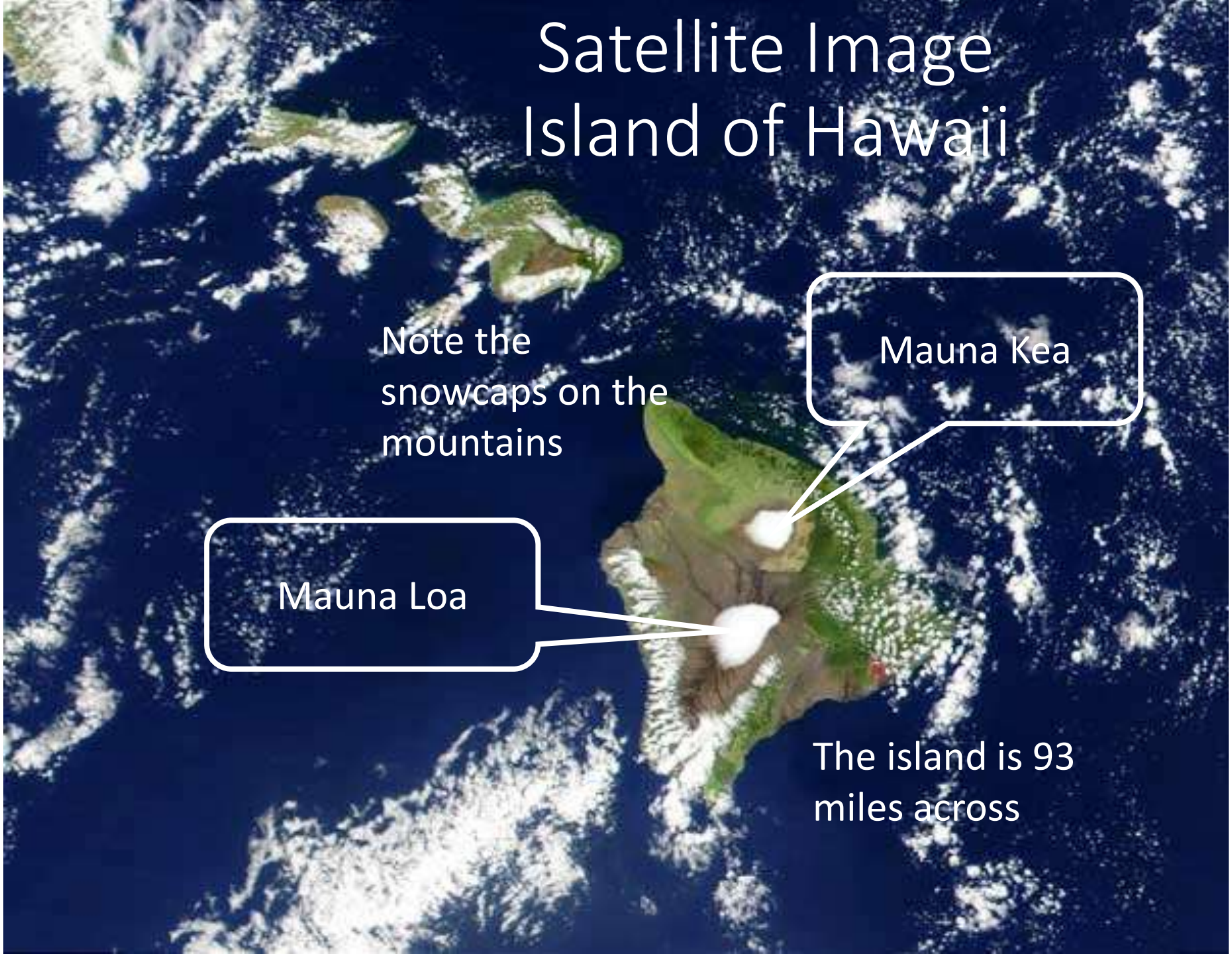
