

## References

The geographical coordinates and mineralogical data of the deposits within the GCDD were primarily collected from the Mindat mineralogical database (<https://www.mindat.org>)(A significant portion of the information in this database is drawn from the USGS MRDS). 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 deposits in 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:

Mason, G. T., and R. E. Arndt. 1996. "Mineral Resources Data System (MRDS)". U.S. Geological Survey. <https://doi.org/10.3133/ds20>.

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. Grade-and-Tonnage Model and Database for Conduit-Type Ni-Cu-PGE Deposits Related to Mafic and Ultramafic Dike-Sill Complexes, USGS SIRxxx. in press.

**The metallogenetic age data of deposits in the GCDD were primarily sourced from the Mineral Evolution Database (<https://rruff.info/evolution/>)(A significant portion of the information in this database is drawn from the USGS MRDS). 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>.

**The information on magmatic sulfide-type copper deposits and IOCG deposits within the GCDD was primarily compiled from original scientific literature:**

Skirrow, R. G. 2022. "Iron Oxide Copper-Gold (IOCG) Deposits A Review (Part 1): Settings, Mineralogy, Ore Geochemistry and Classification." Ore Geology Reviews 140: 104569. <https://doi.org/10.1016/j.oregeorev.2021.104569>.

Gosselin, P., and Dubé, B. (2005) Gold deposits of the world: distribution, geological parameters and gold content, 1 p. Geological Survey of Canada, Quebec.

Wang, B., R. Zuo, and O. P. Kreuzer. 2025. "Uncovering the Mineral Assemblages of Six Major Gold Deposit Types—A Machine Learning Approach to Big Data Analytics of a Global Mineralogical Database." American Mineralogist. <https://doi.org/10.2138/am-2025-9777>.

Naldrett, A.J. (1999) "World-class Ni-Cu-PGE deposits: key factors in their genesis." Mineralium Deposita, 34, 227–240. <https://doi.org/10.1007/s001260050200>.

Lv L., J. Liu, Z. Zhang and G. Xie. 2007. "Temporal-spatial distribution and geodynamic settings of magmatic Ni-Cu-(PGE) sulfide deposits in China." Acta Petrologica Sinica , 23(10):2561-2594 (in Chinese with English abstract).