

Bishu Biken Yamanashi

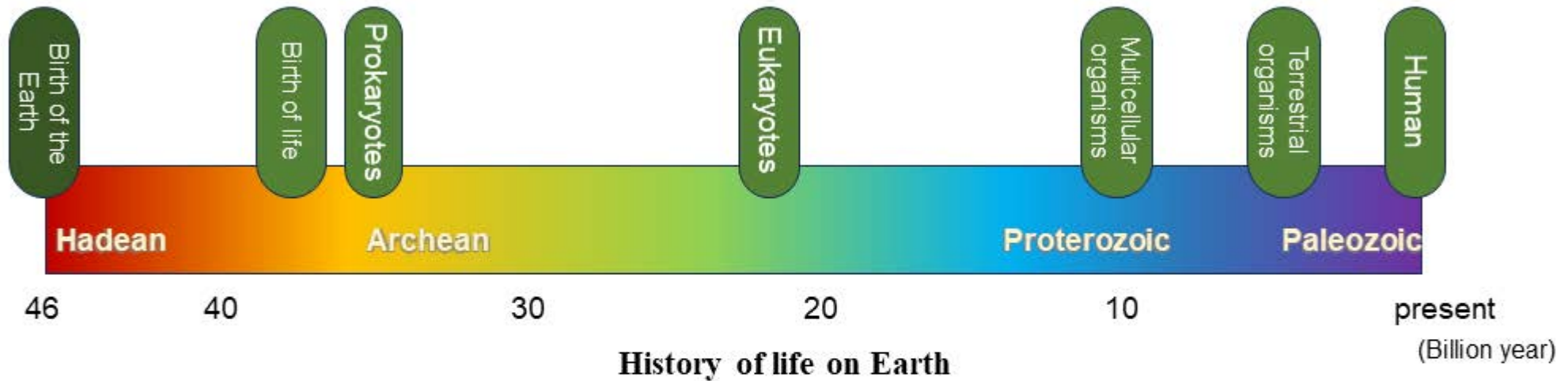
Survey Team Report

Illustrated materials

June 25, 2024

Dank Co., Ltd.

Alcoholic fermentation is a memory of the early days of life history



Anaerobic photosynthesis

Carbon dioxide + Hydrogen + Solar Energy
→ Glucose (carbohydrate) + Water

Glucose fermentation

Glucose → **ethanol** + carbon dioxide + 2ATP

respiration

Glucose + Oxygen → Carbon Dioxide + Water + 36ATP

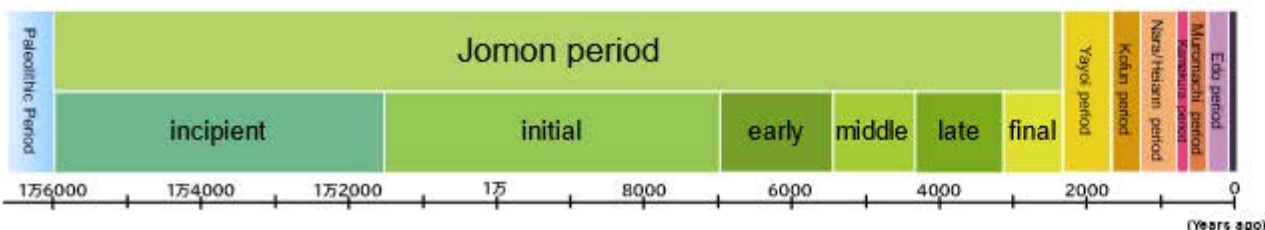
Is Yamanashi the origin of Japan's sake culture?

During the Jomon period, the Chubu Mountains (Yamanashi and Nagano) were places where people and things intersected.

Obsidian, the oldest brand in Japan, was brought to various parts of Japan as a material for the finest arrowheads.

When you look at the earthenware and clay figurines of Venus depicting humans and animals living in the forest made in the village at the foot of the mountain, you will be amazed by the high artistry of the Jomon people, and you can feel close to the Jomon people, who prospered due to the blessings of obsidian and mountains.

(From the Japan Heritage Portal Site)



Origin and distribution of obsidian
(Obsidian Museum, Ngawa Town, Nagano Pref.)

黒耀石の原産地

切れ味のよい石器の材料として人気が高かった天然ガラスの黒耀石
限られた原産地から遠い道のりを経て各地へと運ばれていきました

黒耀石は火山から噴き出した溶岩が、かたまってできた天然のガラスです。割れ口が鋭く加工しやすいことから、切れ味のよい石器の材料として利用されてきました。

火山の多い日本列島でも、黒耀石ができた山は、その場所が限られています。なかでも長野県の麓ヶ谷から八ヶ岳にかけての地域は、質の良い黒耀石がたくさんとれる原産地として知られています。そして、この長野県産の黒耀石は、数万年前の奥、利用されつづき、関西から北海道の広い範囲に流通していたことがわかっています。

キラキラ光る黒耀石、この黒耀石を産みだした山の近くには、なぜか“黒”の文字がつく地名が特徴的にみられます。下諏訪町の“黒ヶ谷”“黒ヶ台”。そして、いつの間からでしょうか、長野町の麓山地区にある原産地には“黒耀村”という地名が思い伝えられてきました。



How did animism and Gods originate?



Clay figurines excavated from the Shakado Ruins
(Shakado Ruins Museum)

*The Jomon people had
a pre-religious view of animism*



Miss Ishinotsubo (Nirasaki Folk Museum)

The unique artistry of the Jomon period and the origin of sake

があくどけの浅鉢形のものが見られ、前期末には口縁部の下に「野」がつくものが出現します。その後、バリエーションが増え、中期後半になると、関東地方で注目が付いたものが登場し、次第に口縁部の穴がなくなっていくという急激な変化が観察されます。

This type of rim and body shows the rim flange and a wide shape that was developed mainly in the Central Highlands region. Directly under the rim of the mouth, there are several small perforations, and the brim developed into a protruding shape. There are several theories regarding the possible uses of this vessel based on these unique shapes, but the most likely theories are that it was a drum and that it was used in the making of alcoholic beverages (sake). Looking at the changes these shapes underwent, we see that in the latter half of the Early Jomon period (approximately 6,000 years ago), there were shallow bowls that had perforations only around the rim of the mouth, while at the very end of the Early Jomon period, brims appear underneath the rim of the mouth. Subsequently, the amount of variation increased so much that in the latter half of the Middle Jomon period, spouts for pouring appear on vessels found in the Kanazawa region, which were followed by "pocket vessels" that lacked the holes around the rim of the mouth and were shaped like modern-day teapots.

が確立されていたために受容されなかったといわれています。酒造実験も行われ縄文時代の酒造についても考察されています。酒果酒は主にヤマブドウやワイルドナシ、ゴツゴツの実などを使用し、土器内でより濃く野生酵母によって醸成されたものと推定されています。

Based on the possibility that pots with a brim and perforations around the rim may have been used in the making of alcoholic beverages, it is believed that these vessels were related to festivals that were held during the Jomon period. The fact that no examples have been unearthed in places such as western Japan is thought to be due to the fact that they were not accepted because there were already traditional sake brewing methods in use in those regions. Experiments have been conducted to better understand how alcoholic beverages were made in the Jomon period. Fruit wine was made primarily using fruits such as wild grapes, a type of kiwi (*Actinidia arguta*), and elderberry. These fruits were mashed in a clay vessel and fermented using wild yeast. After about one week, the wine was ready to drink. Compared to wine made using modern methods, the wine of the Jomon period was not as sweet and contained less alcohol.

酒造
実験

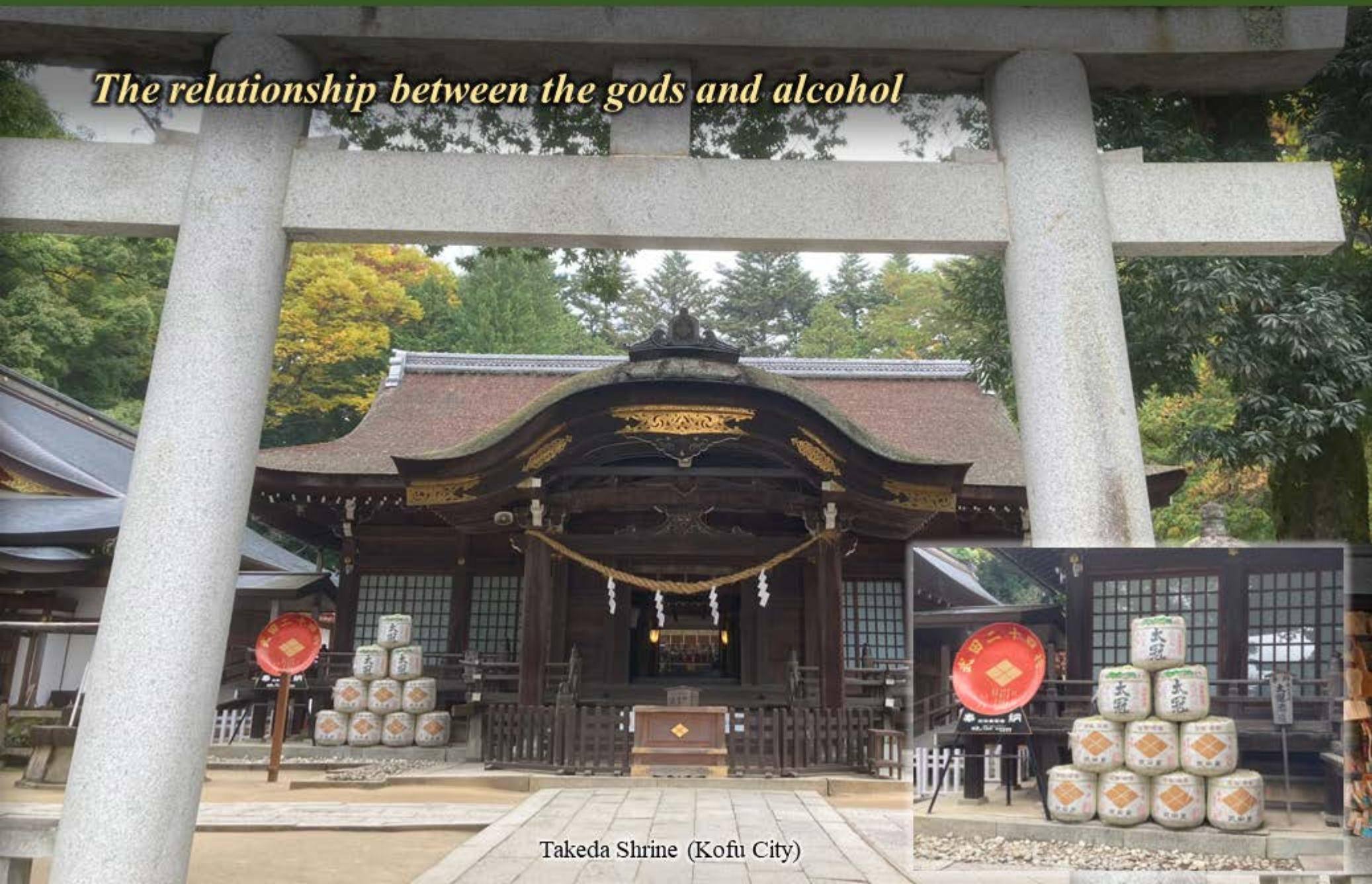
酒造実験には主にヤマブドウやワイルドナシ、ゴツゴツの実などを使用しました。土器内でより濃く野生酵母によって醸成させた。1週間程度で熟成します。これは現代のワイン醸造用ブドウを使用したワインと比べると糖度もアルコール度も低いものです。