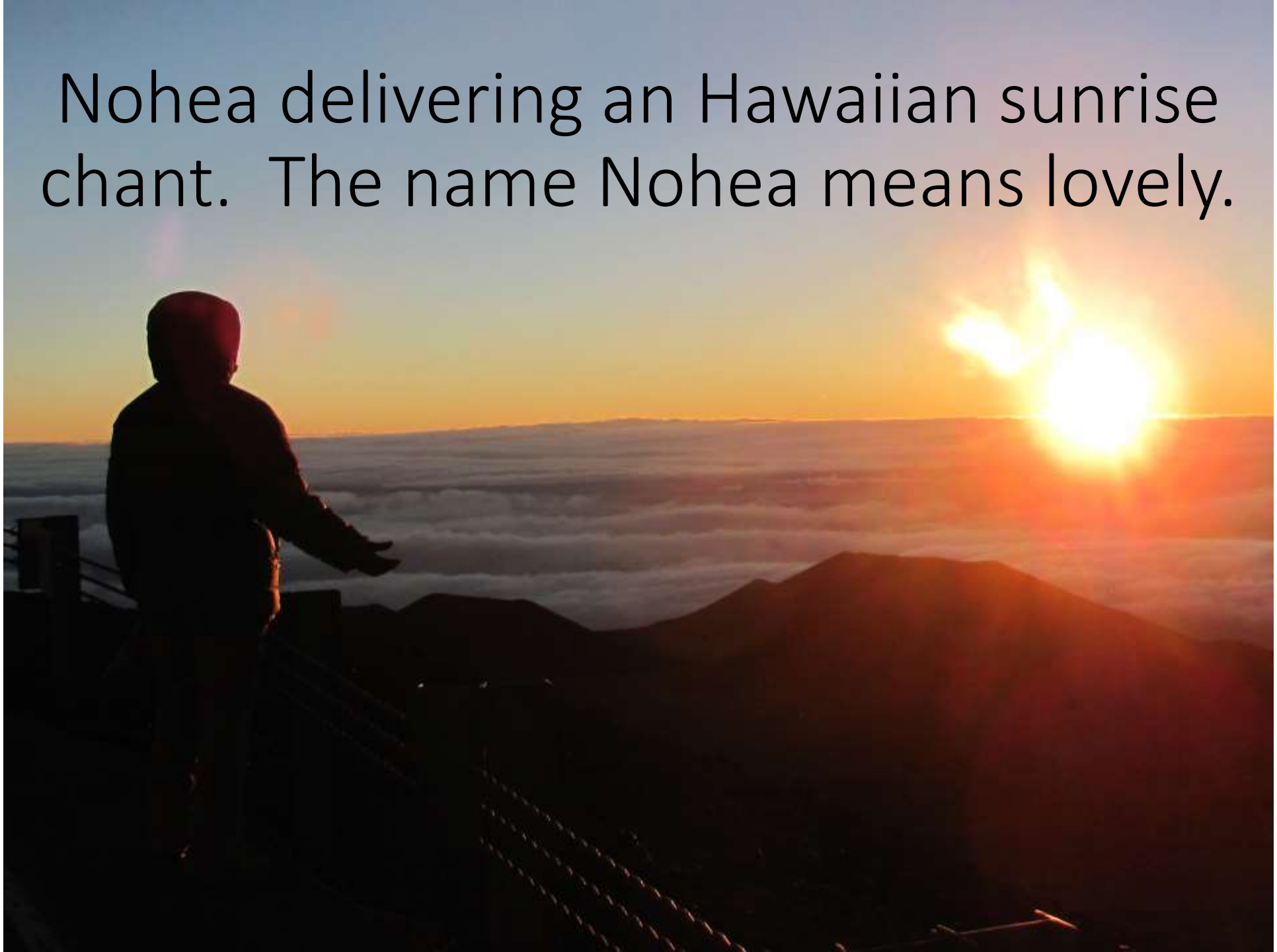

