



University of Hawai'i at Hilo

640 N. A'ohoku Place, Room 203, Hilo, Hawai'i 96720

Telephone (808) 933-0734 Facsimile (808) 933-3208

Mailing Address: 200 W. Kawili Street, Hilo, Hawai'i 96720

**Minutes  
Regular Meeting**

Mauna Kea Management Board  
Tuesday, January 16, 2007

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

**Attending**

- MKMB:** Chair Rob Pacheco, 1<sup>st</sup> Vice Chair Barry Taniguchi, 2<sup>nd</sup> Vice Chair Ron Terry, Patricia Bergin, Herring Kalua, and Harry Yada
- Kahu Kū Mauna:** Ed Stevens
- OMKM:** Stephanie Nagata, Dawn Pamarang, and William Stormont
- Others:** William Burgett, David Byrne, Mac Cooper, Gary Fujihara, Cory Harden, Arthur Hoke, Nick Kaiser, Ron Koehler, Mike Maberry, John Maute, Kāwika McKeague, Russ Oda, Christian Veillet, and Debbie Ward

**I. CALL TO ORDER**

Chair Rob Pacheco called the Mauna Kea Management Board (MKMB) meeting to order on January 16, 2007, at 10:06 a.m.

**II. APPROVAL OF MINUTES**

It was moved by Harry Yada and seconded by Patricia Bergin that the minutes of the November 13, 2006, meeting of the MKMB be accepted. The motion was carried unanimously.

**III. DIRECTOR'S REPORT**

**A. University of Hawai'i Commercial Permits Update**

The University of Hawai'i (UH) permits went into effect on January 1, 2007. The transfer from Department of Land and Natural Resources to UH went smoothly. Thanks go to Associate Director Nagata and Dawn Pamarang for handling this process.

**B. Opening of the 2007 Legislative Session**

Director Stormont will be at the opening of the legislature on January 17. He will be meeting with several representatives and senators, as well as attending UH Day at the legislature on Friday, January 19. The University has not proposed any legislation this year, but he will be tracking bills that pertain to Mauna Kea.

Chair Pacheco asked about administrative rules. Director Stormont replied we plan to promulgate administrative rules using existing legislation that gives the University autonomy and are working with senior administrators.

**IV. COMMITTEE REPORTS**

**A. Kahu Kū Mauna Council**

Mr. Ed Stevens reported that the Kahu Kū Mauna Council reviewed the items listed in the agenda and would like to offer its comments as the items come up for discussion.

## **B. Environment Committee**

Dr. Ron Terry reported that five firms submitted statements of qualifications. The committee met and ranked the top three groups who will be asked to submit a proposal. A lot of thought went into each of the qualification submittals and he is certain we will receive good proposals.

Director Stormont added the natural resources management plan and a cultural management plan will be integrated into an overall comprehensive management plan. Dr. Terry added the key to committee's approach included monitoring, measuring, benchmarks and adaptive management so that it would not end up being a static document that lists best management practices and/or required actions with no one checking to make sure they are being carried out. This plan will be an active, alive plan and we hope it meshes well into OMKM's needs.

Debbie Ward asked whether the comprehensive management plan would include recreational use. Director Stormont said yes. She also asked about carrying capacity to which Director Stormont replied the Master Plan talked about this issue. Ms. Ward added it should include some criteria for decommissioning in terms of restoration.

## **V. OLD BUSINESS**

### **A. Smithsonian Astrophysical Observatory's (SMA) Request to Install Infrared and Optical Cameras**

Director Stormont stated that at the November meeting, the Board deferred action on SMA's proposal to install one optical and three infrared cameras on the Subaru facility. The cameras, which would provide views of the entire array, were being installed for safety and security reasons. At the November meeting, Kahu Kū Mauna did not have an opportunity to review the proposal, and the Board decided to defer action until the next meeting so that the Board could hear from the Council.

Mr. Stevens stated the Council was relieved to learn that that the purpose of the cameras was not for daytime surveillance, but to monitor nighttime activity around the antennas for safety reasons, as well as for monitoring the equipment. The Council did not have a problem with the cameras being installed on an existing (Subaru) facility. With these two assurances, the Council had no further concerns about the project and no further action is required by the Council.

#### Action

It was moved by Ron Terry and seconded by Harry Yada to classify this project Minimal Impact, approve it with conditions, and allow SMA to proceed. The motion was carried unanimously.

