

**UNIVERSITÀ DEGLI STUDI DI MILANO**

selezione pubblica per n.\_1\_ posto/i di Ricercatore a tempo determinato ai sensi dell'art.24, comma 3, lettera b) della Legge 240/2010 per il settore concorsuale \_\_\_\_\_04/A1\_\_\_\_\_, settore scientifico-disciplinare \_\_\_\_\_GEO/08 - Geochimica e Vulcanologia\_\_\_\_\_, presso il Dipartimento di \_\_\_\_\_SCIENZE DELLA TERRA "ARDITO DESIO"\_\_\_\_\_, (avviso bando pubblicato sulla G.U. n. \_\_\_\_68\_\_\_\_ del \_\_\_\_1/09/2020\_\_\_\_) Codice concorso \_\_\_\_4471\_\_\_\_

## **Francesca Forni**

### **CURRICULUM VITAE**

#### **INFORMAZIONI PERSONALI**

<b>COGNOME</b>	<b>Forni</b>
<b>NOME</b>	<b>Francesca</b>
<b>DATA DI NASCITA</b>	<b>05/11/1979</b>

La mia ricerca si focalizza sullo studio dei processi che controllano la genesi e l'evoluzione dei corpi magmatici che alimentano le grandi eruzioni siliciche, particolarmente quelle legate a collassi calderici. Il mio approccio combina osservazioni di terreno con analisi geochemiche (elementi maggiori ed in traccia di vetri e minerali), geocronologiche (datazioni U/Pb, U/Th e U/Th-He) e isotopiche (isotopi dello Sr, Nd, Pb e O). Il fine è ricostruire l'architettura dei reservoir magmatici e definire la natura e la durata dei processi che sottendono l'accumulo dei magmi silicatici nella crosta superiore e quelli che controllano i meccanismi eruttivi.

Il mio interesse per la ricerca, ed in particolare per la vulcanologia e la geochemica, è nato durante i miei studi all'Università di Bologna quando ho avuto l'opportunità di far parte di un gruppo di ricerca internazionale attivamente coinvolto in diversi progetti mirati a fornire una caratterizzazione stratigrafica e geochemica del vulcanismo Eoliano. Dopo aver completato con successo il mio primo dottorato a Bologna ho avuto l'opportunità di lavorare ad un nuovo progetto di dottorato all'ETH di Zurigo focalizzato sull'evoluzione della caldera dei Campi Flegrei. Questa esperienza ha rappresentato un passo fondamentale nel mio percorso di maturazione scientifica poiché mi ha fornito gli strumenti necessari per comprendere un'ampia varietà di processi magmatici, da quelli che controllano la genesi e l'evoluzione dei magmi a quelli che si associano all'evento eruttivo. Inoltre, durante questo periodo sono entrata in contatto con diversi gruppi di ricerca internazionali con i quali ho stabilito fruttuose collaborazioni. A partire dal 2018 ho iniziato un post-doc alla Nanyang Technological University di Singapore che mi vede impegnata in un progetto di ricerca mirato a ricostruire la storia eruttiva e la frequenza di eruzioni calderiche a Sumatra (Indonesia).

## Titoli di studio

---

Dottorato di Ricerca, Scienze della Terra, 13 Settembre 2018, ETH Zurigo, Svizzera

*Generation of silicic magmas in upper crustal reservoirs: the cases of Lipari volcano and Campi Flegrei caldera (Southern Italy)*

Supervisore: Prof. Olivier Bachmann

Dottorato di Ricerca, Scienze della Terra, 27 Aprile 2011, Università di Bologna, Italia

*Petrology and geochemistry of Lipari Island (Aeolian Archipelago): constraints on magma genesis and evolution*

Supervisori: Prof. Angelo Peccerillo (Università di Perugia), Dr. Claudio Antonio Tranne (Università di Bologna), Dr. Federico Lucchi (Università di Bologna)

Laurea Magistrale *magna cum laude*, Scienze della Terra, 21 Dicembre 2006, Università di Bologna, Italia

*Petrografia dei prodotti vulcanici riferibili ai centri del Capo, di Rivi e Fossa delle Felci (Isola di Salina - Settore orientale).*

Supervisore: Prof. Natale Calanchi

## Esperienze professionali

---

2018 — Research Fellow, Asian School of the Environment, Nanyang Technological University, Singapore

Responsabile per la caratterizzazione stratigrafica, geochimica e geocronologica delle sequenze ignimbriche prossimali a Sumatra (Indonesia) con lo scopo di ricostruire la frequenza delle eruzioni calderiche, le condizioni di stoccaggio dei magmi e le variazioni composizionali nel settore nord-occidentale dell'arco di Sunda.

Partecipazione alle campagne volte all'acquisizione di dati batimetrici mediante scan sonar e sub-bottom profiler e carotaggio di sedimenti lacustri nei laghi Maninjau, Diatas e Kerinci (Sumatra)

Co-leader per attività di terreno (Sumatra e Bali, Indonesia), training di laboratorio e supervisione di tesi di laurea

2013–2017 Research Assistant, ETH Zurigo

Responsabile per il campionamento e caratterizzazione geochimica di 23 eruzioni ai Campi Flegrei (Italia) con lo scopo di investigare i processi che sottendono alla generazione di gradienti fisico-chimici nelle ignimbriti zonate e all'evoluzione temporale del sistema magmatico dei Campi Flegrei (cicli calderici)

Responsabile del laboratorio di diffrazione a raggi X (XRD)

Training di laboratorio per gli studenti e supervisione di tesi di laurea

Assistente all'insegnamento delle lezioni pratiche (microscopia ottica) e co-leader

per attività di terreno per gli studenti di Bachelor e Master (Kos-Nisyros, Etna, Vesuvio, Campi Flegrei, Isole Eolie)

2011–2013 Assegno di Ricerca, Dipartimento di Scienze Biologiche, Geologiche e-Ambientali (BiGeA), Università di Bologna, Italia

Responsabile per il campionamento e la caratterizzazione geochemica e isotopica delle vulcaniti del settore centrale dell'arcipelago Eoliano (Salina-Lipari-Vulcano)

Assistente all'insegnamento nell'ambito dei corsi di terreno (Isole Eolie), training di laboratorio e supervisione di tesi di laurea

### **Attività di ricerca**

---

#### **Presso la Nanyang University of Singapore:**

- Partecipazione al progetto NRF (National Research Foundation, Prime Minister's Office Singapore) NRF-NRFF2016-04 "Assessing the Volcanic Hazard for Singapore". 2016 a oggi
- Studio geochemico delle variazioni composizionali in ignimbriti zonate, implicazioni per i processi evolutivi delle grandi camere magmatiche crostali e meccanismi eruttivi legati a eruzioni calderiche, in collaborazione con Prof. J. Wolff (Washington State University, USA). 2017 a oggi
- Campionamento e caratterizzazione petrologica e geochemica e datazioni U/Pb, U/Th e U-Th/He delle sequenze ignimbritiche di Sumatra (Indonesia), in collaborazione con Dr. M. Guillong (ETH, Zurigo) e Dr. Giuditta Fellin (ETH, Zurigo). 2018 a oggi
- Studio della batimetria e dei sedimenti lacustri mediante Scan Sonar e Sub-bottom Profiler dei laghi Maninjau, Diatas e Kerinci (Sumatra). 2018-2019
- Datazioni U/Th di granati magmatici nei magmi Vesuviani (Vesuvio, Italia), in collaborazione con Dr. J. Wotzlaw (ETH, Zurigo). 2018 a oggi

#### **Presso l'ETH di Zurigo:**

- Partecipazione al progetto SNSF (Swiss National Science Foundation) 200021\_146268 "Towards a quantitative understanding of caldera-forming events". 2013-2016
- Campionamento e caratterizzazione geochemica nelle sequenze piroclastiche dei Campi Flegrei, in collaborazione con Prof. S. Mollo (Università di Roma, La Sapienza), Dr. G. De Astis (INGV, Roma) e Dr. M. Piochi (INGV, Osservatorio Vesuviano, Napoli). 2013-2017

#### **Presso l'Università di Bologna:**

- Campionamento e caratterizzazione petrografica e geochemica delle vulcaniti di

Salina (Isole Eolie), in collaborazione con Prof. J. Keller (Università di Friburgo, Germania) e Prof. R. Gertisser (Università di Keele, UK) 2006-2008

- Campionamento e caratterizzazione petrografica, geochemica e isotopica (Sr, Nd, Pb e O) delle vulcaniti di Lipari (Isole Eolie), in collaborazione con Prof. R. Ayuso (USGS, Reston, Virginia, USA), Dr. S. Agostini (CNR, Pisa) e Dr. L. Dallai (CNR, Pisa). 2007-2011
- Caratterizzazione delle variazioni composizionali nei magmi nell'arco Eoliano, in collaborazione con Prof. A. Peccerillo (Università di Perugia). 2008-2012
- Partecipazione al Progetto di Cartografia Geologica e Geotematica (CARG), realizzazione ed informatizzazione dei Fogli Geologici alla scala 1:50.000: nr. 577 bis "Isole di Stromboli e Panarea", nr. 580 bis "Isole di Alicudi e Filicudi" e nr. 581/586 "Isole di Salina, Lipari e Vulcano". 2011-2013

