

MISCELLANEOUS

NNTT Choisit Mauna Kea

Après deux années d'études, le rapport concernant l'étude des sites du Mauna Kea et du Mont Graham a été rendu public le 23 mars 1987. Ces deux sites étaient en compétition pour accueillir le télescope national américain de nouvelle technologie (NNTT) à l'étude au NOAO, Tucson, Arizona. Les paramètres astronomiques étudiés dans ce rapport permettent d'établir un net avantage dans tous les domaines en faveur du Mauna Kea. Au cours d'une conférence de presse tenue le même jour, la décision d'installer le télescope du sommet du Mauna Kea a été annoncée.

Astronomy on Mauna Kea and Lighting on the Big Island

One of the characteristics that makes Mauna Kea the best site in the entire world for astronomical telescopes is the very dark sky. The absence of air pollution and the absence of large, brightly-lit cities on the Big Island gives astronomers their deepest views into the Universe that can be achieved at ground-based observatories. The immediate and long-term future effectiveness of the existing and planned telescopes on Mauna Kea can be assured if active steps are taken to preserve the dark skies on the Big Island. California, for example, has three of the largest telescopes in the world, but their effectiveness has been enormously reduced by increasingly dense city lights in San Jose, Los Angeles and San Diego. One telescope, the 100-inch at Mount Wilson, has been closed down because of the bright lights in Los Angeles. Astronomers from around the world who use the telescopes at Mauna Kea, including those from the University of California and California Institute of Technology, who are presently building the largest telescope in the world (the W.M. Keck Observatory) in Hawaii, are vitally interested in taking all possible steps to preserve Mauna Kea's unique dark skies.

Three main types of high-intensity outdoor lighting are used in cities; low-pressure sodium (LPS), high-pressure sodium (HPS), and mercury vapor lamps. Of these, LPS is by far the most energy efficient and therefore costs substantially less to operate than HPS or mercury vapor. LPS is also the choice of astronomers because light from LPS bulbs is concentrated in a very narrow part of the spectrum, leaving all other wavelengths uncontaminated. Since astronomers get most of their information about the stars, galaxies and planets from the spectrum of light emitted by these objects, astronomers can still work in areas that are illuminated by LPS. HPS and mercury vapor contaminate much or all of the spectrum that astronomers study, and areas that are brightly illuminated by these kinds of lights are unusable for astronomical measurements, as in the California sites.

Recognizing the needs of astronomers, as well as the cost effectiveness of LPS lighting, the County of Hawaii enacted a lighting code in the early 1970s which puts restrictions on outdoor lighting other than LPS. More recently, County officials have given a favorable reception to discussions on the universal use of LPS for outdoor roadway and security lighting on the Big Island. The Institute for Astronomy (IFA) of the University of Hawaii has made specific proposals to modify the lighting code to include the adoption of LPS for all roadway and security lighting on the Island. In formulating its recommendations, the IFA has been working with the Mauna Kea Site Quality Preservation Committee, an organization made up of representatives of all the users on Mauna Kea.

The preservation of the dark sky through widespread use of low-pressure sodium lighting is essential to the use of the existing and planned telescopes at Mauna Kea. The State of Hawaii has been actively engaged in attracting yet more and bigger telescopes to Mauna Kea (notably the National New Technology Telescope, discussed elsewhere in this issue); the success of these efforts has depended and will continue to depend upon decisions made in favor of the preservation of the dark sky qualities of the Big Island. Adoption of LPS for all outdoor lighting, except for certain kinds of advertising and sporting events, will demonstrate support for the development of additional research facilities on Mauna Kea and for the long-term effectiveness of those already in place.

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