MARCH 2018

MAST NEWSLETTER

THE LATEST UPDATES FROM THE BARBARA A. MIKULSKI ARCHIVE FOR SPACE TELESCOPES AT STSCI

MAST'S NEW PRINCIPAL INVESTIGATOR: JOSH PEEK

JOSH PEEK IS STEPPING INTO THE ROLE OF PRINCIPAL INVESTIGATOR FOR MAST AND DISCUSSES SOME GOALS FOR THE FUTURE OF THE ARCHIVE.

MARCH 23, 2018

Hi! My name is Josh Peek, and I am the new Principal Investigator for the Mikulski Archive for Space Telescopes (MAST), taking over from Rick White. Rick is MAST's longest-serving PI and helped bring you some of MAST's signature achievements, including the Hubble Legacy Archive (HLA), PanSTARRS, and the MAST Discovery Portal. So, I clearly have some big shoes to fill! Like Rick, my background is in radio astronomy, but my scientific work spans the electromagnetic spectrum from the cm-wave radio to the X-ray. Like many of you, almost all of my work is focused on archival data sets, including MAST data sets from Hubble, GALEX, and FUSE, but also extends to other archival data sets like SDSS, ROSAT, and Planck. I work on interstellar clouds as close as 10 pc, and absorption spectra from quasars at high redshift. Hopefully my short scientific attention span will help me serve MAST's incredibly broad scientific user base.

As we bring MAST into the 2020's and beyond I hope to help MAST do what it does best: maximize the scientific accessibility and productivity of astronomical data. Your scientific productivity is very important to us, so we want to provide the best data products and discovery tools possible in order to push astronomy forward. We also want to renew our focus on scientific accessibility: making the science possible with MAST data accessible not just to super-users, but to anyone interested in working with our data and systems. The original Hubble archive, and later the HLA, showed how delivering science-ready products and services has the effect of leveling the playing field and made Hubble a telescope for all astronomers, not just the lucky few. We aim to continue to push the envelope, and provide better and deeper access to everyone for all of our missions.

Don’t hesitate to reach out directly to me with concerns and ideas; you can e-mail me at jegpeek@stsci.edu or find me on Twitter: @jegpeek.

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'USING PYTHON TO SEARCH NASA'S ASTROPHYSICS ARCHIVES' WORKSHOP AT DENVER AAS MEETING

THIS WORKSHOP WILL EXPLORE PROGRAMMATIC METHODS FOR SEARCHING AND ACCESSING NASA DATA USING PYTHON SCRIPTING.

MARCH 23, 2018

MAST will participate, along with other NASA archives, in an AAS workshop discussing methods for archive searching and data retrieval via Python at the upcoming meeting in Denver, CO. 'Using Python to Search NASA's Astrophysics Archives' will occur on Sunday, June 3 at 10:30 am, and will be the second iteration of this workshop, which began at the Washington, DC winter meeting. Participants will explore the range of command-line access tools available to NASA's various archives including MAST, the High Energy Astrophysics

Science Archive Research Center (HEASARC), the Infrared Science Archive (IRSA), and the NASA/IPAC Extragalactic Database (NED). This also provides a good opportunity for MAST to learn more about users' needs and workflows, allowing us to make our own tools more robust.

There is no additional fee for this workshop, though registration is required. Meeting registration is currently open and the March 26 regular registration deadline is just a few days away. For more information, please see the AAS workshops page, and for some background information on MAST's current programmatic capabilities, see the MAST Mashup API documentation.

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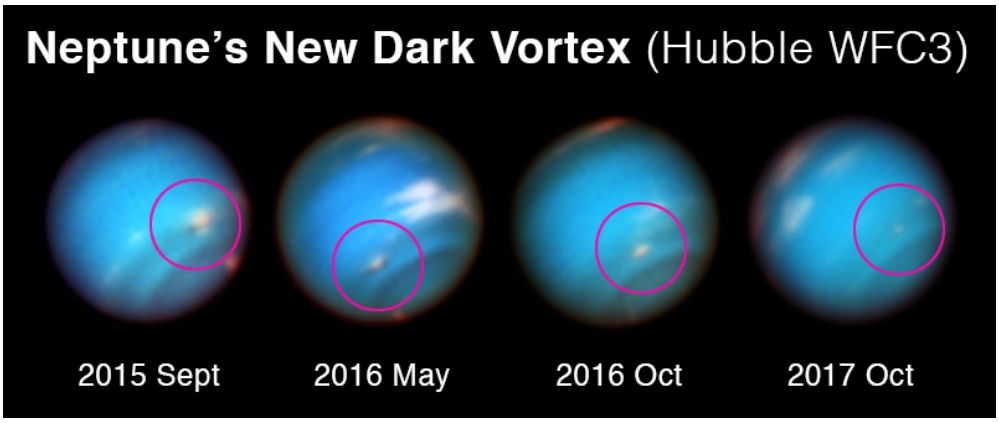
NEW AND UPDATED HIGH LEVEL SCIENCE PRODUCTS FOR MARCH

IN THE PAST MONTH, MAST HAS ADDED THREE NEW HLSPS (SDS-2015, IUE-FLUXCAL, AND PS1COSMO) AND RECEIVED UPDATES TO RELICS.

