Appendix 3. Box plots of elemental contents in soil samples at sites along the north-south transect of Alaska

The figures in appendix 3 are ordered alphabetically by element name, and the chemical symbol is given in the figure title in parentheses. Figures in appendix 3 depict (*A*) box plot of the elemental content in the organic and upper- and lower-mineral soil horizons for sites along a north-south transect of Alaska. The box depicts the interquartile range (IQR) with a horizontal line at the median; the whiskers extend to 1.5 times the extent of the IQR from the top and bottom of the box. Asterisks are outliers beyond 1.5 times the IQR. Elemental content was determined by inductively coupled plasma-atomic emission spectrometry (ICP-AES) or inductively coupled plasma-mass spectrometry (ICP-MS) following a multi-acid or sinter digestion of the sample. The figures also show (*B*) distribution of the element in the organic horizon and upper- and lower-mineral soil horizon along a north-to-south soil-sampling transect of Alaska. Unless otherwise specified the contents are those determined by the multi-acid method. Some elements are shown in two figures: one at full scale that shows all the data, and one in detail, which excludes very high- or low-content samples to show the pattern in the majority of the samples. Samples from an O horizon are considered organic horizons; samples from an OA, A, or AB horizon are considered to be from the upper-mineral horizon, and samples from B or B2 horizons are considered to be from the lower-mineral horizon. Also shown for reference in (*B*) of each figure are transect elevation profile, regions of known mineral occurrences within 5 kilometers of the transect (U.S. Geological Survey, 2016), and landmarks and cities, geographic or physiographic region, and the composite terranes crossed by the transect, their inferred tectonic affinity, and their component terranes (Plafker and Berg, 1994; Silberling and others, 1994; Fuis and others, 2008). Terrane abbreviations are: ACT, Arctic composite terrane; AG, Angayucham terrane; RB, Ruby terrane; LG, Livengood terrane; MN, Manley terrane; WK, Wickersham terrane; YTT, Yukon-Tanana terrane; YTTN, Yukon-Tanana terrane north; YTTS, Yuko-Tanana terrane south; WCT; Wangellia composite terrane; SAM, Southern Alaska margin terrane.

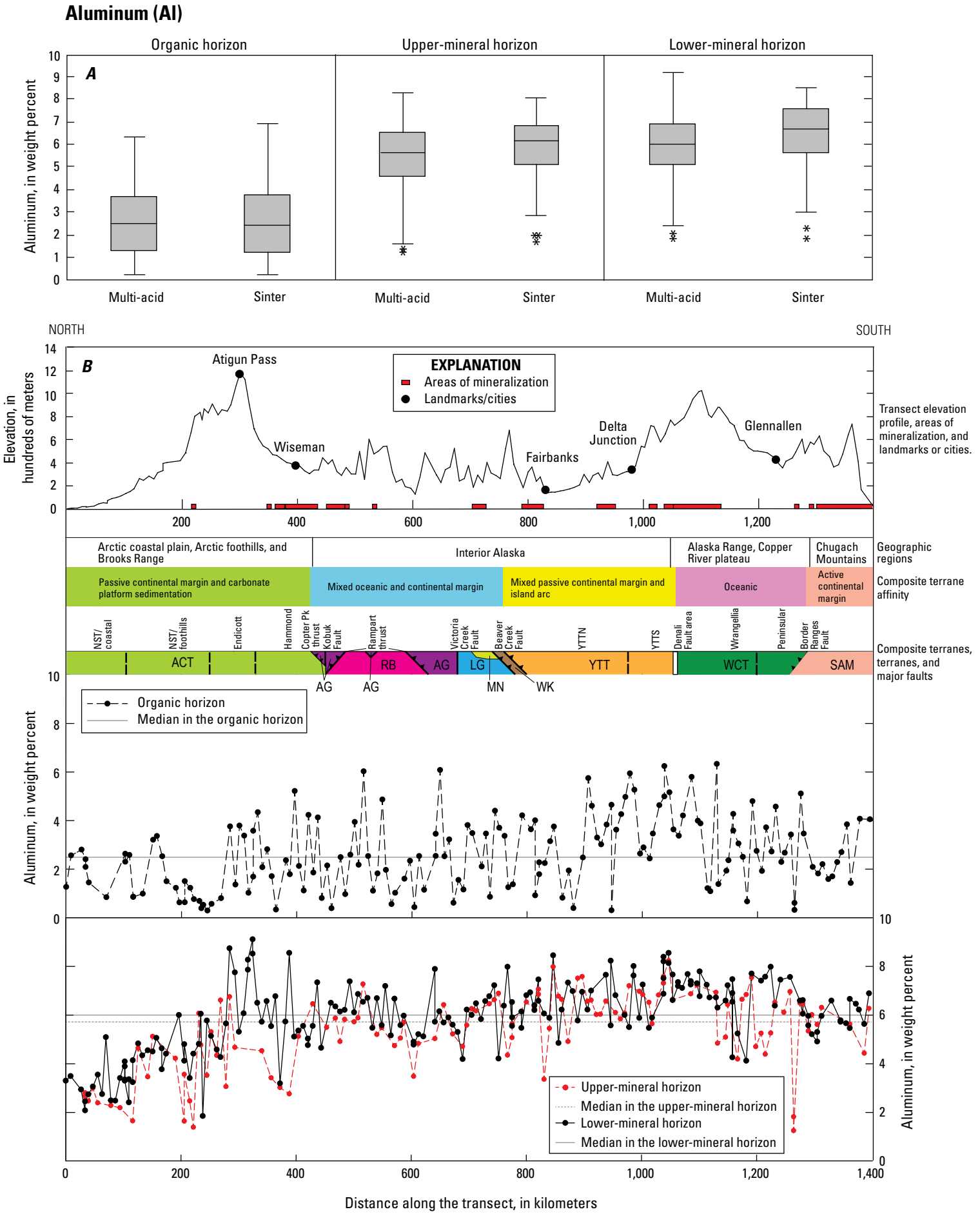

Figure 3.1. Aluminum (Al) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

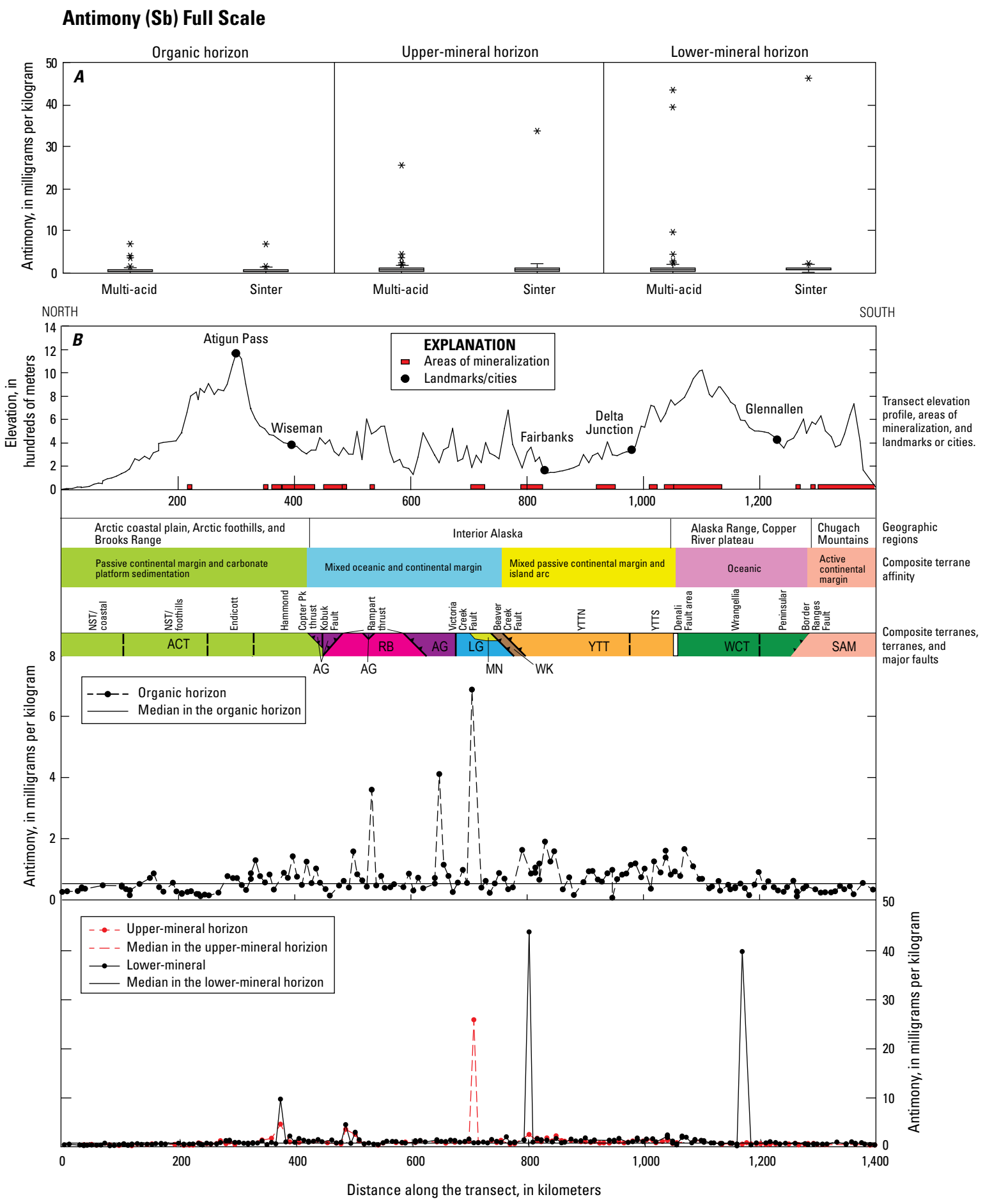

Figure 3.2. Antimony (Sb) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska. Data are shown at full scale (includes outliers). See figure 3.3 for detail plot that excludes outliers.

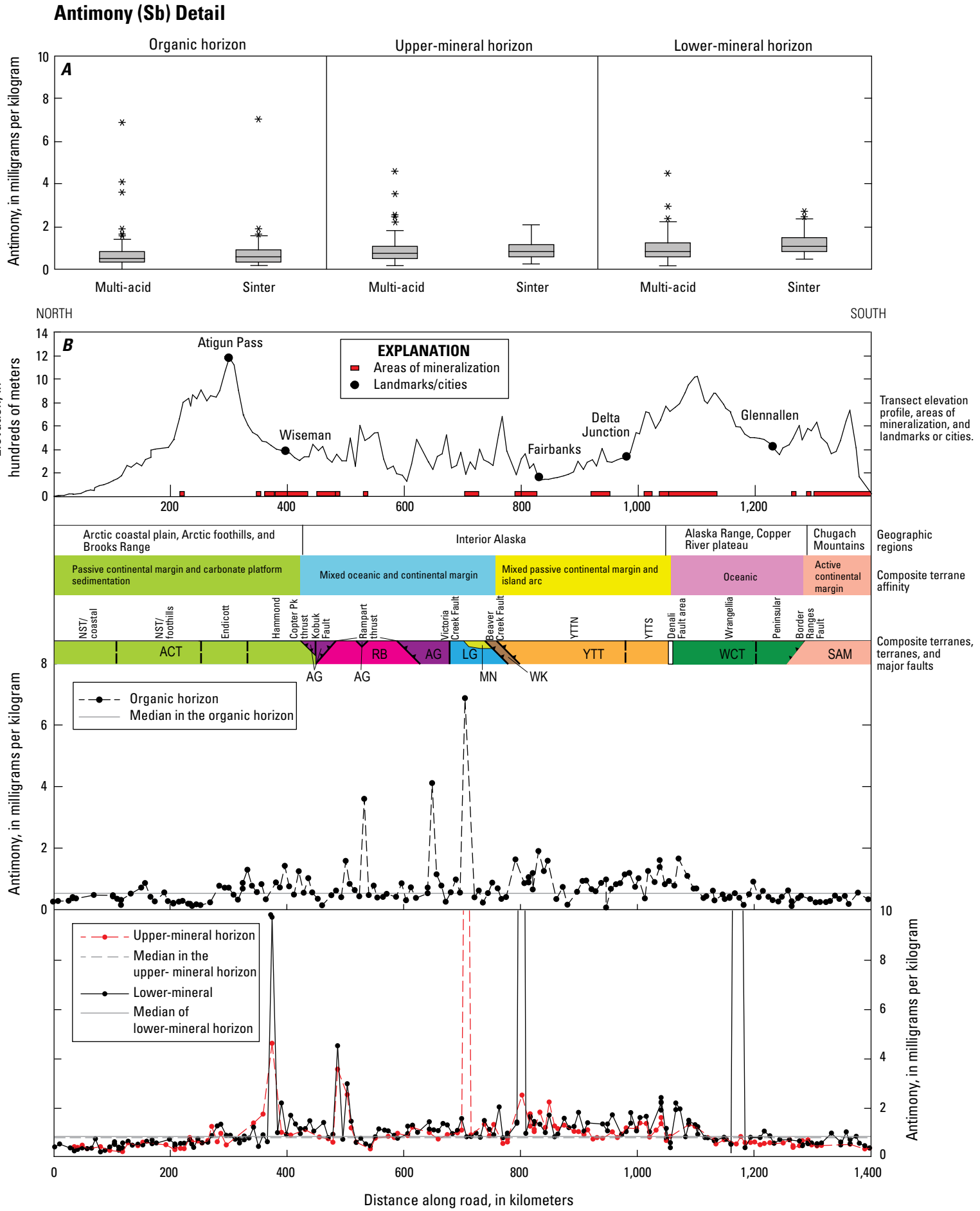

Figure 3.3. Detail of antimony (Sb) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska. For full-scale plot that includes outliers, see figure 3.2.

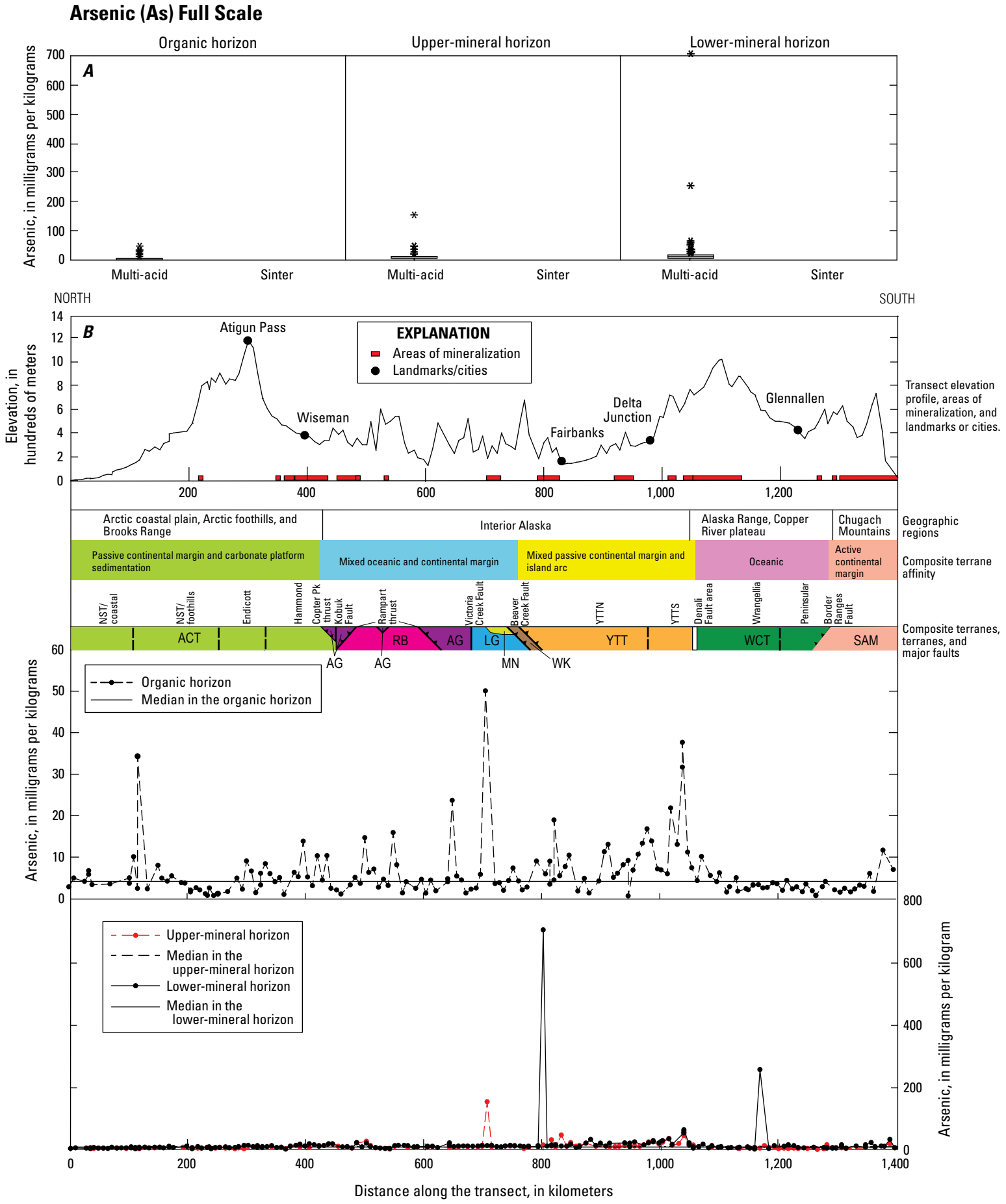

Figure 3.4. Arsenic (As) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska. Data are shown at full scale (includes outliers). See figure 3.5 for detail plot that excludes outliers.

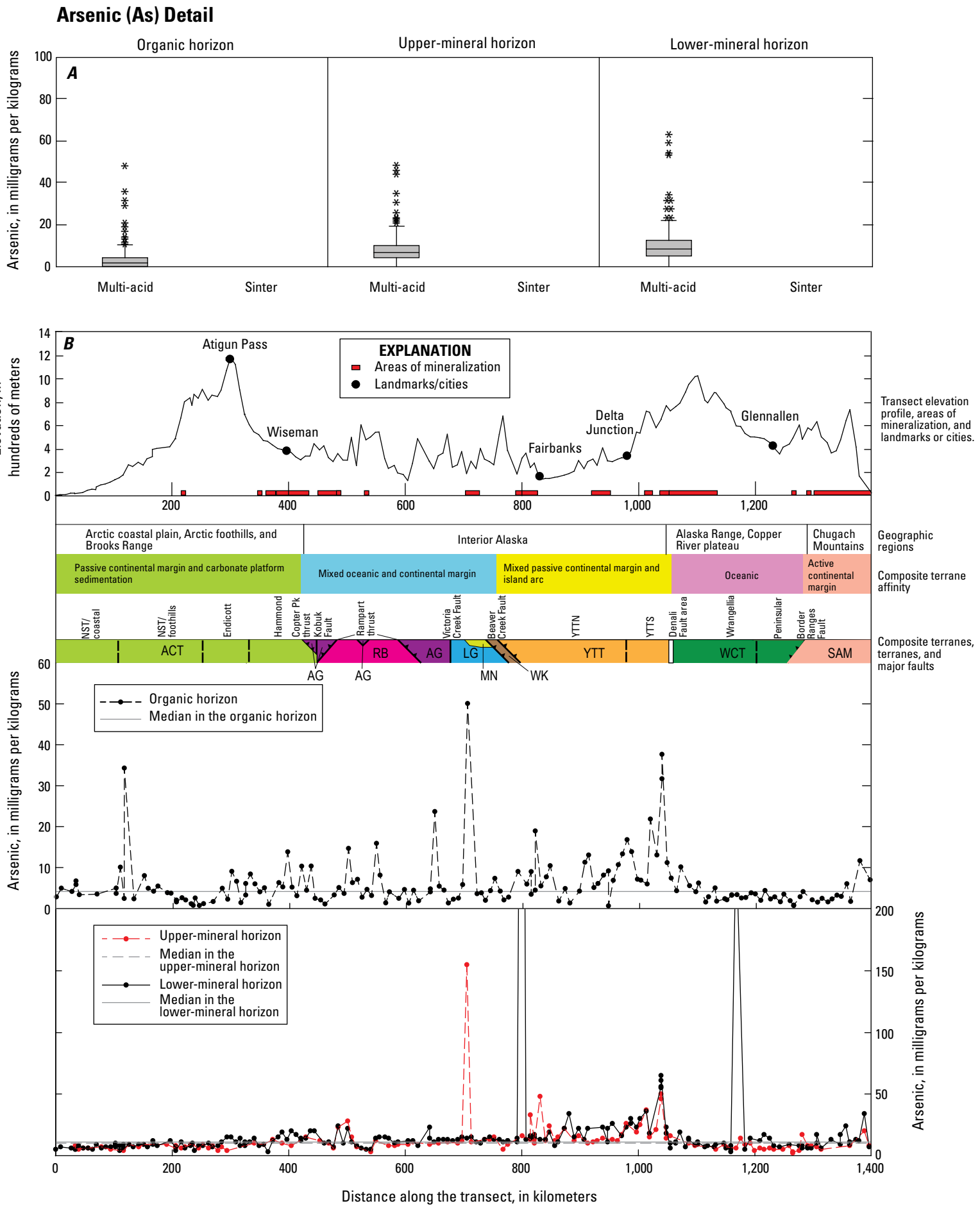

Figure 3.5. Detail of arsenic (As) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska. For full-scale plot that includes outliers, see figure 3.4.

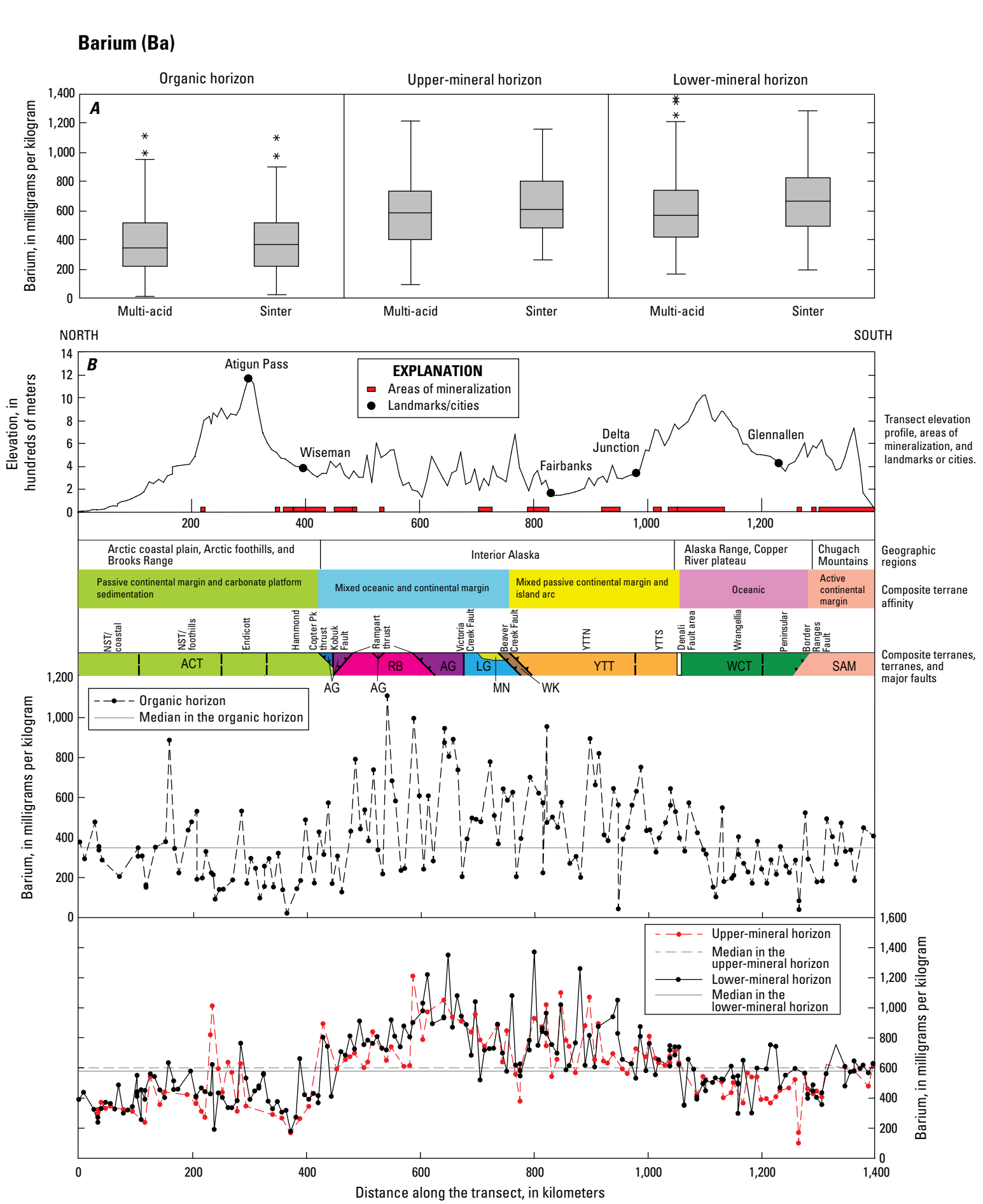

Figure 3.6. Barium (Ba) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

Beryllium (Be)

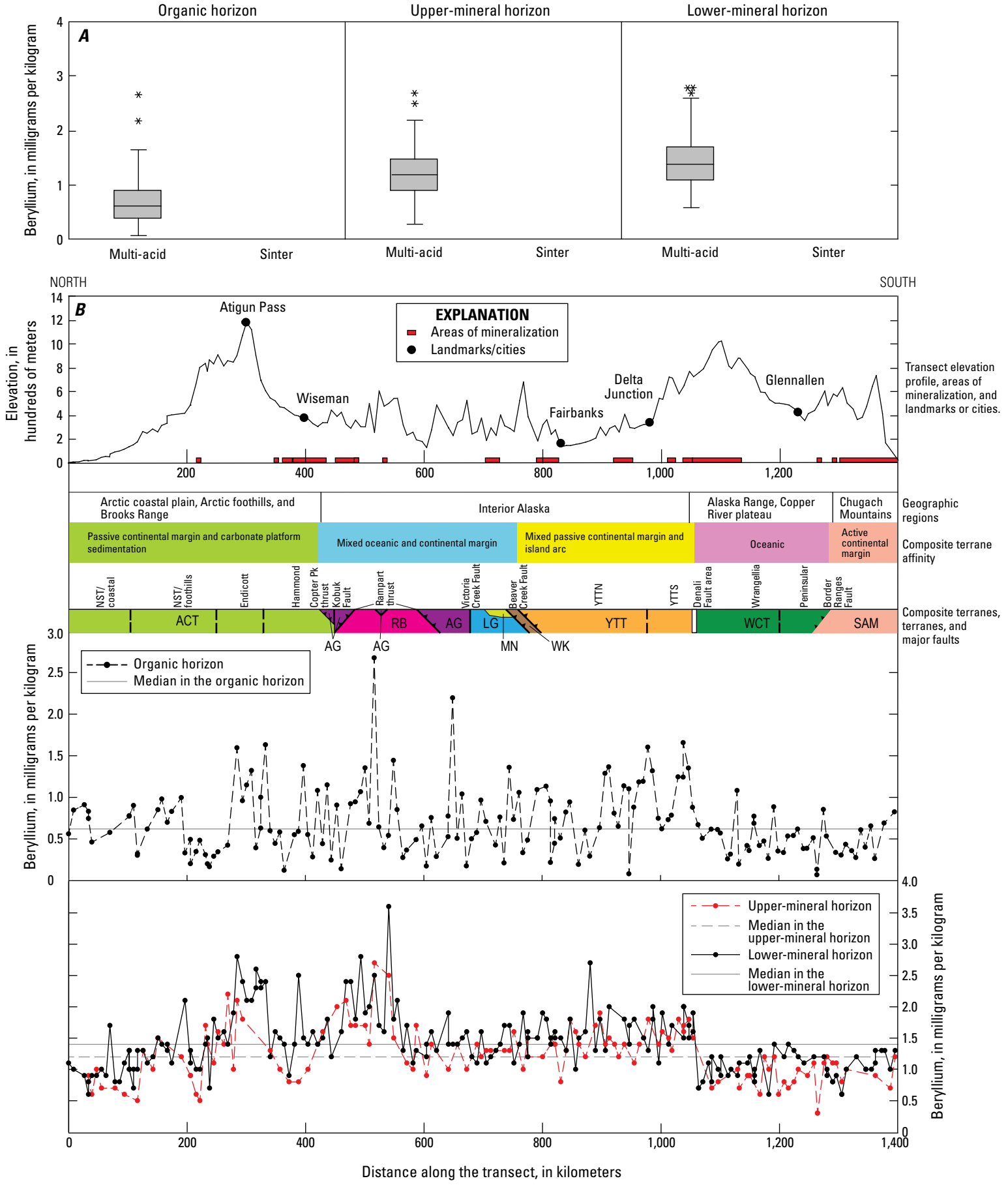

Figure 3.7. Beryllium (Be) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

Bismuth (Bi)

