2022 Space4Youth Competition

Call for Abstracts and Essays

#Youth4Water

Description

The United Nations Office for Outer Space Affairs (UNOOSA) and the Space Generation Advisory Council (SGAC) are launching the fourth edition of the Space4Youth Essay Competition, targeting students and young professionals with the aim to highlight practices and experiences on the use of **space** for **water resources management** and **aquatic ecosystem preservation**.

UNOOSA is the only United Nations Office entirely dedicated to outer space activities and works to strengthen international cooperation in space activities and in the use of space science and technology for achieving sustainable development.

SGAC in support of the United Nations Programme on Space applications is a global non-governmental, non-profit organization and network representing university students and young space professionals to the United Nations, space agencies, industry, and academia.

Context

In view of the Midterm Review of the Decade of Action for Water, which will take place at UN Headquarters in New York in March 2023, co-hosted by Tajikistan and the Netherlands, this year's UNOOSA Space4Youth Competition will have the theme: "Youth4Water - Space as a tool to accelerate change in sustainable water resources management, hydrology and the protection of aquatic ecosystems."

Theme: Youth4Water2022 - Space as a tool to accelerate change in sustainable water resources management, hydrology and the protection of aquatic ecosystems

Water scarcity is a major global challenge. While water demand and population rapidly increase, we are faced with consequences of urbanization, development pressures, and increased industrial demands on the resource.

Water use worldwide has been increasing at a rate of 1% per year since the 1980's, driven by population growth, socio-economic development and changing consumption patterns. Global demand is expected to continue increasing at a similar rate until 2050, with 20-30% of this increase due to the growing demand in the industrial and domestic sectors.

The SDG 6 Synthesis Report 2018 on Water and Sanitation shows that two billion people worldwide live in countries experiencing high water scarcity, and four billion people experience severe water scarcity for at least one month per year. Water stress will increase, as demand for water grows, and the effects of climate change increasingly impact life on Earth at a fast rate, while water tables are sinking.

Aquatic life, oceans, and entire ecosystems such as wetlands and coastal ecosystems are affected by activities or phenomena that can be observed from space. Among those human activities, natural resources extraction and pollution from various sources can be observed, such as discharge from mining activities and agriculture, or the extensive use of groundwater for agriculture.

Space applications such as Earth Observation data and navigation are also crucial for disaster management and crisis response efforts. The effects of climate change are often related to water, such as changes of rainfall patterns, which can cause flash floods and severe drought. Prediction of such

events becomes increasingly important to save human lives and mitigate the effects of water-related disasters. Moreover, space technology allows the monitoring of glacier retreat and melting of permafrost, sea level rise, surface water temperatures and many hydrological parameters. It can also help to monitor migrations of species which in some cases can be related to drinking-water sources.

The competition "***Youth4Water* - Space as a tool to accelerate change in sustainable water resources management, hydrology and the protection of aquatic ecosystems**", developed under the UNOOSA Space4Youth and Space4Water projects aims at highlighting good practices and experiences in terms of experimentation, application, evaluation and dissemination of techniques, methods and innovative approaches that use space to address water-related environmental or water management issues.

Participants will submit an essay on the theme "***Space as a tool to accelerate change in sustainable water resources management, hydrology and the protection of aquatic ecosystems"*** but can choose their own topic within that theme. Participants will focus on how space can be used to tackle water challenges by underlining concrete, realistic and original examples of how space science, technology and its applications can inform and, or support delivery of actions and commitments for water management problems and adaptation of policies at local, national, regional and, or international levels.

Guidelines

The competition is structured in 2 phases:

1. Applicants submit an **abstract** of no more than 100 words and fill in the **online application form**.
2. If the abstract is positively evaluated, the applicant will be allowed to submit an **essay** of no more than 1,000 words, to be based on the previously submitted abstract.

Eligibility criteria

- The competition is open to all students and young professionals from any Member State of the United Nations.
- All participants shall be of the age between 18 to 35 inclusive (up to the day of their 36th birthday) on 1 February 2022.
- The competition is open to individuals - no team submission is allowed.
- Competition organizers and judges are not eligible for the competition.

The United Nations encourages all qualified applicants, regardless of gender, disability, sexual orientation, cultural or religious backgrounds, to apply.

Application

- To apply, please register through the Space for Youth Competition Form.
- Once registered, please send the abstract to space4youth@un.org **by 24 November 2022**.
- Results of the abstracts selection will be communicated to successful candidates by 14 December 2022.
- The deadline for successful candidates to submit their essay is **15 January 2023**.

The results of the competition will be announced by end of January.

Basic Requirements

- The essay and the abstract should be submitted as a PDF document under 5 MB. The name of the file should be "Name_Surname_Space4Youth Competition". Please make sure the title of the file includes your name and surname.
- All submissions of abstracts shall be made by **24 November 2022, 23:59 CET**. Pre-selected applicants will be informed and will have to submit the essays by **15 January 2023, 23:59 CET.** Any submissions after the deadline will not be considered. In case of lack of quality of submissions, the Selection Committee reserves the right to extend and, or cancel the competition.
- The abstracts and the essay must be written in English.

Opportunities for authors of best essays

- The U.S. will support this year's Space4Youth competition by providing the authors of the **best 3 essays** with a trip to the United States to meet with representatives of the U.S. space sector and attend an Adult Space Camp at the U.S. Space & Rocket Center in Huntsville, Alabama[1].
- The 3 best essays will be uploaded on the "Space for Youth" webpage and the "Space4Water Portal" of UNOOSA.
- The authors of the best 3 essays may be invited to attend other international events.
- Priority will be given to participants from developing countries.

