



University of Hawai'i at Hilo

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Minutes Regular Meeting

Mauna Kea Management Board
Tuesday, April 2, 2019

Kukahau'ula, Room 131
640 N. A'ohoku Place
Hilo, Hawaii 96720

Attending

- MKMB:** Chair Gregory Chun, 1st Vice Chair Doug Simons, Roberta Chu, Julie Leialoha, Kepā Maly, and Barry Taniguchi
- BOR:** None Present
- Kahu Kū Mauna:** Kālepa Baybayan
- OMKM:** Fritz Klasner, Stephanie Nagata, Dawn Pamarang, Lukela Ruddle, and Joy Yoshina
- Others:** Laura Aquino, Dave Corrigan, Cory Harden, Herring Kalua, Ka'iu Kimura, Simon Radford, Gary Takeuchi, Dwight Vicente, Dwayne Yoshina, and Peter Young

I. CALL TO ORDER

Chair Chun called the meeting of the Mauna Kea Management Board (MKMB) to order at 10:00 a.m. and welcomed the new Board members: Roberta Chu, Julie Leialoha, Kepā Maly and returnee Barry Taniguchi.

II. APPROVAL OF MINUTES

Upon motion by Julie Leialoha and seconded by Barry Taniguchi the minutes of the November 28, 2017, meeting of the MKMB were unanimously approved.

III. DIRECTOR'S REPORT

A. Thirty-Meter Telescope (TMT) Appeal to the Supreme Court

Oral arguments were heard before the Hawaii Supreme Court on June 21, 2018. On October 30, 2018, the court issued its written decision, affirming the BLNR's approval of the Conservation District Use Permit.

In short, the court held conservation district lands owned by the State, such as the lands in the summit area of Maunakea, are public resources held in trust for the benefit of the people pursuant to Article XI, Section 1, of the Hawaii Constitution. The court also held that the TMT project did not violate the Hawai'i Constitution and public trust principles. The Board of Land and Natural Resources found there was no actual evidence of use of the TMT Observatory site and access way area by Native Hawaiian practitioners

The court held that the Board of Land and Natural Resources (BLNR) findings that the project met the criteria for evaluating the merits of the proposed land use pursuant to HAR § 13-5-30(c) was not erroneous. The court cited TMT's compliance with all applicable rules, regulations, and requirements, the Master Plan, Comprehensive Management Plan (CMP), sub-plans, and the TMT Management Plan, along with the mitigation measures committed to in the TMT Final EIS, CDUA, and TMT Management Plan, demonstrate that the TMT project will not cause substantial adverse impact to the existing natural resources within the surrounding area, community, or region. Further, the Court noted BLNR's analysis of the removal of telescopes from the summit ridge would preserve the

natural beauty and open space characteristics of the land, and that the University formally committed that the TMT is the last new area of Maunakea where a telescope project would be sought.

B. Flores II vs. Board of Land and Natural Resources

On August 8, 2018, the Supreme Court unanimously ruled in favor of the University and BLNR, reversing the lower court decision that the land board erred in denying Kalani Flores' request for a contested case hearing on the board's consent to the TMT sublease.

C. Office of Hawaiian Affairs (OHA) Lawsuit

The Office of Hawaiian Affairs filed its complaint against various state defendants and the University of Hawai'i (UH) on November 7, 2017. The defendants were served on December 20, 2017. In January UH filed a Motion to Dismiss the Complaint. The Judge held periodic status conferences, and eventually held a hearing on the motion on January 30, 2019. On March 11, 2019, the Judge dismissed the part of the complaint concerning allegations of breach of contract and allowed allegations of breach of fiduciary duty to continue. The final order for this ruling has not yet been entered by the Court. No trial date has been set at this time.

D. Ingress/Egress and Parking Project near the Visitor Information Station (VIS)

On June 8, 2018 the BLNR granted a Conservation District Use Permit for the construction of an ingress/egress lane and parking lot near the Visitor Information Station (VIS). This project is in compliance with the CMP, which for safety reasons, calls for putting parking on the same side as the VIS. Construction began in January 2019 and is about half-way completed. Anticipated completion is early summer.

E. Comprehensive Management Plan and Master Plan Updates

The University is initiating steps to update the Comprehensive Management Plan (CMP) and Master Plan. In 2014, the Office of Maunakea Management (OMKM) discussed with the Maunakea Management Board that not enough time had elapsed to fully vet all the management actions and that it was premature to update the CMP. Most of the changes that would have been made back in 2014 would have been mostly housekeeping measures such as updating information and editing spelling changes to place names. The University believes that it has a good handle on the status of the resources compared to 2009 and has implemented most of the management actions to begin the process for updating the CMP along with the 2000 Master Plan, which planning horizon is the year 2020.

