BBC

MAGGIE ADERIN-POCOCK PICKS HER JWST TOP 10

#233 OCTOBER 2024

# Sky at Night

THE UK'S BEST-SELLING ASTRONOMY MAGAZINE

# CELESTIAL SPLENDOUR

**Revealed: the winners of the world's best astrophotography competition**

**COMET C/2023 A3**

Get set to catch this autumn's hotly anticipated comet

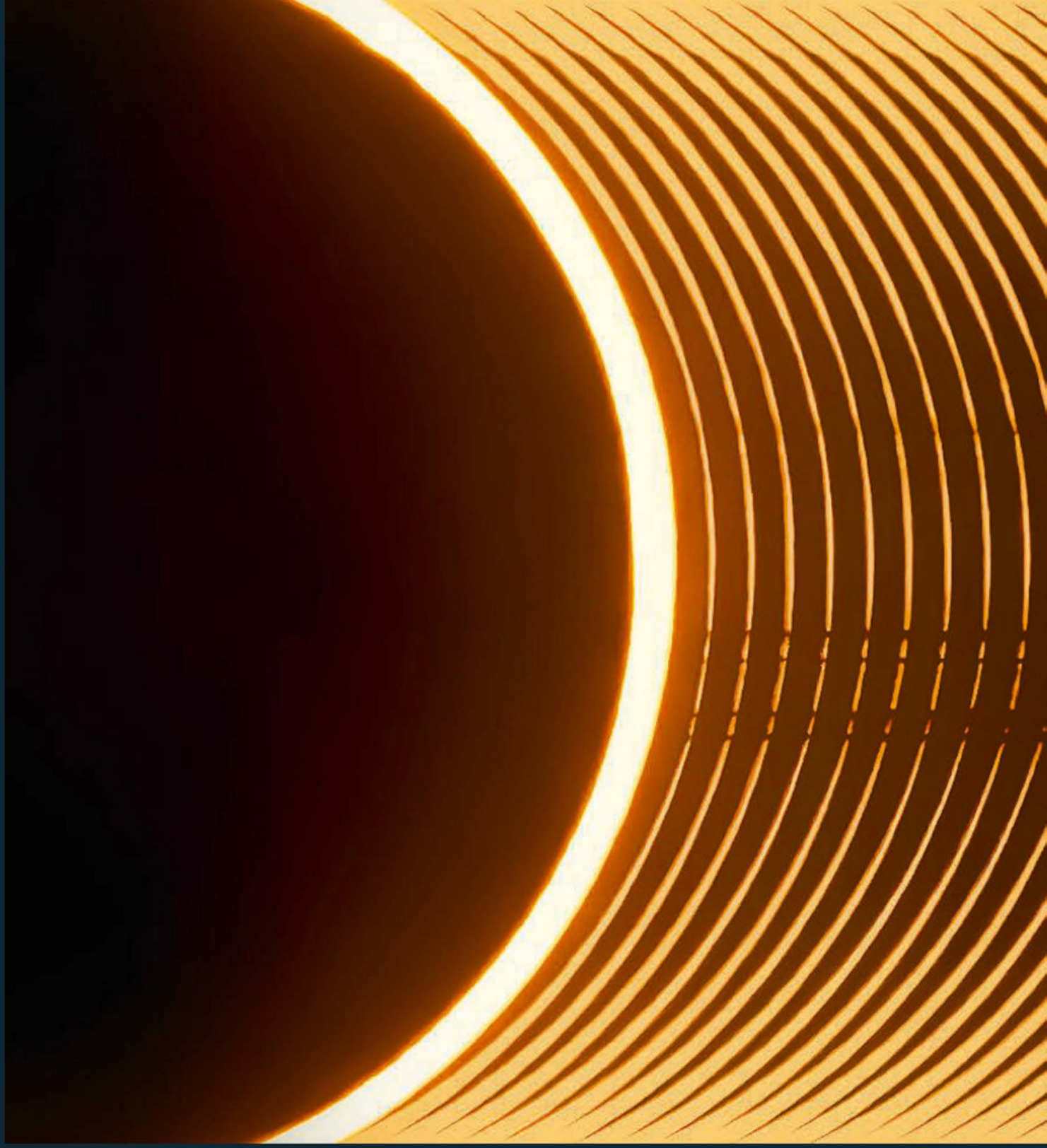
## WILL EUROPA CLIPPER FIND LIFE ON JUPITER'S MOON?

