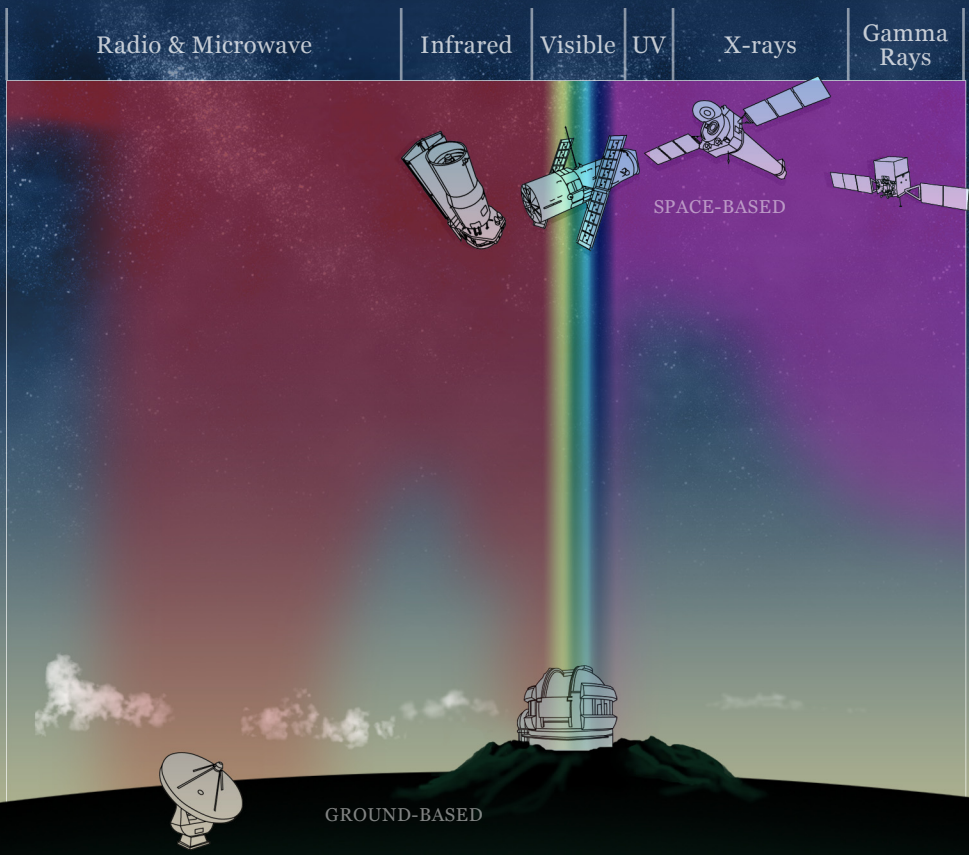
FROM EARTH TO THE *Universe*

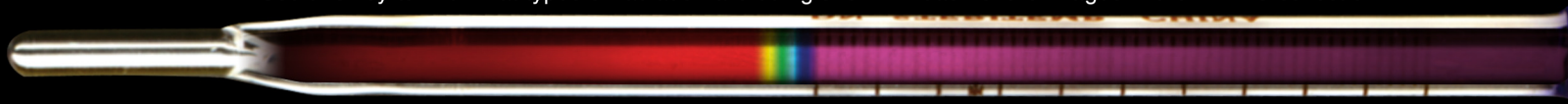
When Galileo turned his telescope to the sky 400 years ago, he was using a tool to enhance his natural vision. This so-called visible, or optical, light that Galileo observed represents just a mere slice of the entire spectrum of light we now know radiates across the Universe.

Today, astronomers have built telescopes and detectors that can see far beyond the type of radiation we can detect with the human eye. Ranging from long radio and infrared waves to shorter wavelengths of ultraviolet, X-rays, and gamma rays that reveal the hottest parts of the Universe, modern astronomy is really one of telescopic diversity. The graphic below illustrates the types of telescopes, some of which are in space and others on the ground, in the 21st century. All of these new tools allow views of the cosmos that Galileo most likely could never have imagined.



How Light is Absorbed in Our Atmosphere.

Use this key to find what types of radiation are being shown in each of the images in the FETTU collection.

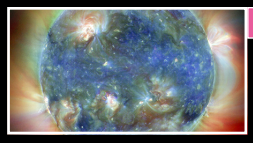


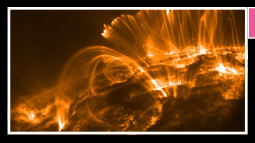
Radio | Microwave | Infrared | Visible | UV | X-rays | Gamma Rays

