



(Nā 'Ohenānā O Maunakea)

No Kūkala 'Ānō Aku
10 'Apelila 2019

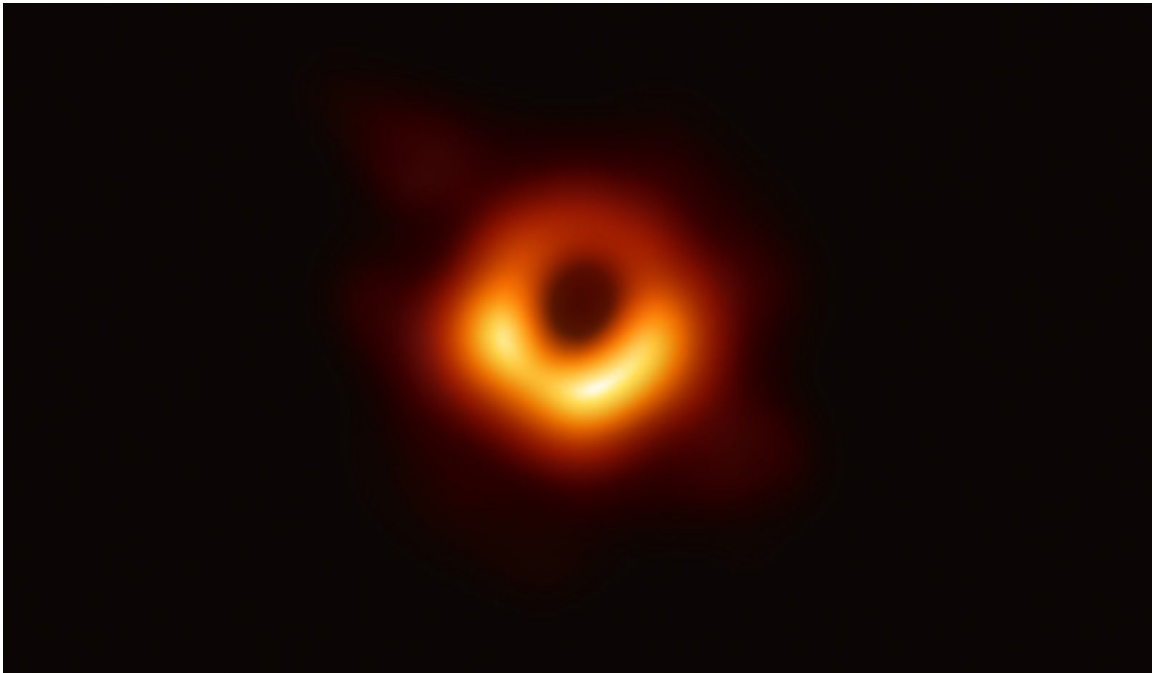
**He Kūlana Ko'iko'i ko Nā 'Ohenānā O Maunakea i ka Ho'ohua mai i ko ka Honua
Ki'i Mua Loa o kekahi lolelipo**

*Na ka 'Ohenānā o James Clark Maxwell me ka 'Ohekaumakawalu hapamilimika i Kōkua i
ka Ho 'omākalahia a 'e i kekahi Pōhīhīhī Nui Loa o ka 'Ōnaeao*

Maunakea, Hawai'i - He kūlana ko'iko'i loa ko 'elua 'ohenānā o luna o Maunakea no
lāua ka 'enehana ikaika loa o ko ka honua mau 'ohenānā, i ka ho'ohua mai i ko ka
honua ki'i mua loa o kekahi lolelipo.

'O ko Hawai'i 'Ohenānā 'o **James Clark Maxwell (JCMT)** a me ka **Ohekaumakawalu
hapamilimika (SMA)** kekahi lālā o ka papahana **Event Horizon Telescope (EHT)**.
Ho'oholo 'ia 'o JCMT e ka East Asian Observatory; ho'oholo 'ia 'o SMA e ka
Smithsonian Astrophysical Observatory a me ka Academia Sinica Institute of
Astronomy and Astrophysics.

Ma 'Apelila 2017, ua ho'okumu 'ia mai he huliamaahi kupaihana loa i waena o 'ewalu
mau 'ohenānā ma 'eono wahi o ka honua nei no ka ho'opa'a 'ia he ki'i o Pōwehi, he
lolelipo nunui hewahewa loa i waena o ka wiliauhōkū 'o Messier 87.



"Ma muli o Maunakea i hiki ai i kēia kaunānā 'ana a me kēia ki'i kamaha' o loa o Pōwehi," wahi a **Dr. Jessica Dempsey, hope luna ho'okele o ko East Asian Observatory James Clerk Maxwell Telescope.** "O ke kūpono loa o kona ka'awale mamao, kona ea malo' o luna loa, 'o ia nā kumu i hiki ai i ka JCMT me ka SMA ke 'ohi i kahi ehū 'ama e hani ana ma kauwahi kāka'ikahi kūikawā o ka honua. E like me ua kuahiwi nei lā, he makamae lua 'ole nā hune iki o kahi 'ama a mākou e 'ohi ai."