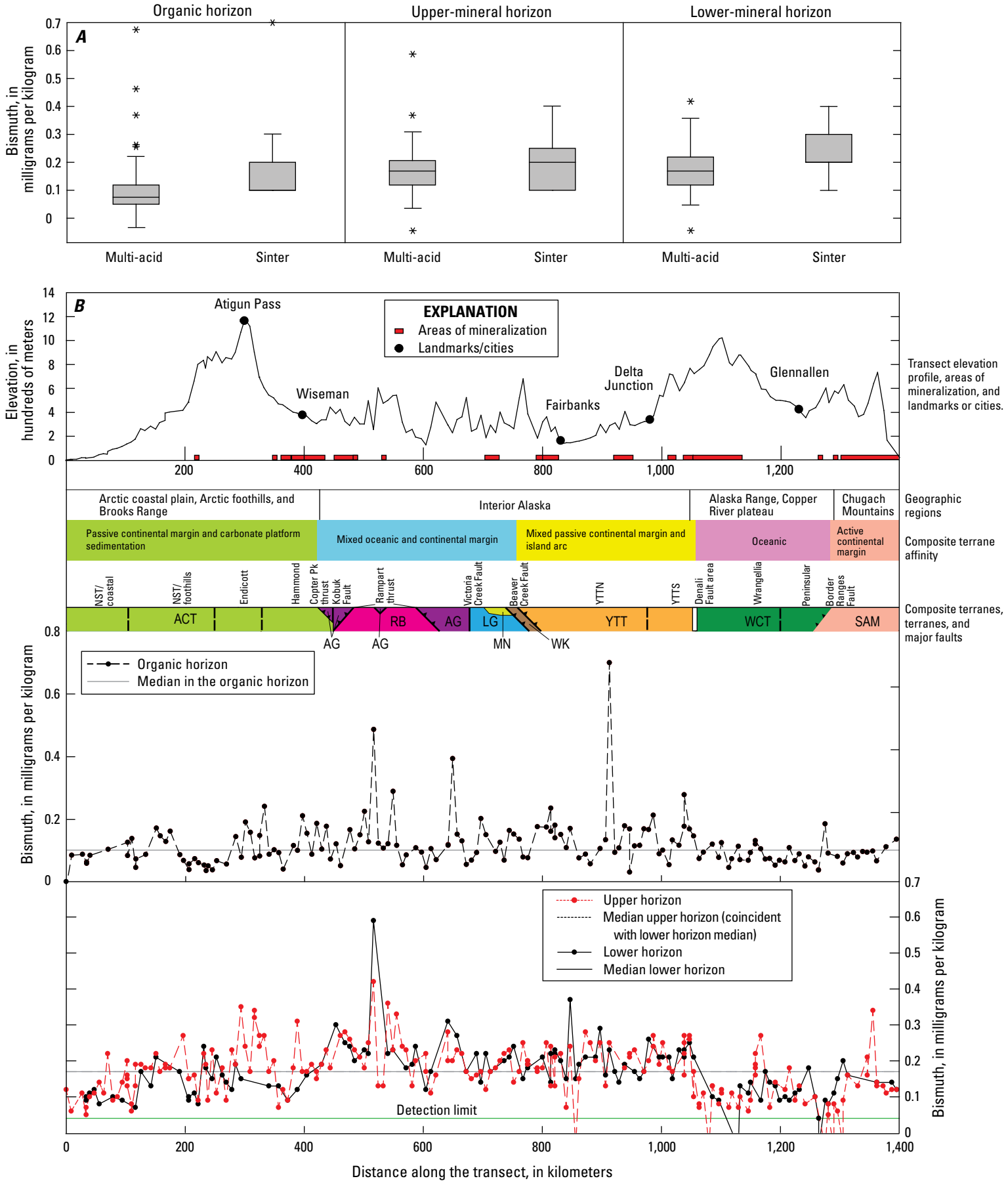

Figure 3.8. Bismuth (Bi) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

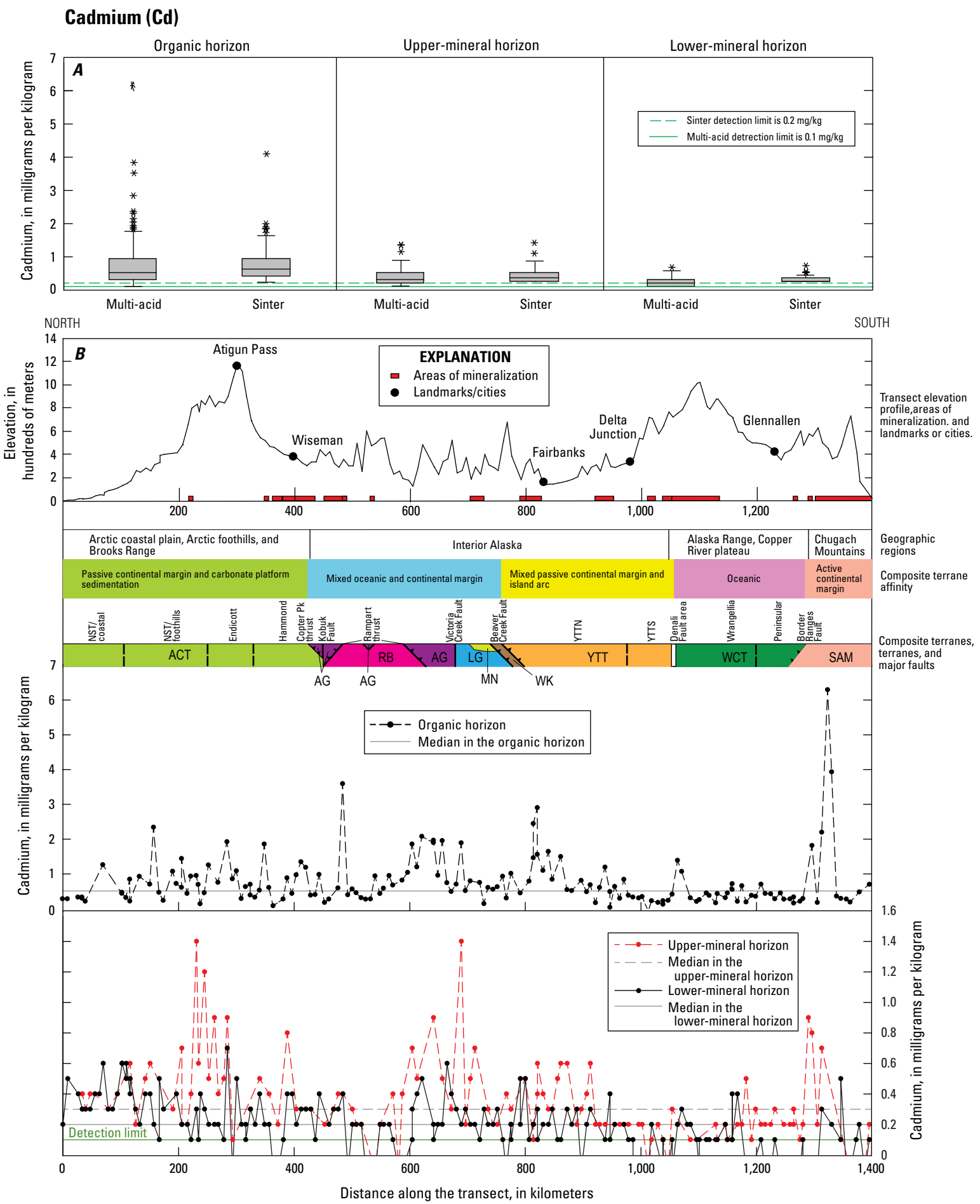

Figure 3.9. Cadmium (Cd) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

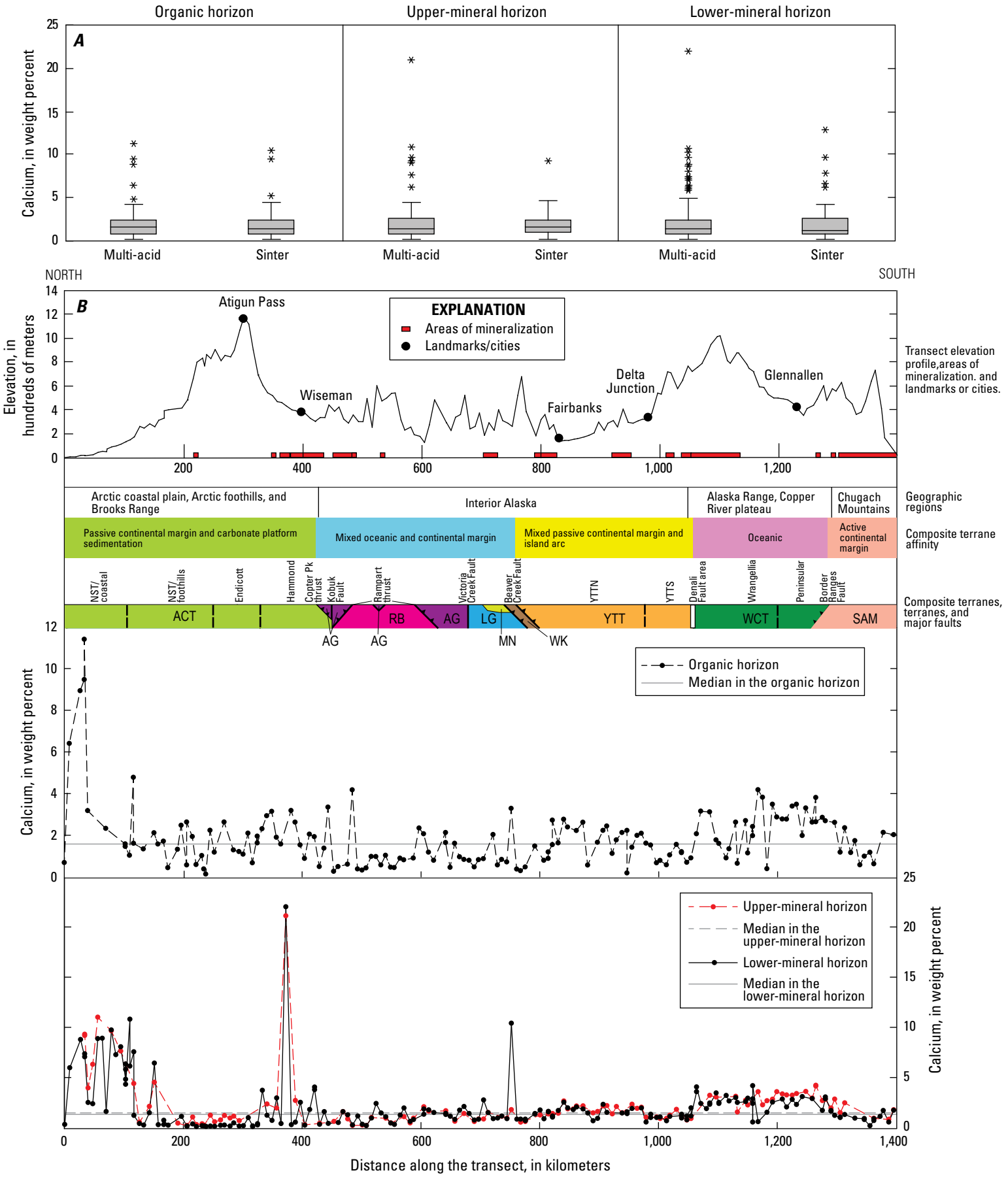

Figure 3.10. Calcium (Ca) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

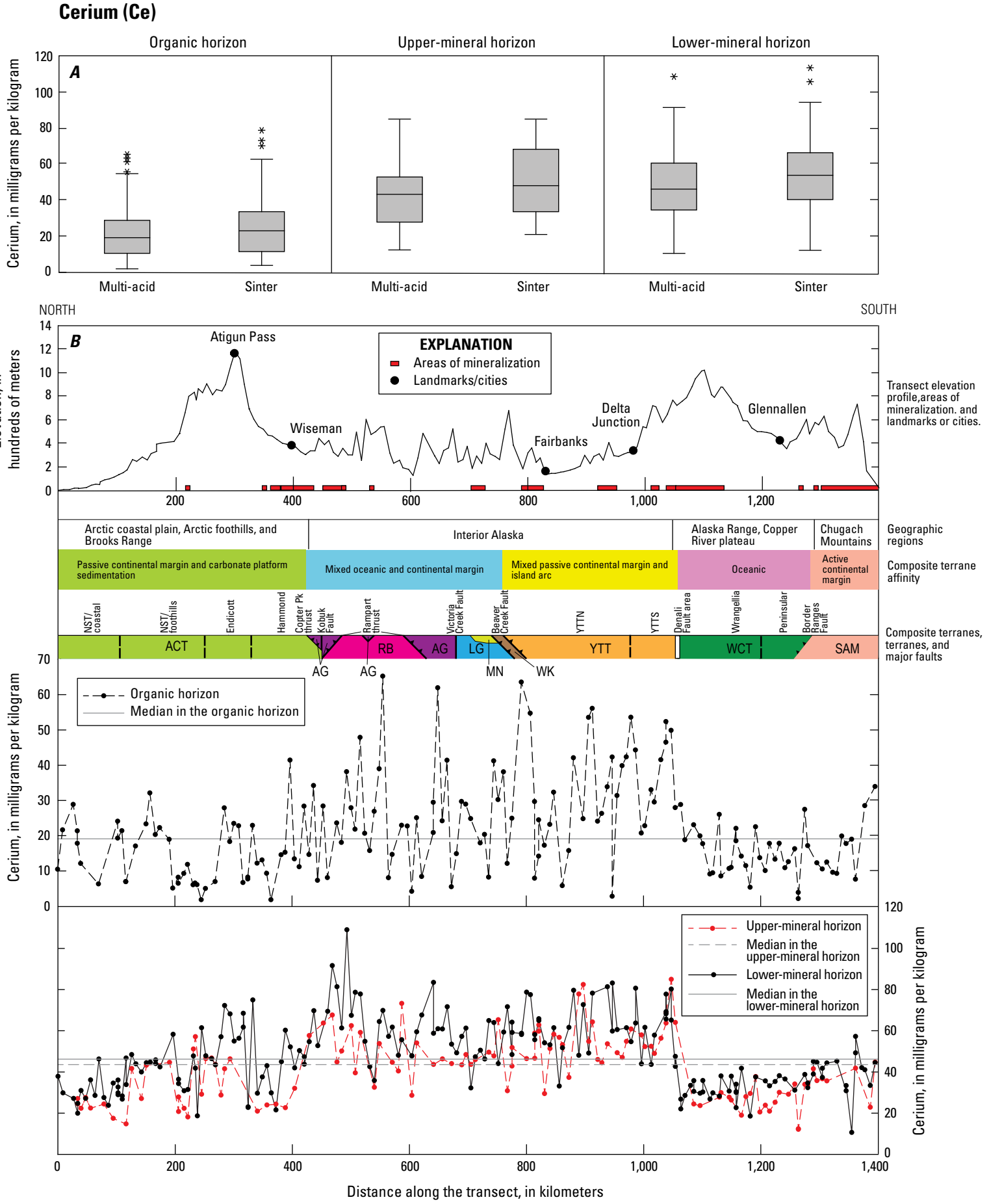

Figure 3.11. Cerium (Ce) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

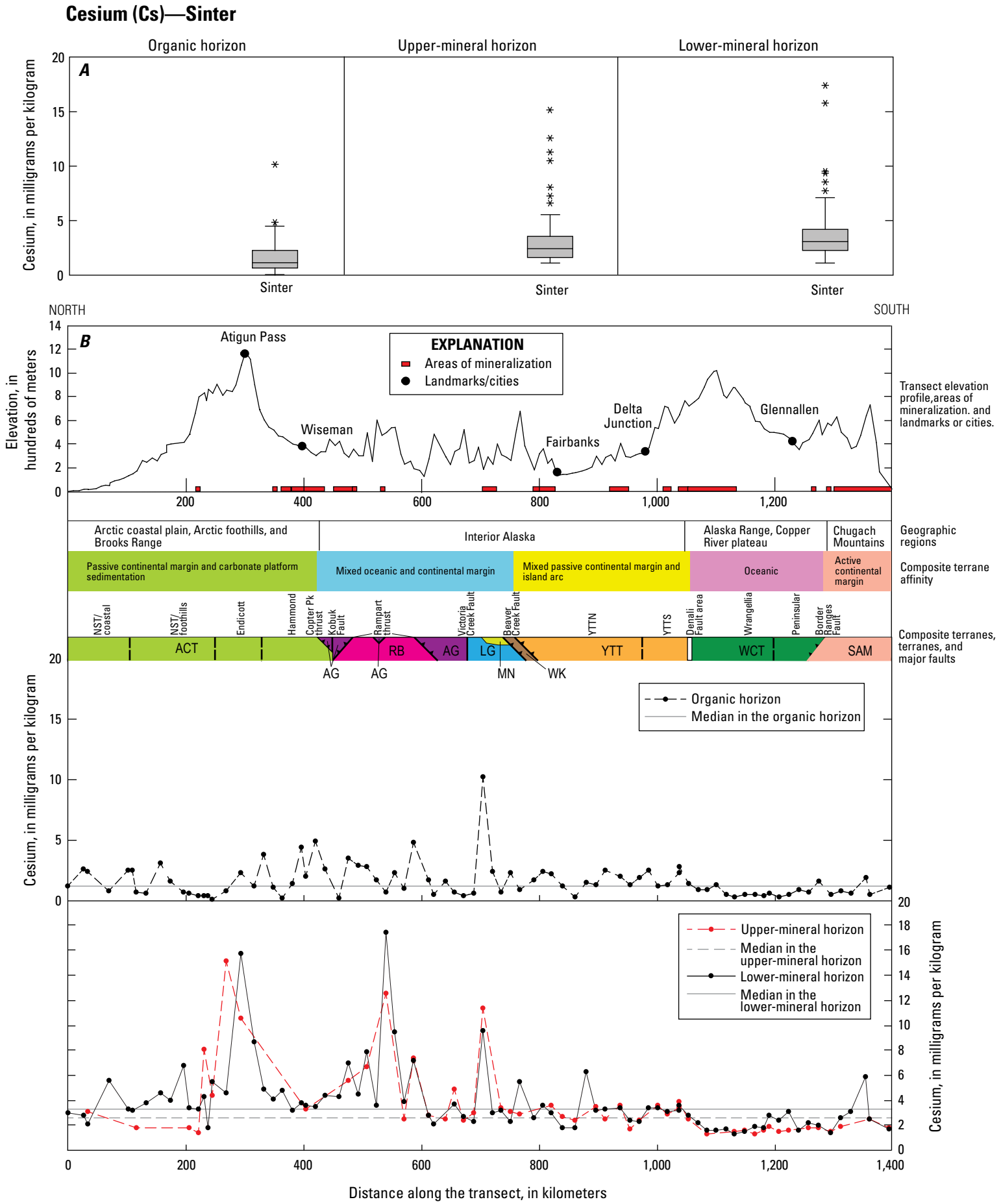

Figure 3.12. Cesium (Cs) content and distribution, as measured following sinter digestion, in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

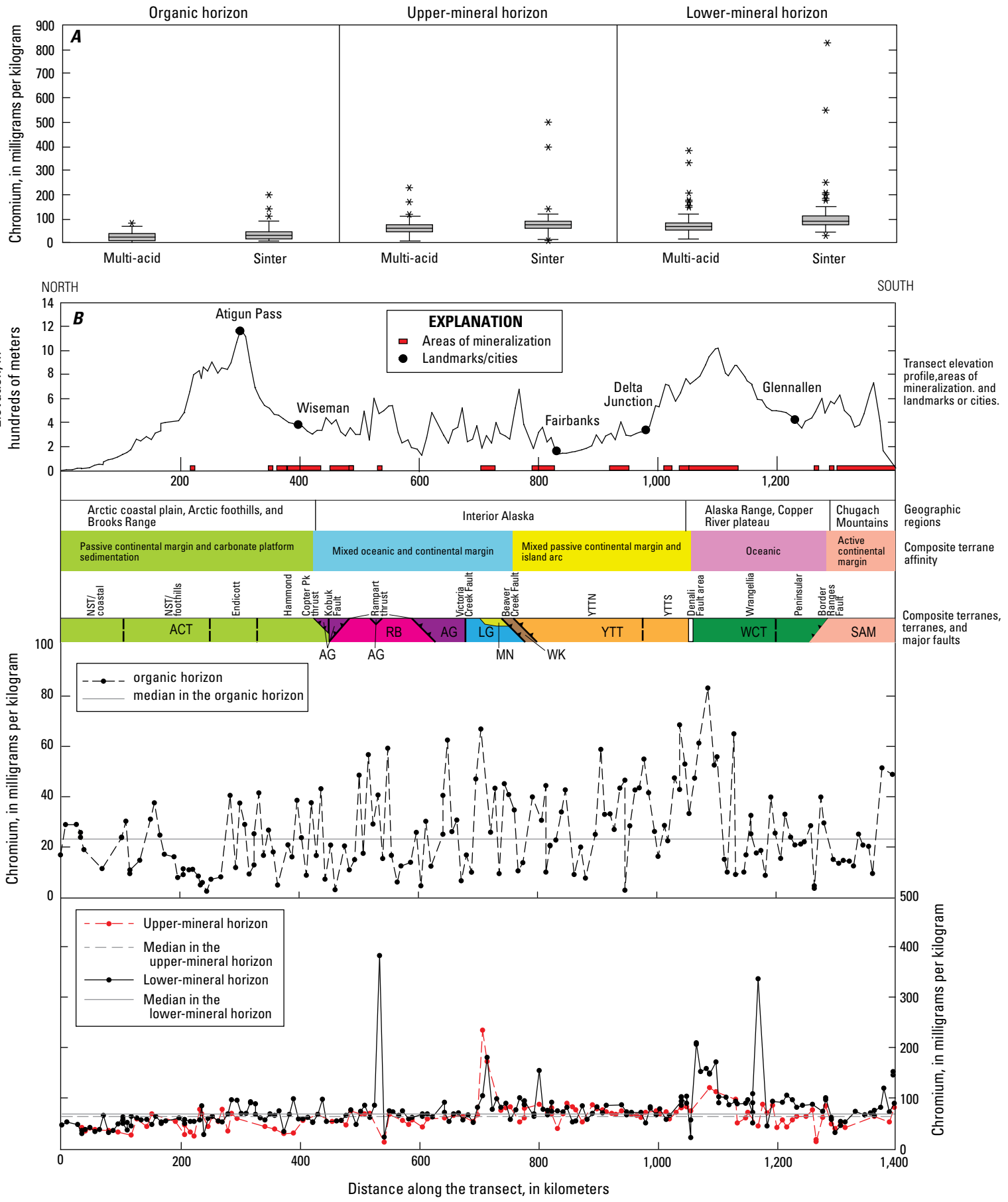

Figure 3.13. Chromium (Cr) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

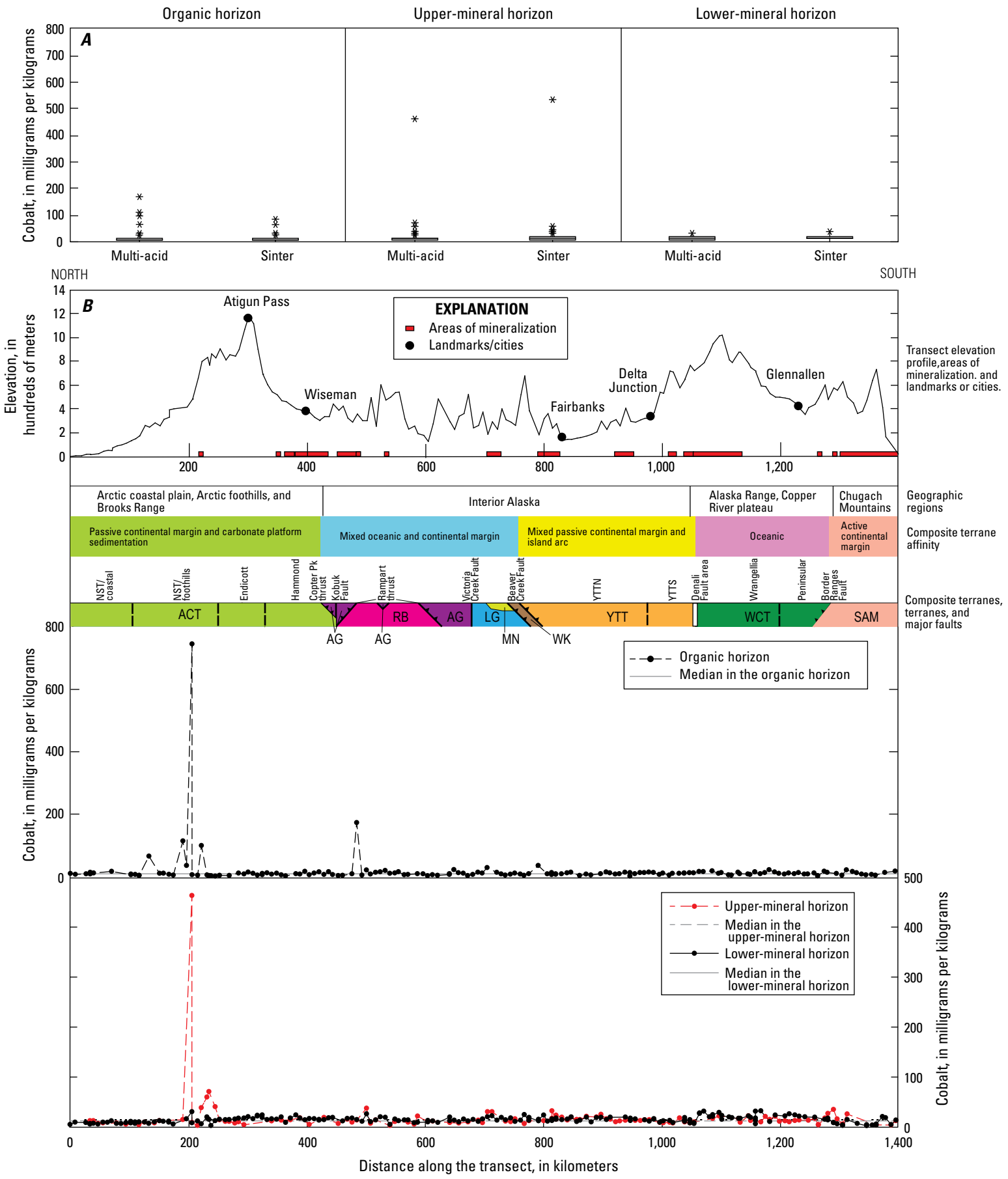

Figure 3.14. Cobalt (Co) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska. Data are shown at full scale (includes outliers). See figure 3.15 for detail plot that excludes outliers.

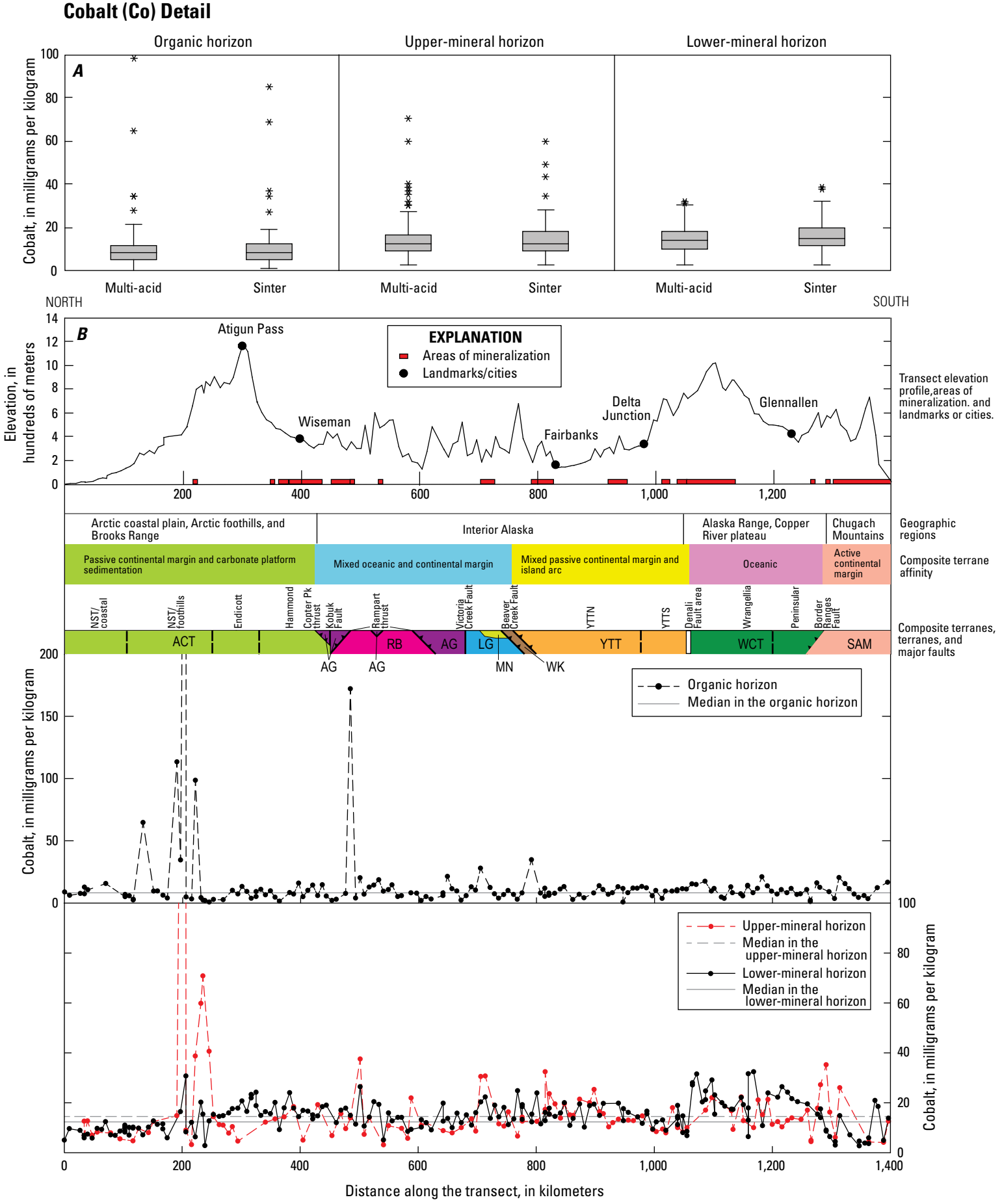

Figure 3.15. Detail of cobalt (Co) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska. For full-scale plot that includes outliers, see figure 3.14.

