MODULE 5, LESSON 2

METHODS AND TOOLS FOR EXPLORATION FOR POLYMETALLIC NODULES IN THE AREA

READING LIST

REQUIRED READING

Kuhn, T. and Rühlemann, C. (2021). Exploration of Polymetallic Nodules and Resource Assessment: A Case Study from the German Contract Area in the Clarion-Clipperton Zone of the Tropical Northeast Pacific. Minerals, 11, 618. https://doi.org/10.3390/ min11060618.

OPTIONAL READING

Knobloch, A., Kuhn, T., Rühlemann, C., Hertweg, T., Zeissler, K.-O., Noack, S. (2017). Predictive mapping of the nodule abundance and mineral resource estimation in the Clarion-Clipperton Zone using artificial neural networks and classical geostatistical methods. In: R. Sharma (Ed.): Deep-Sea Mining: Resource Potential, Technical and Environmental Considerations. Springer International, Cham, pp. 189 – 212.

Hein, J. R., Koschinsky, A., Kuhn, T. (2020): Deep- ocean polymetallic nodules as a resource for critical materials, Nature reviews | Earth & Environment.Kuhn, T., Wegorzewski, A., Rühlemann, C., Vink., A., 2017. Composition, Formation, and Occurrence of Polymetallic Nodules. In: R. Sharma (Ed.): Deep-Sea Mining: Resource Potential, Technical and Environmental Considerations. Springer International, Cham, pp. 23 – 64.

World Ocean Review, Volume 7, Chapter 5 (2021): Energy and resources from the ocean. [In]: The ocean as a guarantor of life - sustainable use, effective protection. https://worldoceanreview.com/wp-content/downloads/wor7/WOR7_en_chapter_5.pdf

Wasilewska-Błaszczyk, M., & Mucha, J. (2020). Possibilities and limitations of the use of seafloor photographs for estimating polymetallic nodule resources—Case study from IOM Area, Pacific Ocean. Minerals, 10(12), 1123.

Watzel, R., Rühlemann, C., Vink, A. (2020): Mining mineral resources from the seabed: Opportunities and challenges, Marine Policy, 114, https://doi.org/10.1016/j.marpol.2020.103828.