Ua hui like nā kilo hōkū me kahi ihupani o ka 'ōlelo a mo'omeheu Hawai'i 'o Kauka Larry Kimura no ke kapa 'ia iho o ka inoa Hawai'i no ka lolelipo. 'O Pōwehi, no ka pō mana ho'okumu pau 'ole i ho'owehiwehi 'ia a no loko mai ia o ke Kumulipo, ke mele ko'ihonua kahiko i pa'a ka 'ike o ka ho'okumu 'ia o ka 'ōnaeao Hawai'i. 'O ka pō, he kumu kameha'ikana hānau wawā, ka mana' o nui i ha'ako'iko'i a pīna'i wale 'ia i ke Kumulipo, 'oia 'o ka mana' o wehiwehi he ho'ohiwahiwa ia a o ia kekahi 'ano o nā wehi he nui no ka pō o ua ko'ihonua nei.

"He kupanaha kau no mākou, he lāhui kānaka Hawai'i o neia au i ka ho'opili a'e me ka mauili o ke auhonua i oli 'ia ma loko o nā lālani he 2,102 o ke Kumulipo, a e hi'i 'ia mai i neia ho'oilina 'ike no ko kākou nohona o kēia au," i **'ōlelo ai 'o Kauka Kimura, he hope polopeka i ke Kulanui o Hawai'i ma Hilo, i Ka Haka 'Ula O Ke'elikōlani, ke Koleke 'Ōlelo Hawai'i.** "O ke noi 'ia mai e kapa aku he inoa Hawai'i no kēia hō'oa 'epekema mua loa i kekahi lolelipo, he pā maoli i loko o ka iwi hilo a no ku'u mo'okū'auhau Hawai'i no ka pō mai, a lana ku'u mana' o e ho'omau 'ia ke kapa inoa Hawai'i i kekahi mau lolelipo hou a nā kilohōkū o Hawai'i me ka pili 'ike o ke Kumulipo."

'O nā 'ohenānā 'o SMA a me JCMT kekahi mau lālā ko'iko'i o ko Event Horizon Telescope papahana, nāna e ho'oku'iku'i i nā 'ohenānā lēkiō e kau makawalu nei i ka papa honua e ho'okino ai he 'ohenānā nunui kupanaha e kilo ai he lihilihi ho'okahi o ka pua lehua i luna o ka māhina.

Ma ka hana ku'ikahi 'ana o SMA me JCMT he 'ohana ho'okahi ka mea i 'akahi ai ke ki'ina makamua loa e 'ike ai i nā hune 'ikamu mamao loa a no lāua ke kō ko'iko'i o ke ki'i i pa'a o Pōwehi," i **'ōlelo ai 'o Geoff Bower, ke po'o kanaka 'epekema o ko Hawai'i ho'okele 'ana iā Academia Sinica Institute of Astronomy and Astrophysics.** "O ia mea 'o ka 'uhane aloha e pono ai ke alulike 'ana i waena o nā hoa 'epekema a me na hale kilohōkū ma ka honua, ua ho'okumu 'ia nō ma 'ane'i nei i luna o Maunakea. A 'o ka hō'ea koke 'ana mai o nā lako ho'āmana hou i SMA a me JCMT he hō'ike no ka ho'omaka wale 'ana nō o ko Hawai'i mau ho'ohua 'ana i nā 'ike pili i ko kākou 'ōnaeao.

'O ko SMA me JCMT komo 'ana 'o ia ke kiko hekau komohana ākea o ko EHT kau'ohenānā kai wehe i ala no nā kilohōkū e kilo pono a "pa'i ki'i" ai i nā lolelipo nunui launa 'ole, 'oia ho'i, kekahi o nā 'ikamu pōhīhīhī a ehuehu loa o ka papa lani.

No Ka 'Ohenānā 'o James Clerk Maxell

Ho'oholo 'ia e ka East Asian Observatory, 'o ka James Clerk Maxwell Telescope (JCMT) ka 'ohenānā kilohōkū nui loa o ke ao i hakulau 'ia no ka ho'oholo 'ana i nā hana ma loko o ka pōhai kōā hawewe hapamilimika o ka 'auinakala. He 15 mika ke anawaena o ka JCMT a ho'ohana 'ia no ke kālai 'ana i ka poe lā, ke kōāhōkū, me ka huneehu a

kinoea o ka pō‘aihōkū, a me nā kaiahōkū mamao. Ke kū nei kokoke i ka luna o Maunakea, Hawai‘i, i ke ki‘eki‘ena 4,092 mika.

Ho‘oholo ‘ia ka JCMT e ka East Asian Observatory no The National Astronomical Observatory of Japan; Academia Sinica Institute of Astronomy and Astrophysics, Taiwan; ke Korea Astronomy and Space Science Institute; Center for Astronomical Mega-Science, China. Ho‘onui kōko‘o kālā ‘ia e ka Science and Technology Facilities Council of the United Kingdom a me nā hoa kulanui o ke Aupuni Mō‘ī Hui Pū ‘Ia a me Kanakā. Hui laule‘a like The East Asian Observatory me Wiekana, Kailani, Malaiasia, Inidonesia, me ‘Īnia. E kaomi i ‘ane‘i no kekahi ‘ike hou.

