# Weekly report

Institut de physique du globe de Paris

Observatoire volcanologique et sismologique de Martinique

## Activity of Mount Pelée

Saint-Pierre, September 26, 2025, 17:00 local time (GMT-4)

Volcanic activity has strongly increased this week, with **2267 volcanic earthquakes** observed.

Between September 19, 2025 at 16:00 (UTC) and September 26, 2025 at 16:00 (UTC), the OVSM has recorded:

- **2203 volcano-tectonic** type earthquakes. Most of these low energy earthquakes were clearly identified as originating from one of the well-known seismically active zones on Mount Pelée, located between 1.0 and 1.4 km below the summit of the volcano.

  However, 130 of these earthquakes, with the highest energy, were located deeper **between 2.4 km and 4.3 km** deep under the volcano's summit. Among them, 114 have a local magnitude Mlv greater than Mlv = 0.5; 31 have a magnitude greater than Mlv = 1; and the largest has a magnitude **Mlv = 2.16**. Superficial volcano-tectonic seismicity is associated with micro-fracturing in the volcanic edifice related to the overall reactivation of the volcano observed since 2019.
- **57 shallow hybrid** type earthquakes, including 13 located between 1 km and 2 km deep under the domes of Mount Pelée, in the same area as the volcano-tectonic earthquakes, and with a local magnitude between Mlv = 0.64 and Mlv = 1.49; and 1 located at 3,2 km deep under the summit of the volcano, of magnitude **Mlv = 1.96**. Hybrid type seismic signals are enriched in low frequencies and are associated with the circulation of pressurized fluids (gases, hydrothermal fluids) in the volcanic edifice that participate in micro-fracturing.
- **5 shallow long-period** type earthquakes of low energy, located in the same area as volcano-tectonic earthquakes. Long-period earthquakes are characterized by signals that contain only low frequencies, and are associated with fluid circulation in the volcanic edifice.
- **2 deep long-period** type earthquakes of low energy, one of which was located at a depth of 22 km under the volcanic edifice. Long-period earthquakes are characterized by signals that contain only low frequencies, and are associated with the circulation of fluids (magma, supercritical fluids) in the deep parts of the magmatic system.

No earthquake was felt by the population. However, several volcanic earthquakes have a magnitude approaching that of earthquakes likely to be felt by hikers on Mount Pelée.

The week before, the OVSM had recorded **651 earthquakes** of volcanic origin. As of September 26, and during the last 4 weeks, the OVSM recorded a total of **4033** volcanic earthquakes, and an average of **1008 to 1009 volcanic earthquakes** per week.

The seismic energy released by volcanic earthquakes this week shows a **significant increase**. Based on the data being processed, a preliminary estimate shows that the energy released between 01/09 and 26/09 is higher than the one released between 01/01/2025 and 31/08/2025 (about 775 MJ versus 740 MJ). This level of energy released by volcanic earthquakes is the highest recorded since the beginning of reactivation in 2019.



Institut de physique du globe de Paris, OVSM
Lieu dit Blondel, Morne la Rosette,
Route de l'observatoire,
97250 Saint Pierre, Martinique

www.ipgp.fr/fr/ovsm/actualites-communiques-publics-de-lovsm
bluesky : @ovsm.bsky.social
facebook : ObservatoireVolcanoSismoMartinique
youtube : Chaîne IPGP

With the progression of the depth of the hypocenters of volcano-tectonic earthquakes between 1 km and 3 km below sea level, the data recorded this week suggest that mechanical connectivity is starting to develop between the very superficial parts of the volcano, in which seismicity was until now essentially concentrated, and deeper regions of the volcano, down to about 4 km below the surface. Moreover, the location of earthquakes shows a tubular geometry compatible with the presence of a volcanic duct. Nevertheless, the deformations of the edifice are very small, and to date do not show marked inflation of the summit area nor evidence of deeper deformation. There is currently no indication of fumarolian activity on Mount Pelée.

During the phases of volcanic reactivation of volcanoes similar to Mount Pelée, it is usual to observe a seismic activity variable in intensity and frequency, which can evolve quickly but also stop quickly without major evolution of the system.

The probability of eruptive activity in the short term remains low. However, given all the observations collected since the end of 2018 and their nature, and based on the observations of the OVSM-IPGP summarized in the last monthly bulletin (August 2025) and the data recorded over the past 7 days, we cannot exclude a medium-term evolution of the situation (months, weeks). Given the inherent uncertainties in anticipating the evolution of volcanic processes, activity is closely monitored by the OVSM-IPGP which has strengthened its monitoring resources.

For more details on longer-term observations and interpretations of volcanic activity, please refer to the monthly bulletins of the OVSM.

The alert level, in accordance with the provisions planned by the authorities, is currently YELLOW: vigilance.

The Director's office of OVSM-IPGP.

**Informations**

**The data in this report are preliminary and subject to change depending on their subsequent analysis.**
**The reports of OVSM-IPGP, including detailed monthly bulletins, are available at https://www.ipgp.fr/observation/ovs/ovsm/.**
**You can also find us on our Bluesky et Facebook accounts. Locations of volcano-tectonic and tectonic earthquakes determined by the OVSM-IPGP are available in real-time at https://renass.unistra.fr/fr/zones/les-antilles/.**
**To receive the weekly report by email, simply request it at: infos@ovmp.martinique.univ-ag.fr**
**The information in this document cannot be used without explicit reference to it.**



Institut de physique du globe de Paris, OVSM
Lieu dit Blondel, Morne la Rosette,
Route de l'observatoire,
97250 Saint Pierre, Martinique

www.ipgp.fr/fr/ovsm/actualites-communiques-publics-de-lovsm
bluesky : @ovsm.bsky.social
facebook : ObservatoireVolcanoSismoMartinique
youtube : Chaîne IPGP