



CalsMUN 2024



*Waves of Change*  
*CalsMUN 2024*

**Research Report**

**Forum:** General assembly 6

**Issue:** Advancing Ocean Exploration and  
Knowledge Regarding the Mariana Trench

**Chairs:** Nicolás Sarasúa Lázaro and Jasmin Al  
Kardali





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### Personal Introduction

Dear distinguished delegates,

We welcome you to CalsMUN 2024 discussing the topic: “Waves of change”

‘Protect our water, protect our planet’”. We would also like to welcome you to the United Nations General Assembly Sixth Committee (also known as GA6 or the Legal Committee). In the two days of the conference, you will be discussing the topics of the Mariana trench and the Northern Sea Route. To be fully prepared for the conference, we encourage you to write a position paper and carry out research outside this research report in which you develop your position on the topic.

On the first day we will start off with the setting of the agenda, in which you decide which topic to discuss first, and thereafter we will discuss the topics.

As for your chairs, we have written a brief introduction.

### Nicolás Sarasúa Lázaro

Esteemed delegates, my name is Nicolás Sarasúa Lázaro and I am sixteen years old. I am a student at the British School in the Netherlands. I have attended several MUNs as a delegate and this will be my first time as a chair. I look forward to this conference and wish to create great memories with our committee.

### Jasmin Al Kardali

Hi dear delegates, my name is Jasmin Al Kardali, but you may notice that everyone calls me Jas. I am a sixteen year old student at Cals college itself, so if you have any questions on the confusing lay out of the building, feel free to ask me! This will be my first time chairing, so bare with me as I get used to it all. Calsmun is the only mun I ever attended, my first one being in 2022 and my second one in 2023. I am really excited to be chairing this year and I look forward to creating new mun memories!

### Introduction

Situated in the western Pacific Ocean, the Mariana Trench is a colossal trench that stretches along the Mariana Islands. Countries are in a race to explore this vast scape that only recently, do they have the technology to explore properly. There are many unknown features, resources and species yet to be discovered.

### Definition of Key Terms

#### Extremophile

Organisms adapted to withstand extreme conditions such as pressure, resource shortages, extreme temperatures etc.



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### DSV

Deep Submergence Vehicle.

### ROVs

Remotely Operated Vehicles.

### EEZ

According to the Exclusive Economic Zone under part V of the UN convention, a country has the right to all living and non-living resources up to 200 nautical miles or 370km from its coastline.

## General Overview

Concealed beneath the sea, beckons adventurers and scientists alike. The quest to uncover



Mariana Trench's mysteries dates over a century. It was in 1875 during the Challenger expedition that scientists first recorded measurements of the trench's depth. However, it wasn't until 1960 that explorers, Swiss engineer Jacques Piccard and U.S. Navy Lieutenant Don Walsh, made history by descending to the trench's deepest point, known as the Challenger Deep.

*Don Walsh and Jacques Piccard together*

According to the Exclusive Economic Zone, the US over the Marian trench and its resources, as the Mariana archipelago encompasses the 14 islands of the United States Commonwealth of the Northern Mariana Islands and the United States Territory of Guam that sit atop the Mariana Ridge in an area known as the Mariana Volcanic Arc. The Mariana Volcanic Arc is part of a subduction system in which the Pacific Plate plunges beneath the Philippine Sea Plate and into the Earth's mantle, creating the Mariana Trench.

In the past, multiple expeditions have been carried out, but many challenges have been faced because of prohibitive pressure and hostile depths. These extreme environments require adapted vessels and technology to withstand such conditions whose costs set back a



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great deal. Overcoming these technological limitations has been a towering hurdle since the beginning of these missions and still is today.

As of 2022, 22 crewed descents and seven uncrewed descents had been achieved. The first was the crewed descent by Swiss-designed, Italian-built, United States Navy-owned bathyscaphe Trieste, which reached the bottom at 1:06 pm on 23 January 1960, with Don Walsh and Jacques Piccard on board. This was followed by the uncrewed ROVs Kaikō in 1996 and Nereus in 2009. The first three expeditions directly measured similar depths of 10,902m and 10,916m. The fourth was made by Canadian film director James Cameron on 26 March 2012. He reached the bottom of the Mariana Trench in the submersible vessel Deepsea Challenger, diving to a depth of 10,908m.

With a length of approximately 2500km, it boasts an average width of 75 kilometers, making it one of the most extensive features on Earth's surface. Its record-breaking depth of 10995 meters (about the cruising altitude of a commercial jet) also leads scientists to believe that an intricate community lives within its extreme habitat.

In modern day developments, the development of sophisticated submersibles, such as the DSV Alvin and the Deepsea Challenger, revolutionized our ability to explore the deep sea. Equipped with robust and ruggedized materials and cutting-edge technology, these vessels enable scientists and explorers to embark on missions pushing the boundaries of our knowledge.

