

## SCIENTIFIC COMMUNICATIONS

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### *PLUME-RELATED OCEANIC PLATEAUS AS A POTENTIAL SOURCE OF GOLD MINERALIZATION*

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#### **Abstract**

We propose that the formation of anomalously gold enriched provinces on opposite sides of the Pacific basin at ca. 120 Ma can be traced back to the formation of a mantle plume-related oceanic plateau in the Permian. Fertile fragments of this oceanic plateau travelled across the developing Pacific basin and arrived at the accretionary margin of the North China and American cratons, respectively, some time earlier than 120 Ma. Formation of the oceanic plateau proximal to a midoceanic rise or triple junction implies a long cooling history and reduced buoyancy by the time it arrived at an active subduction zone. Consequently, in this model at least a part of the plateau material could have subducted like normal oceanic crust. Metamorphic devolatilization caused the release of gold into the overlying crust, thereby fertilizing the advective hydrothermal system, which gave rise to, among others, gold provinces in the Sierra Nevada Foothills, California, and Jiaodong Peninsula, China. This process could be a mechanism for the complete temporal and spatial decoupling of the initial mantle plume activity, formation of a fertile primitive oceanic source rock, and the establishment of a highly endowed gold province at an accretionary margin.

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