



Merging Spiral Galaxies



GEMINI SOUTH



International Gemini Observatory

The International Gemini Observatory, operated by NSF NOIRLab, consists of twin 8.1-meter optical/infrared telescopes. The Gemini South telescope is located at an elevation of 2737 meters (8900 feet) on Cerro Pachón in Chile. The Gemini North telescope is located at an elevation of 4214 meters (13,824 feet) on Maunakea in Hawai'i. From their locations in the northern and southern hemispheres, the two Gemini telescopes can together access the entire sky.

Gemini is operated by an international partnership that includes the United States, Canada, Chile, Brazil, Argentina and Korea. Observing time is open to all astronomers from participating countries, and scientists guide Gemini in the innovations that open up new opportunities for discovery. The telescopes are operated remotely by Gemini staff from the base facilities in Hilo, Hawai'i, and La Serena, Chile.

Gemini's instruments include both optical and infrared capabilities. Each telescope is equipped with four instruments, with several fed by state-of-the-art adaptive optics systems that correct for the image blurring caused by atmospheric turbulence. The telescopes regularly host visitor instruments that allow the astronomical community to conduct a wider variety of observations.

The astronomical community is honored to have the opportunity to conduct astronomical research on Maunakea in Hawai'i and on Cerro Pachón in Chile. We recognize and acknowledge the very significant cultural role and reverence that these sites have to the local and indigenous communities of Hawai'i and Chile.

GEMINI NORTH



Gemini Observatory Facts

Name: Gemini North Telescope and Gemini South Telescope

Location: Gemini North: 70 kilometers (44 miles) west of Hilo, Hawai'i. Gemini South: 94 kilometers (58 miles) east of La Serena, Chile

Altitude: Gemini North: 4214 meters (13,824 feet), Gemini South: 2737 meters (8980 feet)

First Light: June 1999 (Gemini North) and November 2000 (Gemini South)

Mirrors: 8.1 meters (26.58 feet)

Height of Dome: 46 meters (151 feet)

Major Discoveries: First light from a gravitational wave source. Testing general relativity using a star's motion around Sagittarius A*. First direct images identifying a multi-planet system around a normal star.

Tours:

Gemini North, Hawai'i: Thursdays every two weeks

Gemini South, Chile: Fridays every two weeks

Gemini North Base Facility, Hawai'i: First Friday of every month

AURA Recinto, Chile: First and third Wednesday of the month

About the Images

Front: This image from the Gemini North telescope in Hawai'i reveals a pair of interacting spiral galaxies — NGC 4568 (bottom) and NGC 4567 (top) — as they begin to clash and merge. The galaxies will eventually form a single elliptical galaxy in around 500 million years. *Credit: International Gemini Observatory/NOIRLab/NSF/AURA*

Back: (Left) Gemini South is seen here with its laser guide star system in action. Both of the Gemini telescopes use laser guide stars to provide data for the calibration of their adaptive optics, systems of deformable mirrors that compensate for fluctuations in the upper atmosphere which can blur the images of distant stars and galaxies. *Credit: International Gemini Observatory/NOIRLab/NSF/AURA/T. Slovinsky*

Back: (Right) This image shows Gemini North, located on Maunakea in Hawai'i. To the lower left of Gemini is a red glowing light source from the eruption of the Halema'uma'u crater of the Kīlauea volcano. Further lower left of Gemini is the faint green light of Hilo, Hawai'i, mostly hidden by the layer of clouds that often covers the ground as seen from Maunakea. This is a form of light pollution, caused by excessive light shining up into the night sky above. Luckily, Hawai'i Island has laws in place that not only protect our dark skies for viewing the stars but also for protecting the local wildlife such as birds and sea turtles who need dark skies for various biological functions. Horizontally stretching across the sky are the dark and dusty lanes of our Milky Way Galaxy also known as I'a or Kai'a in the Hawaiian language, describing the dark structure as a giant fish traversing across our sky. *Credit: International Gemini Observatory/NOIRLab/NSF/AURA/P. Hordlek (Institute of Physics in Opava)*