For the berry liquor, wild grapes were mainly used. When fermented with wild yeast, it has a lower sugar and alcohol content than wine grapes.



Perforated flange type earthenware (Yamanashi Prefectural Archaeological Museum)

The relationship between the gods and alcohol



Takeda Shrine (Kofu City)

Jomon people migration to Fossa Magna



North Alps

Central Alps

South Alps

Fossa Magna

Mt. Yatsugatake

Kanto Mountains

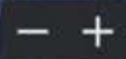
Yamanashi Pref.

Mt. Fuji

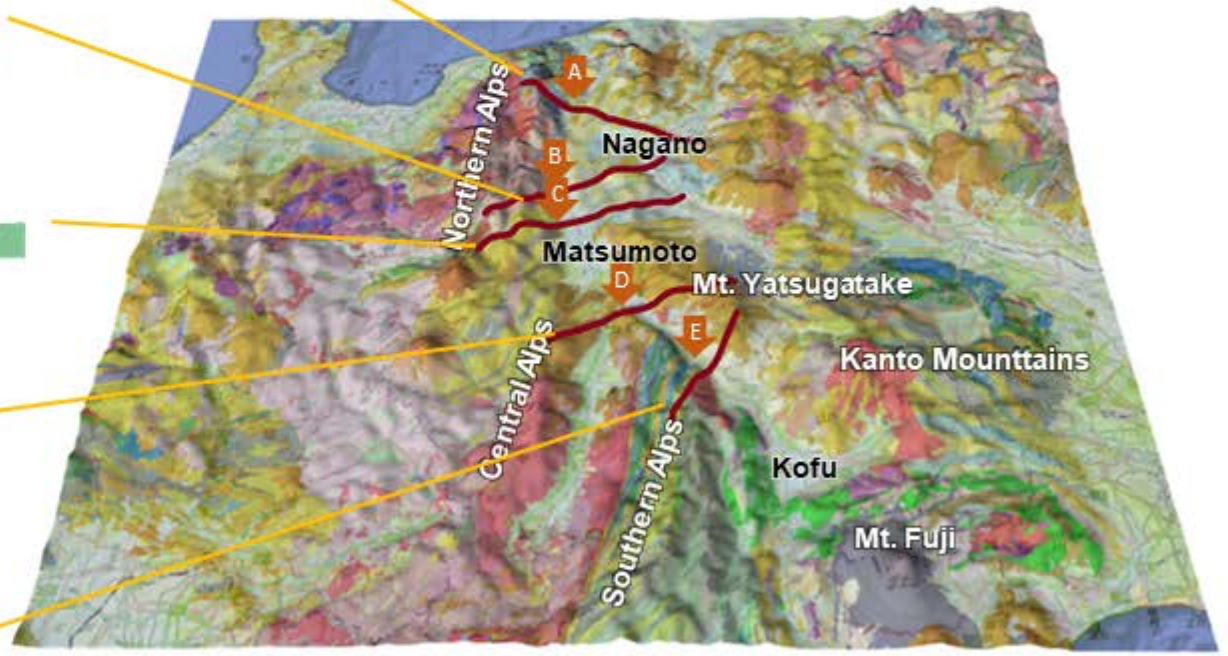
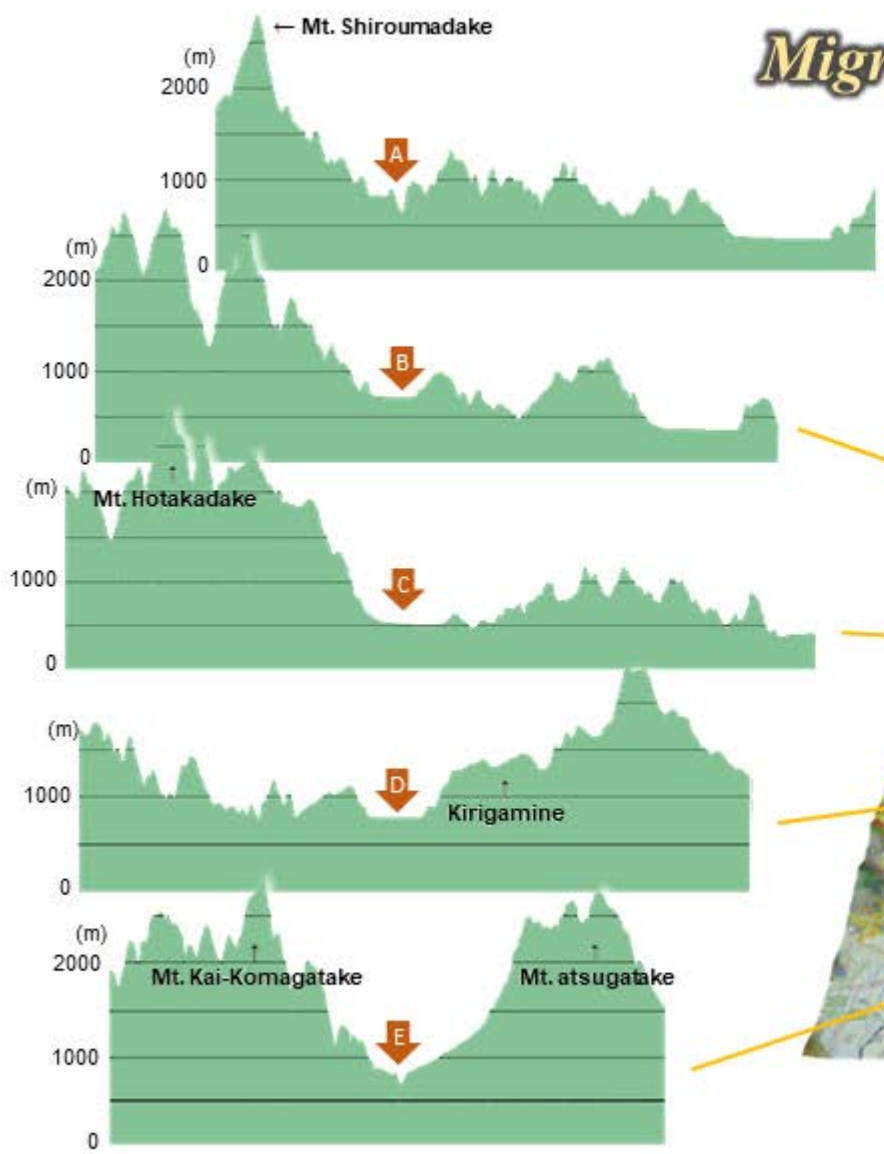
Itoigawa-Shizuoka Tectonic Line



2D



Migration of the Jomon and Japanese peoples to Fossa Magna



The Great Rift Valley across the Japan Archipelago, Fossa Magna with the Itoigawa-Shizuoka Tectonic Line as its western edge



Hirasawa pass
 — The place that inspired Fossa Magna

フォッサマグナ発想の地
 — 平沢からの眺め —

日本列島は東西に弓なりに地形が形成されています。そこには大きな溝状の地質構造が走っていますが、それを「フォッサマグナ」といいます。その命名者がエドムント・ナウマン博士（ドイツ人、一八五四～一九二七）です。ナウマン博士は、一八七五年から三回の旅行を行い、その結果を「一八八五年の論文（日本群島の構造と起源について）」において、「グロッセル・グラベン（大きな溝）」として説明し、翌一八八六年に名称を「フォッサマグナ」としました。

第一回の旅行は、一八七五年（明治八年）十一月に行われ、そのときに平沢を訪れたナウマン博士は、ここから赤石山脈（南アルプス）を眺めた景色をきっかけに、フォッサマグナを考えました。

抜粋（ナウマン博士の紀行文より）

朝になって驚いたことに、あたりの景色は前日歩き回ったときは全く一変していた。それはまるで別世界に置かれたような感じであった。私は幅広い低地に面する峰に立っていた。対岸には、三〇〇〇mあるいはそれ以上の巨大な山々が重畳してそびえ立っていた。その急な斜面は鋭くはつきりした直線をなして低地へ落ち込んでいた。（中略）そのとき私は、自分が著しく奇妙な地形を眼前にしていることを十分に意識していた。