## HERA: THE MISSION TO STOP KILLER ASTEROIDS

VAST LIQUID WATER OCEAN FOUND ON MARS

NEW PLAN TO BUILD A TELESCOPE ON THE MOON

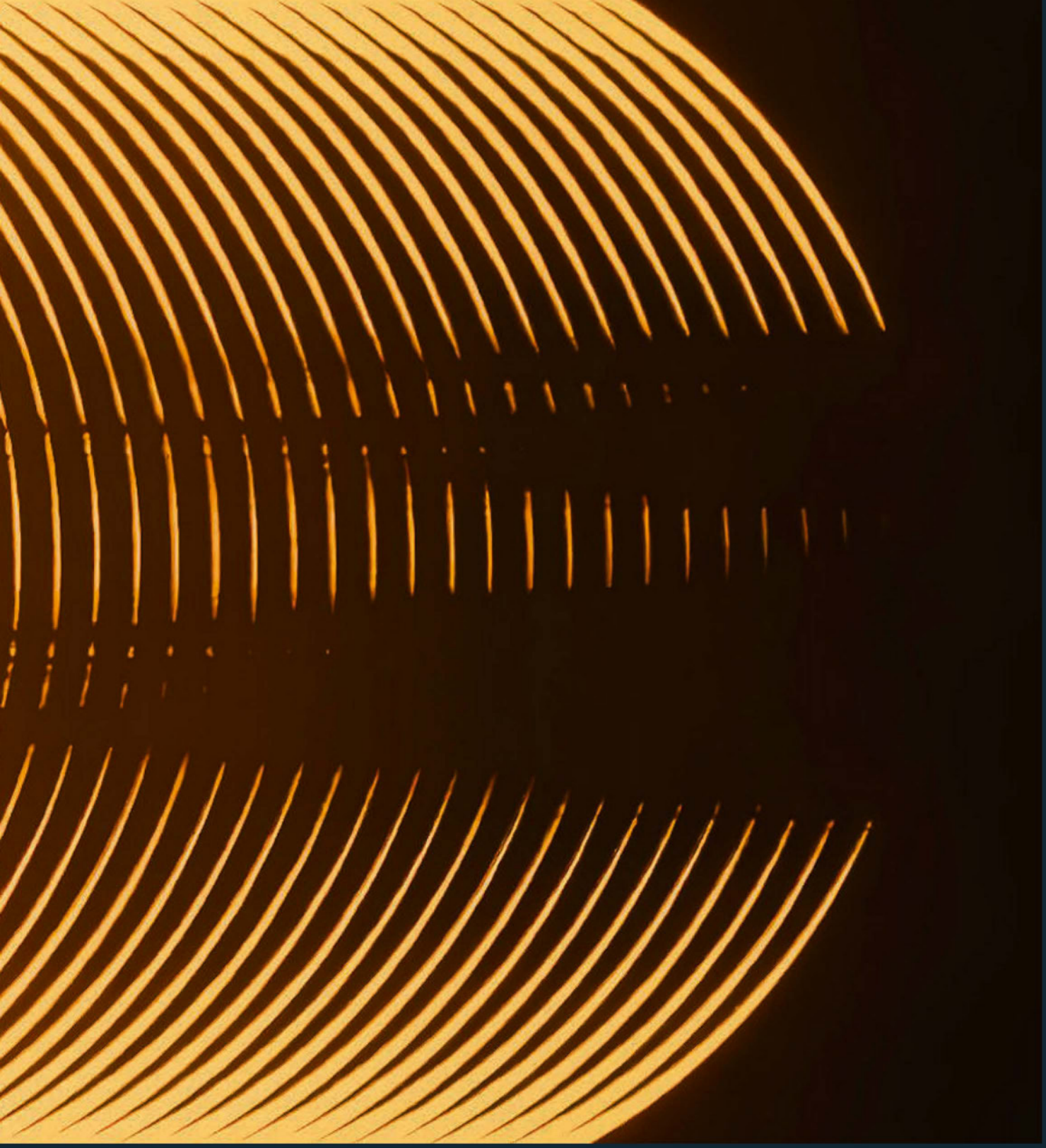
ON TEST: ALTAIR BUDGET SCOPE AND ZWO MOUNT



# Astronomy Photographer of the Year

*BBC Sky at Night Magazine* is proud to reveal this year's winners in the world's biggest astrophotography competition

Once again, photographers from around the globe have submitted their best images as they vie for the title of Astronomy Photographer of the Year 2024. Over 700 individuals submitted a total of 3,741 entries, from which the judges have selected the very best. There are eight categories, as well as two special prizes for the best newcomer and for the most creative processing of data from professional observatories, and a separate competition for entrants under 16. You can see all of the winning photos for yourself at the National Maritime Museum in Greenwich, London from Friday 13 September. For details, visit **www.rmg.co.uk/astrophoto**.



