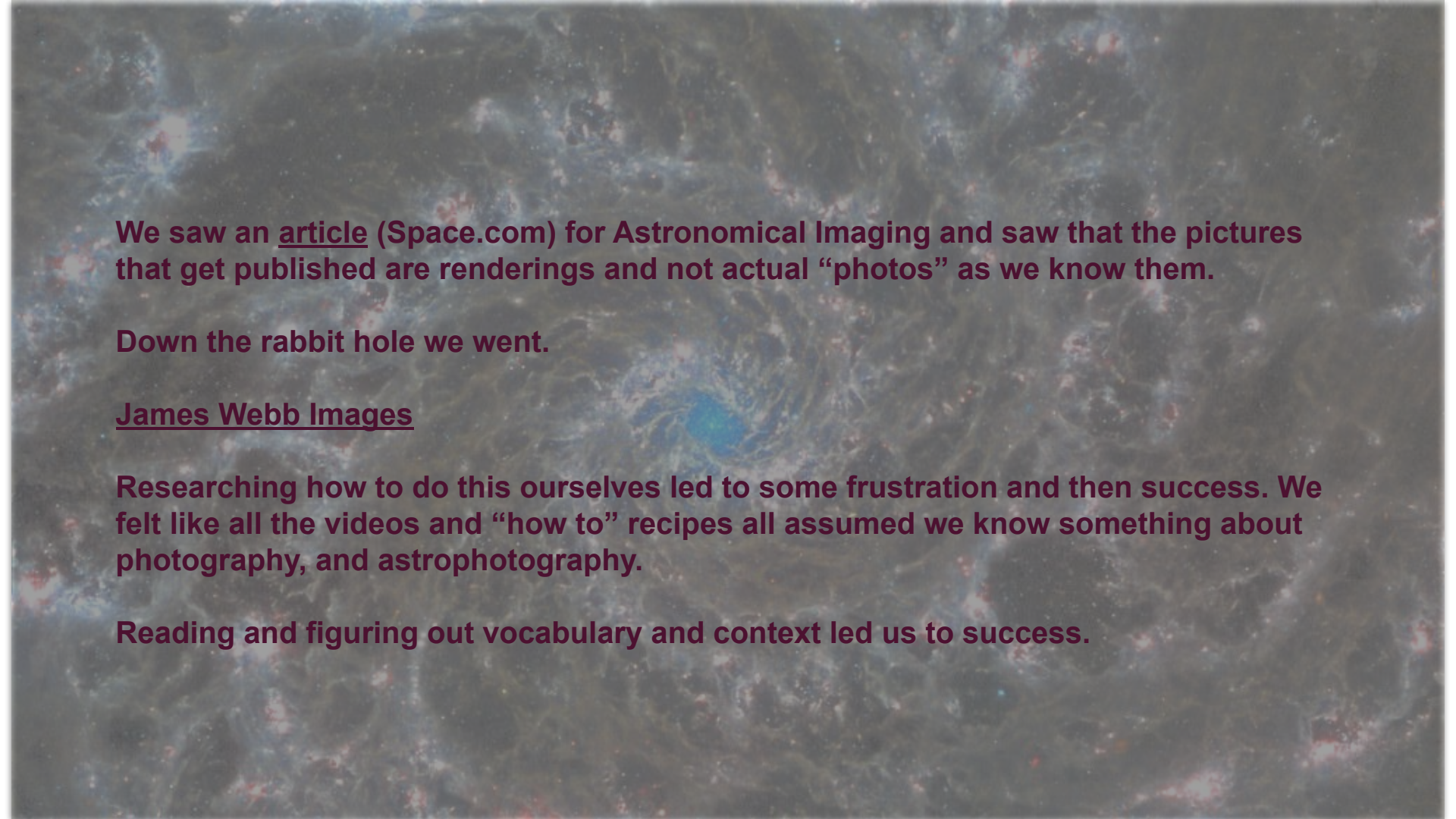


Image  
Processing  
workflow →



# JWST Image Processing

Gavin Rauh and Mr. Adam Ziccardi



We saw an article (Space.com) for Astronomical Imaging and saw that the pictures that get published are renderings and not actual “photos” as we know them.

Down the rabbit hole we went.