View of Mt. Yatsugatake from Mt. Hinata

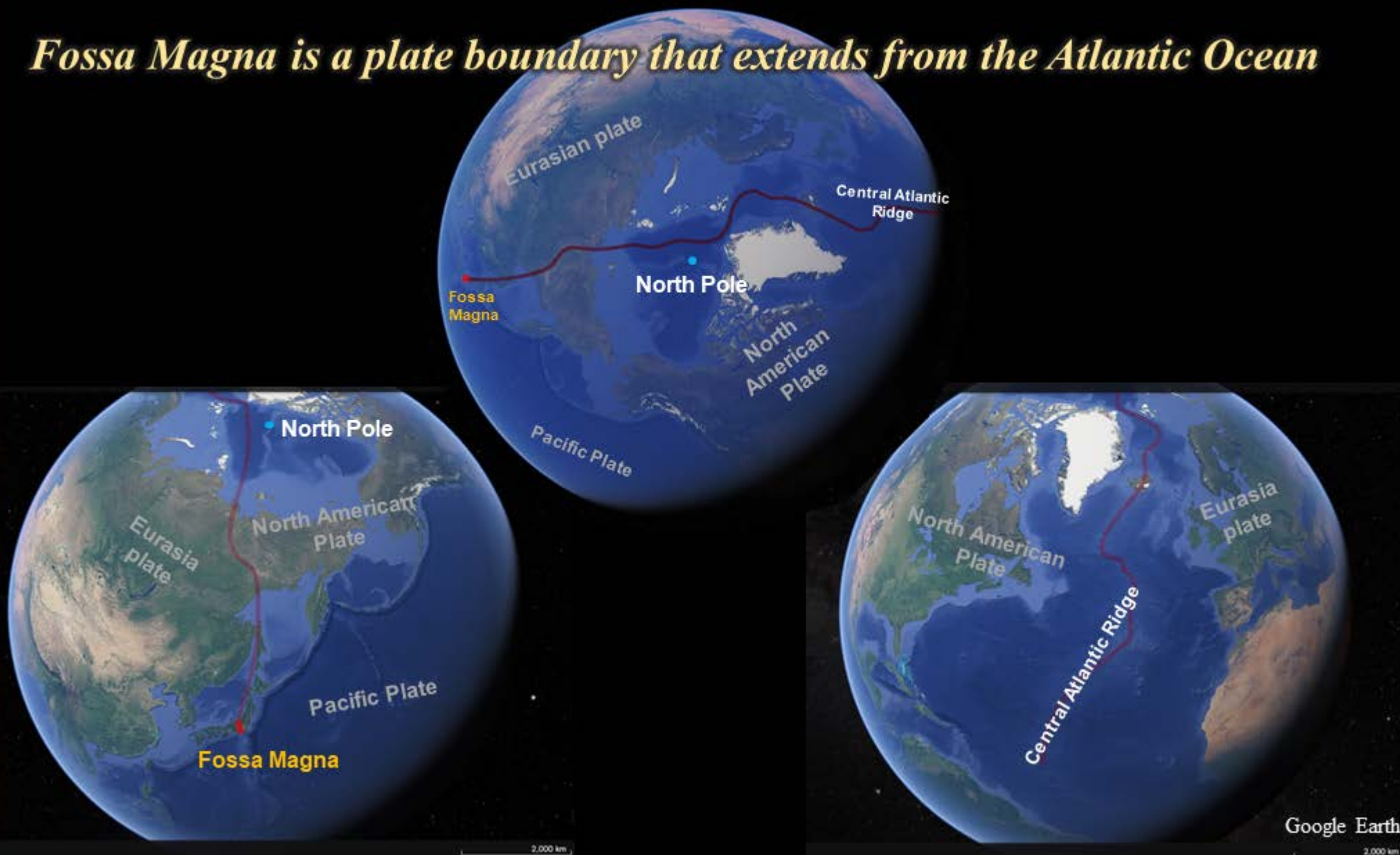


View of Mt. Kai-Komagatake from the Kinsei ruins



Kofu Basin, Misaka Mountains, Mt. Fuji (from Nirasaki Plateau)

Fossa Magna is a plate boundary that extends from the Atlantic Ocean

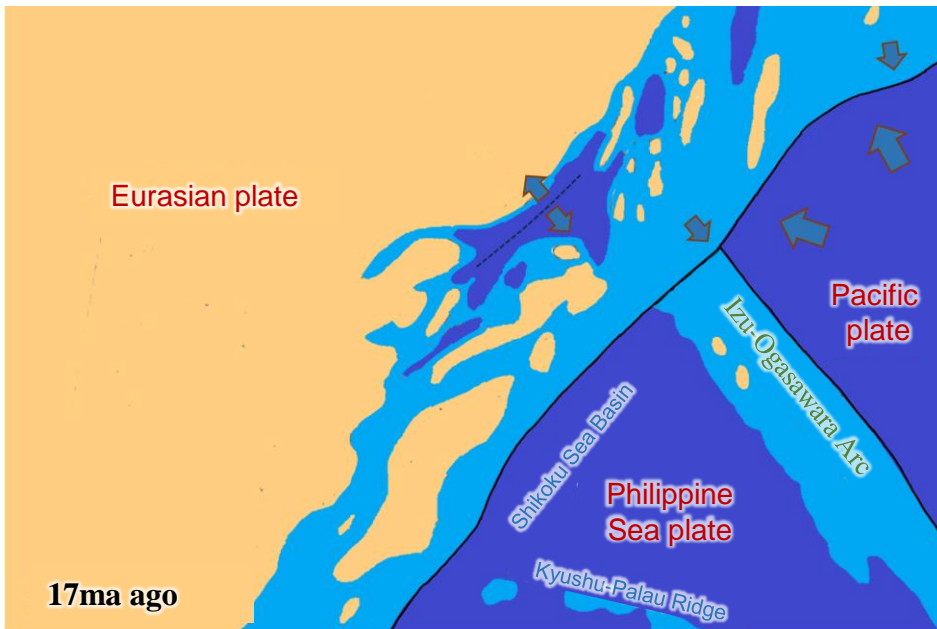
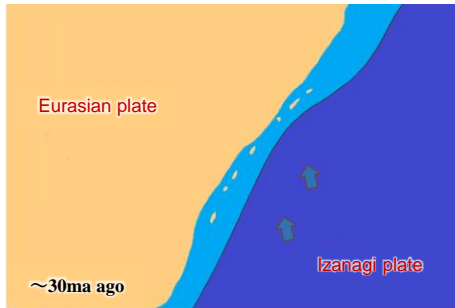


"Fossa Magna" - The Great Cloister of the Jomon

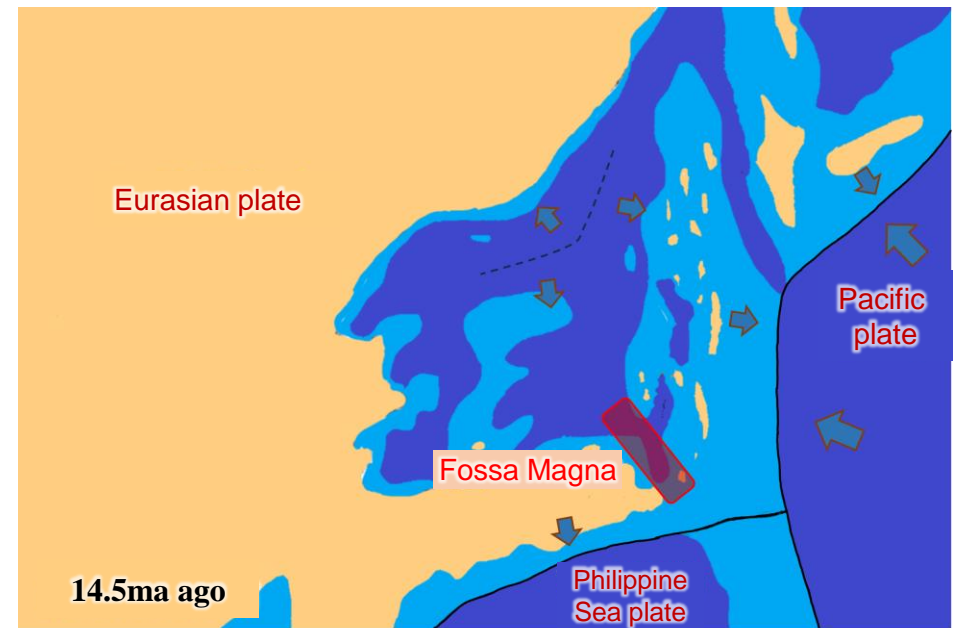
Yamanashi Pref.

Expansion of the Japan Sea and the formation of Fossa Magna

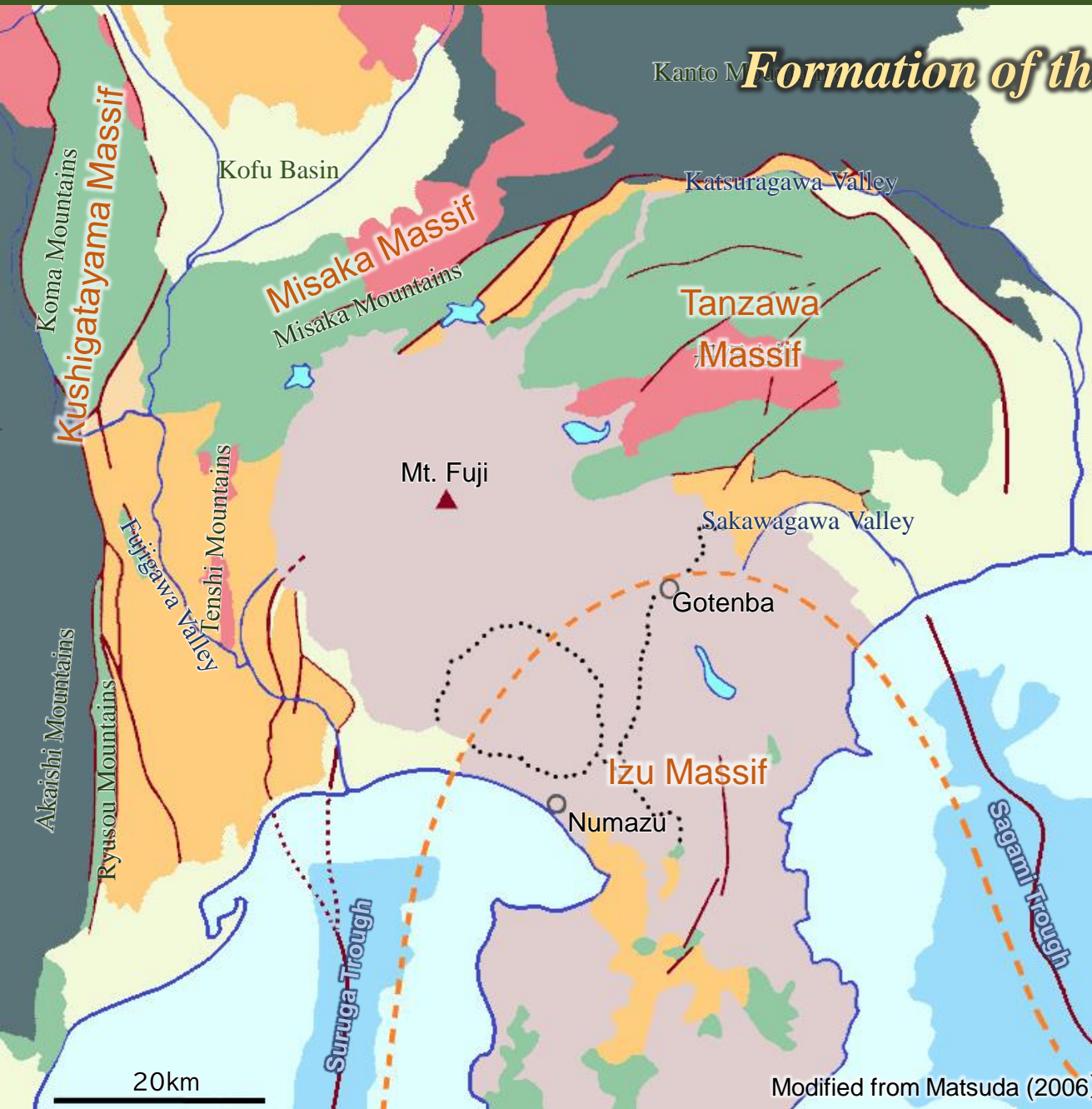
- (1) The Japan archipelago, which was part of the Eurasian continent, separated from the continent with the expansion of the Sea of Japan, which began around 22 million years ago.
- (2) By about 15 million years ago, northeastern Japan rotated counterclockwise, and southwestern Japan moved in parallel in a southeasterly direction. As a result, the Great Rift Valley (Fossa Magna) was formed between northeastern Japan and southwestern Japan.