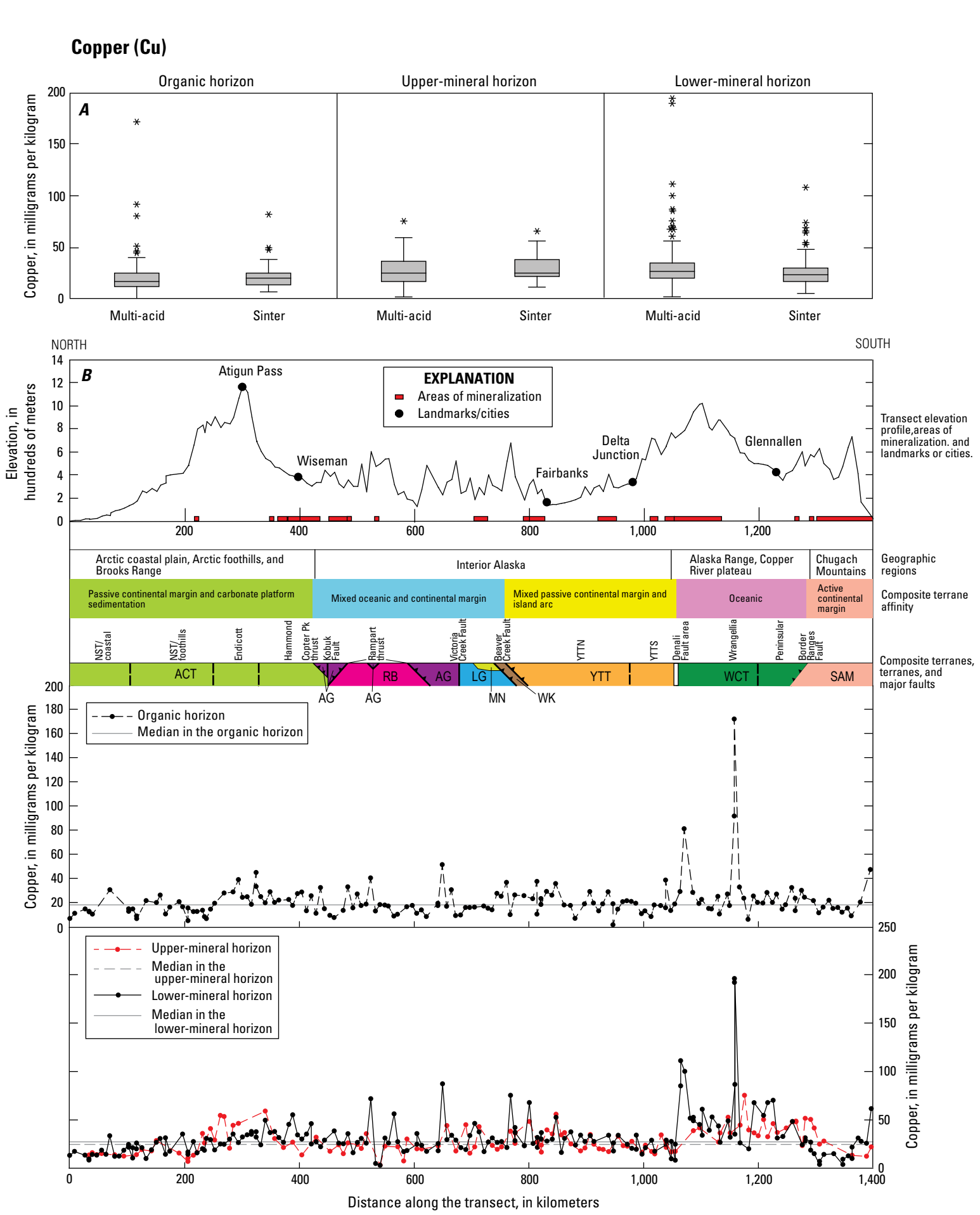

Figure 3.16. Copper (Cu) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

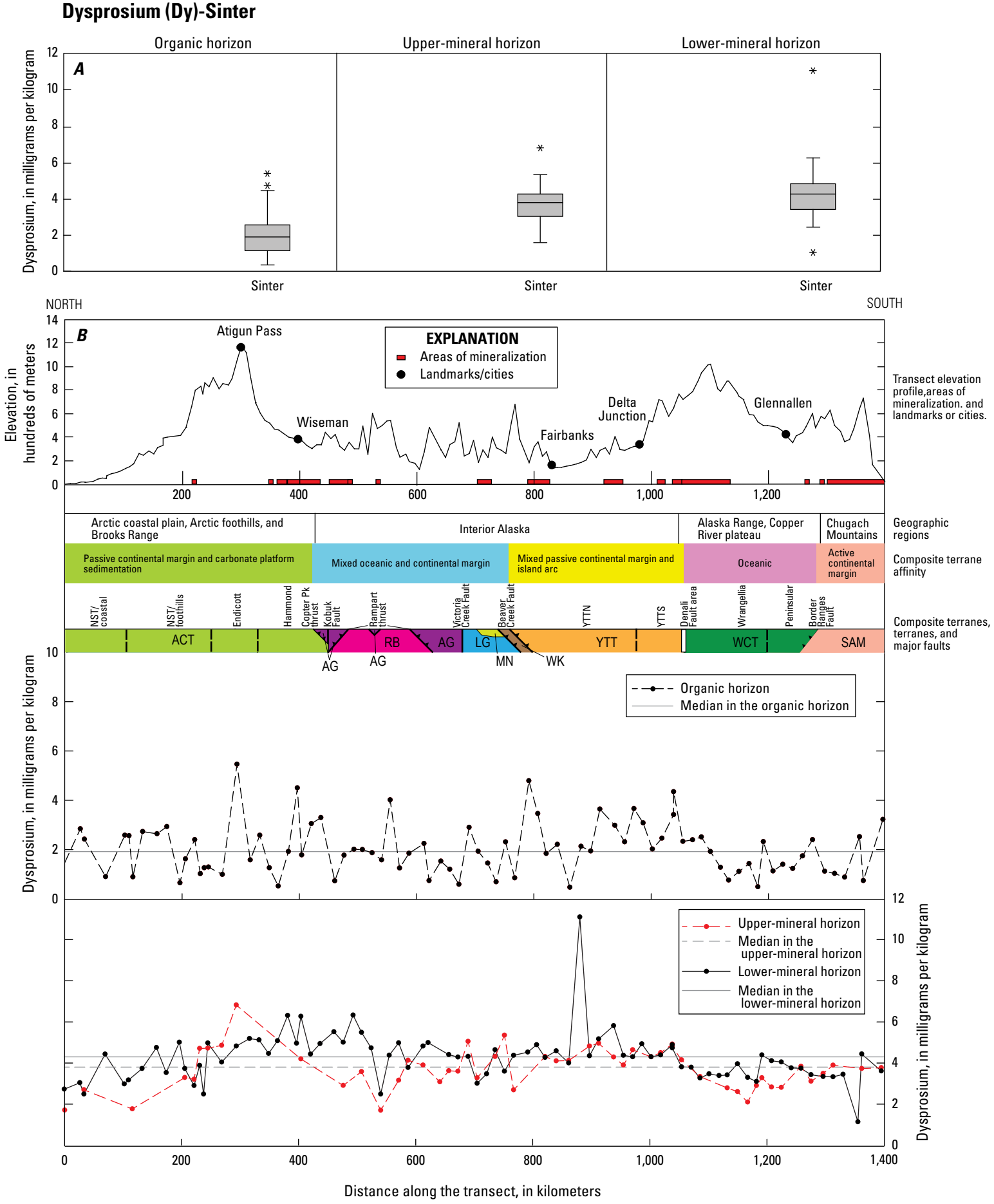

Figure 3.17. Dysprosium (Dy) content and distribution, as measured following sinter digestion, in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

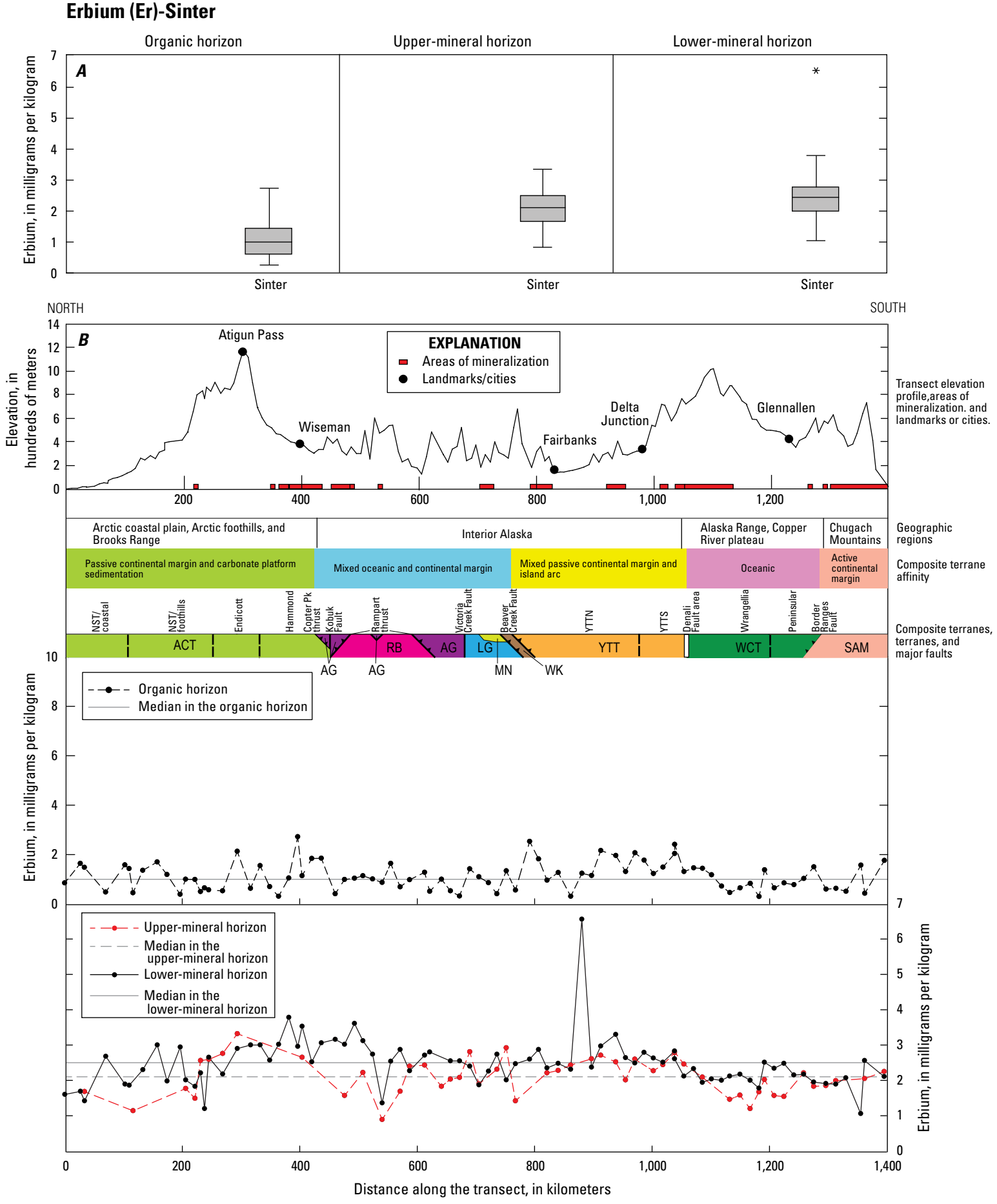

Figure 3.18. Erbium (Er) content and distribution, as measured following sinter digestion, in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

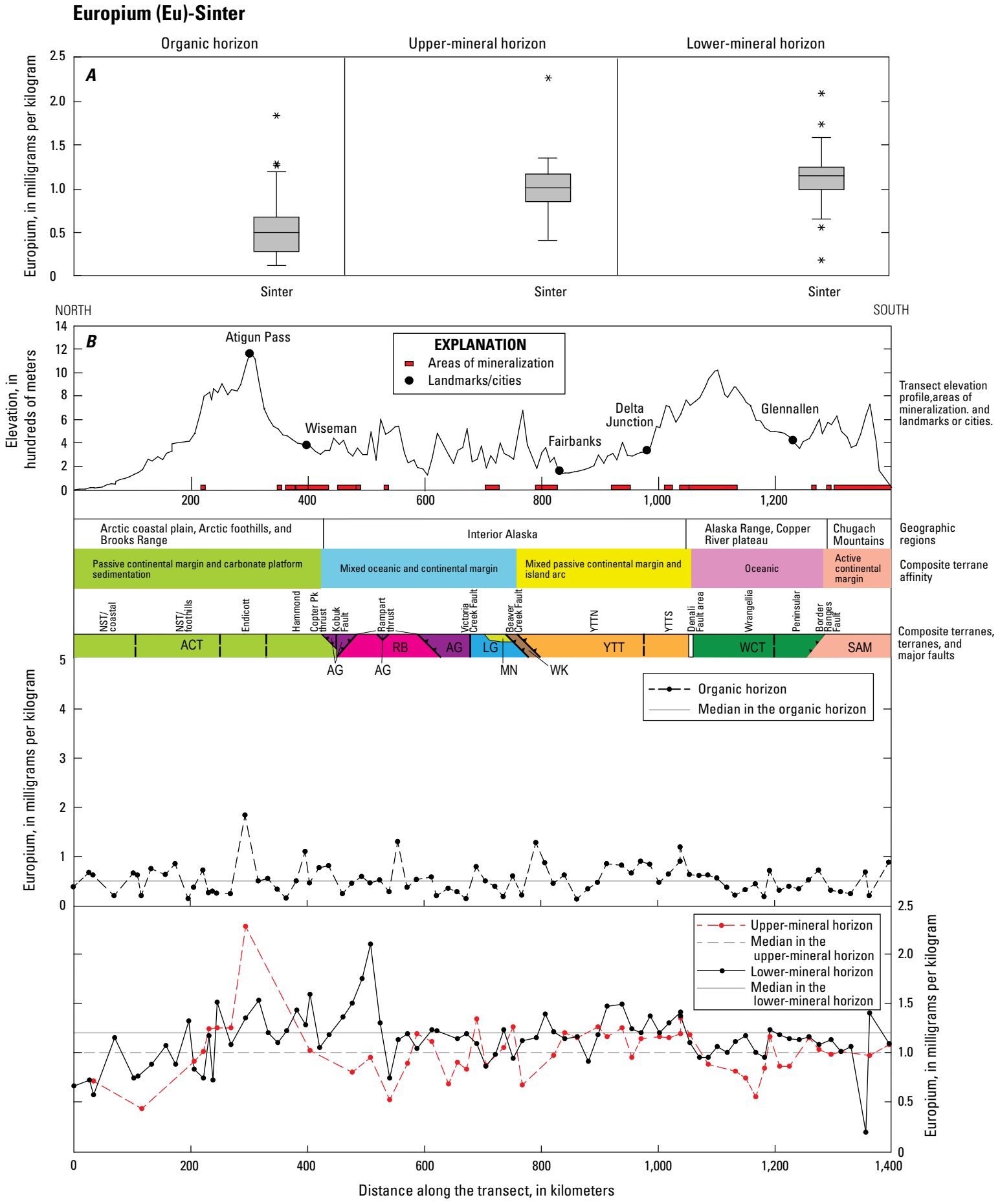

Figure 3.19. Europium (Eu) content and distribution, as measured following sinter digestion, in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

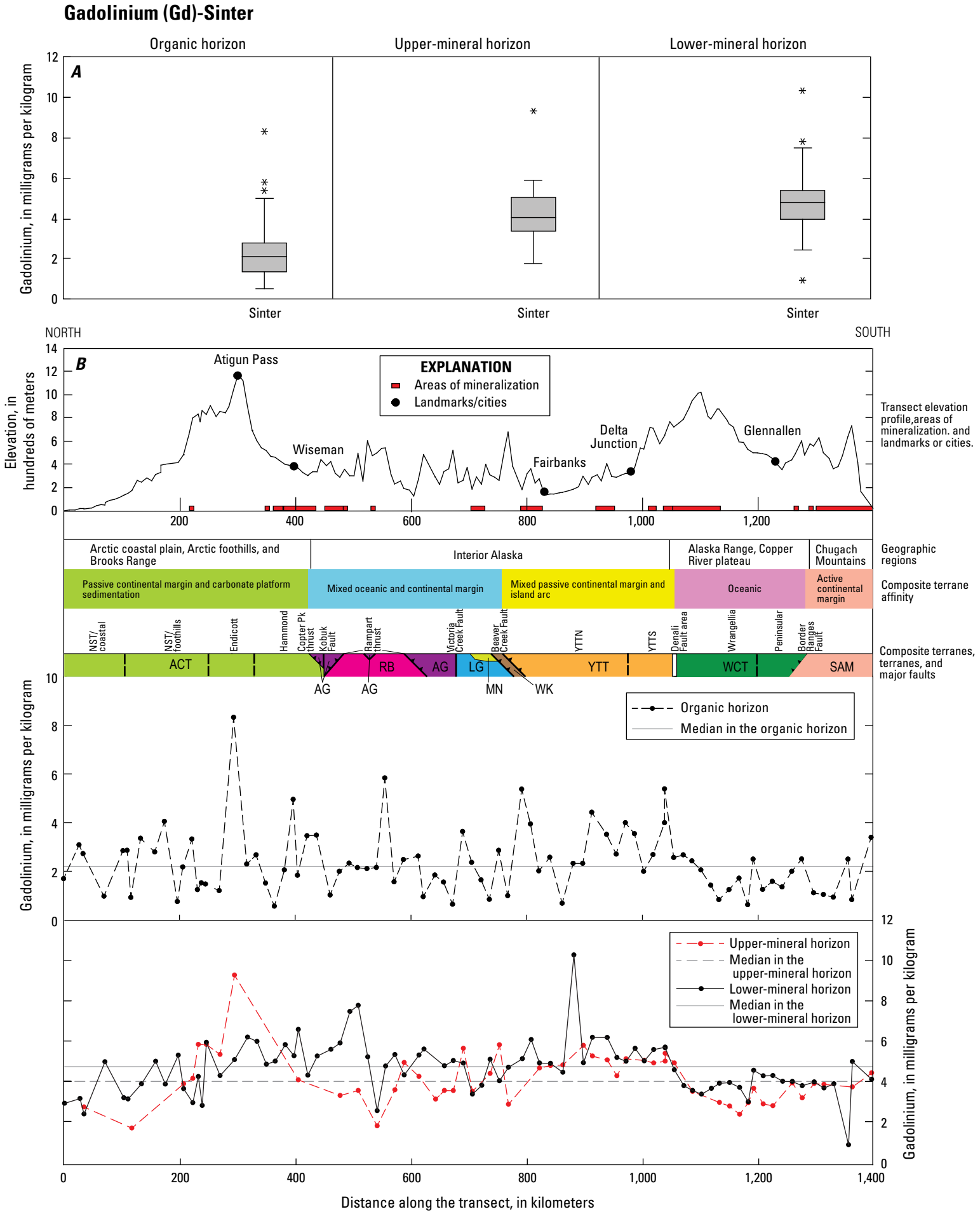

Figure 3.20. Gadolinium (Gd) content and distribution, as measured following sinter digestion, in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

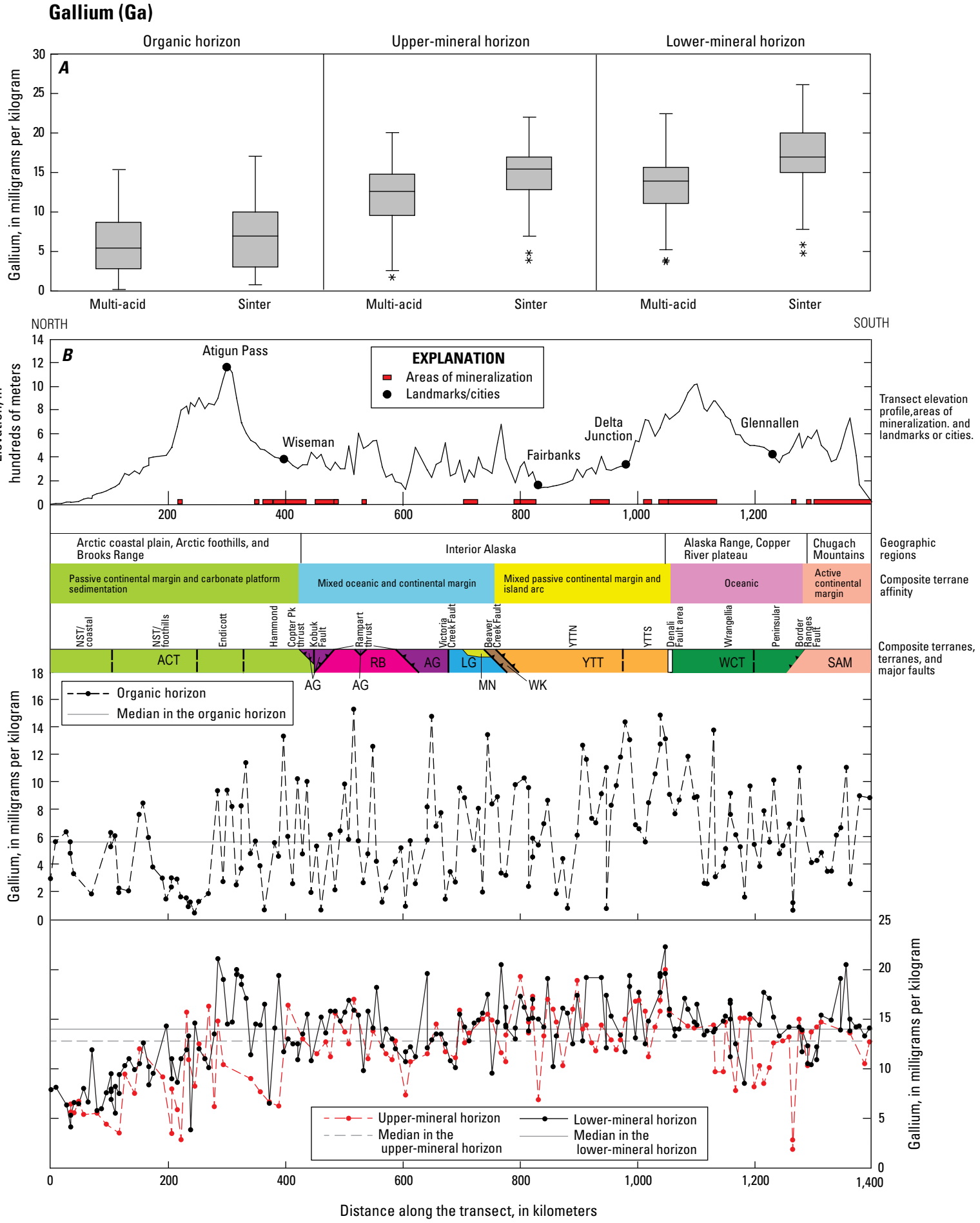

Figure 3.21. Gallium (Ga) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

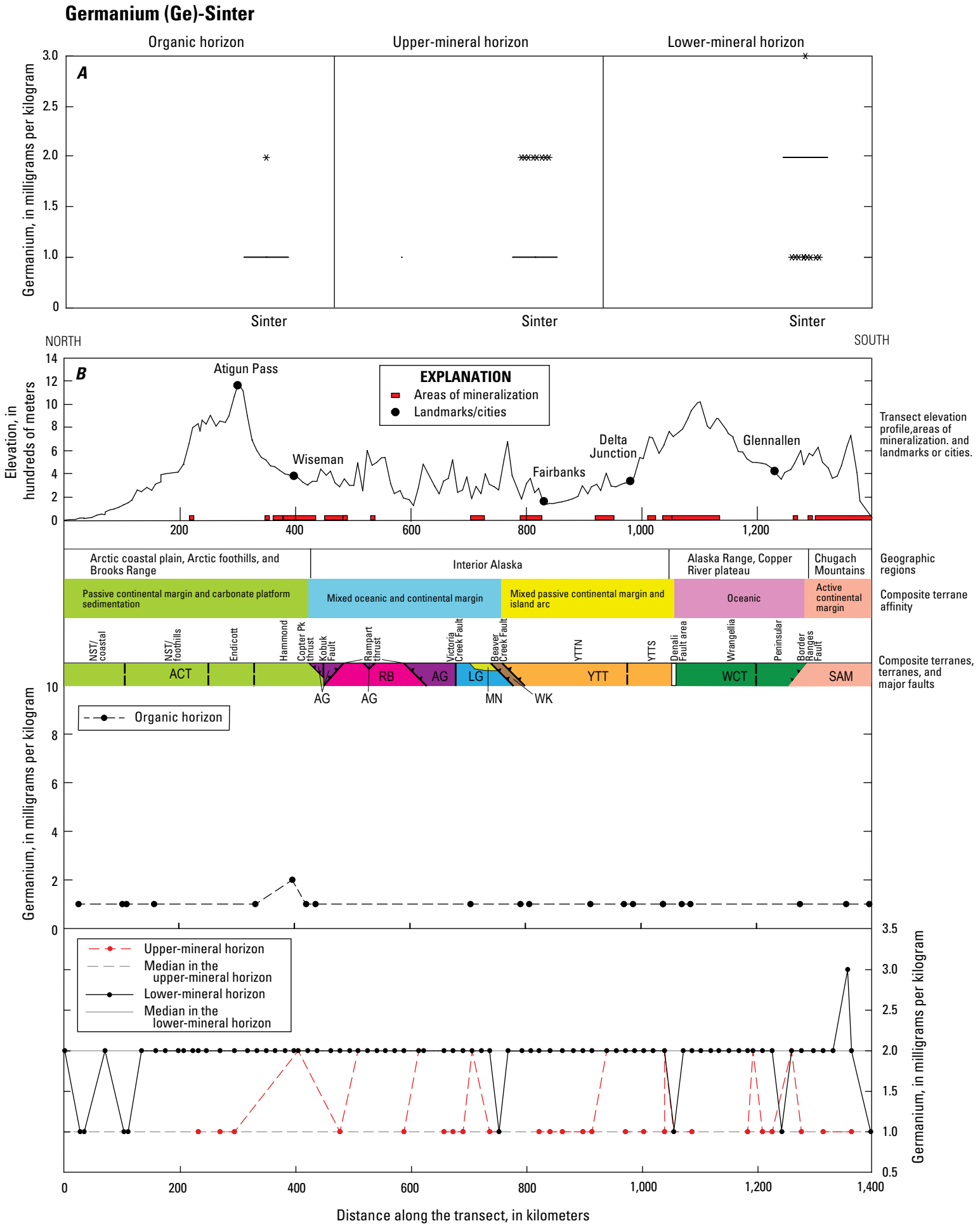

Figure 3.22. Germanium (Ge) content and distribution, as measured following sinter digestion, in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

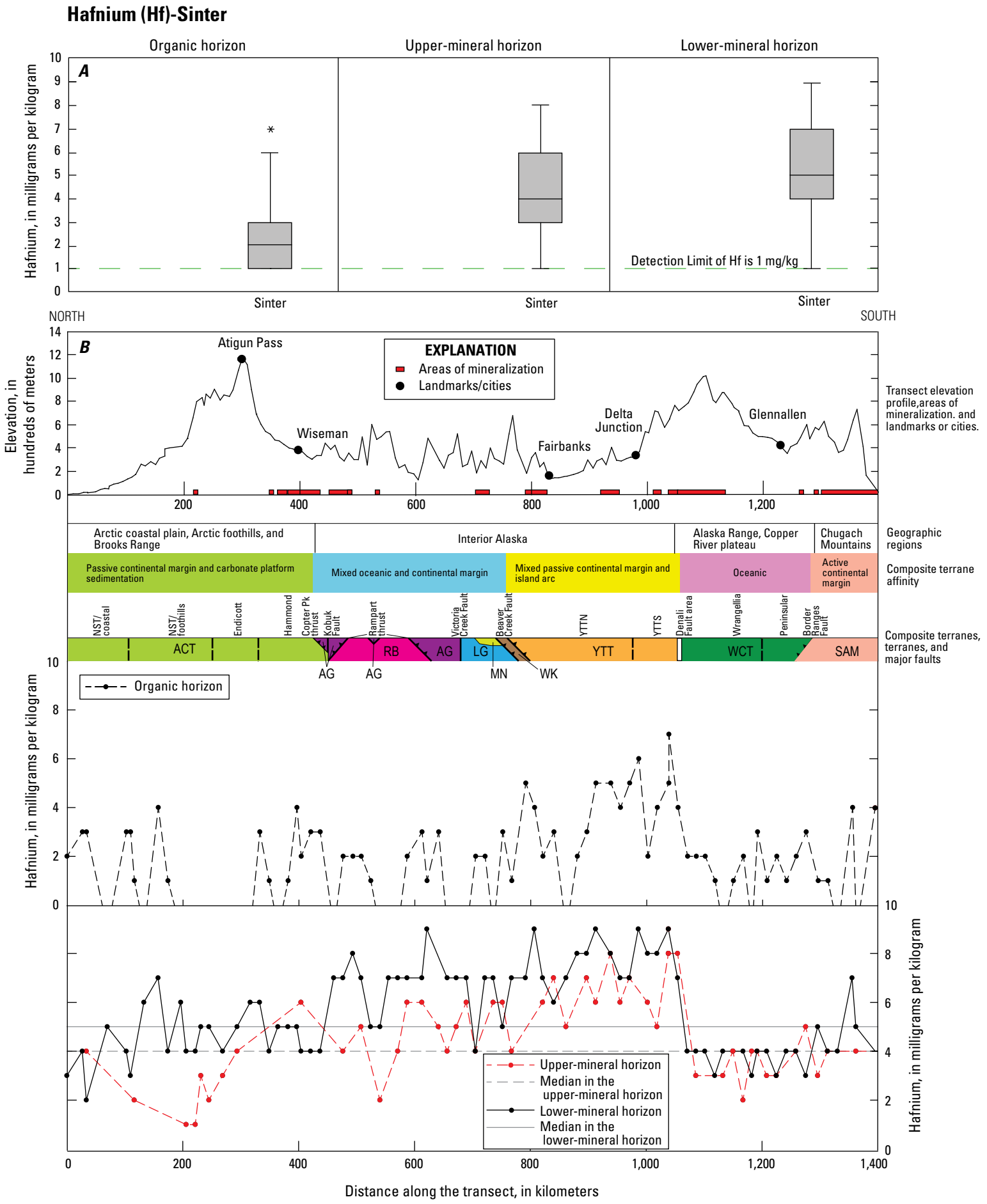

Figure 3.23. Hafnium (Hf) content and distribution, as measured following sinter digestion, in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

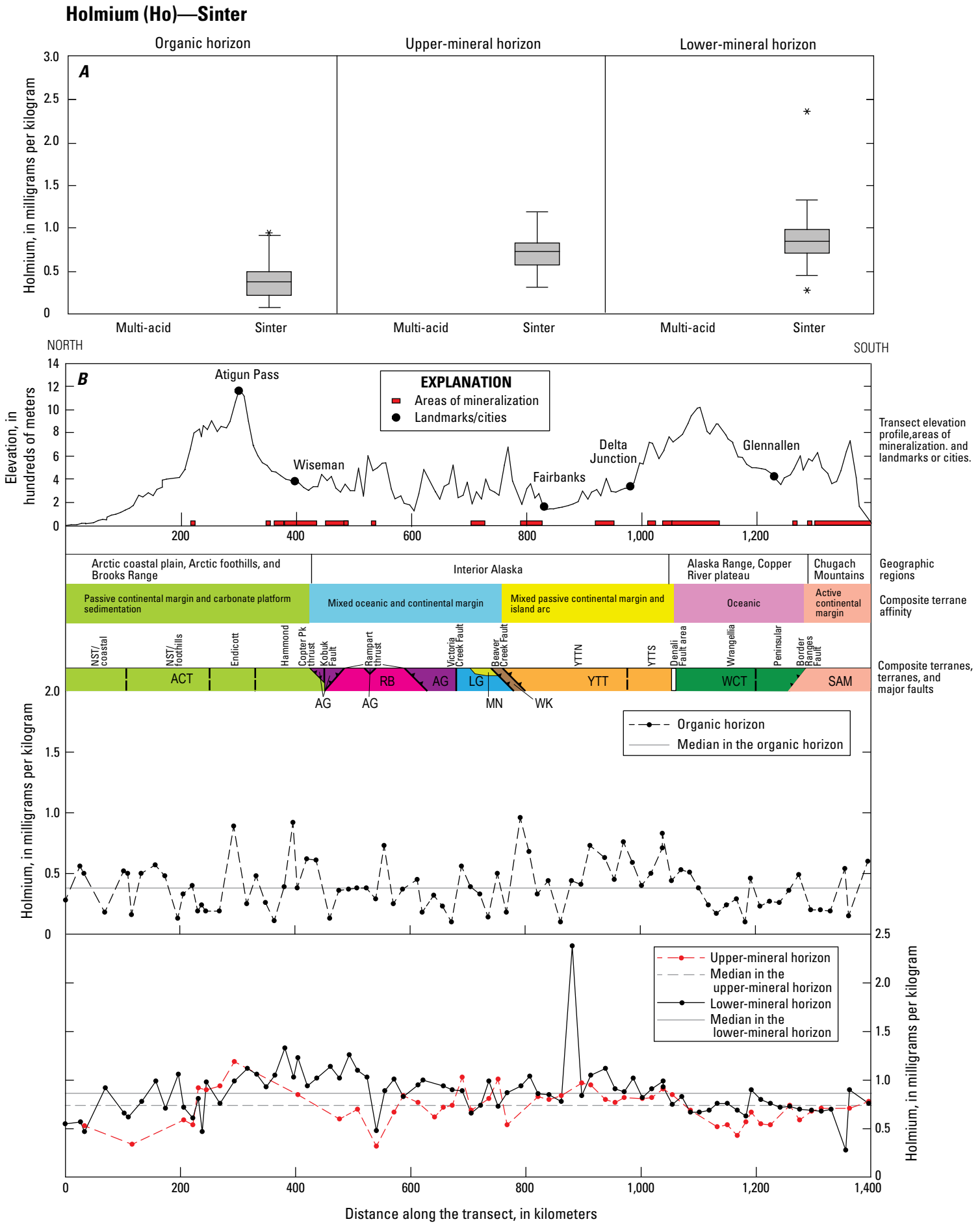

Figure 3.24. Holmium (Ho) content and distribution, as measured following sinter digestion, in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

