, and Mineral King. Permits must be obtained at the location nearest the trailhead which will be used for wilderness access.

• Visit park web sites to obtain park and Wilderness guidelines and regulations in the annual Wilderness Trip Planner. Review these with all field staff prior to initiating field work. For additional information, please call the Wilderness Office at 559.565.3766. Web sites: <https://www.nps.gov/seki/planyourvisit/wilderness.htm> and <https://www.nps.gov/seki/planyourvisit/backpacking.htm>.

• For researchers entering the parks via the east side Inyo National Forest, wilderness permits must be obtained by contacting the INF Wilderness Permit Office @ ph. 760.873.2492, FAX 760.873.2484. Include lists of Project Participants and Trailheads that you will use AND a copy of your research permit. To conduct research in a National Forest, a separate research permit is required.

• Researchers are required to comply with all wilderness regulations and restrictions (though they are not subject to the wilderness fee, need not make reservations, and will generally be permitted to exceed entry quotas), in order to preserve the wilderness environment. A permit must be obtained for each overnight visit into wilderness, that is, they are issued for each trip, not for the entire season.

• Researchers are respectfully requested to be acutely aware of how their activities affect the wilderness experience of other wilderness users. Camp and travel using Leave No Trace techniques. Comply with food storage and disposal requirements at all times.

• Where possible, researchers should use established stock camps, trail crew camps, and backpacker camps. When a project requires that a new site be used for camping, appropriate Resource Management and Visitor Protection park staff should be consulted regarding camp selection. Paramount in selecting a new site is the ability to restore the site once the project is completed and the camp is no

longer needed.

- All grazing and stock use is to be done within the constraints of the parks' Stock Use and Meadow Management Plan and using Leave No Trace stock techniques.

5. Additional Analyses - Some research activities may require a Minimum Requirements Analysis (MRA), Environmental Assessment, or other additional analysis. Researchers are required to adhere to the results and conditions of these additional analyses.

6. Protect Cultural Resources –

- Any ground disturbing activities will require Section 106 review (NHPA).
- Should previously unknown historic or prehistoric resources be unearthed during project implementation, work will be halted in the discovery area, the site secured, and the parks' Cultural Resource Specialist notified. A qualified cultural resource management specialist will examine the area as soon as possible.

7. All installations, including field markers, such as tags, flagging, nails, poles, paint, etc. must be approved in advance, and completely removed by the end of field activities or the permit expiration date (whichever is earlier) unless other specific arrangements with the Parks have been made for longer-term deployment.

8. Mechanized equipment - No use of mechanized equipment in designated, proposed, or potential wilderness areas is allowed unless authorized by the superintendent or a designee in additional specific conditions associated with this permit.

9. Methods of travel - Travel within the park is restricted to only those methods that are available to the general public unless otherwise specified in additional stipulations associated with this permit.

10. Collection of specimens - No specimens (including materials) may be collected unless authorized on the Scientific Research and Collecting permit. The general conditions for specimen collections are:

- Collection of archeological materials without a valid Federal Archeology Permit is prohibited.
- Collection of federally listed threatened or endangered species without a valid U.S. Fish and Wildlife Service endangered species permit is prohibited.
- Collection methods shall not attract undue attention or cause unapproved damage, depletion, or disturbance to the environment and other park resources, such as historic sites.
- New specimens must be reported to the NPS annually or more frequently if required by the park issuing the permit. Minimum information for annual reporting includes specimen classification, number of specimens collected, location collected, specimen status (e.g., herbarium sheet, preserved in alcohol/formalin, tanned and mounted, dried and boxed, etc.), and current location.
- Collected specimens that are not consumed in analysis or discarded after scientific analysis remain federal property. The NPS reserves the right to designate the repositories of all specimens removed from the park and to approve or restrict reassignment of specimens from one repository to another. Because specimens are Federal property, they shall not be destroyed or discarded without prior NPS authorization.
- If a researcher plans to store specimens in a non-NPS repository, they must obtain signatures on the Appendix. The signed and dated Appendix A must be provided to the Research Coordinator as a PDF attachment. Contact the Research Coordinator if the Appendix A was not generated in your application.
- Researchers then must follow the Non-NPS Repository Instructions provided in the attachment.
- Each specimen (or groups of specimens labeled as a group) that is retained permanently must bear NPS labels and must be accessioned and cataloged in the NPS National Catalog. Unless exempted by additional park-specific stipulations, the permittee will complete the labels and catalog records and will provide accession information. It is the permittee's responsibility to contact the park for cataloging instructions and specimen labels as well as instructions on repository designation for the specimens.
- Collected specimens may be used for scientific or educational purposes only, and shall be dedicated to public benefit and be accessible to the public in accordance with NPS policies and procedures.
- Any specimens collected under this permit, any components of any specimens (including but not limited to natural organisms, enzymes or other bioactive molecules, genetic materials, or seeds), and research results derived from collected specimens are to be used for scientific or educational purposes only, and may not be used for commercial or other revenue-generating purposes unless the permittee has entered into a Cooperative Research And Development Agreement (CRADA) or other approved benefit-sharing agreement with the NPS. The sale of collected research specimens or other unauthorized transfers to third parties is prohibited. Furthermore, if the permittee sells or otherwise transfers collected specimens, any components thereof, or any products or research results developed from such specimens or their components without a CRADA or other approved benefit-sharing agreement with NPS, permittee will pay the NPS a royalty rate of twenty percent (20%) of gross revenue from such sales or other revenues. In addition to such royalty, the NPS may seek other damages to which the NPS may be entitled including but not limited to injunctive relief against the permittee.

11. Prevent introduction and spread of non-native plants. Inspect, remove, and properly dispose of plant seeds and plant parts found on clothing, boots, tools, and camping equipment. Disposal consists of removing the seed and plant parts from clothing and equipment at a spot near the infestation, or bagging the seeds and plant parts and disposing as bagged garbage.

12.Reporting of study locations - Geospatial coordinates for the locations of actual study sites, specimen collections, and/or equipment installations are required by March 1 following the year in which the permit was issued. See attached “Annual Spatial Data Requirement for Researchers” instructions.

13.Reporting of Results - The permittee is required to submit an Investigator’s Annual Report and copies of final reports, publications, and other materials resulting from the study. Permittee is responsible for the content of reports and data provided to the National Park Service.

- Instructions for how and when to submit an annual report will be provided by NPS (by email).

- Copies of field notes, databases, maps, photos, and/or other materials may also be requested.

- Submit final reports via the RPRS website under the ‘Submit Final Reports and Other Related Materials’ Option. Alternatively, send a digital copy by email to koren\_nydick@nps.gov. As a last option, send two hard copies to Office of Resource Management and Science, Sequoia and Kings Canyon National Parks, 47050 Generals Highway, Three Rivers, CA 93271.

14.Authority - The permittee is granted privileges covered under this permit subject to the supervision of the superintendent or a designee, and shall comply with all applicable laws and regulations of the National Park System area and other federal and state laws. A National Park Service (NPS) representative may accompany the permittee in the field to ensure compliance with regulations.

15.Responsibility - The permittee is responsible for ensuring that all persons working on the project adhere to permit conditions and applicable NPS regulations.

16.False information - The permittee is prohibited from giving false information that is used to issue this permit. To do so will be considered a breach of conditions and be grounds for revocation of this permit and other applicable penalties.

17.Assignment - This permit may not be transferred or assigned. Additional investigators and field assistants are to be coordinated by the person(s) named in the permit and should carry a copy of the permit while they are working in the park. The principal investigator shall notify the park’s Research and Collecting Permit Office when there are desired changes in the approved study protocols or methods, changes in the affiliation or status of the principal investigator, or modification of the name of any project member.

18.Revocation - This permit may be terminated for breach of any condition. The permittee may consult with the appropriate NPS Regional Science Advisor to clarify issues resulting in a revoked permit and the potential for reinstatement by the park superintendent or a designee.

19.Confidentiality - The permittee agrees to keep the specific location of sensitive park resources confidential. Sensitive resources include threatened species, endangered species, and rare species, archeological sites, caves, fossil sites, minerals, commercially valuable resources, and sacred ceremonial sites.