- (1) The Japan archipelago is separated from the continent to form the Sea of Japan.



- (2) With the expansion of the Sea of Japan, the Great Rift Valley (Fossa Magna) is formed.



Formation of the southern Fossa Magna

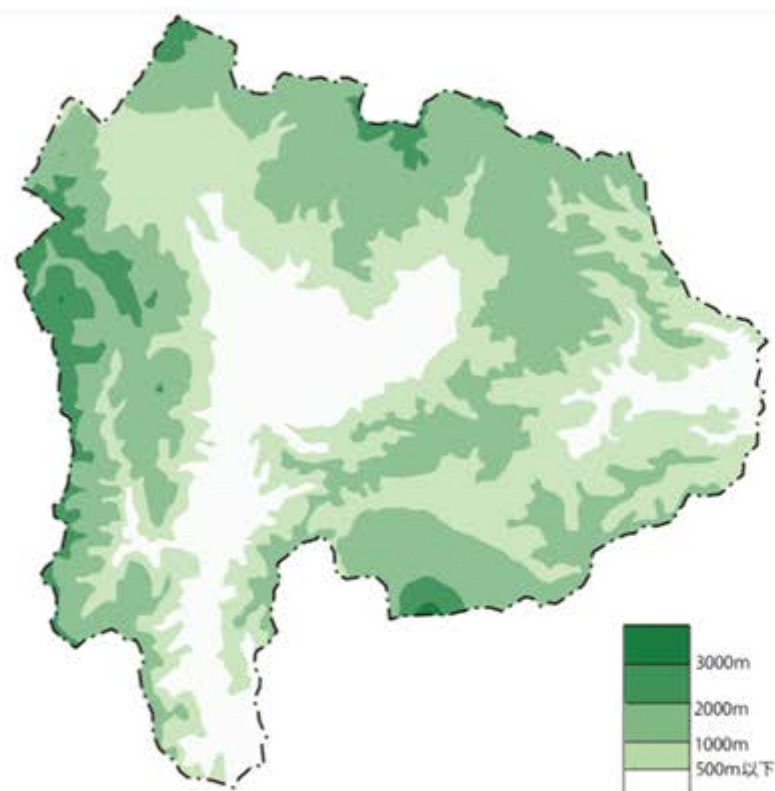
Fossa Magna has a different geological appearance in the north and south.

The northern Fossa Magna is a tectonic movement related to the cracks associated with the formation of the Sea of Japan, and the southern Fossa Magna can be said to be a zone formed by volcanic island collisions.

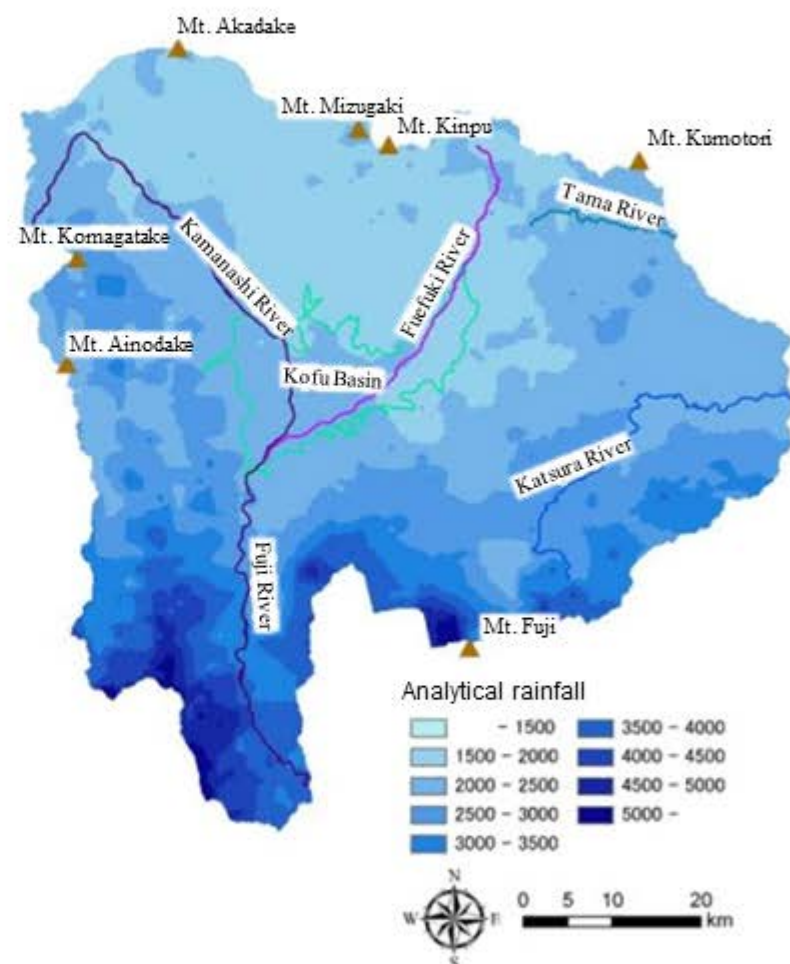
The Tanzawa Mountains-Misaka Mountains-Koma Mountains were incorporated by a group of former volcanic islands on the Philippine Sea Plate that collided with the Honshu arc (Collision Accretion).

- Quaternary Sedimentary Rocks
- Quaternary Volcanic Rocks
- Pliocene - Middle Miocene Sedimentary Rocks
- Pre middle Miocene Collision Accretion
- Miocene Granites, quartz Diorites
- Pre Neogene accretion Prism (Shimanto Belt)