### **Competenze analitiche**

---

- Analisi WDS e EDS di vetri e minerali con microsonda elettronica (EPMA) e microscopio elettronico a scansione (SEM); immagini in catodoluminescenza; mappe composizionali
- Analisi qualitative e quantitative e cristallinità di rocce vulcaniche mediante diffrazione a raggi X (XRD)
- Analisi di elementi in traccia in vetri e minerali, tecniche di datazione U/Th e U/Pb di zirconi mediante spettrometria di massa con ionizzazione al plasma accoppiata ad ablazione laser (LA-ICPMS). Utilizzo di software dedicati (es. SILLS, IOLITE e IsoplotR) e modelli numerici (es. Bayesian model, MCHCalc) per la riduzione e l'interpretazione dei dati.
- Analisi degli isotopi di Sr, Nd e Pb mediante spettrometria di massa a ionizzazione termica (TIMS):
- Analisi degli isotopi dell'ossigeno mediante fluorinazione laser accoppiata a spettrometria di massa
- Determinazione del contenuto in volatili in inclusioni vetrose mediante Fourier-transform infrared spectroscopy (FTIR)

### **Attività di terreno**

---

- Rilevamento geologico e campionamento di rocce vulcaniche (Isole Eolie, Campi Flegrei, Indonesia)
- Acquisizione di dati geofisici con sub-bottom profiler e scan sonar
- Attività di carotaggio di sedimenti lacustri e torbiere

### **Attività didattica**

---

**All'ETH di Zurigo**

Assistente all'insegnamento per *Analytical methods in Petrology* (3 semestri, responsabile per il training degli studenti nel laboratorio di diffrazione a raggi X) e *Microscopy of Magmatic and Metamorphic Rocks* (2 semestri, training per gli studenti al microscopio)

Assistente all'insegnamento per *Alpine Field Course* (Piora, Svizzera, 1 settimana; Adamello, Italia, 1 settimana; assistenza agli studenti durante il rilevamento geologico)

Co-leader per *Volcanology Field Course* (Kos-Nisyros, 1 settimana, Grecia, 1 settimana; Etna, Isole Eolie, Vesuvio e Campi Flegrei, Italia, 1 settimana per 2 anni consecutivi; organizzazione della logistica e programma scientifico del corso di terreno, assistenza agli studenti durante le attività di terreno)

### **Alla Nanyang University di Singapore**

Co-leader per *Volcanology Field Course* (Bali, Indonesia, 2 settimane; organizzazione della logistica e programma scientifico del corso di terreno, assistenza agli studenti durante le attività di terreno)

### **Co-relatore di tesi**

---

Lee Wei Jie Daniel, BSc, Asian School of the Environment, NTU Singapore, 2020-  
in corso

*Tracking the evolution of magmatic volatiles from large magmatic reservoirs in Sumatra (Indonesia) using FTIR.*

Relatore: Prof. S.A.T. Redfern; Co-relatori: F. Forni, Y. Hsu

Pascal Aellig, BSc, ETH Zurigo, 2020

*Statistical cluster analyses of the mineral chemistry database from the Neapolitan Yellow Tuff caldera-forming eruption to explore pre-eruptive magmatic processes*

Relatore: Prof. O. Bachmann, Co-relatori: F. Forni, Prof. L. Caricchi

Elena Machi, BSc, ETH Zurigo, 2020

*Statistical analyses of clinopyroxene from the Campanian Ignimbrite caldera-forming eruption: a tool to explore pre-eruptive magmatic processes*

Relatore: Prof. O. Bachmann, Co-relatori: F. Forni, Prof. L. Caricchi

Yeo Yue, BSc, Asian School of the Environment, NTU Singapore, 2019-2020

*Reconstructing magma storage conditions at Singkut caldera (north Sumatra)*

Relatore: Prof. C. Bouvet de Maisonneuve; Co-relatore: F. Forni

Ng Hao Wen, BSc, Asian School of the Environment, NTU Singapore, 2018-2019

*Porosity, permeability and eruption dynamics at Maninjau caldera (Sumatra)*

Relatore: Prof. C. Bouvet de Maisonneuve; Co-relatore: F. Forni

Eleonora Petricca, MSc, ETH Zurigo, 2017

*Origin of compositional and thermal gradients in zoned ignimbrites: examples from Pollena (Vesuvius) and the Neapolitan Yellow Tuff (Campi Flegrei)*

Relatore: Prof. O. Bachmann, Co-relatori: F. Forni, Prof. J. Connolly

Sara Ruzzi, MSc, Università di Bologna, 2013-2014

*Petrography and geochemistry of the volcanic sequence of Monte dei Porri, Salina (Aeolian Islands)*

Relatore: Prof. C. Tranne, Co-relatore: F. Forni

Nicola Costa, MSc, Università di Bologna, 2013-2014

*Petrography and geochemistry of mafic enclaves in rhyolitic lava domes from Lipari (Aeolian Islands)*

Relatore: Prof. C. Tranne, Co-relatore: F. Forni

### **Affiliazioni ad associazioni scientifiche**

---

European Association of Geochemistry

European Geosciences Union

Geochemical Society

International Association of Volcanology and Chemistry of the Earth's Interior

### **Membro di gruppi internazionali**

---

Rappresentante unico per il Sud-east asiatico di IAVCEI Early-Career Researcher Network (ECR-Net). Co-responsabile per l'organizzazione di eventi e workshops nell'ambito di ECR-Net (e.g., "Working at volcano observatories virtual panel, part 1: The Pacific", 4 Giugno 2020, "Working at volcano observatories, part 2: Africa, Europe and the Caribbean", 2 Luglio 2020, "Careers in academia, Pacific edition", 20 Agosto, 2020).

### **Finanziamenti**

---

Early Post-Doc Mobility Grant, Swiss National Science Foundation, 2018 (P2EZP2\_178441). *Timescales of magma storage and evolution at the Campi Flegrei caldera (Southern Italy)*. 76,500 CHF a F. Forni in collaborazione con Prof. K.M. Cooper (UC Davis, USA).

### **Premi**

---

Outstanding student poster award (EGU conference, 18-22 April 2016, Vienna). Forni F, Bachmann O, Mollo S, De Astis G. *The genesis of a zoned ignimbrite: insights into the Campanian Ignimbrite magma chamber*.

### **Servizio alla professione**

---

Revisore per: *Lithos, Earth and Planetary Science Letters, Journal of Petrology, Journal of Volcanology and Geothermal Research, Periodico di Mineralogia*

Giudice per *Outstanding Student Presentation Award (OSPA)*, AGU 2019, San Francisco (USA)

Guest Editor per il volume "Mineral Textural and Compositional Variations as a

### **Convener a convegni internazionali**

---

Convener per la sessione "Constraining the tempo and magnitude of past highly explosive volcanism using tephrochronology: implications for volcanic hazard assessments", IAVCEI Scientific Assembly 2021, Rotorua (New Zealand) - rimandata al 20-24 Gennaio 2022 a causa del COVID-19

Convener per la sessione "Tephrostratigraphy on regional and global scale" proposta per EGU 2021, Vienna (Austria)

### **Pubblicazioni in riviste internazionali**

---

19. Szymanowski D, **Forni F**, Wolff J, Ellis B. Modulation of zircon solubility by crystal–melt dynamics. *Geology*. doi:10.1130/G47405.1
18. Wolff J, **Forni F**, Ellis B, Szymanowski D. Europium and barium enrichments in compositionally zoned felsic tuffs: a smoking gun for the origin of zoning by cumulate melting. *Earth and Planetary Science Letters* 540: 116251. doi:10.1016/j.epsl.2020.116251.
17. Kueppers U, Pimentel A, Ellis B, **Forni F**, Neukampf J, Pacheco J, Perugini D, Queiroz G (2019) Biased volcanic hazard assessment due to incomplete eruption records on ocean islands: an example of Sete Cidades Volcano, Azores. *Frontiers in Earth Science* 7: 122. doi:10.3389/feart.2019.00122.
16. Wotzlaw JF, Guillong M, Balashova A, **Forni F**, Dunkl I, Mattsson HB, Bachmann O (2019) In-situ garnet  $^{238}\text{U}$ – $^{230}\text{Th}$  geochronology of Holocene silica-undersaturated volcanic tuffs at millennial-scale precision. *Quaternary Geochronology* 50: 1–7. doi:10.1016/j.quageo.2018.10.004.
15. **Forni F**, Degruyter W, Bachmann O, De Astis G, Mollo S (2018) Long-term magmatic evolution reveals the beginning of a new caldera cycle at Campi Flegrei (Southern Italy). *Science Advances* 4(11): eaat9401. doi:10.1126/sciadv.aat9401.
14. **Forni F**, Petricca E, Bachmann O, Mollo S, De Astis G, Piochi M (2018) The role of magma mixing/mingling and cumulate melting in the Neapolitan Yellow Tuff caldera-forming eruption (Campi Flegrei, Southern Italy). *Contributions to Mineralogy and Petrology* 173(6): 45. doi:10.1007/s00410-018-1471-4.
13. Sulpizio R, Lucchi F, **Forni F**, Massaro S, Tranne CA (2016) Unravelling the effusive-explosive transitions and the construction of a volcanic cone from geological data: The example of Monte dei Porri, Salina Island (Italy). *Journal of Volcanology and Geothermal Research* 327: 1–22. doi:10.1016/j.jvolgeores.2016.06.024.