No Ka ‘Ohekaumakawalu Hapamilimika

He pāhana ku‘ikahi i waena o ka Smithsonian Astrophysical Observatory a me ka Academia Sinica Institute of Astronomy and Astrophysics, he ‘imi loa ka hana a ka ‘Ohekaumakawalu Hapamilimika i ka ‘ōnaeao ma ke kilo ehewewe kūnalohia i ka maka kanaka. ‘O ka SMA ko ka honua ‘ohekaumakawalu ho‘okino ki‘i no nā hale kilohōkū hapamilimika, i ho‘ohana ‘ia e nā noi‘i e kālāi ai i ka pāhawewe milimika a hapamilimika nona nā kōā hawewe ma waena o ka 0.3 me 1.7 milimika (0.01-0.07 ‘īniha), ma kahi o ka pā 1000 a‘e ka lō‘ihi ma mua o ke kōā hawewe kūmaka. He ‘ewalu kukuna melehune o ka ‘ohekau, nona pākahi he pā kūpī laumania palapola 6 mika (20 kapua‘i) ke anawaena. Ua hiki ke koho ‘ia ma waena o 24 kahua e ho‘onoho ‘ōlālani ai i nā kukuna melehune ma nā huihui ‘ehā i kuhi ‘ia e like me nā koina ‘epekema o nā hale kilohōkū. Ho‘onui a ho‘oili ‘ia nā ‘apona i loa‘a ma nā kukuna i kekahi hale kikowaena kahi e ho‘ohui uila ‘ia ai no ke kālailai ‘ana. Ho‘olako kēia ki‘ina i ka SMA he ‘apona hawewe huina e like me kekahi ‘ohenānā i hiki i ka 0.5 kilomika (0.3 mile) ke anawaena.

No Ko Maunakea mau Hale Kilohōkū

He ku‘ikahi ko Maunakea mau Hale Kilohōkū nona nā hui ‘imi na‘auao kū‘oko‘a a no lākou pākahi he ‘ohenānā ma luna o Maunakea o ka mukupuni ‘o Hawai‘i. Ma ka hui ‘ia o nā ‘ohenānā, lilo maila ‘o Maunakea ‘o kahi ho‘ohua ‘epekema kilohōkū nui loa o ke ao. ‘O kēia nā hale kilohōkū o Maunakea; Caltech Submillimeter Observatory, Canada-France-Hawai‘i Telescope, Gemini International Observatory, James Clerk Maxwell Telescope (EAO), NASA Infrared Telescope Facility, Subaru Telescope, Submillimeter Array, United Kingdom Infrared Telescope, University of Hawai‘i Hilo sEducational Telescope, University of Hawai‘i 2.2 Meter Telescope, Very Long Baseline Array a me W. M. Keck Observatory (Keck I me Keck II).

No ka Event Horizon Telescope

No ke ku‘ikahi ‘o EHT he 200 a ‘oi po‘e noi‘i mai ‘Apelika, ‘Āsia, ‘Eulopa, ‘Amelika ‘Ākau me ‘Amelika Hema. Ke alu nei ke ku‘ikahi kau‘āina i ka ho‘opa‘a ‘ana i ke ki‘i mua loa i loa‘a no kekahi lolēlipo ma ke kāpili ‘ana i kekahi ‘ohenānā kohu kino honua kona nui. Me ke kōko‘o ho‘opukapuka kau‘āina ‘o ke ‘ano nui, ho‘ohui ‘o EHT i nā ‘ohenānā ma ka ho‘ohana ‘ōnaehana hou - ma ka ho‘okumu ‘ana he maomeka kūikawā mua loa nona ka pono ikaika e ho‘ōia ho‘okaka‘awale ai i nā ‘apona hawewe huina ‘ōpili.

Eia nā ‘ohenānā pākahi o kēia pāhana; ALMA, APEX, ka IRAM 30-meter Telescope, ka IRAM NOEMA Observatory, ka James Clerk Maxwell Telescope (JCMT), ka Large

Millimeter Telescope Alfonso Serrano (LMT), ka Submillimeter Array (SMA), ka Submillimeter Telescope (SMT), ka South Pole Telescope (SPT), ka Kitt Peak Telescope, a me ka Greenland Telescope (GLT).

He 13 hui ho'opukapuka o ke ku'ikahi EHT; The Academia Sinica Institute of Astronomy and Astrophysics, ke University of Arizona, ke University of Chicago, ka East Asian Observatory, Goethe-Universität Frankfurt, Institut de Radioastronomie Millimétrique, Large Millimeter Telescope, Max Planck Institute for Radio Astronomy, MIT Haystack Observatory, National Astronomical Observatory of Japan, Perimeter Institute for Theoretical Physics, Radboud University and the Smithsonian Astrophysical Observatory.

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