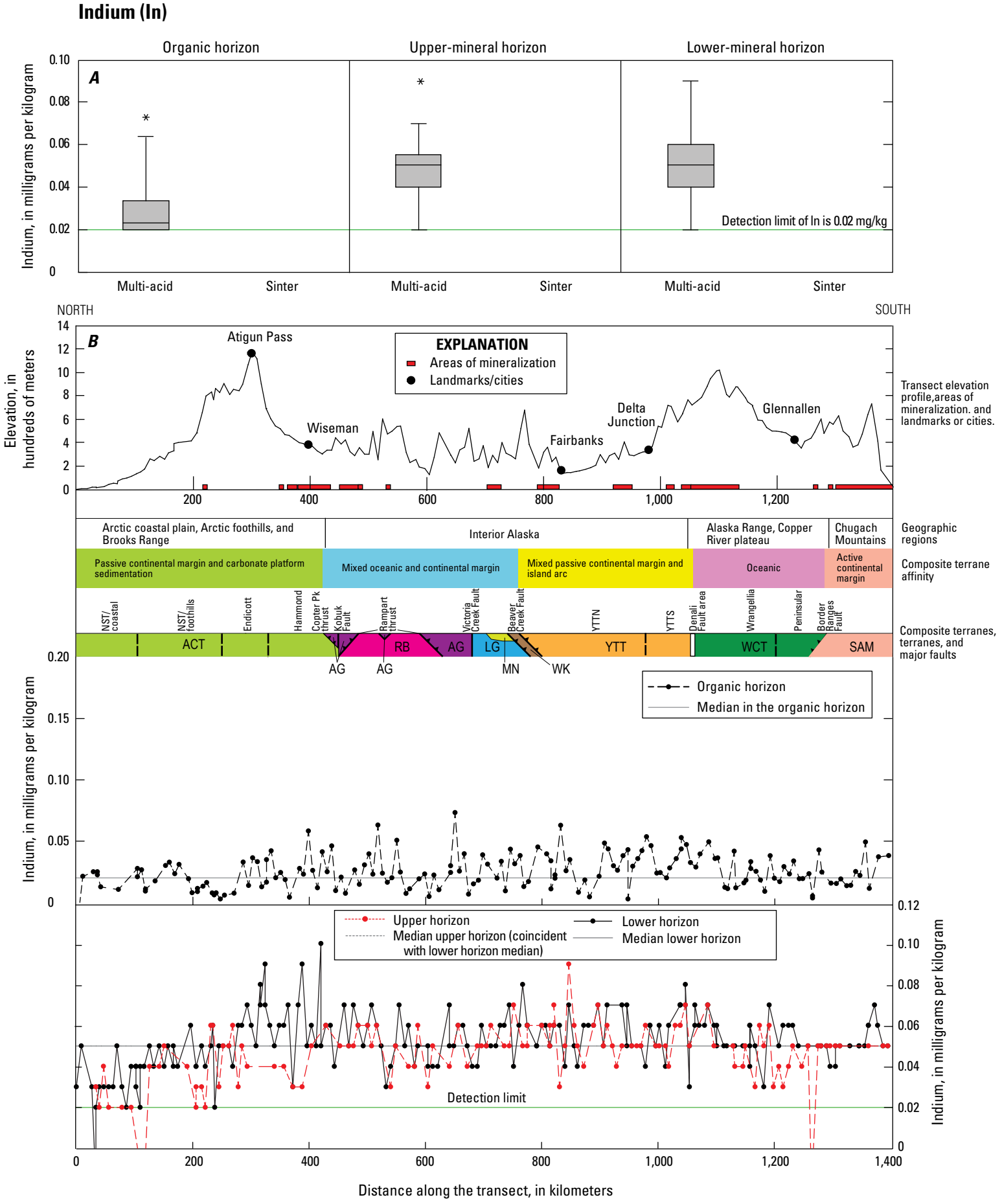

Figure 3.25. Indium (In) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

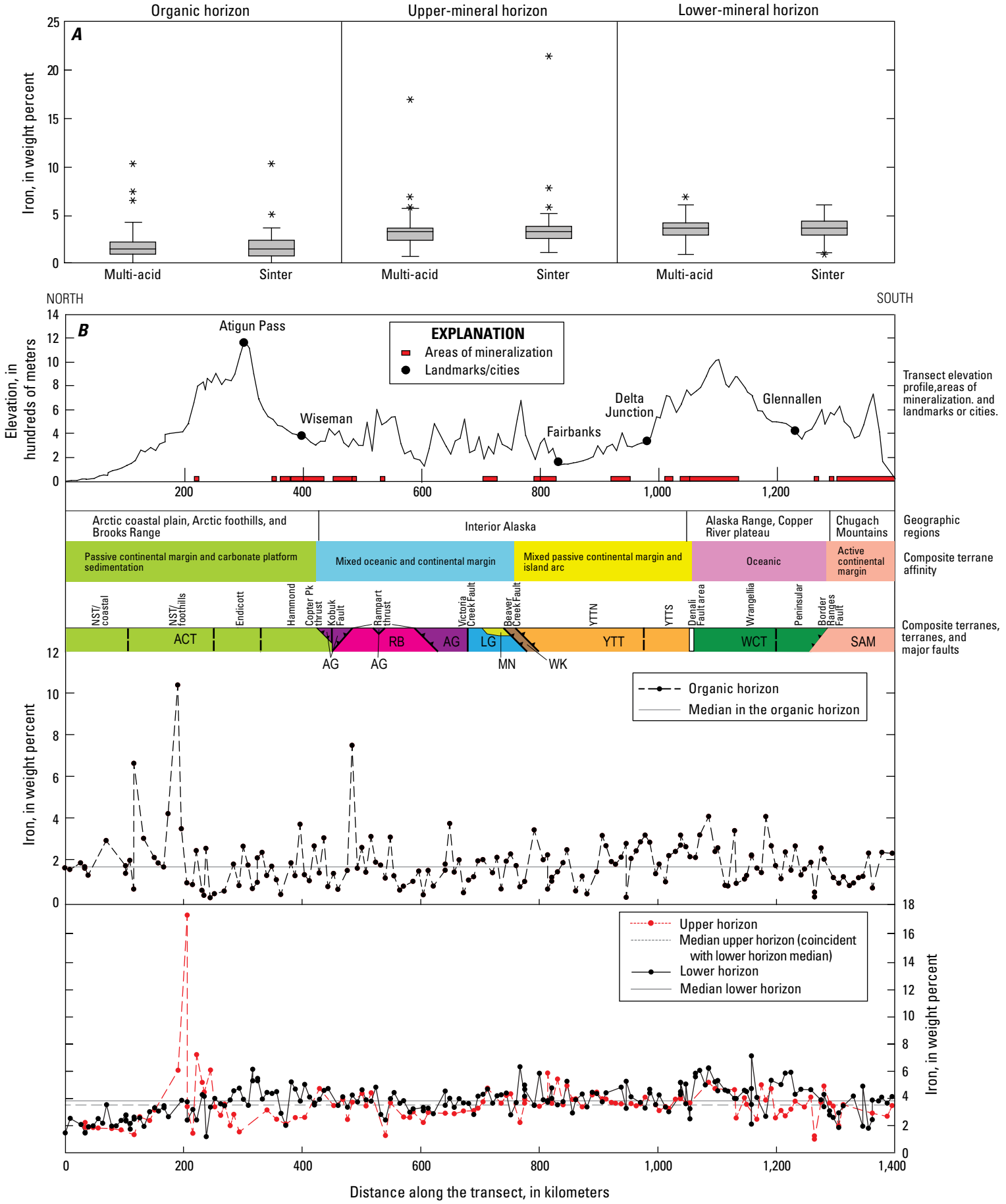

Figure 3.26. Iron (Fe) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

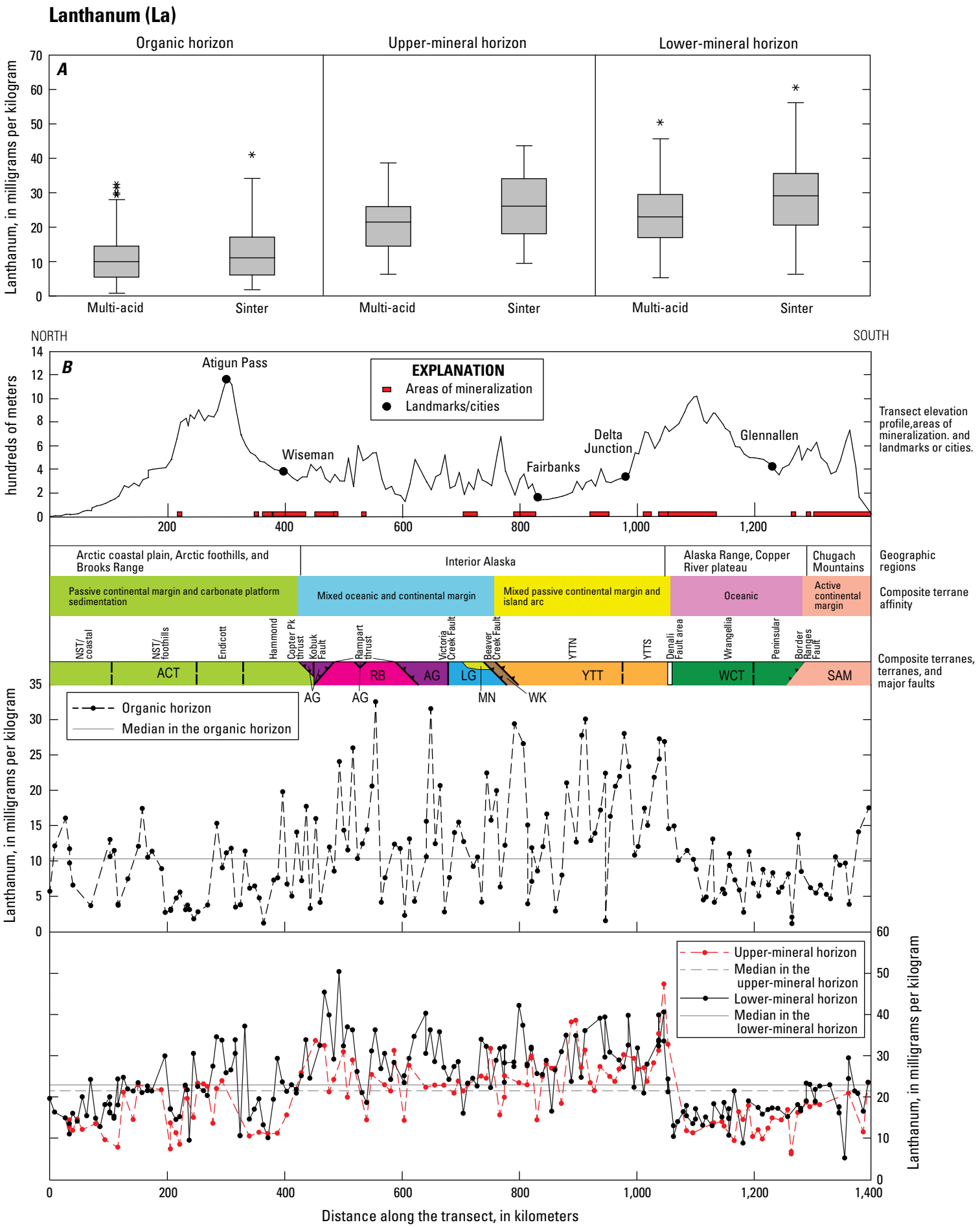

Figure 3.27. Lanthanum (La) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

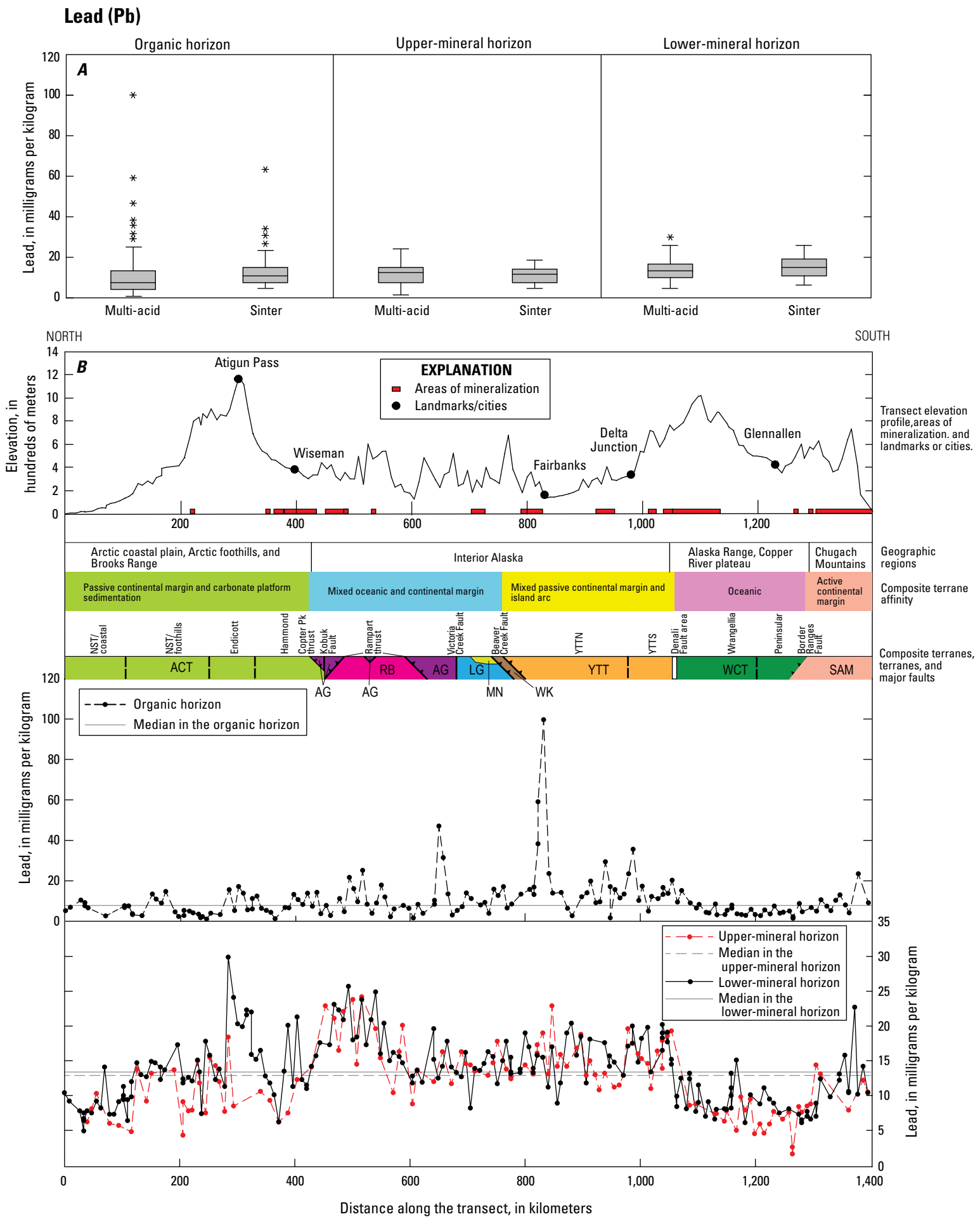

Figure 3.28. Lead (Pb) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

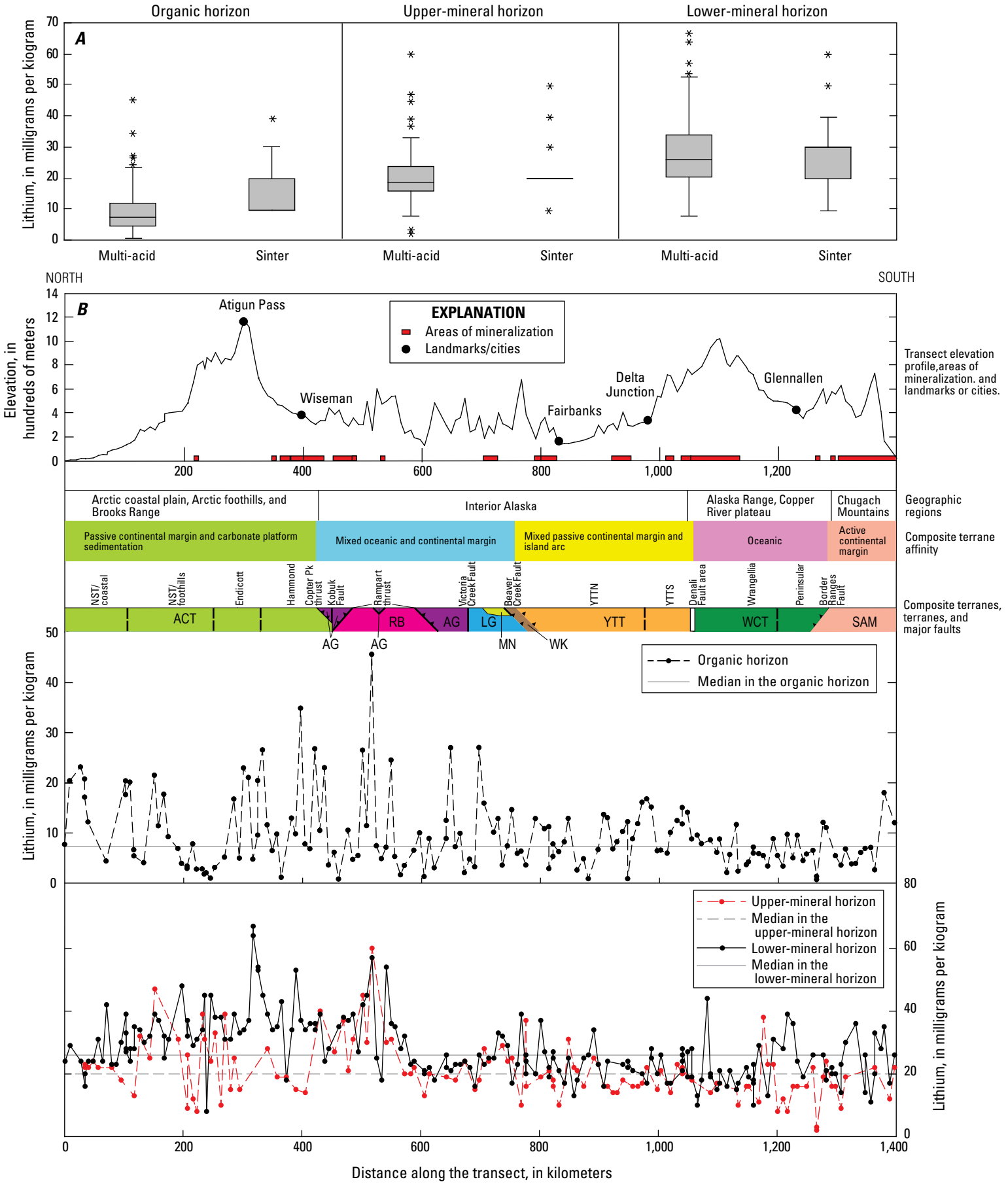

Figure 3.29. Lithium (Li) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

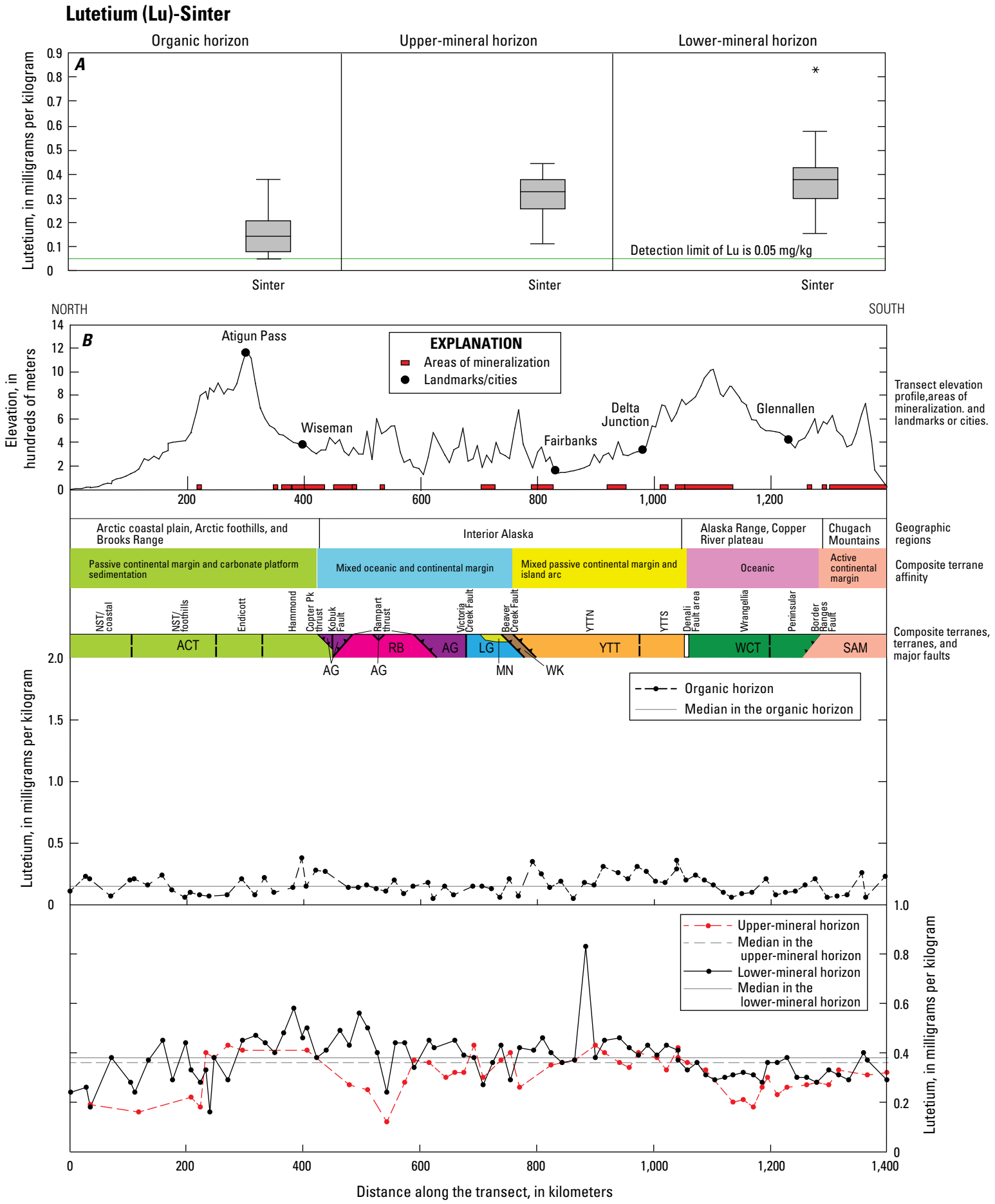

Figure 3.30. Lutetium (Lu) content and distribution, as measured following sinter digestion, in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