20.Other permits - The permittee must obtain all other required permit(s) to conduct the specified project.

21.Insurance - If liability insurance is required by the NPS for this project, then documentation must be provided that it has been obtained and is current in all respects before this permit is considered valid.

22.NPS participation - The permittee should not anticipate assistance from the NPS unless specific arrangements are made and documented in either an additional stipulation attached to this permit or in other separate written agreements.

23.Access to park and restricted areas - Approval for any activity is contingent on the park being open and staffed for required operations. No entry into restricted areas is allowed unless authorized in additional park specific stipulations attached to this permit.

24.Expiration date - Permits expire on the date listed. Nothing in this permit shall be construed as granting any exclusive research privileges or automatic right to continue, extend, or renew this or any other line of research under new permit(s).

25.Other stipulations - This permit includes by reference all stipulations listed in the application materials or in additional attachments to this permit provided by the superintendent or a designee. Breach of any of the terms of this permit will be grounds for revocation of this permit and denial of future permits.

**Recommended by park staff (name and title):**



Annie Esperanza  
Acting Research Permit Coordinator

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**Reviewed by collections Manager:**

Yes  No

**Approved by park official:**



Christy Brigham *for*  
Woody Smeck, Superintendent

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**Date Approved:**

June 29, 2018

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**I Agree To All Conditions And Restrictions Of this Permit As Specified**  
(Not valid unless signed and dated by the principal investigator)

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Principal investigator's signature

**Jul 2, 2018**

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(Date)

**THIS PERMIT AND ATTACHED CONDITIONS AND RESTRICTIONS MUST BE CARRIED AT ALL TIMES  
WHILE CONDUCTING RESEARCH ACTIVITIES IN THE DESIGNATED PARK(S)**



# GENERAL CONDITIONS For SCIENTIFIC RESEARCH AND COLLECTING PERMIT

United States Department of the Interior  
National Park Service

1. **Authority** - The permittee is granted privileges covered under this permit subject to the supervision of the superintendent or a designee, and shall comply with all applicable laws and regulations of the National Park System area and other federal and state laws. A National Park Service (NPS) representative may accompany the permittee in the field to ensure compliance with regulations.
2. **Responsibility** - The permittee is responsible for ensuring that all persons working on the project adhere to permit conditions and applicable NPS regulations.
3. **False information** - The permittee is prohibited from giving false information that is used to issue this permit. To do so will be considered a breach of conditions and be grounds for revocation of this permit and other applicable penalties.
4. **Assignment** - This permit may not be transferred or assigned. Additional investigators and field assistants are to be coordinated by the person(s) named in the permit and should carry a copy of the permit while they are working in the park. The principal investigator shall notify the park's Research and Collecting Permit Office when there are desired changes in the approved study protocols or methods, changes in the affiliation or status of the principal investigator, or modification of the name of any project member.
5. **Revocation** - This permit may be terminated for breach of any condition. The permittee may consult with the appropriate NPS Regional Science Advisor to clarify issues resulting in a revoked permit and the potential for reinstatement by the park superintendent or a designee.
6. **Collection of specimens (including materials)** - No specimens (including materials) may be collected unless authorized on the Scientific Research and Collecting permit.

The general conditions for specimen collections are:

- Collection of archeological materials without a valid Federal Archeology Permit is prohibited.
- Collection of federally listed threatened or endangered species without a valid U.S. Fish and Wildlife Service endangered species permit is prohibited.
- Collection methods shall not attract undue attention or cause unapproved damage, depletion, or disturbance to the environment and other park resources, such as historic sites.
- New specimens must be reported to the NPS annually or more frequently if required by the park issuing the permit. Minimum information for annual reporting includes specimen classification, number of specimens collected, location collected, specimen status (e.g., herbarium sheet, preserved in alcohol / formalin, tanned and mounted, dried and boxed, etc.), and current location.
- Collected specimens that are not consumed in analysis or discarded after scientific analysis remain federal property. The NPS reserves the right to designate the repositories of all specimens removed from the park and to approve or restrict reassignment of specimens from one repository to another. Because specimens are Federal property, they shall not be destroyed or discarded without prior NPS authorization.
- Each specimen (or groups of specimens labeled as a group) that is retained permanently must bear NPS labels and must be accessioned and cataloged in the NPS National Catalog. Unless exempted by additional park - specific stipulations, the permittee will complete the labels and catalog records and will provide accession information. It is the permittee's responsibility to contact the park for cataloging instructions and specimen labels as well as instructions on repository designation for the specimens.
- Collected specimens may be used for scientific or educational purposes only, and shall be dedicated to public benefit and be accessible to the public in accordance with NPS policies and procedures.
- Any specimens collected under this permit, any components of any specimens (including but not limited to natural organisms, enzymes or other bioactive molecules, genetic materials, or seeds), and research results derived from collected specimens are to be used for

scientific or educational purposes only, and may not be used for commercial or other revenue - generating purposes unless the permittee has entered into a Cooperative Research And Development Agreement (CRADA) or other approved benefit - sharing agreement with the NPS. The sale of collected research specimens or other unauthorized transfers to third parties is prohibited. Furthermore, if the permittee sells or otherwise transfers collected specimens, any components thereof, or any products or research results developed from such specimens or their components without a CRADA or other approved benefit-sharing agreement with NPS, permittee will pay the NPS a royalty rate of twenty percent (20 %) of gross revenue from such sales or other revenues. In addition to such royalty, the NPS may seek other damages to which the NPS may be entitled including but not limited to injunctive relief against the permittee.

7. **Reports** - - The permittee is required to submit an Investigator's Annual Report and copies of final reports, publications, and other materials resulting from the study. Instructions for how and when to submit an annual report will be provided by NPS staff. Park research coordinators will analyze study proposals to determine whether copies of field notes, databases, maps, photos, and / or other materials may also be requested. The permittee is responsible for the content of reports and data provided to the National Park Service

8. **Confidentiality** - - The permittee agrees to keep the specific location of sensitive park resources confidential. Sensitive resources include threatened species, endangered species, and rare species, archeological sites, caves, fossil sites, minerals, commercially valuable resources, and sacred ceremonial sites.

9. **Methods of travel** - Travel within the park is restricted to only those methods that are available to the general public unless otherwise specified in additional stipulations associated with this permit.

10. **Other permits** - The permittee must obtain all other required permit(s) to conduct the specified project.

11. **Insurance** - If liability insurance is required by the NPS for this project, then documentation must be provided that it has been obtained and is current in all respects before this permit is considered valid.

12. **Mechanized equipment** - No use of mechanized equipment in designated, proposed, or potential wilderness areas is allowed unless authorized by the superintendent or a designee in additional specific conditions associated with this permit.

13. **NPS participation** - The permittee should not anticipate assistance from the NPS unless specific arrangements are made and documented in either an additional stipulation attached to this permit or in other separate written agreements.

14. **Permanent markers and field equipment** - The permittee is required to remove all markers or equipment from the field after the completion of the study or prior to the expiration date of this permit. The superintendent or a designee may modify this requirement through additional park specific conditions that may be attached to this permit. Additional conditions regarding the positioning and identification of markers and field equipment may be issued by staff at individual parks.

15. **Access to park and restricted areas** - Approval for any activity is contingent on the park being open and staffed for required operations. No entry into restricted areas is allowed unless authorized in additional park specific stipulations attached to this permit.

16. **Notification** - The permittee is required to contact the park's Research and Collecting Permit Office (or other offices if indicated in the stipulations associated with this permit) prior to initiating any fieldwork authorized by this permit. Ideally this contact should occur at least one week prior to the initial visit to the park.

17. **Expiration date** - Permits expire on the date listed. Nothing in this permit shall be construed as granting any exclusive research privileges or automatic right to continue, extend, or renew this or any other line of research under new permit(s).

18. **Other stipulations** - This permit includes by reference all stipulations listed in the application materials or in additional attachments to this permit provided by the superintendent or a designee. Breach of any of the terms of this permit will be grounds for revocation of this

permit and denial of future permits.