12. **Forni F**, Bachmann O, Gelman S, Mollo S, De Astis G, Ellis BS (2016) The origin of a zoned ignimbrite: insights into the Campanian Ignimbrite magma chamber (Campi Flegrei, Italy). *Earth and Planetary Science Letters* 49: 259–271. [doi:10.1016/j.epsl.2016.06.003](https://doi.org/10.1016/j.epsl.2016.06.003).
11. Mollo S, **Forni F**, Bachmann O, Blundy JD, De Astis G, Scarlato P (2016) Trace element partitioning between clinopyroxene and trachy-phonolitic melts: implications for the geochemical evolution of the Campanian Ignimbrite (Campi Flegrei, Italy). *Lithos* 252–253: 160–172. [doi:10.1016/j.lithos.2016.02.024](https://doi.org/10.1016/j.lithos.2016.02.024).
10. Guillong M, Sliwinski JT, Schmitt A, **Forni F**, Bachmann O (2016) U-Th Zircon Dating by Laser Ablation Single Collector Inductively Coupled Plasma-Mass Spectrometry (LA-ICP-MS). *Geostandards and Geoanalytical Research* 40 (3): 377–387. [doi:10.1111/j.1751-908X.2016.00396.x](https://doi.org/10.1111/j.1751-908X.2016.00396.x).
9. **Forni F**, Ellis BS, Bachmann O, Lucchi F, Tranne CA, Agostini S, Dallai L (2015) Erupted cumulate fragments in rhyolites from Lipari (Aeolian Islands). *Contributions to Mineralogy and Petrology* 170: 1–18. [doi:10.1007/s00410-015-1201-0](https://doi.org/10.1007/s00410-015-1201-0).
8. Mollo S, Masotta M, **Forni F**, Bachmann O, De Astis G, Moore G, Scarlato P (2015) A K-feldspar-liquid hygrometer specific to alkaline differentiated magmas. *Chemical Geology* 392: 1–8. [doi:10.1016/j.chemgeo.2014.11.010](https://doi.org/10.1016/j.chemgeo.2014.11.010).
7. Ayuso RA, Till AB, Slack JF, **Forni F** (2014) Pb isotope geochemistry of stratabound Zn-Pb (-Ag-Au-Ba-F) deposits and occurrences in the Nome Complex, Seward Peninsula, Alaska: Metal sources and regional comparisons. *Geological Society of America Special Papers* 506. [doi:10.1130/2014.2506\(07\)](https://doi.org/10.1130/2014.2506(07)).
6. Del Bello E, Mollo S, Scarlato P, von Quadt A, **Forni F**, Bachmann O (2014) New petrological constraints on the last eruptive phase of the Sabatini Volcanic District (central Italy): Clues from mineralogy, geochemistry, and Sr-Nd isotopes. *Lithos* 205: 28–38. [doi:10.1016/j.lithos.2014.06.015](https://doi.org/10.1016/j.lithos.2014.06.015).
5. **Forni F**, Lucchi F, Peccerillo A, Tranne CA, Rossi PL, Frezzotti ML (2013) Stratigraphy and geological evolution of the Lipari volcanic complex (central Aeolian archipelago). *Geological Society of America Memoirs* 37: 213–279. [doi:10.1144/M37.10](https://doi.org/10.1144/M37.10).
4. Lucchi F, Gertisser R, Keller J, **Forni F**, De Astis G, Tranne CA (2013) Eruptive history and magmatic evolution of the island of Salina (central Aeolian archipelago). *Geological Society of America Memoirs* 37: 155–211. [doi:10.1144/M37.9](https://doi.org/10.1144/M37.9).
3. Peccerillo A, De Astis G, Faraone D, **Forni F**, Frezzotti ML (2013) Compositional variations of magmas in the Aeolian arc: implications for petrogenesis and geodynamics. *Geological Society of America Memoirs* 37: 491–510. [doi:10.1144/M37.15](https://doi.org/10.1144/M37.15).



2. Ayuso RA, Kelley KD, Eppinger RG, **Forni F** (2013) Pb-Sr-Nd Isotopes in Surficial Materials at the Pebble Porphyry Cu-Au-Mo Deposit, Southwestern Alaska: Can the Mineralizing Fingerprint be Detected Through Cover? *Economic Geology* 108: 543–563. [doi:10.2113/econgeo.108.3.543](https://doi.org/10.2113/econgeo.108.3.543).
1. Di Martino C, **Forni F**, Frezzotti ML, Palmeri R, Webster JD, Ayuso RA, Lucchi F, Tranne CA (2011) Formation of cordierite-bearing lavas during anatexis in the lower crust beneath Lipari Island (Aeolian arc, Italy). *Contributions to Mineralogy and Petrology* 162(5): 1011–1030. [doi:10.1007/S00410-011-0637-0](https://doi.org/10.1007/S00410-011-0637-0).

---

### Articoli in preparazione

**Forni F**, Oalmann JA, Phua M, Eisele S, Guillong M, Hamdi, Bouvet de Maisonneuve C. From pre- to post-caldera magmatic activity: a complete eruptive cycle at Maninjau volcano (West Sumatra, Indonesia).

**Forni F**, Fellin G, Guillong M, Phua M, Eisele S, Hamdi, Bouvet de Maisonneuve C. Geochemistry and geochronology of Quaternary calderas from north to south Sumatra (Indonesia)

**Forni F**, Yeo Y, Bernard O, Fellin G, Phua M, Eisele S, Oalmann JA, Guillong M, Hamdi, Bouvet de Maisonneuve C. Remobilization and eruption of an upper crustal cumulate mush: the Singkut caldera-forming eruption (North Sumatra, Indonesia).

Bouvet de Maisonneuve C, **Forni F**, Bachmann O Cycles of catastrophic caldera-forming eruptions: A generalizable model?

**Forni F**, Petricca E, Mollo S, Bachmann O, Vona A. Origin of compositional zoning in the 472 AD Pollena eruption (Vesuvius, Southern Italy).

Wotzlaw J, Bastian L, Guillong M, **Forni F**, Laurent O, Sulpizio R, Bachmann O. Petrochronology reveals the lifetime and dynamics of phonolitic magma chambers at Vesuvius.

---

### Carte Geologiche

Lucchi F, Tranne CA, **Forni F**, Rossi PL (2013) Geological map of Lipari Island, scale 1:10,000 (Aeolian archipelago). In: Lucchi F, Peccerillo A, Keller J, Tranne CA & Rossi PL (Eds.), *Geology of the Aeolian Islands (Italy)*, Geological Society of London, *Memoirs*, 37.

Lucchi F, Tranne CA, Keller J, Gertisser R, **Forni F**, De Astis G (2013) Geological map of the island of Salina, scale 1:10,000 (Aeolian archipelago). In: Lucchi F, Peccerillo A, Keller J, Tranne CA & Rossi PL (Eds.), *Geology of the Aeolian Islands (Italy)*, Geological Society of London, *Memoirs*, 37.

---

### Altri contributi

**Forni F**, Lucchi F, Rossi PL, Tranne CA, Branca S. *I vulcani attivi della Sicilia*.

*Pianeta Terra*, Le Scienze della Terra per la Società. Commissione Italiana, 2008.

Calanchi N, Lo Cascio P, Lucchi F, Rossi PL, Tranne CA, in collaboration with **Forni F.** *Guida ai vulcani e alla natura delle Isole Eolie*. Regione Sicilia, Comune di Lipari, 2007, pp. 385.

### **Contributi a congressi**

---

"Educational strategy aimed at enjoying a volcanic geosite: the active Vulcano island growing between fire and water" **Forni F.**, Lucchi F, Tranne C.A. Geolitalia 2007, Rimini, Italia

"K-feldspar–liquid hygrometers specific to alkaline differentiated magmas" **Forni F.**, Mollo S., Masotta M., Bachmann O., De Astis G., Moore G., Scarlato P. - Journée Magmatique 2014, Losanna, Svizzera

"Erupted cumulate fragments in rhyolites from Lipari (Aeolian Island)" **Forni F.**, Ellis B., Bachmann O., Lucchi F, Tranne C.A., Agostini S. - MeMo Volc meeting 2015 "Anticipating volcanic eruptions", Pisa, Italia

"Erupted cumulate fragments in rhyolites from Lipari (Aeolian Island)" **Forni F.**, Ellis B.S., Bachmann O., Lucchi F, Tranne C.A. - Goldschmidt Conference 2015, Praga, Repubblica Ceca

"The origin of a zoned ignimbrite: insights into the Campanina Ignimbrite magma chamber (Campi Flegrei, Italy)" **Forni F.**, Bachmann O., Mollo S., De Astis G. - EGU Conference 2016, Vienna, Austria

"Long-term magmatic evolution at the Campi Flegrei caldera (southern Italy)" **Forni F.**, Bachmann O., Mollo S., De Astis G. - Goldschmidt Conference 2016, Yokohama, Giappone

"Long-term magmatic evolution at the Campi Flegrei caldera (Southern Italy)" **Forni F.**, Bachmann O., De Astis G., Mollo S. - EGU Conference 2017, Vienna, Austria

"Long-term magmatic evolution at the Campi Flegrei caldera (Southern Italy)" **Forni F.**, Degruyter W., Bachmann O., De Astis G., Mollo S. - IAVCEI conference 2017, Portland, USA

