OCTOBER 2018

MAST NEWSLETTER

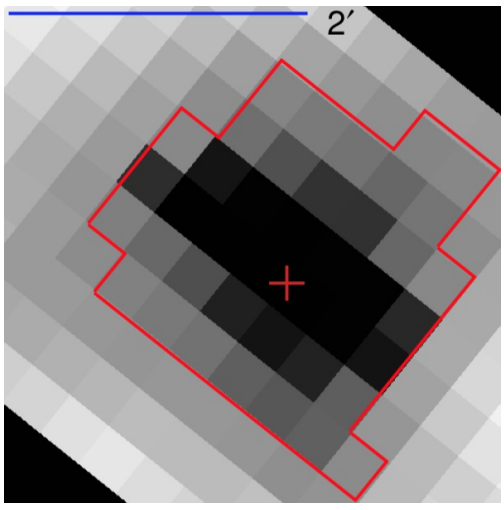
THE LATEST UPDATES FROM THE BARBARA A. MIKULSKI ARCHIVE FOR SPACE TELESCOPES AT STSCI

INITIAL TESS DATA PRODUCTS AVAILABLE AT MAST

THE FIRST DATA PRODUCTS FROM THE NASA TRANSITING EXOPLANET SURVEY SATELLITE (TESS) MISSION ARE NOW PUBLICLY AVAILABLE AT MAST.

OCTOBER 24, 2018

The first round of data products from the Transiting Exoplanet Survey Satellite (TESS) mission, launched in April 2018, have been released to the public and are now available through MAST. These data include target pixel files, extracted light curve files, and data validation reports from 55 targets in Sectors 1 and 2. These targets all host candidate planets from the TESS Data Alerts system, which communicates planet candidates to the astronomical community to facilitate follow-up at other observatories. As the TESS team finds additional targets of interest, MAST



Sample TESS target pixel file stack and aperture (TIC 261136679 shown here).

will release the associated data files.

MAST is the official data archive for TESS, and will provide access to all public data obtained by the mission. These products will include target pixel files and extracted light curves at 2-minute cadence for approximately 200,000 stars selected by the TESS team (current Candidate Target List), as well as the full-frame images (FFI) of the TESS fields at 30-minute cadence. For a demonstration of how to explore the two-minute cadence data products using Python, see our TESS Tour Jupyter notebook. Developments are also under way to include TESS results in the new exo.MAST service, so look for additional announcements soon!

Further questions on the TESS mission or accessing these data can be directed to helpdesks at MAST (archive@stsci.edu) or the TESS Guest Investigator program.

ACCESS DATA PRODUCTS FROM TESS DATA ALERTS >

Funding for the TESS mission is provided by NASA's Science Mission directorate. TESS team partners include the Massachusetts Institute of Technology, the Kavli Institute for Astrophysics and Space Research, NASA's Goddard Space Flight Center, MIT's Lincoln Laboratory, Orbital ATK, NASA's Ames Research Center, the Harvard-Smithsonian Center for Astrophysics, and the Space Telescope Science Institute.

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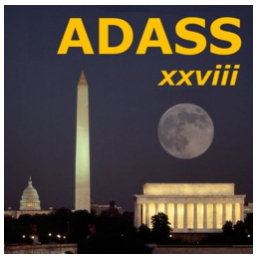
MAST AT THE 28TH ADASS CONFERENCE

MAST PERSONNEL WILL PROVIDE TUTORIALS, TALKS, AND POSTERS AT THE UPCOMING ASTRONOMICAL DATA ANALYSIS SOFTWARE & SYSTEMS (ADASS) CONFERENCE.

OCTOBER 24, 2018



personnel will be participating in the upcoming 28th Astronomical Data Analysis Software & Systems (ADASS) conference in College Park, MD. They will be providing posters and talks on a number of different MAST-related topics, and even a hands-on tutorial session to explore the recent release of HST public data on Amazon Web Services (Sun, Nov 11 3:30-5:30). When not presenting, MAST personnel will also be available for questions or discussions at the STScI demo booth. MAST speakers include:

Mon, Nov 12	2:00-2:15	GWCS - A General Approach to Astronomical World Coordinates	Nadia Dencheva
	4:00-4:15	Adding Science Validation to the JWST Calibration Pipeline	Rosa Diaz
Tues, Nov 13	9:30–9:45	AstroCut: A cutout service for TESS full-frame image sets	Clara Brasseur
Wed, Nov 14	4:00-4:30	Hubble in the Cloud: A Prototype of a Science Platform at STScI	Ivelina Momcheva
	4:45-5:00	Astropy and the Virtual Observatory	Tom Donaldson
Thur, Nov 15	11:45-12:00	Hit the Ground Running: Data Management for JWST	Anastasia Alexov

MAST poster topics include:

- Automating Multimission Access: rolling out a flexible Virtual Observatory-based infrastructure
- Data Analysis Tools for JWST and Beyond
- JWST Association Generation: Piecing It All Together
- JWST Data Management Subsystem Operations: Preparing to Receive, Process, and Archive JWST Data
- Lessons Learned from the behemoth JWST Data Management
- Mock Datasets and Galaxy Merger Statistics from Cosmological Hydro Simulations
- stginga: Ginga Plugins for Data Analysis and Quality Assurance of HST and JWST Science

Data
- The JWST Data Calibration Pipeline
- The TESS Science Data Archive.
- Triumphs and Challenges of the Astropy Project: Open Development of a Python Library for Astronomy

Steve Crawford and Erik Tollerud will also be participating in two of the Birds of a Feather sessions to discuss open-source and collaborative astronomical software development, so keep an eye out for scheduling updates for these discussions. We look forward to presenting the latest developments at MAST and collaborating with the community on future enhancements!

