

Hawaii Island Expanded Air Quality Monitoring for Kilauea Eruption

Current SO₂ and H₂S levels on Hawaii Island

The Hawaii Department of Health (DOH), in partnership with the Hawaii County Civil Defense Agency (HCCDA) and the U.S. Environmental Protection Agency (EPA), expanded air quality monitoring capacity for emergency response efforts in the lower East Rift Zone during the Kilauea volcanic eruption on Hawaii Island.

In addition to the DOH and EPA monitors, the National Park Service, U.S. Geological Survey (USGS), and South Coast Air Quality Management District in California also provided expert staff, equipment and monitors to this network. There are 15 new temporary monitoring stations in place, which brings the total network to 34 monitoring stations. Monitors track sulfur dioxide (SO₂), hydrogen sulfide (H₂S) and particulate matter. Most monitors are placed around the active fissure area, but there are also monitors in the southern and western areas of the island.

Data on SO₂ and H₂S on Hawaii Island during the Kilauea eruption are available to the public at <http://www.epa.gov/kilaueaairdata>.

The monitors provide real-time data on SO₂ and H₂S levels. The public viewer shows a map of the monitoring stations color-coded based on the average concentration of all data received over 30 minutes and is updated every time a new reading is received. The color of air monitoring stations will change depending on the level of health risk. Blue indicates gas levels are healthy, orange indicates moderate levels, and red indicates unhealthy conditions.

Hawaii County's evacuation guidelines and recommendations are as follows:

- “Blue” indicates that air quality is satisfactory. Some individuals with pre-existing medical conditions—which could include any person with a compromised respiratory system (e.g., people with conditions such as asthma, bronchitis, emphysema, and chronic lung and heart disease)—may be affected should avoid exposure.
- “Orange” indicates that people with pre-existing respiratory diseases should shelter-in-place to protect themselves and avoid outdoor activities that can cause heavy breathing or breathing through the mouth.
- “Red” indicates that everyone should be prepared to voluntarily evacuate the area to protect themselves from hazardous air quality conditions. Stay alert to Civil Defense warnings. Seek medical attention if severely affected.



Hawaii County Evacuation Guidance on Hazardous Gas Exposure



| Code | Color | SO ₂ Level (parts per million) – 30 min average | H ₂ S Level (parts per million) – 30 min average | Health Effect | Public Response |
|--------|-------|--|---|---|--|
| Blue | | 0.0 to 0.2 | 0.0 to < 0.6 | <ul style="list-style-type: none"> Individuals with pre-existing medical or respiratory conditions may be affected at these levels. Little or no risk to healthy individuals. | <ul style="list-style-type: none"> People with breathing difficulties should take action to avoid exposure. Everyone should be alert for changing conditions. |
| Orange | | > 0.2 to 1.0 | 0.6 to < 7.0 | <ul style="list-style-type: none"> Individuals with pre-existing medical or respiratory conditions may experience health effects, like wheezing or chest tightness, and should leave the area. The general public is not expected to be affected in this range. | <ul style="list-style-type: none"> Individuals with pre-existing medical or respiratory conditions should avoid outdoor activities that cause heavy breathing or breathing through the mouth. Minimize physical activities. Take actions to limit exposure by going indoors or leaving the area. Everyone should be alert for changing conditions. |
| Red | | Above 1.0 | 7.0 or above | <ul style="list-style-type: none"> The general public may experience minor respiratory issues and should be on alert while minimizing exposure. As concentrations increase, everyone may experience more serious health effects. Severe effects may include choking or difficulty breathing. May affect entire exposed population. | <ul style="list-style-type: none"> Prepare and be alert for Civil Defense warnings regarding possible evacuation. Take actions necessary to limit further exposure (remain indoors or leave area). Monitor emergency broadcasts and follow instructions. Call 9-1-1, Hawaii Poison Center (1-800-222-1222) or seek medical attention if severely affected. |

NOTES:

- Asthmatics & persons with chronic respiratory disease: Always have your medications available.
- Reducing your exertion level so that you can breathe through your nose will reduce the amount of hazardous gas that reaches your lungs.
- People experiencing health effects: Contact your doctor as soon as possible if any problems develop, as respiratory conditions might worsen rapidly in heavy sulfur dioxide (SO₂), hydrogen sulfide (H₂S) or vog conditions.
- People have different sensitivities to hazardous gas. Use this table to learn how sensitive you are, so that you can develop appropriate measures to protect your health and avoid serious responses.
- Readings are based on 30-minute average. Part per million equals part per billion divided by 1000.
- Susceptible individuals may develop symptoms at or below the warning limits.
- Individuals with pre-existing respiratory conditions such as asthma, bronchitis, emphysema, lung or heart disease may be more severely impacted by poor air quality conditions. Note: Some people with mild asthma may not be aware of it. If you have breathing difficulties at low levels of SO₂ or H₂S, check with your healthcare provider.
- People react differently to hazardous gas exposure - some are more sensitive. For many people simply reducing activity levels enough so that they can breathe through the nose will permit them to be outdoors without symptoms.
- Current levels can be monitored at <http://www.epa.gov/kilaueaairdata>

This is a joint venture and product of the Hawaii County Civil Defense Agency, Hawaii State Department of Health, and the U.S. Environmental Protection Agency in response to the Kilauea volcanic eruptions. Last updated: June 5, 2018.

Other Air Quality Resources for Hawaii Island Residents and Visitors

- **77Hawaii County Civil Defense Emergency Alerts:** <http://www.hawaiicounty.gov/active-alerts> . Visit this page for air quality and life safety information for all areas affected by current eruptions and lava inundation.
- **Hawaii Interagency Vog Information Dashboard/:** www.ivhhn.org/vog/. This site provides comprehensive information on vog and SO2.
- **Hawaii outdoor quality data:** <https://emdweb.doh.hawaii.gov/air-quality/>
- **VMAP Vog Measurement and Prediction Project:** <http://mkwc.ifa.hawaii.edu/vmap/hysplit>
- **AirNow information from real-time PM2.5 monitors in Hawaii:** https://www.airnow.gov/index.cfm?action=airnow.local_state&stateid=12&mapcenter=0&tabs=0