"New insights into the origin of Danau Kerinci, Danau Diatas and Danau Maninjau, (Sumatra, Indonesia) from geophysical investigation of the uppermost sedimentary lake structure" **Forni F.**, Eisele S., Phua M., Putra R., Bouvet de la Maisonneuve C., Handi - International Conference on Research and Learning of Physics 2018, Padang, Indonesia

"Insights into caldera cycles at Campi Flegrei by combining eruptive history, petrology, and numerical modelling" **Forni F.**, Degruyter W., Bachmann O., De Astis G., Mollo S. - Cities on Volcanoes 10, 2018, Napoli, Italia

"The role of evolutionary processes and cumulate melting in the Campanian Ignimbrite and Neapolitan Yellow Tuff caldera-forming eruptions (Campi Flegrei,

Southern Italy)" **Forni F.**, De Astis G., Bachmann O., Petricca E., Piochi M., Mollo S. - Cities on Volcanoes 10, 2018, Napoli, Italia

"Geochemistry and geochronology of Quaternary calderas in north and central Sumatra (Indonesia)" **Forni F.**, Eisele S., Phua M., Guillong M., Oalman J.A., Rifai H., Putra R., Bouvet de Maisonneuve C. - AGU Fall Meeting 2019, San Francisco, USA

---

## Disseminazione mediatica

### Interviste

Rai Radio3, trasmissione radiofonica "Zazà": "Sotto i vulcani" 02/12/2018;  
<https://www.raiplayradio.it/audio/2018/11/ZAZAapos-ARTE-MUSICA-SPETTACOLO---Sotto-i-vulcani-9045579f-db8b-44d6-9a64-f7d25bc7aeef.html>

National Geographic; <https://www.nationalgeographic.com/science/2018/11/italy-supervolcano-filling-magma-facts/>

New York Times; <https://www.nytimes.com/2018/11/14/science/volcano-eruption-italy.html>

The Verge; <https://www.theverge.com/2018/11/14/18095657/campi-flegrei-naples-italy-volcano-eruption-pattern-crater-lava-cycle/>

### Altre menzioni

Newsweek; <https://www.newsweek.com/campi-flegrei-magma-building-beneath-dangerous-supervolcano-could-signal-huge-1213424>

Der Spiegel; <https://www.spiegel.de/wissenschaft/natur/neapel-phlegraeische-felder-rumoren-erneut-a-1238378.html>

Business Insider Italia; <https://it.businessinsider.com/i-campi-flegrei-il-piu-pericoloso-dei-vulcani-italiani-sono-alla-vigilia-in-termini-geologici-di-una-nuova-violentissima-eruzione/>

---

## Presentazioni ad invito

"Genesis and evolution of silicic magmas in upper crustal magma reservoirs", seminario nell'ambito del corso di dottorato in Scienze della Terra, 17/07/2020, Università degli Studi di Milano

"Petrological evolution of silicic magma chamber in the upper crust" seminario per il Dipartimento di Scienze dell'Ambiente e della Terra, 03/09/2020, Università degli Studi Milano Bicocca

---

## Indicatori bibliometrici e ASN

ASN – Abilitazione Scientifica Nazionale di seconda fascia richiesta nel V quadrimestre (2018/2020); scadenze e risultati posticipati a causa dell'emergenza da COVID-19 (Decreto-Legge 17 marzo 2020, n. 18).

Orcid ID 0000-0002-6409-8612

Web of science ID AAS-9775-2020

Scopus ID 53877270500

h-index: 11

citazioni: 342 (Google), 305 (Scopus), 266 (Web of Science)

### **Competenze linguistiche**

---

Italiano: madre lingua

Inglese: ottimo

Francese: intermedio

Tedesco: base

Data

15/09/2020

Luogo

Singapore

Programme groups: 

## NH – Natural Hazards

### Subprogramme groups:

- [NH1 – Hydro-Meteorological Hazards](#)
- [NH2 – Volcanic Hazards](#)
- [NH3 – Landslide Hazards](#)
- [NH4 – Earthquake Hazards](#)
- [NH5 – Sea & Ocean Hazards](#)
- [NH6 – Remote Sensing & Hazards](#)
- [NH7 – Wildfire Hazards](#)
- [NH8 – Environmental, Biological & Natech Hazards](#)
- [NH9 – Natural Hazards & Society](#)
- [NH10 – Multi-Hazards](#)
- [NH11 – Short Courses](#)

Proposals are marked in red.

### Suggested session

**Climate Change and Climate Variability in Catastrophe Risk Management** [Q](#)

Conveners: Aleksandra Borodina<sup>ECS</sup>, Jessica Turner, Symeon Koumoutsaris

## NH1 – Hydro-Meteorological Hazards

### Suggested session

**Innovative Techniques for Flood Forecasting, Assessment and Flood Risk Management** [Q](#)

Conveners: Dhruv Patel, Cristina Prieto<sup>ECS</sup>, Benjamin Dewals, Dawei Han

### Suggested session

**Advances in modeling, failure assessment and monitoring of levees and other flood defences** [Q](#)

Conveners: Juan Pablo Aguilar-López, Andres Diaz Loaiza

### Suggested session

**Extreme heat events: processes, impacts and adaptation** [Q](#)

Conveners: Tom Matthews, Martha Marie Vogel<sup>ECS</sup>, Ana Casanueva

### Suggested session

**Vegetation as nature-based solution for mitigating climate induced geo-hazards and associated consequences along slopes and streambanks** [Q](#)

Conveners: Vittoria Capobianco<sup>ECS</sup>, Anders Solheim, Dominika Krzeminska, Sabatino Cuomo

### Suggested session

**Nature-based solutions for hydro-meteorological risk reduction** [Q](#)

Conveners: Silvana Di Sabatino, Amy Oen, Zoran Vojinovic, Elena Lopez-Gunn

### Suggested session

**Extreme meteorological and hydrological events induced by severe weather and climate change** [Q](#)

Conveners: Athanasios Loukas, Maria-Carmen Llasat, Uwe Ulbrich

### Suggested session

**Atmospheric Electricity, Thunderstorms, Lightning and their effects** [Q](#)

Conveners: Yoav Yair, Serge Soula, Martino Marisaldi, Keri Nicoll<sup>ECS</sup>, Sonja Behnke<sup>ECS</sup>

### Suggested session

**Hazard Risk Management in Agriculture and Agroecosystems** [Q](#)

Conveners: Ana Maria Tarquis, Margarita Ruiz-Ramos, Anne Gobin

## NH2 – Volcanic Hazards

### Suggested session

**Island arc volcanism along the Africa-Eurasia plate boundary** [Q](#)

Conveners: Christian Huebscher, Tim Druitt, Paraskevi Nomikou, Jonas Preine<sup>ECS</sup>

### Suggested session

**Tephrostratigraphy on regional and global scale** [Q](#)

Conveners: Francesca Forni<sup>ECS</sup>, Steffen Eisele<sup>ECS</sup>, Paul Albert, Britta Jensen

Suggestion by Francesca Forni (11 Sep 2020)

Close

### Session description

This session will highlight the importance and potential of tephrostratigraphy to reconstruct the eruptive histories on a regional or inter-regional scale. The identification and correlation of tephra layers enable reconstruction of the number, timing and magnitude of eruptions that have affected a given region. Near-source eruption records are often patchy or incomplete over extended timescales owing to factors such as burial, erosion and weathering. This under-reporting of explosive volcanism is clearly verified by analysis of global eruption databases, while this under-representation is common with low-to-mid intensity eruptions, even the most highly explosive eruptions are seemingly represented in regional eruption records. However, a better understanding of the frequency and distribution of explosive eruptions is key to reconstruct the evolution of a volcanic region and therefore to better assess potential hazards on a regional and even global scale. We seek contributions that: 1) aim to close this gap of knowledge by using stratigraphic, geochemical and petrographic approaches; 2) work on and/or combine different kinds of archives such as marine, lake and peat

Programme groups: **NH****Keywords**Ash (Volcanic ash), Geochronology, Quaternary, Stratigraphy (Sediment stratigraphy), Volcanic hazard (Volcanic risk)

## NH3 – Landslide Hazards

### Suggested session

#### Space and time forecasting of landslides [Q](#)

Conveners: Filippo Catani, Xuanmei Fan, Binod Tiwari, Fausto Guzzetti

### Suggested session

#### Debris flows: advances on mechanics, controlling factors, monitoring, modelling and risk management [Q](#)

Conveners: Marcel Hürlimann, Sara Savi[ECS](#), Velio Coviello[ECS](#), Xiaojun Guo[ECS](#), Roland Kaitna

### Suggested session

#### Towards reliable Landslide Early Warning Systems [Q](#)

Conveners: Luca Picciullo, Katy Freeborough, Stefano Luigi Gariano, Raymond Cheung, Samuele Segoni

### Suggested session

#### Mechanics of Mass Flows [Q](#)

Conveners: Roland Kaitna, Elisabeth Bowman, Brian McArdell, Jim McElwaine, Andy Take

### Suggested session

#### Landslides and Soil Erosion in a Changing Climate: Analysis, Trends, Uncertainties and Adaptation Solutions [Q](#)

Conveners: Guido Rianna, Stefano Luigi Gariano, Monia Santini, Alfredo Reder[ECS](#)

