



NATIONAL SOLAR OBSERVATORY



DKIST Telescope under construction on Maui

Crucial Long-term Solar Observations Track Space Weather

The National Solar Observatory (NSO) advances knowledge of the Sun, the dominant external influence on Earth and the local archetype of a typical star. It accomplishes this by building, operating and maintaining world-leading observatories that provide forefront observational opportunities for the solar research community.

NSO leads construction of the **Daniel K. Inouye Solar Telescope (DKIST)** on Maui in Hawaii, to be completed in 2020. DKIST, a collaboration of 22 institutions, will be the most powerful solar telescope in the world. This new facility will offer unprecedented views details of the Sun using cutting-edge adaptive optics and a telescope 2.5 times larger than the current facilities. DKIST's advanced technology will enable exploration of solar processes that impact the Earth and govern the Solar System, including the Sun's magnetic field, the source of magnetic storms on earth. DKIST will also further scientific understanding of other stars by allowing the study of fundamental processes that influence their activity. DKIST's schedule and budget are shown on the next page.

The **NSO Integrated Synoptic Program (NISP)** operates a six-station global network (the **"GONG network"**) that has observed the Sun for more than 20 years. The world-wide distribution of telescopes means at least one is trained on the Sun at all times providing continuous imaging of the Sun and its solar magnetic field. NISP informs our understanding of the solar activity cycle, solar irradiance changes, and energy release in the solar atmosphere. This network of extremely sensitive solar imagers is a crucial asset for space weather operational forecasting.

NSO leads the on-time and on-budget construction of DKIST on Maui, which will be the world's premier ground-based solar facility when full operations start in 2020.



The Association of Universities
for Research in Astronomy



The National Solar Observatory
is operated by AURA under
cooperative agreement with the
National Science Foundation.

Budget

The NSO budget for fiscal year 2019 was \$20.2 million and is estimated to be \$21.1 million for fiscal year 2020.

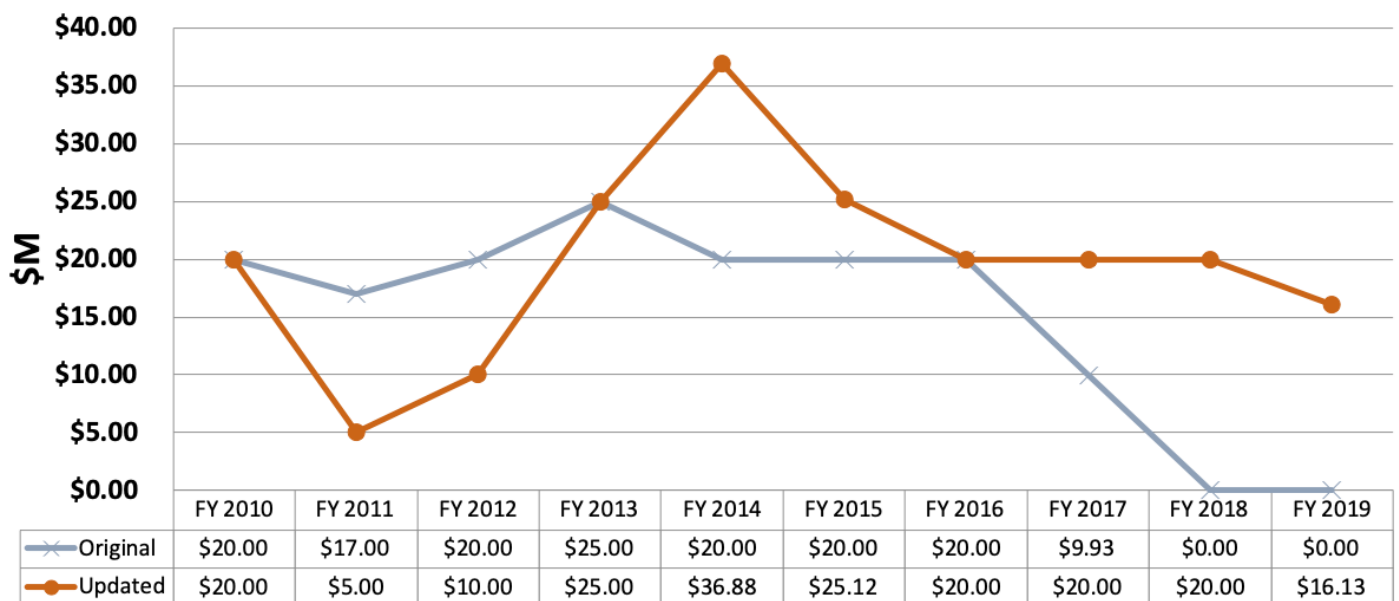
DKIST funding (dollars in millions):
\$20.0M (FY 2018)
\$16.13M (FY2019)



Why do we need DKIST?

To understand the fundamental physics behind the processes that drive space weather which impacts our society.

MREFC Funding Profile for DKIST



Projected NSO Funding Profile