F. Outreach

OMKM continues its outreach efforts to groups who are interested in learning about OMKM's stewardship on Maunakea. Presentations have been made to community advocate groups, community associations, West Hawaii Forum, Democratic Party Hawaiian Affairs committee, schools and others. Upcoming events include Kealakehe Elementary School's Science Day, Mountain View Library, Keaukaha Elementary School Science Night, Earth Day at UH Hilo and Astro Day at Prince Kuhio Plaza.

G. Commercial Tours

In July 2018, Jack's Tours, one of the eight permitted commercial tour operators on Maunakea closed its business due to the downturn in visitors to the island resulting from the eruption in Puna. Jack's Tours was allowed to transfer its permit based on a force majeure situation. The new operator is Super Vacation Hawaii.

H. Board of Land and Natural Resources Annual Report

On January 25, OMKM gave its annual report to the BLNR on the status of the implementation of the CMP. Also included in the report was an analysis of vehicles that go to HP and summit.

IV. KAHU KŪ MAUNA COUNCIL (KKMC)

Kālepa Baybayan reported the Council last met on March 27, 2019. The Council reviewed the 5-year proposals for long-range upgrades submitted by the observatories. Upgrades are internal to the observatory structure such as the installation of additional security cameras, adding more vents, installing more fire alarms, etc.

Two new proposals for research projects were reviewed. The global airborne microbial sampling proposes collection of air and soil samples on Maunakea. The Council requested more information from the geology project.

Other Council business included reviewing the annual long-term archeological monitoring reports and updates on the Caltech Submillimeter Observatory (CSO) decommissioning project. John DeFries gave a presentation on A Hua He Inoa, the Hawaiian nomenclature project of giving Hawaiian names to astronomical objects discovered by the observatories on Haleakalā and Maunakea. The project is conducted in partnership with 'Imiloa, Ka Haka 'Ula O Ke'elikolani College of Hawaiian Language, and the Maunakea Observatories.

Three candidates were interviewed to serve on the Council, with recommendations to approve two and keep the number of council members to an odd number (7).

V. COMMITTEE REPORTS

A. Environment Committee

Fritz Klasner reported the committee last met on March 13, 2019. Topics discussed included the administrative rules and CSO decommissioning. At the previous meeting in January 2019, Dr. Jesse Eiben gave a presentation on the arthropod biodiversity project findings. Non-native species were observed on all plant types indicating that non-native species are generalists, unlike our native species which are much more host specific. Native, host specific arthropods such as flightless Delphacid leafhoppers were found on various plant types indicating a healthy ecosystem. Host specific and flightless arthropods are good indicators of healthy ecosystems, and are usually the first arthropods to disappear when a new highly invasive arthropod becomes established in the ecosystem.

Maunakea Speaker Series

The monthly Speaker Series continues. Events are recorded and posted at the series website. Upcoming Speaker Series include:

- April 4th: Dr. Evan Rehm, post-doc from University of California, Santa Barbara working with the United States Forest Service, Institute of Pacific Islands Forestry. His talk is on Koa regeneration in the Hakalau Forest National Wildlife Refuge.
- May: To be determined
- June: Akamai Internship Program
- Maunakea Scholars (date to be determined)

Seabird and Bat Inventory

Work originally started in the Forest Reserve to better guide searches on UH managed lands. Methods have been proven in Forest Reserve, with the research team now documenting direction of movement upward to determine if there is habitat use on UH managed lands and, if so, where and by what species. There are two main methods: truck mounted radar and acoustic recorders.

Radar

- Seabirds and bats detected at many locations all around Maunakea near treeline in 2018. Differentiating species is a challenge.
- Rob Diehl, United States Geological Survey biologist specializing in ornithological radar, was on-island last week. He helped the project transition to computerized and recorded radar data collection, using artificial intelligence (AI) for analysis. First system of its type in Hawaii, novel application in the country. This change will help identify species detected using radar and movement patterns.

Acoustic

- Pu‘ukanakaleonui detections: both ‘Ua‘u (Hawaiian petrel) and ‘Akē‘akē (Band-rumped storm petrel) confirmed.
- Halepōhaku detections: bat foraging behavior detected. Not likely to be residents on any UH managed lands—too high in elevation.

Physical sighting

- Dead ‘Ua‘u in Forest Reserve, eastern slope of Red Hill. Indicative of colony, or individual nesting attempt at a minimum, in the vicinity. Report submitted by someone who saw the recent BIVN article.