### Suggested session

#### Large slope instabilities: characterisation, dating, triggering, monitoring and modelling [Q](#)

Conveners: Giovanni Crosta, Irene Manzella, Masahiro Chigira, Federico Agliardi

### Suggested session

#### Landslide Hazard and Risk in a Changing Environment [Q](#)

Conveners: Paola Reichenbach, Andreas Günther, Mihai Micu

### Suggested session

#### Landslide hydrology: hydrological and geomorphological processes in natural and human-modified slopes and landslides [Q](#)

Conveners: Thom Bogaard, Roberto Greco, Dominika Krzeminska[ECS](#)

### Suggested session

#### Landslide investigation using Remote Sensing and Geophysics [Q](#)

Conveners: Antonio Abellan, Oriol Monserrat, Janusz Wasowski, Masahiro Chigira, Jan Burjanek[ECS](#)

### Suggested session

#### Landslide monitoring: recent technologies and new perspectives [Q](#)

Conveners: Lorenzo Solari[ECS](#), Peter Bobrowsky, Mateja Jemec Auflič, Veronica Tofani, Federico Raspini

### Suggested session

#### Rockfalls, rockslides and rock avalanches [Q](#)

Conveners: Michael Krautblatter, Matthew Westoby, Anne Voigtländer[ECS](#), Axel Volkwein

## NH4 – Earthquake Hazards

### Suggested session

#### Pattern recognition and statistical models applied to earthquake occurrence [Q](#)

Conveners: Stefania Gentili, Rita Di Giovambattista, Álvaro González[ECS](#), Filippou Vallianatos

### Suggested session

#### Seismic hazard assessments for disaster risk reduction [Q](#)

Conveners: Antonella Peresan, Alik Ismail-Zadeh, Katerina Orfanogiannaki[ECS](#), Katalin Gribovszki, Elisa Varini

### Suggested session

#### Short-term Earthquakes Forecast (StEF) and multi-parametric time-Dependent Assessment of Seismic Hazard (t-DASH) [Q](#)

Conveners: Valerio Tramutoli, Pier Francesco Biagi, Nicola Genzano[ECS](#), Iren Adelina Moldovan, Dumitru Stanica

### Suggested session

#### New insights for seismic hazard in regions of slow lithospheric deformation [Q](#)

Conveners: Beau Whitney, Pierre Arroucau, Gordana Vlahovic

### Suggested session

#### Earthquake-induced hazards: ground motion amplification and ground failures [Q](#)

Conveners: Giovanni Forte[ECS](#), Paolo Frattini, Hans-Balder Havenith, Janneke van Ginke[ECS](#), Céline Bourdeau

suggestion: Hans-Balder Havenith, Céline Bourdeau [Q](#)

## NH5 – Sea & Ocean Hazards

### Suggested session

#### Extreme events in sea waves: physical mechanisms and mathematical models [Q](#)

Conveners: Alexey Slunyaev, Amin Chabchoub, Henrik Kalisch, Efim Pelinovsky

### Suggested session

#### Geohazards in lacustrine settings [Q](#)

Conveners: Katrina Kremer[ECS](#), Michael Strupler[ECS](#), Frederic M. Evers[ECS](#), Maarten Van Daele

### Suggested session

#### The use of foraminiferal assemblages and taphonomy for characterization of submarine mass wasting events [Q](#)

Conveners: Orit Hyams-Kaphzan, Oded Katz, Giulia Margaritelli, Sigal Abramovich

Programme groups: NHConveners: Ed Garrett<sup>ECS</sup>, Dominik Brill, Iwax Engel, Simon Matthias May, Jessica Piatczyk**Suggested session****Tsunamis** [Q](#)

Conveners: Helene Hebert, Alberto Armigliato, Ira Didenkulova

**Suggested session****Natural hazards and climate change impacts in coastal areas** [Q](#)Conveners: Renske de Winter<sup>ECS</sup>, Luke Jackson, Goneri Le Cozannet, Nicoletta Leonardi<sup>ECS</sup>, Joern Behrenssuggestion: Paolo Ciavola [Q](#)

## NH6 – Remote Sensing & Hazards

**Suggested session****Remotely Piloted Aircrafts Systems (RPAS) for Natural Hazard Characterization and Risk Assessment** [Q](#)

Conveners: Daniele Giordan, Yuichi S. Hayakawa, Marc Adams, F. Nex, Fabio Remondino

**Suggested session****The next generation of earth observation products and applications for climate risk financing** [Q](#)Conveners: Markus Enenkel<sup>ECS</sup>, Mariette Vreugdenhil<sup>ECS</sup>, Daniel Osgood, Clement Atzberger, Berber Kramer**Suggested session****Application of remote sensing and Earth-observation data in natural hazard and risk studies** [Q](#)

Conveners: Paolo Tarolli, Kuo-Jen Chang, Michelle Parks, Antonio Montuori, Mihai Niculita

**Suggested session****Using satellite soil moisture and rainfall data for the monitoring and the prediction of natural hazards** [Q](#)Conveners: Massimiliano Bordoni<sup>ECS</sup>, Gabriella Petaccia, Luca Ciabatta<sup>ECS</sup>, Anne Felsberg<sup>ECS</sup>, Lu Zhuo<sup>ECS</sup>**Suggested session****VLF/LF radio techniques as tools for monitoring and forecasting natural and technological hazards** [Q](#)Conveners: Giovanni Nico, Aleksandra Nina<sup>ECS</sup>, Mohammed Y. Boudjada, Pier Francesco Biagi**Suggested session****Hazard and risk assessment of climate related impacts on Agricultural and Forested Ecosystems using Remote Sensing and modelling** [Q](#)Conveners: Jonathan Rizzi<sup>ECS</sup>, Wenwu Zhao, Luigi Lombardo**Suggested session****Remote Sensing & Cultural Heritage** [Q](#)

Conveners: William Frodella, Daniele Spizzichino, Mikheil Elashvili, Andrea Ciampalini

**Suggested session****SAR remote sensing for anthropogenic and natural hazards** [Q](#)Conveners: Ling Chang<sup>ECS</sup>, Xie Hu<sup>ECS</sup>, Ramon Hanssen, Mahdi Motagh, Ziyadin Cakir

## NH7 – Wildfire Hazards

**Suggested session****Spatial and temporal patterns of wildfires: models, theory, and reality** [Q](#)Conveners: Marj Tonini, Mário Pereira, Joana Parente<sup>ECS</sup>, Andrea Trucchia<sup>ECS</sup>

## NH8 – Environmental, Biological & Natech Hazards

**Suggested session****Multi-risk perspectives to increase societal resilience: dealing with natural disasters at the times of pandemics** [Q](#)Conveners: Antonella Peresan, Ledio Allkja, Nadejda Komendantova, Chiara Scaini<sup>ECS</sup>**Suggested session****Geohazard and natech disaster assessment by geoinformation and machine learning technologies** [Q](#)Conveners: Weicheng WU, Yalan LIU, Xiaoting ZHOU<sup>ECS</sup>, Yaozu QIN<sup>ECS</sup>, Chongjian SHAO<sup>ECS</sup>**Suggested session****Impact of Biological and Natech emergencies on vulnerability to natural hazards** [Q](#)

Conveners: Paolo Ciavola, Clara Armaroli

## NH9 – Natural Hazards & Society

**Suggested session****Vulnerability, loss and damage modelling of the built environment** [Q](#)

Conveners: Sven Fuchs, Maria Papathoma-Koehle, Margreth Keiler

**Suggested session****Natural hazard impacts on technological systems and infrastructures** [Q](#)

Conveners: Elena Petrova, Maria Bostenaru Dan

**Suggested session****Natural hazard event analyses for risk reduction and climate adaptation** [Q](#)

Conveners: Kai Schröter, Michael Kunz, Reinhard Mechler, Daniela Molinari, Michael Szoenyi

**Suggested session****International Monitoring System and On-site Verification for the CTBT, disaster risk reduction and Earth sciences** [Q](#)

Conveners: Martin Kalinowski, Lars Ceranna, Yan Jia, Peter Nielsen, Ole Ross

**Suggested session****Natural Hazards Education, Communications and Science-Policy-Practice Interface** [Q](#)

Programme groups: **Rockfall Dynamics : Experimental and Computational Aspects** [Q](#)Conveners: Andrin Caviezel[ECS](#), Franck Bourrier**Suggested session****Radon: geogenic sources, hazard mapping, and health risk** [Q](#)

