

## **Visioning the Cosmos: The Paintings of Johanna Baruch**

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Images from the cameras aboard the Hubble Space Telescope have for nearly three decades dazzled, educated and even surprised a broad audience, from meticulous researchers straining to glean minute details and insights into how the universe works to space enthusiasts enthralled by the beauty and scale of the cosmos.

Hubble itself is a triumph of the magnificent audacity of humanity to know our universe and our place in it. I've been privileged to be part of research teams observing with Hubble for the past 25 years. Over that span of time Hubble's instruments - it's eyes on the universe - have been augmented and upgraded in daring astronaut servicing missions, expanding the range of colors it can access and the diagnostic information it can record from its orbital perch above the distorting effects of the earth's atmosphere. These upgrades have kept Hubble on the cutting edge of astrophysical research, so that even now when we download the latest data we continue to be treated to something new with every observation.

To me the most powerful aspect of Hubble's imagery is the novel clarity that the universe we inhabit is not static but alive and dynamic. Capturing titanic galactic collisions, exploding stars, swirling planetary weather systems, and the non-intuitive pangs of stellar birth, the sharp details revealed in these resplendent digital portraits deepens our appreciation of the chaotic processes comprising our cosmic origins. We further our understanding across a broad swath of astrophysical topics and address quantitatively the great mystery of whether life is abundant in the universe.

The paintings of Johanna Baruch capture this dynamic movement and range across some of the most profound questions that humanity can contemplate. Her 'Cosmos Series' engulfs the viewer in an adventurous journey of extreme physics and emotional extension capable of transporting even the most stoic stargazer through the vast structures, voids, turbulence, explosions, accretions, outflows and tidal tails with invigorating curiosity and inspired passion. As she has described, she doesn't just re-create what appears in a Hubble image, but goes beyond to translate astrophysical concepts into brilliant renderings that connect to our senses and tap into our sense of awe and wonder.

I'm an unabashed admirer of her intuitive genius, her ability to capture vastness and complexity but also transmit an organic sense of life throughout her artistic creations. They appear both cosmic and terrestrial, expressly nebulous but also familiar, grandiose yet floral, structured but with the unpredictability of fire, reflecting vast scales that challenge our intellect while also projecting more speculative themes such as a universe teeming with ubiquitous life. It also rewards the viewer to dive into the minute details in the paintings; these add a layer of dessert-like complexity that garners extra meaning when you realize that such specks may represent entire solar systems or galaxies. It compels you to look for long periods to make sure you haven't missed anything - just like when looking at a glorious Hubble image!

Dr. Jon Morse is an astrophysicist. He is CEO and Chair of BoldlyGo Institute, and was formally Director of Astrophysics in the Science Mission Directorate at NASA Headquarters, Senior Policy Analyst in the White House Office of Science and Technology Policy, and Project Scientist for the Cosmic Origins Spectrograph aboard the Hubble Space Telescope.

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