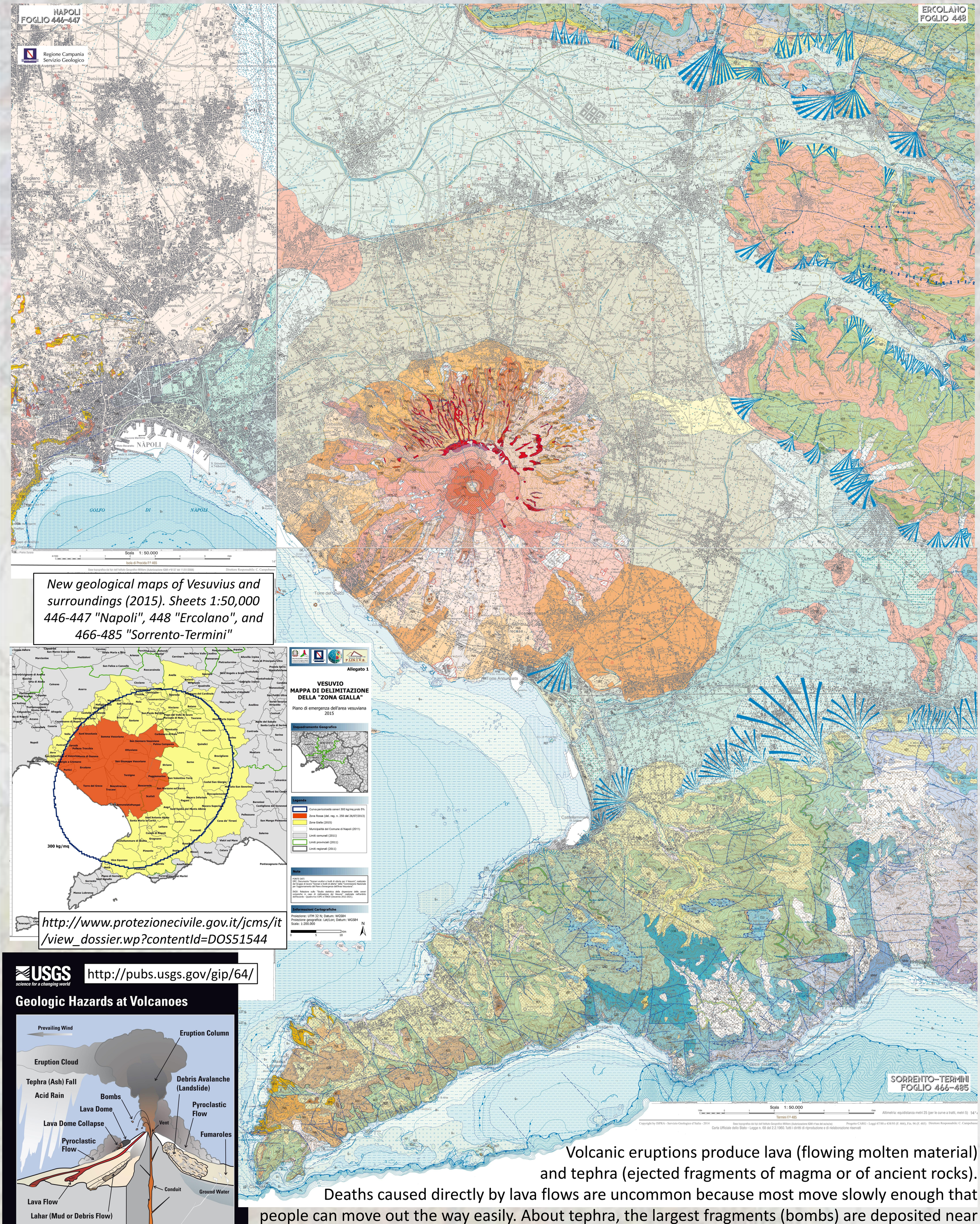
Italian Geological Maps – More than a colored picture

Using geological maps to support better policies for society

WE MAPS
INTERNATIONAL MAP YEAR 2015–2016

PANEL 5C

Volcanoes in Italy: Vesuvius
From the CARG project to volcanic hazard maps



New geological maps of Vesuvius and surroundings (2015). Sheets 1:50,000 446-447 "Napoli", 448 "Ercolano", and 466-485 "Sorrento-Termini"

http://www.protezionecivile.gov.it/jcms/it/view_dossier.wp?contentId=DOS51544

http://volcanoes.usgs.gov/index.html

Volcanic eruptions produce lava (flowing molten material) and tephra (ejected fragments of magma or of ancient rocks). Deaths caused directly by lava flows are uncommon because most move slowly enough that people can move out the way easily. About tephra, the largest fragments (bombs) are deposited near the eruptive vent; the smallest material, volcanic ash (<2 mm diameter), is both easily convected upward within the plume and carried downwind for very long distances. Ashfall rarely endangers human lives, but it can dramatically damage buildings, transportation means, water and wastewater, power supply, communications equipment, agriculture. Moreover, as a result of widespread distribution by wind, ash clouds are a major hazard to aviation.

Volcanic products of an eruption may move also as pyroclastic flow, that represents the most deadly of all volcanic phenomena. Pyroclastic flows contain a mixture of hot lava blocks, pumice, ash and volcanic gas. They move at very high speed (typically greater than 80 km per hour) down volcanic slopes. Volcanoes monitored by observatory networks generally exhibit unrest phenomena that, when detected and analyzed in time, allow eruptions to be anticipated and communities at risk to be forewarned.

The Vesuvius Observatory is responsible for monitoring of Vesuvius. It is the oldest volcanology observatory in the world and now is a branch of the National Institute of Geophysics and Volcanology (INGV). In the 2015 the Italian Department of Civil Protection designed an emergency plan around Vesuvius that, moving from CARG geological data, defined a red zone (the area that potentially could be involved by lava and/or pyroclastic flows) and a yellow zone (the area where buildings could collapse under an ash load of 300kg/m^2).

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