Conveners: Giancarlo Ciotoli, Alessandra Sciarra, Sabina Bigi

**Suggested session****Resilience to natural hazards: assessments, frameworks and tools** [Q](#)Conveners: Viktor Rözer[ECS](#), Finn Laurien[ECS](#), Colin McQuistan, Denyse Dookie[ECS](#)**Suggested session****Drought risk, vulnerability and impact assessment: achievements and future directions** [Q](#)Conveners: Veit Blauhut[ECS](#), Lucia De Stefano, Michael Hagenlocher, Isabel Meza[ECS](#), Gustavo Naumann**Suggested session****Global and continental scale risk assessment for natural hazards: methods, practice and open loss and risk assessment** [Q](#)Conveners: Philip Ward, Hannah Cloke, James Daniell[ECS](#), , John K. Hillier**Suggested session****Costs of Natural Hazards** [Q](#)Conveners: Heidi Kreibich, Viktor Rözer[ECS](#), Hans de Moel, Frederic Grelot, Veit Blauhut[ECS](#)**Suggested session****Groundbreaking technologies, artificial intelligence and innovations in disaster risk modelling, management and reduction** [Q](#)Conveners: Rui Figueiredo[ECS](#), Kai Schröter, Xavier Romão, Mario Lloyd Virgilio Martina, Carmine Galasso**Suggested session****Challenges and opportunities of big data and citizen science methods and tools for natural hazards** [Q](#)Conveners: Raffaele Albano, Jonathan Rizzi[ECS](#), Valeria Cigala[ECS](#)**Suggested session****Interplay between natural hazards and vulnerable societies in the context of global change** [Q](#)Conveners: Johanna Mård[ECS](#), Korbinian Breinl[ECS](#), Michael Hagenlocher[ECS](#), Giuliano Di Baldassarre

## NH10 – Multi-Hazards

**Suggested session****Compound weather and climate events** [Q](#)Conveners: Jakob Zscheischler[ECS](#), Freya Garry[ECS](#), Nina Nadine Ridder[ECS](#), Seth Westra, Philip Ward**Suggested session****Multi-hazards: Innovative approaches for disaster risk reduction and climate change adaptation** [Q](#)Conveners: Marleen de Ruiter[ECS](#), Anais Couasnon[ECS](#), Stefano Terzi[ECS](#), Faith Taylor[ECS](#), Annie Winson[ECS](#)Description suggestion: **Understanding t [...]** [Q](#)suggestion: **INDRAJIT Pal** [Q](#)**Suggested session****Multi-hazards in mountain regions: From monitoring to triggering threshold definition** [Q](#)Conveners: Zakaria Ghazoui[ECS](#), Arnaud Watlet[ECS](#), Kristen Cook, Christoff Andermann, Romain Le Roux-Mallouf[ECS](#)**Suggested session****Modelling and managing systemic risks of natural and environmental hazards** [Q](#)Conveners: Silvia Torresan, Kai Schröter, Marleen de Ruiter[ECS](#), Rui Figueiredo[ECS](#)**Suggested session****Implications of multi-hazards: finance, built environment and infrastructure** [Q](#)Conveners: John K. Hillier, Michael Gloor, Alessio Ciullo[ECS](#), Geoffrey Saville, Annegret Thieken

## NH11 – Short Courses









minerals

Submit to Special Issue

Review for Minerals

Edit a Special Issue

## Journal Menu

- Minerals Home
- Aims & Scope
- Editorial Board
- Reviewer Board
- Topic Board
- Instructions for Authors
- Special Issues
- Sections & Collections
- Article Processing Charge
- Indexing & Archiving
- Most Cited & Viewed
- Journal Statistics
- Journal History
- Journal Awards
- Editorial Office

## Journal Browser

volume

issue

Go

- Forthcoming issue
- Current issue

Vol. 10 (2020)

Vol. 9 (2019)

Vol. 8 (2018)

Vol. 7 (2017)

Vol. 6 (2016)

Vol. 5 (2015)

Vol. 4 (2014)

Vol. 3 (2013)

Vol. 2 (2012)

Vol. 1 (2011)



## Special Issue "Mineral Textural and Compositional Variations as a Tool for Understanding Magmatic Processes"

- Print Special Issue Flyer
- Special Issue Editors
- Special Issue Information
- Keywords
- Published Papers

A special issue of *Minerals* (ISSN 2075-163X). This special issue belongs to the section "Mineral Geochemistry and Geochronology".

Deadline for manuscript submissions: 31 December 2020.

## Share This Special Issue



## Special Issue Editors

**Prof. Silvio Mollo** Website  
*Guest Editor*  
Department of Earth Sciences, Sapienza – University of Rome, Italy  
**Interests:** igneous and experimental petrology

**Dr. Francesca Forni** Website  
*Co-Guest Editor*  
Asian School of the Environment, Nanyang Technological University, Singapore  
**Interests:** igneous and experimental petrology

**Dr. Flavio Di Stefano**  
*Co-Guest Editor*  
National Institute of Geophysics and Volcanology (INGV), Rome, Italy  
**Interests:** igneous and experimental petrology

## Special Issue Information

Dear Colleagues,

Magma chamber processes and eruption dynamics are recognized as the most important mechanisms controlling the final textures and compositions of minerals and their host rocks. During crystallization and solidification phenomena, the physicochemical state of the system shifts from equilibrium to dynamic conditions under the effect of variable pressures, temperatures, oxygen fugacities, and volatile contents. In this scenario, magmas crystallize at different depths, evolve, degas, mix with new magma, and interact with the country rock. The solidification of magmas may also occur along kinetic or time-dependent pathways, where rapid cooling and decompression exert a primary influence on the nucleation and growth of phenocrysts, microphenocrysts and microlites characterizing the volcanic units. Understanding these different aspects over the temporal and spatial scales at which the crystallization and solidification processes occur in magmatic reservoirs, volcanic conduits and subaerial/submarine eruptions is essential to interpret correctly the variable environmental conditions recorded in igneous minerals. The main goal for this Special Issue is to collect different scientific contributions denoting how magma chamber processes and eruption dynamics studied either in laboratory or in nature can ultimately affect the evolutionary histories and petrographic complexities of igneous rocks.

The first round submission deadline is 31 December 2018.

Prof. Dr. Silvio Mollo  
Dr. Flavio Di Stefano  
Dr. Francesca Forni  
*Guest Editors*

## Manuscript Submission Information

Manuscripts should be submitted online at [www.mdpi.com](http://www.mdpi.com) by registering and logging in to this website. Once you are registered, click here to go to the submission form. Manuscripts can be submitted until the deadline. All papers will be peer-reviewed. Accepted papers will be published continuously in the journal (as soon as accepted) and will be listed together on the special issue website. Research articles, review articles as well as short communications are invited. For planned papers, a title and short abstract (about 100 words) can be sent to the Editorial Office for announcement on this website.

Submitted manuscripts should not have been published previously, nor be under consideration for publication elsewhere (except conference proceedings papers). All manuscripts are thoroughly refereed through a single-blind peer-review process. A guide for authors and other relevant information for submission of manuscripts is available on the [Instructions for Authors](#) page. *Minerals* is an international peer-reviewed open access monthly journal published by MDPI.

Please visit the [Instructions for Authors](#) page before submitting a manuscript. The [Article Processing Charge](#) (APC) for publication in this open access journal is 1600 CHF (Swiss Francs). Submitted papers should be well formatted and use good English. Authors may use MDPI's English editing service prior to publication or during author revisions.

## Keywords

- magma chamber processes
- eruption dynamics
- magma crystallization
- magma degassing
- magma mixing
- magma-crust interaction
- magma cooling and decompression
- mineral textural evolutions
- bulk rock and mineral compositional changes

## Published Papers (7 papers)

[Download All Papers](#)

Order results

Content type

Result details

Normal

[Show export options](#)

## Research

[Open Access](#)[Article](#)

## Significance of Calcite Trace Elements Contents and C-O Isotopic Compositions for Ore-Forming Fluids and Gold Prospecting in the Zhesang Carlin-Like Gold Deposit of Southeastern Yunnan, China

by [Jiasheng Wang](#), [Jinyang Chang](#), [Chao Li](#), [Zhenchun Han](#), [Tao Wang](#) and [Huanhuan Han](#)  
*Minerals* 2020, 10(4), 338; <https://doi.org/10.3390/min10040338> - 09 Apr 2020

**Abstract** The Zhesang gold deposit of southeastern Yunnan is an important component of the Dian-Qian-Gui (Yunnan, Guizhou, and Guangxi) "Golden Triangle", which hosts a multitude of Carlin-like gold deposits (CLGDs). Calcite is one of the most common gangue minerals in Zhesang. The calcites that [...] [Read more](#).

(This article belongs to the Special Issue Mineral Textural and Compositional Variations as a Tool for Understanding Magmatic Processes)

[► Show Figures](#)[Open Access](#)[Article](#)

## Mesozoic Northward Subduction Along the SE Asian Continental Margin Inferred from Magmatic Records in the South China Sea

by [Guangqiang Cai](#), [Zhifeng Wan](#), [Yongjian Yao](#), [Lifeng Zhong](#), [Hao Zheng](#), [Argyrios Kapsiotis](#) and [Cheng Zhang](#)  
*Minerals* 2019, 9(10), 598; <https://doi.org/10.3390/min9100598> - 30 Sep 2019

Cited by 1

**Abstract** During the Mesozoic, Southeast (SE) Asia (including South China and the South China Sea (SCS)) was located in a transitional area between the Tethyan and Pacific geotectonic regimes. However, it is unclear whether geodynamic processes in the SE Asian continental margin were controlled [...] [Read more](#).

(This article belongs to the Special Issue Mineral Textural and Compositional Variations as a Tool for Understanding Magmatic Processes)

[► Show Figures](#)[Open Access](#)[Article](#)

## Singularity Analysis of Volcanic Ages and Implications for Tectonic Setting in the Mesozoic, Great Xing'an Range, Northeast China

by [Pingping Zhu](#) and [Qiuming Cheng](#)  
*Minerals* 2019, 9(7), 419; <https://doi.org/10.3390/min9070419> - 09 Jul 2019

**Abstract** Frequency distribution of zircon U–Pb ages has been commonly utilized to interpret the age of a magmatic event. Anomalies in age peaks are related to plate movement caused by mantle convection during the formation of supercontinents and continent crust growth. In this paper, [...] [Read more](#).

