

Curriculum Vitae of Paolo Ballato

(Last Update April 2023)

Email: paolo.ballato@uniroma3.it

Office phone: +39 06 5733 8006

Present-Day Position

Associate Professor (2nd level) at the Department of Sciences (Section Geology), University of Roma Tre, Italy.

Qualification for the 1st level professorship (settore concorsuale 04/A2) obtained on 12/31/2022 (bando D.D. 553/2021, art.16, comma 1, Legge 24/10)

Academic Education

2005-2009 **Doctorate in Geological Sciences ("Summa cum Laude")**
University of Potsdam (Germany), Institute of Geosciences,
thesis defended in November 2009
"Tectonic and climatic forcing in orogenic processes: the foreland basin point of view, Alborz Mountains, N Iran"

2003 **MSc (first level) in Geomaterials ("100/100")**
University of Ferrara (Italy), Department Physics and Earth Sciences,
thesis defended in December 2003
"Mineralogical study of historical bricks from the Great Palace of the Byzantine Emperors in Istanbul based on powder X-ray diffraction data"

1995-2002 **Laurea (BSc and MSc equivalent) in Geological Science ("110/110 cum Laude")**
University of Pisa (Italy), Department of Earth Sciences,
thesis defended in June 2002
"Structural and stratigraphic analysis of the Monte Pagano area, Molisan nappe, Southern Apennines"

Academic Positions

July 2019 to Present **Associate Professor** (2nd level) at the Department of Sciences (Section Geology), University of Roma Tre (Italy).

January 2019 to May 2020 **Adjunct Professor** at the Zachry Department of Civil and Environmental Engineering, Texas A&M University (TAMU).

July 2016 to June 2019 **Researcher** (Tenure Track) at the Department of Sciences, Section Geology, University of Roma Tre (Italy).

January 2010 July 2016	Postdoctoral Fellow at the Institute of Geosciences, University of Potsdam (Germany)
January 2005 December 2009	PhD Student at the Institute of Earth and Environmental Sciences, University of Potsdam (Germany)
August 2004 December 2004	Postgraduate Student (Research Assistant) at the Institute of Geosciences, University of Potsdam (Germany)
September 2003 March 2004	Postgraduate Student (Research Assistant) at the Institute of Sciences and Technology of Ceramic Materials (ISTEC), Italian National Research Council (CNR), Faenza (Italy)

Visiting Positions

November- December 2021	Visiting scientist at CEREGE (Centre Européen de Recherche et d'Enseignement des Géosciences de l'Environnement), Aix-Marseille University, France
August- December 2019	Fulbright Fellow at the University of Washington (UW)
March-May 2016	Visiting Scientist at the Institute of Geology and Biology (IBIGEO) CONICET, Salta (Argentina)
January-April 2010	Visiting Scientist at the Department of Geology, University of Kansas (USA)

Courses Taught: Frontal Lectures

Since 2022	Laboratory of Geology 1 for Bachelor students in Geosciences, University of Roma Tre (36 hours/semester)
Since 2019	Physics Oceanography and Marine Geology for Bachelor students in Engineering, University of Roma Tre (54 hours/semester)
2020-2022	Laboratory of Geology 2 for Bachelor students in Geosciences, University of Roma Tre (36 hours/semester)
2019-2020	Geology for Engineers for Bachelor Students in Engineering from Texas A&M University during their study abroad program at the University of Roma Tre (48 hours/semester)

2014-2016	Laboratory of Geology 2 for Bachelor students in Geosciences, University of Potsdam (10 hours/semester for 2 semesters)
2012-2016	Seminars in Geological Surface Processes for Master and PhD students in Geosciences, University of Potsdam (28 hours/semester for 4 semesters)
2007-2016	Laboratory of Geodynamic and Neotectonics for Master students in Geosciences, University di Potsdam (6 hours/semester for 9 semesters)

Courses Taught: Field Lectures

Since 2017	Field mapping for Master students in Geosciences, University of Roma Tre (15 days/semester)
2017-2019	Field mapping for Bachelor students in Geosciences, University of Roma Tre (15 days/semester)
2011-2015	Introduction to Structural Geology for Bachelor students in Geosciences, University of Potsdam (7 days/semester for 5 semesters)
2011	Field mapping of sedimentary rocks for Bachelor students in Geosciences, University of Potsdam (12 days/semester for 2 semesters)

Research Interests

- Mountain building processes
- Basin analysis
- Long- to short-term erosional processes
- Landscape evolution
- Interaction between surface, tectonic and deep-seated processes
- Paleoclimatic and paleoenvironmental reconstructions