### James Webb Images

Researching how to do this ourselves led to some frustration and then success. We felt like all the videos and “how to” recipes all assumed we know something about photography, and astrophotography.

Reading and figuring out vocabulary and context led us to success.

# MAST, Barbara A. Mikulski, Delaware Senator and NASA supporter



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## MAST: Barbara A. Mikulski Archive for Space Telescopes

The MAST Portal lets you search multiple collections of astronomical datasets all in one place. Use this tool to find astronomical data, publications, and images.

Note: This site uses cookies in order to monitor feature usage, track user preferences, and provide authentication for some services. By using this site you consent to the use of cookies for such purposes.

### What's New

JWST data became public starting July 13th with the release of "Webb First Images" (ERO) products, followed by Cycle 1 and Commissioning data July 14th.

- At this early stage of the mission, with the current operational pipeline and available reference files, calibration products may show a variety of known issues. Please check the [JWST Calibration Pipeline Caveats](#) page in JDoc for more information about limitations of the current data and suggested options.
- If you have trouble searching for or downloading JWST data, check out our [JWST Archive Manual](#) and [Portal User Guide](#) before submitting a help desk ticket.

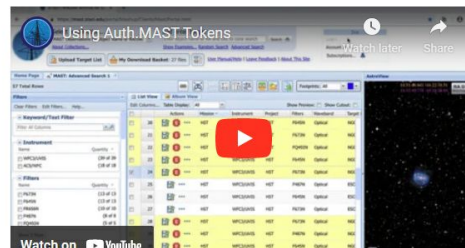
### Other Recent Changes

- MAST FTP:** Starting October 25 2021, the MAST FTP server archive.stsci.edu will no longer support unencrypted FTP connections. Only encrypted FTPS will be supported. Read more about this change and some related FAQ on the [MAST FTP Service page](#).
- Auth.MAST Authentication:** New authentication mechanism for accessing exclusive access data via cURL or Astroquery. Please visit <https://auth.mast.stsci.edu> for authentication needs or view the [tutorial video](#).
- Search the PLATO MAST Catalog:** Search the PLATO MAST Catalog now available in the MAST Catalogs collection.
- Search by Proposal ID:** Search for MAST observations by Proposal ID.
- Jdaviz Links:** Navigate to a new application for quick visualization and analysis of JWST spectroscopic data products. See the [Quick Start Guide](#) to get started.
- Programmatic Access to the MAST Portal:** A MAST service is now available in [Astronomy](#). General MAST API

### Currently available data collections:

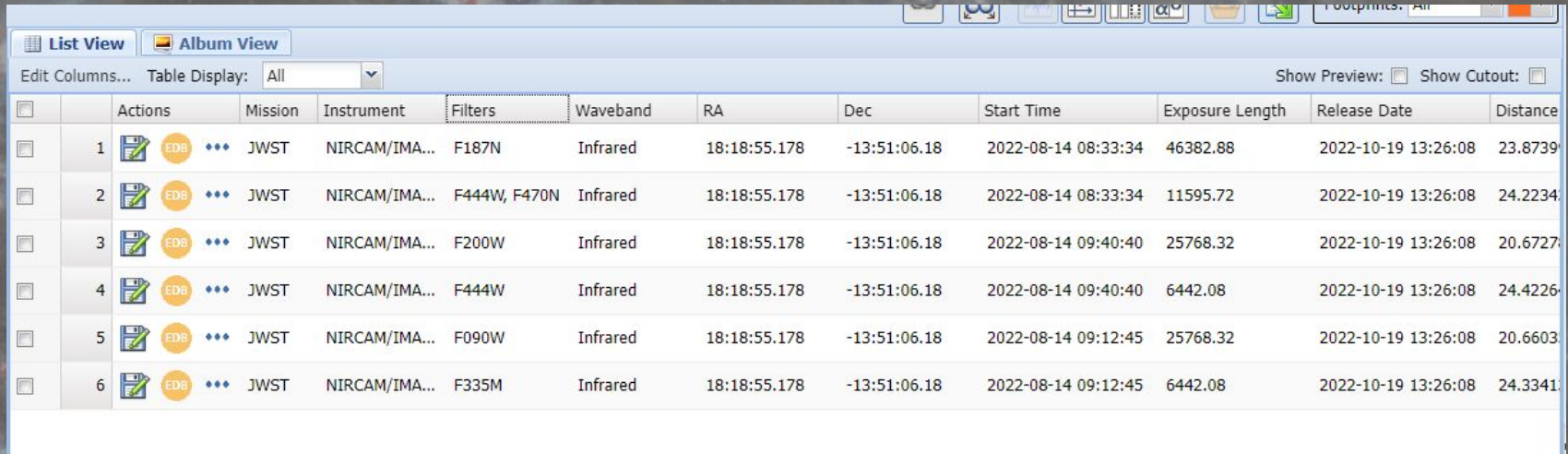
- MAST Observations: Millions of observations from JWST, Hubble, Kepler, GALEX, IUE, FUSE, and more.
- Virtual Observatory: Search thousands of astronomical data archives from around the world for images, spectra, and catalogs.
- Hubble Source Catalog: A master catalog with a hundred million measurements of objects in Hubble images.
- MAST Catalogs: Access to catalog data such as Gaia and TESS Input Catalog, with more coming soon.

