Structural architecture of the western Greater Caucasus pro-wedge: A case study from the Rioni foreland fold-and-thrust belt

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23-28 April 2023, Vienna, Austria

How to cite: Giorgadze, A., Alania, V., Busch, B., Enukidze, O., Quandt, D., Pace, P., Razmadze, A., and Shikhashvili, T.: Structural architecture of the western Greater Caucasus pro-wedge: A case study from the Rioni foreland fold-and-thrust belt, EGU General Assembly 2023, Vienna, Austria, 24–28 Apr 2023, EGU23-21, https://doi.org/10.5194/egusphere-egu23-21, 2023.

This work was supported by Shota Rustaveli National Science Foundation (SRNSF) [Structural model of the Rioni foreland fold-and-thrust belt and the Southern Slope of the Greater Caucasus (The Tekhuri river gorge area) Grant #: PHDF-21-087]

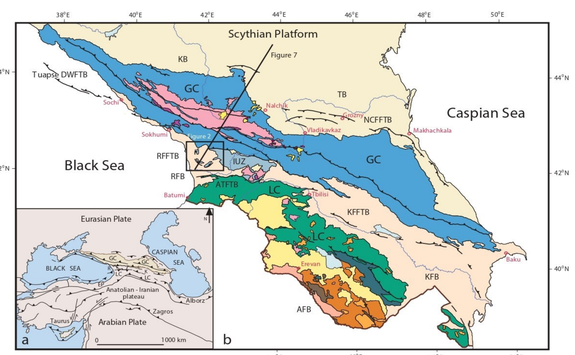

FIGURE 1. **(A)** Tectonic map of Arabia-Eurasia collision zone (modified from Sosson et al., 2016). **(B)** Tectonic map of the Caucasus (modified from Sobornov, 1996; Adamia et al., 2011a; Sosson et al., 2016; Adamia et al., 2020; Alania et al., 2021a, Alania et al., 2021b; Mosar et al., 2022). Abbreviations: GC-Greater Caucasus, LC-Lesser Caucasus, RFFTB-Rioni foreland fold-and-thrust belt, RFB-Rioni foreland basin; IUZ-Imereti uplift zone; ATFTB-Achara-Trialeti fold-and-thrust belt; KFFTB-Kura foreland fold-and-thrust belt; KFB-Kura foreland basin; NCFFTB-North Caucasus foreland fold-and-thrust belt; DWFTB-Deepwater fold-and-thrust belt; KB-Kuban Basin; TB-Terek Basin; AFB-Araks foreland basin.

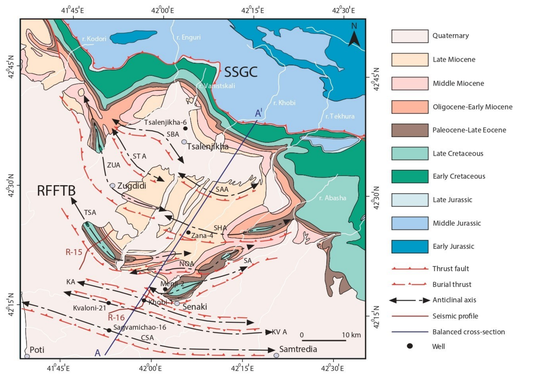

FIGURE 2. Geological map of RFFTB and surrounding area (modified from Janelidze and Kandelaki, 1956; Vakhania, 2008a, Vakhania, 2008b; Adamia et al., 2020). Abbreviations: RFFTB, Rioni foreland fold-and-thrust belt; SSGC, Southern Slope of Greater Caucasus; CSA, Chaladidi-Sagvamichao anticline; KVA, Kvaloni anticline; KA, Khobi anticline; SA-Senaki anticline; NOA, Nokhalakhevi anticline; TSA, Tsaishi anticline; SHA, Sashurgaio anticline; ZUA, Zugdidi anticline; STA, Satanjo anticline; SBA, Saberios anticline; SAA, Sarakoni anticline

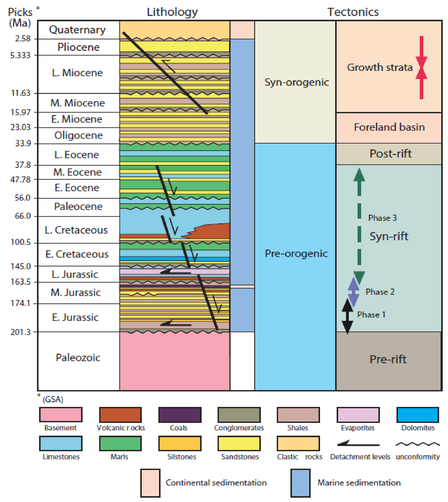

FIGURE 3. Tectonostratigraphic chart of the Rioni basin and surrounding area (modified from Adamia et al., 2010; Adamia et al., 2011a, Adamia et al., 2011b; Vincent et al., 2016, Tari et al., 2018; Alania et al., 2021a).

