

Hot Spring

A Hot Spring, also known as a geothermal spring is a naturally occurring spring of water that emerges due to heated groundwater. The heat produced is either through the magma within the Earth's crust or through the movement of fault in the crust.



In this article, we shall discuss what is hot springs along with key facts about these hydrothermal or geothermal spring, from the [IAS Exam](#) and other competitive exam perspectives.

Given below are other important related links in line with the UPSC Syllabus for the reference of candidates:

The Origin And The Evolution Of Earth	Structure Of the Earth
Inside Our Earth	Types Of Rocks

Key Facts on Hot Spring

- A Hot Spring is a naturally occurring spring of water that is hotter than 98 degrees Fahrenheit (36.7 degrees Celsius) when it flows from the ground
- The temperature of this water remains high even during the winter season when the land is covered with ice and snow

- Hot Spring can be used by human beings for various purposes, based on their temperature
- There are minerals present in the water released by Hot Spring
- Hot springs often host communities of microorganisms adapted to life in hot, mineral-laden water. These include extremophile that thrives at high temperature
- **What is Geyser - Hot Spring?**
 - A jet of steam and hot water that immediately spouts out of the ground is known as Geyser. It results from the heating of groundwater by shallow bodies of magma.
 - As water is ejected from geysers and is cooled, dissolved silica is precipitated in mounds on the surface. This material is known as sinter.
- **What are Mud Pots - Hot Spring?**
 - When the water in a hot spring mixes with dirt or clay before it reaches the surface, the spring is called a mud pot

How is Hot Spring Formed?

When the rainwater or the groundwater heats upon coming in contact with the rocks that have been heated by magma, deep beneath the Earth's surface, Hot Spring is formed. This form of geothermal spring generally occurs in areas near volcanic activities.

Formation of hot spring is also possible in areas with no volcanic activities. This happens when rainwater flows into the ground and is heated by the radioactive decay of elements present in the rocks and soils that it flows through.

To learn more about [Volcanoes](#), their formation and their different types, visit the linked article.

How Hot Spring is useful for Human Beings?

- Hot Springs are **tourist attractions** in countries where they are present
- Due to the **presence of dissolved minerals** in the water formed through Hot Spring, it also holds therapeutic uses. It also has medical attributes
- Many **Hot Springs have been converted into rehabilitation centres for disabled persons**
- Also, **beneficial for animals during the extremely cold season**. As animals find heat near these sprouts.

How is Geothermal Spring dangerous?

However, not all Hot Springs can be used for human purposes due to their high temperature which is not suitable for living beings. Also, the naturally occurring chemical in springs close to volcanic activities can cause severe burns on the skin.

Hot Spring In India

India comprises numerous natural hot water springs which have naturally emerged from the geothermal forces beneath the Earth's surface. With dissolved chemicals and medicinal properties, Hot Springs are present in various parts of the country. Given below are a few of the springs in India:

State/UT	Name/ Location
Ladakh	<ol style="list-style-type: none"> 1. Panamik, Nubra Valley 2. Chumathang
Himachal Pradesh	<ol style="list-style-type: none"> 1. Kheerganga 2. Kasol, Parvati Valley 3. Manikaran Sahib Shrine on banks of River Parvati 4. Vashisht 5. Tattapani
Uttarakhand	<ol style="list-style-type: none"> 1. Gaurikund 2. Rishikund 3. Suryakund 4. Tapovan 5. Sahastradhara
Sikkim	<ol style="list-style-type: none"> 1. Yumthang 2. Reshi Hot Springs
Orissa	<ol style="list-style-type: none"> 1. Taptapani 2. Atri
Maharashtra	<ol style="list-style-type: none"> 1. Aravali Hot Water Springs 2. Akoli
Madhya Pradesh	<ol style="list-style-type: none"> 1. Dhuni Pani
Meghalaya	<ol style="list-style-type: none"> 1. Jakrem

There are various other Hot Springs present in the country with medicinal, spiritual or other historical attributes.

Latest Updates on Hot Spring

- In August 2020, the Wadia Institute of Himalayan Geology, an autonomous institute under the Department of Science & Technology, Govt. of India investigated and characterised the gas emissions from the Himalayan water springs.
 - The **Himalayan geothermal springs which cover about 10,000 square km in the Garhwal region of Himalaya show a significant discharge of carbon dioxide-rich water.**
- The Himalayas alone, host about 600 geothermal springs having varied temperature and chemical conditions and their role in regional and global climate, as well as the process of tectonic driven gas emission, needs to be considered while estimating emissions to the carbon cycle and thereby to global warming

- The study published by the Institute also suggests that CO_2 in these thermal springs are sourced from metamorphic de-carbonation of carbonate rocks present deep in the Himalayan core along with magmatism and oxidation of graphite