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Aloha kākou,

My name is Ku'ulei Kanahale and I am the lead Papahūhūnua (earth science) researcher with the Edith Kanaka'ole Foundation, a Hawaiian cultural-based organization whose mission is to heighten indigenous Hawaiian cultural awareness, knowledge, and participation through educational programs. My primary duty is to interpret traditional Hawaiian chants to understand how our ancestors lived and thrived in our island environment. Understanding traditional chants is important because chants document centuries of environmental observations and is the method our ancestors used to record that information. I have presented my findings locally, nationally and internationally, most recently to Google X and the Hōkūle'a Mālama Honua Worldwide Voyage as well as at the 2016 IUCN World Conservation Congress.

Aside from my work at the Edith Kanaka'ole Foundation, I am an instructor at the Hawai'i Community College, where I have taught Hawaiian language since 1998. I have my Masters in Education from Central Michigan University and I am currently a graduate student at the University of Hawai'i at Hilo, where I am earning my Ph.D. in Hawaiian and Indigenous Language and Culture Revitalization.

I am writing to provide my testimony on the hydrology of Maunakea from a Hawaiian worldview.

Maunakea, as sacred ancestor

In 1813, Kamehameha III, Kauikeaouli, was born and to honor this occasion, a chant was composed to highlight Kauikeaouli's lineage. Hawaiian royal lineage begins with the creation of the world and such is the case in Kauikeaouli's birth chant. In his chant, night

was born first because darkness is a necessary component for gestation and growth. Out of this darkness was born Hawai'i Island, the sacred firstborn of all land. Daylight was born next and with it, the birth of clouds and the atmosphere. The birth of daylight and clouds together shows our ancestors' understanding of hydrology in the islands in that the sun's heat is a causative of the formation of clouds.

After daylight, ka mauna a Kea (the mountain of Kea) is born. Ka mauna a Kea, commonly known as Maunakea, is born of the gods, Wākea (sky) and Papa (earth). Kauikeaouli's genealogy chant is a confirmation of Maunakea's sacredness in the Hawaiian mind – Maunakea is born of gods, the same gods who will later be the progenitor of the Hawaiian race. From this stems the Hawaiian belief that Maunakea is an ancestor to the Hawaiian people.

The sacredness of Maunakea does not lie only in the fact that Maunakea is descended from the gods Papa and Wākea. Maunakea's summit touches the atmosphere and stands in the wao akua (god zone) where our gods are found. Hawaiian akua (gods) are not invisible spiritual beings, Hawaiian akua are the physical elements that give life – water, snow, mist, etc. The summit of Maunakea is sacred it is a wao akua where water, snow, and mist are found, far removed from the wao kanaka (human zone). To protect this wao akua and keeps its elements pristine, our ancestors designated the summit as sacred and limited access to a select few, who were only able to access the summit for specific reasons.

Maunakea's role in Hawai'i's water cycle

Hawaiians believe that Maunakea is responsible for gathering, storing and distributing the water on Hawai'i Island. As mentioned in Kauikeaouli's birth chant, the sun is the causative of cloud formation, but it is Maunakea's role to attract the clouds to our island. The Kumulipo, Hawai'i's cosmological chant, states that Maunakea's forests then act as pahuwai (storage basins) for the water to collect and recharge the aquifer, hānau 'o waoma'ukele, he mau pahukapu.

The chant "E Ō E Maunakea" describes Maunakea's role in gathering clouds to recharge the aquifer:

E ō e Maunakea ke kupuna o luna nei ē	<i>Maunakea, ancestor above</i>
Kuhikuhi iā Kānehoalani i ka lewa lani	<i>Pointing to the sun in the upper atmosphere</i>
Ke akua hou 'oe i nā 'ōpua	<i>Deity that pierces through the clouds</i>
Ka 'ōpua ehū, ke ao pōpolo, ka 'ōpua pehu	<i>Yellow clouds, dark clouds, swollen clouds</i>
Ho'ūluulu i kou alo lani i Kumukahi	<i>Gathering before your heavenly presence</i>
Na ka makani Kumukahi i halihali iā lākou	<i>The Kumukahi winds transport the clouds</i>
I ka pae 'āina a ana ka makewai o nā moku	<i>To the islands, to quench its thirst</i>

“E Ō E Maunakea” continues to name specific water gods of Maunakea: Poli‘ahu (snow), Lilinoe (mist), Waiau (lake), and Kalau‘ākolea (fog drip). In essence, Maunakea draws clouds to its summit and the precipitation (in the form of snow, mist, and fog drip) feeds Lake Waiau and our island’s aquifer. This chant, like countless others, speaks of the water cycle and the role that Maunakea plays in it.

Conclusion

Our ancestors knew the importance of designating Maunakea as sacred and keeping the summit area pristine to maintain the purity of our water. Traditional Hawaiian society was able to sustain an estimated population of 800,000-1,000,000¹ without needing to ship in food and water because their leaders enacted laws to protect our natural resources.

Typically, modern society takes a reactive approach to protecting resources – once an ecosystem is damaged, efforts are concentrated on saving it. We save the forest by reforestation, we save endangered animals by raising them in captivity. We need to follow the practices of the traditional Hawaiian society and not damage an ecosystem by keeping it in its natural state. We need to stop further building on Maunakea before the damage done to our mountain and its water-supplying capabilities is irrevocable.

¹ Stannard, David. *Before the Horror: The Population of Hawaii on the Eve of Western Contact*. HI: University of Hawaii Press, 1989. Also <http://www2.hawaii.edu/~johnb/micro/m130/readings/stannard.html>