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Interests

Research goal	Seeking geological evidence to bridge the gap between tectonic deformation at geological and at human time scales.
Teaching goal	Combating obscurantism by promoting the sharing of, accessibility to, and passion for natural sciences.

Education

2021 – 2023	LABORATOIRE DE GÉOLOGIE DE L'ENS , Paris, France. Ph.D. in Geodynamics and Geodesy, with Manuel PABELLIER and Pierre BRIOLE.
2020 – 2021	ENS¹ & INSTITUT DE PHYSIQUE DU GLOBE DE PARIS (IPGP) , Paris, France.
July 2019	Master 2 – equivalent to a MS in Geology (ranked first). Aggrégation (highest teaching diploma in France) of Biology-Geology (SVT) – first rank.
2018 – 2019	SORBONNE UNIVERSITÉS , Paris, France. Master 2 – equivalent to a MS in Natural Sciences (ranked first).
2016 – 2017	ENS & UNIVERSITÉ PARIS 6 UPMC , Paris, France. Master 1 in Geosciences (major in solid earth sciences).
2015 – 2016	ENS & UNIVERSITÉ PARIS 6 UPMC , Paris, France. Licence – equivalent to a BS in Geosciences (ranked first).
July 2015	Admitted to ENS Paris following a highly competitive selection process.

Research experience

2021 – 2025 (3 years)	LABORATOIRE DE GÉOLOGIE DE L'ENS , Paris, France. The Ionian supra-subduction zone (Peloponnese, Greece): from current deformation to post-alpine collapse.
2021 (5 months)	UNIVERSITY OF GENEVA ; UNIVERSITY OF ISLAND , Iceland. Interaction between a dyke and superficial faults during the Reykjanes crisis (2021).
2020 – 2022 (1 month / year)	Geodetic monitoring and field evidence of crustal deformation in the Peloponnese (Greece).
2020 (1 mois)	Using kinematic GNSS data to assess the accuracy and precision of the TanDEM-X DEM resampled at 1 m resolution over the western Corinth Gulf, Greece.
Currently (9 months)	WHATsun (West Hellenic Arc Tsunamis) : fault and tsunami modeling for historical, recent and possible seisms associated with backarc deformation along the Hellenic Trench (Greece).
2016 – 2019 (1 week/year)	" INSEGNACI ETNA "; ISTITUTO NAZIONALE DI GEOFISICA E VULCANOLOGIA , Italy. GPS monitoring of Mount Etna.
2018 (3 month)	LABORATOIRE DE GÉOLOGIE, ENS ULM , France. Deciphering of the structure and emplacement of the Zambales Ophiolite (Luzon, Philippines) and preparation of the LIGHTENED offshore campaign.
2018 (1 month)	CORINTH RIFT LABORATORY , Greece. Collection of geodetic data in order to better understand the Corinth Rift system.
2017 (2 months)	INSTITUT DE SCIENCES EXACTES ET APPLIQUÉES DE L'UNIVERSITÉ DE LA NOUVELLE-CALÉDONIE and SERVICE DE LA GÉOLOGIE DE NOUVELLE-CALÉDONIE , France. Field investigation of a fossil accretionary prism to better understand its exhumation.
2017 (5 months)	NATIONAL INSTITUTE OF GEOLOGICAL SCIENCES, UP DILIMAN , Philippines. Field investigation in order to decipher the existence of a potential arc-continent collision.
2016 (1 month)	ISTITUTO NAZIONALE DI GEOFISICA E VULCANOLOGIA, SEZIONE DI CATANIA , Italy. Sampling and analyzing the tephra fallout from the recent lava fountains at Mount Etna.
2015 (1 month)	LABORATOIRE MAGMA ET VOLCANS , Clermont Ferrand, France. Research internship in petrology : Influence of the different volcanic rocks on the soil formation at the Chaîne des Puys.

