



Upheaval Dome



Upheaval Dome is an anomaly in the relative geologic order of canyon country. Here rock layers are dramatically deformed in a roughly circular or “bull’s-eye” pattern nearly three miles (5 km) across. What caused this deformation at Upheaval Dome? Geologists do not know for sure, but there are two main theories which are hotly debated.

Competing Theories

Impact Crater Theory

When meteorites collide with the earth, they leave impact craters like the well-known “Meteor Crater” in Arizona. Some geologists estimate that 60-160 million years ago, a meteorite 500 to 1000 feet across hit the earth at what is now Upheaval Dome. The impact created a large explosion, sending dust and debris high into the atmosphere. The impact initially created a crater, which then collapsed as gravity took over. In this rebound stage, rock layers were thrust inward and upward to fill the void left by the impact. Erosion since the impact has washed away any meteorite debris and other tell-tale evidence of impact. Upheaval Dome provides a unique glimpse into the lower depths of an impact crater, where erosion has exposed rock layers once buried thousands of feet underground. Several recent geologic studies have supported the impact theory, but debate continues due to the lack of any “smoking gun” evidence.

Salt Dome Theory

A thick layer of salt, formed by the evaporation of ancient landlocked seas, underlies much of southeast Utah and Canyonlands National Park. When under pressure from thousands of feet of overlying rock, the salt can flow plastically, like ice moving at the bottom of a glacier. In addition, salt is less dense than sandstone and other sedimentary rocks. As a result, over millions of years salt can flow up through rock

layers as a “salt bubble”, rising to the surface and creating salt domes that deform the surrounding rock.

The name “Upheaval Dome” was given to this feature when geologists first suggested that it was a salt dome, but initially they believed the land form resulted from erosion of the rock layers above the dome itself. A recent modification of this theory proposes that a salt bubble as well as the overlying rock have been entirely removed by erosion and the present surface of Upheaval Dome is the pinched-off stem below the missing bubble. If true, Upheaval Dome would earn the distinction of being the most deeply eroded salt structure on earth.

Upheaval Dome Today

Whatever its origin, Upheaval Dome is a unique and fascinating geologic feature, visible even from space. Upheaval Canyon, which drains northwest toward the Green River, has carved through this feature and further modified what we see today. Within Canyonlands National Park, Upheaval Dome serves as a protected geologic laboratory where all can learn about, and be inspired by, the mysteries of nature. More information on Upheaval Dome can be found at the website: www.nps.gov/cany.