Topography and climate in Yamanashi

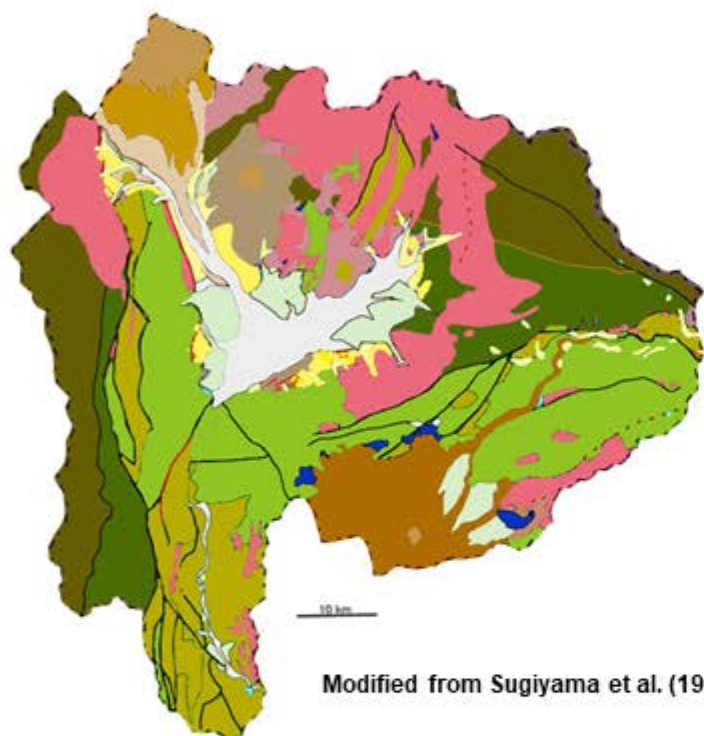


Elevation distribution of Yamanashi

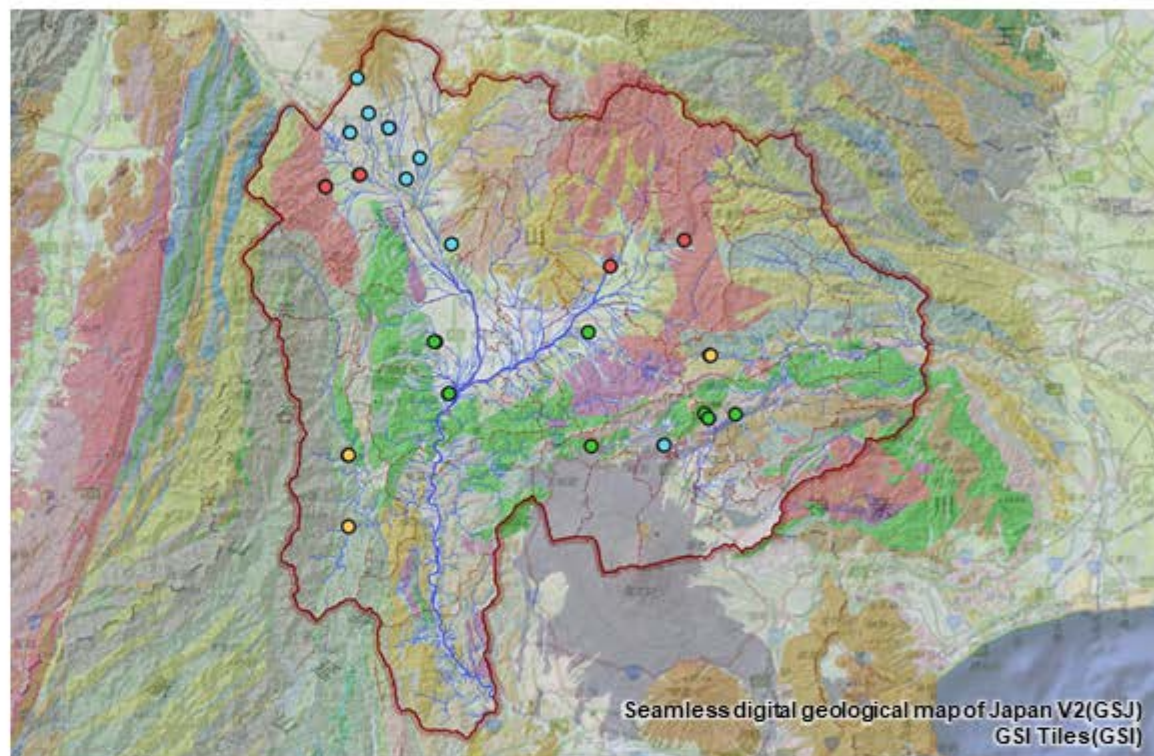
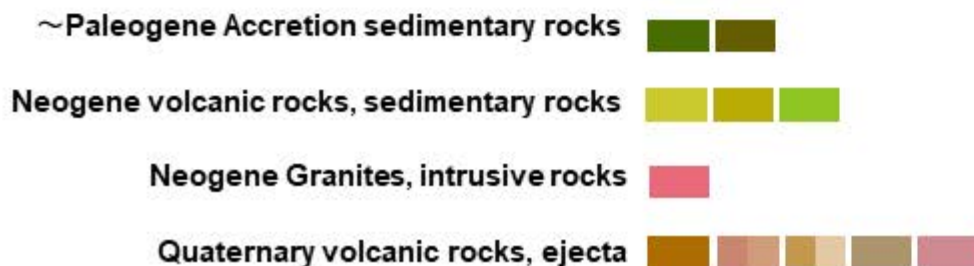


Annual precipitation distribution map

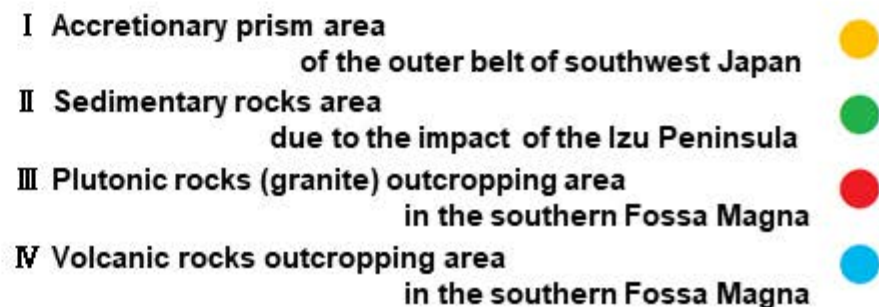
Geological Area Classification and Water Quality Survey Sites