A major advancement in the technology of submersible vehicles has been the creation of (Remotely Operated Vehicles), which are a priceless asset to researchers and scientists with the mission of researching with high-definition cameras, that are built to capture in low light conditions, whilst providing the safety the shore offers.

Tools for sonar mapping and exploration have been essential in illuminating the invisible and mapping the undiscovered. Scientists have produced intricate maps of the terrain of the Mariana Trench by generating sound waves and monitoring their echoes. With the help of this vital information, researchers may pinpoint areas of interest and efficiently organize their next exploration expeditions. The future seems even more promising for precise and thorough mapping because of sonar technology's ongoing advancements. Through the potential of great discoveries and research of species with adaptations such as bioluminescence, countries are desperate to reach the newest discovery or development.

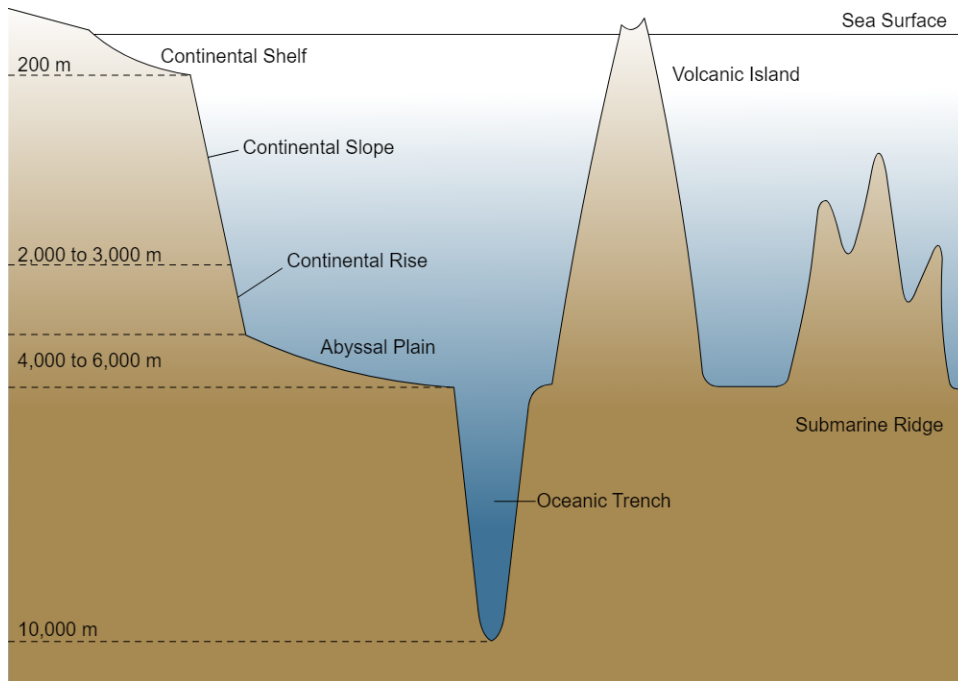
The Mariana Volcanic Arc contains objects of scientific interest, including the largest active mud volcanoes on Earth. The Champagne vent, located at the Eifuku submarine volcano, produces almost pure liquid carbon dioxide. This phenomenon has only been observed at one other site in the world. The Sulfur Cauldron, a pool of liquid sulfur, is found at the Daikoku submarine volcano. The only other known location of molten sulfur is on Io, one of Jupiter's moons. Such natural wonders incite human curiosity and that of many governments included. This is why some could describe the passion that is the research of the Mariana Trench as a 'race'.

Like other oceanic trenches, the Mariana Trench has been proposed as a site for nuclear waste disposal in the hope that tectonic plate subduction occurring at the site might eventually push the nuclear waste deep into the Earth's mantle, the second layer of the Earth. However, ocean dumping of nuclear waste is prohibited by international law.



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Furthermore, plate subduction zones are associated with large megathrust earthquakes, the effects of which are unpredictable for the safety of long-term disposal of nuclear wastes within the hadopelagic ecosystem.



*Diagram of altitude levels and corresponding light levels*

However, there are legal concerns from other countries as countries such as Japan have before announced, in 1979, plans to dump 10,000 drums of high-level nuclear waste into the Mariana trench.

## Major Parties Involved

### Japan

Numerously has announced plans to release tens of thousands if not millions of tons of nuclear waste into the Pacific Ocean.

### Australia, the USA and India

All seek to promote a "free and open Indo-pacific."

### China

Made multiple dives over short periods in the past couple of years. Are looking to be the first to achieve a feat.



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### Possible Solutions

- Promote stricter regulations on waste in the Pacific Ocean and Mariana Trench
- Create regulations on territory and presenting international territory treaties
- Discuss how countries can effectively work together for a healthier environment in accordance with International Law
- Promote equality in opportunities for research and development in the Mariana Trench

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