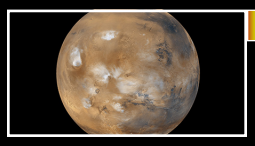

V
Earth's City Lights

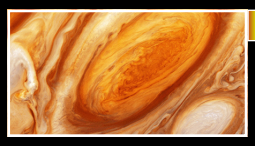

V
Earth – North America

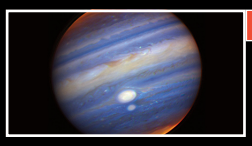

V
Lunar Eclipse


U
Solar Corona

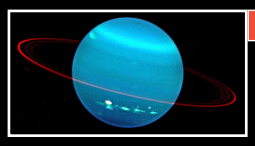

U
Coronal Loops


V
Mars


V
Great Red Spot


I
Jupiter


U
V
I
Saturn

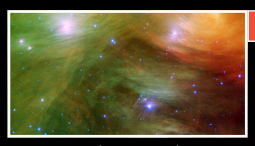

I
Uranus


V
Comet Hale-Bopp

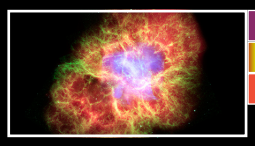

V
NGC 884 & NGC 869


V
Comet & Pleiades

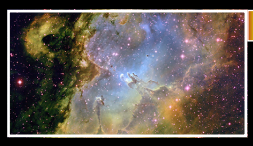

V
Pleiades (Optical)


I
Pleiades (Infrared)


V
Antares


X
V
I
Crab Nebula

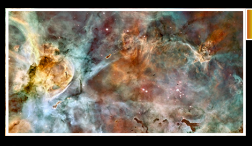

V
Horsehead Nebula

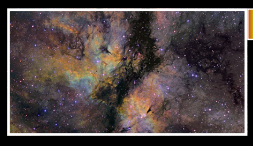

V
Eagle Nebula


V
Rosette Nebula


V
Trifid Nebula

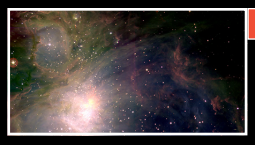

V
Lagoon Nebula

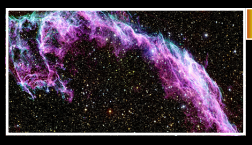

V
Carina Nebula


V
Butterfly Nebula


V
Cone Nebula & NGC 2264


V
Helix Nebula

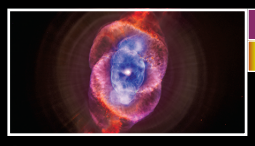

I
Orion Nebula

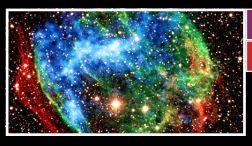

V
Veil Nebula

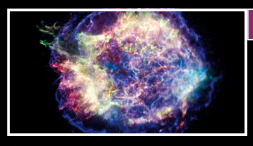

I
S106


V
Orion Complex


V
North America Nebula


X
V
Cat's Eye

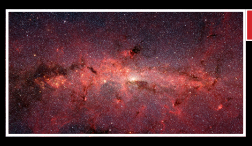

X
I
W49B

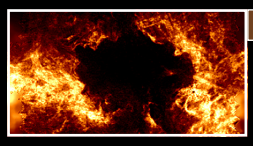

X
Cassiopeia A


X
V
G292.0+1.8


V
Vela Supernova Remnant


V
Our Milky Way Galaxy


I
Galactic Center


R
GSH 277+00+36

I
Large Magellanic Cloud

V
Andromeda Galaxy

U
M81

X
V
I
M101

X
V
I
M82

V
Antennae Galaxies

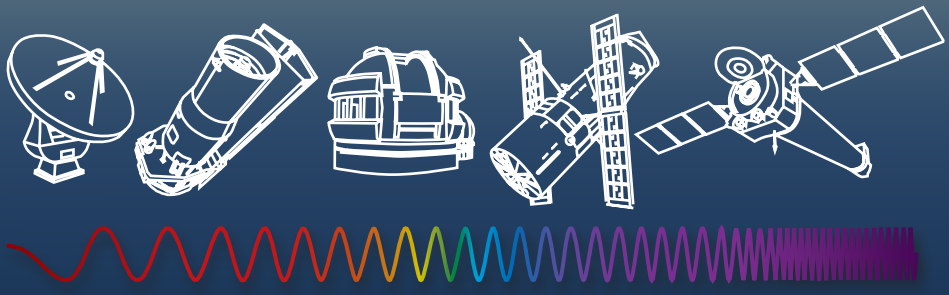
U
X
V
I
Cartwheel Galaxy

R
Fornax A

X
Centaurus A

X
V
Bullet Cluster

M
Cosmic Micro. Background



The images in the “From Earth to the Universe” project have been selected to represent the wide range of telescopes and observations available in modern astronomy. All the images you see here are in color. In the visible light or optical images, the colors are approximately how you would see them if you were close enough and your eyes sensitive enough.

For the radiation that are outside the range we can see with our eyes—ultraviolet, infrared, X-rays, radio waves and so on—the colors shown are selected for various scientific and aesthetic reasons. In most of the images from these invisible parts of the spectrum, however, the colors are often assigned so the “reddest” (or longest wavelength) light is red and the “bluest” (shorter wavelength) light is blue as our eyes see. In this way it is possible to map the invisible light to make images that we can see. Some images are taken through special filters that target individual physical processes, such as certain compositions or temperatures, and these are often color-coded in a way that shows the most information.

For more details on all of the images, visit:

http://fromearthtotheuniverse.org

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NASA

THE UNIVERSE YOURS TO DISCOVER

INTERNATIONAL YEAR OF ASTRONOMY 2009