### **B. Pan-STARRS (Panoramic Survey Telescope and Rapid Response System) Update**

Mike Maberry, Assistant Director, University of Hawai'i Institute for Astronomy (IfA); Dr. Nick Kaiser, Principal Investigator; Dr. William Burgett, Project Manager; and Mr. Kāwika McKeague, Senior Planner, Group 70 International, Inc. gave a powerpoint presentation which included a history of Pan-STARRS, review of the project, planning requirements, and preparation of the Environmental Impact Statement.

#### Pan-STARRS' Major Goal

Dr. Nick Kaiser stated the major goal of the project is to search for killer asteroids.

#### Discussion

Cory Harden had six questions for Dr. Kaiser:

Question 1. Are there any plans to use Pan-STARRS for missile defense or other military uses?

Answer: None whatsoever.

Question 2. Could it be used for missile defense or other military uses?

Answer: While we are funded by the Air Force, the Air Force has no interest whatsoever in using the data for military purposes.

Question 3. So it could see missiles, but there are no plans to use it for missiles?

Answer: It cannot track missiles. Missiles move too fast for Pan-STARRS to be able to track effectively.

Question 4. What happens after the ten-year initial survey?

Answer: Ten years is the time scale it takes to detect 90 percent of all of the objects which are bigger than 300 meters in size. What will probably happen at that point is that other projects will have come online such as the large synoptic survey telescope (LSST). The LSST is planned for Chile and will be more powerful than Pan-STARRS for doing the same kind of survey. We will ramp down at that point.

Question 5. So after ten years, the people in Chile will be doing what Pan-STARRS is supposed to do?

Answer: They will have a much bigger telescope which will probably be deployed around about 2015. Eventually it will overtake Pan-STARRS. Pan-STARRS is a huge step up in current capability. There is still uncertainty whether LSST will be funded and built. If it is built it will overtake Pan-STARRS.

Question 6. What will the roles of the Department of Defense and the Maui Space Surveillance System be after Pan-STARRS is built?

Answer: After it is built, the telescope becomes the property and responsibility of the UH and our involvement with the Air Force ceases at that point.

Ed Stevens asked if it will take four nights to make a complete a picture of the entire sky. Dr. Kaiser stated the telescopes can scan approximately 7,000 square degrees a night at their maximum rates which is about a quarter of the sky. The portion of the sky that can be accessed from Hawai'i over a period of a year is 30,000 square degrees. Observations have to be made over a whole year for all four seasons. Multiple passes of the sky will be made repeatedly to determine which are the static objects. If an object appears that was not there before it could be an asteroid. By having observations over a 10 year period we will be able to detect the asteroids on multiple occasions thereby determining whether there is chance they may hit the earth.

Ron Terry asked where would the information lead us. Dr. Kaiser explained statistically there is a one in 700 chance that a 300-meter or bigger object is going to hit us in the next hundred years. By detecting all of the objects and mapping their orbits we will be able to tell where they are going to be over the next hundred years and predict if an asteroid is going to come close to or hit the Earth in the next 30 years or 50 years, thus giving us time to prepare.

Dr. Terry asked Dr. Kaiser to elaborate on the other benefits to astronomy besides searching for asteroids. Dr. Kaiser explained one of the things he is most interested in, aside from the asteroids, is building up an extremely deep image of the sky to detect billions of faint galaxies and to find out about cosmology. Pan-STARRS for the non-asteroid science side is going to be unique for what is called time domain astronomy, that is to effectively make a movie of the entire sky over ten years. This has never been done before. We will be able to detect all sorts of variable stars, huge numbers of transient objects, and recently exploded stars.

Dr. Terry asked if the Pan-STARRS is an optical instrument. Dr. Kaiser replied it is both optical and near infrared. It goes out to about one micron, a little beyond where your eye is sensitive to.

Ms. Harden asked why other sites that were considered for the Pan-STARRS were not found suitable. Dr. Kaiser stated the alternative site is on Haleakala. The major differences between Haleakala and Mauna Kea is that Mauna Kea has more clear nights and higher thus making the images sharper. As a result it would take twice as long to do a survey on Haleakala than on Mauna Kea. Also some sky background issues such as scattered light from Kihei makes the atmosphere harder to observe through on Haleakala.

Ms. Harden asked if sites in Chile and in space were considered. Dr. Kaiser replied space is a very expensive proposition. Ultimately this kind of survey will be done from space, but no one has figured out how to do it cost effectively. Another challenge for Chile and for space is that getting the data back is expensive. We create tens of terabytes—that is 10,000 gigabytes every night. One of the big advantages of doing it on Mauna Kea is the existence of a very high-speed data connection between the summit and Hilo.