¹*École Normale Supérieure* is a prestigious institution of higher education providing specialized training for students. Formation includes field work and laboratory courses

Teaching

2020 – 2023	Sustainability Sciences Bachelor – PSL: Geology lessons : Internal structure of the globe and natural risks (BS1, 4 × 10h), Petrology (BS2, 3 × 24h) and Tectonics (BS1, 3 × 21h).
2021 – 2023	Introduction to geological mapping in the french Alps (ENS – BS Geology) – 3 × 60h.
2019 – 2022	The dynamics of the Pyrenean orogenic accretion prism (ENS – MS Geology) – 60h. École Normale Supérieure – Refresher courses in Earth Sciences for BS students (4 × 16h); Geosciences for non-geoscientists (2 × 10h).
2020	Interros des Lycées SVT Terminale – Éditions Nathan: scholar book (12th grade).
2019 – 2020	Sorbonne Universités - M2 préparation à l'agrégation SV-STU; Université Paris Saclay - M2 préparation à l'agrégation SV-STU: Individual oral examinations of Geology ("Leçons") and practicals in MS Geology to prepare teachers for the Professor competitive exam.
2019 – 2020	MAGMA CULTURA. Supervision of pedagogical projects around "biodiversity in Paris" with 2nd grade children.
2018 – 2022 (2 weeks)	ENS@Etna, Sicily: Organisation of the annual Archeology-Geology internship on Mount Etna and Southern Sicily for BS students from École Normale Supérieure (7 × 10days).
2017 – 2020	Individual oral examinations of Biology ("khôlles"), methodology training and Geology practicals in Classes Préparatoires BCPST.
2016/2017 (4 days)	AUVERGNE, France.
2015 – 2019	Organisation of a 4-day geology field trip for BS students from École Normale Supérieure . Institut Tocqueville , Paris: Private teacher of Biology and Earth Sciences BCPST : préparation for "Grandes Écoles" entrance examination.

Courses taken

Geosciences	Active and past tectonics, Mineralogy, Petrology, Geodynamics, Seismology, Crust and Mantle dynamics, Geomorphology, Rock Physics, Geochemistry, Pedology, Sedimentology, Paleontology, Hydrology, Remote sensing, Oceanography, Meteorology, Climate modeling, Atmospheric chemistry, Planetology, etc.
Physics	Solid and fluid Mechanics, Thermodynamics, Electricity, Astrophysics, etc.
Chemistry	Aqueous Solutions, Organic Chemistry, Acid-base and oxydoreduction reactions, etc.
Maths	Algebra, Mathematical Analysis, Statistics, Inverse Problems, Modeling, Computing, etc.
Biology	Ecology-Evolution, Physiology, Cell biology, Molecular biology, Vegetal biology, Botany, Microbiology, etc.

Main field training

Gravimetry (Peloponnese, 2022).
Historical seismicity (Provence, 2021).
Active Tectonics (Peloponnese, 2018–2019).
GNSS (Sicily & Peloponnese, 2016–2018).
Volcanology and Seismotectonics (Sicily, 2016–2018).
Geophysics (Alps, 2016).
Marine Geology and Physical Oceanography (Mediterranean, 2016).
Tectonic and Metamorphic Processes (Alps, 2016/2018).
Sedimentology, Petrography and Paleontology (Boulonnais, 2016).
Applied Pedology and Geological Mapping (Alps, 2015).
Metamorphic Petrology and Mineralogy (Alps, 2015).

Information technology skills

Python, QGIS, Inkscape, Unix, L^AT_EX, HTML, GIT.

Languages

French (Mother tongue), English (Good Working Knowledge), Italian (Working Knowledge), Spanish (Good Bases), Greek (Good Bases), Latin (Good Bases), Ancient Greek (Bases).

Publications

- 2023 Bufféral, S. and Pubellier, M. Reactivation of Alpine structures during post orogenic collapse of the Peloponnese, Greece. *Comptes rendus-Geoscience*, accepted.
- 2023 Alfonsi, L.; Cesaroni, C.; Hernandez-Pajares, M.; Astafyeva, E.; **Bufféral, S.**; Elias, P.; Bele-haki, A.; Tsagouri, I.; Yang, H.; Guerra, M., Ionospheric response to the 2020 Samos Earthquake. *Earth, Planets and Space*, accepted. doi.org/10.21203/rs.3.rs-3073576/v1.
- 2023 Serpetsidaki, A.; Kapetanidis, V.; Elias, P.; Rigo, A.; Spingos, I.; De Barros, L.; Lengliné, O.; **Bufféral, S.**; Karakonstantis, A.; Bernard, P.: The 2020-2021 Seismic Swarm in the Western Gulf of Corinth: Insights on the Triggering Mechanisms Through High Resolution Seismological and Geodetic Data Analysis, 2023, doi.org/10.1016/j.tecto.2023.230011.
- 2023 **Bufféral, S.**; Panza, E.; Mannini, S.; Hjartardóttir, Á-R.; Nobile, A.; Gies, N.; Óskarsson, B.; Ruch, J.: Surface fractures generated during the 2021 Reykjanes oblique rifting event (SW Iceland), *Bulletin of Volcanology*, 85, 64 (2023). doi.org/10.1007/s00445-023-01666-9.
- 2022 Zahradník, J.; Aissaoui, E. M.; Bernard, P.; Briole, P.; **Bufféral, S.**; De Barros, L., et al. (2022). An atypical shallow Mw 5.3, 2021 earthquake in the western Corinth rift (Greece). *Journal of Geophysical Research: Solid Earth*, 127, e2022JB024221. doi.org/10.1029/2022JB024221.
- 2021 Kaviris, G. et al., The Western Gulf of Corinth (Greece) 2020–2021 seismic crisis and cascading events: First results from the Corinth Rift Laboratory network, *The Seismic Record*, 1, 2, 85-95, 2021, Seismological Society of America. doi.org/10.1785/0320210021.
- 2021 Briole, P.; **Bufféral, S.**; Dimitrov, D.; Elias, P.; Journeau, C.; Avallone, A.; Kamberos, K.; Capderou, M.; Nercessian, A.: Using Kinematic GNSS Data to Assess the Accuracy and Precision of the TanDEM-X DEM Resampled at 1-m Resolution Over the Western Corinth Gulf, Greece, *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 14, 3016-3025, 2021, IEEE. doi.org/10.1109/JSTARS.2021.3055399.