What’s next

- Looking for colony(s).
- Song meters going out regularly across Forest Reserve and UH managed lands.
- Continued radar use in the Forest Reserve—using the new technology.

Annual Arthropod Monitoring - Gearing up for June-July fieldwork.

Regular Invasive Species Monitoring

- Honey bee hive relocated off Maunakea earlier in the year.
- Prolific winter/year for rodents at high altitude. First known publication of rodent findings near summit is from 1926—so this is not entirely new.
- Facility trapping has identified no new threats recently.

Other Project Notes

- Jordan Zarders completed his Master of Science (MS) thesis on invasive species threats and vehicle wash station feasibility.
- Marie McKenzie's MS thesis was accepted for publication. Temperature Trends in Hawai'i: A Century of Change, 1917–2016 <https://rmets.onlinelibrary.wiley.com/doi/abs/10.1002/joc.6053>. In International Journal of Climatology. Climate network report/proposal for Maunakea in review.
- A sulfur dioxide (SO₂) sensor is now operational at Halepōhaku. It's part of a network that can be monitored via the website – <https://tatacenter-airquality.mit.edu/hawaii-vog> Select "SO₂" in the menu in lower left of the screen and hold your cursor over the HP station to see measurements from that sensor.
- Species descriptions of the two day flying Agrotis moths on Maunakea is now published in journal Zootaxa.
- Erosion project:
 - Expanding scope to include Halepōhaku and representative segments of the road corridor.
 - Gearing up to additional image and LiDAR acquisition of the summit post Hurricane erosion events.
 - LiDAR data from 2014 and 2017 collected by UNAVCO (an NSF geoscience consortium) publicly available.
 - Where there are landscape modifications that concentrates water: culverts, diversions, etc. you see gullying erosion. The research project is able to detect natural landscape change, such as freeze/thaw lobes creeping downslope to compare natural versus accelerated erosion concerns.
- Trees and shrubs were planted at Halepōhaku in fall 2018 in conjunction with the ingress/egress project permit. Unfortunately, the cold snap appears to have resulted in significantly higher than expected mortality – the cold snap was the most significant in memory at Halepōhaku for those working their careers on Maunakea. There have been many invasive species inspections related to the ingress/egress project.

Discussions

Julie Leialoha asked if the sex of the dead 'Ua'u is known and what caused its demise. Mr. Klasner replied they do not have the bird as this was just reported and that Dr. Hart will be hiking in the next few days. Ms. Leialoha commented her staff will be doing bat surveys in the lower Mauna Kea Forest Reserve areas in the next couple of months and are consulting with Dr. Hart.

Cory Harden asked about the erosion at Halepōhaku and the road and if there will be any report to the Board in the future. Mr. Klasner replied Dr. Perroy will have a final report that can be made available to the Board. Chair Chun requested he would like to have Dr. Perroy present his report to the Board when completed.

VI. PUBLIC COMMENTS

There were no public comments.

VII. OLD BUSINESS

A. Administrative Rules Update

Director Nagata summarized the history of the development of administrative rules. Beginning in 1998 the state auditor conducted their first management audit of Maunakea. The audit covered both the Department of Land and Natural Resources (DLNR) and the University. One of the recommendations was that the University needed administrative rules. There were no rules that applied to the lands the University managed. One of the first things the Office did under the first director, Judge Walter Heen, was to draft rules. Judge Heen discovered the University had no legal authority to do rules. It took six years for the legislature to grant the university authority to promulgate rules. In 2009, Act 132 was passed giving the University the authority to promulgate rules governing public and commercial activities. The purpose is for the proper management, use and protection of resources, and to ensure the health and safety of those who visit the mountain. One of the unique aspects of the Bill is that it requires the University to strive for consistency with DLNR's Forest Reserve and Natural Area Reserves (NAR) System rules. UH's managed lands are completely surrounded by DLNR lands and it makes sense for the rules to be consistent.

Rules were drafted and in June 2018 the Board of Regents (BOR) authorized the president to request from the governor approval to hold public hearings. In September 2018 public hearings were held in Honolulu, Hilo, Waikoloa and Kahului. Public comments received focused on the topics of traditional and customary practices, preservation of scientific and educational resources, vehicle transportation and fines.

The rules were re-evaluated to address some of the comments made by the public. The BOR was asked to allow revisions be made to the rules and to return with a new draft.

Revisions were made to the rules based on comments received. Informal consultations were held with a number of community and business groups, UH and UH Hilo Native Hawaiian faculty, as well as with DLNR. The Office of Hawaiian Affairs (OHA) was consulted on a number of occasions. We are trying to consult with them one more time before we go back to the BOR. Based on these informal consultations further revisions will be made if needed. The next step is to go back to the BOR on April 18th to seek their approval once again to go out to public hearings with the proposed new draft.

