Monthly Bulletin

Institut de physique du globe de Paris
Observatoire volcanologique du Piton de la Fournaise

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July, 2026

PITON DE LA FOURNAISE *(VNUM #233020)*
Latitude: *21.244°S*
Longitude: *55.708°E*
Summit elevation: *2632 m*

Piton de la Fournaise is a basaltic hot spot volcano located in the southeastern part of La Réunion Island (Indian Ocean). The volcano first erupted about 500,000 years ago. Its volcanic activity is characterized by frequent effusive eruptions (with emissions of lava fountains and lava flows) that occur on average twice a year since 1998. More rarely, larger explosive eruptions (with blocks covering the summit area and ash emissions that can disperse over long distances) have happened in the past with a centennial recurrence rate.
Most of the current eruptive activity (97% during the last 300 years) occurs from vents inside the Enclos Fouqué caldera. A few eruptions, however, have occurred from vents outside the caldera (most recently in 1977, 1986, and 1998). Such eruptions can potentially threaten communities that live in the surrounding areas.
Since late 1979, the activity of Piton de la Fournaise is monitored by the Piton de la Fournaise Volcanological Observatory (Observatoire Volcanologique du Piton de la Fournaise - OVPF), which belongs to the Institut de Physique du Globe de Paris (IPGP).

Alert level: Vigilance
(from May, 7 2026)

March 12 (10h) to May 5 (6h) 2026: Alert 2-2
May 5 (6h) to May 7 (15h) 2026: Sauvegarde

(cf. table in the appendix)

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A. Piton de la Fournaise activity

Seismicity

The seismological network of the Piton de la Fournaise Volcanological Observatory consists of 41 seismological stations currently in operation, representing a total of 109 channels sampled at 100 Hz and transmitted in real time to the observatory. This network includes 32 three-component broadband stations, 2 three-component short-period stations and 7 analogue stations with one vertical component.
Earthquakes are located based on the arrival times of P and S waves, which are manually plotted in the SeisComP software (www.seiscomp.de) using automatic or visual detections. The earthquakes are then located using NonLinLoc software (Lomax et al., 2000), using a three-dimensional velocity model. This model takes into account a velocity gradient according to the topography and assumes a constant VP/VS ratio of 1.7. The P-wave velocity is 3.3 km/s at the free surface and increases linearly with depth at a gradient of 0.3 s^{-1}.

Observations

In July 2026, the OVPF-IPGP recorded at Piton de La Fournaise:

- 41 shallow volcano-tectonic earthquakes (from 0.2 to 1.5 km above sea level), mostly located beneath the Bory and Dolomieu summit craters;
- 25 deep earthquakes (below sea level) located both under the eastern part of the terminal cone and beneath the east flank;
- 129 rockfalls or collapses.

July 2026 was marked by the continuation of **relatively moderate seismic activity beneath Piton de la Fournaise** (Figures 1 and 2), with 41 shallow volcano-tectonic earthquakes (above the shallow magma reservoir) and 25 deep earthquakes located between 6 and 8 km depth below sea level, west of the summit (Figure 2). This seismicity remains higher than during the quiescence phase of Piton de la Fournaise between August 2023 and November 2025, and likely **corresponds to the continued pressurization of the volcano's magmatic system**. Some deep volcano-tectonic earthquakes are located beneath the eastern flank at depths ranging from 1 to 3 km below sea level (Figure 2).

Numerous rockfalls were also observed (129 events). As is usually the case, these rockfalls are partly located near the summit of Piton de la Fournaise and along the *Cassé de la Rivière de l'Est*, but also on the eruptive cones and lava flows recently emplaced on the east-southeast flank of Piton de la Fournaise.

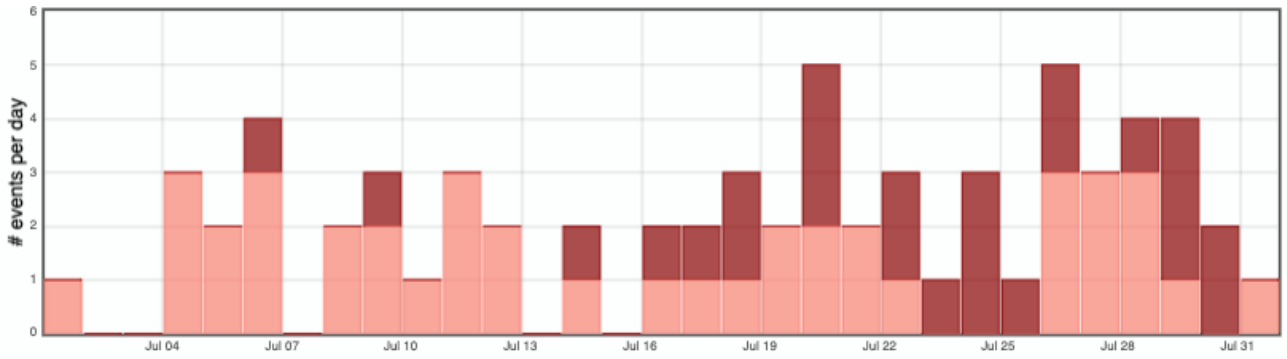

Figure 1: Daily rate of shallow (orange histogram) and deep (red histogram) volcano-tectonic earthquakes from the "main courante" catalog in July 2026 (©WebObs/OVPF-IPGP).