(This article belongs to the Special Issue Mineral Textural and Compositional Variations as a Tool for Understanding Magmatic Processes)

[► Show Figures](#)[Open Access](#)[Article](#)

## Modeling the Crystallization and Emplacement Conditions of a Basaltic Trachyandesitic Sill at Mt. Etna Volcano

by [Manuela Nazzari](#), [Flavio Di Stefano](#), [Silvio Mollo](#), [Piergiorgio Scarlato](#), [Vanni Tecchiato](#), [Don Ellis](#), [Olivier Bachmann](#) and [Carmelo Ferito](#)  
*Minerals* 2019, 9(2), 126; <https://doi.org/10.3390/min9020126> - 21 Feb 2019

Cited by 3

**Abstract** This study documents the compositional variations of phenocrysts from a basaltic trachyandesitic sill emplaced in the Valle del Bove at Mt. Etna volcano (Sicily, Italy). The physicochemical conditions driving the crystallization and emplacement of the sill magma have been reconstructed by barometers, oxygen [...] [Read more](#).

(This article belongs to the Special Issue Mineral Textural and Compositional Variations as a Tool for Understanding Magmatic Processes)

[► Show Figures](#)[Open Access](#)[Article](#)

## Unravelling the Crustal Architecture of Cape Verde from the Seamount Xenolith Record

by [Abigail K. Barker](#), [Thor H. Hansteen](#) and [David Nilsson](#)  
*Minerals* 2019, 9(2), 90; <https://doi.org/10.3390/min9020090> - 01 Feb 2019

**Abstract** The Cape Verde oceanic plateau hosts 10 islands and 11 seamounts and provides an extensive suite of alkaline lavas and pyroclastic rocks. The volcanic rocks host a range of crustal and mantle xenoliths. These xenoliths provide a spectrum of lithologies available to interact [...] [Read more](#).

(This article belongs to the Special Issue Mineral Textural and Compositional Variations as a Tool for Understanding Magmatic Processes)

[► Show Figures](#)[Open Access](#)[Article](#)

## Impulsive Supply of Volatile-Rich Magmas in the Shallow Plumbing System of Mt. Etna Volcano

by [Cristina Pertinelli](#), [Silvio Mollo](#), [Mario Gaeta](#), [Serena Pia De Cristofaro](#), [Danilo Mauro Palladino](#) and [Piergiorgio Scarlato](#)  
*Minerals* 2018, 8(11), 482; <https://doi.org/10.3390/min8110482> - 25 Oct 2018

Cited by 6

**Abstract** Magma dynamics at Mt. Etna volcano are frequently recognized as the result of complex crystallization regimes that, at shallow crustal levels, unexpectedly change from H<sub>2</sub>O-undersaturated to H<sub>2</sub>O-saturated conditions, due to the impulsive and irregular arrival of volatile-rich magmas from [...] [Read more](#).

(This article belongs to the Special Issue Mineral Textural and Compositional Variations as a Tool for Understanding Magmatic Processes)

[► Show Figures](#)[Open Access](#)[Article](#)

## The Merensky Cyclic Unit, Bushveld Complex, South Africa: Reality or Myth?

by [Emma J. Hunt](#), [Rais Latypov](#) and [Péter Horváth](#)  
*Minerals* 2018, 8(4), 144; <https://doi.org/10.3390/min8040144> - 03 Apr 2018

Cited by 7

**Abstract** The Merensky Unit, Bushveld Complex, is commonly described using genetic terms such as "cyclic unit", typically without careful consideration of the connotations. We suggest that this contributes to the debate on processes forming the unit. This study integrates an extensive field study with [...] [Read more](#).

(This article belongs to the Special Issue Mineral Textural and Compositional Variations as a Tool for Understanding Magmatic Processes)

[► Show Figures](#)[Show export options](#)

Displaying articles 1-7



Subscribe to receive issue release notifications and newsletters from MDPI journals

Select options

Enter your email address...

[Subscribe](#)

## Further Information

- Article Processing Charges
- Pay an Invoice
- Open Access Policy
- Contact MDPI
- Jobs at MDPI

## Guidelines


- For Authors
- For Reviewers
- For Editors
- For Librarians
- For Publishers
- For Societies

## MDPI Initiatives

- Institutional Open Access Program (IOAP)
- Sciforum
- Preprints
- SciLit
- SciProfiles
- MDPI Books
- Encyclopedia
- MDPI Blog

## Follow MDPI

- LinkedIn
- Facebook
- Twitter

**From:** snf\_fellows@sl.ethz.ch   
**Subject:** Ihre Bewerbung um ein Mobilitäts-Stipendium des SNF / Your application for a Mobility-Fellowship of the SNF  
**Date:** 24 November 2017 at 10:17 PM  
**To:** francesca.forni05@gmail.com

---



Sehr geehrte Frau Forni

Sie haben sich bei der SNF-Forschungskommission der ETH Zürich mit dem Projekt «Timescales of magma storage and evolution at the Campi Flegrei caldera (Southern Italy)» für ein Mobilitäts-Stipendium des Schweizerischen Nationalfonds beworben.

Gerne informieren wie Sie vorab über die Entscheidung der Forschungskommission.

Dieser Entscheid lautet: Zugesprochen  
Your fellowship application is: Approved

Wir bitten Sie um Verständnis, dass die Verfügung mit dem offiziellen Entscheid und den Bedingungen erst in den nächsten Wochen folgen wird.

Bitte teilen Sie uns mit, falls sich in der Zwischenzeit Ihre private Postadresse oder E-Mail-Adresse geändert hat.

Sollten Sie in der Zwischenzeit eine Zusage für ein anderes Fellowship erhalten haben oder in Kürze eine Entscheidung darüber erwarten, bitten wir Sie, uns so schnell wie möglich darüber zu informieren.

Wenn Sie dringend vorab eine Bestätigung für Ihren Visumantrag benötigen, setzen Sie sich bitte so schnell wie möglich mit Frau Jacqueline Köpfli (snf\_fellows@sl.ethz.ch) in Verbindung.

Wir wünschen Ihnen einen angenehmen Tag!

Freundliche Grüsse  
Jacqueline Köpfli

\*\*\*\*\*

SNF-Forschungskommission der ETH Zürich

This message is intended for the exclusive use of the individual(s) to whom it is addressed. It may contain information that is privileged and/or confidential. Should you have received this message erroneously, please notify us immediately by e-mail, destroy any printouts and delete all electronic files contained in this message.





Applications and Projects

Grant application 178441

- Overview
- Information on the grant
- Documents
- Lay summary
- Release of funds
- Request for payment of instalment
- Supplementary grants
- Employee data
- Financial reports
- Scientific reports
- Output data
- Submitted data

Manage authorisations

Reference letter

**P2EZP2\_178441**

**Timescales of magma storage and evolution at the Campi Flegrei caldera (Southern Italy)**

Early Postdoc.Mobility  
RC ETH Zurich

**Start:** 01.10.2018

Archived

### Information on the application

Applicant:	Forni, Francesca
Request address:	Madame Francesca Forni Institut für Mineralogie und Petrographie ETH Zürich Sonneggstrasse 5 CH-8092 Zürich
Main discipline:	20803 Geochemistry
Call for proposals:	Early Postdoc.Mobility 2017 September (01.09.2017)

### Overview of basic data on application

Starting date:	01.10.2018
Duration in months:	18 Months

### Responsibility SNSF

Responsible department:	Early Postdoc.Mobility
E-mail address:	<a href="mailto:fellowships@snf.ch">fellowships@snf.ch</a>
Co-administrating division(s):	

Manage authorisations

- E-mail: [mysnf.support@snf.ch](mailto:mysnf.support@snf.ch)
- German/French/English: +41 31 308 22 00
- Mon to Fri, 8.30–11.30 a.m. and 1.30–4.30 p.m. CET

Search P3, the SNSF grant database...


 Advanced search

[<](#)
[Back to overview](#)

## Project

### Towards a quantitative understanding of caldera-forming events

<b>Applicant</b>	Bachmann Olivier
<b>Number</b>	146268
<b>Funding scheme</b>	Project funding (Div. I-III)
<b>Research institution</b>	Institut für Geochemie und Petrologie ETH Zürich
<b>Institution of higher education</b>	ETH Zurich - ETHZ
<b>Main discipline</b>	Geochemistry
<b>Start/End</b>	01.04.2013 - 31.03.2016
<b>Approved amount</b>	389'100.00
<div> <div>▼ Show all</div> <div>?</div> </div>	

#### Keywords (1)

caldera, silicic magma, volcanic hazards

#### Lay Summary (French)

#### Responsible applicant and co-applicants

Name	Institute
Bachmann Olivier	Institut für Geochemie und Petrologie ETH Zürich

#### Employees

Name	Institute
Forni Francesca	Institut für Mineralogie und Petrographie ETH Zürich
Wanke Maren	

#### Publications

##### Publication

Trace element partitioning between clinopyroxene and trachy-phonolitic melts: A case study from the Campanian Ignimbrite (Campi Flegrei, Italy)  
Mollo S., Forni F., Bachmann O., Blundy J.D., De Astis G., Scarlato P. (2016), Trace element partitioning between clinopyroxene and trachy-phonolitic melts: A case study from the Campanian Ignimbrite (Campi Flegrei, Italy), in *Lithos*, 252-253, 160-172.