Research Methods

- Field work (geological and geomorphological mapping, sedimentologic analysis)
- Geochronology and low temperature thermochronology
- Stable and cosmogenic isotope analysis
- Paleomagnetism

Publications

*Clementucci, R., **Ballato, P.**, Siame, L., Fox, M., Lanari, R., Sembroni, A., et al (2023). Surface uplift and topographic rejuvenation of a tectonically inactive range: Insights from the Anti-Atlas and the Siroua Massif (Morocco). *Tectonics*, 42, e2022TC007383. <https://doi.org/10.1029/2022TC007383>

Lanari R., Boutoux, A., Faccenna, C., Herman, F., Willett, S.D., and **Ballato P.**, (2023) Cenozoic exhumation in the Mediterranean and the Middle East. *Earth-Science Review* 237, 104328, <https://doi.org/10.1016/j.earscirev.2023.104328>

*Biralvand, M., **Ballato, P.**, Balestrieri, M.L., Mohajjel, M., Sobel, E.R., Dunkl, I., Montegrossi, G., Ghassemi, M.R., Glodny, J., and Strecker, M.R., (2023) Low-temperature thermochronologic response to magmatic reheating: insights from the Takab metallogenic district of NW Iran, (Arabia-Eurasia collision zone). *Geochemistry, Geophysics, Geosystems*. 24, e2022GC010561. <https://doi.org/10.1029/2022GC010561>.

*Clementucci, R., **Ballato, P.**, Siame, L., Faccenna, C., Yaaqoub, A., Essaifi, A., Leanni, L., and Guillou, V., (2022), Lithological control on erosional dynamics in a tectonically inactive mountain belt (Anti-Atlas, Morocco). *Earth and Planetary Science Letters*, 596, 117788. <https://doi.org/10.1016/j.epsl.2022.117788>.

Delchiaro, M., Iacobucci, G., Troiani, F., Della Seta, M., **Ballato, P.**, and Aldega, L., (2022), Morphoevolution of the Seymareh landslide-dam lake system (Zagros Mountains, Iran): Implications for Holocene climate and environmental changes. *Geomorphology*, v. 413, 108367.

Ballato, P., Hoorn, C., Licht, A., Methner, K.A., and Pingel, H., (2021) Editorial: Reaching New Heights: Recent Progress in Paleotopography. *Frontiers in Earth Science* 9:772818. doi: 10.3389/feart.2021.772818

Boutoux, A., Briaud, A., Faccenna, C., **Ballato, P.**, Rossetti, F., and Blanc, E., (2021), Slab folding and surface deformation of the Iran mobile belt. *Tectonics*, v. 40 (6), e2020TC006300.

*Paknia, M., **Ballato, P.**, Heidarzadeh, G., Cifelli, F., Feinberg, J., Jackson, M., Bilardello, D., Mirzaie Ataabadi, M., Taydon, M., Ghassemi, M.R., and Mattei, M., (2021): Intrabasinal normal faulting during widespread contractional deformation: insight from AMS and structural data in the intermontane Tarom Basin (NW Iran, Arabia-Eurasia collision zone). *Journal of Asian Earth Science*, v. 217, 104846.

*Paknia, M., **Ballato, P.**, Heidarzadeh, G., Cifelli, F., Hassanzadeh, J., Vezzoli, G., Mirzaie Ataabadi, M., Ghassemi, M.R., and Mattei, M., (2021): Neogene tectono-stratigraphic evolution of the intermontane Tarom Basin: insights into basin filling and plateau building processes along the northern margin of the Iranian Plateau (Arabia-Eurasia collision zone). *Tectonics*, v. 40 (3), e2020TC006254.

Ballato, P., Brune, S., and Strecker, M.R., (2019): Sedimentary loading–unloading cycles and faulting in intermontane basins: Insights from numerical modeling and field observations in the NW Argentine Andes. *Earth and Planetary Science Letters*, v. 506, p. 388-396.

Ballato, P., Parra, M., Schildgen, T.F., Dunkl, I., Yıldırım, C., Özsayın, E., Sobel, E.R., Echtler, H., and Strecker, M.R., (2018): Multiple exhumation phases in the Central

Pontides (N Turkey): new temporal constraints on major geodynamic changes associated with the closure of the Neo-Tethys Ocean. *Tectonics*, v. 37, p. 1831-1857.

