



DEPARTMENT OF HEALTH

DAVID Y. IGE
GOVERNOR

ELIZABETH A. CHAR, MD
DIRECTOR

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Kīlauea eruption creating potential air quality hazards Health resources available online for vog and air quality

HILO, HI – An eruption began on Dec. 20 from the Halema‘uma‘u crater at the summit of Kīlauea Volcano on Hawai‘i Island. At this time, all eruptive activity is within Hawai‘i Volcanoes National Park, however, vog conditions and sulfur dioxide (SO₂) air levels may increase and fluctuate in various areas of the state. Areas downwind of the summit such as Pahala and Ocean View have experienced increased levels of SO₂ that may cause problems with respiratory health, especially in sensitive individuals. Conditions are changing rapidly, and poor air quality causing health effects may be very localized.

Hawai‘i residents and visitors are advised to be prepared and aware of the surrounding conditions, and how they feel or may react to vog in the air. In the event of vogy conditions, the following precautionary measures are advised:

- Reduce outdoor activities that cause heavy breathing. Avoiding outdoor activity and exercise during vog conditions can reduce exposure and minimize health risks. This is especially important for sensitive groups such as children, the elderly, and individuals with pre-existing respiratory conditions including asthma, bronchitis, emphysema, and chronic lung and heart disease.
- Stay indoors and close windows and doors. If an air conditioner is used, set it to recirculate.
- If you need to move out of an impacted area, turn on the car’s air conditioner and set it to recirculate.
- Always keep medications on hand and readily available.
- Daily prescribed medications should be taken on schedule and may provide protection from the effects of sulfur dioxide.
- Remember that face coverings and masks used to prevent the spread of COVID-19 do not provide protection from SO₂ or vog.
- Contact a doctor as soon as possible if any health problems develop.
- Do not smoke and avoid second-hand smoke.
- Drink plenty of fluids to avoid dehydration.

- Have family emergency plans prepared and ready.
- Heed warnings by county and state emergency management officials.

Visitors to the Hawai'i Volcanoes National Park should note that rockfalls and explosions can produce ash composed of volcanic glass and rock fragments. These ashfalls currently represent a minor hazard, but dustings of ash at areas around the Kilauea summit are possible.

The Hawai'i Department of Health (DOH) is encouraging residents and visitors to utilize the following resources that provide complete, clear and current information on the health effects of vog, how to protect yourself, vog and wind forecasts, air quality, changing conditions, and advice for visitors:

- Hawai'i Interagency Vog Information Dashboard at www.ivhnn.org/vog/ for the most comprehensive and up-to-date online information on vog and SO₂ from volcanic activity.
- DOH's Clean Air Branch maintains a near-real time network of air quality monitors that detect SO₂ and particulate matter: <https://health.hawaii.gov/cab/hawaii-ambient-air-quality-data/>
- United States Geological Society (USGS) Kilauea Volcano Updates: <https://www.usgs.gov/volcanoes/kilauea/volcano-updates>
- National Parks Service information on safely visiting Hawai'i Volcanoes National Park: https://www.nps.gov/havo/learn/news/20201221_nr_new-summit-eruption-kilauea.htm
- DOH's Guidance on Short-term SO₂ Advisory Levels:

DOH Guidance on Short-term Sulfur Dioxide (SO₂) Advisory Levels

| SO ₂ Conc. (ppm) ¹ | Color Code & Air Quality Condition | Air Quality Description | Recommended Action/Activity ² | | |
|--|--|---|---|---|---|
| | | | Sensitive Groups ³ | People Experiencing Health Effects ³ | Everyone Else |
| 0 – 0.10 | Green (Good) | Considered satisfactory & poses little or no risk | Highly sensitive individuals may be affected at these levels | | Potential health effects not expected |
| 0.11-0.20 | Yellow (Moderate) | Acceptable, however, may be moderate health concern for small number of people | Be aware that levels are slightly elevated | If you experience breathing difficulties, such as chest tightness or wheezing, stop activities, use a rescue inhaler and find a place to sit down and rest. | Potential health effects not expected, however actions to reduce exposure to vog may be useful |
| 0.21–1.00 | Orange (Unhealthy for Sensitive Groups) | Members in sensitive groups, including healthy individuals with mild asthma, may experience health effects. They may be affected at lower levels than general public. Toward the upper end of this range, most asthmatics who are active outdoors are likely to experience some breathing difficulties. General public not expected to be affected in this range. | Avoid outdoor activities that cause heavy breathing or breathing through the mouth ⁴ | If you experience breathing difficulties, such as chest tightness or wheezing, stop activities, use a rescue inhaler and find a place to sit down and rest. | Potential health effects not expected, however actions to reduce exposure to vog may be useful |
| 1.01–3.00 | Red (Unhealthy) | Everyone may begin to experience health effects. Members of sensitive groups may experience more serious health effects. | Avoid outdoor activities & remain indoors | Consider leaving the area | Avoid outdoor activities that cause heavy breathing or breathing through the mouth ⁴ |
| 3.01–5.00 | Purple (Very Unhealthy) | Triggers health alert, meaning everyone may experience more serious health effects. | Avoid outdoor activities & remain indoors | Leave the area & seek medical help | Avoid outdoor activities & remain indoors |
| > 5.01 | Maroon (Hazardous) | Triggers health warnings of emergency conditions. Entire population is more likely to be affected. | Avoid outdoor activities & remain indoors. Leave the area if directed by Civil Defense | Leave the area & seek medical help | Avoid outdoor activities & remain indoors. Leave the area if directed by Civil Defense |

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 SO₂ 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 SO₂ or vog conditions.**
 - **People have different sensitivities to SO₂. Use this table to help develop appropriate measures to protect your health and avoid serious responses.**
1. Based on 15-minute average. Part per million equals part per billion divided by 1000.
 2. **Susceptible individuals** may develop symptoms at or below the Warning limits
 3. **Sensitive Groups** = children and individuals with pre-existing respiratory conditions such as asthma, bronchitis, emphysema, lung or heart disease. Note: Some people with mild asthma may not be aware of it. If you have breathing difficulties at low levels of SO₂, check with your healthcare provider.
 4. People react differently to SO₂ - some are more sensitive. The nasal passages can remove a lot of SO₂ before it gets to the lungs. For many people simply reducing activity levels enough so that they can breathe through the nose will permit them to be outdoors without symptoms.

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