GEOLOGICAL HAZARDS | Volcano

MAP READING AND INTERPRETATION

At the end of the activity, the learners will be able to:

- identify the different types of volcano hazard maps;
- use the different volcano hazard maps for evacuation planning; and
- understand what Volcano Alert Levels mean

INSTRUCTIONS:

1. Before using the map, be sure that you understand its basic parts
   I. Map Title (tells you what the map is all about)
   II. Legend (details of what each symbols/ colors mean)
   III. Scale (refer to the bar scale as this helps determine distances, etc)

2. Using the maps, fill in Table 1, Table 2 and Table 3 with the correct answers. All answers should be handwritten.

   MAP 1 *(title)*: **TAAL VOLCANO BASE SURGE HAZARD MAP**

   MAP 2 *(title)*: **MAYON VOLCANO PYROCLASTIC FLOW HAZARD MAP**

TABLE 1. Based on hazard MAP 1, identify the MUNICIPALITIES/CITIES that are likely to be affected by pyroclastic flows or surges.

MUNICIPALITY / CITY *(alphabetically arranged)*	**RATIONALE**
1. Agoncillo	The place is within the base surge zone.
2. Mataas na Kahoy	Situated around the buffer zone and base surge prone area.
3. San Nicolas	Situated right beside the potential eruption vent.
4. Taal	The place is within the base surge zone.
5. Talisay	Situated right beside the potential eruption vent.

TABLE 2. For each municipality identified based on MAP 2, list utmost two (if applicable) barangays (alphabetically arranged) found within 6-kilometers PDZ. Barangays found within 6-7 km? 7-8 km?

CITY / MUNICIPALITY *(alphabetically arranged)*	**BARANGAYS WITHIN 6 km**	**BARANGAYS WITHIN 6-7 km**	**BARANGAYS WITHIN 7-8 km**
Camalig	Quirangay Sua	Tumpa	Cabagian Salugan
Guinobatan	Masarawag Pequeno	Doia Tomasa Muladbucad Pequeno	Maninila Muladbucad Grande
Legazpi City	Brgy. 50 – Padang	Brgy. 52 - Matanag	Brgy. 53 - Bonga Brgy. 54 - Mabinit
Santo Domingo	Fidel Surtida	San Fernando	Lidong
Tabaco City	Oson	San Isidro	Magapo

TABLE 3. Part of DRRM is evacuation. If you are to identify sites for evacuation, where should it be?

BARANGAY TO BE EVACUATED *(alphabetically arranged)*	**RECOMMENDED AREA OF EVACUATION**	**DISTANCE OF EVACUATION AREA FROM BARANGAY LOCATION**	**PRIMARY CONSIDERATION IN CHOOSING THE EVACUATION AREA ASIDE FROM THE ZONATIONS**
1. Buang	Tabaco City	4-5 KM	It is the nearest municipality that is out of the extended Danger zone.
2. Masarawag	Maipon/Bubulusan	6 KM	Far enough to be secure.

In map 2, ***BOX*** *and* ***ASSIGN*** *the corresponding number of the barangay to be evacuated then* ***ENCIRCLE*** *the recommended area for evacuation*. Lastly, **DRAW** an arrow to connect the two sites.

High resolution images of the maps are available on the PHIVOLCS website.