Detailed requirements for the submission

- The abstract and essay should include a title and a lead-in sentence.
- The abstract should **not** exceed **100 words**.
- The essay should **not** exceed **1,000 words**, bibliography **excluded**.
- If you use images or graphics, please give credit and add a title and a caption. These images and graphics should be added to the relevant section(s) of the essay. Also reference them from the text.
- The font used should be Times New Roman with a 12-font size.
- For references, please use the Chicago referencing style. Failure to properly acknowledge sources may constitute plagiarism. Provide links for researched information and facts that you include.
- The text may draw examples from organizations, companies or other entities, but it cannot promote or advertise them.
- Provide definitions for technical terms you use.

[1] Confirmation and satisfaction of U.S. visa approval will be required. Given COVID-19 related travel restrictions, the trip dates are not confirmed yet. Expenses will be covered by the U.S. Mission to the International Organizations in Vienna.

Optional

- You can add high quality images (*1920 x 800px minimum) – if you have a permission to use them or, if they are under Creative Commons License (provide a link with the credits).*
- You can include an expert's quote, ideally not someone you relate to personally or closely relate to professionally to demonstrate the impact of the work. Quotes from external professionals provide an important element of credibility that is harder to achieve through internal quotes. When quoting staff, the quotes should focus on supporting the story while being understandable to a non-technical/bureaucratic reader.
- Have a look at the United Nations Editorial Manual accessible here.

Within the story or essay, highlight the role any space technology plays for a water management project.

Tips for abstract and essay preparation

Aim for consistent, clear, concise, and comprehensive writing in simple English. As you write, keep these helpful tips in mind.

- If it is possible to cut a word out, always cut it out.
- Do not use a long word when a short one will do.
- Use the active voice rather than the passive voice as it is more engaging and easier for readers to understand. It is better to avoid the passive continuous construction ("a conference is being organized").
- Write simple and avoid complicated sentence structures and keep in mind what you're trying to express.

You can use short and relevant subheadings to break up longer text for easier reading.

Use concrete facts, data, and numbers, rather than generalizations wherever possible: "the chlorophyll concentration has increased by 20%" is more interesting and credible than "the chlorophyll concentration has significantly increased." Indicate the source of the figure, whether internal or external. Ideally, provide a link to this source. E.g., "According to the European Commission concentration in the Eastern Bering Sea has increased by XX% from 2000 to 2001 [LINK TO SOURCE]."

Finally, read through your article several times and edit duplications of the same message.

Structure

- Introduction: set the ground and main thesis
- Main body: justify your thesis with relevant argument(s) and example(s)
- Conclusions: reiterate your thesis/argument(s) and potentially identify future research/developments

Example essay topics

The list below provides some topics examples. Please note that this is not exhaustive, and you can focus on any other topic that connects space technologies with benefits to water research or management.

- Water supply/freshwater access
- Surface water bodies
- Watershed hydrology
- Space Technologies for WASH (Water, sanitation and hygiene)
- Water harvesting and groundwater recharge
- Water / sewage pipe leaks
- Non-conventional resources (desalinated, treated wastewater, grey water)
- Groundwater detection
- Erosion and sediment transport
- Water Quality Monitoring
- Water pollution: e.g. oil spills, trace metals, nutrient pollution, storm-water pollution (how space could support to detect sources of contamination)
- Water treatment
- Water conservation
- Invasive species in water bodies
- Monitoring, remediation, assessment, and protection of water resources
- Climate change / global warming
- Melting of mountain glaciers
- Permafrost
- Weather forecasting / meteorology
- Innovative methods for rain and runoff water modelling
- Water-related disaster management
- Impacts of climate change on hydrology and water resources
- Impacts of climate change on desert environments
- Arid environments and their natural resources
- Plant Cover in Arid Environments
- Plants and (evapo)transpiration
- Soil moisture
- Water Agriculture Nexus (how water management through space can contribute)
- Water use efficiency/productivity and irrigation methods
- Space technology and water related topics in atmospheric physics and chemistry
- Water Energy Nexus (how water management through space can contribute
- Space technology and hydropower engineering
- Water related environmental pollution and management
- Blue-green infrastructure
- Environmental / water resources / systems engineering
- Ocean temperature monitoring
- Sea level rise
- Acidification of oceans: How space could contribute to the monitoring of acidification
- Ocean Salinity
- Monitoring sea ice thickness and type

- Ocean and Coastal Engineering
- Physical oceanography
- Cubesat applications for water research
- All space technologies with benefits to water research or management
- Other technologies applicable to generate knowledge on water such as artificial intelligence / machine learning
- Computational modelling and simulation
- Geospatial Standards
- Open Data
- How to access data sources / products
- Specific spin-off technologies for water - in-depth on one technology with case studies
- Comparison of water and space tech in rural/urban or LMIC/HIC
- Water, space and the SDGs
- Gender focus: women's role in space and water sector (less an application of space for water but highlighting the role women have played and do play in the sectors)
- Indigenous people focus: any topic relating to indigenous knowledge and indigenous people's role in sustainable water management

Please note that UNOOSA or SGAC will not reply to emails asking if a topic is pertinent.