

Reference

The geographical coordinates and mineralogical data of the GCDD were primarily collected from the Mindat mineralogical database (<https://www.mindat.org>). The original references from this database are cited as follows:

Ma, X., J. Ralph, J. Zhang, et al. 2023. "OpenMindat: Open and FAIR Mineralogy Data From the Mindat Database." *Geoscience Data Journal* 11: gdj3.204. <https://doi.org/10.1002/gdj3.204>.

Ralph, J., D. Von Bargen, P. Martynov, et al. 2024. "Mindat.Org The Open Access Mineralogy Database to Accelerate Data-Intensive Geoscience Research." *American Mineralogist* 110, no. 6: 833–844. <https://doi.org/10.2138/am-2024-9486>.

Que, X., J. Zhang, W. Chen, J. Ralph, and X. Ma. 2024. "OpenMindat v1.0.0 R Package: A Machine Interface to Mindat Open Data to Facilitate Data-Intensive Geoscience Discoveries." *Geoscientific Model Development* 18: 4455–4467. <https://doi.org/10.5194/gmd-18-4455-2025>.

The genetic types and grade-tonnage data of the GCDD were primarily sourced from the USGS MRDS (Mineral Resources Data System) database (<https://mrdata.usgs.gov>). The original references from this database are cited as follows:

Mosier, D. L., V. I. Berger, D. A. Singer, 2009. Volcanogenic massive sulfide deposits of the world—Database and grade and tonnage models: U.S. Geological Survey Open-file Report 2009–1034, <http://pubs.usgs.gov/of/2009/1034/>.

Singer, D. A., V. I. Berger, B. C. Moring, 2008. Porphyry copper deposits of the world: database, map, and grade and tonnage models, 2008: U.S. Geological Survey Open-file Report 2008–1155, <http://pubs.usgs.gov/of/2008/1155/>.

Singer, D. A., V. I. Berger, B. C. Moring, 2009. Sediment-hosted zinc-lead deposits of the world: Database and grade and tonnage models: U.S. Geological Survey Open-file Report 2009–1252, <http://pubs.usgs.gov/of/2009/1252/>.

Cox, D. P., D. A. Lindsey, D. A. Singer, M. F. Diggles, 2003, revised 2007. Sediment-hosted copper deposits of the world—Deposit models and database: U. S. Geological Survey Open-File Report 2003-107, v. 1.3, <http://pubs.usgs.gov/of/2003/of03-107/>.

Cox, D. P., D. A. Singer, 2007. Descriptive and grade-tonnage models and database for iron oxide Cu-Au deposits: U.S. Geological Survey Open-File Report 2007–1155, <http://pubs.usgs.gov/of/2007/1155/>.

Zientek, M. L., Zurcher, Lucas, H. L. Parks, 2025. in press. Grade-and-Tonnage Model and Database for Conduit-Type Ni-Cu-PGE Deposits Related to Mafic and Ultramafic Dike-Sill Complexes, USGS SIRxxx.

The metallogenic age data of the GCDD were primarily sourced from the Mineral Evolution Database (<https://rruff.info/evolution/>). The original references from this database are cited as follows:

Golden, J. J. 2019. "Mineral Evolution Database: Data-Driven Age Assignment, How Does a Mineral Get an Age?" GSA Annual Meeting in Phoenix, Arizona, USA, 2019, GSA.

Golden, J. J., A. J. Pires, R. M. Hazen, R. T. Downs, J. Ralph, and M. Meyer. 2016. "Building the Mineral Evolution Database: Implications for Future Big Data Analysis." Geological Society of America Abstracts 48: 286024. <https://doi.org/10.1130/abs/2016AM-286024>.