Revisions to the rules included the deletion of two sections. One of the deleted sections was on customary and traditional practices. In our consultation with OHA they felt our rules were somewhat overly strict and asked if we could come up with identifying activities that would not be covered by these rules. This proved to be a difficult task because as Kahu Kū Mauna keeps reminding us, the University and KKMC are in no position to define culture. The result was the development of language that focused on resource protection such that if a cultural activity was to have an impact on the resources, the individual would be encouraged to come to OMKM to obtain a special use permit. Due to negative reaction to this proposed change this section was removed and replaced with recognition of the constitutional language regarding the rights of Native Hawaiians to exercise their traditional cultural practices and that their practices are not to be abridged.

The section on group and public assemblies and the need for a permit was also removed and replaced with registering with the Office of Maunakea Management for large group assemblies. A modification was made to the rule on bicycles by requiring permission rather than prohibiting their use above Halepōhaku.

There was public comment about the group size. It is generally not known that this rule is similar to a rule of the Natural Area Reserve which borders the UH's Maunakea Science Reserve. Pursuant to Act 132 regarding striving for consistency with NAR rules, UH adopted the NAR group size limit of 10.

Another area of concern were rules that would protect the scientific and educational resources. This had to do with the use of cell phones and artificial illumination. In discussions with the observatories they felt that cell phones can be used in the summit area provided they are put it in airplane mode. The observatories also did not feel it was necessary to ban the use of artificial illumination such as flashlights or lasers, but requested they not be used next or close to an observatory.

Much was heard about the use of audio devices and noise. UH initially adopted verbatim DLNR's rule that included the prohibition of musical instruments, but due to public comment this rule was modified to prohibit the use of public address systems or systems that amplify sound.

Finally, public comment that the fines were overly broad and excessive. Act 132 sets the maximum fines for first, second and third offenses which UH cannot change. However, UH has the flexibility to break the fines into smaller amounts or ranges to be more in line with the category of the offense.

Discussions

Ms. Leialoha asked for clarification on who would be an authorized law enforcement agent. Director Nagata explained it could be DLNR Division of Conservation and Resources Enforcement (DOCARE), county police, sheriffs or even a federal agent. Our rangers will have limited enforcement powers. They would be able to cite but not arrest.

The public is encouraged to submit comments.

B. Caltech Submillimeter Observatory (CSO) Decommissioning Update

As identified in the Final Decommissioning Plan for Mauna Kea Observatories (January 2010) and in correspondence with the DLNR, Caltech and the University of Hawai'i are preparing a Site Decommissioning Plan, including a Notice of Intent (NOI), Environmental Due Diligence, Site Deconstruction and Removal Plan, Site Restoration Plan, and a Remedial Action Plan (if necessary). An Environmental Assessment (EA) is being developed and will be submitted along with a Conservation District Use Application (CDUA). Initiation of the physical decommissioning process will occur after obtaining a DLNR permit. These documents must be approved by MKMB and the UH President, and if applicable by the Board of Regents, and DLNR before implementation.

Community Involvement

Caltech and UH sought public input on the decommissioning process beginning in December 2017. A “Decommissioning Design Review Committee” has been established and advised parties on process steps for drafting the Site Decommissioning Plan and Environmental Assessment.

Site Decommissioning Plan

Caltech submitted their notice of intent (NOI) to decommission on November 18, 2015. The Maunakea Management Board approved this NOI on May 11, 2016.

The Phase 1 Environmental Site Assessment was submitted dated June 2018. This is the first step in the Environmental Due Diligence process, incorporating comments from KKMC and the Environment Committee. This report identifies a 2009 hydraulic oil release through a floor drain in the center of the dome foundation. While the cleanup was completed in May 2009 to the satisfaction of the Department of Health, a No Further Action designation is pending additional investigation and cleanup to be undertaken when the observatory decommissions. This additional investigation and cleanup, if needed, can only occur once the foundation is removed. As such, a Phase 2 Environmental Site Assessment report will be completed during site deconstruction. The MKMB’s approval of the Environmental Due Diligence component of decommissioning is therefore deferred until the identified actions can be completed.

A Site Deconstruction and Removal Plan, Site Restoration Plan, and Cost Benefit Analysis are being developed. These plans address a variety of issues and legal requirements and include components that emphasize engineering considerations, cultural considerations, environmental concerns, and public health and safety. Numerous technical reports inform these pieces and will be submitted as appendices. Community consultations on these drafts have begun.

