



MILSET STEAM PHOTO CONTEST REPORT 2023

The International Movement for Leisure Activities in
Science and Technology

www.milset.org

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The International Movement for Leisure Activities in Science and Technology (MILSET) organised the **edition 2023** of the **MILSET STEAM Photo Contest (SPC)** from April to August 2023. The SPC aims at creating a leeway for youth to express what they observe within science, in photos creatively. The activity is free and open to participants of 13 to 25 years old from all over the world.

The **goals** of this programme are:

- Engage youth in science, technology, engineering, arts, mathematics (STEAM) by:
 - Exploring visual aspects of STEAM through the art and science of photography
 - Capturing images to demonstrate and communicate STEAM concepts and phenomena
 - Applying STEAM techniques to the capture of digital photos
- Build a collection of STEAM photos by youth worldwide to be used by MILSET and its member organisations.

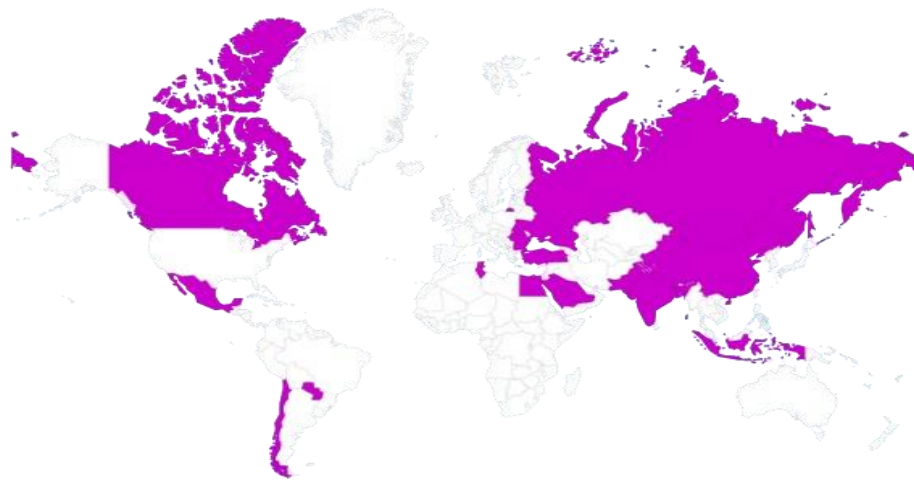
Photo Eligibility

- Each contestant may submit a maximum of three photos for judging. An online form must be completed
- Any photo that demonstrates, communicates or explains a scientific, technological, engineering, or mathematical concept or phenomenon is eligible.
- The online form requires the contestant to describe the concept briefly or phenomenon associated with each photo.
- Photos must be the sole work of the contestant.
- Photos must be captured using a digital camera – photos created by software are not permitted
- Processing, including cropping and adjustments to correct or enhance exposure or colours, is acceptable; the addition, removal or distortion of meaningful content is not permitted.
- Photos must not include a watermark or descriptive text.

MILSET STEAM Photo Contest 2023 is an activity addressed to all youth worldwide with a passion for science and Photography. The MILSET SPC 2023, received photographs of different matters such as Engineering, Computer &, Robotics Applications, Health Sciences, Nature (Environment and Ecosystems), Pure and applied Sciences and Space Sciences.



During the registration period from April to August 2023, **203 photographs from 20 countries were received**. The participants had the opportunity to submit from 1 to 3 photos, and their scientific explanation in the registration system developed. Of 159 participants, 81% were minors (from 13 to 17 years old) and 19 % adults (18-23 years old).



For the first time, we had participants representing the 6 MILSET regions:



The 203 photographs received went through the following evaluation phases:

1. **Compliance of Rules:** During this step, all photographs were evaluated regarding their compliance with the rules (participant age within the range allowed, the scientific explanation in English, photographs without visible modifications, etc.). Those who followed the rules went to the next phase.
2. **Scientific explanation & quality of the image:** by this phase of evaluation, the jury defined the scores of the photographs based on the criteria mentioned below:

No.	Description	Rating
Photo Criteria – Technical Qualities		Rate each criterion from 0 to 5 points
1	Exposure	
2	Colour Balance	
3	Sharpness, Bokeh and Blur	
4	Colour photo: Hue and Saturation or Black and white photo: Tonality and contrast	

Photo Criteria – Creativity, Originality and Aesthetics		Rate each criterion from 0 to 5 points
5	Format and Framing	
6	Presence and Placement of Primary Subject	
7	Lighting (Natural or Artificial)	
8	Shapes and Lines	
9	Picture Depth (use of multiple planes)	
10	Dynamics between Key Picture Elements	

Photo criterion – STEAM Relevance		Rate this criterion from 0 to 20 points
11	How well is the STEAM concept or phenomenon captured in the photo	

Informational Content Criterion		Rate this criterion from 0 to 15 points
12	Demonstration of an in-depth understanding and knowledge of the STEAM concept or phenomenon presented in the photo	

Effective Communication Criterion		Rate this criterion from 0 to 15 points
13	Effective communication in rendering the STEAM concept or phenomenon accessible to the non-scientific observer	

TOTAL		
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After all this process only 109 photographs reached the second phase.