Communications

- 2023 **Bufféral, S.**; Wicker, V.; Kranis, H.; Skourtos, E.; Boucher, Lucie L.M. and Pubellier, M.: La réactivation des structures alpines dans l'évolution tardive et post-orogénique des Hellenides Externes: une approche cartographique; *RST Rennes 2023*, rst2023.rennes.sciencesconf.org/486985.
- 2023 **Bufféral, S.**; Briole, P.; Chamot-Rooke, N.; Pubellier, M., The sprawl of the External Hellenides: from post-Alpine collapse to present-day kinematics, *EGU General Assembly 2023*, Vienna, Austria, 24–28 Apr 2023, EGU23-9268, doi.org/10.5194/egusphere-egu23-9268.
- 2023 **Bufféral, S.**; Pubellier, M.; Briole, P.; Chamot-Rooke, N., The sprawl of the Peloponnese or: How I learned to keep calm and love gravity tectonics, *Congrès des Doctorants 2023*, ED Step'UP.
- 2022 **Bufféral, S.**; Pubellier, M.; Kranis, H.; Skourtos, E., Morphological indicators to revisit the role of post-alpine gravity tectonics in the external Hellenides, 16th International Congress of the Geological Society of Greece, Oct. 18 2022, Patras (Greece), *Bulletin of the Geological Society of Greece*, Sp. Publ. 10 Ext. Abs. GSG2022-337 ([researchgate.net](https://www.researchgate.net/))..
- 2022 Ruch, J.; **Bufféral, S.**; Panza, E.; Mannini, S.; Oskarsson, Birgir; Gies, Nils; Alvizuri, Celso; Rut Hjartardóttir, Ásta, Widespread ground cracks generated during the 2021 Reykjanes oblique rifting event (SW Iceland), *EGU General Assembly Conference Abstracts*, EGU22-11995, 2022. doi.org/10.5194/egusphere-egu22-11995.
- 2022 **Bufféral, S.**; Panza, E.; Mannini, S.; Ruch, J., Sub-surface fault slip dynamics during the 2021 Reykjanes unrest (Iceland), *EGU General Assembly Conference Abstracts*, EGU22-10343, 2022. doi.org/10.5194/egusphere-egu22-10343.
- 2022 **Bufféral, S.**; Pubellier, M., Investigating the dynamics of the post-alpine dismantling in the Peloponnese (Greece) - a morphological approach, *Congrès des Doctorants 2022*, ED Step'UP.
- 2019 **Bufféral, S.**, The tsunami hazard in the Ionian region (Western Greece) - From the models to the field, *Corinth Rift Laboratory (CRL) School 2019*, Nafpaktos.
- 2018 **Bufféral, S.**, The Nappe Stack in the External Hellenides - what is under our feet when in the Corinth Gulf, *Corinth Rift Laboratory (CRL) School 2018*, Nafpaktos.

Interests and Activities

- Associative life:** Organization of the Geosciences seminars at ENS in 2016-2017
Member of the [French society for geology \(SGF\)](#).
- Sports:** Mountain hiking and climbing, trekking.
- Main hobbies:** Music (guitar), dance, singing, drawing, etc.

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English version: https://www.eleves.ens.fr/home/bufferal/resources/Resume_bufferal.pdf