

A Location In Imperial, California, Has An Elevation Of -- 17.2 Meters. The Elevation Of The Badwater

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Understanding the geography and significance of Badwater Basin in California provides a fascinating glimpse into some of the most extreme environments on Earth. Situated in the heart of Death Valley National Park, Badwater is renowned for its record-breaking low elevation and harsh climate. This article explores the details surrounding its elevation, geographical features, environmental conditions, and the cultural and scientific importance of this unique location.

Introduction to Badwater Basin

Location and Context within Death Valley

- Badwater Basin is located in eastern California, within Death Valley National Park.
- It lies near the Mojave Desert and is part of the Great Basin and Basin and Range Province.
- The basin is approximately 86 meters (282 feet) below sea level, making it the lowest point in North America.

Historical and Cultural Significance

- Named "Badwater" by early settlers and travelers due to its harsh conditions and salty surface.
- The area has been a site for scientific research, extreme sports, and tourism.
- It symbolizes human resilience and the Earth's extreme environments.

The Elevation of Badwater Basin

Measuring the Elevation

- The official elevation of Badwater Basin is approximately -86 meters (about 282 feet) below sea level.

- Precise measurements may vary slightly due to shifting sediments and geological activity.
- The figure of --17.2 meters mentioned in some contexts refers to specific local measurements or comparison points, but the generally accepted elevation is below sea level.

Clarifying the "Elevation Of --17.2 Meters"

- The figure "--17.2 meters" could be a typographical or interpretive error.
- In the context of Badwater, the relevant measurement is below sea level, approximately 86 meters.
- Alternatively, if considering relative elevation changes within the basin, some areas might be at different depths.

Geographical Features of Badwater Basin

Salt Flats and Surface Composition

- The basin is covered with a thick crust of salt deposits, sometimes meters thick.
- These salt flats are remnants of ancient lakes that evaporated over millennia.
- The surface is reflective and white, creating a surreal landscape.

Hydrology and Climate

- The basin has no significant surface water; it is arid and hyperdry.
- The climate features extreme heat, with summer temperatures often exceeding 50°C (122°F).
- Occasional brief rainfall can temporarily alter the surface, but evaporation is rapid.

Environmental Conditions and Challenges

Extreme Temperatures

- Death Valley holds the record for the highest air temperature ever recorded on Earth: 56.7°C (134°F) in 1913.
- The environment is inhospitable for most forms of life due to heat and salinity.

Adaptations and Survival

- Some microbial life exists beneath the salt crust.
- Plants and animals here have evolved adaptations to survive the extreme conditions.

Scientific and Cultural Significance

Research and Monitoring

- Scientists study the basin to understand climate change, desert ecology, and geological processes.
- The basin's low elevation makes it a natural laboratory for earth sciences.

Recreational and Artistic Interest

- Badwater is a popular destination for tourists, photographers, and endurance athletes.
- The famous Badwater Ultramarathon starts at Badwater Basin and covers 135 miles to Mount Whitney.

Comparison with Other Low-Elevation Points

Global Context

- The Dead Sea, bordering Jordan and Israel, is about 430 meters below sea level.
- The Danakil Depression in Ethiopia reaches approximately 155 meters below sea level.
- Badwater's elevation is significant within North America, but globally, other locations are lower.

Implications of Low Elevation

- The low elevation influences climate, weather patterns, and ecological niches.
- It also presents unique challenges and opportunities for scientific exploration.

Conclusion: Significance of Badwater's Elevation

Understanding the elevation of Badwater Basin underscores its importance as a geographical and environmental landmark. Its position below sea level creates conditions that are both extreme and enlightening, offering insights into Earth's climatic history, geological processes, and the resilience of life. Whether viewed through the lens of scientific research, environmental challenges, or human endurance, Badwater remains a symbol of Earth's most extreme environments. The elevation, approximately 86 meters below sea level, emphasizes the incredible diversity of our planet's landscapes and the importance of preserving such unique natural features for future generations.

Frequently Asked Questions

What is the elevation of the location in Imperial, California?

The elevation of the location in Imperial, California, is 17.2 meters.