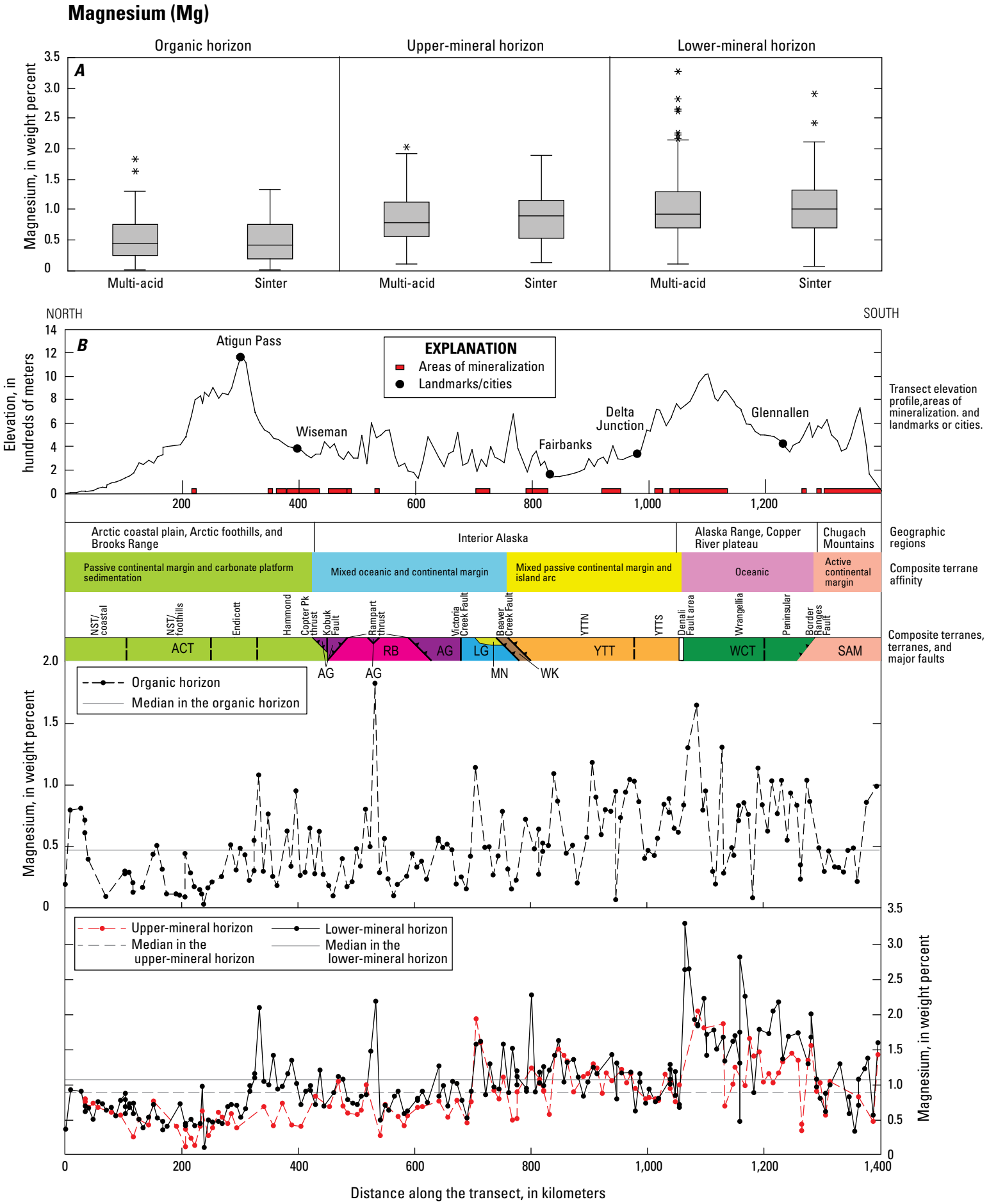

Figure 3.31. Magnesium (Mg) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

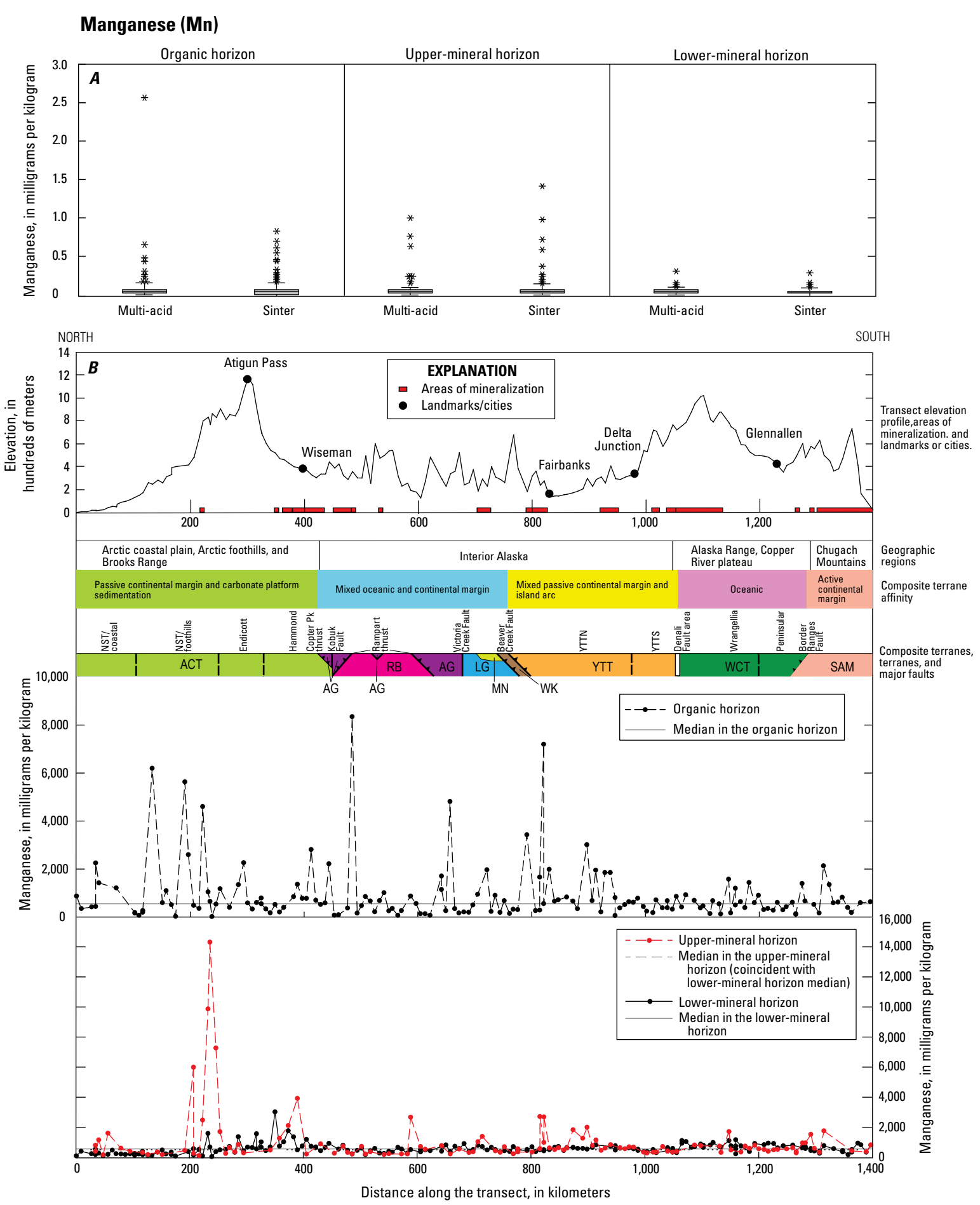

Figure 3.32. Manganese (Mn) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

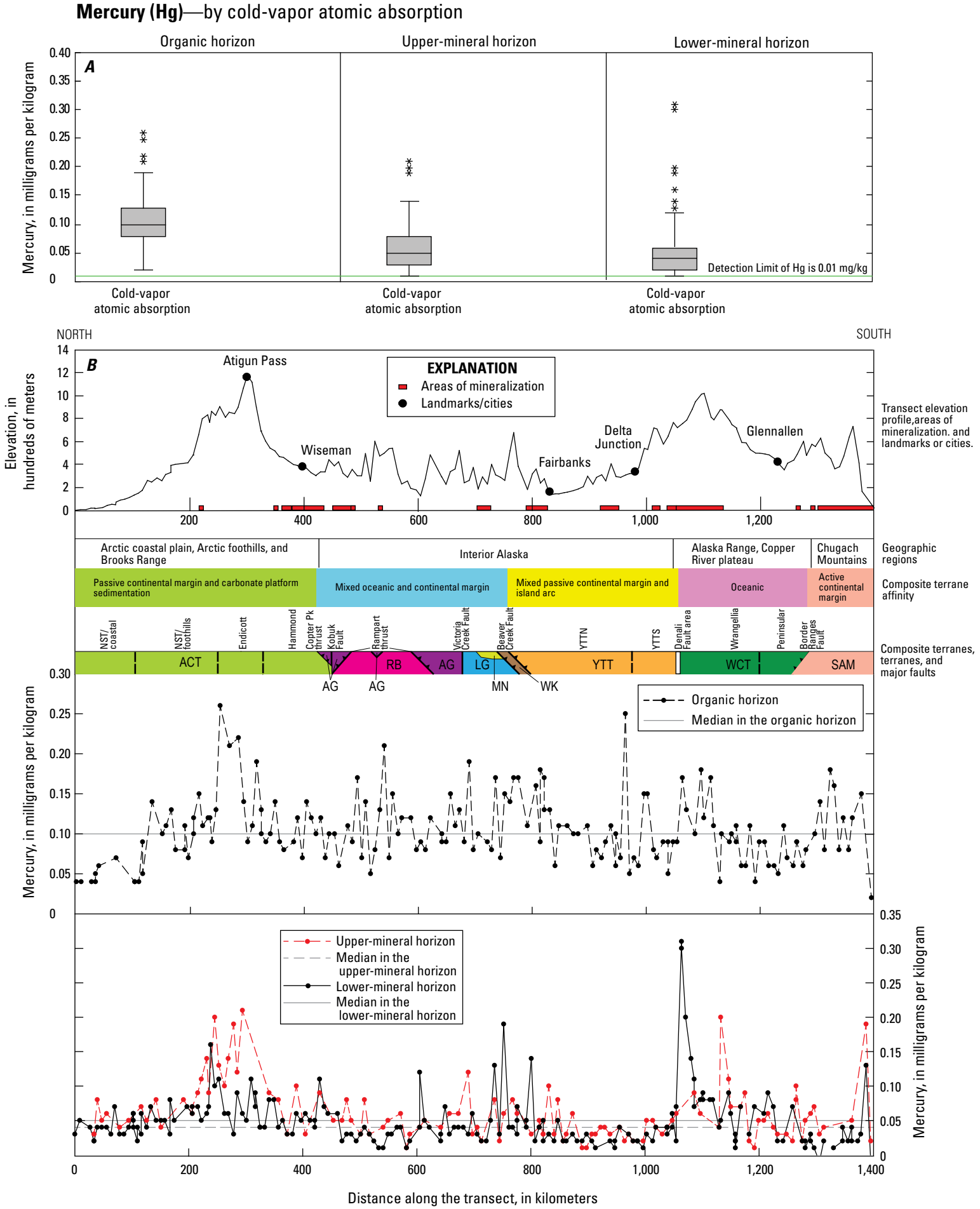

Figure 3.33. Mercury (Hg) content and distribution, as determined by cold vapor-atomic absorption, in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

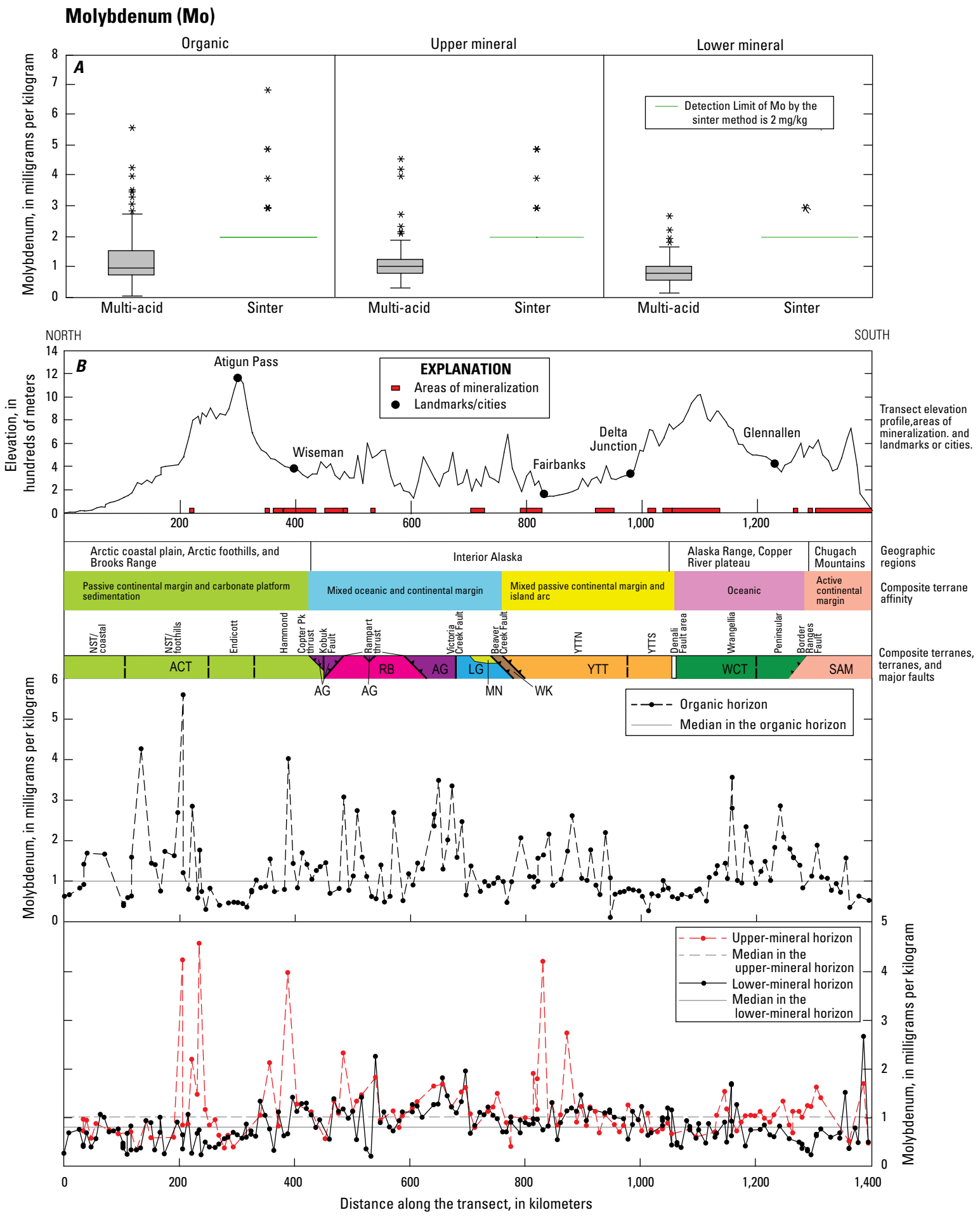

Figure 3.34. Molybdenum (Mo) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

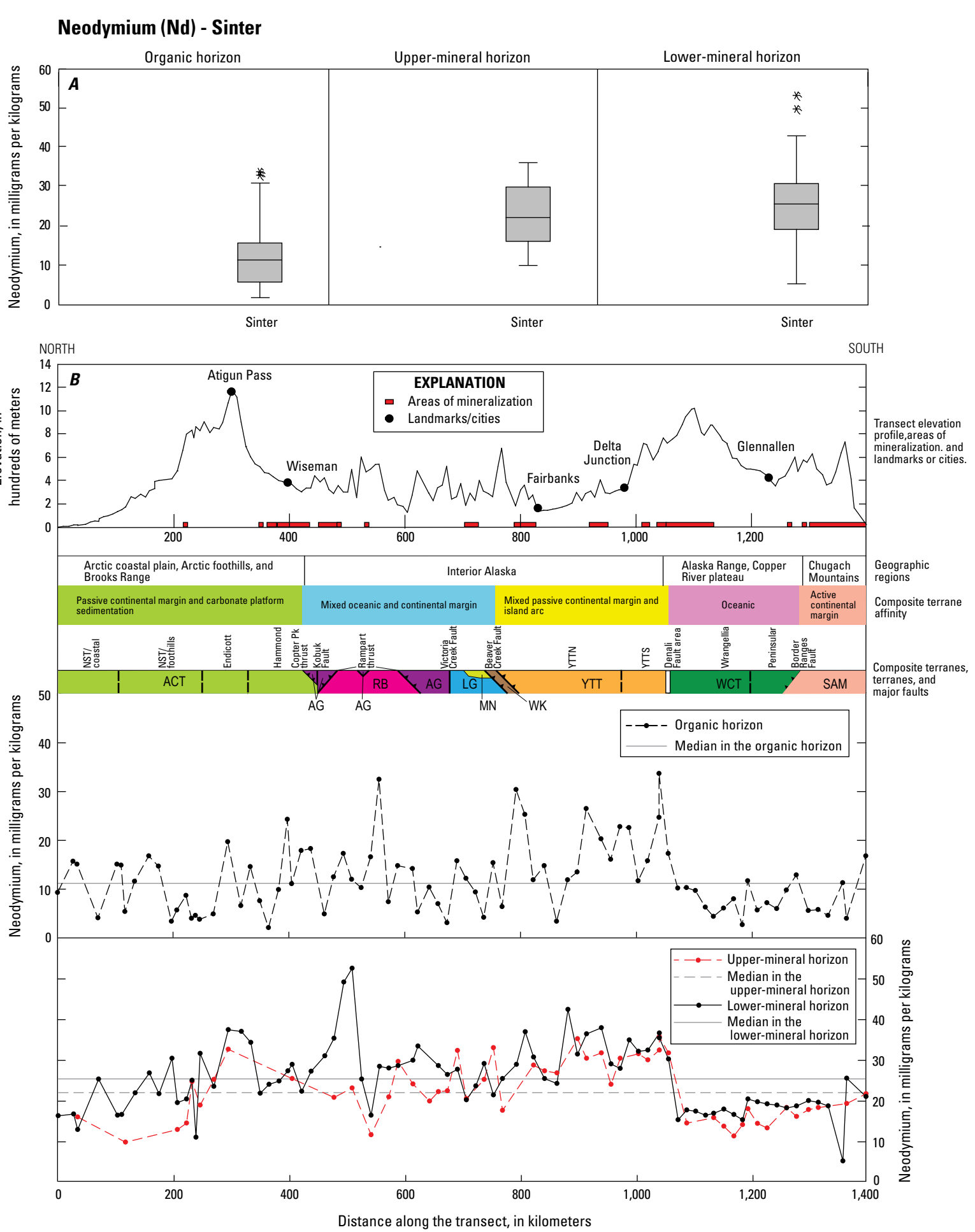

Figure 3.35. Neodymium (Nd) content and distribution, as measured following sinter digestion, in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

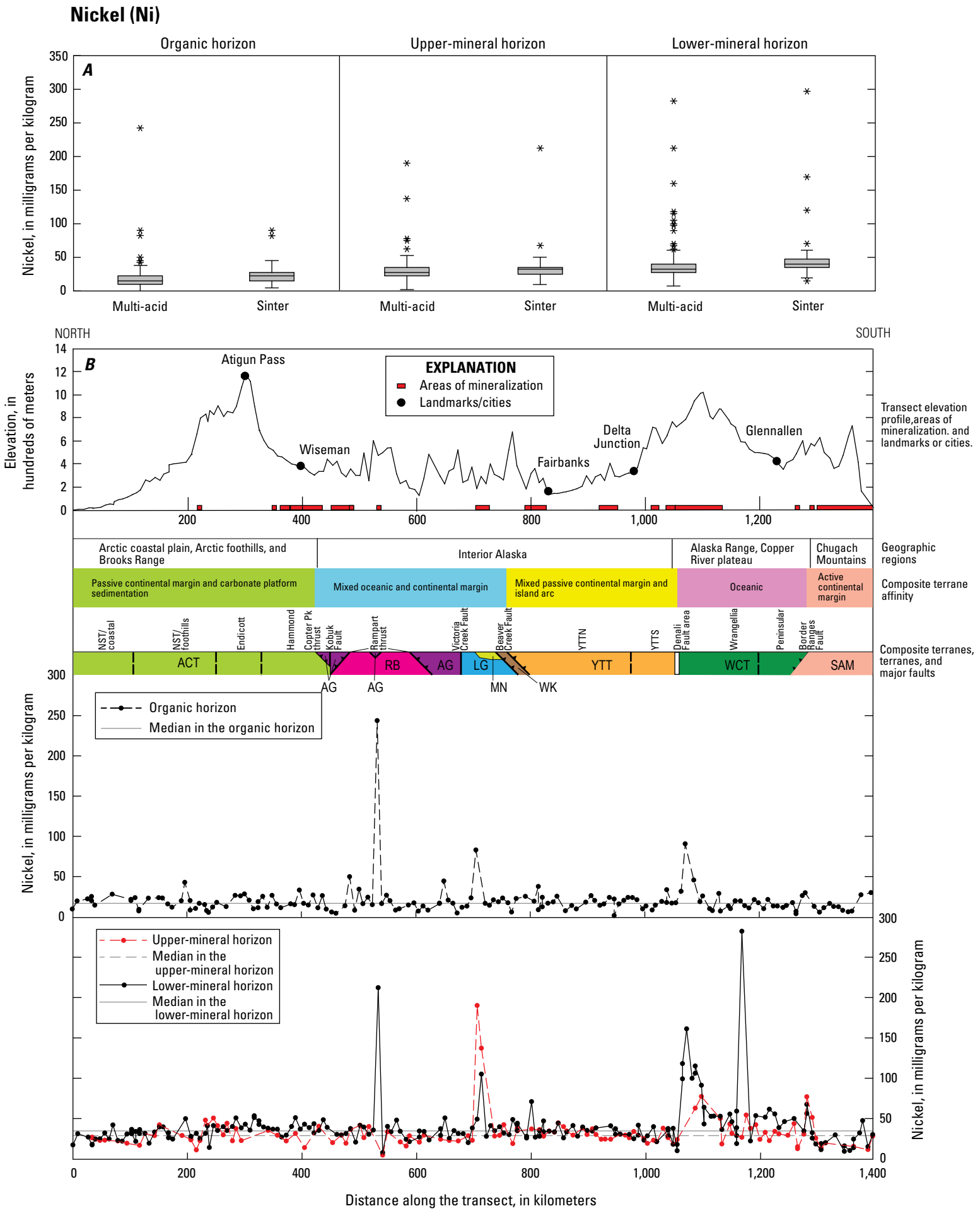

Figure 3.36. Nickel (Ni) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

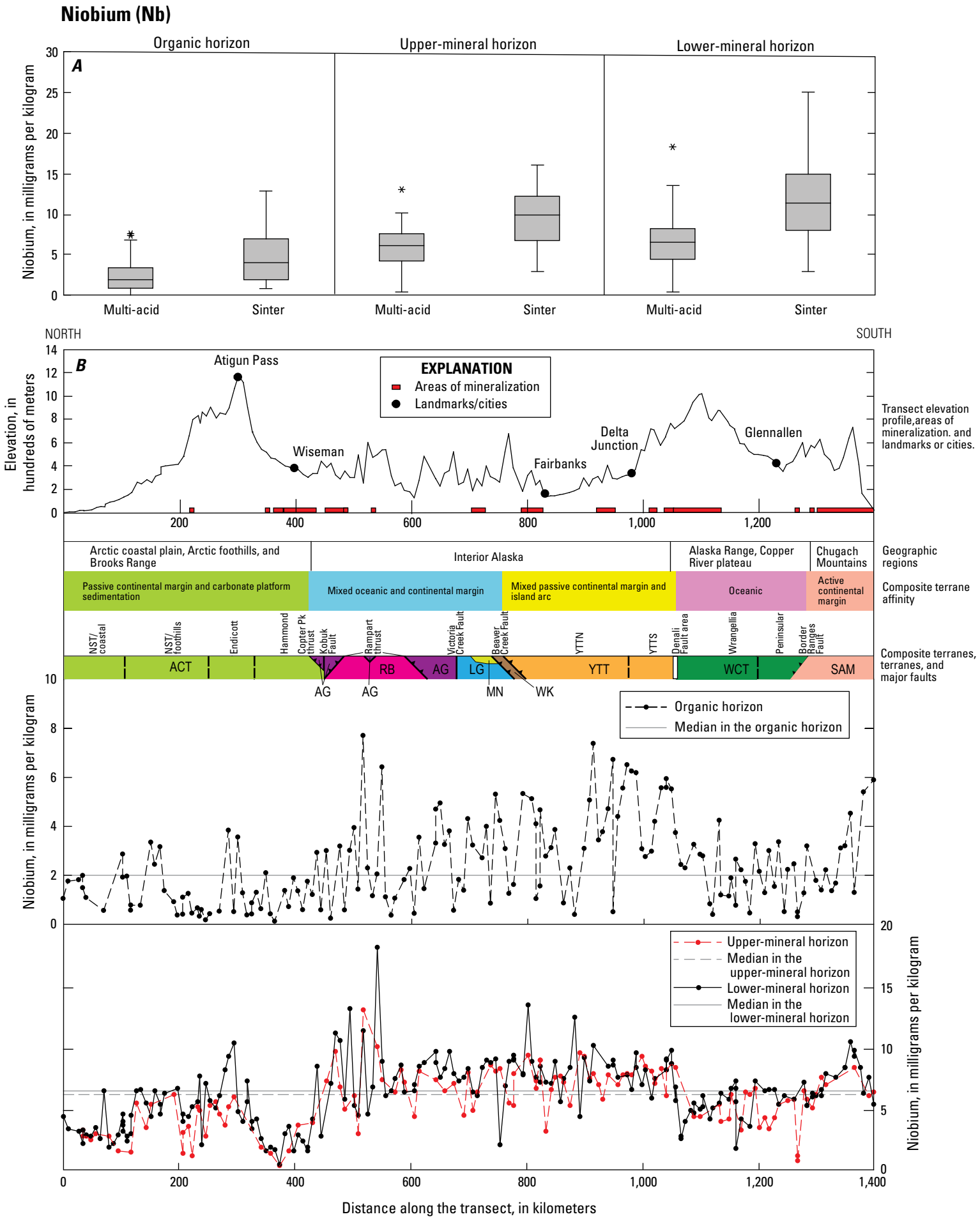

Figure 3.37. Niobium (Nb) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

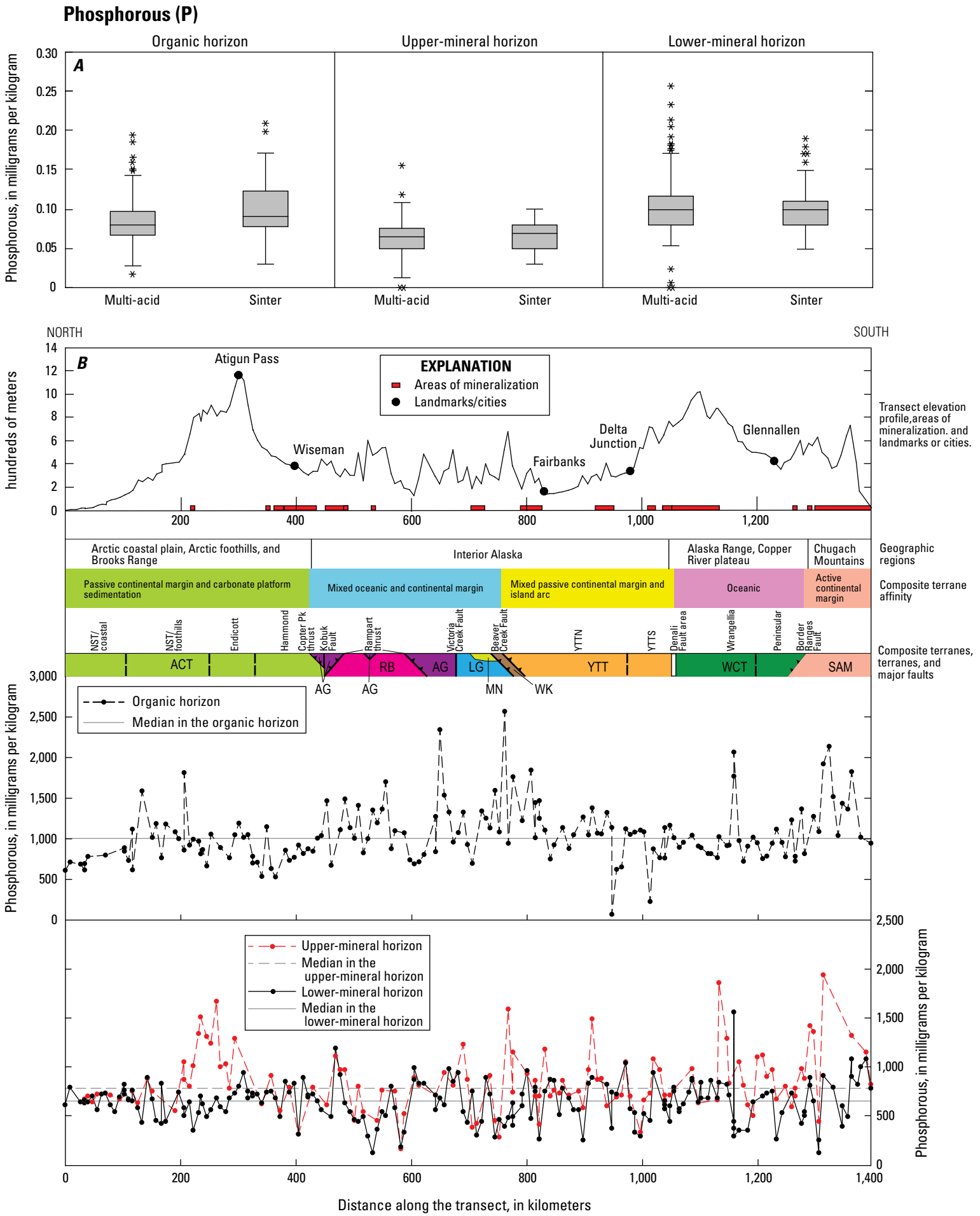

Figure 3.38. Phosphorus (P) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

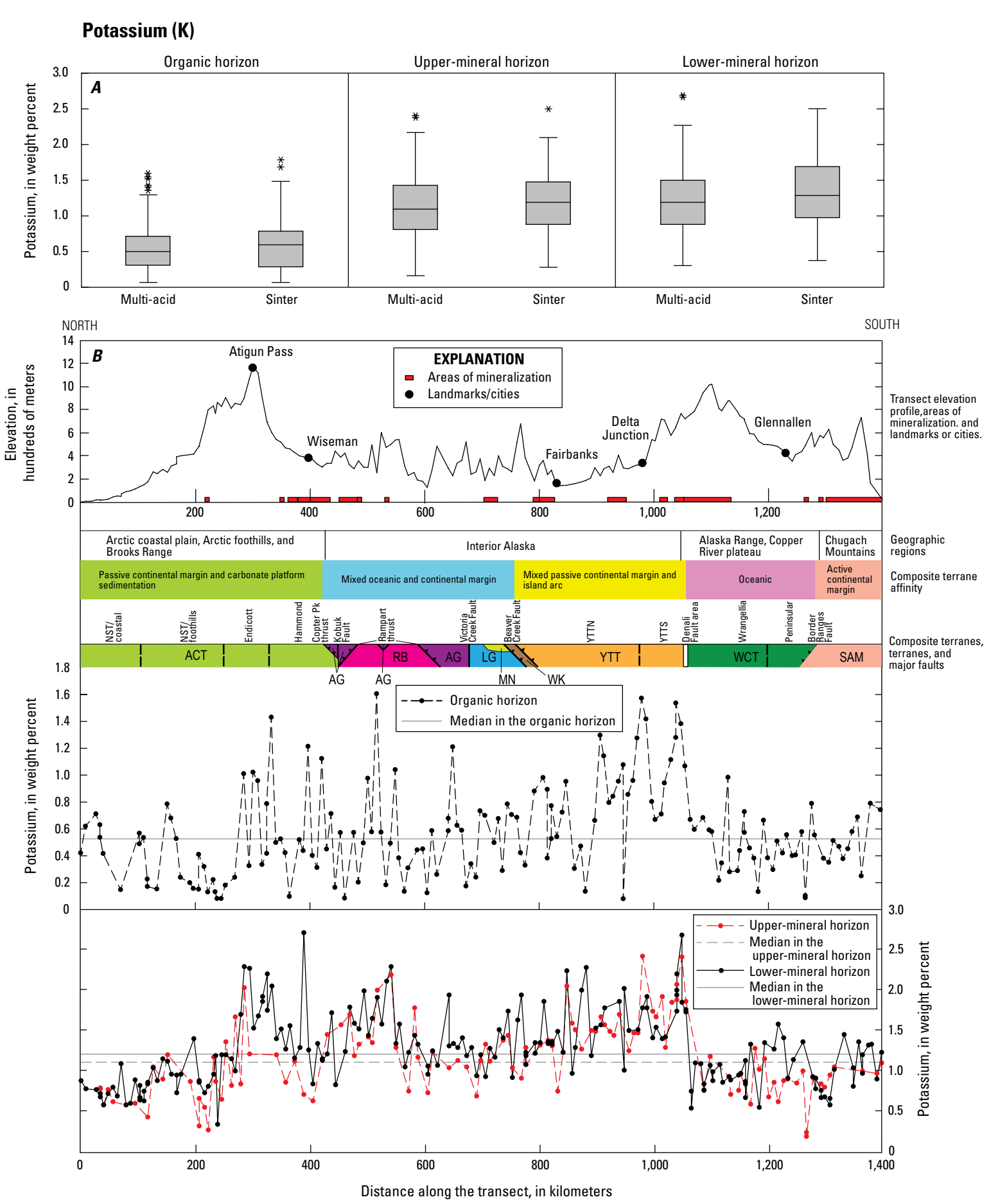

Figure 3.39. Potassium (K) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

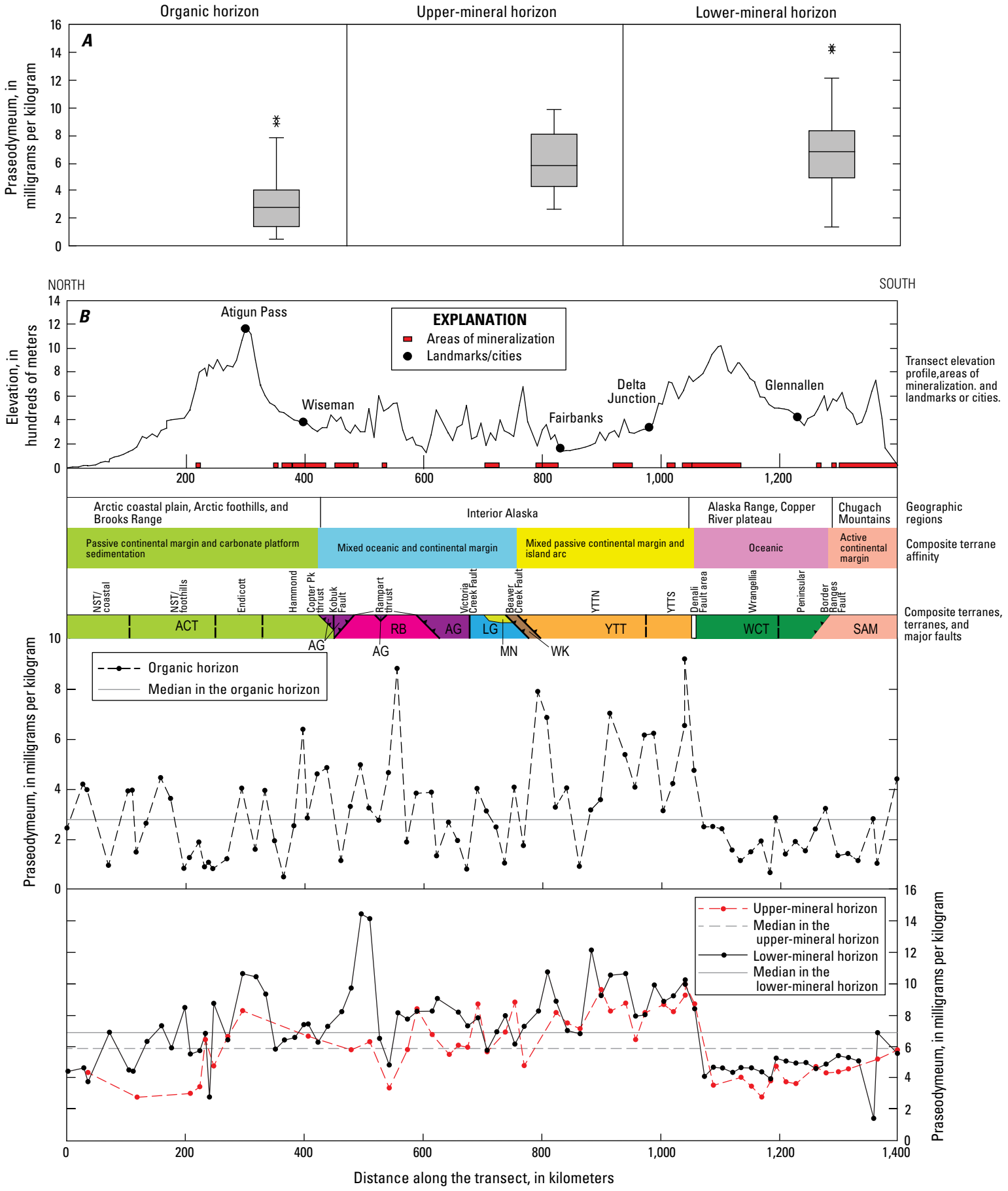

Figure 3.40. Praseodyneum (Pr) content and distribution, as measured following sinter digestion, in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