Environmental Assessment

During the NOI submittal process, DLNR advised that an EA would be required. Based on initial project scoping, decommissioning plan requirements, and community feedback, the total number of potential alternatives that could be analyzed in an EA was exceptionally large due to the various combinations of infrastructure removal (complete or capping of infrastructure), and site restoration (full, moderate and minimal). As such, the consultant has tentatively identified five (5) alternatives anticipated to be reviewed and analyzed in-depth. While these alternatives span the spectrum of possibilities, the starting point for discussion remains full removal and full restoration – as identified in the Decommissioning Plan and re-affirmed by Kahu Kū Mauna. These tentative alternatives include:

1. No Action
2. Full Infrastructure Removal & Full Site Restoration: Complete Removal of Observatory and all related Infrastructure - No Structures Remaining – Full Restoration of Topography and Habitat
3. Partial Infrastructure Removal (observatory removal, but outbuilding remains & Full Restoration (other than surrounding outbuilding): Complete Removal of Observatory and related Infrastructure - Outbuilding to Remain (with necessary Infrastructure) - Full Restoration of Habitat (all of topography is not restored)
4. Full Infrastructure Removal & Moderate Site Restoration: Complete Removal of Observatory and all related Infrastructure - No Structures Remaining – Moderate Restoration of Habitat (all of topography and habitat are not restored.)
5. Partial Infrastructure Removal/Infrastructure Capping & Moderate Site Restoration: Complete Removal of Observatory and related above-ground Infrastructure - Infrastructure Capping - Moderate Restoration of Habitat (all of topography not restored.)

Next Steps

The subject matter technical reports and drafts of the Site Deconstruction and Removal Plan, Site Restoration Plan, and a Cost-Benefit analysis will be presented to the Decommissioning Design Review Committee, KKMC, and Environment Committee for review and comment.

Additional public consultation on these matters prior to formal release of a draft Environmental Assessment is anticipated.

Caltech is pursuing re-use of the antenna for astronomy purposes outside of Hawai‘i. DLNR has been consulted, and while permits or approvals may be required for this, it is not anticipated to affect the overall decommissioning process.

The University of Hawai‘i has been advised by DLNR that a Conservation District Use Permit (CDUP) issued by the Board of Land and Natural Resources will be required prior to implementation of decommissioning.

Discussions

Doug Simons asked when it is anticipated that CSO will be removed. Mr. Klasner replied the goal is to get the EA done this calendar year and the CDUA shortly thereafter. The DLNR Office of Conservation and Coastal Lands (OCCL) will hold a public hearing and the BLNR would review the permit application. It could be subject to a contested case. The goal is next year when on-the-ground work could begin.

Chair Chun asked who is the accepting authority on the EA is. Mr. Klasner replied it would be the University president or chancellor. Chair Chun asked who is the applicant of the CDUP? Mr. Klasner replied it would be the University. Does the EA come back to this body? Mr. Klasner replied at this point there is a decommissioning design review committee consisting of subject matter experts. Ultimately the MKMB approves each of the main steps in decommissioning process.

Kepā Maly stated UH should exercise good faith in pursuing complete and full restoration. He also felt what would be the best for the long-term presence on Maunakea is worth discussion. Director Nagata stated the full removal and full restoration is one of the alternatives that will be analyzed.

Mr. Klasner stated we will be taking the technical reports to the Environment Committee or KKMC depending on the subject in the near future, before coming to this Board for additional review and discussion.

Ms. Leialoha inquired about the 2009 hydraulic oil spill and the Department Health recommending additional monitoring. Is that before, during and after potential removal? Mr. Klasner's recollection was there was a no further action at this time. The monitoring would occur as we start taking the foundation apart. That process would be spelled out in the site deconstruction and removal plan.

Permafrost Monitoring Update

Norbert Schorghofer completed his study of the assessment of permafrost and final report. There were 3 papers mentioned in his final report:

1. Why a palm-fringed Pacific island harbours pools of ice – Hawaiian peaks host icy pockets year-round, but the cold spots are at risk from climate change. (Nature Research Highlight, December 2018).
2. The Coldest Places in Hawaii: The Ice-Preserving Microclimates of High-Altitude Craters and Caves on Tropical Island Volcanoes (Bulletin of the American Meteorological Society, Volume 99 No. 12).
3. Accepted for publication. Jake Martin, Farrington High grad, Princeton undergrad is the lead author. Snow Cover in Hawai'i (1893-1953) and its Effect on Ground Temperature. Arctic, Antarctic, and Alpine Research.

The next step is to transition to monitoring. The NARS has basically approved the permafrost monitoring. We will be moving forward to OCCL requesting a permit for a site plan approval to transition to long-term permafrost monitoring.

