

# Various Erosion Control Facilities and Monitoring Equipment for Mt. Tokachi.

If the scale of the volcanic mudflow is large enough, it cannot be contained with a single, large dam. A host of facilities have been set up along the Biei and Furano Rivers (and their tributaries) as shown below. While none of the facilities are particularly large, each plays a vital role. Some smaller facilities are built side-by-side to amplify their important role in protecting the area.

## Training Dikes

These prevent mudflows from spreading by directing them to waterways that have dams or have been otherwise reinforced through consolidation work



A training dike built on Iousawa, a tributary of the Biei River

## Sabo Dams (Permeable Type)

These dams are primarily for halting the flow of large rocks and driftwood



Furano River Sabo Dam (permeable type) No. 2  
\*Asahikawa Construction Management Division

## Sabo Dams (Non-Permeable Type)

These dams collect downstream sediment.



Biei River Sabo Dam No. 8



Biei River Sabo Dam No. 5

## Block Sabo Dams

These dams are constructed quickly when the threat of volcanic mudflow is imminent



Furano River Block Dam No. 2 is constructed of multiple stacked blocks

## Channel Works

Channel work is construction to prevent overflow as well as riverbed and riverbank erosion by guiding mudflows safely downstream.



The Tokachidake Channel Works constructed at Shirogane Hot Springs

## Consolidation Works

Consolidation work is reinforcements that prevents erosion of the riverbed and riverbank and keeps sediment from flowing downstream.



Consolidation work to prevent erosion upstream on the Furano River  
Photo courtesy of Asahikawa Civil Engineering Office

A variety of observation equipment is installed around Mt. Tokachi. With this equipment, we monitor changes in the mountain that are invisible to the human eye, detect earthquakes and tremors and monitor both eruptions and mudflows.

## Surveillance Cameras

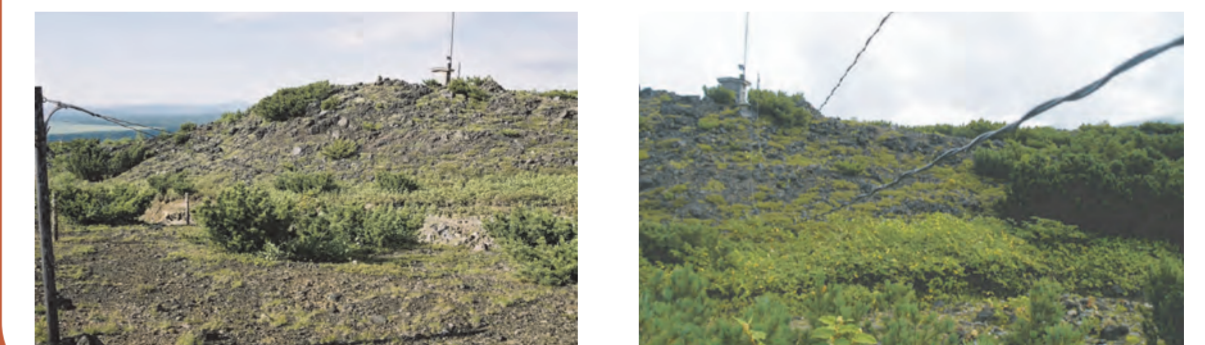
These cameras constantly monitor Mt. Tokachi for fumes and mudflows.

The towers are also equipped with gauges to measure precipitation, accumulation and snow depth.



## Wire Sensors

Wires with a weak current are run across swamps. When mud flows, it snaps the wires, which immediately sends notification to the base of the mountain.



## Global Positioning Systems

These sensors monitor the expansion and contraction of mountains invisible to the human eye. Distance is measured via satellites.



## Infrasound Meters

Infrasound meters detect vibrations in the air. At night or in bad weather when the crater of the volcano isn't visible, these meters inform us that an eruption has occurred.



They are housed in casing, so it might be hard to tell what they are.

## Seismometers

These catch earthquakes both large and small as well as the continuous vibration (tremors) that indicates underground magma, volcanic gas and hot water activity.



Photo courtesy of Asahikawa Local Meteorological Office