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NEW HLSP COLLECTIONS FOR OCTOBER

NEW HIGH-LEVEL SCIENCE PRODUCTS AT MAST INCLUDE A NEW BILLION-SOURCE CATALOG FROM ATLAS, K2-COORDINATED DATA FROM PANSTARRS, AND PRECISE STELLAR MEASUREMENTS FOR KEPLER SATELLITE TARGETS.

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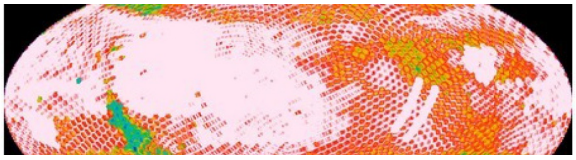
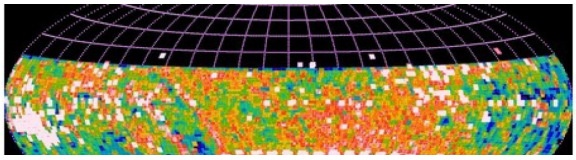
NEW:

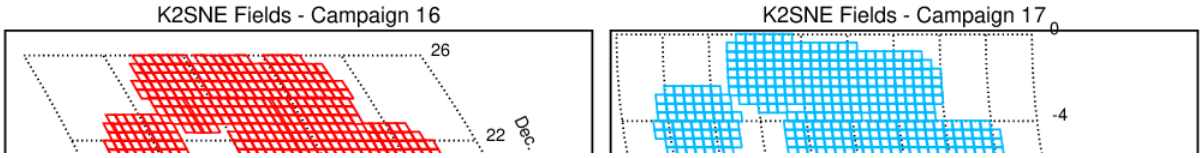
- **ATLAS-REFCAT2** (Tonry et al. 2018) is an all-sky reference catalog containing nearly one billion stars down to apparent magnitude m ~19, constructed by the Asteroid Terrestrial-impact Last Alert System (ATLAS) team. The catalog includes data from PanSTARRS DR1, ATLAS Pathfinder, ATLAS re-flattened APASS, SkyMapper DR1, APASS DR9, Tycho-2, and the Yale Bright Star Catalog. Gaia DR2 serves as the source of the astrometric solution for ATLAS-REFCAT2, with typical systematic errors of < 5 mmag RMS, although this can be as much as 20 mmag near the Galactic plane. The ATLAS Pathfinder telescope was used to collect g,r,i photometry for stars brighter than the 14th magnitude bright limit of

PanSTARRS, and to extend the reference system below -30 declination.

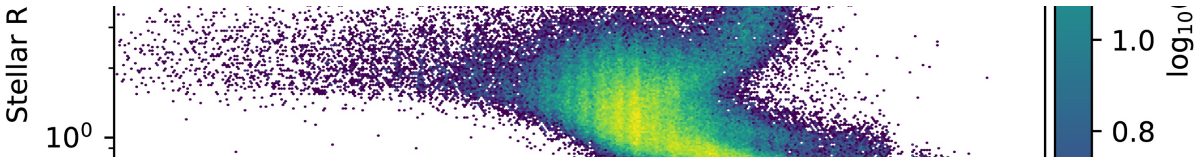




- The **K2SNE** (Dotson et al. 2018) collection provides data from a PanSTARRS survey of the Campaign 16 and 17 fields, simultaneous with K2 observations. The concurrent observations allowed for immediate follow-ups on supernovae and their fading signatures. Images are available in g, r, i, and z bands.



- **KG-RADII** (Berger et al. 2018) provides revised stellar and exoplanet properties from the Kepler mission based on parallaxes from Gaia Data Release 2. These catalogs provide more precise stellar sizes and evolutionary states for 177,911 Kepler stars, as well as revised radii and incident fluxes for 2,123 confirmed and 1,922 candidate exoplanets.



If you are thinking about contributing a High-Level Science Product of your own, please fill out the HLSP Interest Form to get started. HLSPs archived on MAST enjoy permanent hosting space, additional visibility, and, often, increased citation rates. Any further questions on the process can be sent to the Archive Helpdesk.

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MAST STAFF

MAST AT THE 28TH ADASS CONFERENCE

IVELINA MOMCHEVA

NEW HLSP COLLECTIONS FOR OCTOBER

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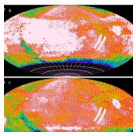

ABOUT

This newsletter is a MAST publication produced by Greg Snyder, Peter Forshay, and Jonathan Hargis, 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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