### Planning Requirements for Pan-STARRS

Dr. William Burgett talked about the planning requirements for the Pan-STARRS facility. The best way to place Pan-STARRS on Mauna Kea is to replace an existing facility, the 88-inch facility (or the 2.2-meter). This is an ongoing design process. All concerns heard to date and all concerns we hear from now on will be taken into consideration. The existing area will be recycled without disturbing any new ground, without requirements for new infrastructure such as new electrical conduits, and removal of the existing septic system.

### Discussions

Ms. Ward asked about ground disturbance and what to expect. Dr. Burgett stated only previously disturbed ground will be disturbed again. They will dig up the pier and the foundation and put in a new foundation. A study was commissioned of all the ground that has been previously disturbed and the intent is to stay within the excavation footprint.

Arthur Hoke asked if there were any plans for removing the facility when the current lease ends in 2033. Dr. Burgett stated that is beyond the ten year mission of the Pan-STARRS and that it was a question for the Institute for Astronomy (IfA). Mr. Hoke stated that other than Canada-France this issue has not been addressed and wanted to know if they were going to address it. Mr. Maberry remarked we must always be prepared to completely remove and restore a site and was confident the draft environmental document will address the removal issue.

Mr. Stevens asked about the replacement of the existing piers. Do they plan to use the same configuration or same space and if it would go deeper. He felt that the depth of the pier were part of the footprint. Mr. Maberry acknowledged the depth issues and they are looking at the matter as a the same three-dimensional space - no deeper, no higher, and no wider from the overall footprint. He added they have a photographic record of the construction process which was submitted to the company that was doing the study.

Mr. Stevens commended the changes that were made, because at an earlier meeting someone from IfA stated the piers would need to be enlarged. The Council felt that that was not staying within the same footprint. It shows that you listened and made the change.

### Group 70 International – Environmental Review Process

Kāwika McKeague representing Group 70 International, one of the principal consultants working with IfA and the Pan-STARRS team discussed the environmental review processes.

National Environmental Policy Act of 1969 (NEPA) scoping meetings will be held on this island at various locations on the following dates:

1. January 23, 2007 – Kealahou Intermediate School, 5:30 p.m.
2. January 24, 2007 - Waimea Civic Center, 5:30 p.m.
3. January 25, 2007 – UH Hilo Campus Center, Room 301, 5:30 p.m.

Other meetings are being scheduled for Maui and Oahu.

### Discussions

Ms. Harden asked if the public will have an opportunity at the scoping meeting to air their concerns to the whole group. Also, would comments made during the state process count towards the federal process? Mr. McKeague replied yes to both to questions. The bulk of the meetings will be devoted to hearing and sharing with the community.

Patricia Bergin asked what the timeline for completing this project was. Dr. Burgett stated they would like construction to be completed by the end of 2010 and begin the ten-year science mission a year after construction.

Ms. Ward stated the first and only federal environmental impact statement (EIS) found that there was significant adverse and severe damage to the natural and cultural resources but remediation has not taken place to address them. She also believed Third Circuit Court Judge Glen Hara discovered and found that there were no DLNR documents

that address further development on Mauna Kea. He also ruled that no construction, including recycling, can take place before there is a comprehensive summit-wide management plan. For that reason, why is the preparation of an EIS being considered without a management plan in place?

Mr. McKeague stated they met with Director Stormont and with Peter Young of DLNR. His understanding is that the consensus among the leadership of the three entities – DLNR, OMKM and IfA, is that Pan-STARRS should not be in the forefront until the management process is in motion. What is critical is to be at a place that is comfortable for us as a team, as well as the community, to be behind the management plan process and development of a comprehensive management plan. If for some reason something happens that requires more time, the planning team might have to make a critical decision.

Mr. Hoke commented that Group 70 was involved in the current Master Plan. There were attempts to place to have Hawaiian community members from off-island be part of that process. There was strong resistance by the Hawaiian community here. Their position was that if you are going to make a decision about Mauna Kea you better live in the shadow of Mauna Kea. Mr. Hoke added he was not trying to say there is anything wrong with the two consultants that are now part of the planning team, but maybe Group 70 should learn from the past and find a representative that lives in the shadow to sit in the planning process too, somebody that represents the Big Island and Maui.