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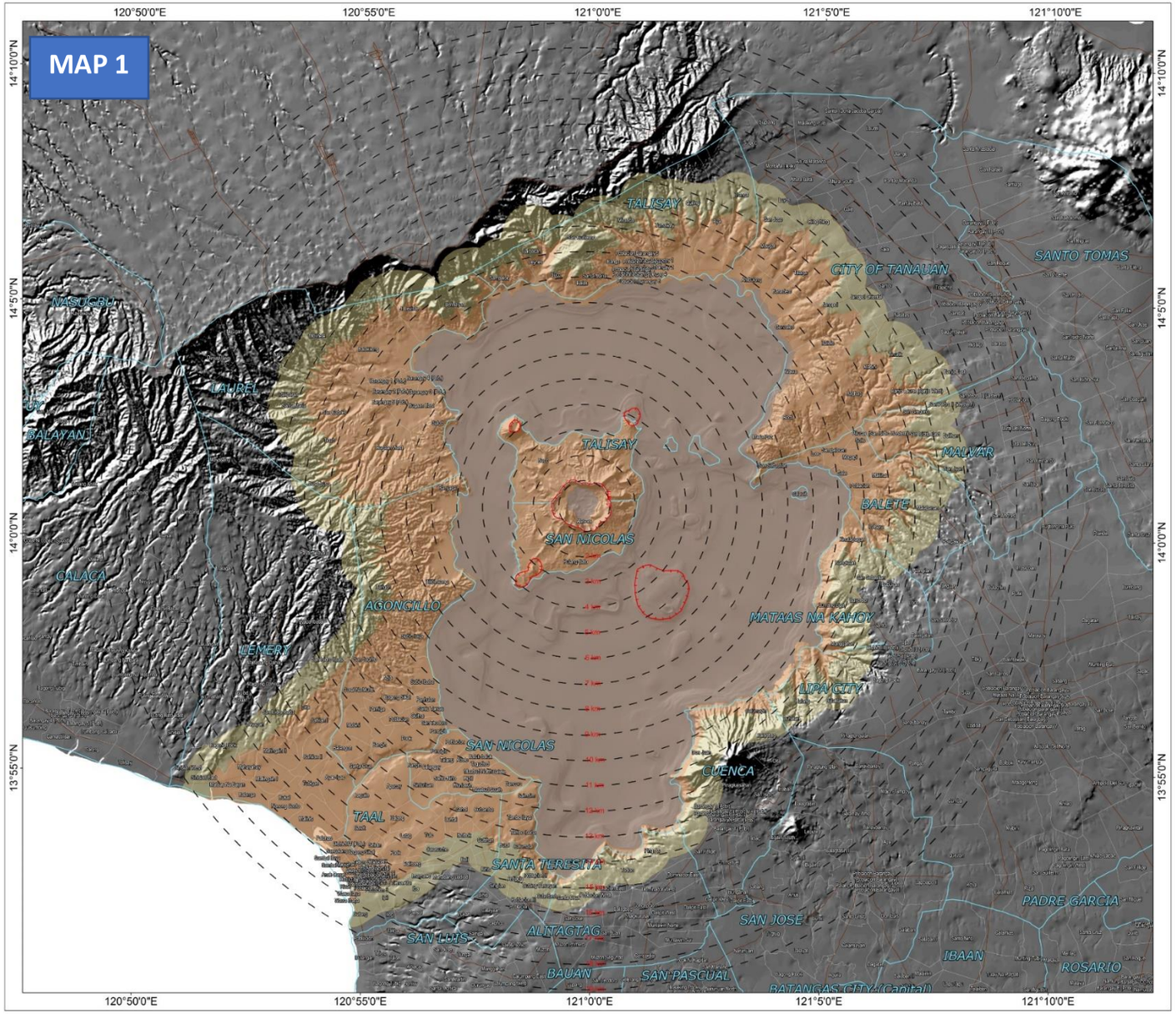

TAAL VOLCANO BASE SURGE HAZARD MAP

Legend

- Zones prone to base surge
- Buffer zone
- Potential eruption vent
- Lake/Waterbody
- Municipal boundary
- Barangay boundary
- Road

Disclaimer:
Administrative boundaries based on NSO data are approximate.

Base Surge Hazard Zone limits are based on the reconstructed extents of the worst-case eruption of 1754 using energy-line modeling. This is replicated for five (5) potential eruption vents, namely, Taal Volcano Island Main Crater, Binintiang Malaki, Pirapiraso, Off-Calauit and Binintiang Munti. Buffer Zones are marked out at one (1) kilometer areal distance from the hazard zone limits as additional precautionary zones, in case such are needed, for public safety guidance.

As a general reminder, Taal Volcano Island is designated as a Permanent Danger Zone (PDZ).

Areas within and close to the Volcano Island may be affected by large volcanic fragments explosively thrown out (ballistic projectiles) from the vent.

Areas around Taal Volcano that could include those extending beyond the coverage of this map may experience fallout tephra/ashfall. Fallout tephra/ashfall deposition depends on prevailing wind direction and magnitude of eruption, but is generally heavier near the active vent and thins out indefinitely away from the eruption center.

Assumptions
1. Possible eruption from various active vents within the volcano island were considered for modeling.
2. Worst-case scenario is similar to the 1754 eruption.
3. If the eruption center occurs outside the volcano island, excepting Off-Calauit, hazard zonation boundaries will change.

Based on Ruelo (1983); PHIVOLCS (1999)

Base data from J. S. Rañola, NAMRIA Topographic Base Maps, PHIVOLCS, and the GIS Laboratory

Modified by M.A.V. Bornas, A.C. Pidlaoan, A.D. Aquino, and P.J. Delos Reyes, Geology and Geophysics R&D Division (GGRDD)

