NebulaNet

Home Telescope Sources About

NebulaNet!

NebulaNet aims to be a resource displaying the daily observations taken by the James Webb Telescope. Contrary to popular belief, the photos that many of us have seen are composity images made up of hundreds of different individual photos using a variety of different of instruments and image settings. These are then converted into png photos using different algorithms depending on the tyoe of subject the image was focusing on.

By viewing the universe at infrared wavelengths Webb is now showing us things never before seen by any other telescope. It is only at infrared wavelengths that we can see the first stars and galaxies forming after the Big Bang. And it is with infrared light that we can see stars and planetary systems forming inside clouds of dust that are opaque to visible light. The primary goals of Webb are to study galaxy, star and planet formation in the universe. To see the very first stars and galaxies that formed in the early universe, we have to look deep into space to look back in time (because it takes light time to travel from there to here, the farther out we look, the further we look back in time). The universe is expanding, and therefore the farther we look, the faster objects are moving away from us, redshifting the light. Redshift means that light that is emitted as ultraviolet or visible light is shifted more and more to redder wavelengths, into the near- and mid-infrared part of the electromagnetic spectrum for very high redshifts. Therefore, to study the earliest star and galaxy formation in the universe, we have to observe infrared light and use a telescope and instruments optimized for this light. Star and planet formation in the local universe takes place in the centers of dense, dusty clouds, obscured from our eyes at normal visible wavelengths. Near-infrared light, with its longer wavelength, is less hindered by the small dust particles, allowing near-infrared light to escape from the dust clouds. By observing the emitted near-infrared light we can penetrate the dust and see the processes leading to star and planet formation. Objects of about Earth's temperature emit most of their radiation at mid-infrared wavelengths. These temperatures are also found in dusty regions forming stars and planets, so with mid-infrared radiation we can see the glow of the star and planet formation taking place. An infrared-optimized telescope allows us to penetrate dust clouds to see the birthplaces of stars and planets.

NebulaNet  Home Telescope Sources About

Clearly the sky isn't the limit

NebulaNet