Mr. McKeague stated they thought about that and that was the reason he and Aunty Vickie were part of the team. Aunty Vicky has ties to this island and he trained under her. We have many connections here on this island as well as Maui. He stated that they saw a need to do things in the Hawaiian style. We go and talk story. Where we thought it wasn't in the best interest to bring in the entire team the two of them would fly here, to talk story with the kupuna and some other folks and to come back and share their voices. He thinks that trust relationship that was established is the start of what we are trying to do and we have a stronger relationship with everyone.

Gary Fujihara announced there will be a public Astro Talk this coming Friday, January 19, UCB 100, 7 p.m. for anyone wanting to educate themselves about killer asteroids, the need to identify and catalogue them, and potential mitigation strategies, as well as other scientific objectives of Pan-STARRS. Flyers were made available to the public.

Director Stormont concluded the design review committee is being assembled for this project and is planning to schedule the first meeting in early February.

## **VI. NEW BUSINESS**

### **A. Mauna Kea Weather Center's (MKWC) Request to Install a Weather Station at Hale Pohaku**

#### Purpose

Associate Director Nagata explained the purpose for this proposal is to collect data on temperature, humidity, rainfall and wind to help with the Center's daily weather predictions. There has been no weather data collected from Hale Pohaku and OMKM is interested in this information for future management of the natural resources in the area.

#### Description of the Project

The weather station will be installed on a six-foot high metal post which will be secured to the handrail on the top of the water tower. The water tower is located in the utilities yard at Hale Pohaku. Data from the station will be sent wirelessly to a receiver located inside the network room of the common building (dining facility). The weather station is approximately 14" tall and 8" in circumference (including the solar panel). Data from the weather station will be uploaded onto the MKWC and VIS websites and made available to public.

No Department of Land and Natural Resources (DLNR) permit is required.

Kahu Kū Mauna Council reviewed the proposed project and because the station would be installed on the existing building, they have no further objections.

#### Recommendations

1. Based on the following, OMKM recommends this project be classified Minimal Impact:

- a. The proposed installation will not significantly alter the exterior appearance or structure of the existing facility.
  - b. The impact to the immediate surroundings and summit region is minimal.
2. If the project is classified Minimal Impact, OMKM recommends MKWC be allowed to proceed with the project.

Conditions

OMKM recommends MKWC:

1. Notify OMKM when it plans to install the equipment
2. Coordinate with MKSS with the installation of the weather station
3. Allow OMKM Rangers to visit and monitor construction activities
4. Notify OMKM upon completion of the project

Action

It was moved by Ron Terry and seconded by Herring Kalua to classify this project Minimal Impact, approve it with conditions, and allow MKWC to proceed. The motion was carried unanimously.

**B. Mauna Kea Support Services' (MKSS) Request to Install Cameras at Hale Pohaku**

Purpose

Associate Director Nagata stated the purpose for installing cameras is to have real time views of the weather, primarily the cloud cover at the 9,200 ft elevation.

Description of the Project

MKSS is proposing to install one to two cameras at the common building (dining room facility) at Hale Pohaku. One camera is proposed for installation under the eave on the northwest corner of the building. Installation of the second camera will depend on images from the first camera. If the angle and view of the cloud cover is sufficient from the first camera, MKSS may forego the installation of the second camera. If the images are not sufficient, MKSS may either install the second camera near the first one, but pointing in as different angle, or at another location under the eave of the building.

The camera is approximately 4.5" in length, and will be wired and powered from inside the building with a data link to a computer. Views from the cameras will be uploaded onto the Mauna Kea Weather Center and VIS websites and available to the public.

No DLNR permit is required.

Kahu Kū Mauna Council reviewed the proposed project and, again, because the cameras will be mounted on the existing facility, they have no further objection

Recommendation

1. Based on the following, OMKM recommends this project be classified Minimal Impact:
  - a. The proposed installations will not significantly alter the exterior appearance or structure of the existing facility.
  - b. The impact to the immediate surroundings and summit region is minimal.
2. If the project is classified Minimal Impact, OMKM recommends MKSS be allowed to proceed with the project.

Conditions

OMKM recommends MKSS:

1. Notify OMKM when it plans to install the equipment
2. Allow OMKM Rangers to visit and monitor construction activities
3. Notify OMKM upon completion of the project

Action

It was moved by Harry Yada and seconded by Herring Kalua to classify this project Minimal Impact, approve it

with conditions, and allow MKSS to proceed. The motion was carried unanimously.