*Chapman, J., Carrapa, B., **Ballato, P.**, DeCelles, P., Worthington, J., Oimahmadov, I., Gadoev, M., and Ketcham, R., (2017): Thermokinematic modeling of shortening in the Tajik Fold and Thrust Belt: Implications for intracontinental subduction beneath the Pamir Mountains. *Geological Society of America Bulletin*, v. 129, p. 1450-1471

*Heidarzadeh, G., **Ballato, P.**, Hassanzadeh, J., Ghassemi, M.R., and Strecker, M.R., (2017): Tectonic and climatic controls on Pliocene sedimentary basin evolution, overspilling and incision of the northwestern Iranian Plateau, Mianeh Basin. *Earth and Planetary Science Letters*, v. 469, p. 135-147.

Ballato, P., Cifelli, F., Heidarzadeh, G., Ghassemi, M., Wicker, A., Hassanzadeh, J., Dupot-Nivet, G., Balling, P., Zeilinger, G., Mattei, M., and Strecker, M.R., (2017): Tectono-sedimentary evolution of the northern Iranian Plateau: insights from middle-late Miocene foreland-basin deposits. *Basin Research*, v. 29, p. 417-446.

Ballato, P., Landgraf, A., Fox, M., Stockli, D., Schildgen T.F., Ghassemi, M.R., Kirby, E. and Strecker, M.R., (2015): The growth of a mountain belt forced by base-level fall: Tectonics and surface processes during the evolution of the Alborz Mountains, N Iran. *Earth and Planetary Science Letters*, v. 425, p. 204-218.

Cifelli, F., **Ballato, P.**, Alimohammadian, H., Sabouri, J., and Mattei, M., (2015): Tectonic origin of magnetic lineation and the oroclinal bending in the southern Alborz range, implications on Iran-Southern Caspian geodynamics. *Tectonics*, v. 34, p. 116-132.

Donner, S., Ghods, A., Krüger, F., Rößler, D., Landgraf, A., and **Ballato P.**, (2015): The Ahar-Varzeghan double earthquake (Mw 6.4 and 6.2) of 11th August 2012 - A seismotectonic interpretation from regional moment tensors. *Bulletin of the Seismological Society of America*, v. 105, p. 791-807.

Ghassemi, M.R., Fattahi, M., Landgraf, A., Ahmadi, M., **Ballato, P.**, and Tabatabaei, S.H., (2014): Kinematic links between the Eastern Mosha Fault and the North Tehran Fault, Alborz Range, northern Iran. *Tectonophysics*, v. 622, p. 81-95.

Ballato, P., and Strecker M.R., (2014): Assessing tectonic and climatic causal mechanisms in foreland-basin stratal architecture: insights from the Alborz Mountains, northern Iran. *Earth Surface Processes and Landforms*, v. 39, p. 110-125.

Yildirim, C., Melnick, D., **Ballato, P.**, Schildgen, T., Echtler, H., Evrenerginal, H., Güneç Kiyak, N., and Strecker, M.R., (2013): Differential uplift along the northern margin of the central Anatolian Plateau: inferences from marine terraces. *Quaternary Science Reviews*, v. 81, p. 12-28.

Landgraf, A., Zielke, O., Arrowsmith, R., **Ballato, P.**, Strecker, M.R., Schildgen T.F., Friedrich A., and Tabatabaei, S.H., (2013): Differentiating simple and composite tectonic landscapes using numerical fault-slip modeling with an example from the south-central

Alborz Mountains. *Geophysical Research - Earth Surface*, v. 118. p. 1792-1805.

Ballato, P., Stockli, D.F., Ghassemi, M.R., Landgraf, A., Strecker, M.R., Hassanzadeh, J., Friedrich, A., and Tabatabaei, S.H., (2013): Accommodation of transpressional strain in the Arabia-Eurasia collision zone: new constraints from (U-Th)/He thermochronology in the Alborz Mountains, N Iran. *Tectonics*, v. 32, TC003159.

Zamagni, J., Mutti, M., **Ballato, P.**, and Kosir, A., (2012): The Paleocene-Eocene Thermal Maximum (PETM) in shallow-marine successions of the Adriatic Carbonate Platform (SW Slovenia). *Geological Society of America Bulletin*, v. 124, p. 1071-1086.

Ballato P., Uba C.E., Landgraf, A., Strecker M.R., Sudo, M., Stockli, D.F., Friedrich A., and Tabatabaei, S.H., (2011): Arabia-Eurasia continental collision: insights from late Tertiary foreland-basin evolution in the Alborz mountains, northern Iran. *Geological Society of America Bulletin*, v. 123, p. 106-131.