A K-feldspar–liquid hygrometer specific to alkaline differentiated magmas  
Mollo Silvio, Masotta Matteo, Forni Francesca, Bachmann Olivier, De Astis Gianfilippo, Moore Gordon, Scarlato Piergiorgio (2015), A K-feldspar–liquid hygrometer specific to alkaline differentiated magmas, in *Chemical Geology*, 392, 1-8.

Erupted cumulate fragments in rhyolites from Lipari (Aeolian Islands)  
Forni Francesca, Ellis Ben S., Bachmann Olivier, Lucchi Federico, Tranne Claudio A., Agostini Samuele, Dallai Luigi (2015), Erupted cumulate fragments in rhyolites from Lipari (Aeolian Islands), in *Contributions to Mineralogy and Petrology*, 170(5-6), 18.

Eruption of Shallow Crystal Cumulates during Explosive Phonolitic Eruptions on Tenerife, Canary Islands  
Silwinski J. T., Bachmann O., Ellis B. S., Dávila-Harris P., Nelson B. K., Dufek J. (2015), Eruption of Shallow Crystal Cumulates during Explosive Phonolitic Eruptions on Tenerife, Canary Islands, in *Journal of Petrology*, 56(11), 2173-2194.

Ignimbrites to batholiths: Integrating perspectives from geological, geophysical, and geochronological data  
Lipman P. W., Bachmann O. (2015), Ignimbrites to batholiths: Integrating perspectives from geological, geophysical, and geochronological data, in *Geosphere*, 11(3), 705-743.

Remelting of cumulates as a process for producing chemical zoning in silicic tuffs: A comparison of cool, wet and hot, dry rhyolitic magma systems  
Wolff J.A., Ellis B.S., Ramos F.C., Starkel W.A., Boroughs S., Olin P.H., Bachmann O. (2015), Remelting of cumulates as a process for producing chemical zoning in silicic tuffs: A comparison of cool, wet and hot, dry rhyolitic magma systems, in *Lithos*, 236-237, 275-286.

Building zoned ignimbrites by recycling silicic cumulates: insight from the 1,000 km3 Carpenter Ridge Tuff, CO  
Bachmann Olivier, Deering Chad D., Lipman Peter W., Plummer Charles (2014), Building zoned ignimbrites by recycling silicic cumulates: insight from the 1,000 km3 Carpenter Ridge Tuff, CO, in *Contributions to Mineralogy and Petrology*, 167(6), 13.

Cumulate fragments in silicic ignimbrites: The case of the Snake River Plain  
Ellis B. S., Bachmann O., Wolff J. A. (2014), Cumulate fragments in silicic ignimbrites: The case of the Snake River Plain, in *Geology*, 42(5), 431-434.

Identifying the crystal graveyards remaining after large silicic eruptions  
Gelman Sarah E., Deering Chad D., Bachmann Olivier, Huber Christian, Gutiérrez Francisco J. (2014), Identifying the crystal graveyards remaining after large silicic eruptions, in *Earth and Planetary Science Letters*, 403, 299-306.

LA-ICP-MS Pb-U dating of young zircons from the Kos–Nisyros volcanic centre, SE Aegean arc  
Guillong M., von Quadt A., Sakata S., Peytcheva I., Bachmann O. (2014), LA-ICP-MS Pb–U dating of young zircons from the Kos–Nisyros volcanic centre, SE Aegean arc, in *Journal of Analytical Atomic Spectrometry*, 29(6), 963-963.

New petrological constraints on the last eruptive phase of the Sabatini Volcanic District (central Italy): Clues from mineralogy, geochemistry, and Sr-Nd isotopes  
Del Bello Elisabetta, Mollo Silvio, Scarlato Piergiorgio, von Quadt Albrecht, Forni Francesca, Bachmann Olivier (2014), New petrological constraints on the last eruptive phase of the Sabatini Volcanic District (central Italy): Clues from mineralogy, geochemistry, and Sr-Nd isotopes, in *LITHOS*, 205, 28-38.

Evolution of the Taupo Volcanic Center, New Zealand: petrological and thermal constraints from the Omega dacite  
Gelman Sarah E., Deering Chad D., Gutierrez Francisco J., Bachmann Olivier (2013), Evolution of the Taupo Volcanic Center, New Zealand: petrological and thermal constraints from the Omega dacite, in *Contributions to Mineralogy and Petrology*, 166(5), 1355-1374.

On the longevity of large upper crustal silicic magma reservoirs  
Gelman S. E., Gutierrez F. J., Bachmann O. (2013), On the longevity of large upper crustal silicic magma reservoirs, in *Geology*, 41(7), 759-762.

#### Collaboration

Group / person	Country
<b>Types of collaboration</b>	
Dr. Silvio Mollo/INGV Roma	Italy (Europe)
- in-depth/constructive exchanges on approaches, methods or results	
- Publication	
- Research Infrastructure	
Dr. Jake Lowenstern/ USGS Menlo Park	United States of America (North America)
- in-depth/constructive exchanges on approaches, methods or results	
- Research Infrastructure	
Prof. Torsten Vennemann, Université de Lausanne	Switzerland (Europe)
- in-depth/constructive exchanges on approaches, methods or results	
- Research Infrastructure	
Prof. Schmitz, Idaho State University	United States of America (North America)
- in-depth/constructive exchanges on approaches, methods or results	
- Publication	
- Research Infrastructure	
Dr. Michael Clyne/USGS Menlo Park, CA	United States of America (North America)
- in-depth/constructive exchanges on approaches, methods or results	
- Publication	
- Research Infrastructure	
Dr. John Pallister/USGS CVO, Vancouver, WA	United States of America (North America)
- in-depth/constructive exchanges on approaches, methods or results	
- Publication	
- Research Infrastructure	
Dr. Ben Ellis/ETHZ	Switzerland (Europe)
- in-depth/constructive exchanges on approaches, methods or results	
- Publication	
- Research Infrastructure	
- Exchange of personnel	
Dr. Gianfilippo De Astis	Italy (Europe)
- in-depth/constructive exchanges on approaches, methods or results	
- Publication	
- Research Infrastructure	
Prof. Bindeman, University of Oregon	United States of America (North America)
- in-depth/constructive exchanges on approaches, methods or results	
- Publication	
- Research Infrastructure	

#### Scientific events

##### Active participation

Title	Type of contribution	Title of article or contribution	Date	Place	Persons involved
EGU Conference	Talk given at a conference	The origin of a zoned ignimbrite: insights into the Campanian Ignimbrite magma chamber (Campi Flegrei, Italy)	17.04.2016	Wien, Austria	Bachmann Olivier; Forni Francesca;
Fall AGU	Talk given at a conference	Ignimbrites to batholiths	14.12.2015	San Francisco, United States of America	Bachmann Olivier;
Swiss Geoscience Meeting	Poster	Plutonic xenoliths from Mount St. Helens – a window into the magma plumbing system	20.11.2015	Basel, Switzerland	Wanke Maren;
Hutton Conference	Talk given at a conference	Magma reservoir dynamics and the volcano-plutonic connection	21.09.2015	Florianopolis, Brazil	Bachmann Olivier;
Goldschmidt Conference	Talk given at a conference	Erupted Cumulate Fragments in Rhyolites from Lipari (Aeolian Islands)	17.08.2015	Prague, Czech Republic	Bachmann Olivier; Forni Francesca;
Goldschmidt Conference	Talk given at a conference	Identifying the crystal graveyards remaining after large silicic eruptions	17.08.2015	Prague, Czech Republic	Forni Francesca;
Goldschmidt Conference	Talk given at a conference	Why Aren't most high-SiO2 Rhyolites Trapped in the Crust?	17.08.2015	Prague, Czech Republic	Bachmann Olivier;
State of the Arc conference	Poster	The magma plumbing system beneath Mount St. Helens	12.04.2015	Montserrat, Montserrat	Wanke Maren;
State of the Arc conference	Talk given at a conference	Physical processes in magma reservoirs	12.04.2015	Montserrat, Montserrat	Bachmann Olivier;
MeMoVolc workshop	Poster	An amphibole perspective on the Mount St. Helens magma plumbing system	04.02.2015	Pisa, Italy	Wanke Maren;
Fall AGU	Poster	Cumulate Fragments in Silicic Ignimbrites	15.12.2014	San Francisco, United States of America	Bachmann Olivier;

#### Knowledge transfer events

#### Communication with the public

#### Awards

#### Associated projects

#### Abstract

#### Contact

Swiss National Science Foundation (SNSF)  
Wildhainweg 3  
P.O. Box  
CH-3001 Bern  
Phone +41 31 308 22 22

Contact

#### Quick access

- > snf.ch
- > Calls for proposals
- > Documents for researchers
- > Research magazine Horizons

#### mySNF

Enter and manage your applications

#### Working at the SNSF

Jobs & mandates

#### Newsletter SNSF

Enter your e-mail address to receive the SNSF Newsletter regularly

Continue