△ **OVERALL WINNER / Our Sun**
**Distorted Shadows of the Moon's Surface Created by an Annular Eclipse**
Ryan Imperio

**Location:** Odessa, Texas, USA
**Equipment:** Nikon D810 camera, iOptron SkyGuider Pro mount, Sigma 150–600mm f/5–6.3 DG OS HSM C lens, 600mm f/8, ISO 640, multiple 1/1,000-second exposures
**Judge's verdict:** "What an innovative way to map the Moon's topography at the point of third contact during an annular solar eclipse. This image left me captivated and amazed. It's exceptional work deserving of high recognition. Congratulations!"
**– Kerry-Ann Lecky Hepburn**

## FREE 2025 CALENDAR

Don't miss the December issue of *BBC Sky at Night Magazine* for our free 2025 calendar featuring all the winning images from the competition, as well as details of all the year's unmissable astronomical events. It goes on sale from 14 November 2024.

## △ Aurorae

**Queenstown Aurora**
Larryn Rae
**Location:** Queenstown, New Zealand
**Equipment:** Canon EOS R5 modified camera, 35mm panorama f/2.8, ISO 3200, sky 8-second exposure, foreground 30-second exposure
**Judge's verdict:** "This is a phenomenon typically seen near the poles, but appears here [in New Zealand] due to intense solar activity. Red aurorae are less common than green, which occur at lower altitudes where there is more oxygen to interact with and a higher density of atoms." – **Yuri Beletsky**

## Planets, Comets and Asteroids ▷

**On Approach**
Tom Williams
**Location:** Trowbridge, Wiltshire, UK
**Equipment:** Celestron EdgeHD 14-inch telescope, iOptron CEM70 mount, Astro-Physics BARADV lens, ZWO ASI462MC camera, 7,120mm f/20, multiple 15-millisecond exposures
**Judge's verdict:** "Venus's highly reflective clouds show no detail when using conventional imaging methods. This photographer, however, has managed to tease a startling level of detail out of the phases shown here. Although the colours used are false, they are not too far from the natural colour of the planet." – **Steve Marsh**

## △ Stars and Nebulae

**SNR G107.5-5.2, Unexpected Discovery (The Nereides Nebula in Cassiopeia)**
Marcel Drechsler, Bray Falls, Yann Sainty, Nicolas Martino and Richard Galli

**Location:** Various locations in France, Morocco and USA
**Equipment:** Takahashi FSQ-106EDX4 telescope, Sky-Watcher EQ6 Pro and Paramount MyT GEM mounts, QHYCCD QHY600PH-M, ZWO ASI2600MM Pro and ZWO ASI6200MM Pro cameras, 530mm and 382mm f/3.6 and f/5, 258 hours 32 minutes total exposure
**Judge's verdict:** "Who knew this delicate structure was there all along in one of the night sky's best-known constellations? Thoughtful processing and clever use of colouring really make the supernova remnant pop. Stunning!"– **Steve Marsh**

## △ Skyscapes

**Tasman Gems**
Tom Rae
**Location:** Aoraki/Mount Cook National Park, New Zealand
**Equipment:** Nikon Z6 and Z7 cameras, iOptron SkyGuider Pro mount, Sigma 40mm f/1.4 Art lens, Sigma 28mm f/1.4 Art lens, sky ISO 1600, 40mm f/1.8, 31x 30-second exposures, foreground ISO 100, 28mm f/10–14, 9x 4-second exposures
**Judge's verdict:** "It's very challenging to create this sort of composition without tipping the balance in favour of either foreground or background. As well as being technically impressive, the balance also produces a sort of surreal quality. A slightly dream-like connection between the Earth-bound and the celestial." **– Ed Bloomer**