Ballato, P., Mulch, A., Landgraf, A., Strecker, M.R., Dalconi, M.C., Friedrich, A., and Tabatabaei, S.H., (2010): Middle to late Miocene Middle Eastern climate from stable oxygen and carbon isotope data, southern Alborz mountains, N Iran. *Earth and Planetary Science Letters*, v.300, p. 125-138.

Landgraf, A., **Ballato, P.**, Strecker, M.R., Friedrich, A., Tabatabaei, S.H., and Shahpasandzadeh M., (2009): Fault-kinematic and geomorphic observations along the North Tehran Thrust and Mosha Fasham Fault, Alborz mountains, Iran: implications for fault-system evolution and interaction in a changing tectonic regime. *Geophysical Journal International*, v. 177, p. 676-690.

Ballato, P., Nowaczyk, N.R., Landgraf, A., Strecker, M.R., Friedrich, A., and Tabatabaei, S.H., (2008): Tectonic control on sedimentary facies pattern and sediment accumulation rates in the Miocene foreland basin of the southern Alborz mountains, northern Iran. *Tectonics*, v. 27, TC6001.

Ballato, P., Cruciani, G., Dalconi, M.C., Fabri, B., and Macchiarola, M., (2005): Mineralogical study of historical bricks from the Great Palace of Byzantine Emperors in Istanbul based on powder X-ray diffraction data. *European Journal of Mineralogy*, v. 17, p. 777-784.

* *Student paper*

Manuscripts Under Revision

*Clementucci R., **Ballato, P.**, Siame L., Fox M., Lanari, R., Sembroni, A., Faccenna C., Yaaqoub A., and Essaifi A., Surface uplift and topographic rejuvenation of a tectonically inactive range: Insights from the Anti-Atlas and the Siroua Massif (Morocco). *Submitted to Tectonics*.

*Clementucci R., **Ballato, P.**, Siame L., Faccenna C., Racano, S., Torreti, G., Leanni L., and Guillou V., Cenozoic uplift history and topographic rejuvenation of the northern

Atlas-Meseta system (Morocco). Submitted to *Earth and Planetary Science Letters*.

Racano S., Schildgen, T, **Ballato, P.**, Yildirim C., and Wittmann H., Rock uplift history of the Central Pontides from river profiles inversion and implications for the development of the North Anatolian Fault (NAF). *Submitted to Earth and Planetary Science Letters.*

Lanari R., Reitano, R., Faccenna, C., Piana Agostinetti, N. and **Ballato P.**, Surface response to deep subduction system: insight from the Apennines, Italy. *Submitted to Tectonics.*

* *Student paper*

Invited Talks at Conferences and Workshops

The life cycle of a foreland basin: insights from the Alborz Mountains (Arabia-Eurasia collision zone), *EGU general assembly 2022*

Sedimentary loading–unloading cycles and faulting in intermontane basins: Insights from numerical modeling and field observations in the NW Argentine Andes, *EGU general assembly 2020.*

Evolution of the NW Iranian Plateau: from expansion to fluvial incision and plateau excavation, *EGU general assembly 2018.*

Mio-Pliocene orogenic plateau building in the Arabia-Eurasia collision zone, Iran: from outward expansion to incision and excavation, *Sedimentary Basin meeting, Jena, Germany, 2015*

Tectono-sedimentary evolution of the northern Iranian Plateau: insights from middle-late Miocene foreland-basin deposits, conference on Structure, *Tectonics and Earthquakes in the Alborz-Zagros-Makran Region, Tehran, Iran, 2015*

The growth of a mountain belt forced by base-level fall: Tectonics and surface processes during the evolution of the Alborz Mountains (N Iran), conference on Structure, *Tectonics and Earthquakes in the Alborz-Zagros-Makran Region, Tehran, Iran, 2015.*

Mentoring of PhD Students as Main Advisor (MA) and Co-Advisor (CA)

2021 to Present	<i>Francesca Rossetti</i> (University of Roma Tre), “Long-term evolution of a double subduction system: the Apennine-Albanide case” (MA). Expected defense in 2024
-----------------	--

2021 to Present	<i>Chiara Bazzucchi</i> (University of Roma Tre), “Short-term evolution of a double subduction system: the Apennine-Albanide system case” (CA; MA: Claudio Faccenna). Expected defense in 2024.
-----------------	---