Sunrise on
13,802 ft. Mauna Kea
May 8, 2017
Sunrise – 5:46 a.m.
Condition – Clear
Temperature - 30°
Wind Chill - 25°


Satellite Image
Island of Hawaii
Note the snowcaps on the mountains
Mauna Kea
Mauna Loa
The island is 93 miles across

Google Earth image of the observa-tories atop Mauna Kea


Nohea delivering an Hawaiian sunrise chant. The name Nohea means lovely.

In 1963, **Mitsuo Akiyama**, then executive secretary of the Hawai'i Island Chamber of Commerce, heard from his good friend **Howard Ellis**, then head of the Weather Bureau's Mauna Loa Observatory, how clear the evening skies above Mauna Kea were. In an attempt to boost the Big Island's economy, which had been dealt a severe blow by the 1960 tsunami that struck Hilo, Akiyama wrote to many U.S. and Japanese universities and research organizations suggesting the development of Mauna Kea as an astronomical site.

There turned out to be only one response—from **Gerard Kuiper**, who was then at the University of Arizona Lunar and Planetary Laboratory. N.B. - Kuiper is considered by many to be the father of modern planetary science.

Subaru telescope and twin domes of Keck telescopes

Both Keck telescopes feature 10 meter primary mirrors. The combination of an excellent site, large optics and innovative instruments has created the two most scientifically productive telescopes on Earth.

Left: Subaru 8.2 meter optical-infrared telescope

Right: NASA 3-meter infrared telescope

Right: Gemini Northern 8-meter Telescope

Left: Canada-France-Hawaii 3.6 meter optical / infrared telescope

University of Hawaii 2.2-meter telescope

The first large telescope constructed on Mauna Kea.

Looking to the west at Mauna Kea's sunrise shadow

Looking south at 13,679 ft. Mauna Loa, the world's largest volcano

The Mauna Loa ascent is via Red Hill on the left flank. Trailhead to the summit is 19 miles and 7,000 ft. up

The saddle between Mauna Loa and Mauna Kea

Mauna Loa Atmospheric Research Facility at 11,145 ft.

Each observatory structure is placarded with this sign.

The stay on Mauna Kea's summit was brief but the ascent was fast. Nohea packed oxygen for fast relief of symptoms of acute mountain sickness. The only cure for AMS – rapid descent off the mountain.

Protesters rally against Thirty Meter Telescope being built with Caltech in Hawaii – April 29, 2017

For protesters at Caltech on Friday, the proposed Thirty Meter Telescope atop the Mauna Kea mountain on Hawaii's Big Island is the boiling point for decades of anger over the continued use of sacred Hawaiian land by the scientific community.

The 13 telescopes already on the mountaintop represent years of governments and institutions ignoring the wishes of indigenous people, said Mikilani Young, an organizer of the protest. To add one more, regardless of how it is built, can not be allowed, she said.

"Our goal is to stop it," said Young, a native of Hawaii and a leader of the movement in Southern California.

Young, along with about 20 others from various Native American tribes, protested outside of Caltech's Cahill Center for Astronomy and Astrophysics Friday afternoon. There, they hoped to gain the attention of the scientists working on the project, and to show solidarity with the indigenous people of Hawaii who are waging a legal battle to stop the telescope.

The $1.4 billion Thirty Meter Telescope is designed to be one of the largest telescopes in the world. The high sensitivity of the instrument would capture the faint light of distant stars and planets and give new insights into other worlds and the formation of our galaxy.

The Thirty Meter Telescope protests are a series of protests and demonstrations that began on the Island of Hawaii in the United States over the choosing of Mauna Kea for the site location of the Thirty Meter Telescope. Mauna Kea is considered the most sacred mountain of Native Hawaiian religion and culture. Protests began locally within the state of Hawaii on October 7, 2014 but went global within weeks of the April 2, 2015 arrest of 31 people who had blockaded the roadway to keep construction crews off the summit.

The TMT, a ground-based, large segmented mirror reflecting telescope grew from astronomers' prioritization in 2000 of a thirty-meter telescope to be built within the decade. Mauna Kea was announced as TMT's preferred site in 2009. Opposition to the project began shortly after the announcement of Mauna Kea as the chosen site out of 5 proposals. While opposition against the observatories on Mauna Kea has been ongoing since the first telescope this protest may be the most vocal. The project was expected to be completed by 2024, nearly simultaneously with the 39-meter European Extremely Large Telescope being built in Chile however, on December 2, 2015, the Supreme Court of Hawaii invalidated the TMT's building permits. The court ruled that due process was not followed. The TMT corporation has removed all construction equipment and vehicles from Mauna Kea.

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