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**Minutes
Regular Meeting**

Mauna Kea Management Board
Wednesday, November 3, 2010

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

Attending

- MKMB:** Chair Barry Taniguchi, 1st Vice Chair Patricia Bergin, 2nd Vice Chair/Secretary Ron Terry, Lisa Hadway, Herring Kalua, and Christian Veillet
- BOR:** Dennis Hirota and Eric Martinson
- OMKM:** Stephanie Nagata and Dawn Pamarang
- Others:** David Byrne, Rob Christensen, Jesse Eiben, Cory Harden, Stewart Hunter, Mike Maberry, George Nystrom, Russell Oda, and Helen Rogers

I. CALL TO ORDER

Chair Taniguchi called the meeting of the Mauna Kea Management Board (MKMB) to order at 10:03 a.m.

II. APPROVAL OF MINUTES

Upon motion by Christian Veillet and seconded by Patricia Bergin the minutes of the September 1, 2010 meeting of the MKMB were unanimously approved.

Upon motion by Patricia Bergin and seconded by Christian Veillet the minutes of the September 1, 2010 Executive Session were unanimously approved.

III. INTERIM DIRECTOR'S REPORT

A. Thirty-Meter Telescope (TMT) Conservation District Use Application (CDUA)

President Greenwood concurred with MKMB's and UH Hilo Chancellor Straney's recommendation that the University should proceed with filing the CDUA with the Department of Land and Natural Resources (DLNR) and that UH Hilo be the agency within UH to file the CDUA. The CDUA was filed on September 2. DLNR accepted the CDUA on October 7, 2010 which starts the 180-day time table for the Board of Land and Natural Resources (BLNR) to approve or deny a permit.

DLNR is providing a 30-day period for the public to review the application. After 30-days, which expire on November 23rd, DLNR will transmit copies of the written comments they received to UH for its review and response. Upon receipt of UH's responses to comments DLNR will prepare a staff report to the BLNR.

Public hearings have been scheduled to hear testimony on December 2nd in Hilo at the Hawai'i County Council meeting room; and December 3rd at Kona at the Gateway Center, Natural Energy Lab of Hawai'i (NELHA). Both meetings begin at 6 pm. The purpose of these hearings is to hear and receive testimony from the public about the TMT CDUA project.

B. Project Proposals

The Office received two proposals from Gemini Observatory. One is a re-submittal of its diesel storage tank and the other is a request to install an earthquake sensor. At the suggestion of Ron Terry, a small committee of community experts was convened. The committee includes an engineer, architect and an environmental assessment consultant. They will be assisting in the technical aspects review of the documents.

Stewart Hunter, Mauna Kea Observatories Support Services (MKSS), submitted a proposal to install guardrails in front of two culverts along the access road. It is currently undergoing review by Kahu Kū Mauna. The proposal to install guardrails is a safety issue. In September two vehicular accidents occurred on consecutive weekends on the second switch back on the summit access road. The accidents occurred when the drivers, who were blinded by the setting sun, ran their cars off the road, nearly flipping into a culvert. During certain times of the year the azimuth of the sun is perfectly aligned with certain sections of the road causing short periods of impaired vision to uphill drivers.

C. Ranger Corps

Ahiena Kanahale left the ranger corps. He was with the corps for six years. He is planning to attend school.

Ads announcing the recruitment for OMKM rangers will appear in local daily newspapers on Nov. 7th and 14th. The closing date to apply is Nov. 19th. We are looking at filling two positions hopefully in December.

The second vacancy occurred when one of our rangers, Scotty Paiva was recently hired as our Chief Ranger. Scotty began his new duties on October 1, 2010. Scotty comes to us with extensive experience. He is retired from the Hawai'i County Fire Department where he was a Battalion Chief in charge of emergency medical services. He also has experience as a Hawai'i County Police Officer, and is currently a Commander with the Coast Guard Reserves. He is helping MKSS with the preparation of a fire emergency and safety plan and will be coordinating quarterly emergency response training for the rangers, as well as observatory personnel. Scotty will also oversee the repair and maintenance of the rangers' vehicular fleet, and respond and follow up on complaints and reports made by the public, observatories and commercial tours. Until the two vacant ranger positions are filled, Scotty will be pitching in as a ranger and chief ranger.

D. Recognition of David Byrne

David Byrne was recognized and thanked for his efforts in developing and guiding the Mauna Kea Ranger program. Interim Director Nagata expressed OMKM's deepest appreciation and gratitude to David Byrne for his tremendous efforts in making the Mauna Kea ranger program the success it is today. Mr. Byrne was there from the very beginning in 2001 when he willingly accepted the responsibility for setting up and supervising the ranger program. He was tireless in his efforts in making the program run like clockwork. He did this in addition to managing the Visitor Information Station.

On behalf of the Mauna Kea Management Board, the Office of Mauna Kea Management, Kahu Kū Mauna Council, and the University of Hawai'i Hilo, Chair Taniguchi read aloud and presented the Resolution of the Mauna Kea Management Board and the Office of Mauna Kea Management to David Byrne.

Mr. Byrne stated it was an honor to be in a position to help develop this very important program for Mauna Kea. As with all programs, however, it was not just himself. There were many rangers and other staff members that contributed to this program. He acknowledged the first two Mauna Kea rangers hired, Kimo Pihana and Richard Berner, who also contributed to this program.

IV. KAHU KŪ MAUNA COUNCIL (KKMC)

No report.