## △ Sir Patrick Moore Prize for Best Newcomer

**Sh2-308: Dolphin Head Nebula**
Xin Feng and Miao Gong

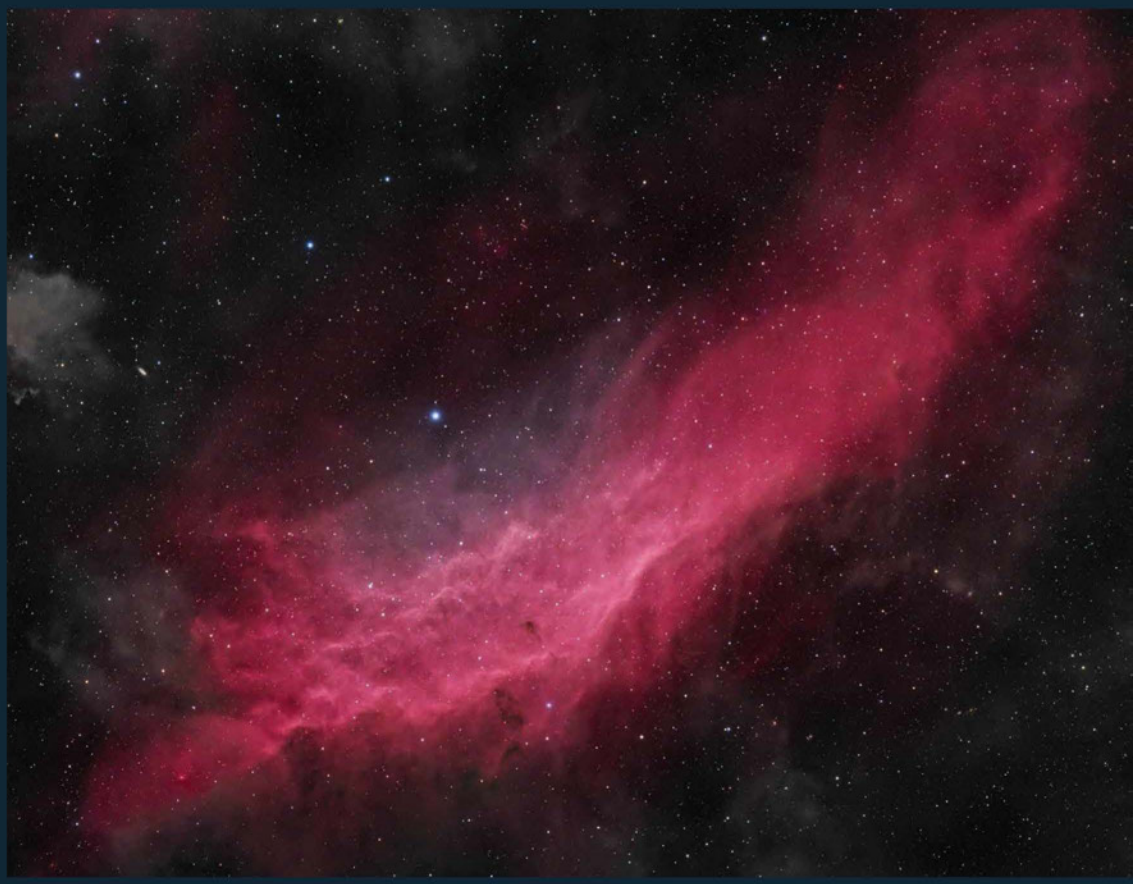
**Location:** Ruoergai County, Aba County, Sichuan Province, China
**Equipment:** Takahashi TOA-130NS telescope, Sky-Watcher EQ8 mount, ZWO ASI6200MM camera, 1,000mm f/7.7, gain 100, 144x 600-second H-alpha exposures, 140x 600-second OIII exposures
**Judge's verdict:** "The Dolphin Head Nebula is a bubble of hydrogen pushed out from a very luminous Wolf–Rayet star. This image is vibrant without losing the very delicate surrounding structures, and you can clearly make out another little planetary nebula bubble (called PN G234.9-09.7) towards the bottom of the dolphin's head, which is rarely imaged with any clarity. Impressive work from any astrophotographer, let alone a newcomer." **– Ed Bloomer**