**Featured tutorial:** Using Auth.MAST, MAST's authorization token system.





# Pick a mission, a celestial target, and download data



The screenshot shows a software interface with a toolbar at the top containing icons for various functions. Below the toolbar, there are tabs for 'List View' (selected) and 'Album View'. A dropdown menu for 'Table Display' is set to 'All'. On the right, there are checkboxes for 'Show Preview' and 'Show Cutout', both of which are unchecked. The main area contains a table with 13 columns: Actions, Mission, Instrument, Filters, Waveband, RA, Dec, Start Time, Exposure Length, Release Date, and Distance. The table lists six data entries, each with a checkbox in the first column and a sequence of icons (a document with a checkmark, an orange circle with 'EDB', and three blue diamonds) in the 'Actions' column.

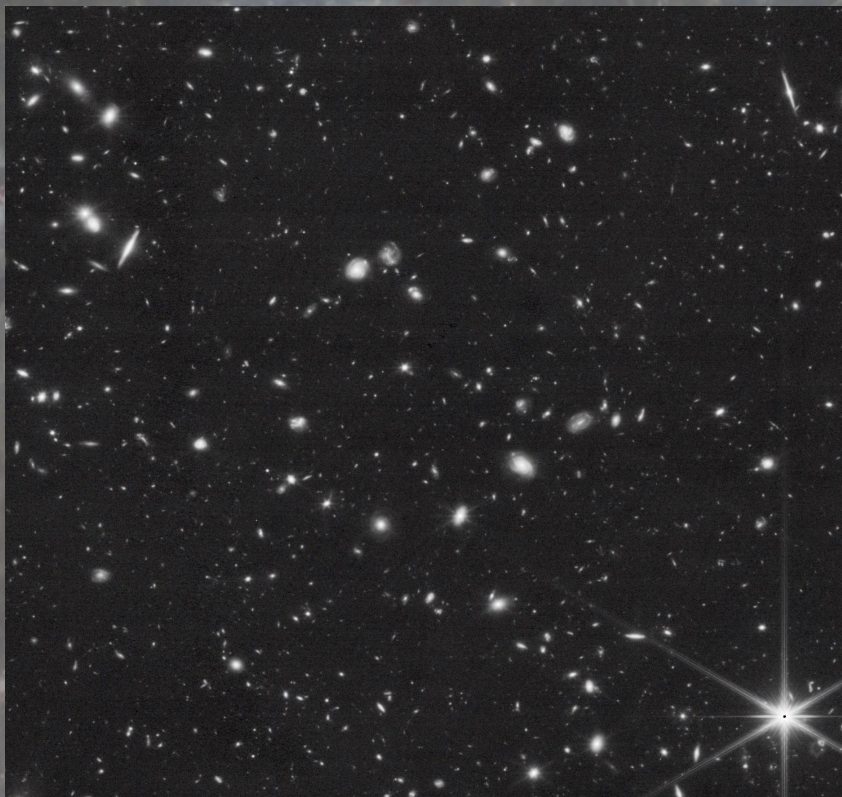
	Actions	Mission	Instrument	Filters	Waveband	RA	Dec	Start Time	Exposure Length	Release Date	Distance
1		JWST	NIRCAM/IMA...	F187N	Infrared	18:18:55.178	-13:51:06.18	2022-08-14 08:33:34	46382.88	2022-10-19 13:26:08	23.8739
2		JWST	NIRCAM/IMA...	F444W, F470N	Infrared	18:18:55.178	-13:51:06.18	2022-08-14 08:33:34	11595.72	2022-10-19 13:26:08	24.2234
3		JWST	NIRCAM/IMA...	F200W	Infrared	18:18:55.178	-13:51:06.18	2022-08-14 09:40:40	25768.32	2022-10-19 13:26:08	20.6727
4		JWST	NIRCAM/IMA...	F444W	Infrared	18:18:55.178	-13:51:06.18	2022-08-14 09:40:40	6442.08	2022-10-19 13:26:08	24.4226
5		JWST	NIRCAM/IMA...	F090W	Infrared	18:18:55.178	-13:51:06.18	2022-08-14 09:12:45	25768.32	2022-10-19 13:26:08	20.6603
6		JWST	NIRCAM/IMA...	F335M	Infrared	18:18:55.178	-13:51:06.18	2022-08-14 09:12:45	6442.08	2022-10-19 13:26:08	24.3341