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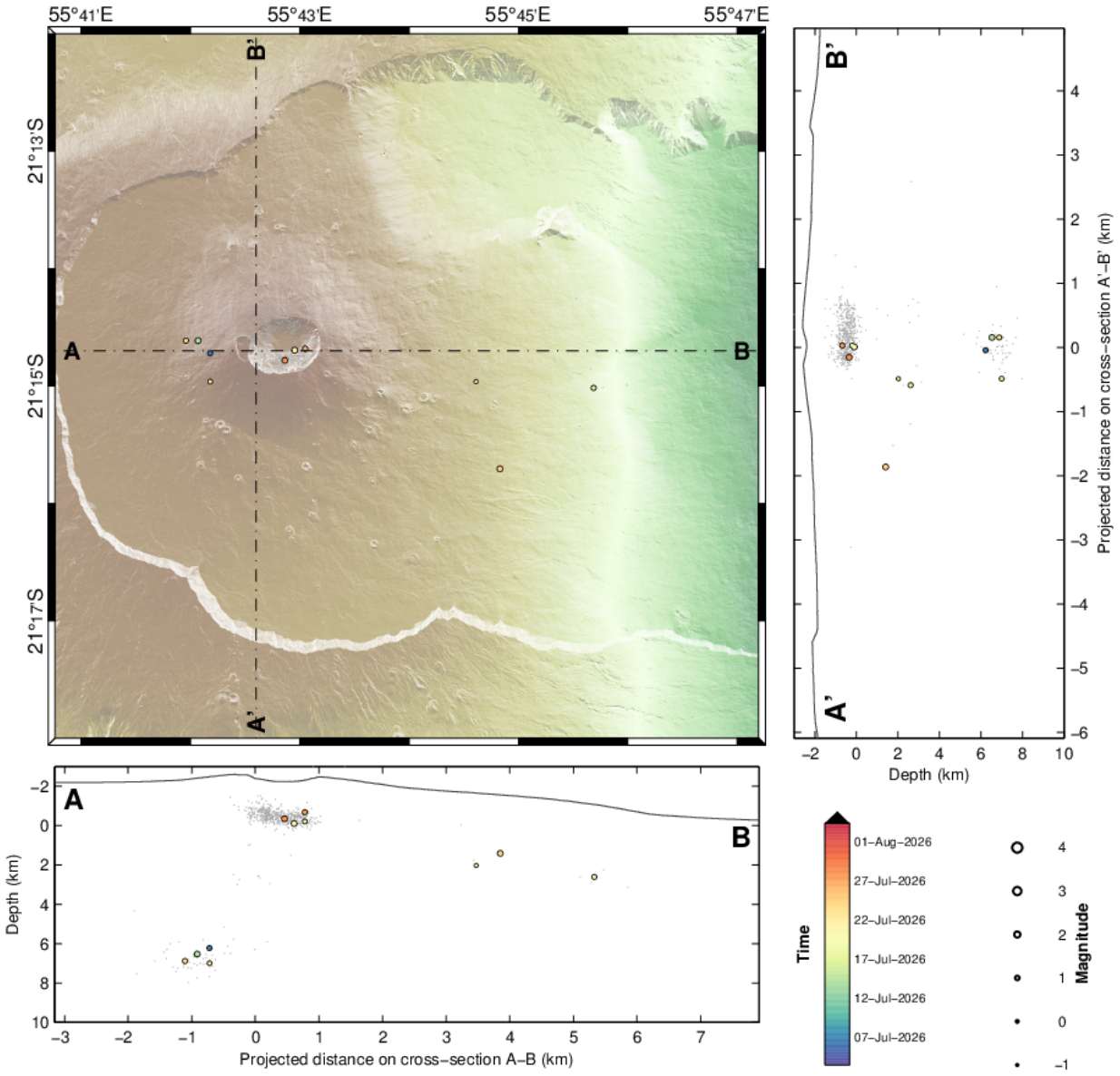

Figure 2: Seismicity below Piton de la Fournaise in July 2026. Location map (epicenters) and north-south and east-west cross-sections (hypocenters) of earthquakes as recorded by OVPF-IPGP. Only manually located earthquakes are shown on the map (©WebObs/OVPF-IPGP).