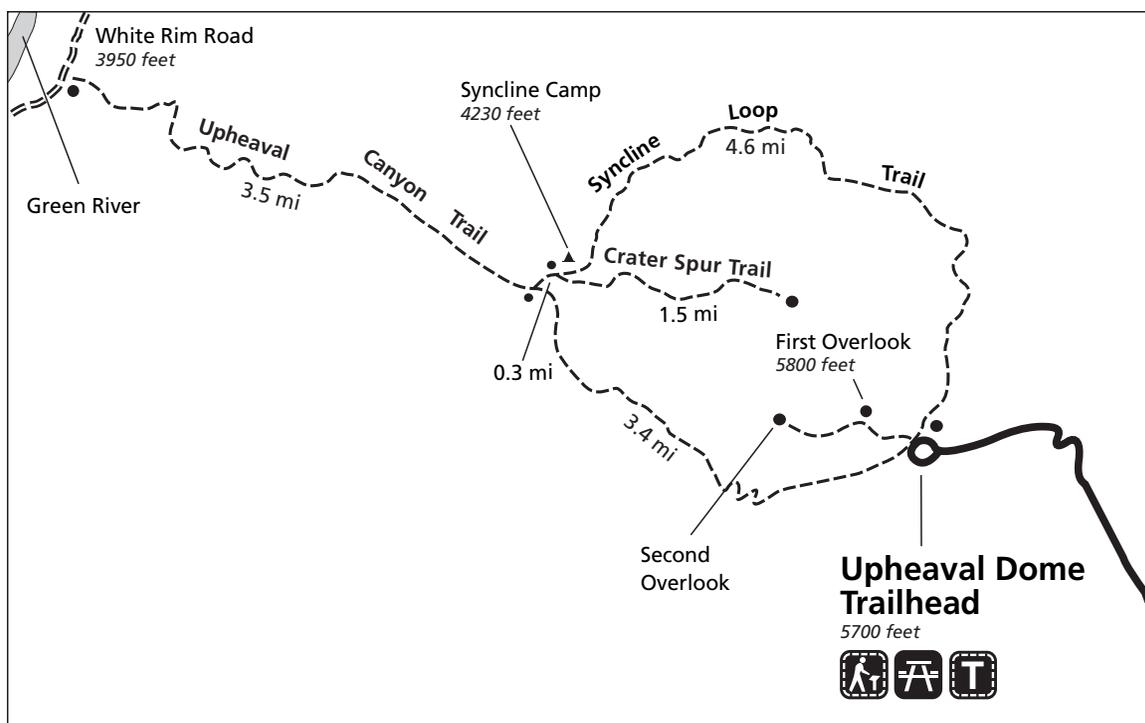
Trail Information

Upheaval Dome Trail

This trail leads to two overlooks, which offer the best views of Upheaval Dome. The First Overlook is a 0.8 mile (1.3 km) round-trip hike with an elevation change of 120 feet (37m) each way. Interpretive signs at the first overlook discuss the two main theories about Upheaval Dome. The Second Overlook is a 1.8 mile (2.9 km) round-trip hike with an elevation change of 200 feet (61m) each way, ending at a fenced overlook into the canyon. For Safety’s Sake: Do not build additional rock cairns or create new routes by walking through sandy areas. It may be fun for you, but deceptive to other hikers who may become lost or injured.

Syncline Loop Trail

This is a loop trail with a round-trip distance of 8.3 miles (13.3 km), and an elevation change of 1500 feet (~460m). This trail is very strenuous, often difficult to follow, and recommended for experienced hikers only. The trail has sections of steep terrain, some areas require scrambling, and is always uphill on the way out! Due to extreme temperatures and lack of water, hiking the Syncline Loop Trail is not recommended during July and August.



Upheaval Crater Spur Trail

This 1.5 mile (2.4 km) spur off the Syncline Loop Trail leads into, and dead-ends at, the center of Upheaval Crater. This side trip will add an additional 3.0 miles (4.8 km) to your total hiking distance, and 200 feet (61m) of elevation gain.

Upheaval Canyon Trail

This is a 3.5 mile (5.6 km) spur from the Syncline Loop Trail which leads to the White Rim Road via the sandy wash bottom of Upheaval Canyon. This route drops an additional 300 feet (91m).

Follow the rock cairns to stay on the trail and prevent getting lost; this will also protect fragile biological soil crusts. Paying attention to the trail route can make the difference between an enjoyable hike and an unplanned night out on the trail. If you feel you have lost the trail, don't keep hiking; instead, backtrack your own footprints to the last point where you knew you were on the trail and look closely for the next cairns. Hike intelligently. Remember, you are responsible for your own safety as well as that of everyone in your party.

Backcountry Safety

Be Prepared!

Don't overestimate your capabilities. Wear good hiking shoes. Always carry water and food and be sure to drink and eat. Hike with a buddy, tell a friend, or leave a note with your hiking plans. On longer hikes, bring a topographic map, compass, sun protection, and extra clothing (weather can change quickly). Always bring a lightweight flashlight to give yourself the option of hiking out after dark in the event that illness, injury, or enjoyment should slow you down.

Drink Often

Drink 1 to 2 gallons (4 to 8 liters) of water or sports drinks with electrolytes per person, per day. Do not wait until you are thirsty to start replacing fluids and electrolytes. By the time you feel thirsty, you are already dehydrated.

No Food, No Fuel, No Fun

Remember that it is important to eat as well as drink. Eat high energy foods and salty snacks on the trail. Food is your most important defense against exhaustion and water intoxication (hyponatremia). Eat before, during, and after your hike.

Wait for the Shade

Avoid hiking in direct sun. Temperatures in the sun may be 15 to 20 degrees higher than in the shade. Begin hiking at sunrise and seek shade between the hours of 10 a.m. and 2 p.m. Wear a hat and sunblock to protect yourself from sun exposure.

Take a Break!

Take a 5 minute break every half hour. Eat some food, drink some fluids, and enjoy the view. Efficient breaks will recharge you, and in the long run will not slow you down.

Be Kind to Yourself

Do not exceed your normal level of physical activity or training. If you have asthma, diabetes, heart, knee, back or other medical problems, limit your exertion and exposure to heat. Altitude, strenuous climbing, dehydration and extreme temperatures can make medical problems worse.

Heat Kills! Hike Smart!

Heat Exhaustion is the result of dehydration due to intense sweating. To prevent: Take breaks in the shade and avoid long hikes during the summer months or the heat of the day. Drink water and electrolyte drinks and eat food before, during, and after your hike. If not treated, heat exhaustion can progress to heat stroke, a life-threatening emergency. Hyponatremia (water intoxication) is also a life-threatening emergency. To prevent: drink electrolyte drinks as well as water, and eat salty snacks during your hike. In cold and/or wet weather, avoid hypothermia by wearing layered clothing and being prepared for bad weather. Eat and drink often. Check the local weather and trail conditions before your hike.