How does the elevation of this location compare to Badwater Basin?

The location's elevation is significantly higher than Badwater Basin, which is the lowest point in North America at approximately -86 meters.

Why is the elevation measurement important for Imperial, California?

Elevation impacts climate, weather patterns, and environmental conditions in Imperial, influencing agriculture and urban planning.

What is Badwater Basin's elevation, and why is it notable?

Badwater Basin has an elevation of about -86 meters, making it the lowest point in North America and a notable geographic feature in California.

Are there any significant geographic features near Imperial, California, related to elevation?

Yes, Imperial is located near the Colorado Desert and the Salton Sea, with varied elevations including the nearby low-lying Badwater Basin.

How does elevation affect the climate in Imperial, California?

At 17.2 meters above sea level, the elevation contributes to the area's hot, arid climate typical of the desert region.

What activities or tourism are influenced by the elevation in Imperial and nearby areas?

Elevation influences desert tourism, including visits to Badwater Basin and exploring the unique low-lying landscapes of Death Valley.

Is the elevation of 17.2 meters typical for areas in Imperial, California?

Yes, many parts of Imperial are relatively low-lying, with elevations around this range, characteristic of the desert valley region.

Additional Resources

Badwater Basin: The Lowest Point in North America at -86 Meters

When discussing some of the most extreme and awe-inspiring natural landmarks in North America, the Badwater Basin in Death Valley National Park stands out prominently. Sitting at an astonishing elevation of -86 meters (-282 feet) below sea level, it is recognized as the lowest point in North America, and indeed, one of the lowest points on Earth's surface. Located in Imperial County, California, this surreal landscape offers a unique blend of geological history, extreme climate, and visual grandeur.

In this article, we delve into the specifics of Badwater Basin's elevation, its geographical and geological significance, climate characteristics, visitor experience, and the unique features that make it a must-visit destination for adventurers, scientists, and curious travelers alike.

Understanding the Significance of Badwater's Elevation

What Does an Elevation of -86 Meters Mean?

Elevation typically refers to the height of a location above sea level. When

a point is below sea level, it is assigned a negative elevation value, indicating it lies beneath the average ocean surface. In the case of Badwater Basin, its elevation of -86 meters signifies that the basin floor is 86 meters lower than the ocean's surface.

This negative elevation makes Badwater the lowest point in North America, a claim supported by geologists and geographers. Its depth is a testament to the region's complex geological history, shaped by tectonic activity, erosion, and climatic forces over millions of years.

Key implications of this elevation include:

- Climatic Extremes: The basin's depth below sea level contributes to its extreme heat and arid conditions.
- Unique Ecosystem: Despite harsh conditions, some specially adapted flora and fauna survive here.
- Scientific Interest: Its elevation offers insights into earth's geological processes and climate change.

How Does Badwater's Elevation Compare Globally?

While 86 meters below sea level is significant in North America, the global context is equally fascinating. The Dead Sea, for example, lies at approximately -430 meters below sea level, making it the lowest point on Earth's surface. Nonetheless, Badwater's status as the lowest point in North America places it among the world's most extreme landscapes.

Geological and Geographical Features of Badwater Basin

Formation and Geological History

Badwater Basin is part of the larger Death Valley geologic depression, formed through complex tectonic processes:

- Tectonic Activity: The basin lies within the Basin and Range Province, characterized by crustal extension that causes the land to stretch and thin.
- Fault Lines: The nearby Furnace Creek Fault influences the basin's subsidence.
- Evaporite Deposits: The basin's floor is covered with salt flats, primarily composed of halite and other evaporite minerals, deposited from ancient lakes that evaporated over millennia.

Over millions of years, Lake Manly once filled this depression during wetter climate periods. As the climate shifted to arid conditions, the lake evaporated, leaving behind thick salt deposits and creating the flat, reflective surface we see today.

Physical Characteristics and Landscape Features

- Salt Flats: The most recognizable feature of Badwater is its expansive, white salt crust, which creates a surreal, almost lunar landscape.
- Basin Floor: The surface is mostly flat, with occasional salt polygons and crusted mud cracks.
- Surrounding Mountains: The basin is encircled by rugged mountain ranges, including the Black Mountains and the Panamint Range, which rise dramatically above the basin and contribute to its unique microclimate.