Dr. Simons commented this is really impressive work. Dr. Schorghofer references cold air pools discovered in the pu'u at night, associated with super cooling of the substrate. We think we have connected the dots to what astronomers have been observing the last 20 years: under certain weather conditions, with adaptive optics you can see what we have been calling bubbles of turbulence pass over the mountain that impact the seeing pretty dramatically for 5 – 10 minutes. Those are cold air pools described by Dr. Schorghofer, that with certain wind conditions will actually blow up and out of pu'u and across the summit of Maunakea. The telescopes are spectacular sensors for atmospheric turbulence generated for brief periods of time. We can now say we have detected this phenomenon from multiple angles.

VIII. NEW BUSINESS

A. Approval of Kahu Kū Mauna Council Nominees

The Kahu Kū Mauna Council requests the approval of the appointments of Wally Lau and Kimo Lee to the Council. Pursuant to the 2000 Mauna Kea Science Reserve Master Plan, the Mauna Kea Management Board is charged with approving candidates for membership to Kahu Kū Mauna. The Council is seeking to fill the sixth and seventh seats which have been vacant for a few years.

Action

It was moved by Barry Taniguchi and seconded by Roberta Chu to approve the appointment of Wally Lau and Kimo Lee to the Kahu Kū Mauna Council. The motion was carried unanimously.

Note: The following items B, C, D, and E were taken up collectively by the Board.

B. Very Long Baseline Array Antenna (VLBA) Safety Sign

The VLBA requests to install a single sign reading “Notice No Firearms Allowed on Premises” to the front of its perimeter fence. VLBA is one of ten radio telescopes spanning the United States that is federally managed and operated by the National Radio Astronomy Observatory (NRAO) as a linked system. Federal requirements (18 U.S.C. § 930) prohibit possession and carrying of firearms at any building owned, leased or rented by the federal government. Given the history of events at this facility, the NRAO safety officer requested that the sign be posted communicating relevant federal requirements to the general public and addressing health, safety and welfare concerns.

Kahu Kū Mauna

This proposal was not included in VLBA’s 5-year outlook. As such, an in-depth consultation with KKM occurred on October 9, 2018. The Council approved the request unanimously.

Comprehensive Management Plan

The proposal is consistent with the 2009 CMP, the Maunakea Sign Plan, and other statutes.

Recommendation

OMKM recommends the MKMB classify this proposal a minimal impact project based on the following:

1. The proposal addresses identified safety concerns and is consistent with all legal requirements.
2. The project does not increase the size of the facility or area of disturbance.
3. There are no archaeological sites in the immediate area.
4. It is expected that the immediate surroundings and summit region will experience negligible impact from this project.

If this project is classified minimal impact, OMKM recommends VLBA to be allowed to proceed with the permit application.

C. Submillimeter Array (SMA) Request for Display Box on the Outside of the Building

The SMA requests to install an information display case that can house a poster that can be updated as warranted. Public education and outreach are important facets of observatory operation. The Smithsonian operates the SMA with federal funds, so the public deserves an explanation of its purpose, operation, and results. At present, there is no interpretive information for the many visitors to the SMA on Maunakea. SMA staff are happy to answer questions for weekday visitors when they are encountered, but this information does not reach evening or weekend visitors or if staff are not available during the day.

Kahu Kū Mauna

This proposal was not included in SMA’s 5-year outlook. As such, an in-depth consultation with KKM occurred on March 27, 2019.

Comprehensive Management Plan

The proposal is consistent with the 2009 CMP, the Maunakea Sign Plan, and other statutes.

Recommendation

OMKM recommends the MKMB classify this proposal a minimal impact project based on the following:

1. The proposal addresses identified education concerns and is consistent with all legal requirements.
2. The project does not increase the size of the facility or area of disturbance.
3. There are no archaeological sites in the immediate area.
4. It is anticipated that the educational value of the poster will facilitate increased appreciation for and understanding of the diverse resources found on Maunakea.

If this project is classified minimal impact, OMKM recommends SMA to be allowed to proceed with the permit application.

D. Submillimeter Array (SMA) Weather Station

The SMA requests to install a meteorological instrument mast and instruments on the roof platform of the existing building. For operation of the SMA, continuous measurements of current meteorological conditions are necessary. These data are used to determine safe operating limits for observations and for precise pointing of the antennas. The meteorological instruments will measure air temperature, pressure, and humidity along with wind speed and direction. The data will be recorded and will be made available to interested parties and the public via the Maunakea Weather Center. The existing mast and instruments were installed as part of the original facility

construction but are located away from the working platform. This project will relocate the instruments to a location where they can be serviced more safely while maintaining the integrity of the long-term record.