Deformation

The permanent network for monitoring deformation at Piton de la Fournaise currently comprises:
- 27 GNSS (Global Navigation Satellite System) stations,
- 11 pairs of tiltmeters at 10 different sites,
- 3 three-component extensometers.
Once the data have been retrieved (every 15 min to every day depending on the stations), they are automatically processed using the GipsyX/JPL software (Bertiger et al., 2020; Murphy et al., 2024) to obtain geographical coordinates. These calculations incorporate the new JPL products in ITRF2020 (Altamimi et al., 2023, Rebischung et al., 2024). The calculated coordinates are expressed relative to the Figure Centre (FC), a concept more suited to small-scale area of work.
The characteristics of one (or two) source(s) (location, depth, and volume variation), which best fit the observations over a given time period, are also modeled in a homogeneous and elastic medium by a Bayesian inversion of pCDM deformation sources (Nikkhoo et al., 2016; Beauducel et al., 2020).
Based on GNSS positioning measurements, strain and their spatial distribution are also estimated by calculating the relative changes in distance between each pair of stations. Strain is a parameter expressed in microstrain (denoted as µstr, representing a change of one millionth of the distance), which allows for the visualization and quantification of areas undergoing extension or compression.

Observations

Following the end of the eruption on April 12, 2026, slight inflation of the edifice was recorded until end of April (Figures 3 and 4). No significant signals were recorded thereafter until June 7, when inflation resumed, a phenomenon that was particularly visible on the GNSS baselines (distance changes between two stations) at the summit and at the base of the terminal cone (Figures 3, 4 and 5).
This inflation ceased at the end of June.

Since then, **a slight contraction** has been observed on the baseline measurements crossing the **summit area**, indicating a slight deflation of this area (Figure 5).

Numerical models for period from July 1 to 31, 2026 show a **primary source of deflation located beneath the volcano's summit**, at 1.3 km above sea level and a secondary source of deflation located at 9.4 km depth (Figure 5).

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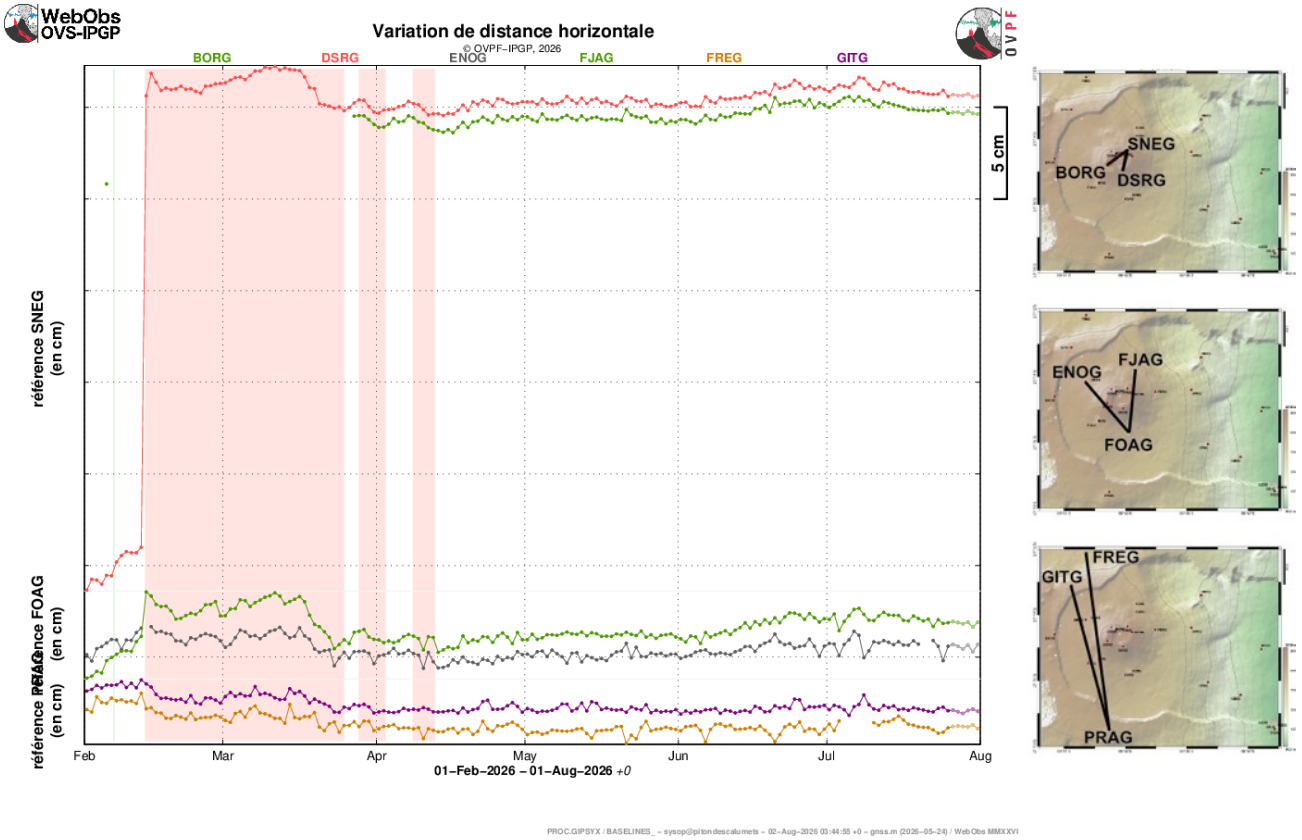

Figure 3: Ground deformation records over the past six months (the red and green bars represent eruptive and intrusive periods, respectively). The time series plots show the changes in horizontal distance between pairs of GNSS stations located around the Dolomieu summit crater (reference: SNEG; top graph), the terminal cone (reference: FOAG; middle graph) and the Enclos Fouqué caldera (reference: PRAG; bottom graph), from north to south (see location on the right). Increasing distances (or baseline elongation) indicate volcano inflation, while decreasing distances (or baseline contraction) reflect edifice deflation (©Webobs/OVPF-IPGP).