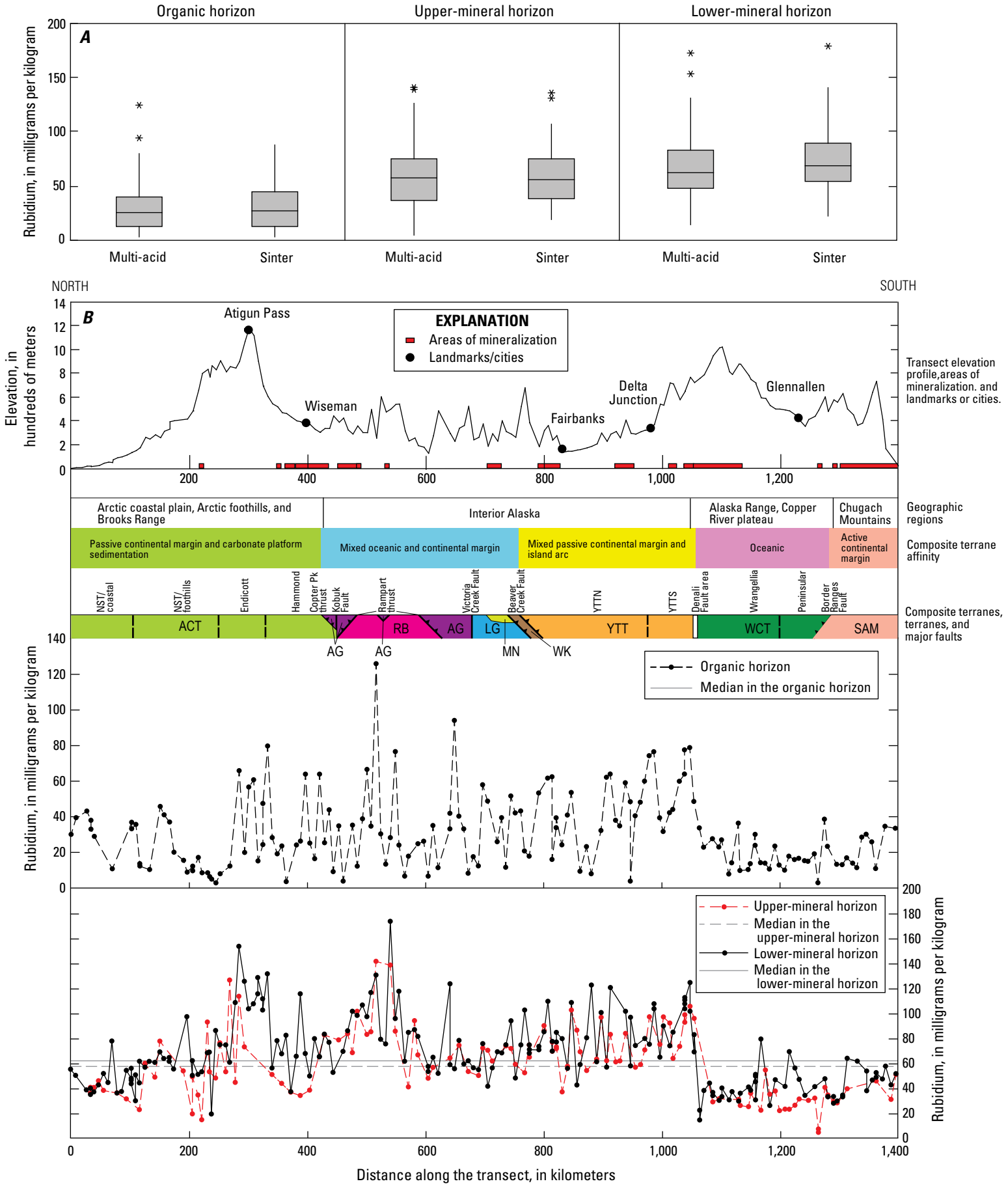

Figure 3.41. Rubidium (Rb) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

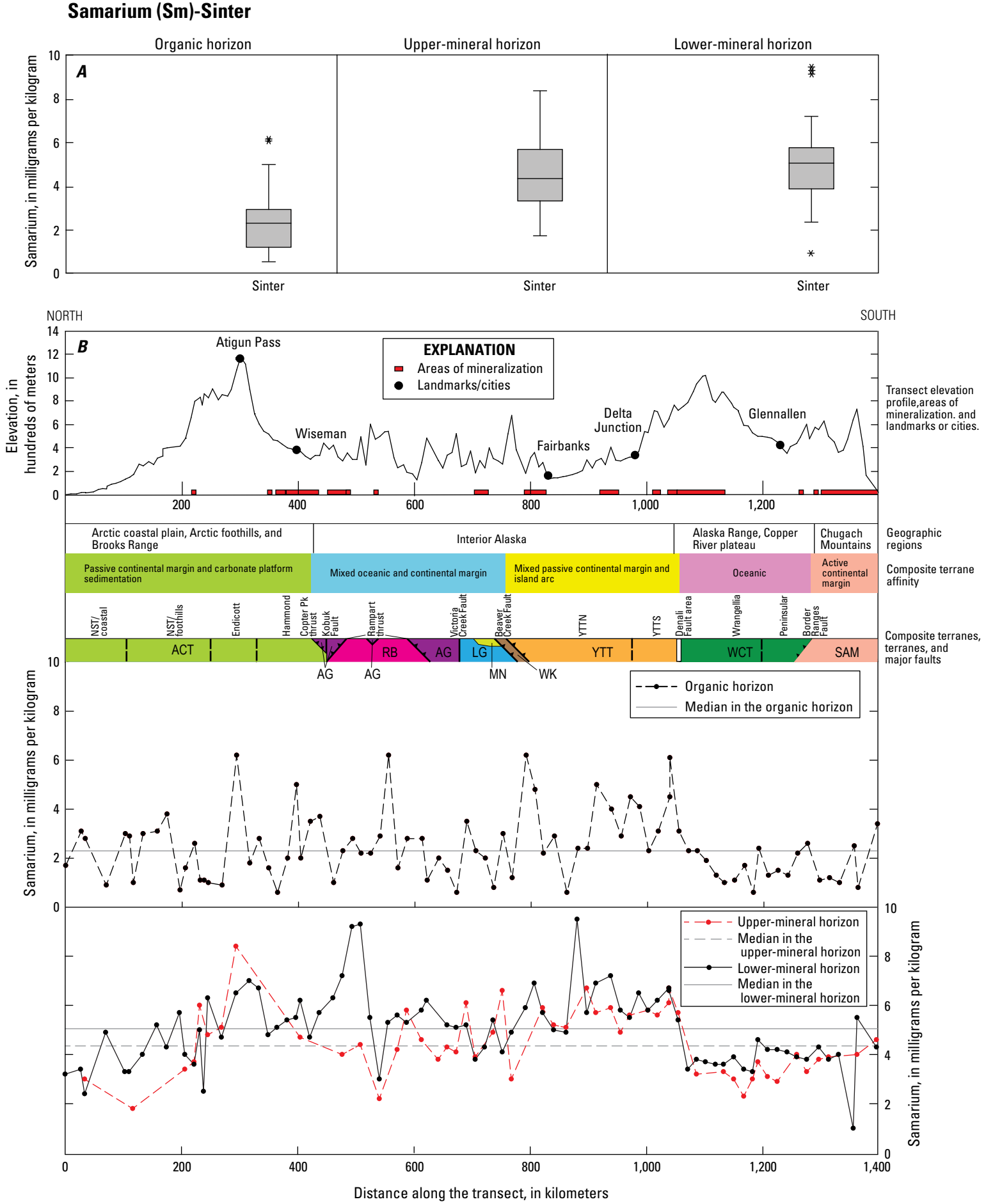

Figure 3.42. Samarium (Sm) content and distribution, as measured following sinter digestion, in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

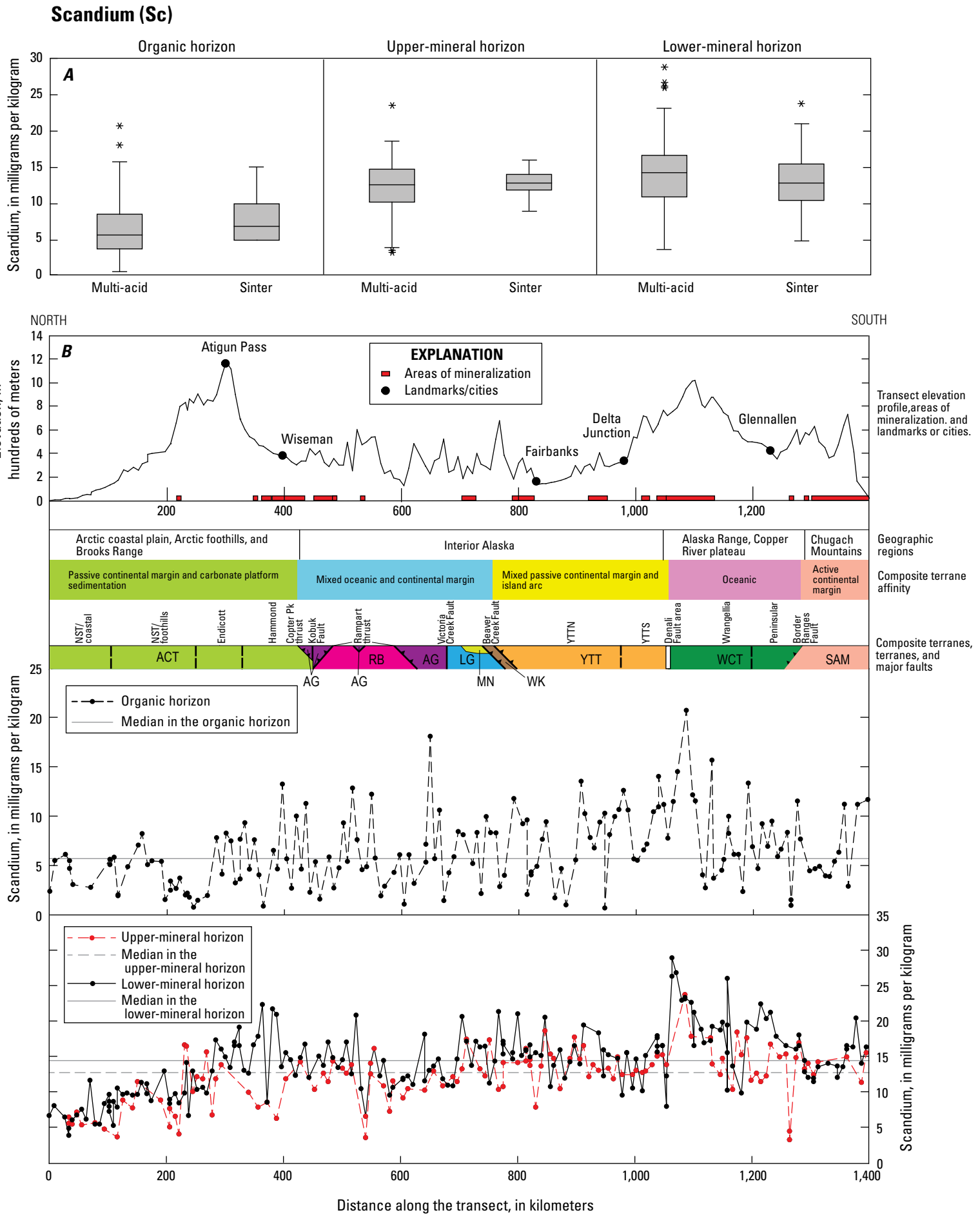

Figure 3.43. Scandium (Sc) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

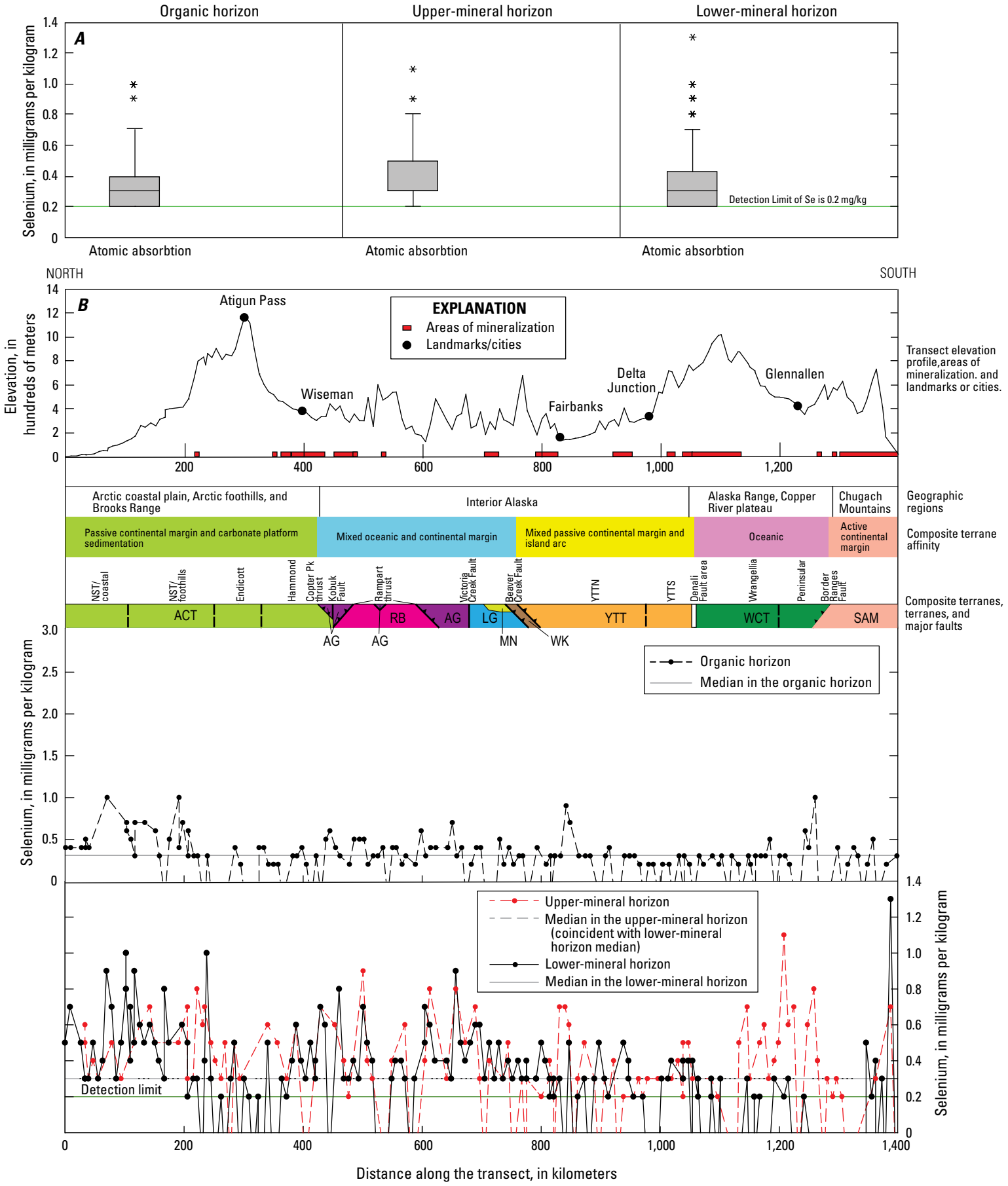

Figure 3.44. Selenium (Se) content and distribution, as determined by hydride generation atomic-absorption spectrometry, in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

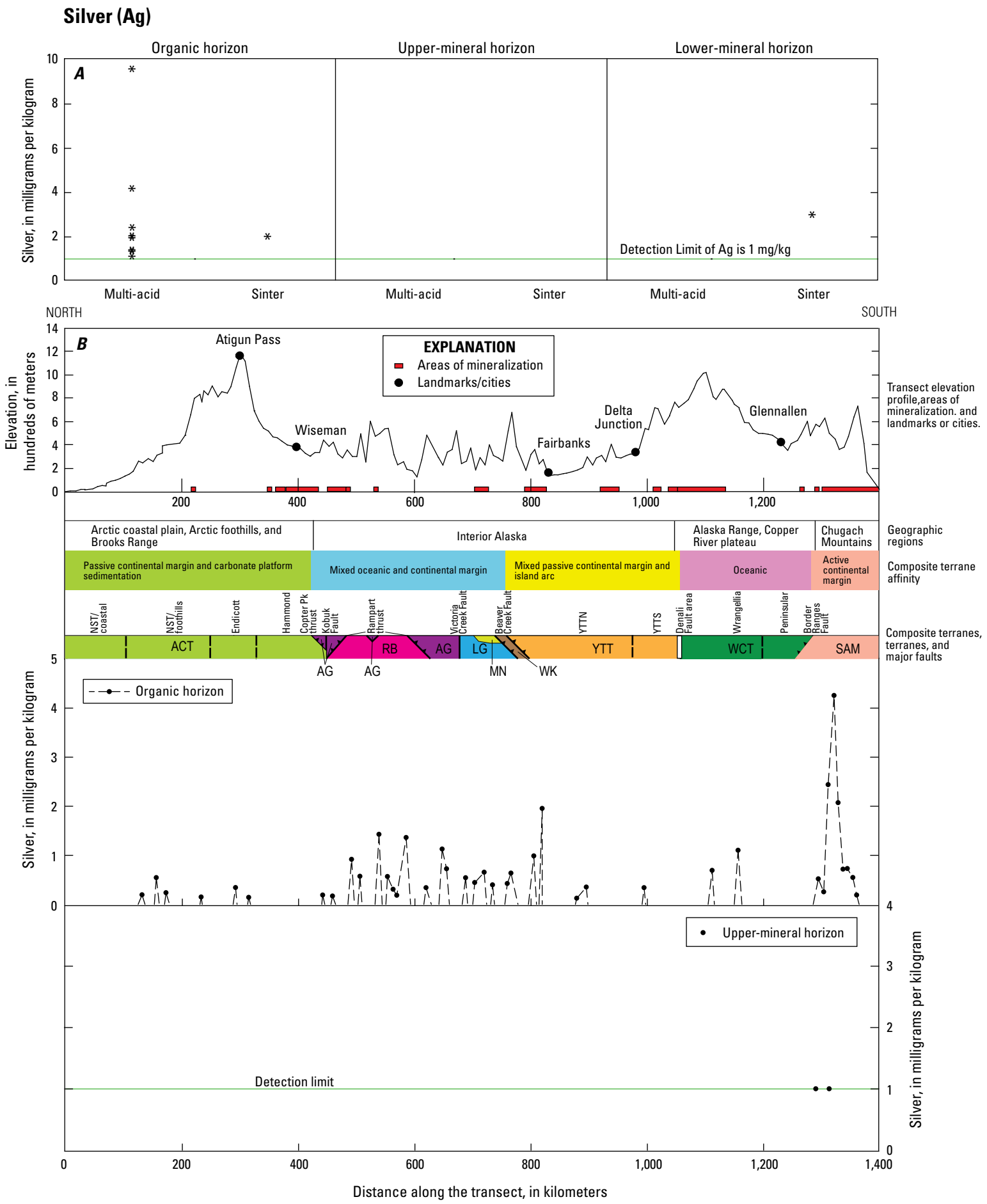

Figure 3.45. Silver (Ag) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

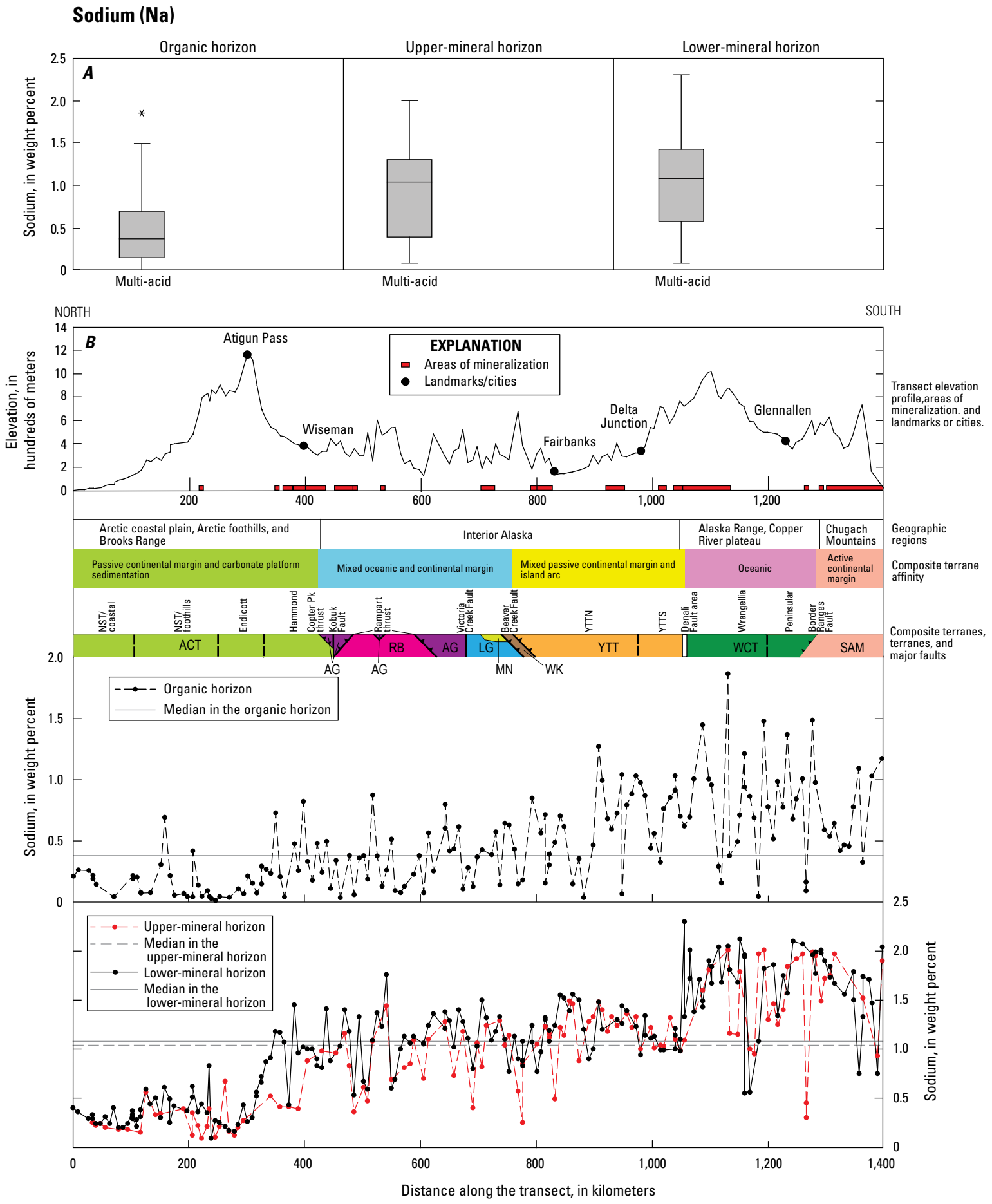

Figure 3.46. Sodium (Na) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

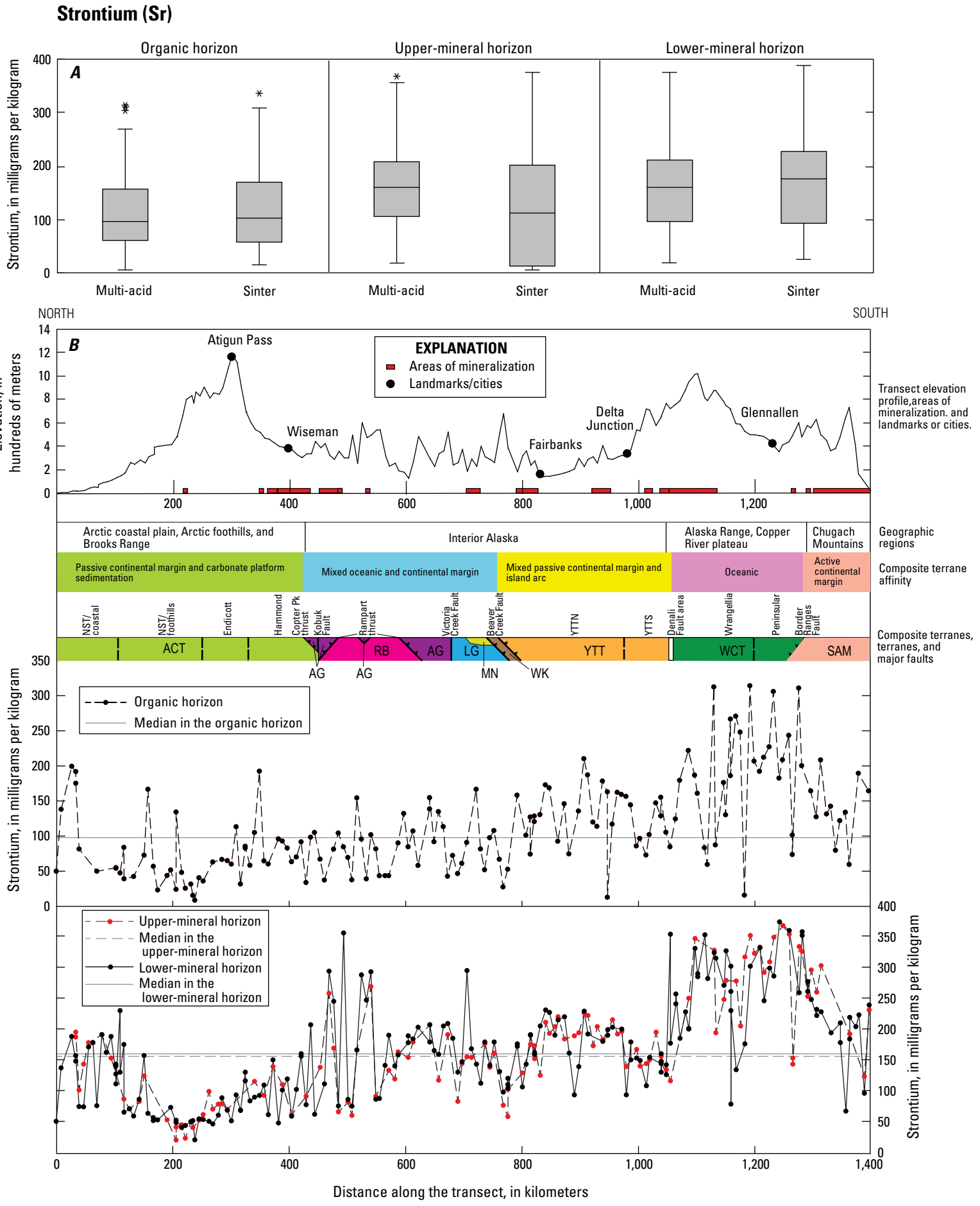

Figure 3.47. Strontium (Sr) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

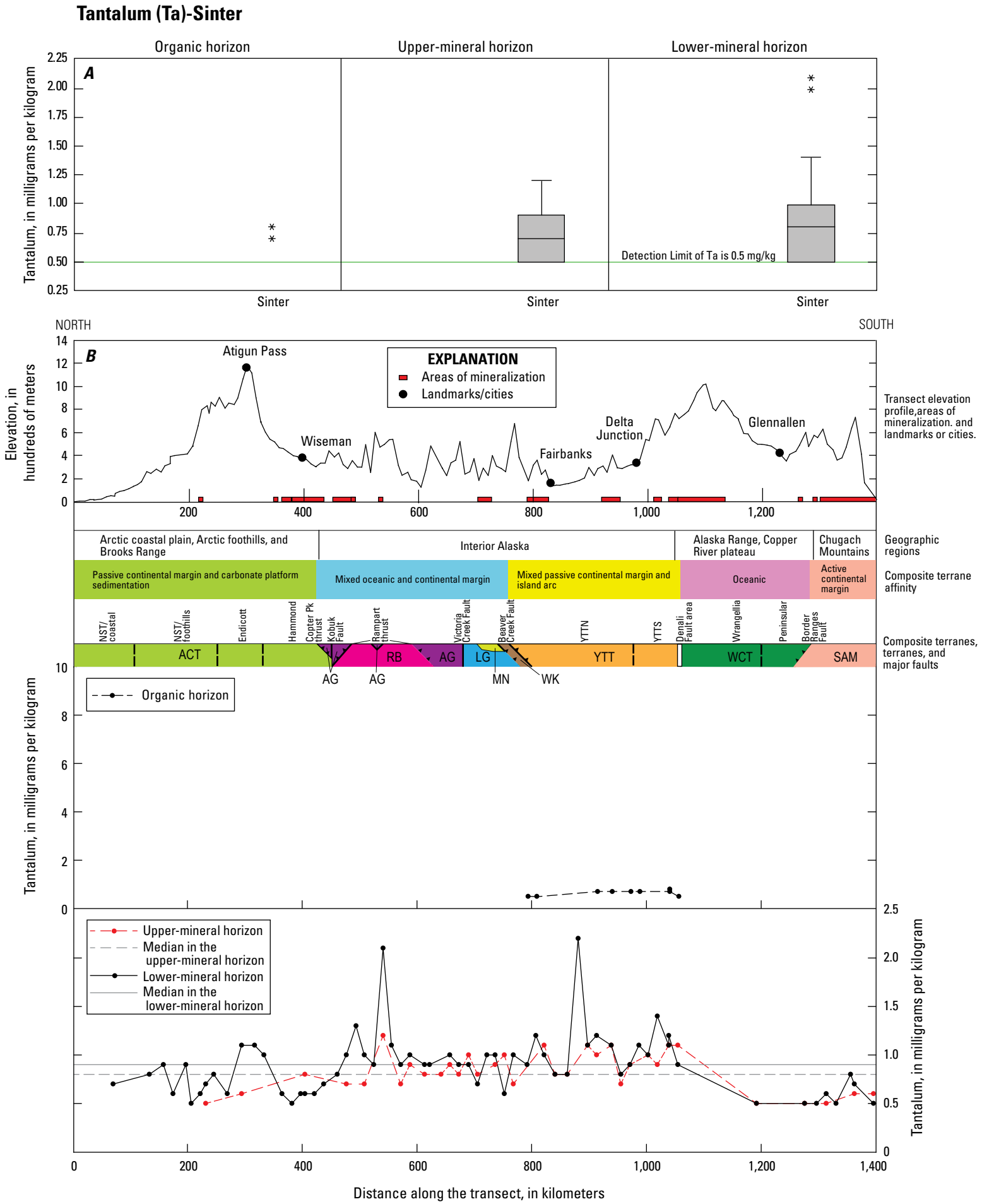

Figure 3.48. Tantalum (Ta) content and distribution, as measured following sinter digestion, in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