As of April 2011

N

4 2 0 4
Kilometers

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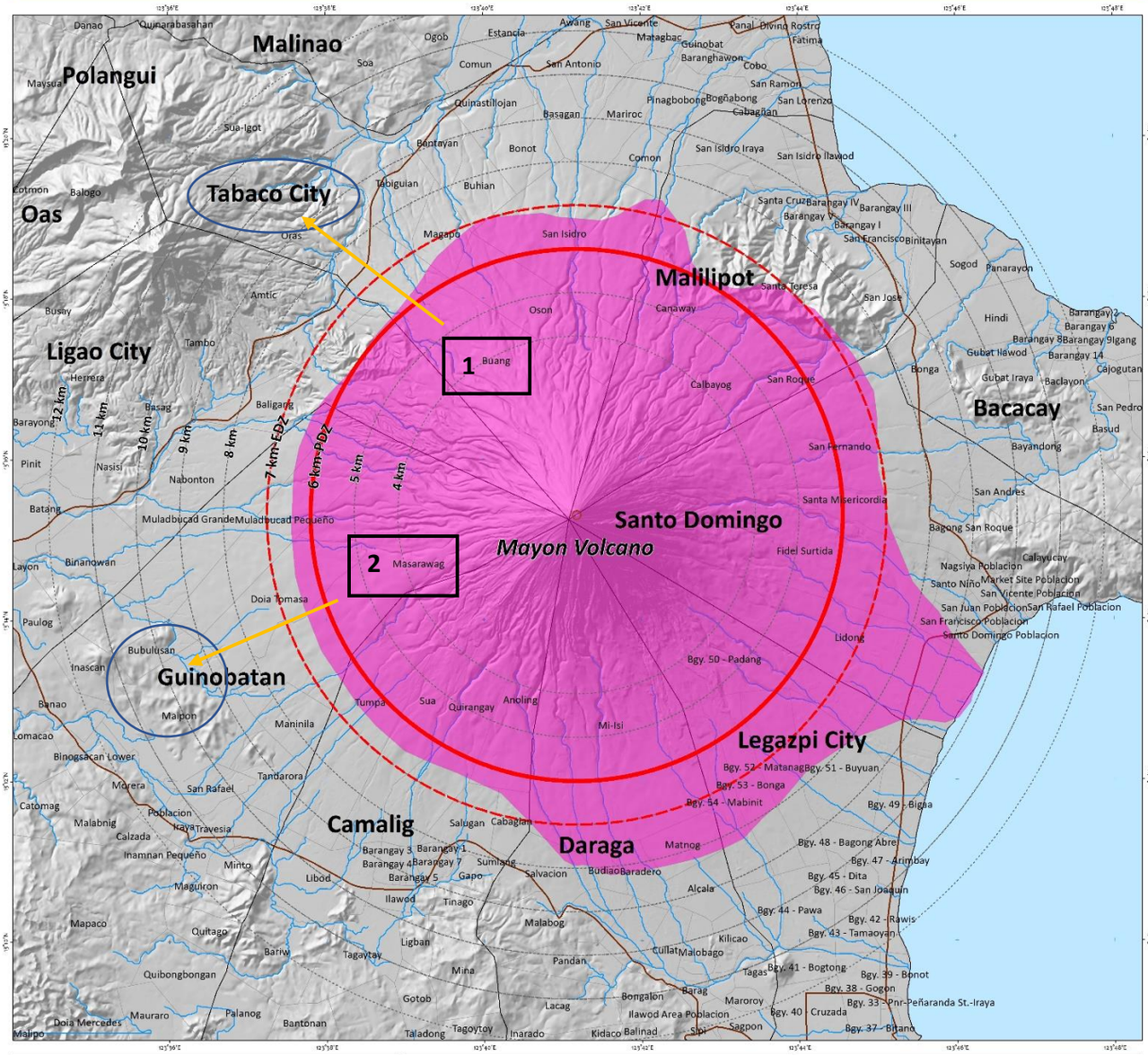
MAYON VOLCANO PYROCLASTIC FLOW HAZARD MAP
as of April 2003



LEGEND

- Areas Prone to Pyroclastic Flow
- 6 km - Permanent Danger Zone (PDZ)
- 7 km - Extended Danger Zone (EDZ)
- kilometer radius from the summit
- Mayon Volcano summit crater
- River
- Main Road
- Municipal boundary
- Barangay boundary

MAP 2

EXPLANATION

Hazard zonation is subject to change in the event of change(s) in the configuration of the crater rim. Hazard zone limits are approximated based on data from historical medium-scale eruptions and may be exceeded duringlarger-scale Plinian eruption.

NOTE: Areas around Mayon Volcano that could include those extending beyond the coverage of this map may experience tephra fall (ashfall) sourced either from an eruption column or from ash clouds associated with pyroclastic flows. Tephra fall deposition depends on prevailing wind direction and source characteristics (e.g. eruption column height, pyroclastic flow paths) but is generally heavier near the crater and downwind of pyroclastic flow channels and diminishes indefinitely way from these areas.

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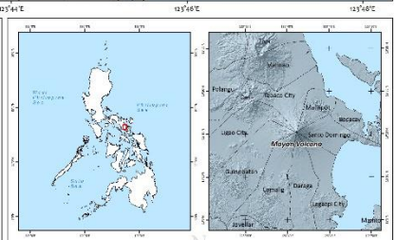

0 0.5 1 2 3 4 5
Kilometers

Geographic Coordinate System ..... World Geodetic System 1984 (WGS 84)
Datum ..... WGS 84
Prime Meridian ..... Greenwich
Angular Unit ..... Degree

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