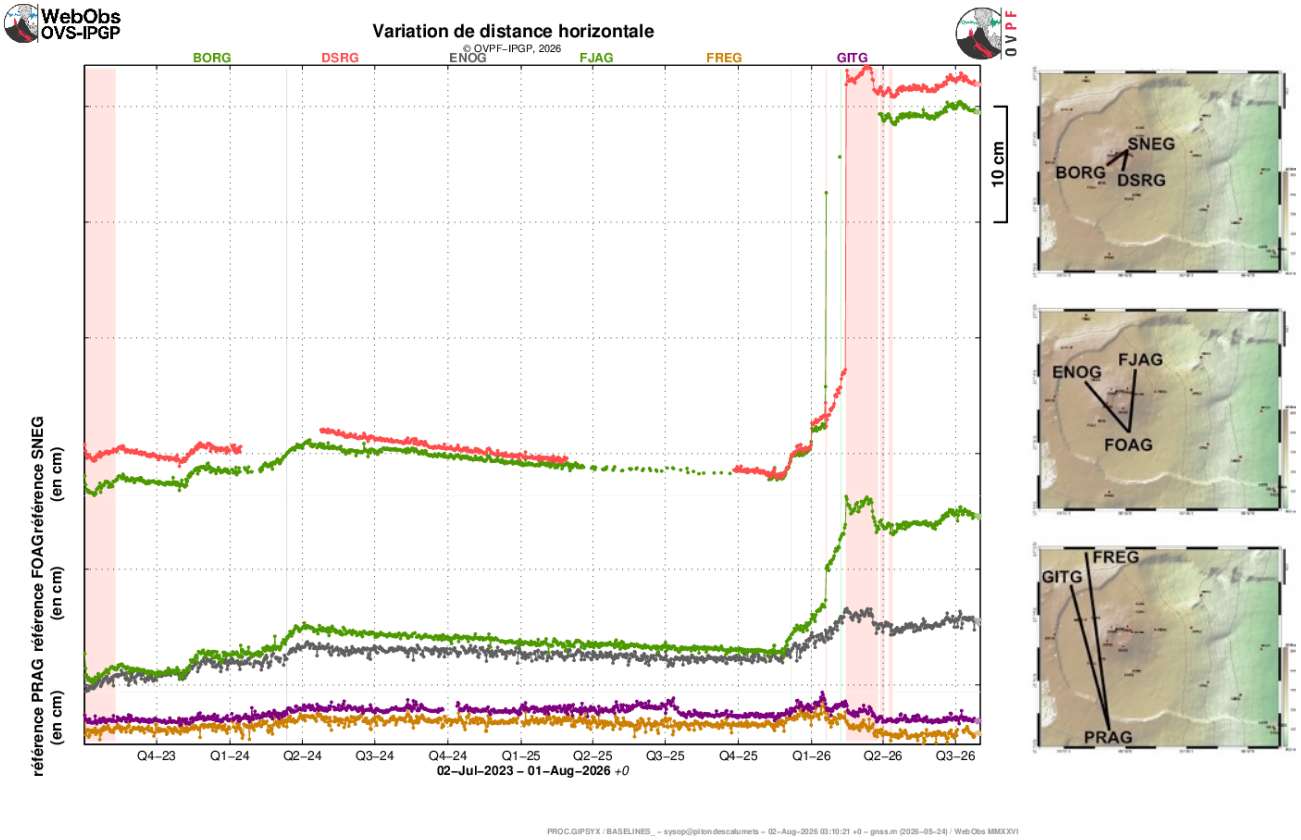

Figure 4: Ground deformation records since the eruption of July-August 2023 (the red and green bars represent eruptive and intrusive periods, respectively). The time series plots show the changes in horizontal distance between pairs of GNSS stations located around the Dolomieu summit crater (reference: SNEG; top graph), the terminal cone (reference: FOAG; middle graph) and the Enclos Fouqué caldera (reference: PRAG; bottom graph), from north to south (see location on the right). Increasing distances (or baseline elongation) indicate volcano inflation, while decreasing distances (or baseline contraction) reflect edifice deflation (©WebObs/OVPF-IPGP).