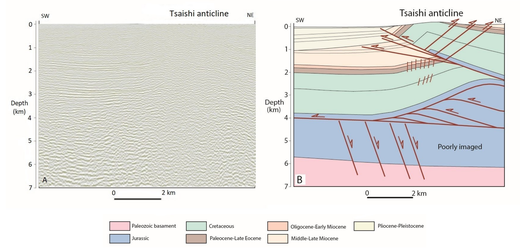

FIGURE 4. **(A)** Uninterpreted and **(B)** interpreted seismic reflection profiles R-15. Location is shown in Figure 2.

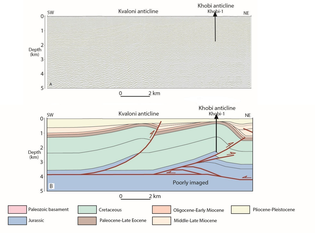

FIGURE 5. **(A)** Uninterpreted and **(B)** interpreted seismic reflection profiles R-16. Location is shown in Figure 2.

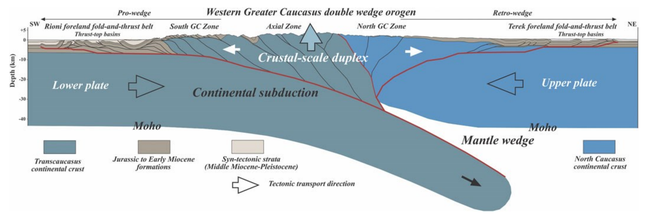

FIGURE 9. Tectonic model of the western GC orogen (modified from Alania et al., 2021a).

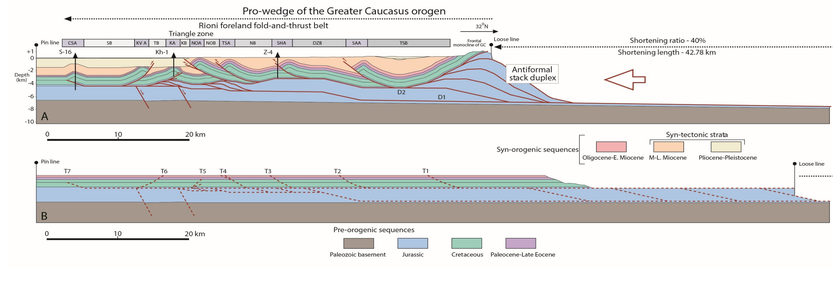

FIGURE 6. **(A)** Balanced—A-A' and **(B)** restored cross-sections. Location is shown in Figures 1, 2. Abbreviations: T1-T7—Thrusts; D1, D2, Detachments; CSA, Chaladidi-Sagvamichao anticline; SB, Sagvamichao basin; KVA, Kvaloni anticline; TB, Teklati basin; KA, Khobi anticline; KB, Khobi basin; NOA, Nokhalakhevi anticline; NOB, Nokhalakevi Basin; TSA, Tsaishi anticline; NB, Narazeni basin; SHA, Sashurgaio anticline; DZB, Dikhazungi basin; SAA, Sarakoni anticline; TSB-Tsalenjikha basin.

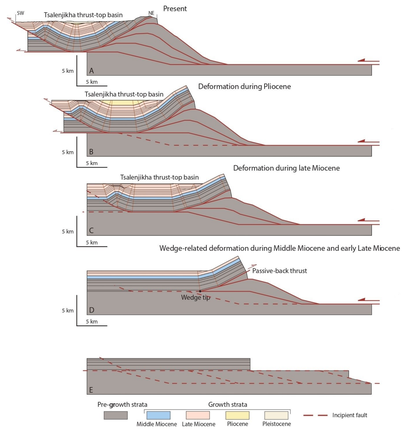

FIGURE 7. Kinematic models of sequential development of Tsalenjikha thrust-top basin. **(A)** Present-day structure. **(B)** Deformation during Pliocene. **(C)** Deformation during the late Miocene. **(D)** Wedge-related deformation during Middle Miocene and early late Miocene. **(E)** Restored cross-section.

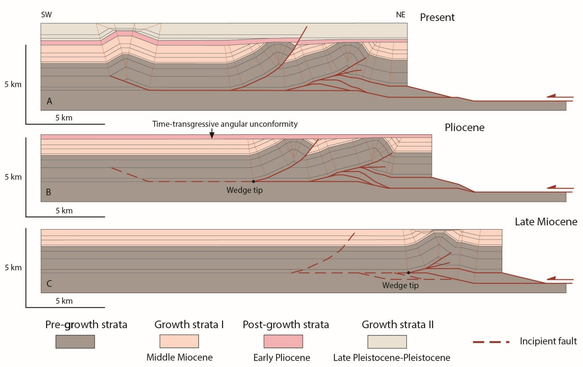

FIGURE 8. Kinematic models of sequential development of frontal folds of the RFFTB. **(A)** Present-day structure. **(B)** Deformation during early Pliocene. **(C)** Deformation during the late Miocene.

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