Pyroclastic Currents Benchmarking Workshop - Pisa, 24-25 November, 2026

Tuesday, 24 November

Theme: natural events. Field evidence, models against field data, then the benchmark methods that tie them together.

Morning session: opening and field observations

Convener(s): Ulrich Küppers. Closing discussion: Rebecca Williams.

START	END	SPEAKER	COAUTHOR(S)	TITLE	METHOD
09:00	09:30	**Opening**		Welcome, aims, how the two days work	Opening
09:30	09:50	**Brittany Brand**	Alexandra Daniels, Chen Chen, Sylvain Charbonnier, David George	Infrastructure, People, and Volcanic Hazards: A Hazard-to-Risk-to-Decision Framework for PDCs and Lahars at Mount Hood Volcano, Oregon (USA)	Framing
09:50	10:10	**Rebecca Williams**	Brown, J., Ogburn, S., Brand, B., Breard, E. C. P., Charbonnier, S., Dowey, N., Dufek, J., Jellinek, M., Kueppers, U., Lube, G., & Rowley, P.	Lessons from FIAMME for developing field case studies: What, where and how are not easy questions to answer	Field
10:10	10:30	**Rémy Jubertie**	Lucia Gurioli, Catherine Deniel	Field constraints on PDC dynamics during a small-volume maar-forming eruption	Field
10:30	10:50	**Matteo Trolese**	Matteo Cerminara, Tomaso Esposti Ongaro, Guido Giordano	Temperature as a tracer of pyroclastic density current dynamics: from source processes to deposits and models	Field
Coffee break (10:50 to 11:30)					
11:30	11:50	**Federico Di Traglia**		Deposit-derived PDCs: constraints from observations, monitoring, and stability models	Field
11:50	12:20	**Daniele Andronico, Francesco Zuccarello**	Boris Behncke, Annalisa Cappello, Francesco Ciancitto, Paola Del Carlo, Mattia de' Michieli Vitturi, Alessio di Roberto, Tomaso Esposti Ongaro, Gaetana Ganci	Recent pyroclastic density currents at Etna and Stromboli: field observations and insights into flow dynamics and hazard at basaltic volcanoes	Field
12:20	12:40	**Gert Lube**	Ermanno Brosch, James Ardo, Geoff Kilgour, Bernhard Neumann	Eruption and PDC dynamics of the Whakaari 2019 disaster – a case for a Tier 1 benchmark?	Field
12:40	13:00	**Discussion**	Lead: Rebecca Williams	Feedback on the FIAMME framework, then: what must a field case provide to be usable as a benchmark? Minimum measurements, resolution, uncertainty, sampling.	Discussion
Lunch break (13:00 to 14:30)					

Afternoon session: model confirmation against natural events, and benchmark methods

Convener(s): Emily Lane. Discussion: Tomaso Esposti Ongaro

START	END	SPEAKER	COAUTHOR(S)	TITLE	METHOD
14:30	14:50	**Paul Bobin**	Gert Lube, Eric Breard, Ermanno Brosch, Bernhard Neumann, Shungo Tonoyama	Numerical simulation of the pyroclastic density currents of the 2019 Whakaari eruption using VolcFlow	Models vs field
14:50	15:10	**Bernhard Neumann**	Gert Lube, Eric Breard, Ermanno Brosch, Paul Bobin, Shungo Tonoyama	The Whakaari 2019 eruption - Numerical simulation of the pyroclastic density currents using IMEX	Models vs field
15:10	15:30	**Valentin Gueugneau**	S. Charbonnier	Numerical modeling of the June 3rd, 2018, pyroclastic density currents at Fuego volcano (Guatemala): implications for flow decoupling hazards	Models vs field
15:30	15:50	**Andrea Bevilacqua**	Augusto Neri, Zeno Geddo, Lucas Corna, Alessio Di Roberto, Federico Di Traglia, Massimo Pompilio, Antonella Bertagnini, Mattia de' Michieli Vitturi, Franco Flandoli, Alessandro Tadini	Reconstruction and Hazard Assessment of Deposit-Derived Pyroclastic Density Currents at Stromboli	Models vs field
15:50	16:10	**Claudia Elijas Parra**	Eric Breard, Symeon Makris, Mattia de' Michieli Vitturi, Federica Pardini, Daniele Andronico, Francesco Zuccarello	Quantifying the constraining power of volcanological datasets through Bayesian Inference	Benchmark methods
Coffee break (16:10 to 16:40)					
16:40	17:00	**Sylvain Charbonnier**	Einat Lev, Sam Krasnoff, Franco Garin, Abani Patra	Open source, user friendly online tools for validating and benchmarking PDC models using the VICTOR cyberinfrastructure	Benchmark methods
17:00	17:50	**Discussion**	Lead: Tomaso Esposti Ongaro	Which natural events become Tier 1 benchmark candidates (Whakaari 2019, Fuego 2018, Stromboli 1930, Kawéni maar, Vesuvius 1944)? Common source conditions, output quantities and scores.	Discussion
17:50	18:00	**Sum up**			