** Glossary: The summit GNSS signals indicate the influence of a shallow pressure source below the volcano, while distant GNSS signals indicate the influence of a deep pressure source below the volcano. Inflation usually means pressurization; and conversely deflation usually means depressurization.*

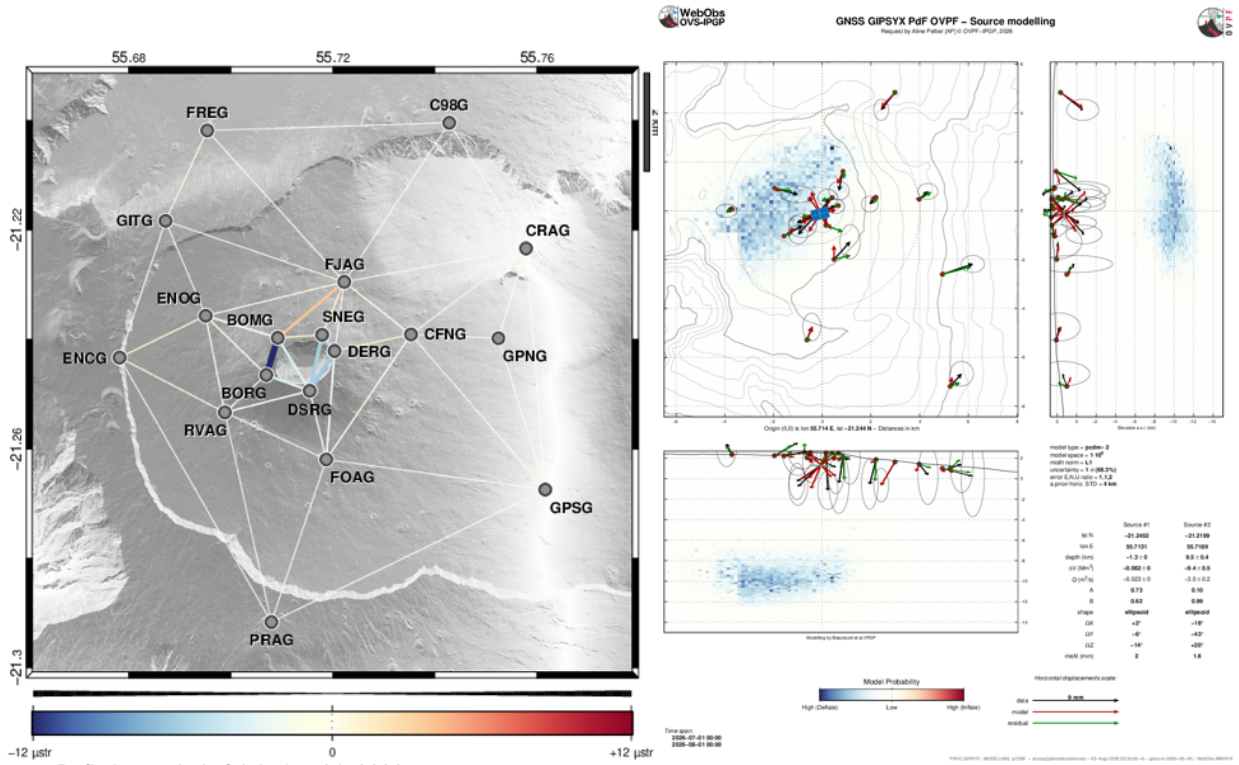

Figure 5: Deflation period of July 1 to 31, 2026
(To the left) Linear 3-D strain maps (in µstrain, or a deformation of one millionth). The thickness and color of the baselines indicate the intensity of the strain, either compressive (in blue) or tensile (in red).
(To the right) Modelling of the two main pressure sources responsible of ground displacements by Bayesian inversion of pCDM-type sources (Nikkhoo et al., 2016; Beauducel et al., 2020). The black vectors represent observed data, the red vectors represent modelled vectors, and the green vectors represent the residuals between observed and modelled vectors. The characteristics of the source are listed in the lower right corner. (©WebObs/OVPF-IPGP, topography ©IGN LIDAR 2025).

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Gas geochemistry

The permanent geochemical network for monitoring gas emissions from Piton de la Fournaise currently comprises:
- 3 MAX-DOAS stations measuring the optical thickness of SO2 (ppm.m) in the atmosphere. Measurements are taken every 10 to 15 minutes during the day when weather conditions are favorable (Arellano et al., 2020).
- 1 MultiGaS station measuring excess H2O, CO2, SO2 and H2S relative to the atmosphere, with measurements taken every 6 hours.
- 4 stations measuring CO2 flux through the soil. At these stations, meteorological parameters (temperature, pressure, humidity, wind speed and direction) are also recorded in order to correct signals from environmental disturbances (Boudoire, 2017; Bénard et al., 2023). Measurements are taken every hour.

Due to technical issue, the geochemical data cannot be presented this month.

Phenomenology

No eruptive activity reported in July 2026.

Summary

Following the end of the last eruption on 12 April 2026, a slow and weak pressurization of the magmatic system beneath Piton de la Fournaise was observed until end of June 2026.
In July 2026, **the pressurization of the shallow reservoir stopped, as indicated by the end of summit inflation followed by deflation of the edifice deflation**. Seismic activity below the summit remained low in July. However, a deep seismic activity persisted, which may suggest fluid movement at depth.