Climate and Environmental Conditions

Extreme Temperatures

Death Valley, including Badwater Basin, is famous for its extreme heat. During summer months, temperatures often exceed:

- 50°C (122°F): The highest recorded temperature in Badwater is 56.7°C (134°F), recorded in July 1913, though some sources consider this record controversial.
- Average Summer Temperatures: Typically hover around 45°C (113°F).

These scorching conditions make Badwater one of the hottest places on Earth, posing serious challenges for both visitors and local flora and fauna.

Arid Climate and Low Humidity

The basin's climate is classified as desert (Köppen BWh), characterized by:

- Low annual rainfall: Usually less than 2.5 inches (63 mm).
- High evaporation rates: Leading to salt flats and minimal surface water.
- Clear skies: Conducive to intense solar radiation.

Impacts of Climate on Landscape and Ecosystem

The extreme climate creates a stark environment with limited biological activity. Yet, some resilient species, such as desert pupfish and certain plants like saltbush, have adapted to survive here.

Visitor Experience and Accessibility

Reaching Badwater Basin

Badwater Basin is accessible via U.S. Route 190, which runs through Death Valley National Park. Some key points include:

- Starting Point: Visitors typically enter from Furnace Creek Visitor Center.
- Drive Distance: About 17 miles (27 km) south from Furnace Creek.
- Road Conditions: The route is paved and well-maintained, suitable for most vehicles.

Walking and Exploration

- Trail Length: The main walk to Badwater itself is approximately 0.25 miles (400 meters), but visitors often extend their visit by exploring the salt flats or nearby points of interest.
- Best Time to Visit: During fall, winter, and early spring when temperatures are milder. Summer visits are possible but require extreme caution due to heat.

What to Expect During the Visit

- Visual Impact: The vast salt flats create a mirror-like surface that reflects the sky, especially during the early morning or late afternoon.
- Photographic Opportunities: The surreal landscape offers stunning vistas, perfect for photography.
- Unique Experience: Standing at the lowest point in North America provides a tangible connection to earth's geological history.

Safety Tips for Visitors

- **Hydration:** Carry plenty of water; dehydration can occur rapidly.
- **Sun Protection:** Use sunscreen, hats, and sunglasses.
- **Timing:** Visit during cooler parts of the day to avoid heat exhaustion.
- **Navigation:** Stick to marked paths; the salt flats can be disorienting.

Scientific and Cultural Significance

Research and Environmental Studies

Badwater Basin provides a natural laboratory for:

- **Geologists:** Studying salt deposits and tectonic processes.
- **Climatologists:** Examining extreme temperature effects and climate change.
- **Biologists:** Understanding adaptations to harsh environments.

Furthermore, the basin's history of lake fluctuations offers insights into climate variability over thousands of years.

Historical and Cultural Context

While primarily known for its geological features, Badwater also holds cultural significance:

- **Name Origin:** The name "Badwater" is believed to stem from early travelers who found the water unfit for drinking.
- **Indigenous History:** The Timbisha Shoshone people have inhabited the region for centuries, utilizing its resources sustainably.

Conclusion: Why Badwater's Elevation Matters

The elevation of -86 meters at Badwater Basin is not just a numerical fact; it encapsulates an extraordinary intersection of geology, climate, and natural history. As the lowest point in North America, it offers a tangible reminder of earth's dynamic processes—tectonic shifts, climatic changes, and the relentless sculpting power of nature.

Visiting Badwater Basin is akin to stepping onto an alien landscape, where the extreme elevation and environmental conditions forge a landscape both beautiful and humbling. Whether you're a scientist seeking data, an adventurer craving extreme environments, or a traveler captivated by natural wonders, Badwater Basin's unique elevation and landscape promise an unforgettable experience.

By understanding the geological history and climatic conditions that define this remarkable site, visitors can appreciate its significance beyond mere numbers—seeing it for what it truly is: a stark, stunning testament to earth's natural extremes.

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