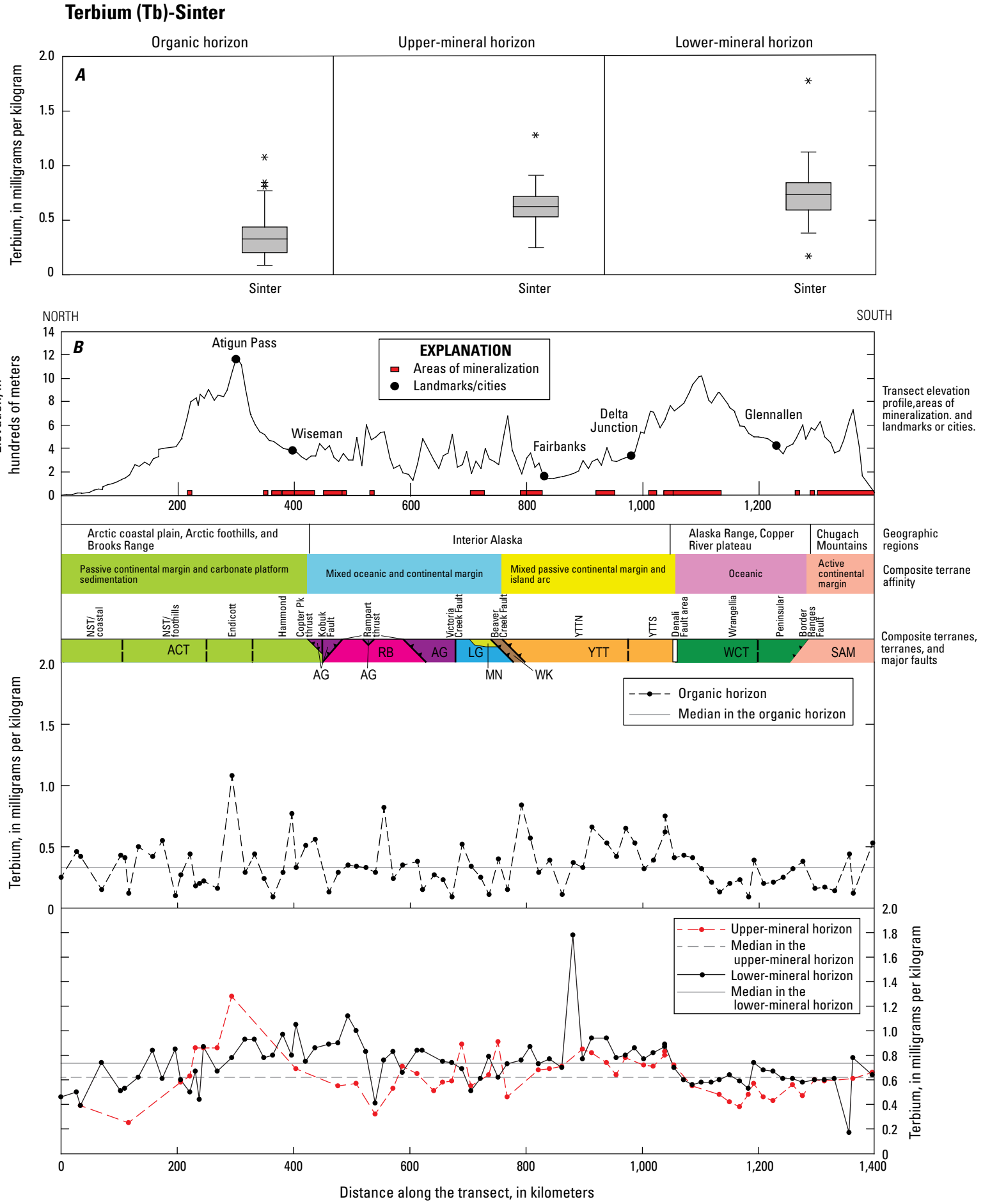

Figure 3.49. Terbium (Tb) content and distribution, as measured following sinter digestion, in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

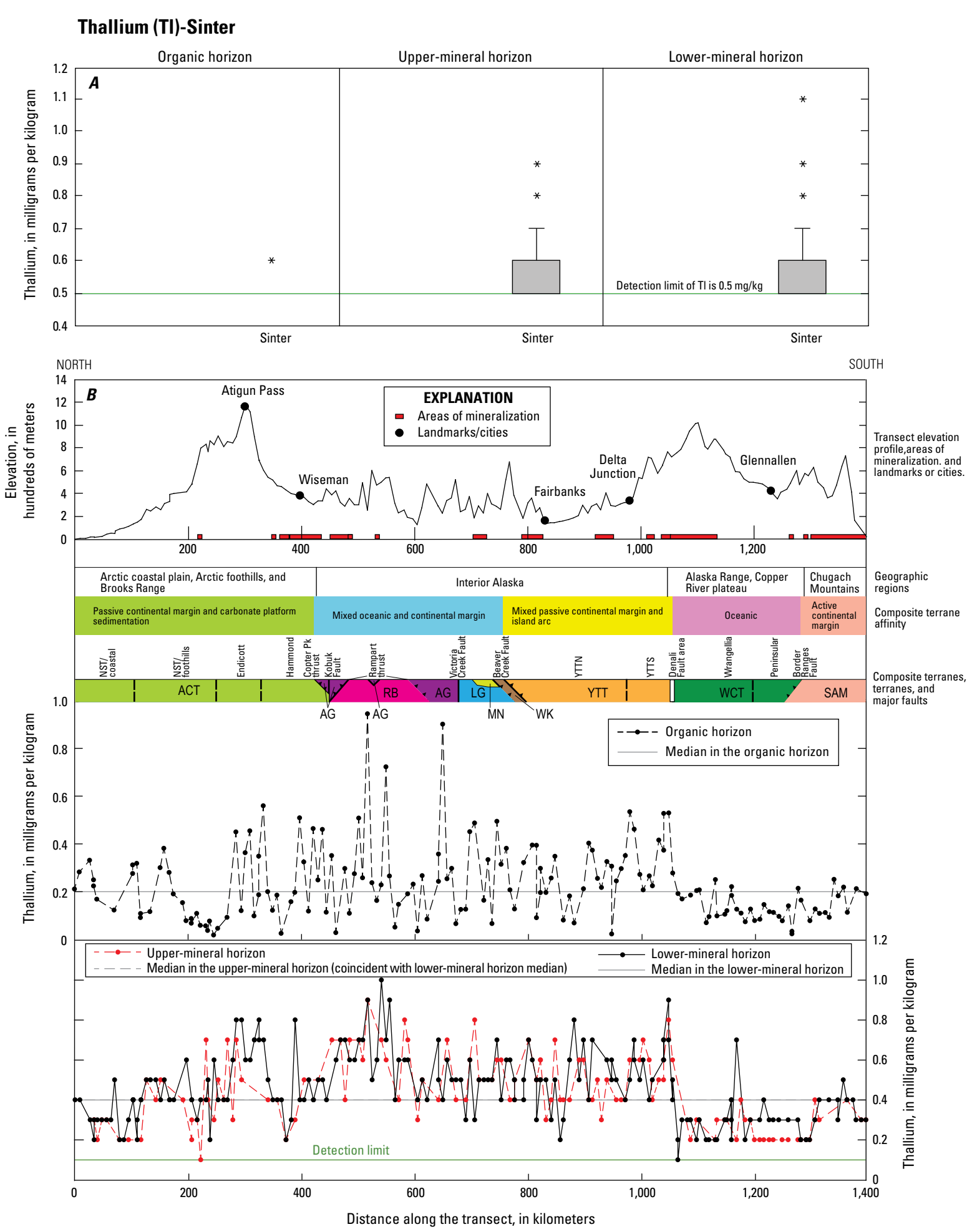

Figure 3.50. Thallium (Tl) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

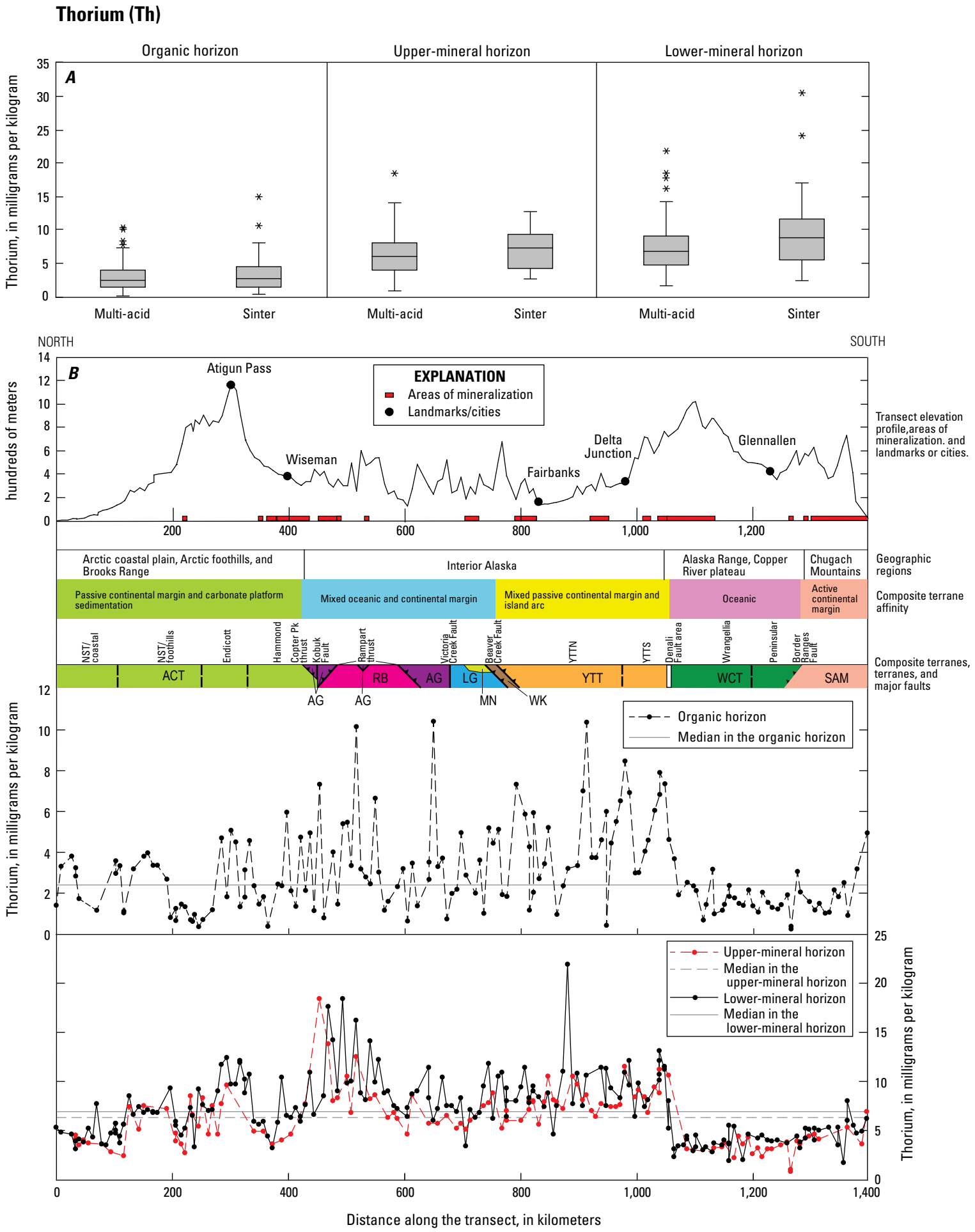

Figure 3.51. Thorium (Th) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

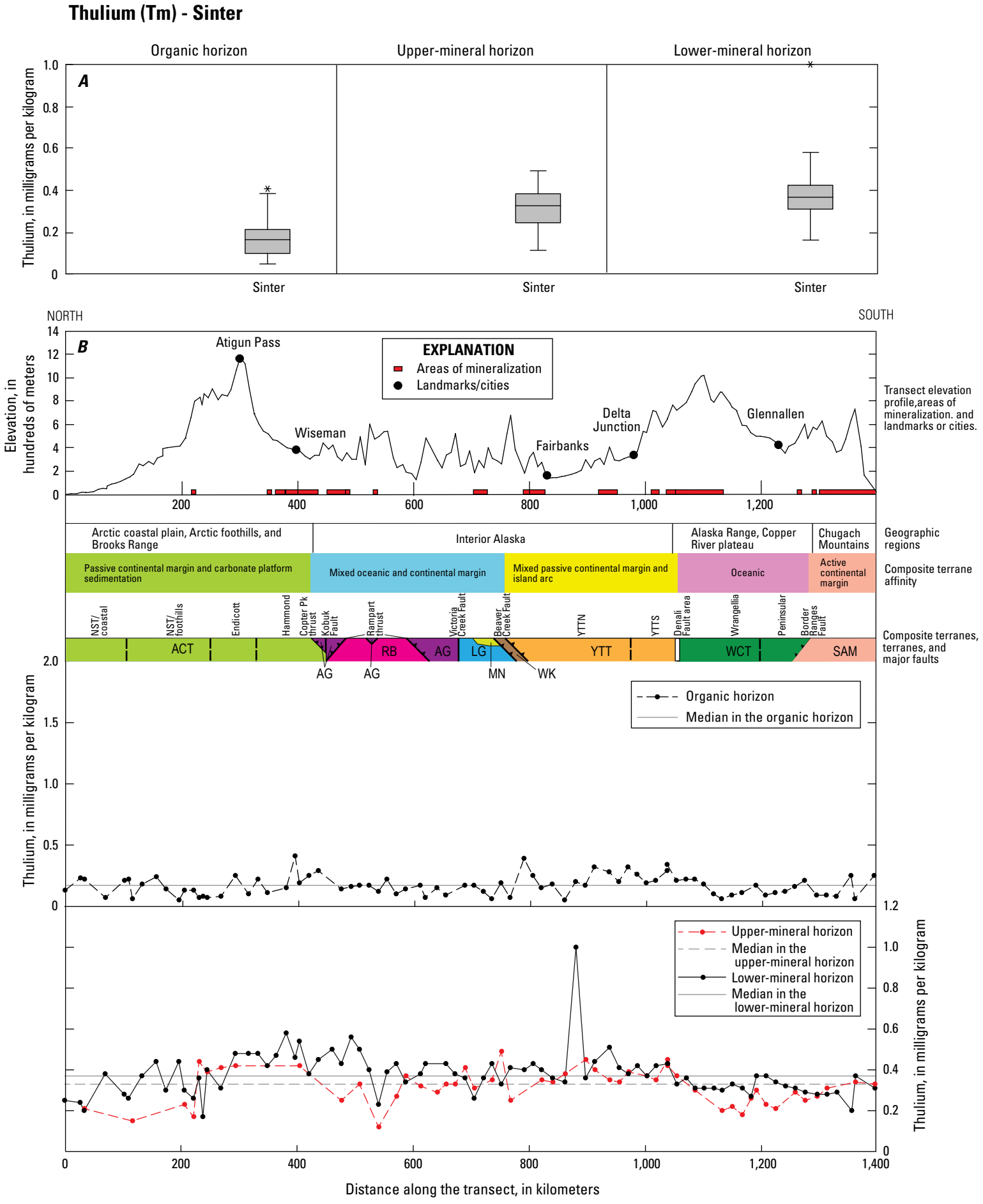

Figure 3.52. Thulium (Tm) content and distribution, as measured following sinter digestion, in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

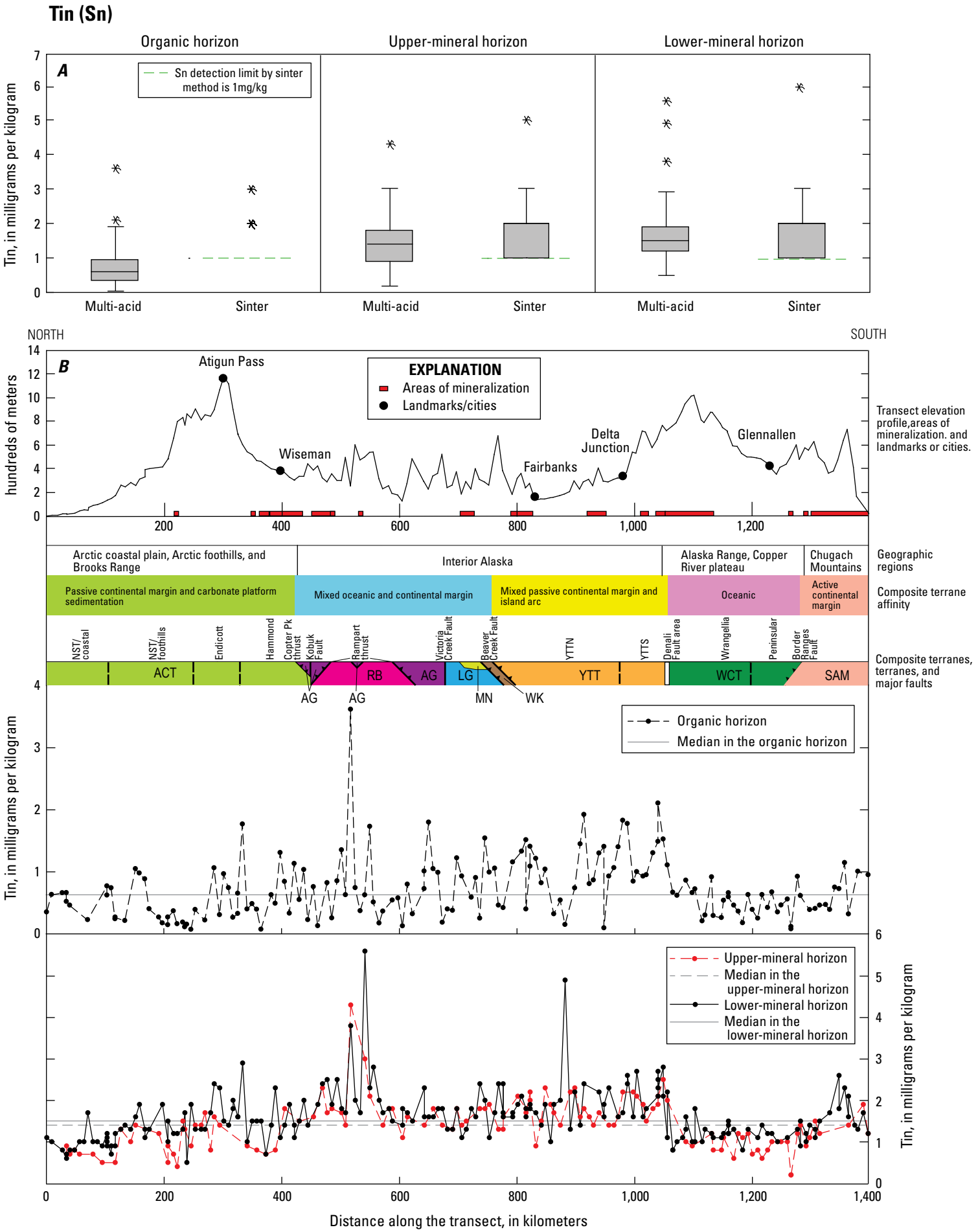

Figure 3.53. Tin (Sn) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

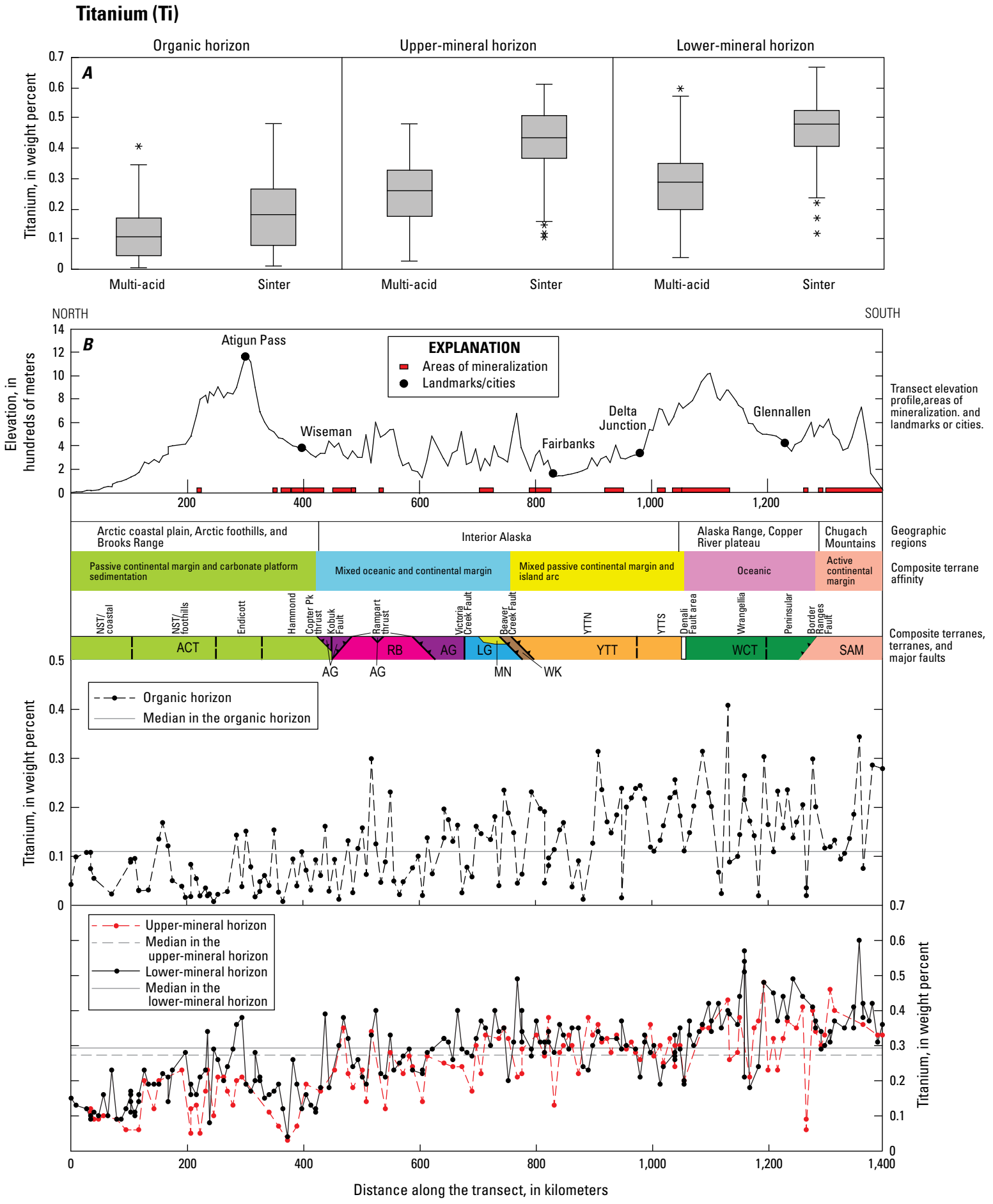

Figure 3.54. Titanium (Ti) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

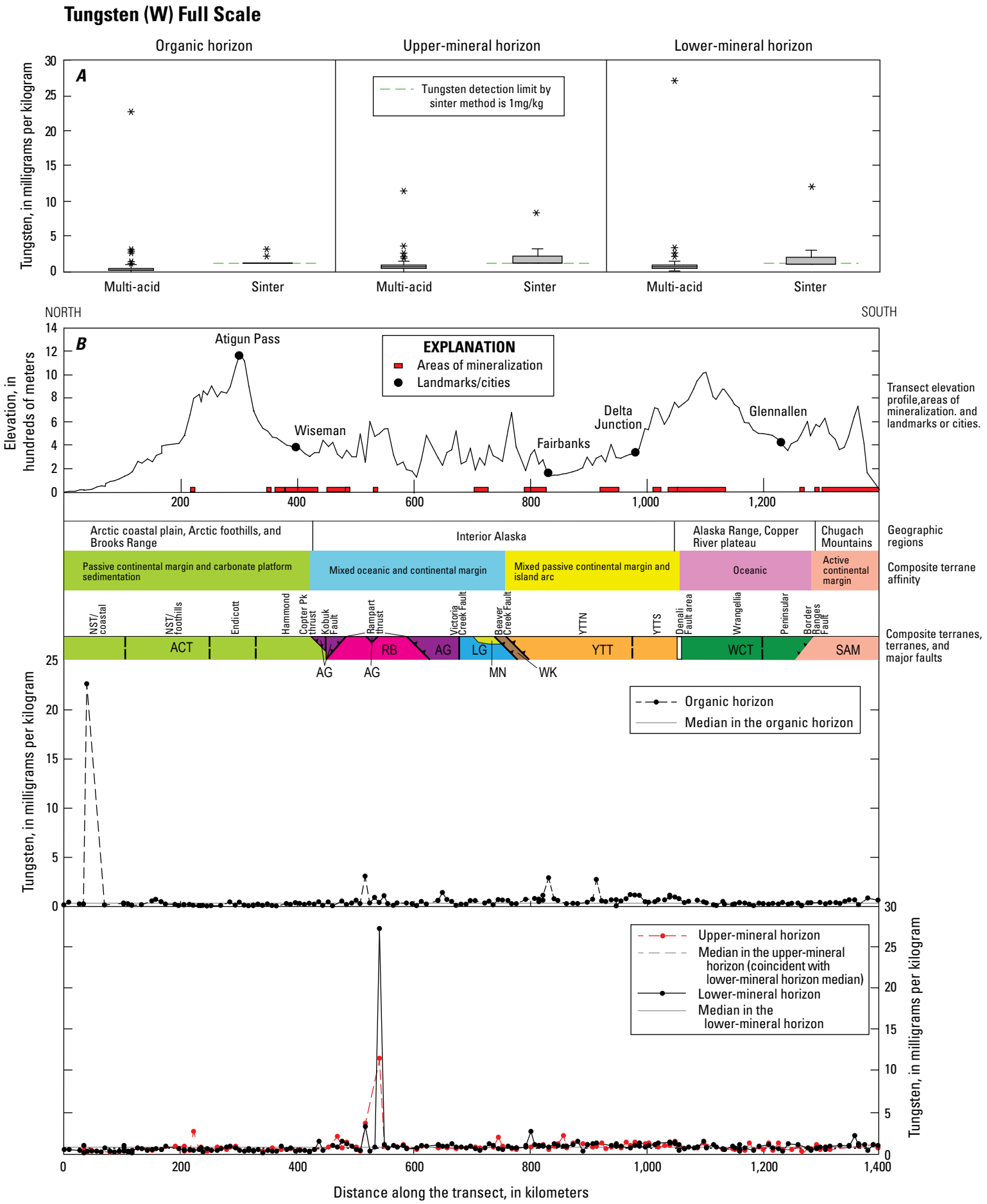

Figure 3.55. Tungsten (W) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska. Data are shown at full scale (includes outliers). See figure 3.56 for detail plot that excludes outliers.

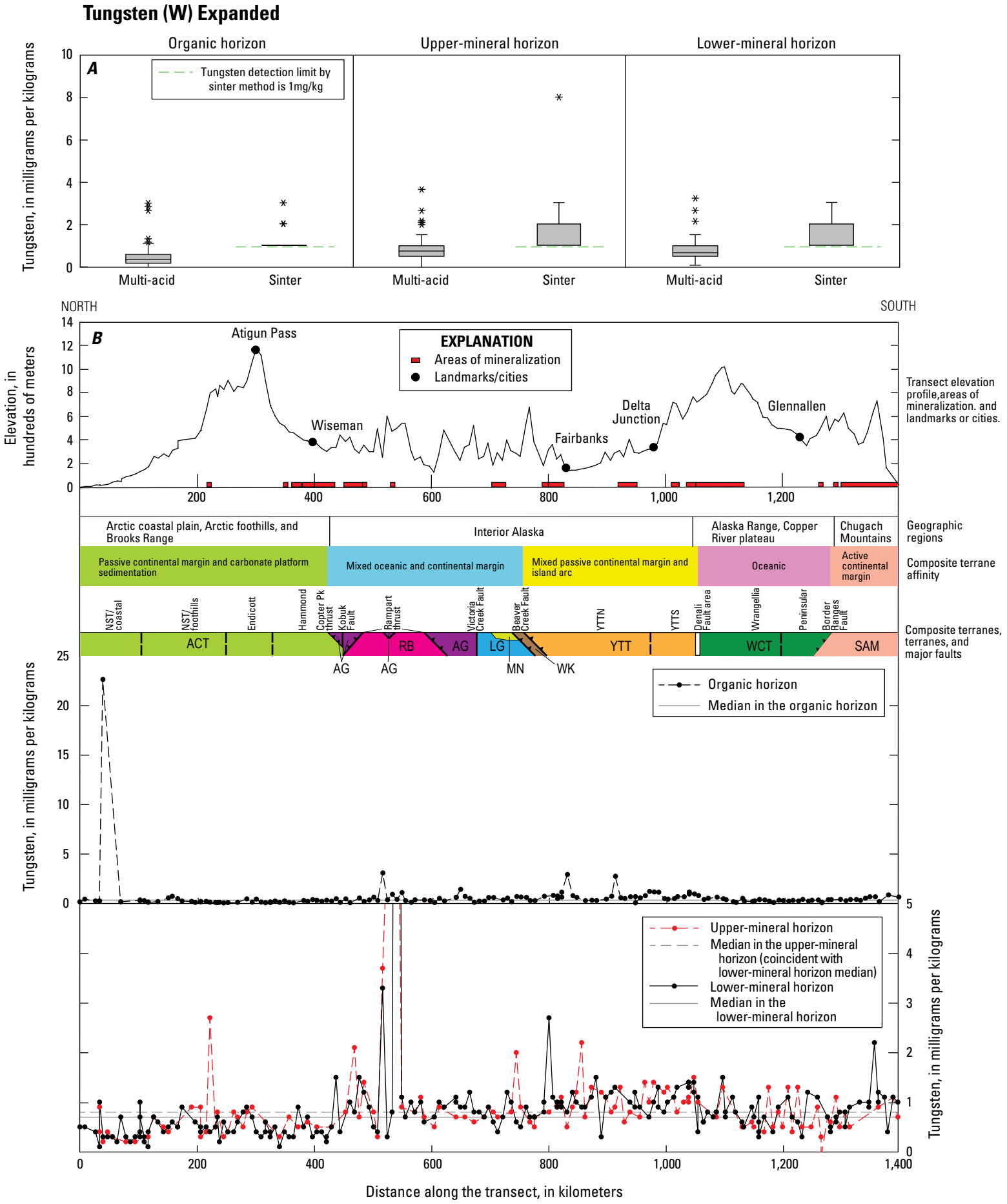

Figure 3.56. Detail of tungsten (W) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska. For full-scale plot that includes outliers, see figure 3.55.