B. Seismic activity on La Réunion and in the Indian Ocean basin

Local and regional seismicity

In July 2026, the OVPF-IPGP recorded:

- 28 local earthquakes (within a 200 km radius of the island, Figures 6 and 7);
- 4 regional earthquakes (in the Indian Ocean region)

In **July 2026**, OVPF-IPGP recorded **28 local earthquakes**, mostly located beneath the *Roche Écrite* massif, but also in other regions of the northern part of the island and in the *Plaines* area (Figure 7).

Most of these local earthquakes are of **low magnitude** (< 1) and are difficult to locate precisely. They are located between **10 km and 25 km depth** within the **oceanic lithosphere** on which the volcanic edifice that gave rise to La Réunion was formed.

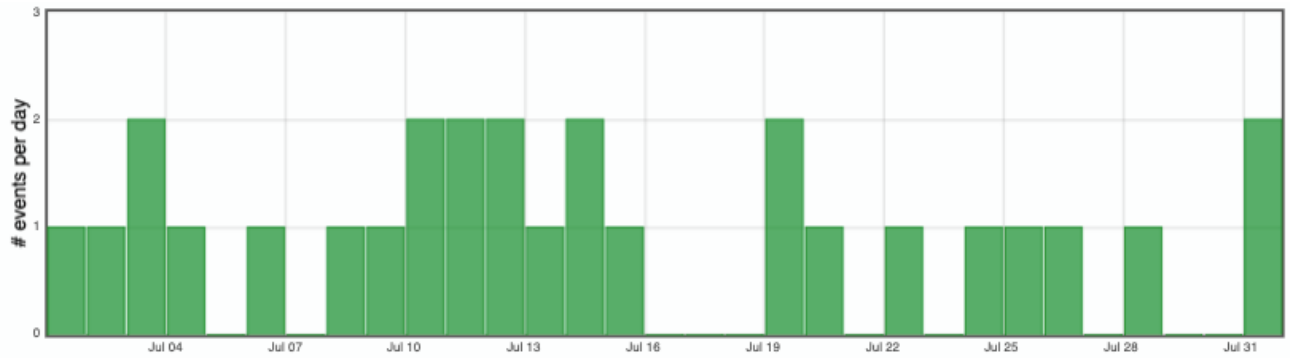

Figure 6: Number of local earthquakes (La Réunion island) per day recorded in July 2026 (©WebObs/OVPF-IPGP).

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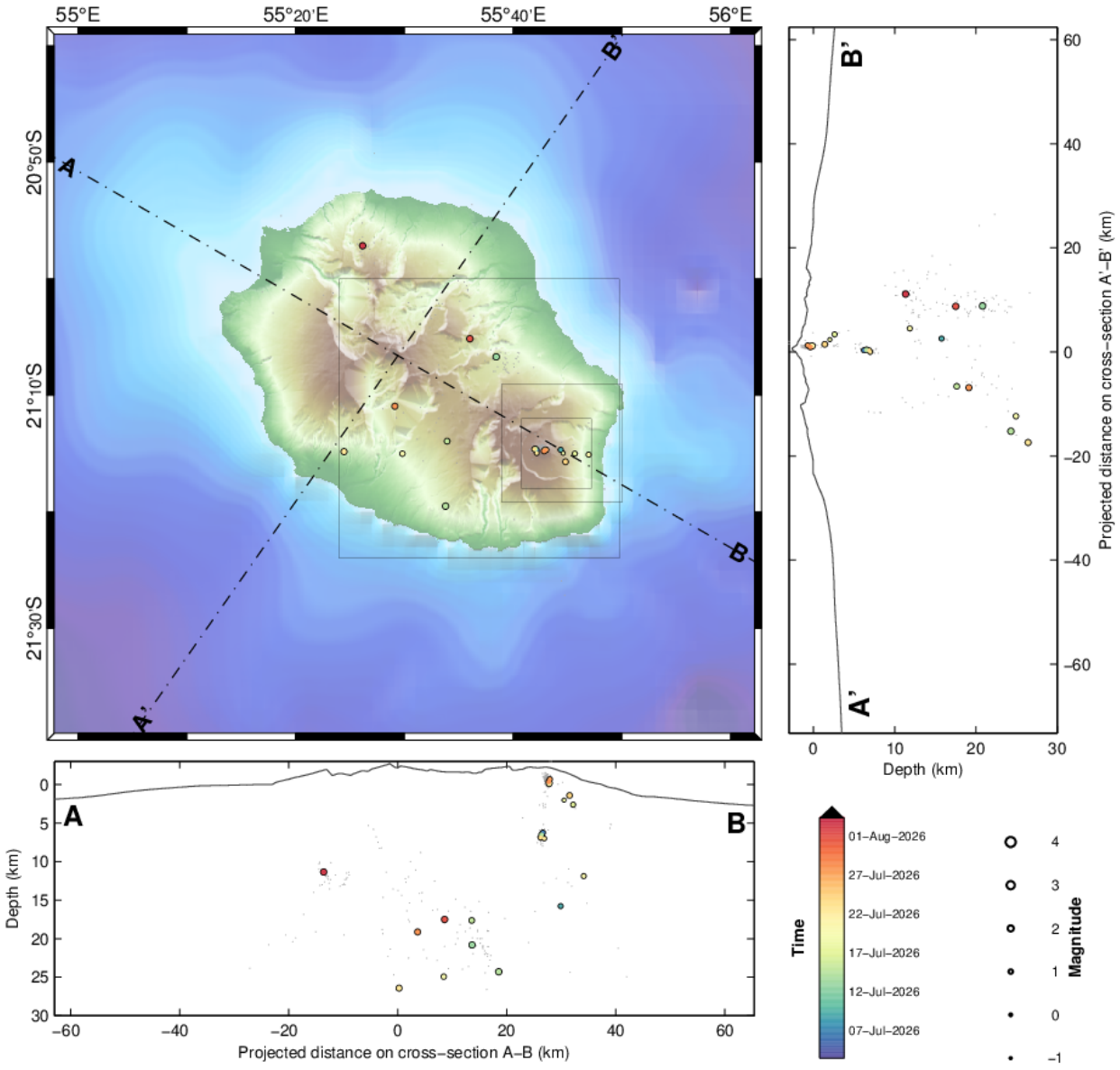

