

Damage investigation activities utilizing Geopark organization for the 2016 Itoigawa Station North Great Fire in Itoigawa City, Niigata Prefecture

*Takahiko Ogawara¹, Ko Takenouchi¹, Hiroshi Miyajima¹, Yousuke Ibaraki¹, Toshihiro Uchiyama², Goichi Yamamoto³, Takeshi Kubo⁴

1. Fossa Magna Museum, 2. Itoigawa Geopark Promotion Office, 3. Itoigawa Geopark Tourism Guide association, 4. Friends of Fossa Magna Museum

On December 22, 2016 at about 10:20 a.m., a fire broke out in a ramen restaurant near the north entrance to Itoigawa Station. Southerly winds caused the fire to quickly spread, becoming the largest fire in Itoigawa City since 1954. It has been given the name “2016 Itoigawa Station North Great Fire” (provisional). Over 43 teams of firefighters were dispatched to the fire from Itoigawa and neighboring towns, but the gale force winds allowed the flames to leap from building to building, complicating the containment efforts.

The fire was safely contained at 8:50 p.m. and after continued firefighting efforts it was finally extinguished the following day at 4:30 p.m. 17 people suffered minor to moderate injuries, but in part due to police and the residents’ efforts, there were no casualties. 147 buildings were damaged in the fire (120 completely destroyed, 5 half destroyed and 22 partially damaged), including Kaga-no-I, Niigata Prefecture’ s oldest sake brewery established in 1650; 200 year old restaurant Tsurukiya; and the similarly old inn Heiando Ryokan. Roughly 40,000 square meters were consumed in the fire, making it the worst fire in Japan in the past 20 years (Fig. 1).

In 2009, Itoigawa City became one of Japan’ s first three Global Geoparks. Even before that time, the city worked to promote the “geostories” which connect the regions’ unique climate, topography and geology. For this reason, the city was able to quickly explain that this fire’ s devastating spread was a result of this *Renge-oroshi* wind phenomenon, a product of regional geological features such as the Umidani Mountains, Northern Alps and valleys created by the Itoigawa-Shizuoka Tectonic Line. This fire is the first in Japan to be classified as a natural disaster as defined by the Act on Support for Reconstructing Livelihoods of Disaster Victims due to the effect of strong wind. The government’ s decision to classify this fire as a natural disaster is in no small part due to the efforts of the Geopark in making a clear case to the administration that this fire spread as a result of this *Renge-oroshi* phenomenon and how this phenomenon is related to Itoigawa unique topography, geology and climate.

The investigation of the fire damage was undertaken by the existing Geopark Organization. The defining feature of this fire is how it spread through leaping flames carried by gale force winds recorded at speeds up 27.2 m/s. As the flames leapt from building to building, the sources of the fire increased and by noon over 3 distinct fires were confirmed. Because of this, it is important that the damage investigation includes a detailed investigation of when and where the fire spread, especially with regard to leaping flames. In interviews with responders from the Itoigawa City Fire Department, most of the fires caused by leaping flames broke out far from the original fire where no firefighters were responding so the details are unclear. For this reason, it is important to collect information through interviews with the residents, business owners and banks in and around the affected area.