V. NEW BUSINESS

A. Status Report on "Understanding the Wēkiu Bug's Environment: High-Resolution Modeling and Observations of Summit Winds and Moisture in Mauna Kea's Complex Environment"

Interim Director Nagata introduced Dr. Steven Businger who is a Professor with the Department of Meteorology at the University of Hawai'i Manoa's School of Ocean and Earth Science and Technology. Dr. Businger was engaged to do a four-year study to look at how terrain and weather impacts the wēkiu bug's food distribution. The end product is a modeling program. Dr. Businger participates in the wēkiu bug scientific committee.

Motivation for this Study

The project is looking at how the ecology of the summit region determines the distribution of the wēkiu bug. It is hypothesized that the wēkiu bug's distribution is controlled by the summit's ecology including geological and meteorological factors. Summit geology includes suitable soils e.g., loose cinder, absence of near-surface permafrost, and absence of glacial scouring. Meteorology of the summit includes suitable habitat such as sufficient warmth, moisture, and food (bugfall). It is also proposed that the distribution of bugfall is controlled by winds in a way that is analogous to drifting snow.

Goals of this Study

The goal of this study is to document and model the relationship of the summit-scale meteorology, with a focus on moisture and food transport, and the distribution of the wēkiu bug.

Summary

To supplement weather data collected from observatories located on the summit ridges, four automated weather stations were installed in areas below the ridge on Pu'u Pohaku, Pu'u Hauoki, Pu'u Kea and Pu'u Wekiū. The model he is using is the Snow Tran 3D drifting snow modeling that has been used in Colorado, Idaho, Wyoming, Alaska, Antarctica, Greenland, Norway, Siberia, and the Alps. Input factors include winds during snow storms to simulate snow accumulation, wind data to simulate bugfall distribution, and air temperature, relative humidity, wind speed/direction and precipitation

Discussion

Ron Terry inquired how much longer the study will continue given the current level of funding. Dr. Businger replied this should wrap up probably by the end of the summer (2011). They plan to pull the stations off the summit at the end of the snow season.

Dr. Businger stated a report on the climatology of the summit has been written and is available on line. A second report comparing Mauna Kea and Mauna Loa weather data is finished and is currently being edited. That should be available soon. He hopes to publish more papers on specific results from the stations and snow modeling including annual reports.

At the request of Chair Taniguchi, Dr. Businger talked about the Mauna Kea weather center web site: www.weather.hawaii.edu. This site provides weather data for the Hawaiian Islands.

Lisa Hadway asked if he was able to ascertain signature climate change. Dr. Businger replied he and Interim Director Nagata have been talking about doing a study of how climate change can influence these climatological variables that are important for both astronomy and the ecology.

Dennis Hirota asked how bugfall is tracked. Jesse Eiben explained it is actually difficult to track. The bugs that fall out over the summit vary by species of insects. These events are unpredictable and untracked. He has gone out and measured what has fallen out on the snow banks and identified what those insects were, but has not done it very often. What is falling out of the sky and in what densities varies throughout the year, but there is always something.

Christian Veillet had a question about the location of the wēkiu bug and how the wind moves the wēkiu bug from one place to another. Mr. Eiben replied there is very sparse data containing information where bugs are through time and around cinder cones. It is very difficult to make this type of assessment.

Dr. Veillet also asked about information on the temperature of the ground/soil. Dr. Businger replied there is a number of soil gauges put around the summit and they have the data.

Dr. Terry stated it seems the intensity of sunlight over long periods of time may be correlated with the wēkiu bug survival rate. One aspect of climate change would be reduction of solar radiation on the mountain. Mr. Eiben stated it would be more complex than that. John Price from UH Hilo Geography Department indicated that in 100 years with current climate projections, the alpine stone desert would be replaced by temperatures supporting alpine shrub land instead. The bugs themselves grow well at high temperatures, but the food they eat must die at cold temperatures.

Cory Harden stated the wēkiu bug was found in 1980 on Mauna Kea. Were they found earlier than that on Mauna Loa or were similar bugs found on mountains in other places of the world? Dr. Businger thought it was unique to Hawai'i. There is a bug on Mauna Loa, but it was discovered after the wēkiu bug. Mr. Eiben added the wēkiu

bug on Mauna Kea and the bug on Mauna Loa were formally described in 1980. The bug on Mauna Kea was observed by anthropologists many years before.

VI. ANNOUNCEMENTS

Ron Terry stated it is very interesting to see that first-class science is being done on the mountain aside from astronomy. Dr. Terry is working to revive the Environment Committee. Part of the committee's function will be to help prioritize studies and go after funding, figure out how to rationally progress, talk about different gaps of information that exist, and how to move these forward and work with researchers to make sure they are funded and our mountain is managed properly. The committee has not met for about a year due to conflicts with scheduling a meeting time. He will be looking for other members that may want to join in. If you know of scientists interested in assisting with the Environment Committee, please refer them to him or Interim Director Nagata. It is open to all.

Lisa Hadway gave a brief update on the Rules Committee. The committee met on September 14th and October 1st. They worked on an initial summary putting together the DLNR administrative rules, but it is quite a daunting task. The committee thought it would be valuable to have someone who had the experience writing administrative rules for DLNR. Christen Mitchell, who worked at DLNR, is willing to help with this. We look forward to her getting thru some initial work in the next couple months.

VII. NEXT MEETING

The next meeting is tentatively scheduled for Monday, December 6, 2010.

VIII. ADJOURNMENT

There being no further business, Chair Taniguchi adjourned the meeting at 11:15 a.m.

Respectfully submitted:

Signed by Dr. Ron Terry
Dr. Ron Terry, Secretary, MKMB

12/6/10
Date