Figure 7: Seismicity below La Réunion in July 2026. Location map (epicenters) and north-west – south-east and south-west – north-east cross-sections (hypocenters) of earthquakes as recorded by OVPF-IPGP. Only localizable earthquakes are shown on the map (©WebObs/OVPF-IPGP).

Seismic-volcano activity in Mayotte

The « REseau de surveillance VOlcanologique et SIsfmologique de MAyotte (REVOSIMA) » is the structure in charge of the volcano and seismic monitoring of Mayotte. IPGP and BRGM coordinate and manage REVOSIMA. Operational monitoring of seismo-volcanic activity is carried out by IPGP (OVPF), under the joint responsibility of BRGM and in close association with IFREMER and CNRS. REVOSIMA is supported by a scientific and technical partnership. The REVOSIMA consortium: IPGP and Université Paris Cité, BRGM, IFREMER, CNRS, BCSF-RéNaSS, ITES and Université de Strasbourg, IGN, ENS, SHOM, TAAF, CNES, Université Grenoble Alpes and ISTerre, Université Clermont Auvergne, LMV and OPGC, Université de La Réunion, Université Paul Sabatier, Toulouse and GET-OMP, Université de la Rochelle, Université de Bretagne Occidentale, IRD and collaborators.

The seismic-volcano activity in Mayotte for the month is presented in the REVOSIMA monthly bulletin.

All information on the REVOSIMA and the activity in Mayotte can be found on the dedicated webpages:
- https://www.ipgp.fr/observation/infrastructures-nationales-hebergees/revosima/
- https://www.ipgp.fr/actualites-du-revosima/
- https://www.facebook.com/ReseauVolcanoSismoMayotte/
- https://bsky.app/profile/revosima.bsky.social

August 7, 2026
OVPF-IPGP Director

C. Appendix

Definition of Volcanic Alert Levels for Piton de la Fournaise

from *disposition spécifique « Volcan Piton de la Fournaise » - arrêté n°2242-* Emergency plan set up by the department responsible for the protection of the population in the event of unrest or activity of the Piton de la Fournaise

•**"Vigilance"**: possible eruption in medium term (a few days or weeks) **or** presence of risks on the sector (rockfalls, increase of gas emissions, still hot lava flows…).

Access to the Enclos Fouqué caldera and to the summit volcano are allowed with restrictions.

• **"Alert 1"**: probable or imminent eruption.

Access to the Enclos Fouqué caldera and to the summit are closed and prohibited.

• **"Alert 2"**: ongoing eruption.
Alert 2-1: ongoing eruption inside the Enclos Fouqué caldera without threat to the safety of people, property or the environment

Alert 2-2: ongoing eruption inside the Enclos Fouqué caldera with direct or indirect threat to the safety of people, property or the environment.

Access to the Enclos Fouqué caldera and to the summit are closed and prohibited. For Alert 2-2, evacuation of the people and vehicles depending on the issues.

• **"Alert 2-3"**: ongoing eruption outside the Enclos Fouqué caldera with threat to the safety of people, property or the environment.

Access to the Enclos Fouqué caldera and to the summit are closed and prohibited. Evacuation of the people and vehicles depending on the issues.

• **"Sauvegarde"**: end of eruption.

Evaluation of a partial reopening of the Enclos Fouqué caldera access.

