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Stratigraphic record of Late Triassic bolide impact event in pelagic chert from Japan

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We report the textures and major element compositions of Ni-rich spinels discovered from Upper Triassic pelagic chert in Japan. Ni-rich spinels were collected from the radiolarian chert in the Inuyama area, Mino Terrane, central Japan. Radiolarian chert of this area records an Early Triassic to Early Jurassic pelagic sedimentation in an open-ocean realm of the Panthalassa Ocean. Ni-rich spinels occur in the Upper Triassic bedded-radiolarian chert. SEM-EDX analysis shows that these spinels are high concentration of Fe, Al, Cr and Ni. Quantitative EPMA analysis shows that they contain maximum 3.15 wt% NiO. Textures and chemical compositions of these Ni-rich spinels are similar to those reported from Cretaceous-Tertiary boundary claystone in Caravaca, Spain. Radiolarian biostratigraphic investigation revealed that the spinels in the radiolarian chert are compared with Upper Triassic. This is within the age range of several known Triassic impact crater, such as Manicouagan crater in northeastern Canada.