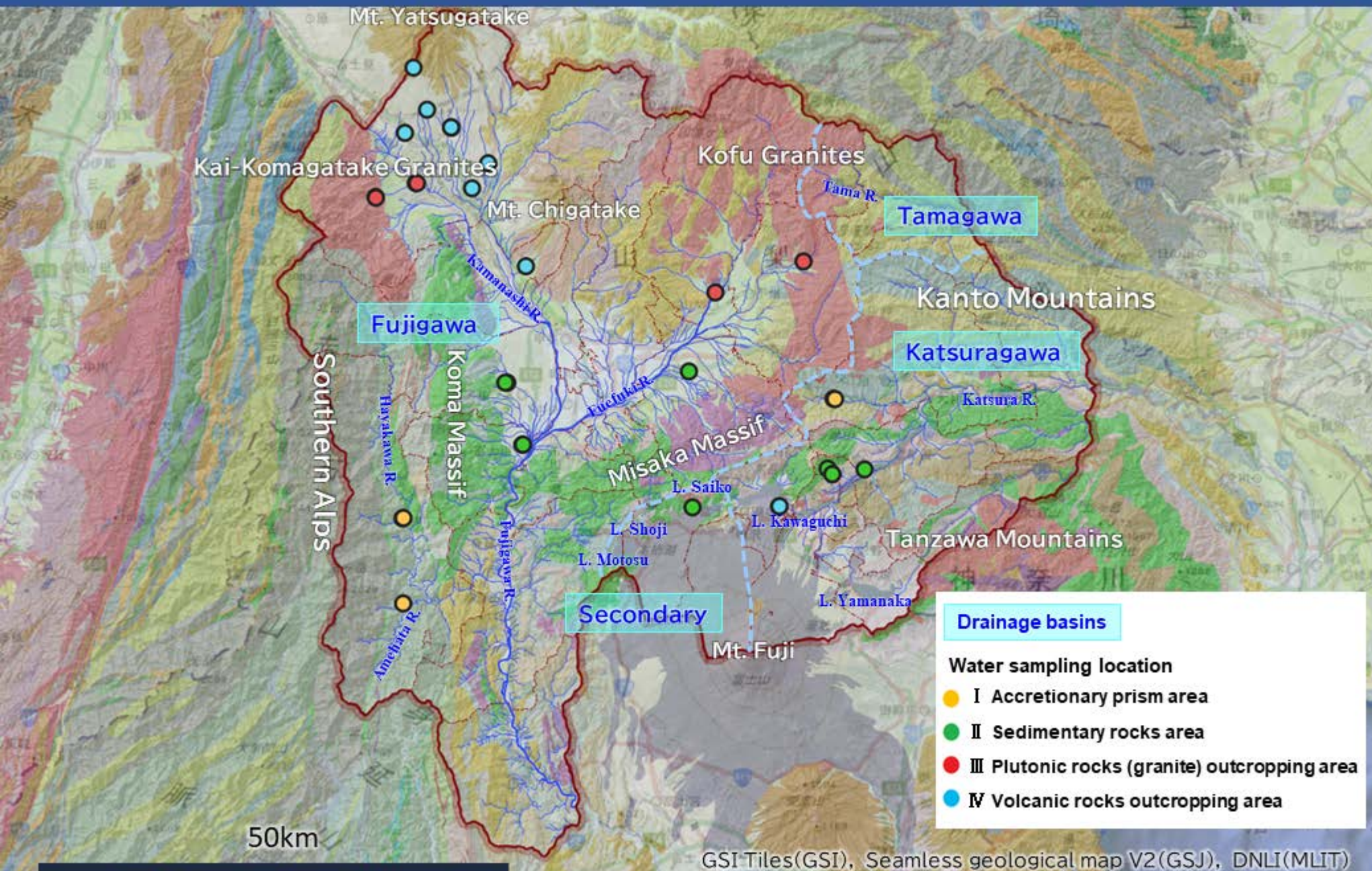


Geology of Yamanashi

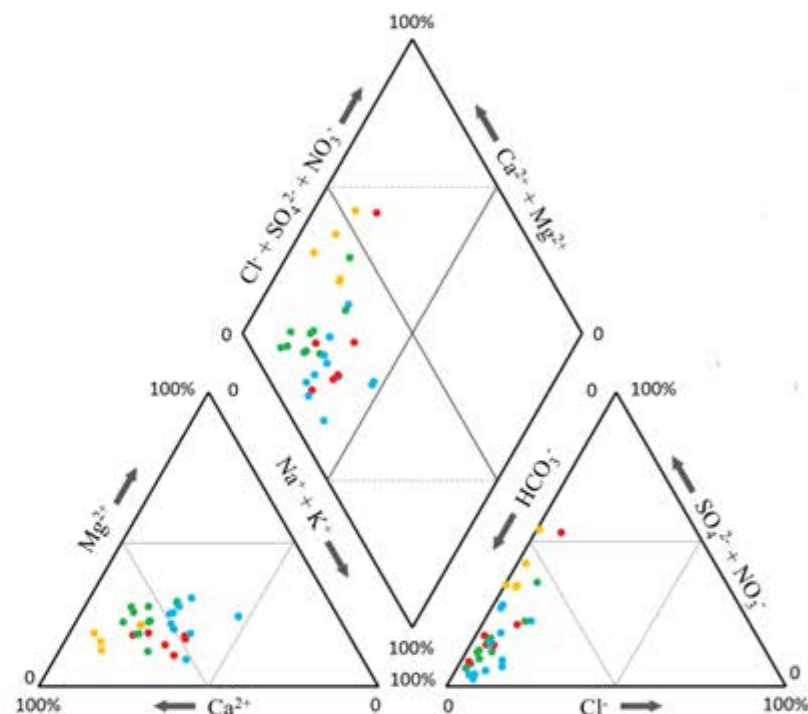
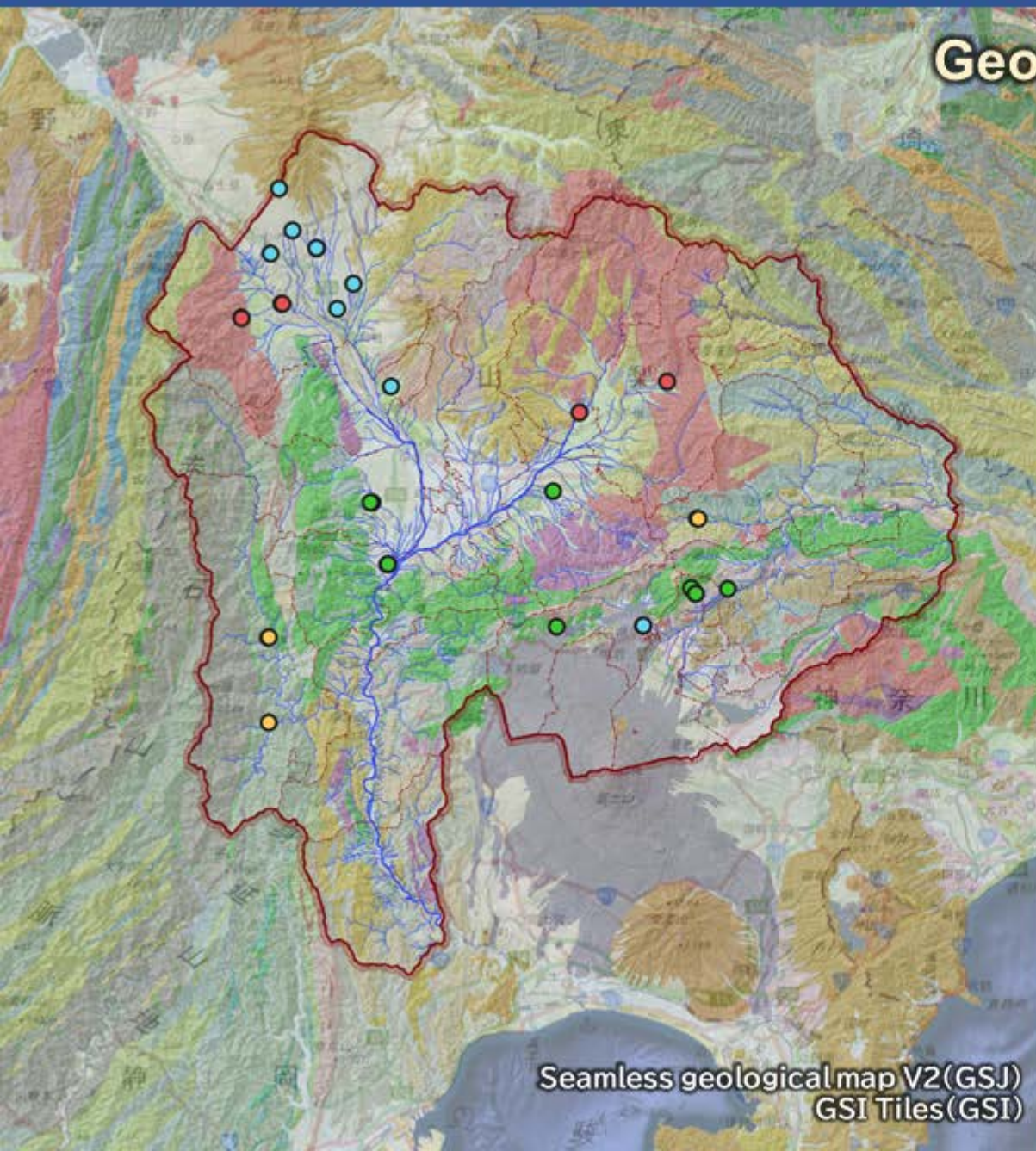


Water sampling location





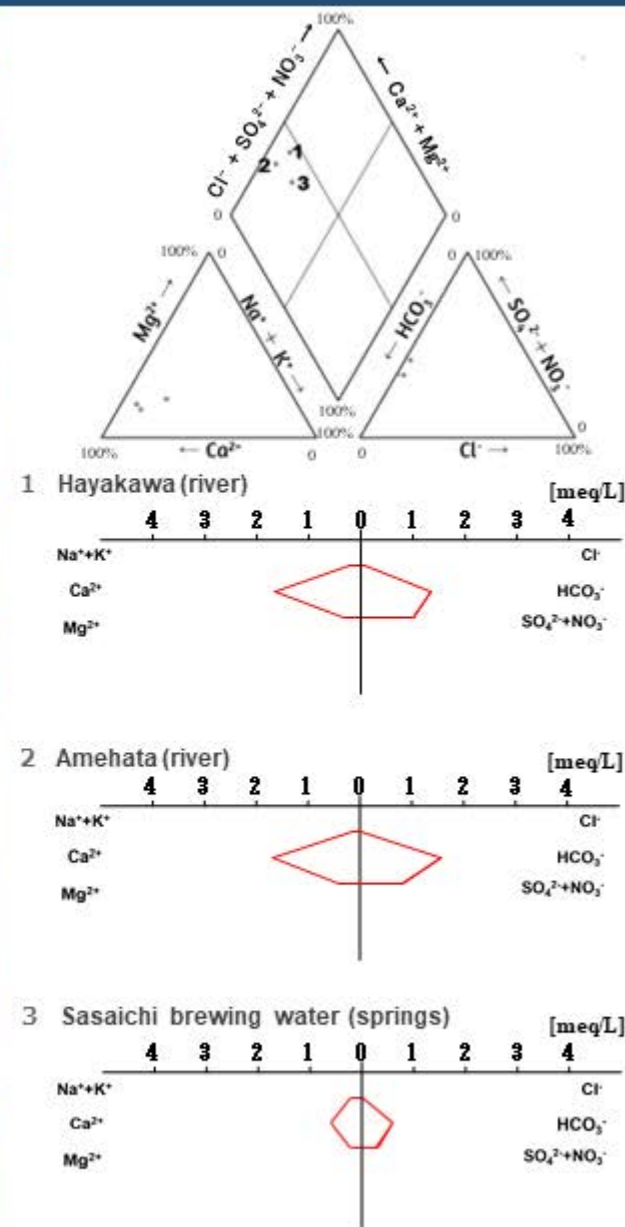
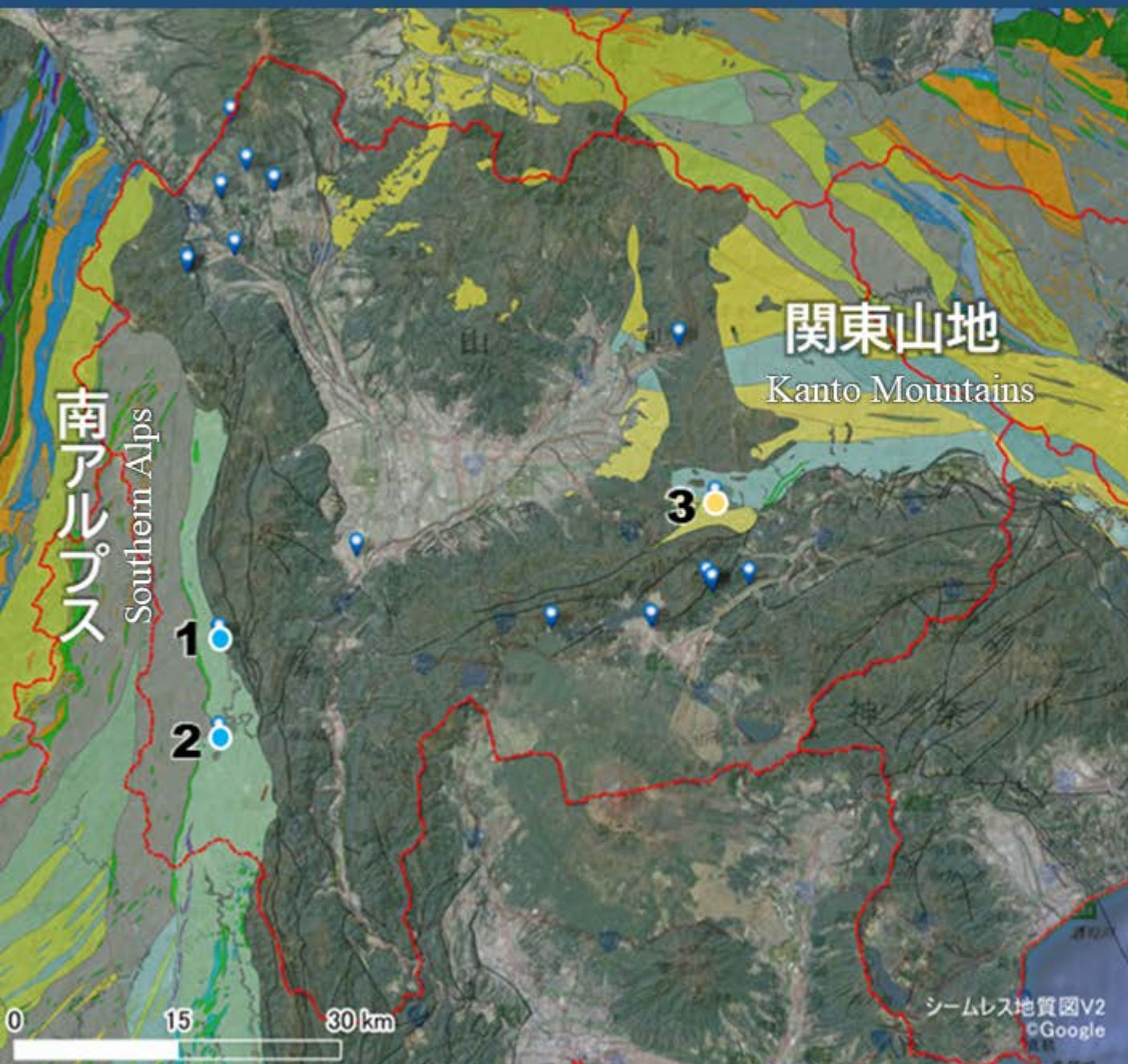
Geology and trilinear diagram



Water sampling location

- I Accretionary prism area
- II Sedimentary rocks area
- III Plutonic rocks (granite) outcropping area
- IV Volcanic rocks outcropping area

I. Accretionary prism area of the outer belt of southwest Japan



I. Accretionary prism area of the outer belt of southwest Japan



Hayakawa River flowing along the Ito-Shizu Tectonic Line



Mudstone outcrops at the Sasago River (Sagami-Ko Formation)