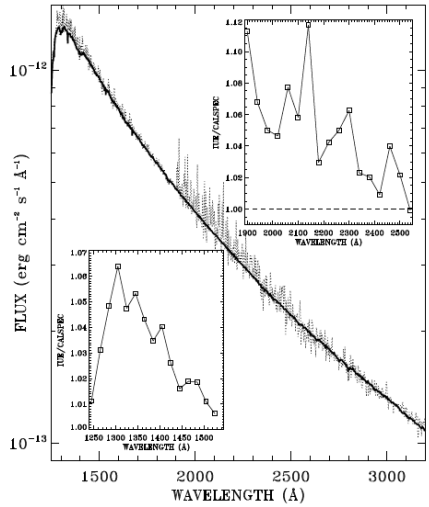
MARCH 23, 2018



Sample images from SDS-2015

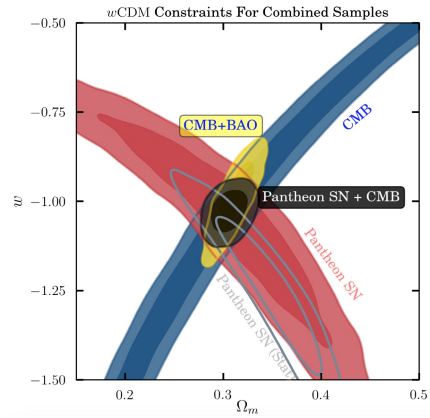
The 'Neptune's Dark Vortex SDS-2015' project consists of HST observations of a dark vortex on Neptune, discovered in 2015 and observed through 2017 when the system disappeared. The "_nav.fits" files delivered as part of this HLSP contain image data, observational metadata, and FITS extensions of latitude, longitude, emission, and solar incidence angles for each pixel. The data come from a mid-cycle GO program, as well as from another MAST HLSP (the OPAL project). A NASA press release coincided with the paper and HLSP announcement at MAST.

IUE-FLUXCAL is a collection of spectral energy distributions (SEDs) for six white dwarfs in the HST CALSPEC database that were also observed by IUE. Composite SEDs of each white dwarf were constructed by coadding the available low-resolution NEWSIPS IUE spectra. A global average of binned ratios across 20 or 40 Angstrom bins are then calculated, which can be used to place IUE on the HST standard scale. Both the SEDs and the table of correction ratios are provided as part of this HLSP.



Sample data from IUE-FLUXCAL

PS1COSMO consists of two collections of Pan-STARRS supernovae data. The first dataset is the "Pantheon" sample, which was used by Scolnic et al. to measure the dark energy equation of state. The sample includes Ia supernovae from Pan-STARRS along with those found in the Sloan Digital Sky Survey, SuperNova Legacy Survey, and Low-Z Type Ia supernovae. The second dataset consists of 1,169 supernovae discovered in Pan-STARRS



Confidence contours for

without spectroscopic classification. Most of these (~95%) are Type Ia, the rest being core-collapse supernovae. A Bayesian methodology is used to marginalize over core-collapse supernovae in this sample and a dark energy equation of state was measured by Jones et al. Both collections feature interactive tables of the included supernovae, and also include systematic errors and input files needed to run through the "CosmoMC" software package.

cosmological parameters from Scolnic et al.

The Reionization Lensing Cluster Survey (RELICS) is a project that has observed 41 massive galaxy clusters with HST in the infrared. The observed data have been available as a MAST HLSP already, but this month an update has provided lens models for 20 of these galaxy clusters. The lens models are similar to those provided as part of the Frontier Fields program, and include maps of deflection, shear, and mass surface densities.

If you are interested in contributing a High Level Science Product of your own, please refer to the guidelines for submission, and contact us at archive@stsci.edu or the new Archive Helpdesk for help getting started.

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ABOUT

This newsletter is a MAST publication produced by Jonathan Hargis, Peter Forshay, and Randy Thompson, on behalf of the entire MAST staff, who welcome your comments and suggestions.

The Mikulski Archive for Space Telescopes (MAST) is a NASA funded project to support and provide to the astronomical community a variety of astronomical data archives, with the primary focus on scientifically related data sets in the optical, ultraviolet, and near-infrared parts of the spectrum. MAST is located at the Space Telescope Science Institute (STScI).

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