Times: start, coffee and lunch as in the draft; end time 18:00 is assumed. A slot is talk + questions in minutes. Conveners and leads are suggestions from the form question on chairing; confirm with them.

Wednesday, 25 November

Theme: experiments and models. Experiments, models against experiments, then breakouts and a roadmap.

Morning session: experiments, and model confirmation against experiments

Convener(s): Michael Manga, Gert Lube for the models

START	END	SPEAKER	COAUTHOR(S)	TITLE	METHOD
09:00	09:15	**Ulrich Küppers**	Carolina Figueiredo (et al.)	Texture-dependent abrasion efficiency of porous pyroclasts during tumbling experiments	Experiments
09:15	09:25	**Michael Manga**	Zhuo Liu, Olivier Roche, Siet van den Wildenberg, Eric Breard, Tong Bo	Particle transport in dilute, turbulent bidisperse suspensions	Experiments
09:25	09:50	**Matteo Cerminara**	Eric Breard, Ermanno Brosch, Gert Lube	Theoretical and experimental methods for benchmarking turbulent multiphase models of dilute pyroclastic density currents	Benchmark methods
09:50	10:25	**Discussion**	Lead: Michael Manga	Which experiments and measurements can become shared benchmark data? Format, resolution, who hosts.	Discussion
10:25	10:50	**Mattia de' Michieli Vitturi**	Eric Breard	Conservative versus non-conservative momentum formulations in depth-averaged models of pyroclastic density currents: insights from experimental benchmarking	Models vs experiments
Coffee break (10:50 to 11:30)					
11:30	11:50	**Eric Breard**	Mattia de' Michieli Vitturi, Claudia Elijas Parra, Joe Dufek	From Deposits to Dynamics: Closing Polydisperse Mass Flow Rheology with a Single Length Scale	Models vs experiments
11:50	12:10	**Shungo Tonoyama**	Gert Lube, Ermanno Brosch, Eric Breard	Tier 2 Benchmarking of a Pseudo-Gas LES Model for Pyroclastic Density Currents	Models vs experiments
12:10	12:30	**Emily Lane**	Gert Lube, Geoffrey Roberts	Numerical modelling of waves generated by marginally buoyant PDCs	Models vs experiments
12:30	12:50	**Tomaso Esposti Ongaro**		Modeling of landslide-induced tsunamis	Framing
Lunch break (12:50 to 14:30)					

Afternoon session: discussion and roadmap

Convener(s): Tomaso Esposti Ongaro. Rebecca Williams, Michael Manga, Sylvain Charbonnier

START	END	SPEAKER	COAUTHOR(S)	TITLE	METHOD
14:30	17:30	**Discussion or breakout sessions**			Discussion or breakout sessions
17:30	18:00	**Sum up**			Opening

Times: start, coffee and lunch as in the draft; end time 18:00 is assumed. A slot is talk + questions in minutes. Conveners and leads are suggestions from the form question on chairing; confirm with them.