Uranium (U)

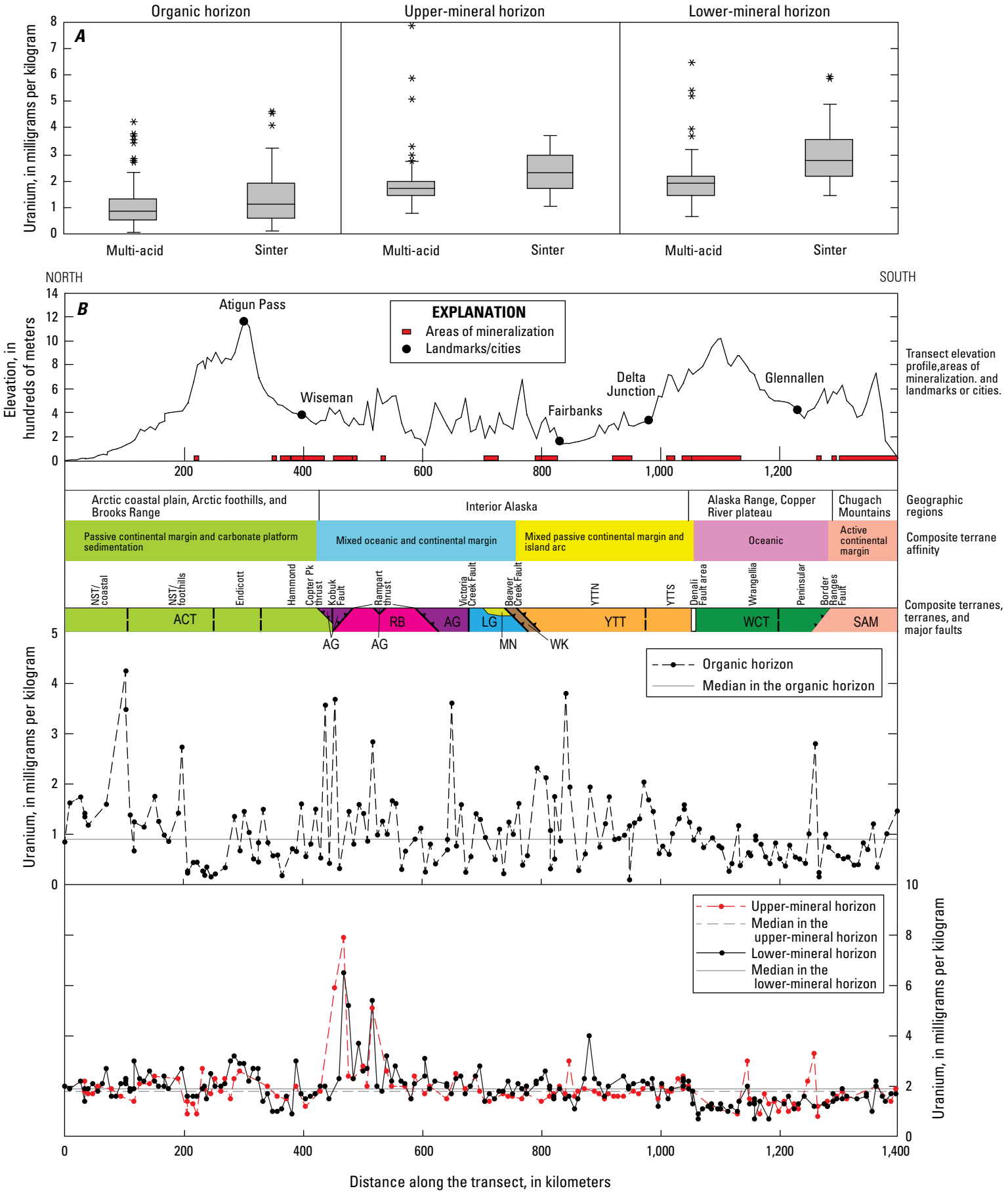

Figure 3.57. Uranium (U) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

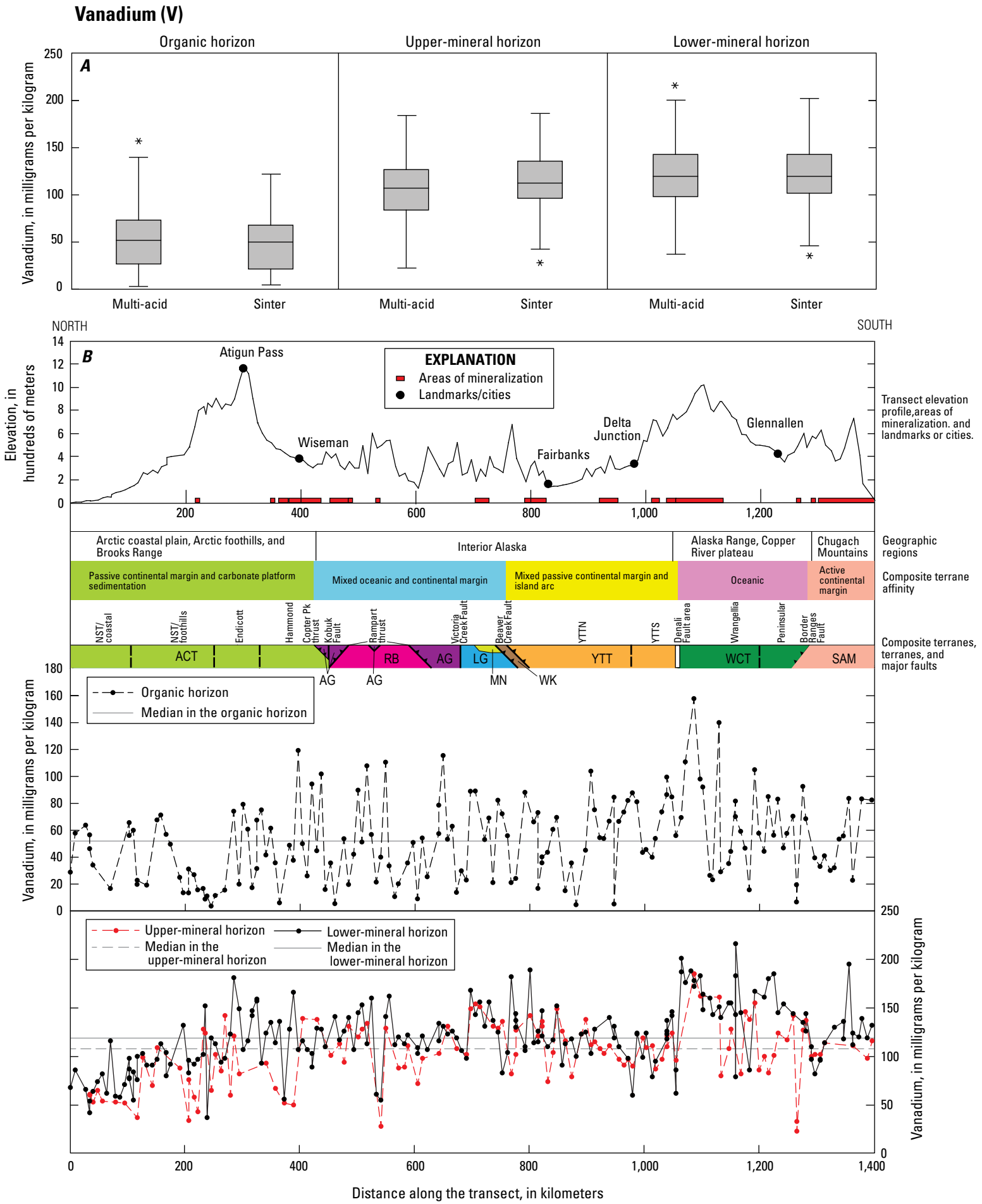

Figure 3.58. Vanadium (V) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

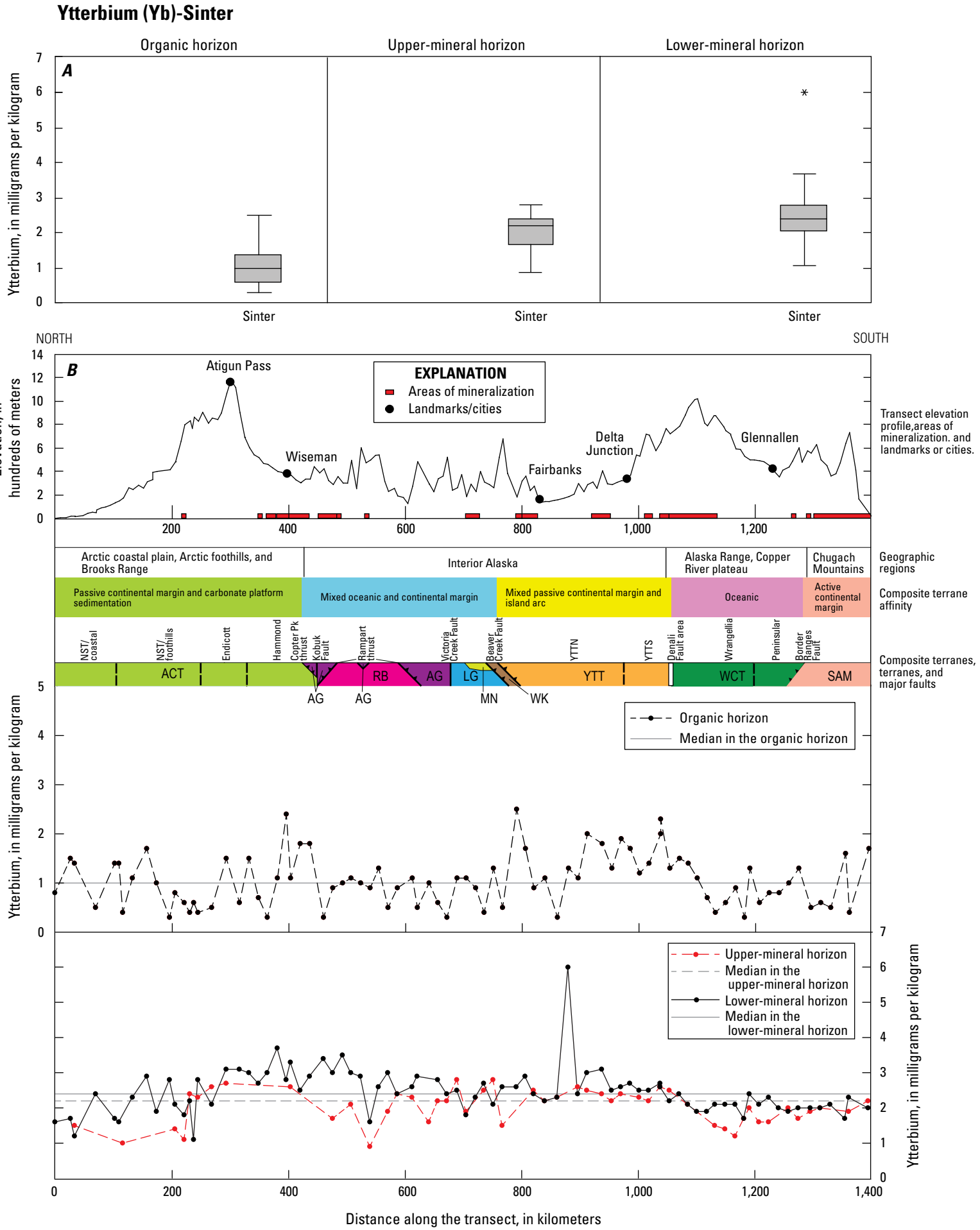

Figure 3.59. Ytterbium (Yb) content and distribution, as measured following sinter digestion, in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

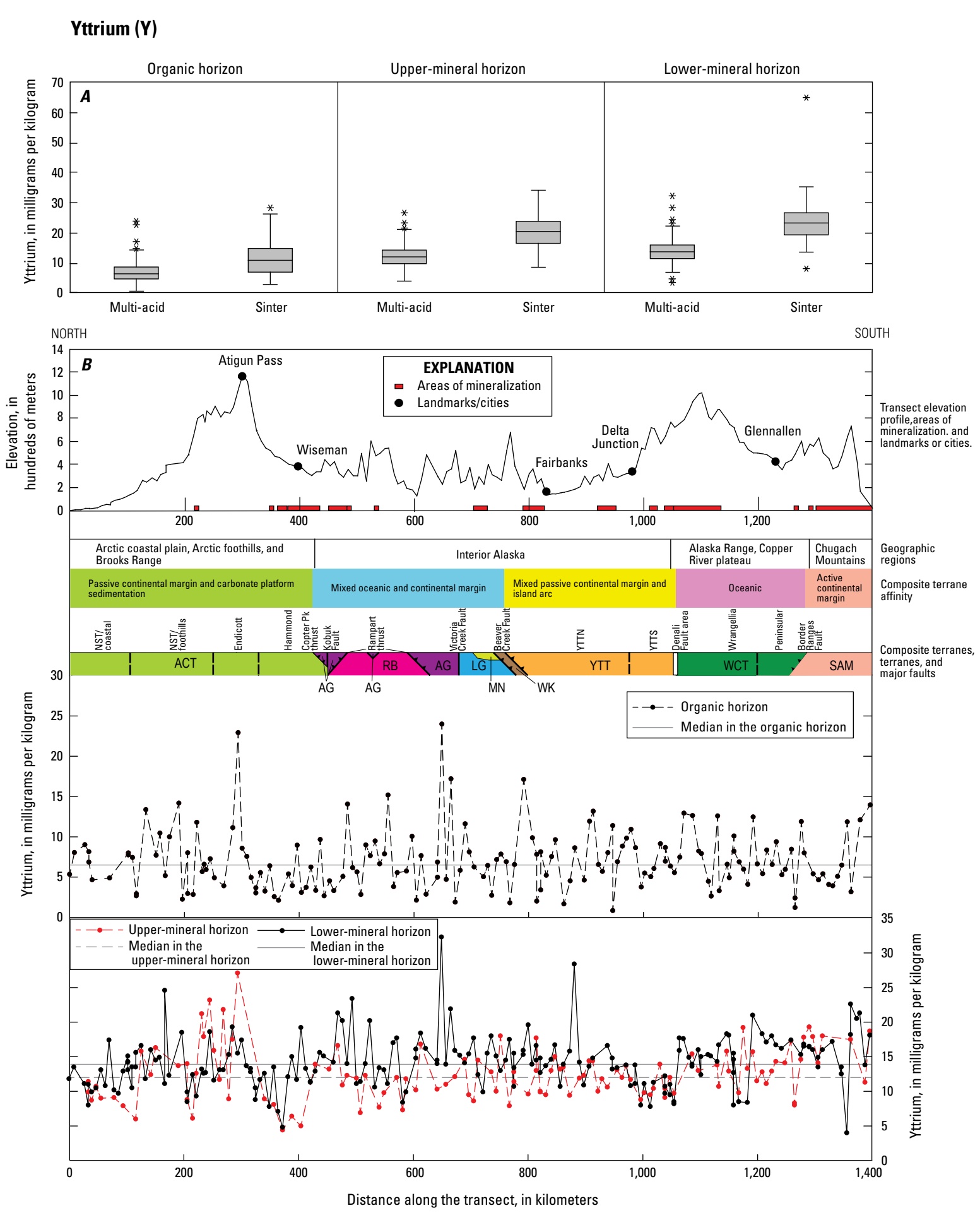

Figure 3.60. Yttrium (Y) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

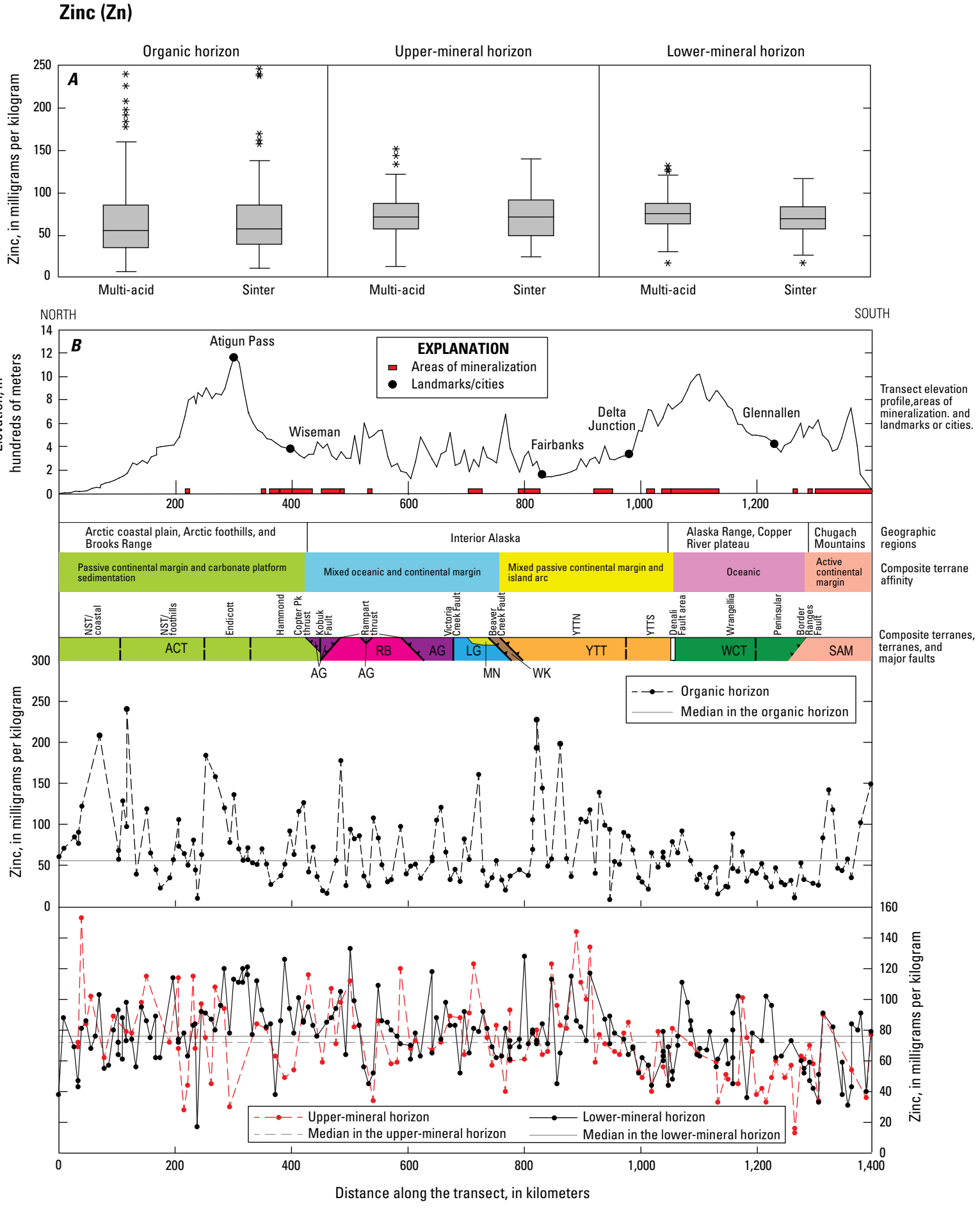

Figure 3.61. Zinc (Zn) content and distribution in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

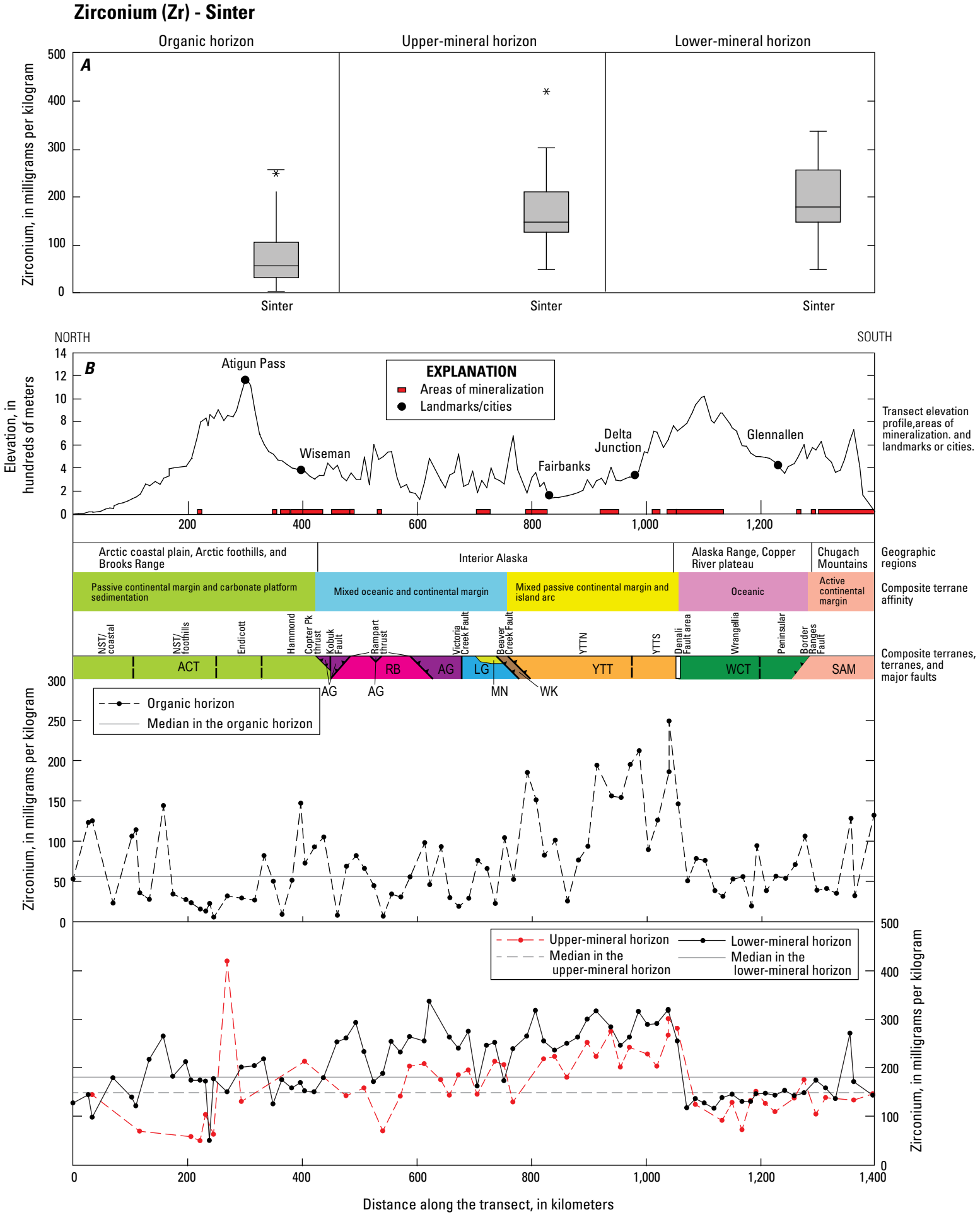

Figure 3.62. Zirconium (Zr) content and distribution, as measured following sinter digestion, in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

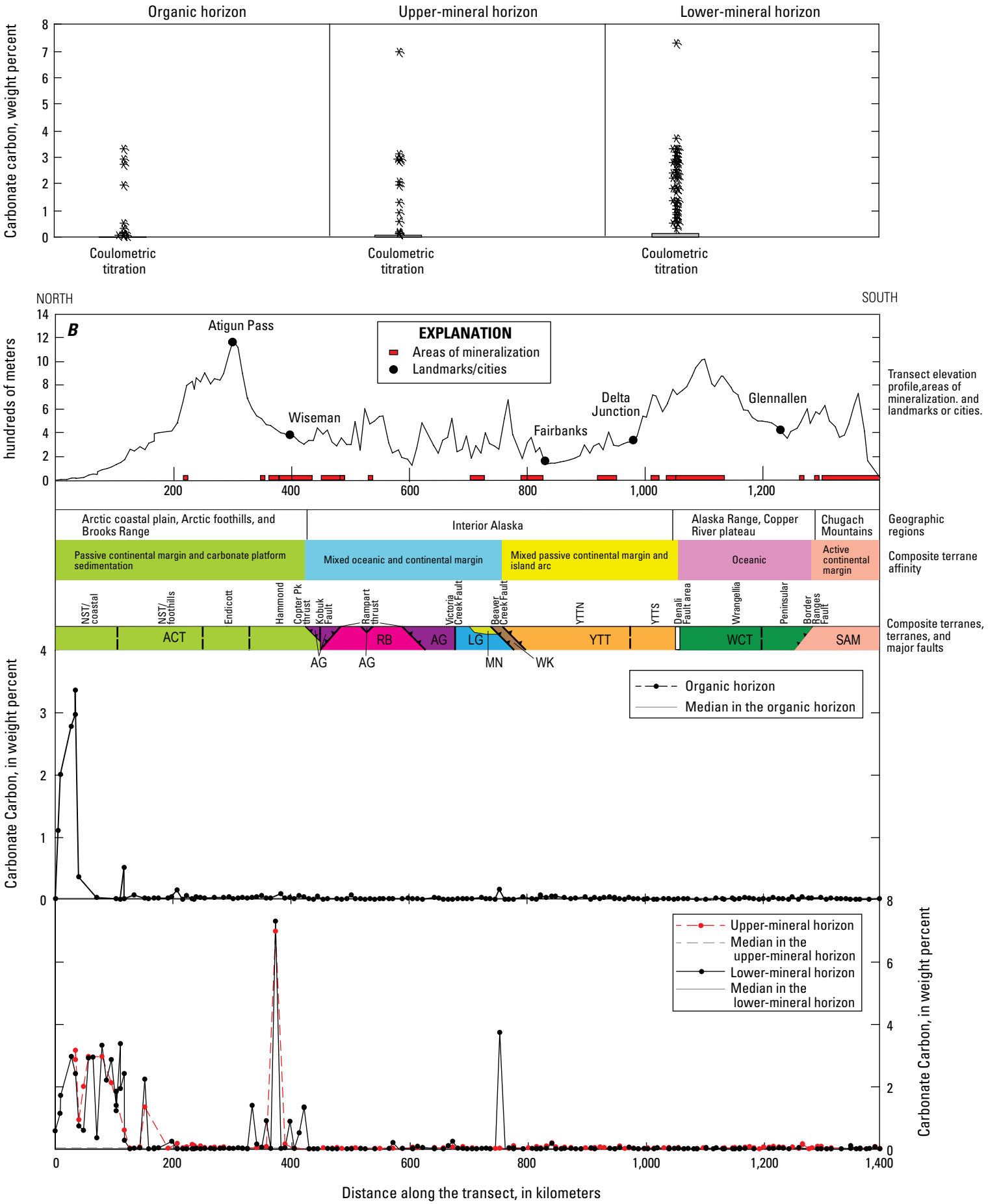

Figure 3.63. Carbonate carbon content and distribution, as determined by coulometric titration, in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.

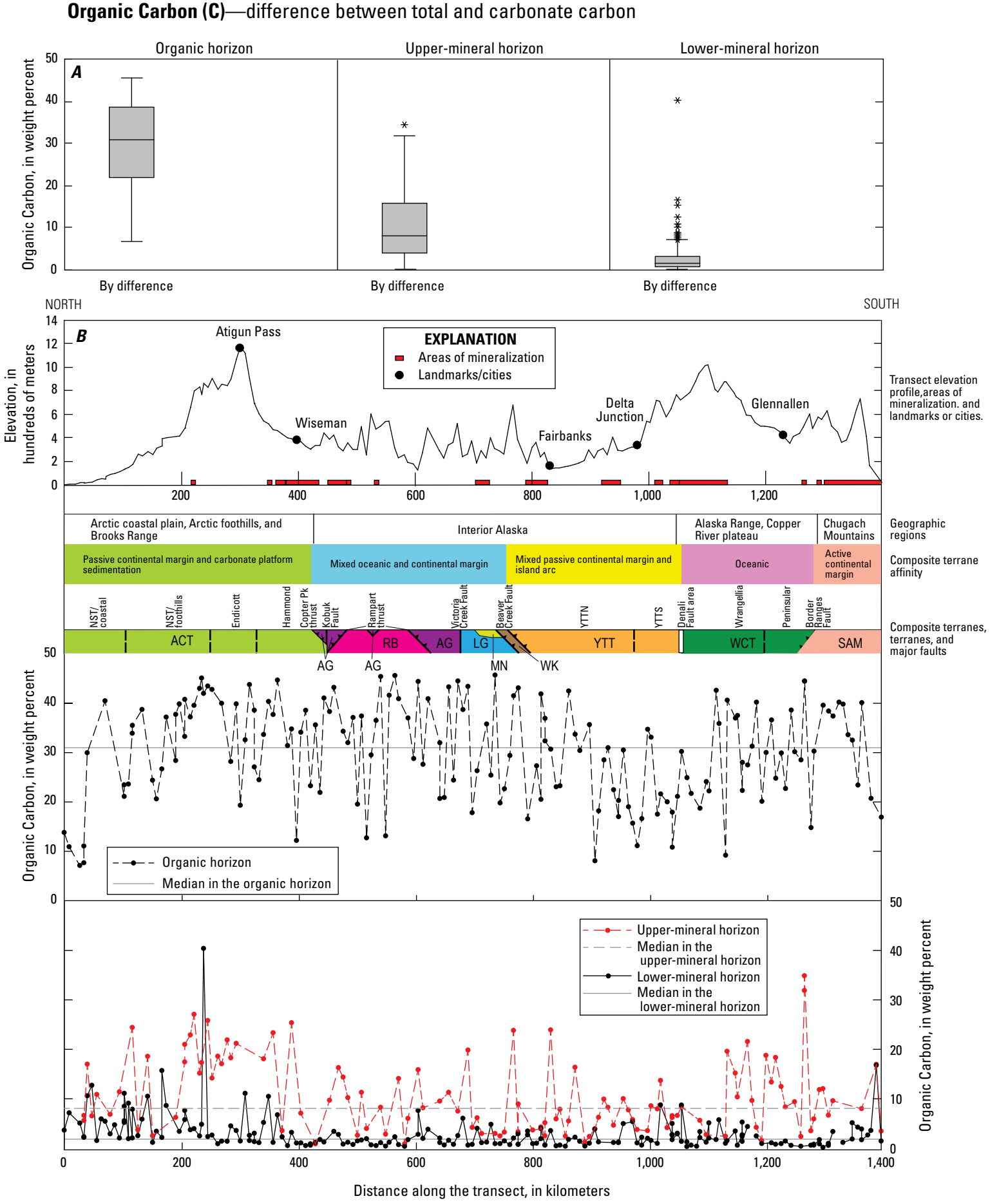

Figure 3.64. Organic carbon content and distribution, as calculated from the difference between total and carbonate carbon, in soil samples from the organic horizon and upper- and lower-mineral horizons along a north-to-south transect of Alaska.