Kahu Kū Mauna

This proposal was included in SMA's 5-year outlook and no further consultation was requested.

Comprehensive Management Plan

The proposal is consistent with the 2009 CMP, providing data to address resource information gaps.

Recommendation

OMKM recommends the MKMB classify this proposal a minimal impact project based on the following:

1. The proposal addresses concerns identified in the CMP and is consistent with all requirements.
2. The project does not increase the size of the facility or area of disturbance.
3. There are no archaeological sites in the immediate area.
4. It is anticipated that the educational value of the data will facilitate increased appreciation for and understanding of the diverse resources found on Maunakea.

If this project is classified minimal impact, OMKM recommends SMA to be allowed to proceed with the permit application.

E. Auckland University of Technology New Zealand – Global Airborne Microbial Sample

Dr. Stephen Archer, from Auckland University of Technology (New Zealand), requests permission to collect air and soil (six 2 fl. oz. (50mL) samples in the immediate vicinity of the James Clerk Maxwell Telescope (JCMT). The collected samples will add to a global survey dataset that will determine microorganism ecosystem connectivity. Equipment will be brought to site, set up on a standard camera tripods and run then dismantled each day with no observable evidence left behind.

Maunakea is a critical location to a global survey of biological aerosols to answer fundamental questions about the distribution of microorganisms worldwide. The findings from this data will be important to understanding ecosystem resilience and provide baseline data important to airborne microbial modelling. Project is jointly funded by Yale-NUS (National University of Singapore) and Auckland University of Technology (New Zealand). The tentative use of the JCMT parking area has been approved by the Observatory. Specimens (cinder) not consumed in analysis or needed for archival documentation will be returned as permissible under import/export laws.

Kahu Kū Mauna

This proposal was not included in a 5-year outlook. As such, an in-depth consultation with KKM occurred on March 27, 2019.

Comprehensive Management Plan

The proposal is consistent with the 2009 CMP, addressing knowledge gaps not filled by existing or planned inventory or monitoring.

Recommendation

OMKM recommends the MKMB classify this proposal a minimal impact project based on the following:

1. The proposal addresses identified safety concerns and is consistent with all legal requirements.
2. The project does not increase the size of the facility or area of disturbance.
3. There are no archaeological sites in the immediate area.
4. It is expected that the immediate surroundings and summit region will experience negligible impact from this project.

If this project is classified minimal impact, OMKM recommends Dr. Archer be allowed to proceed with the permit application.

Action for Items B, C, D, and E

It was moved by Barry Taniguchi and seconded by Julie Leialoha to classify Items B, C, D, and E as minimal impact and recommend that the applicants be allowed to proceed with the permit application. The motion was carried unanimously.

F. University of Wisconsin Geology Research – Lava and Ice Interaction

Dr. Barry Cameron, from University of Wisconsin-Milwaukee Auckland University of Technology (New Zealand), is requesting permission to conduct geological field work to:

1. Document field evidence for volcano-ice interactions.
2. Estimate the thickness of the Mauna Kea ice cap overlying the emplaced magma by documenting chemical composition.
3. Document rock textures to further understand degassing and crystallization feedbacks during subglacial eruptions.
4. Compare Mauna Kea scoria cones and compare these results to the mineralogy and geochemistry of hydrothermal deposits on Mars.

The proposed work on volcano-ice interactions and hydrothermal alteration on the upper slopes of Mauna Kea strategically aligns with the major Mars Science goals of Life, Climate, and Geology as outlined by the 2018 NASA “Mars Exploration Program Analysis Group”. Under Goal I to determine if Mars ever supported life, Objective A seeks to determine if environments having high potential for prior habitability and preservation of biosignatures contain evidence of past life. The project hopes to provide geological context on the glaciovolcanic and hydrothermal alteration environments on Mars using a terrestrial analog of Maunakea. The results obtained from the proposed project should strengthen future grant proposals to NASA Habitable Worlds program on alteration of high-Fe basalts in Iceland and the Galápagos Islands as appropriate Mars analogs.

Discussions

Mr. Klasner stated at the last KKMC meeting he was asked to follow up with this research. There was no OMKM recommendation for this project proposal. Mr. Klasner feels Dr. Cameron will be limiting his sample collection to the NAR and may just ask to simply hike around Pu’upōliahu and take some photographs. Therefore, any board action may not be necessary.

Action

There was no action by the Board at this time. If the need does arise the project proposal will go back to KKMC and this Board.