Open the “image” files and this is what you’ll see





“Stretch” the data into a visible light to get this



Credits: NASA, ESA, CSA, STScI and Mr. Adam Ziccardi

# TELESCOPE ALIGNMENT EVALUATION IMAGE



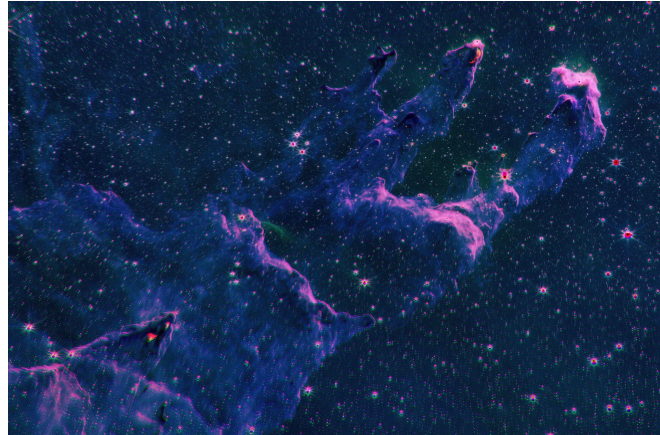
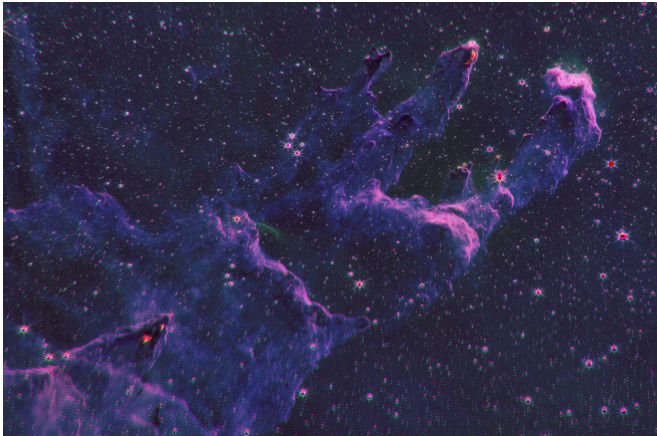
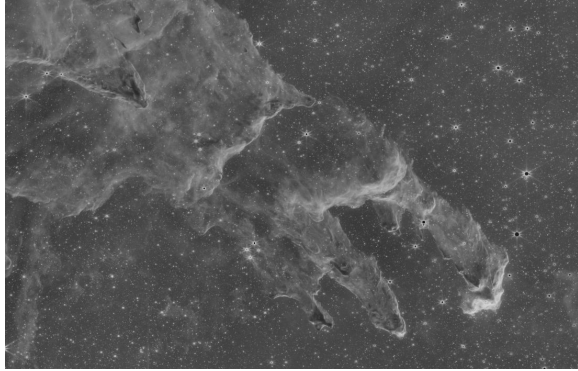
James  
Webb  
Alignment  
Image of a  
“boring  
star” in our  
Milky Way  
galaxy.

