

**Supplementary Table S4. TAAL VOLCANO 12 January 2022.** Significant statements highlighted.

| PHIVOLCS  | BATANGAS PDRRMC   |
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|   | Planned Action / Evacuation Protocol<br>(from Contingency Plan 2018)  |
| <p><b>TAAL VOLCANO BULLETIN - 12 January 2020 8:00 AM</b></p> <p>Taal Volcano's seismic monitoring network recorded forty-four (44) volcanic earthquakes during the 24-hour observation period. Field measurements on 09 January 2020 at the western sector of the Main Crater Lake yielded a decrease in water level from 0.40 meters to 0.25 meters, no change in water temperature of 31.1 °C and an increase in acidity from pH of 2.81 to 2.79. Ground deformation measurements through precise levelling surveys from 21-29 November 2019 indicated inflation of the edifice consistent with recent results from continuous GPS data.</p> <p><b>Alert Level 1</b> remains in effect over Taal Volcano. This means that hazardous eruption is not imminent. The public, however, <b>is reminded that the Main Crater should be strictly off-limits because sudden steam explosions may occur and high concentrations of toxic gases may accumulate. The northern portion of the Main Crater rim, in the vicinity of Daang Kastila Trail, may also become hazardous when steam emission along existing fissures suddenly increases.</b> Furthermore, the public is also reminded that the entire Volcano Island is a Permanent Danger Zone (PDZ), and permanent settlement in the island is strongly not recommended.</p> | <p>Note: Taal Volcano on Alert Level 1 since 28 March 2019</p> <p>Entire Volcano Island is a Permanent Danger Zone (PPDZ), and permanent settlement in the island is strongly not recommended.</p> <p>Note: PDRRMO and TVPL adhered to enforcing TMC is off-limits; tourism activities continued up to the crater rim view deck</p>   |
| <p><b>TAAL VOLCANO BULLETIN - 12 January 2020 2:30 PM</b></p> <p>This serves as notice for the raising of the alert status of Taal from Alert Level 1 (abnormal) to <b>Alert Level 2 (increasing unrest)</b></p> <p>Taal Volcano is manifesting increased level of activity:</p> <ol style="list-style-type: none"><li>1. <b>Visual Observation:</b> Increased steaming activity in at least five spots inside the Main Crater has been observed around 1300H today with the largest activity comprised by a phreatic explosion that generated a plume</li></ol>  | <p><b>Voluntary evacuation of the Taal Volcano Island</b> residents is recommended, the mothers with infants and children, the sick or old age and the persons with disabilities from the five (5) community groupings in the volcano island under the jurisdiction of the Municipalities of Balete, San Nicolas and Talisay are being encouraged and guided in the evacuation at the mainland.</p> |

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approximately 100 meters high. The activity is still ongoing as of this issuance,

2. **Volcanic Earthquake Activity:** Since 28 March 2019, Taal Volcano seismic network has manifested moderate to high level of seismic activity. Some of these earthquakes were felt with intensity ranging from Intensity I (Scarcely Perceptible) to Intensity II (Weak Shaking) in the barangays of Calauit, Balete, Sitio Tibag, Pira-Piraso, and Buco, Talisay, Alas-as and Pulangbato, San Nicolas, Batangas. Often, these felt earthquakes are accompanied by rumbling sounds. Today, three felt earthquake events were recorded at 035H, 1043H and 1400H. A seismic swarm has started at around 1100H and ongoing as of 1410H.
3. **Ground Deformation.** Cumulative elevation changes of the volcanic edifice based on precise leveling (PL) measurements this March 2019 indicate that it has slightly inflated relative to November 2018 after a period of general deflation since 2016. Slight inflation of the edifice starting on January 2019 was also recorded by continuous Global Positioning Systems (GPS) after a period of general deflation since 2016.
4. **Gas Emissions.** Dissolved carbon dioxide (CO<sub>2</sub>) concentrations in Taal Main Crater (MCL) based on continuous measurements have been gradually increasing since February 2019, indicating a slight increase in the input of volcanic CO<sub>2</sub> degassing from the hydrothermal system into the lake.