G. Draft Drone Policy

The Maunakea Support Services Oversight Committee (MKSSOC), with OMKMs participation, developed a policy on the use of drones in the Maunakea Science Reserve. The policy guides the use of drones in the vicinity of observatories for addressing liability concerns, protecting scientific resources, and establishing expectations with communications. This policy is in addition to, not in lieu of, applicable existing Federal Aviation Administration, Hawaii Administrative Rules, etc. for application in the vicinity of observatories. The policy would provide clear guidance to anyone interested in using a drone on Maunakea. High standards are established for professionalism, addressing cultural concerns, and protecting resources.

Kahu Kū Mauna

This policy was taken to Kahu Kū Mauna for consultation on August 29, 2018. The council requested they be notified of this type of activity in case of any conflict with cultural events that may be happening at the same time. The policy has been updated to reflect this procedural step in any approval process.

Administrative Rules

Draft administrative rules for UH managed lands do not permit the use of a drone for public or commercial activities without a permit. This policy would establish transparent standards by which OMKM could evaluate any permit requests for use of drones.

Comprehensive Management Plan

The policy helps protect all resources on UH managed lands while providing for consistent administration.

Recommendation

OMKM recommends the MKMB approve the policy. If any changes are requested the revisions would be taken to the MKSSOC for their consideration.

Conditions

This policy augments any existing or new statute, rule, or other guidance; it does not reduce or eliminate such existing requirements.

Discussions

Dr. Simons had a question on the internal inconsistency in the wording regarding policy detail numbers 6 and 13. Are these autonomous drones or radio-controlled drones? Mr. Klasner stated the policy is intended to guide the observatory requests and other commercial film type requests received. Generally, the way OMKM works with Dr. Perroy is takeoff and landing are radio controlled. The flight is supervised but it is autonomous and with a pre-programmed flight path. So, it is a combination of autonomous and radio controlled, but it is not explicit in the policy. Mr. Klasner added this policy was written by the Mauna Kea Support Services Oversight Committee.

Dr. Simons inquired how OMKM intends to deal with the prospects of radio frequency activity upload, download, etc. of drones thru this application. Mr. Klasner stated that under the proposed administrative rules, drones are not allowed but can be permitted. This policy would guide the permitting process. The intent from the radio observatories was that data transmission has a potential for interfering. The policy identifies disabling data download so drone flights would need to be pre-programmed. This reduces radio frequency concerns to the radio controls. The policy also requires contacting the 3 radio telescopes and any adjacent observatory prior to approving all flight requests. So, on a case-by-case basis the radio facilities will be notified of the details of the drone. Another challenge is the drone operator will need to have demonstrated use of this equipment with the operator at the given elevation. To do that in Hawai'i is hard.

Barry Taniguchi asked who else operates drones. Mr. Klasner replied research, and educational and outreach for observatories are the most common requests. Mr. Taniguchi asked if someone shows up there without knowing the rules what will happen. Mr. Klasner replied right now there are signs at the VIS indicating no drones. When the rangers encounter visitors on the summit, they will talk to them and explain why it is a concern and convince them it is not a good thing. Mr. Taniguchi asked if the signage could be more stringent, like prohibited unless permitted. Director Nagata commented the signage says, "no drones." When the rangers see a recreational user, they will tell them they cannot fly their drone and they pack up and leave. UH rules prohibit air conveyances such as drone, boomerangs, parasailing, and kites. Mr. Taniguchi asked, "Shouldn't we put signs saying that?" Director Nagata replied there is universal signage that shows no drones allowed. Chair Chun added once the rules are in place there will be a need for a lot of education in various forms – signage, brochures, the rangers, etc.

Action

It was moved by Doug Simons and seconded by Barry Taniguchi to approve the policy on the use of drones in the Maunakea Science Reserve. The motion was carried unanimously.

IX. EXECUTIVE SESSION

Roberta Chu moved, and Doug Simons seconded, to go into executive session to consult with the Board's attorney on questions and issues pertaining to the Board's powers, duties, privileges, immunities, and liabilities pursuant to HRS §92-5(a)(4). Upon unanimous approval, the executive session commenced at 11:25 a.m.

The Board reconvened in public session at 11:35 a.m.

X. ANNOUNCEMENTS

There were no announcements.

XI. NEXT MEETING

Board members discussed having a regular meeting schedule. The first or fourth Tuesdays of the month were options. The Board will be polled for their preference.

XII. ADJOURNMENT

There being no further business Julie Leialoha moved to adjourn and Doug Simons seconded, and with unanimous approval, the meeting was adjourned at 11:41 a.m.

XIII. SPECIAL MEETING

The Board moved into a special meeting at 11:41 a.m. and adjourned at 12:45 p.m.

Respectfully submitted:

Signed by Dr. Gregory Chun

8/13/19

Dr. Gregory Chun, Chair, MKMB

Date