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È VIVO! In 3D (It's alive! In 3D - Virtual eruptions at Vesuvius in 3D): A short video to disseminate results from numerical simulation of pyroclastic flows

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This presentation introduces a DVD video produced to illustrate our research work on pyroclastic flows modelling. We employ a 3D numerical model which describes the main features of the multi-phase and multi-component dynamics of pyroclastic density currents (or pyroclastic flows in a broad sense), from their generation to their propagation along complex terrains. Numerical results are translated into 3D color animations, which describe the temporal evolution of selected flow variables, such as temperature or ash concentration in the flow. The animations provide a detailed and effective description of the natural phenomenon. The 3D, colorful movies easily capture the people's attention, being impressive and evocative. They should convey the correct impression that the modeling is based on an advanced research approach, made possible by cutting-edge technology. At the same time, the animations only provide an approximate representation of the risk potentially posed by future volcanic activity. This should make the associated message less frightening and reduce the risk of denial that sometime accompanies the information on natural hazards. We intentionally avoid the documentary's style, and point to a short duration (ca.10 min), with a fast editing. The animations are introduced and commented by researchers and professionals who deals at various levels with the study of pyroclastic flows and their impact. Their comments, taken as short interviews, describe the natural process, as well as the model and its applications. The ensemble of different voices and faces provides a direct sense of the multi-disciplinary effort involved in the assessment of pyroclastic flow hazard. It also introduces the people who address this complex problem and the personal involvement beyond the scientific results. The resulting video is meant to be a flexible outreach tool, suited to introduce the topic of pyroclastic flow dynamics and hazard to a general audience.