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The lake of Kawah Ijen. See a fumarole, bottom left
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[The Largest Lake of Acid on Earth](#)

The sulfur rich Kawah Ijen

Indonesia is famous for hosting some of the world's most powerful volcanoes. Krakatoa, located on an island in the Sunda Strait between Java and Sumatra in Indonesia, is well known because of its 1883 eruption, which generated the loudest sound historically reported: it was distinctly heard even in the Australian city of Perth (approx. 1930 miles or 3100km), or the island of Rodrigues near Mauritius (approx. 3000 miles or 4800 km). 36,417 were killed, mostly by the tsunamis which followed the explosion. The 1883 eruption of Krakatoa was equivalent to an explosion of 200 megatons of TNT, about 13000 times the yield of the Little Boy bomb which devastated Hiroshima, Japan. Sea waves caused by the eruption were recorded as far as the English Channel. Still, the most violent volcano on Earth is considered Tambora (2,865m or 9,550ft tall) from the Sumbawa Island (Indonesia). On 10th of April 1815, the mountain blew out ejecting its peak into the atmosphere at a height of 1,250m (4,160ft)! The cataclysm was marked with 7 on the VEI scale and at the moment killed 12,000 people. Subsequently, 80,000 people died of hunger. About 150-180 cubic kilometers of debris were projected into the stratosphere, dimming the sky and depriving the Northern Hemisphere of summer. But perhaps the most amazing Indonesian volcano is Kawah Ijen (2,600m or 8,660ft tall), the "Green Crater" from western Java, which has a lake made of 36 million cubic meters representing a solution of sulfuric acid and hydrogen chloride, the most powerful existing acids. On the edges of the lake, the fumaroles (volcanic gas eruptions) depose 4 tonnes of sulfur daily. Such acid lakes are also found on the volcanoes Kusatsu-Shirane (Japan) and Poas (Costa Rica), but the Indonesian lake is by far the largest acid lake on Earth, having a maximum depth of 212m (706ft). These lakes result from the mix of rainfall water with gases coming from the depths of the volcano. The walls of the Kawah Ijen lake are light ochre, but the water has a turquoise color, with emerald reflexes. The temperature of the water is of 34°C, and sulfur bubbles float on the surface. The surroundings are covered by a sulfur powder. The smell is pungent and irritating, filled with sulfur dioxide. From place to place, sulfur pours at a temperature of 120°C, like bright red trails, which gradually solidify, turning lemon yellow. [img=2]The lake contains 600,000 tonnes of hydrogen chloride, 550,000 tonnes of sulfuric acid, 200,000 tonnes of aluminium sulphate and 170,000 tonnes of iron sulphate. People from the neighboring area extract sulfur from the crater manually - an extremely hard work. To increase efficiency, the workers build tunnels of stone and undulated plates to channel the sulfur-rich fumaroles. The sulfur then leaks, cools down and solidifies inside these improvised channels, which are subsequently broken using metal piles. The recovered stuff contains 99 % sulfur. The sulfur is made into pieces, loaded in baskets and transported on the men's back outside the crater. In the irritating and corrosive atmosphere of the crater, people's only protection is a piece of fabric used for covering their mouths and noses. Each worker can transport 40 to 70kg (90 to 155 pounds) at once on the abrupt slopes of the volcano, using bamboo ladders where the slope is too steep. [img=3]Once on the top, the workers must descend to the weighing place. In one day, a man can carry up to 360 kg (750 pounds) of sulfur. The daily production of the exploitation is just of 4 tonnes, a derisory quantity, if we consider the fact that the crater harbors 30,000 tonnes of sulfur. The sulfur is transported to Banjuwangi, 37 km (23 mi) away and it will be used for vulcanizing rubber or refining sugar. Industrial exploitation of the lake has not been planned so far, as the volcano erupts from time to time, projecting acid to the height of 600 m (2,000 ft) and splashing the neighboring areas with a corrosive rain. In 1976, 50 people were surprised inside the crater by an enormous bubble of sulfuric dioxide, which, after raising the surface

of the lake, killed 11 of them by asphyxiation. The local people said it was the sacrifice asked by the volcano for offering its riches.