References

Altamimi, Z., Rebischung, P., Collilieux, X., Métivier, L., & Chanard, K. (2023), ITRF2020: an augmented reference frame refining the modeling of nonlinear station motions, Journal of Geodesy, 97(5), 47. https://link.springer.com/article/10.1007/s00190-023-01738-w

Arellano, S., Galle, B., Apaza, F., Avard, G., Barrington, C., Bobrowski, N., ... Yalire, M. (2020), Synoptic analysis of a decade of daily measurements of SO2 emission in the troposphere from volcanoes of the global ground-based Network for Observation of Volcanic and Atmospheric Change, Earth System Science Data Discussions, 2020, 1-3

Bean, C., Lokmer, I., & O'Brien, G. (2008), Influence of near-surface volcanic structure on long-period seismic sig-nals and on moment tensor inversions: Simulated examples from Mount Etna. J. Geophys. Res.: Solid Earth (1978–2012), 113(B8), 716. https://doi.org/10.1029/2007JB005468

Beauducel, F., A. Peltier, A. Villie, W. Suryanto (2020), Mechanical imaging of a volcano plumbing system from GNSS unsuper-vised modeling. Geophysical Research Letters, 47, e2020GL089419. https://doi.org/10.1029/2020GL089419.

Bénard, B., Di Muro, A., Liuzzo, M., Gurrieri, S., Boissier, P., Brunet, C. et al. (2023), Seasonal environmental con-trols on soil CO2 dynamics at a high CO2 flux sites (Piton de la Fournaise and Mayotte volcanoes), Journal of Ge-ophysical Research: Biogeosciences, 128(6), e2023JG007409

Bertiger, W., Bar-Sever, Y., Dorsey, A., Haines, B., Harvey, N., Hemberger, D., ... & Willis, P. (2020), Gip-syX/RTGx, a new tool set for space geodetic operations and research, Advances in space research, 66(3), 469-489

Boudoire, G. (2017), Architecture et dynamique des systèmes magmatiques associés aux volcans basaltiques : exemple du Piton de la Fournaise. Volcanologie, Université de la Réunion, 2017. Français. ⟨NNT : 2017LARE0022⟩. ⟨tel-01902958⟩

Duputel, Z., Lengliné, O., Ferrazzini, V. (2019), Constraining Spatiotemporal Characteristics of Magma Migration at Piton De La Fournaise Volcano From Pre-eruptive Seismicity, Geophys. Res. Lett. 46: 119-127, https://doi.org/10.1029/2018GL080895

Lomax, A., Virieux, J., Volant, P., & Berge-Thierry, C. (2000), Probabilistic earthquake location in 3D and layered models. In C. H. Thurber & N. Rabinowitz (Eds.), Advances in Seismic Event Location, Modern Approaches in Geophysics (pp. 101–134). Springer, Dordrecht, Netherlands

Murphy, D., Bertiger, W., Hemberger, D., Komanduru, A., Peidou, A., Ries, P., & Sibthorpe, A. (2024), Jet Propul-sion Laboratory Analysis Center Technical Report 2024. In R. Dach & E. Bockmann (Eds.), International GNSS Service Technical Report 2024 (IGS Annual Report), IGS Central Bureau and University of Bern; Bern Open Pub-lishing. https://doi.org/10.48350/191991

Nikkhoo, M., Walter, T. R., Lundgren, P. R., & Prats-Iraola, P. (2016), Compound dislocation models (CDMs) for volcano defor-mation analyses, Geophysical Journal International, 208, 877–894

Rebischung, P., Altamimi, Z., Métivier, L. et al. (2024), Analysis of the IGS contribution to ITRF2020, J Geod 98, 49. https://doi.org/10.1007/s00190-024-01870-1

SeisComP (2024), SeisComP 6 – Earthquake Monitoring Software, https://www.seiscomp

Zecevic, M., De Barros, L., Bean, C. J., O'Brien, G. S., & Brenguier, F. (2013), Investigating the source characteristics of long-period (LP) seismic events recorded on Piton de la Fournaise volcano, La Réunion. Journal of Volcanology and Geothermal Research, 258, 1–11. https://doi.org/10.1016/j.jvolgeores.2013.04.009

Acknowledgments
Thank you to organizations, communities and associations for publicly posting this report for the widest dissemination

Information
All information on the Piton de la Fournaise activity can be found on the OVPF-IPGP media:
- Internet website : ipgp.fr/fr/ovpf/actualites-ovpf
- Bluesky : @ovpf.bsky.social
- Facebook : facebook.com/ObsVolcanoPitonFournaise

A preliminary automatic daily bulletin of the OVPF-IPGP, relating to the activities of the day before, validated by an analyst, is published daily. It can be accessed directly at this link:
http://volcano.ipgp.fr/reunion/Bulletin_quotidien/bulletin.html

The seismicity validated in continuous by OVPF-IPGP can also be followed on the RENASS portal: https://renass.unistra.fr/fr/zones/la-reunion

The OVPF-IPGP data are distributed by the IPGP data centre - Volobsis - and are also available on the EPOS and Epos-France websites (doi:10.18715/REUNION.OVPF).