### C. Office of Mauna Kea Management's (OMKM) Request to Install Weather Stations on the Summit

#### Purpose

Associate Director Nagata explained weather stations on the summit would collect data on temperature, humidity, rainfall and wind from the low-lying areas of the summit. Data from these weather stations will supplement data collected from weather equipment located near or on observatory facilities located on the ridges of the summit.

#### Description of the Project

OMKM commissioned a four-year study by a graduate student at the School of Ocean and Earth Sciences to help 1) understand the climatic variability and climate trends experienced at the summit of Mauna Kea; 2) and to understand and refine our understanding of the ecological controls that help define the spatial distribution of the wēkiu bug. Data from the weather stations in the low-lying areas and observatories on summit ridges will be used in this study.

Proposed locations for weather stations:

- 1) Base of Pu'u Hau Oki crater
- 2) Base of Pu'u Wēkiu crater
- 3) Near the base of the slope north of the Canada France Hawai'i Telescope
- 4) Near the base of Pu'u Pohaku (Final location will be determined based on discussion with Natural Areas Reserve staff.)

Permission has been granted from the Natural Area Reserve and a site plan approval will be issued by DLNR.

In discussions with Kahu Kū Mauna Council, we feel that there needs to be more time to deliberate on this particular project, and we are asking to defer action.

#### Discussion

Associate Director Nagata stated the main purpose of this study is obtain climate data from within the craters to help develop a model to that shows and predicts how wind and turbulence is affected by the terrain. There is a strong belief that weather impacts the wēkiu bug and its food source. Having this information will help OMKM to understand how the bug's food source is being distributed on the summit area and to help us develop management policies, including access, for the bug. The proposed locations for the weather stations are areas that have known bug populations.

Dr. Terry stated it seems the purpose of this study is for invertebrate management and asked what the invertebrate scientific committee felt about this project. Associate Director Nagata replied the scientific committee reviewed this proposal and highly recommended this study. Access to the proposed sites would be determined based on further discussions with Kahu Kū Mauna and our rangers. Initially, OMKM was looking at installing it by sticking a pole into the ground, by digging a shallow hole about two feet and filling it with concrete. An alternate proposal is to provide a surface stanchion for example, a bucket filled with concrete and a pole stuck in and attached to it so there would be no digging into the ground itself.

Mr. Maberry was concerned about radio frequency interference (RFI) from these weather sites and asked if there had been discussion with the radio observatories. Associate Director Nagata replied the weather stations on the summit will not be wireless. They will have a data logger attached to it and the data loggers will be replaced periodically.

Mr. Stevens explained that the Kahu Kū Mauna Council needed more time to deliberate on this proposal because they have two major objections. First, the three sites represent the introduction of new things on the mountain. Even though small and insignificant, it adds to the cumulative impact on the mountain. The second objection is that placement inside the crater, especially the summit crater. Therefore, the Council needed to spend more time on reviewing the proposal and maybe come up with a recommendation on record to say that nothing be introduced into any crater. By the next Board meeting, or at least by February, the Council should have something.

Dr. Terry suggested getting a statement from the wekiu bug committee about their position on this study and why the data is needed. Ms. Ward stated an additional concern would be that anyone visiting the site, for instance, changing the data logger, could possibly impact the habitat up on the crater. She asked that it be put on the Environment committee's agenda also.

Action

It was moved by Harry Yada and seconded by Ron Terry to defer this item giving Kahu Kū Mauna Council more time to review this project and make its recommendation.

**VII. ANNOUNCEMENTS**

Director Stormont announced that Antony Schinckel has left the Smithsonian Submillimeter Array facility and accepted a position in Australia.

Mr. Taniguchi asked Director Stormont if he worked on the MOU and the schedule and deadlines for submitting project requests to the Office. Director Stormont replied he did not, but at the March meeting he will have both for the Board.

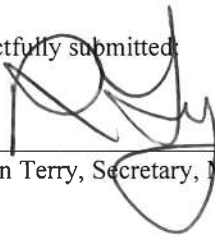
**VIII. NEXT MEETING**

The next meeting of the Mauna Kea Management Board is scheduled for Tuesday, March 6, 2007.

**IX. ADJOURNMENT**

There being no further business, Chair Pacheco adjourned the regular meeting at 11:45 a.m.

Respectfully submitted



Dr. Ron Terry, Secretary, MKMB

3/6/07  
Date