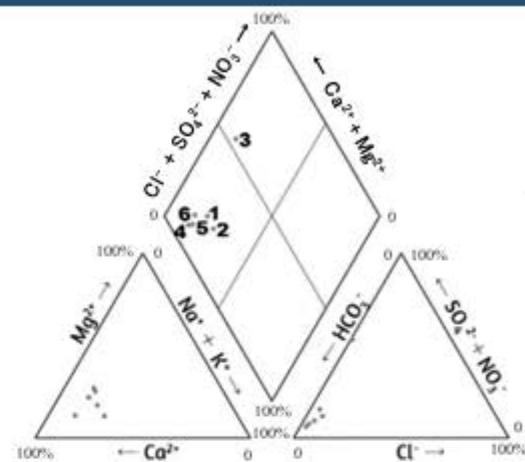
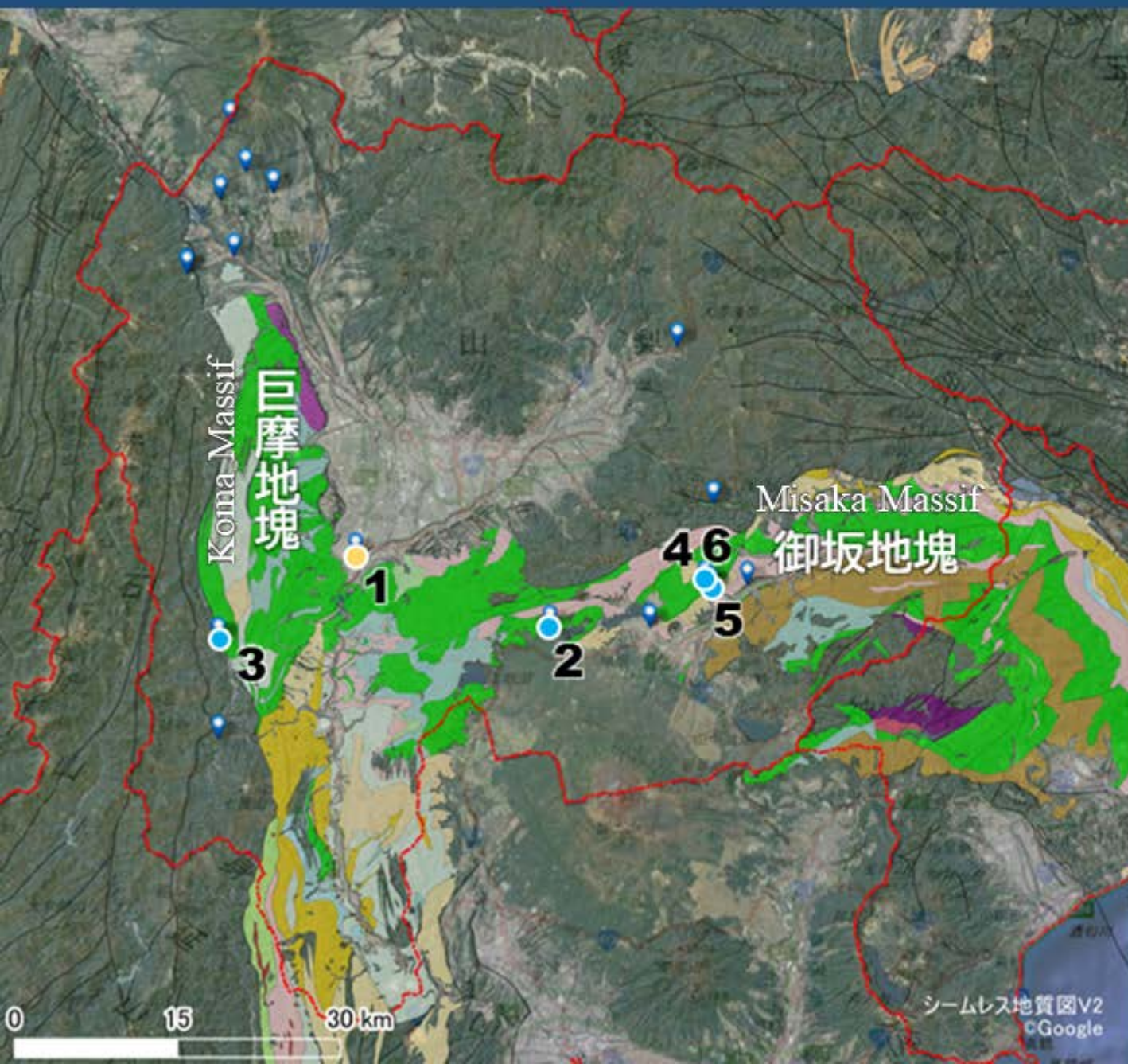


Sasaichi Brewery shop
"Shuyu-kan"

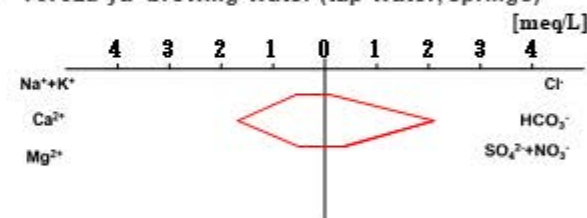


The mountain behind Sasaichi
Brewery

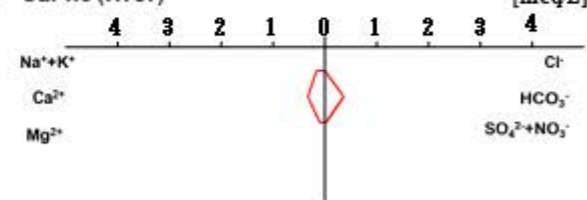
II. Sedimentary rocks area due to the impact of the Izu Peninsula



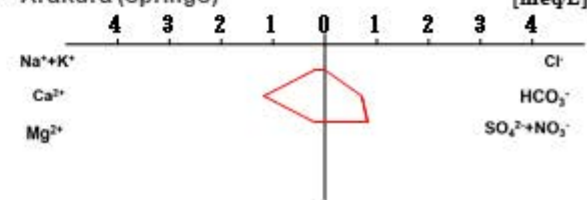
1 Yorozu-ya brewing water (tap water, springs)



2 Sai-ko (river)



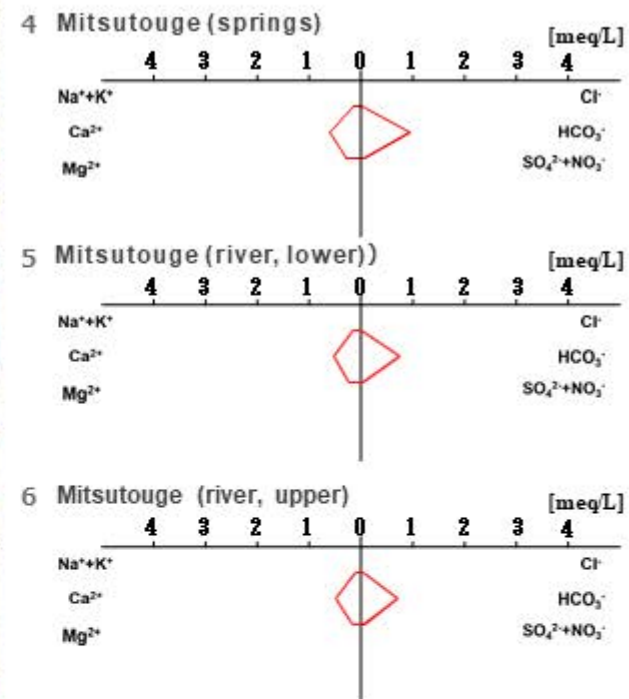
3 Arakura (springs)



II. Sedimentary rocks area due to the impact of the Izu Peninsula



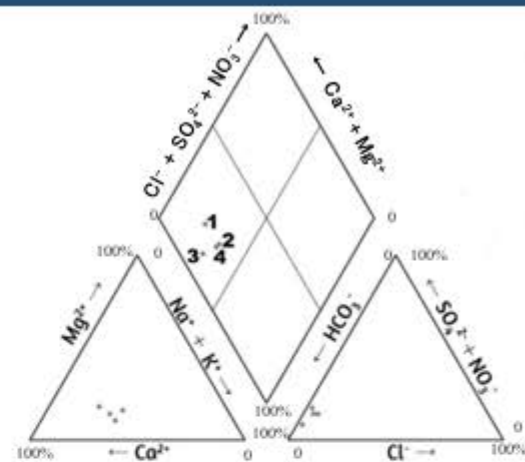
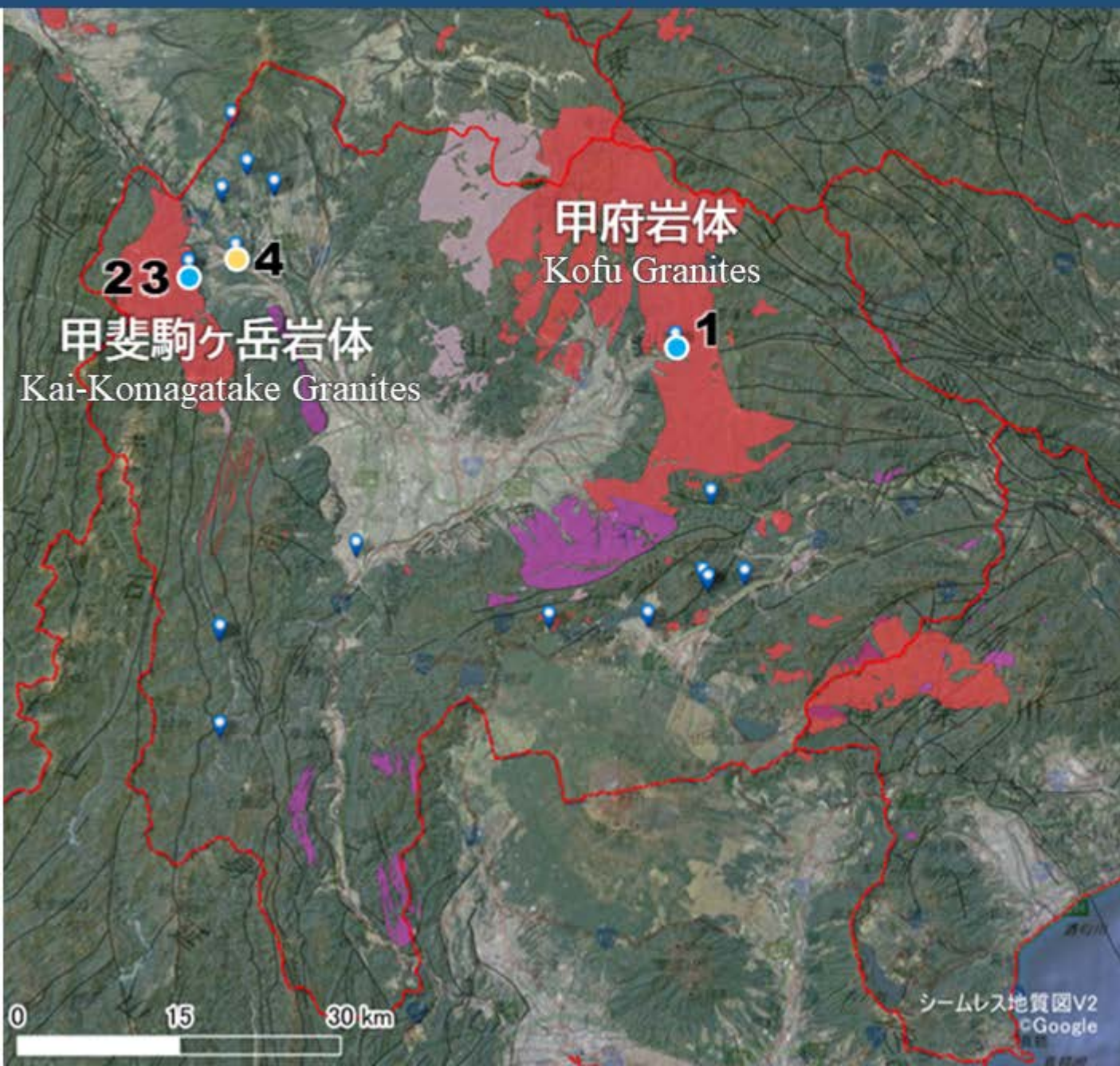
Alternating layers of sandstone and mudstone at Mitsutouge



