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**ЗАПОВЕДНАЯ
РОССИЯ**

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**KRONOTSKIY
RESERVE**



VALLEY OF THE GEYSERNAYA RIVER

Valley of the Geysernaya river is located 180 km northeast of the city of Petropavlovsk-Kamchatsky, in the Kronotskiy state natural biosphere Reserve.

It was discovered by the employees of the Kronotskiy Reserve, the geologist Tatyana I. Ustinova and the observer Anisifor P. Krupenin. April 14, 1941 in the valley of the Shumnaya river researchers discovered a geyser, later named Pervenets which met them with a fountain of boiling water.

The first time scientists went down to the Valley of Geysers was July 25, 1941.

It is a gorge up to 4 km wide, 400 m deep and 8 km long in which flows the Geysernaya River. It is a canyon with an area of about 6 square km with many thermal springs and no less than 57 geysers.

You can observe all known forms of hydrothermal activity here - permanent and pulsating springs, geysers, mud and water pots, warm lakes, fumaroles.



Vitrazh –

slope on the left bank of the Geysernaya River, where there are 8 large geysers – Dvoynoy, Nepostoyanny, Fontan, Novy Fontan and Grot, as well as dozens of small geysers, springs and steam jets.



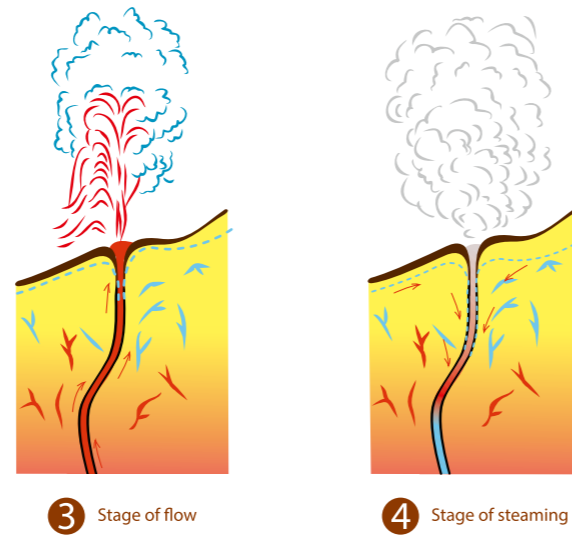
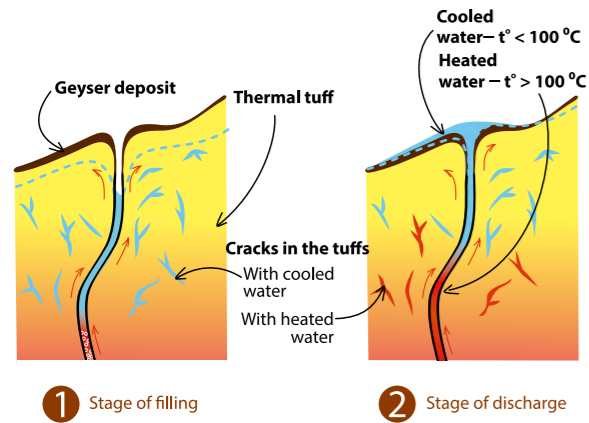
MOVING ALL THE TIME

The valley of the Geysernaya River is a very dynamic system. Over the past ten years its appearance has changed dramatically twice. On June 3, 2007 a landslide occurred on one of the sides of the valley. The mudstone mass formed a 50 meter high dam which blocked the flow of the Geysernaya river. The total volume of collapsed rocks was 20 million cubic meters. As a result Podprudnoe Lake was formed and remained filled for four days. Seven geysers were under the landslide and many others were damaged or flooded. The Podprudnoe Lake became not only a new feature of the Valley of Geysers, but also a habitat for waterfowl to rest on this warm lake.

On January 4, 2014 another sill flow passed along the Geysernaya riverbed and broke through the dam so the lake then practically disappeared. The sill flow has damaged several geysers and hot springs, including the largest geyser Velikan.



Stages of geyser activity



HYDROTHERMAL SYSTEM OF THE VALLEY OF THE GEYSERNAYA RIVER

Underground waters are warmed by cooled magmatic bodies (intrusions, sills and dikes) to 200-300 °C. Approaching the surface they mix with cold water, lose steam and cool down to a the temperature of 100 °C or lower. Hot water tends to flow upward due to the thermal artesian pressure. The final result is the discharge at the surface to create geysers, springs, and water and mud post.

The hydrothermal system of the valley of the Geysernaya River is one of the most powerful in Kamchatka in terms of heat transfer. It was formed about 20-30 thousand years ago. Conditions for discharging geysers appeared about 5-6 thousand years ago.