In view of the above, DOST-PHIVOLCS is now raising the alert status of Taal from Alert Level 1 to **Alert Level 2**. This means that there is probable magmatic intrusion that may or may not lead to an eruption. **The public is reminded that the Main Crater should be strictly off-limits** because sudden steam explosions can occur and high concentrations of lethal volcanic gases can be released. The northern portion of the Main Crater rim in the vicinity of Daang Kastila Trail can also become hazardous with fumarolic or degassing activity along existing fissures suddenly increases. Furthermore, the public is also reminded that the entire Volcano Island is a Permanent Danger Zone (PDZ), and permanent settlement in the island is strongly not recommended. In view of the ongoing phreatic activity in the main crater. PHIVOLCS advise precautionary

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evacuation of Taal Volcano Island pending observation of the volcano's condition within the next 48 hours.

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**TAAL VOLCANO BULLETIN - 12 January 2020 4:00 PM**

This serves as notice for the raising of the alert status of Taal from **Alert Level 2 (increasing unrest) to Alert Level 3 (magmatic unrest)**. As of 1404H (2:04 PST), Taal Volcano Main Crater has escalated its eruptive activity, generating an eruption, plume 1 kilometer-high accompanied by volcanic tremor and felt earthquakes in Volcano Island and barangays of Agoncillo, Batangas. Ashfall is currently being showered on the southwest sector of Taal.

In view of the above DOST-PHIVOLCS is now raising the Alert Status of Taal from Alert Level 2 to **Alert Level 3**. This means that there is magmatic intrusion that is likely driving the current activity. PHIVOLCS strongly recommends Taal Volcano Island and high-risk barangays of Agoncillo and Laurel, Batangas be evacuated due to the possible hazards of pyroclastic density currents and volcanic tsunami. The public is reminded that the entire Volcano Island is a **Permanent Danger Zone (PDZ), and entry into the island as well as high-risk barangays of Agoncillo and Laurel is prohibited**. In addition, communities around the Taal Lake shore are advised to take precautionary measures and be vigilant of possible lakewater disturbance related to the ongoing unrest.

Aside from the **mandatory evacuation of all the remaining residents in the volcano island, the residents from the municipalities/ barangays in the mainland also within seven (7) kilometer radius danger zone are being advised / warned to evacuate to the pre-designated evacuation center** at the safer grounds as far as **10 kilometer** radius and beyond. At eruption stage, the abandoned areas may be affected by large volcanic fragments or ballistic projectiles explosively thrown out from the vents.

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**TAAL VOLCANO BULLETIN - 12 January 2020 7:00 PM**

This serves as notice for the raising of the alert status of Taal from **Alert Level 3 (magmatic unrest) to Alert Level 4 (hazardous eruption imminent)**. As of 5:30 PM PST (1730H), eruptive activity at Taal Volcano Main Crater intensified as continuous eruption generated a tall 10-15 kilometer steam-laden tephra column with frequent volcanic lightning that rained wet ashfall on the general north as far as Quezon City. Volcanic tremor was recorded continuously since 11:00 AM and two volcanic earthquakes of magnitude M2.5 and M3.9 were felt

With or without the possibility of base surges emission if and when the volcano erupts, the residents from the city/ municipalities/ barangays/ sitios within **7-10 kilometer** danger zone of Taal Volcano, are being guided to the pre-designated evacuation center at the safer grounds as far as 15 kilometer radius or beyond.

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at intensity III in Tagaytay City and Alitagtag, Batangas were recorded at 6:15 and 6:22 PM PST respectively.

In view of the above, DOST-PHIVOLCS is now raising the alert status of Taal from Alert Level 3 to **Alert Level 4**. This means that hazardous explosive eruption is possible within hours to days. DOST-PHIVOLCS strongly reiterates total evacuation of Taal Volcano Island and **additional evacuation of areas at high risk to pyroclastic density currents and volcanic tsunami within a 14-kilometer radius from Taal Main Crater**. Areas in the general north of Taal Volcano are advised to guard against the effects of heavy and prolonged ashfall. Civil aviation authorities must advise aircraft to avoid the airspace around Taal Volcano as airborne ash and ballistic fragments from the eruption column pose hazards to aircraft. DOST-PHIVOLCS is continually monitoring the eruption and will update all stakeholders of further developments.

At eruption stage, the abandoned areas may be affected by base surges and lake water oscillation (volcanic tsunami) and falling out of tephra/ ash is heavier near active vents

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Full Taal Volcano Bulletins can be found in the PHIVOLCS Website