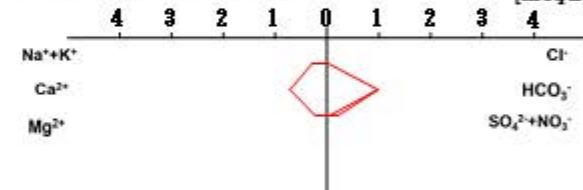
The moon climbing from the Fujigawa River and the Misaka Mountains



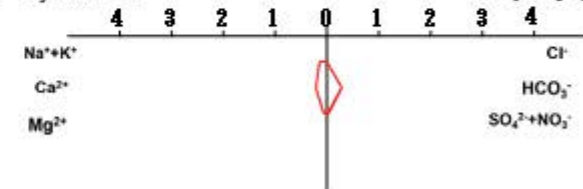
Yorozu-Ya Brewery



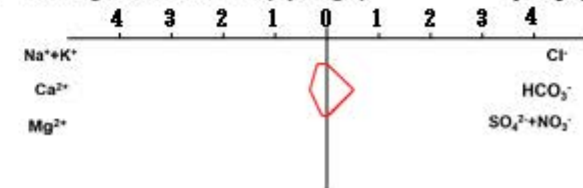
1 Touge no Yusui (springs) [meq/L]



2 Ojira River [meq/L]



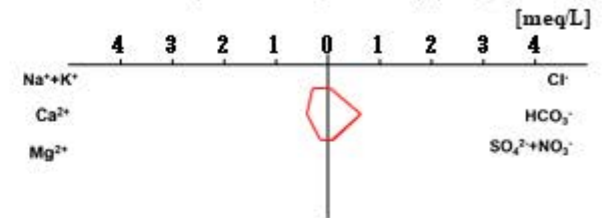
3 Komagatake Shrine (springs) [meq/L]





Granite at the Oshiragawa Valley

4 Yamanashi-Meijo brewing water (springs)

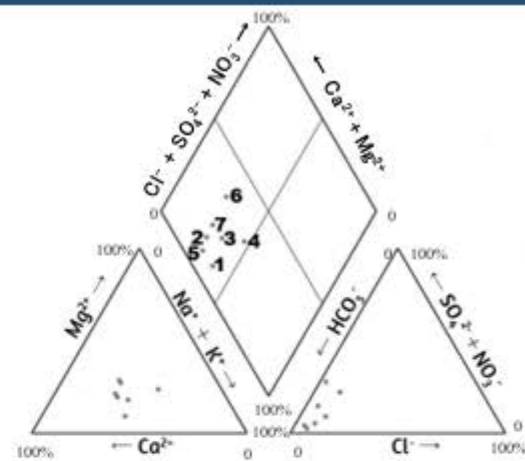
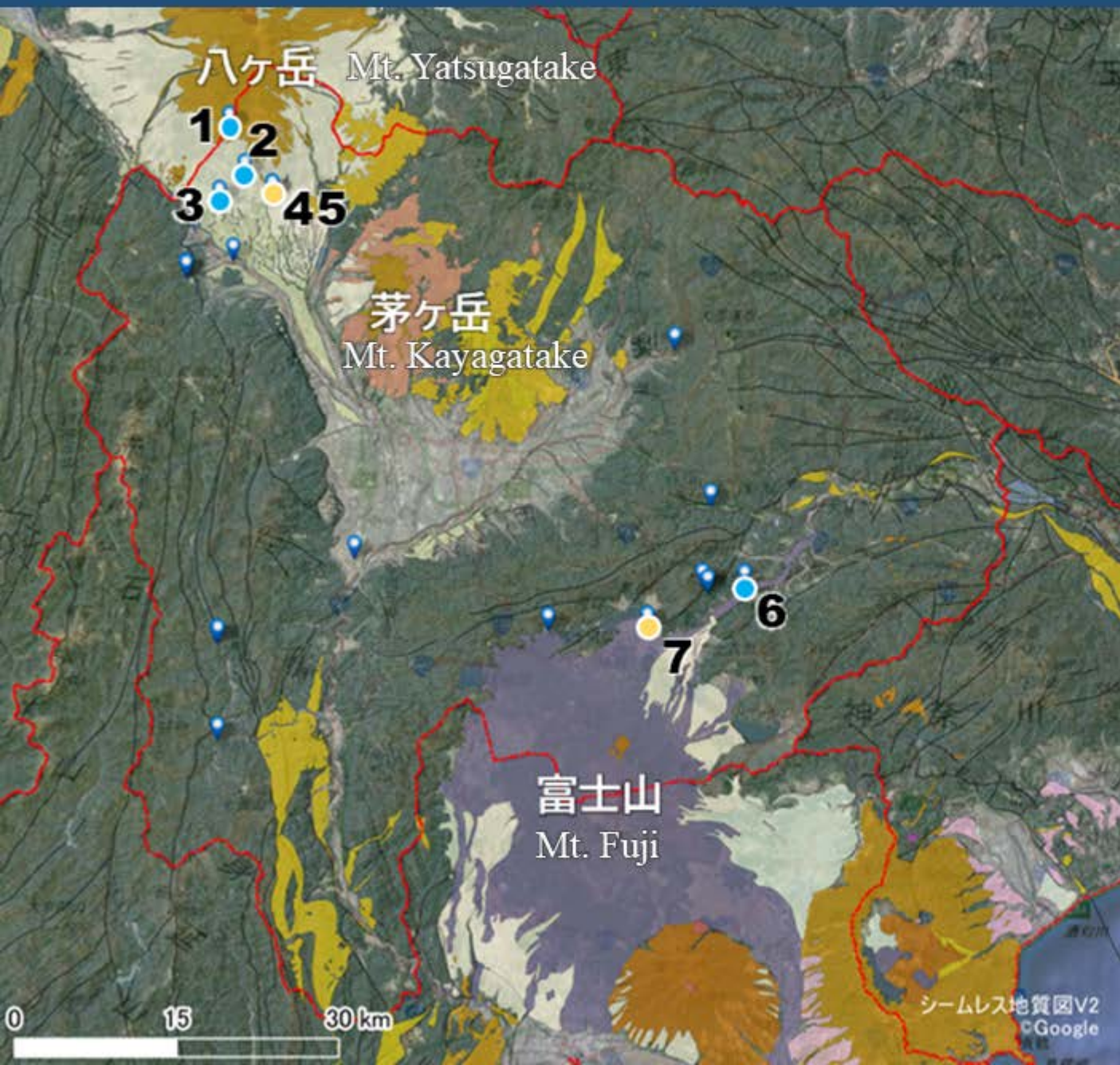


Yamanashi-Meio Brewery

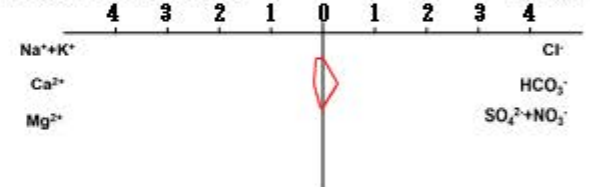


You can sample the brewing water

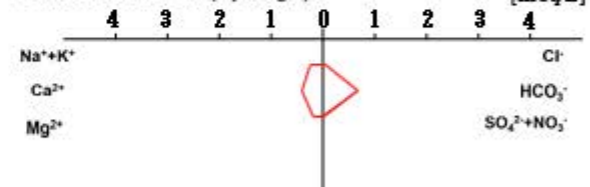
IV. Volcanic rocks outcropping area in the southern Fossa Magna



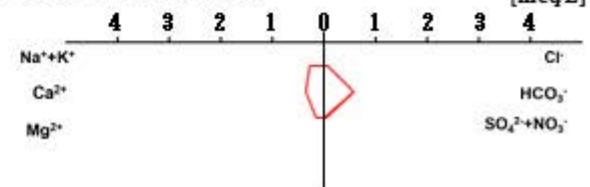
1 Enmei-sui (springs) [meq/L]



2 Sanbuichi Yusui (springs) [meq/L]



3 Otaki Shrine (springs) [meq/L]



IV. Volcanic rocks outcropping area in the southern Fossa Magna



View of Mt.Yatsugatake from the Umenoki Ruins

Tani-zakura Brewery



Ide Brewery

Spring water flowing from the Fuji lava flow

