STROMBOLI - VOLCANIC ALERT LEVEL SYSTEM

PROTEZIONE CIVILE
Presidenza del Consiglio dei Ministri
Dipartimento della Protezione Civile

ALERT LEVEL	VOLCANIC ACTIVITY STATUS	ONGOING OR EXPECTED HAZARDS	POSSIBLE IMPACT SCENARIOS
GREEN	QUIESCENT	**No eruptive activity and normal degassing** from the summit craters.	**Toxic gas emissions** may reach downwind sectors
YELLOW	LOW TO MEDIUM ERUPTIVE ACTIVITY Monitoring parameters from low to medium values	**LOW OR MEDIUM STROMBOLIAN EXPLOSIVE ACTIVITY,** EVENTUALLY ASSOCIATED WITH: ▪ **Short-lived (hours) lava overflows** along the Sciara del Fuoco ▪ **Displacements** of the crater area and/or of the Sciara del Fuoco involving small or medium volumes[1].	▪ **Tephra fallout (ranging from centimeters to decimeters)** in the crater area and, eventually, up to Pizzo sopra La Fossa ▪ **Rock falls or debris slides** along the Sciara del Fuoco, propagating tens of meters into the sea.
ORANGE	HIGH ERUPTIVE ACTIVITY Monitoring parameters on high values	**HIGH STROMBOLIAN EXPLOSIVE ACTIVITY**, EVENTUALLY ASSOCIATED WITH: ▪ **Long-lived (days) lava overflows** along the Sciara del Fuoco ▪ Partial **collapses** of the craters which may trigger hot debris avalanches along the Sciara del Fuoco ▪ **Displacements** of the crater area and/or of the Sciara del Fuoco involving large volumes[2] ▪ Ongoing **lava flows** fed by eruptive vents along the Sciara del Fuoco.	▪ **Tephra fallout (ranging from centimeters to decimeters in size)** in the summit area, eventually affecting the hiking trails ▪ **Rock falls or debris avalanches** along the Sciara del Fuoco, propagating tens of meters into the sea ▪ **Hydro-magmatic explosions** along the Sciara del Fuoco coastline caused by lava-sea interaction. Fallout of big sized ballistics may reach several hundred meters from the coast ▪ **Wildfires** could propagate very quickly towards populated areas ▪ **Emission of toxic gases** from the lava sea-entry.
RED	VERY HIGH ERUPTIVE ACTIVITY Monitoring parameters on very high values	**VERY HIGH STROMBOLIAN EXPLOSIVE ACTIVITY**, ASSOCIATED WITH: ▪ **Effusive vents opening** along the Sciara del Fuoco feeding lava flows ▪ **Displacement** of emerged and submerged sectors of the Sciara del Fuoco flank involving very large volumes[3], caused by magma intrusion ▪ **Magma intrusion** outside of the Sciara del Fuoco, eventually followed by the opening of eruptive vents.	▪ **Tephra fallout (ranging from centimeters to meters in size)** in the summit area, eventually affecting the hiking trails ▪ **Ash fallout** affecting the downwind sectors with disruptions to the populated areas, streets and infrastructures ▪ **Rock falls or debris avalanches** along the Sciara del Fuoco, propagating hundreds of meters into the sea ▪ **Tsunami waves** affecting island's coastal populated areas and infrastructures. Other Aeolian Islands and coastal areas of the Southern Tyrrhenian might be affected as well, depending on the size of the tsunami ▪ **Hydro-magmatic explosions** along the Sciara del Fuoco coastline caused by lava-sea interaction. Fallout of big sized ballistics may reach several hundred meters from the coast ▪ **Emission of toxic gases** from the lava sea-entry ▪ In case of magma intrusions outside of the Sciara del Fuoco, **lava flows** could affect populated areas, streets and infrastructures ▪ **Extensive wildfires** could propagate very quickly towards populated areas.

*[1] **SMALL VOLUME:** <10.000 m³ | [1]**MEDIUM VOLUME:** 10.000-100.000 m³ | [2]**LARGE VOLUME :** 100.000-1 Million m³ | [3]**VERY LARGE VOLUME:** > 1 Million m³*

VIOLENT EXPLOSIONS - **In alert levels YELLOW, ORANGE and RED the following violent explosive events could occur at any time.**

VIOLENT EXPLOSIVE EVENTS	POSSIBLE IMPACT SCENARIOS
MAJOR EXPLOSIONS	▪ **Tephra fallout (ranging from centimeters to decimeters in size)** down to 400 m a.s.l., eventually affecting the hiking trails ▪ **Wildfires** could propagate very quickly towards populated areas ▪ **Pyroclastic flows** mainly in the Sciara del Fuoco, propagating hundreds of meters into the sea.
PAROXYSMAL EXPLOSIONS	▪ **Tephra fallout (ranging from centimeters to meters in size)** could reach populated areas, streets and infrastructures causing disruptions and damages ▪ **Pyroclastic flows** primarily in the Sciara del Fuoco, and secondly in the Forgia Vecchia valley, propagating several kilometers of meters into the sea and/or into the North-Eastern and Western flanks of the island, affecting and damaging populated areas ▪ **Extensive wildfires** could propagate very quickly towards populated areas ▪ **Tsunami waves** affecting island's coastal populated areas and infrastructures. Other Aeolian Islands and coastal areas of the Southern Tyrrhenian might be affected as well, depending on the size of the tsunami.

- *In each of the alert levels are described the **most likely events** not necessarily observed or expected simultaneously.*
- ***In all of the above alert levels** other **high impact events** could always occur, even if at present time the probability of their occurrence is low.*