IN THE VALLEY OF THE GEYSERNAYA RIVER THERE ARE:

200 geysers and boiling springs



42 big and known geysers



6 mud pots



Geysers of Geysers Veikhan

Geysersite is a subsurface rock composed of earth silicon. Deposited from the thermal waters, it forms the structure of a geyser. The color, structure, shape and size of the geysersite structure of the sources are individual

WHAT IS GEYSER?

A geyser is a boiling spring, which periodically erupts hot water and steam. The eruption does not exactly look like a classic vertical fountain – it can be an inclined jet of a steam and water mixture. The fundamental difference between a geyser and a constantly acting spring are the eruptions between periods of complete rest.

For the activity of the geyser, it is necessary to have a channel discharging to the surface, an inflow into the channel of super-heated water, and a cyclic inflow of carbon dioxide.

The coincidence of the above conditions in nature is rare. Therefore, geysers are the unique phenomenon. There are only six major known geyser regions in the world: Yellowstone (Wyoming, USA), Whakarewarewa Thermal Park in Rotorua (North Island, New Zealand), Haukadalur Valley (Iceland), El Tatio (Chile), Yanbatsin (Tibet, China) and Valley of Geysers in Russia. The Valley of Geysers occupies the second place in the world in terms of the number of geysers after Yellowstone National Park.



LIFE IN EXTREME ENVIRONMENT

About 300 plant species, almost a third of the entire flora of the peninsula, have been identified in the valley of the Geysernaya River. Abnormally heated areas are inhabited by special thermal species, eight of which are rare and endangered species. These are Adder's tongue, ladies'-tresses, Fimbristylis dichotoma, Neolindleya camtschatica and others. Aristate orchid or orchis, a beautiful wild orchid with purple flowers and mottled leaves, decorates the Valley.

Here, in the areas warmed by the springs, the first green appears in early April. The vegetation attracts the bears after hibernation so they can feed to restore the reserve of vitamins used during the winter. In order not to disturb animals and not endanger visitors, a month of silence is introduced every year in the Valley - a period when the Reserve has restrictions on visiting of the territory by tourists.

Unique to this area of steaming springs, the Erman's birch (*Betulaermanii*), which is about 300 years old, was awarded with the status of «Nature monument» in 2011. The camp of the discoverers of this «Miracle of Russia», T. I. Ustinova and A. P. Krupenin, was located here in July 1941.