The best scored photographs were selected as follow:

1st PLACE



Morden And Classical

by BOWEN XIE

This work is a star track time lapse photography. Shot in Shenmu, Shaanxi. Shenmu also has classical buildings, there are electric poles, the air is good, the stars are also very clear, so I took this photo. A star orbit is an optical phenomenon, specifically a continuously moving orbit produced by a star in a long exposure image. In other words, the camera does not track the movement of the stars in the night sky; instead, the camera remains stationary, and the stars themselves move over time, resulting in images that show the stars moving in the firmament of the night.

2nd PLACE



When The Rocket Lifts Off

by ZHAOQIN YANG

First of all, the gas that propels a rocket into space uses internal energy to do work. Second, the fire going down, the rocket going up tells us that the forces are mutual, and then the rocket going higher and higher means that the gravitational potential energy is going up. As the rocket lifts off, there will be a large white air mass at the base of the rocket. Thats because theres a huge pool of water under the rockets launch pad, and when the rockets flames hit the water, the water absorbs heat and vaporizes into steam. Vaporization can absorb a lot of heat, and the temperature of the surrounding environment will be lowered, thus protecting the launch pad. When a large amount of water vapor is liquefied at a lower temperature, it turns into small droplets.

3rd PLACE

There was a tie between the following photographs:



The Nucleation Wonder

by M. Alisherdil

This mesmerising graphic depicts the enchanted realm of bubbles created by the nucleation process in science. The nucleation process manifests itself under a microscope when a liquid, frequently soapy water. Small flaws or foreign materials in the liquid serve as nucleation sites, drawing in gas molecules from the environment. These gas molecules that have been trapped combine, eventually expanding into fascinating bubbles of different colours. Light interference occurs when light waves interact with the thin film of the bubble, causing vibrant hues to appear. You will wonder as you observe the enthralling dance between nucleation and optics that results in a beautiful microcosmic show of rainbow-coloured bubbles.



Magnificent Star Trails

by WENHAO BI

This photo was taken in Kanas, Xinjiang, China, and it captures the trajectories of stars and artificial satellites. Due to the Earth's rotation, the stars appear as magnificent star trails in the image. The photo also records the trajectory of the Milky Way - represented by the yellowish band in the middle - as well as the trajectory of an artificial satellite, which is the longest trail in the photo. From this single image, one can both admire the grandeur of the universe and observe the Earth's rotation. The settings used for this shot were ISO 100, aperture F4 (with a format of 44mm33mm), and an exposure time of 15 minutes.

From the best 15 scored photographs, it was developed a **People's Choice Award** through the MILSET Social media obtaining as a winner:



Human Interpretation Of The Wavelength Of Light

by ISABELLA VALDEBENITO VALENZUELA

People's Choice Winner

It is an optical phenomenon called "Rayleigh Scattering". During the day, when the Sun is high, sunlight is scattered in all directions as it interacts with molecules in the atmosphere, primarily nitrogen and oxygen. This scattering is most effective for shorter wavelengths like blue and green, which explains why the sky appears blue during the day. However, at sunset, the Sun is closer to the horizon and sunlight has a longer path through the atmosphere to reach our eyes. During this longer path, scattering is more effective and shorter wavelengths are scattered further. This means that blue and green are scattered more and are less visible to us. In contrast, colours with longer wavelengths, such as red, orange, and yellow, have much less dispersion compared to blue and green.

All those 15 best photographs of this 2023 edition are available at the MILSET SPC Virtual Gallery.



<https://spc-virtual.milset.org/2023/>

An official image and a Social media campaign were developed to promote the activity. This campaign included the following applications and channels:

- MILSET Facebook
 - MILSET Expo-Sciences International Facebook
 - MILSET AMLAT Facebook
 - MILSET Africa Facebook
 - MILSET Asia, Facebook.
- Twitter
- Instagram
- LinkedIn
- MILSET YouTube channel.

The following rate expresses the impact on social media: **High impact** (More than 1,000 people reached), **Medium impact** (from 500 to 999 people reached), **Low impact** (less than 500 people reached). For the campaign developed, the impact reached was:

Banner	Published Date	Impact	Organic Reach (Facebook - Instagram)
REGISTRATION OPEN!	April 28	High	1047
SUBMIT YOUR BEST SHOOT - HEALTH SCIENCES	June 26	Medium	727
SUBMIT YOUR BEST SHOOT - PURE AND APPLIED SCIENCES	July 16	Medium	666
SUBMIT YOUR BEST SHOOT - NATURE	July 17	Medium	582
SUBMIT YOUR BEST SHOOT - SPACE	July 20	Medium	553
SUBMIT YOUR BEST SHOOT - ENGINEERING	July 25	Low	241
PEOPLE'S CHOICE AWARD ALBUM	November 16	High	3102
PEOPLE'S CHOICE AWARD WINNER	November 22	High	2296
3RD PLACE WINNER	November 22	Medium	841
2ND PLACE WINNER	November 22	Low	413
1ST PLACE WINNER	November 22	Low	447

This MILSET programme was developed during 2023 by the support of :

JURY COMMITTEE

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TECHNICAL COMMITTEE

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