

Accepted Manuscript

A classification of mineral systems, overviews of plate tectonic margins and examples of ore deposits associated with convergent margins

Franco Pirajno

PII: S1342-937X(15)00212-9
DOI: doi: [10.1016/j.j.gr.2015.08.013](https://doi.org/10.1016/j.j.gr.2015.08.013)
Reference: GR 1507

To appear in: *Gondwana Research*

Received date: 29 March 2015
Revised date: 29 August 2015
Accepted date: 29 August 2015



Please cite this article as: Pirajno, Franco, A classification of mineral systems, overviews of plate tectonic margins and examples of ore deposits associated with convergent margins, *Gondwana Research* (2015), doi: [10.1016/j.j.gr.2015.08.013](https://doi.org/10.1016/j.j.gr.2015.08.013)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

A classification of mineral systems, overviews of plate tectonic margins and examples of ore deposits associated with convergent margins

Franco Pirajno

Centre for Exploration Targeting, University of Western Australia, 35 Stirling Highway, Crawley WA 6009, Australia

Abstract

In this contribution I present definitions of mineral systems, followed by a proposed classification of mineral deposits. The concept of mineral systems has been tackled by various authors within the framework of genetic models with the aim of improving the targeting of new deposits in green field areas. A mineral system has to be considered taking into account, by and large, space-time patterns or trends of mineralisation at the regional scale, their tectonic controls and related metallogenic belts. This leads to a suggested classification of mineral systems, together with a summary of previous ideas on what is without doubt a kind of “mine field”, because if a classification is based on genetic processes, these can be extremely complex due to the fact that ore genesis usually involves a number of interactive processes. The classification presented is based on magmatic, magmatic-hydrothermal, sedimentary-hydrothermal, non-magmatic, mechanical-residual processes

An overview of plate tectonics (convergent and divergent margins) is discussed next. Convergent plate margins are characterised by a tectonic plate subducting beneath a lower density plate. Convergent plate margins have landward of a deep trench, a subduction-accretion complex, a magmatic arc and a foreland thrust belt. An important feature is the subduction angle: a steep angle of descent, is exemplified by the Mariana, or Tonga-Kermadec subduction systems, conducive to porphyry-high-sulphidation epithermal systems, whereas in an intra-arc rift systems with spreading centres is conducive to the generation of massive sulphide deposits of kuroko affinity. A shallower subduction zone is the domain of

Download English Version:

<https://daneshyari.com/en/article/6443354>

Download Persian Version:

<https://daneshyari.com/article/6443354>

[Daneshyari.com](https://daneshyari.com)