## ◁ People and Space

**High-tech Silhouette**
**Tom Williams**
**Location:** Trowbridge, Wiltshire, UK
**Equipment:** Sky-Watcher Evostar 120 telescope, Daystar Quark Chromosphere filter, Sky-Watcher EQ3 Pro mount, Player One Apollo-M Max (IMX432) camera, 4,300mm f/35, ISS 19x 0.70-millisecond exposures, Sun 7,500x 12-millisecond exposures
**Judge's verdict:** "The photograph beautifully showcases the dynamic and active nature of the Sun, bringing it to life in a captivating way. Yet among that, your eye is permanently fixed on the tiny human-made spacecraft making its way across, emphasizing its significance amid the grandeur of the Sun."
**– Melissa Brobby**

## Young Competition ▷

**NGC 1499, A Dusty California**
**Daniele Borsari (aged 14)**
**Location:** Bergamo, Lombardy, Italy
**Equipment:** ZWO ASI533MC Pro camera, Samyang 135mm f2.0 lens, Sky-Watcher Star Adventurer mount, 135mm f/2.8, 33 hours 19 minutes total exposure
**Judge's verdict:** "This incredibly beautiful image was very popular with the panel, not least because it captures a nebula, atmospheric gases and has extraordinary balance of light, composition and structure. The future of astronomy photography being fearlessly, and openly, taken forward by a new generation." **– Neal White**



## △ Our Moon

**Shadow Peaks of Sinus Iridum**

**Gábor Balázs**

**Location:** Budapest, Hungary

**Equipment:** Heyde-Zeiss telescope, ZWO green filter, ZWO ASI178MM Pro camera, 4,500mm f/15

**Judge's verdict:** "Sinus Iridum, known as the 'Bay of Rainbows', is about 260km (160 miles) in diameter and is bordered by several smaller craters, showcasing the Moon's rugged terrain. The detailed capture of Pythagoras crater is enhanced by the phenomenon of libration, where slight oscillations in the Moon's orientation allow Earth-bound observers a glimpse of areas typically hidden from view."