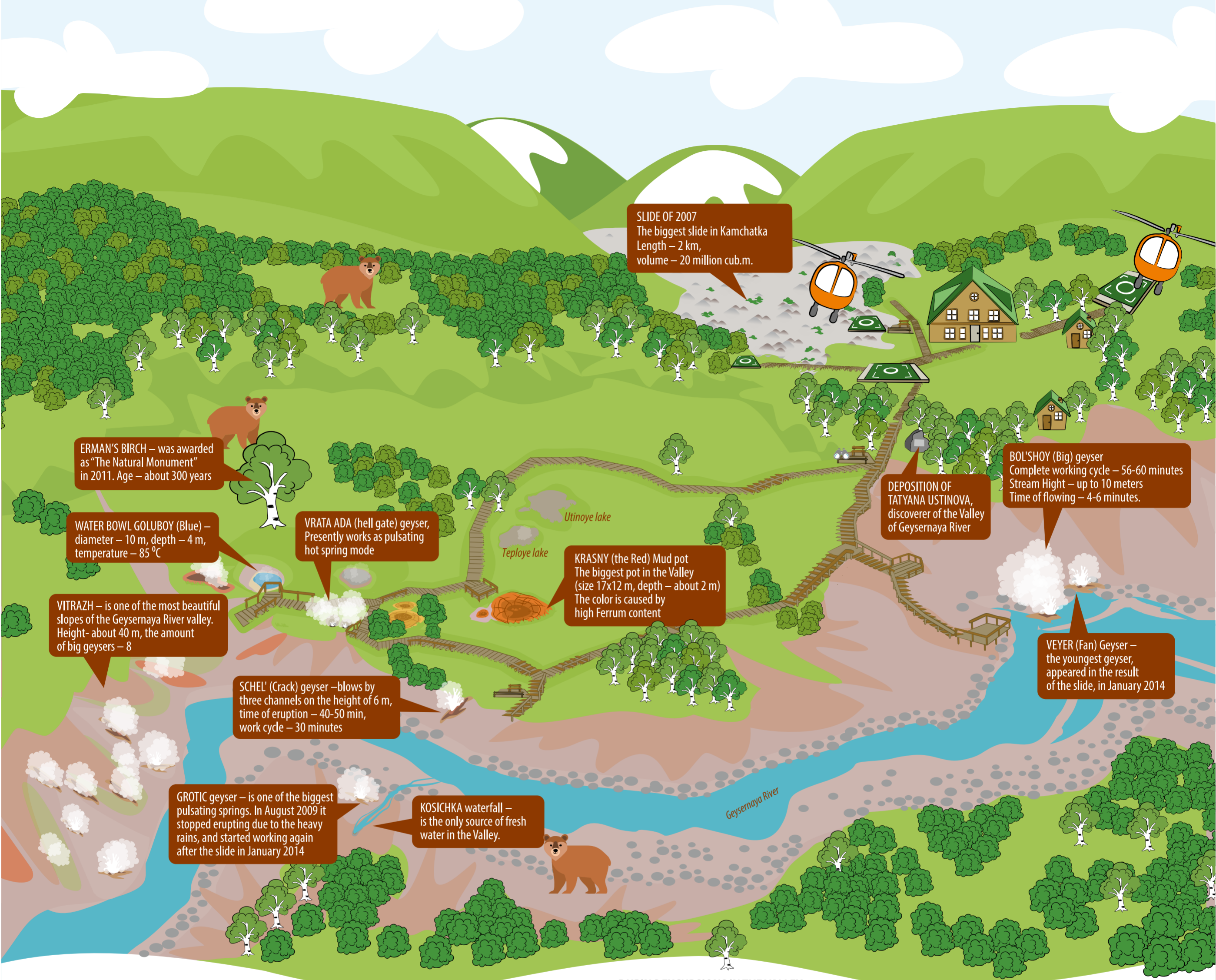


FILMS AND GEYSERS

Several films were shot in the Valley of Geysers including:

- In the world of Spitfire Mountains (1946, popular-science film)
- Give me the Complaint Book (1965, feature film)
- Sannikov's Land (1973, feature film)
- Where the Spring Overwinters (1979, popular-science film)
- The Pearl on the Ocean Shore (1983, documental film)
- Valley of Geysers (2008, documental film)
- Land of Bears (2013, documental film)

Every year crews of leading Russian TV channels and foreign documentaries work in the Valley of the Geysernaya River.



SLIDE OF 2007
The biggest slide in Kamchatka
Length – 2 km,
volume – 20 million cub.m.

ERMAN'S BIRCH – was awarded as "The Natural Monument" in 2011. Age – about 300 years

WATER BOWL GOLUBOY (Blue) – diameter – 10 m, depth – 4 m, temperature – 85 °C

VRATA ADA (hell gate) geyser, Presently works as pulsating hot spring mode

VITRAZH – is one of the most beautiful slopes of the Geysernaya River valley. Height- about 40 m, the amount of big geysers – 8

SCHEL' (Crack) geyser –blows by three channels on the height of 6 m, time of eruption – 40-50 min, work cycle – 30 minutes

KRASNY (the Red) Mud pot
The biggest pot in the Valley (size 17x12 m, depth – about 2 m)
The color is caused by high Ferrum content

DEPOSITION OF TATYANA USTINOVA, discoverer of the Valley of Geysernaya River

BOL'SHOY (Big) geyser
Complete working cycle – 56-60 minutes
Stream Height – up to 10 meters
Time of flowing – 4-6 minutes.

VEYER (Fan) Geyser – the youngest geyser, appeared in the result of the slide, in January 2014

GROTIC geyser – is one of the biggest pulsating springs. In August 2009 it stopped erupting due to the heavy rains, and started working again after the slide in January 2014

KOSICHKA waterfall – is the only source of fresh water in the Valley.

Trip is available for people of all ages without special physical training, who are enthusiastic and inquisitive.

0+ **5-6 h.** **-2.5 h.**

We recommend taking with you some bug repellent for protection from mosquitoes and flies, and binoculars for observing animals.

The Visitor Center is open for visitors, where you can buy prints and souvenirs.

BEHAVIOR RULES

So, you are in Kronotsky Reserve, in the valley of the Geysernaya River, a kingdom of wild nature without a human being around. You are a guest here, and for the animals and birds - an uninvited guest. Entering someone else's house, be polite, follow a few simple rules, and we will preserve the unique nature of this area together! All excursions on the territory are made only in the company of the employees of the Reserve and following their requirements is compulsory for visitors.

Believe us, there are two equally important reasons for restrictions and prohibitions: the safety of plants and animals and, of course, your own safety.

DURING EXCURSIONS IN THE VALLEY OF GEYSERS GUESTS ARE NOT ALLOWED TO:

- go away from excursion trails and walk with no company of reserve employee;
- damage touristic infrastructure;
- collect plants and mushrooms – do not forget that you are in the nature reserve;
- bring any pets with you;
- leave garbage;
- use air drones without agreement with the administration of the Reserve.