<https://www.space.com/james-webb-space-telescope-better-than-expected-image>



# Our projects, [M16 Eagle Nebula](#)

Credits: NASA, ESA, CSA, STScI and Mr. Adam Ziccardi



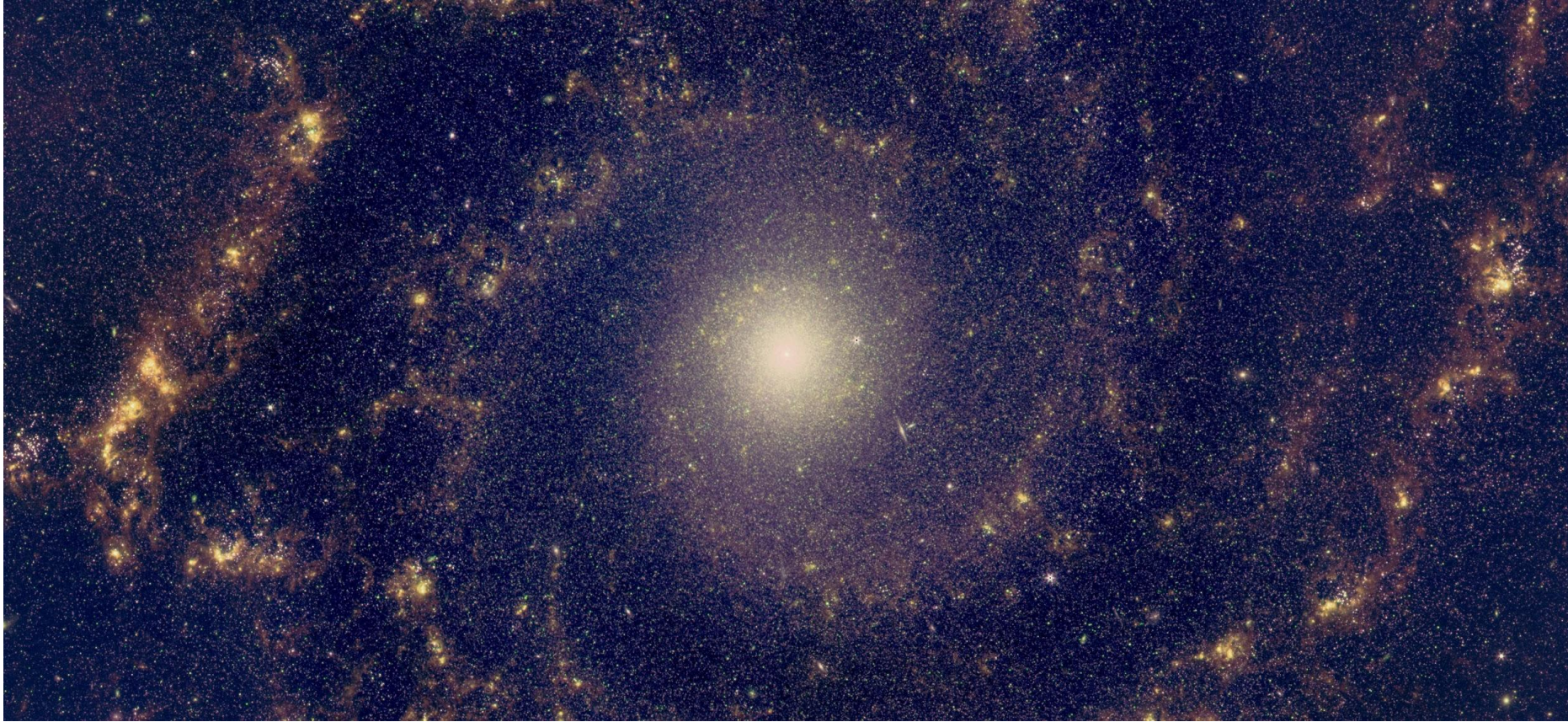




Credits: NASA, ESA, CSA, STScI and Gavin Rauh



# M74 Spiral Galaxy



Credits: NASA, ESA, CSA, STScI and Gavin Rauh



## Tarantula, NGC 2070



Credits: NASA, ESA, CSA, STScI and Gavin Rauh