**– Yuri Beletsky**

## △ Galaxies

**Echoes of the Past**

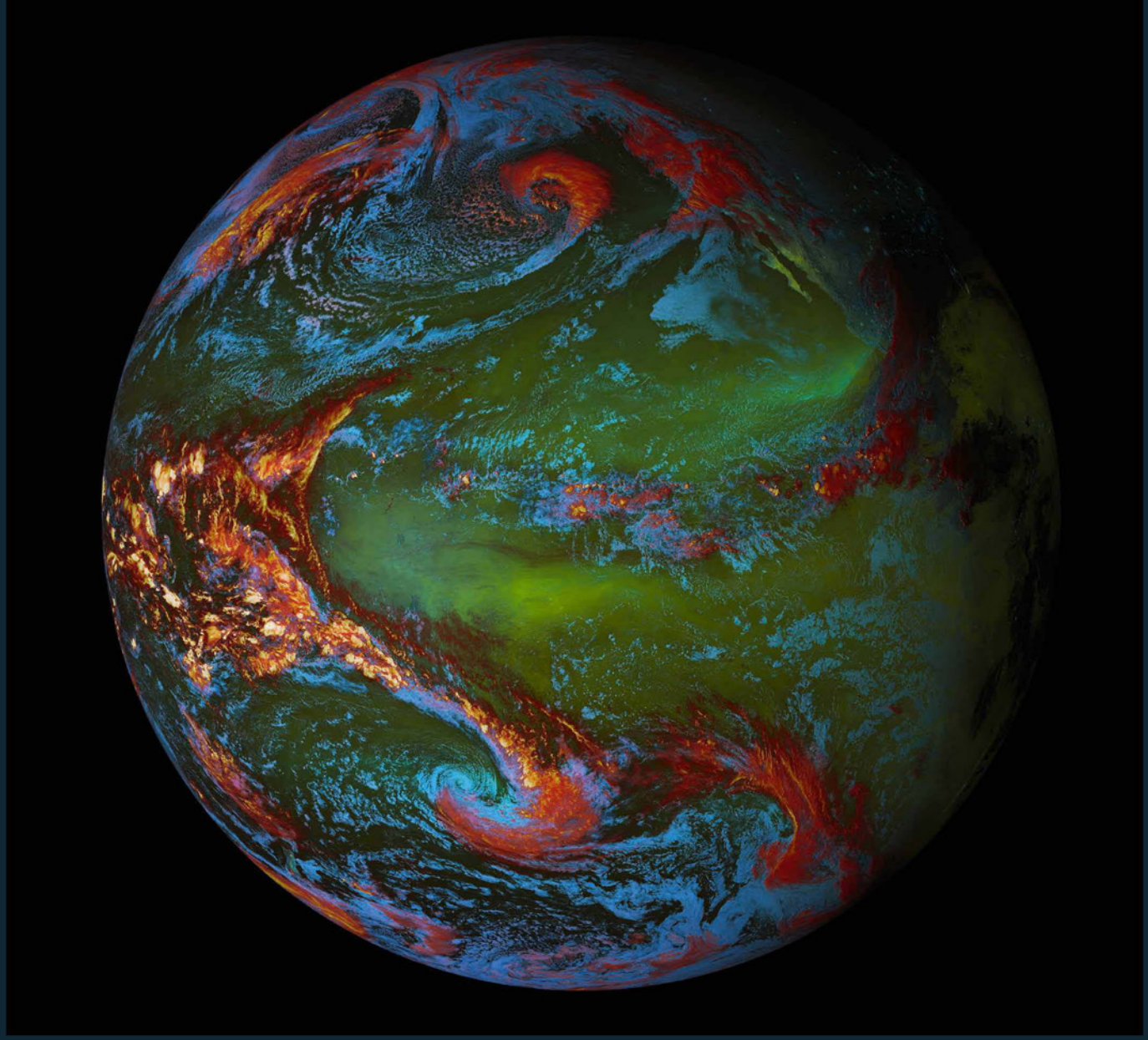
**Bence Tóth and Péter Feltóti**

**Location:** Isabis Farm, Namibia

**Equipment:** Custom 200/800 Newton astrograph, Astronomik Deep-Sky LRGB, Antlia V-Pro LRGB and 3nm H-alpha filter, Sky-Watcher EQ6-R Pro and EQ6 mounts, ZWO ASI2600MM Pro camera, 800mm f/4, 16.2 hour L, 5.3 hour RGB, 5.6 hour H-alpha exposures

**Judge's verdict:** "Galaxies are among the most amazing phenomena you can observe with a telescope. Each is unique, but some are more special than others. Centaurus A is one of the most extraordinary of its kind, and this image certainly stands out among galaxy photos."

**– László Francsics**



## △ The Annie Maunder Prize for Image Innovation

**Anatomy of a Habitable Planet**

Sergio Díaz Ruiz

**Original data:** GOES-18 ABI (Bands 1–16, 0.47–13.3µm) from 18 February 2024 and Suomi-NPP VIIRS (0.5–0.9µm) from 2012–2020

*What would Earth look like to an extra-terrestrial observer? This image attempts to answer that question, using data of our own planet from weather satellite GOES-18, as well as a map of Earth's nighttime lights from the Earth Observation Group. Encoding landmasses, oceans and atmospheric features as different colours creates an alien's eye view of our own planet.*

**Judge's verdict:** "This strangely familiar representation of Earth transforms scientific data through colour mapping to highlight the devastation already inflicted on our world. The image poignantly emphasises the significant environmental challenges we face and the urgent need to protect and preserve our planet." – **Victoria Lane**

**FREE BONUS CONTENT**

**You can find a gallery of these and more fantastic images from the 2024 competition at www.skyatnightmagazine.com/bonus-content**

# The judges

**Imad Ahmed:** Director of the New Crescent Society, celebrating Islam's astronomical heritage

**Yuri Beletsky:** Professional astronomer and nightscape photographer

**Ed Bloomer:** Senior Astronomy Manager: Digital & Data at Royal Museums Greenwich

**Melissa Brobby:** Amateur astronomer, journalist and science communicator

**László Francsics:** Chairman of the Hungarian Astrophotographer's Association and winner of the 2019 APY competition

**Kerry-Ann Lecky Hepburn:** Canadian senior meteorologist and weather, nature and night-sky photographer

**Victoria Lane:** Senior Curator of Art and Identity at Royal Museums Greenwich

**Steve Marsh:** Art Editor of *BBC Sky at Night Magazine*

**Alan Sparrow:** Chair of UK Picture Editors' Guild and Director of the UK Picture Editor Guild Awards

**Neal White:** Professor of Contemporary Art/Science at University of Westminister