2020 to Present	<i>Navid Qavim</i> (Tarbiat Modares University, Tehran, Iran) “Sediment provenance and structural evolution of the Abgarm Basin and Exhumation of adjacent mountains, NW Iran” (CA; MA: Saeed Madanipour). Expected defense in 2024.
2020 to Present	<i>Enayatallah Haghfarshy</i> (University of Hormozgan, Bandarabbas, Iran) “Stratigraphy of the Fish and Lignite Beds, Tabriz Basin, N Iran” (CA; MA: Mohammad Faridi). Expected defense in 2024.
2018 to Present	<i>Ahmeed Yaaqoub</i> (University of Marrakesh, Casi Ayyad) “Tectonic evolution of the Middle Atlas, Morocco” (CA; MA: Essaifi Abder). Expected defense in 2023.
2018 to Present	<i>Amir Naeimi</i> (Tarbiat Modares University, Tehran, Iran), “Exhumation processes in the Eastern Alborz Mountains, NE Iran” (CA; MA: Saeed Madanipour). Expected defense in 2023.
2014 to Present	<i>Ghasem Heidarzadeh</i> (University of Potsdam, Germany), “Surface uplift of the northern margin of the Iranian Plateau” (CA; MA: Manfred Strecker)
2018-2022	<i>Romano Clementucci</i> (University of Roma Tre, Italy), “Surface uplift of AntiAtlas Mountains and Moroccan Meseta” (MA; thesis defended in March 2022
2016-2019	<i>Mohammad Paknia</i> (University of Roma Tre, Italy), “Tectono-stratigraphic evolution of the Intermontane Tarom Basin (Iranian Plateau)” (MA; thesis defended in December 2019)
2014-2018	<i>Masoud Biralvand</i> (Tarbiat Modares University, Tehran), “Exhumation processes in the interior of the Iranian Plateau (Takab Range)” (CA; Ma: Mohammad Mohajjel; thesis defended in September 2018)

List of Successful Funding Applications as Principal Proponent

2019	Five-months funding as Visiting Researcher at the University of Washington (USA) with a “Fulbright Scholar” fellowship: “ <i>Unraveling the mechanisms of plateau uplift: a paleoaltimetry case study from the Arabia-Eurasian collision zone</i> ”	7.000 €
2016-2019	Three-year funding as Researcher (type B) at the University of Roma Tre (Italy) with a “Rita Levi Montalcini” fellowship granted by the MIUR (Italian Ministry of Education and University) “ <i>Uplift of the Iranian Plateau: rate, mechanisms and possible role of</i> ”	214.373 €

surface processes”

2015	Six-months funding for as postdoctoral fellowship (BA4420/2-2) at the University of Potsdam (Germany) granted by DFG (Deutsche Forschungsgemeinschaft) “ <i>The Iranian Plateau: the nascent stage of a collisional orogenic plateau</i> ”	41.450 €
2012-2014	Two-years funding for as postdoctoral fellowship (BA4420/2-1) at the University of Potsdam (Germany) granted by DFG (Deutsche Forschungsgemeinschaft) “ <i>The Iranian Plateau: the nascent stage of a collisional orogenic plateau</i> ”	216.110 €
2011-2012	Two-years funding for field work and laboratory analysis granted by the DARIUS Programme (oil companies consortium) “ <i>Tectono-stratigraphic evolution of the late Cenozoic Arabia-Eurasia continental collision zone: a look from the northern margin of the Turkish-Iranian Plateau</i> ”	19.000 €

List of Successful Funding Applications as Co-Proponent

2018-2022	PRIN National Project granted by MIUR (Italian Ministry of Education and University), “ <i>Intraplate deformation, magmatism and topographic evolution of a diffuse collisional belt: Insights into the geodynamics of the Arabia-Eurasia collisional zone</i> ”. Main proponent Claudio Faccenna	150.727€
2005-2008	PhD fellowship (STR 373/19-1) granted by DFG (Deutsche Forschungsgemeinschaft), “ <i>Fault interactions on different time and length scales: the North-Tehran-Thrust and the Mosha-Fasham-Fault, Alborz Mountains, Northern Iran</i> ” Main proponent Manfred Strecker	152.350 €

Outreach Activity on Media

MATURADIO: Earth Sciences lectures in podcast on the national FM station Radio 3
 Six lectures posted on June 2020:
<https://www.raiplaysound.it/playlist/scienze-maturadio>

Language Skills

-
- Italian, native
 - English, proficient
 - Spanish, proficient
 - German, intermediate