

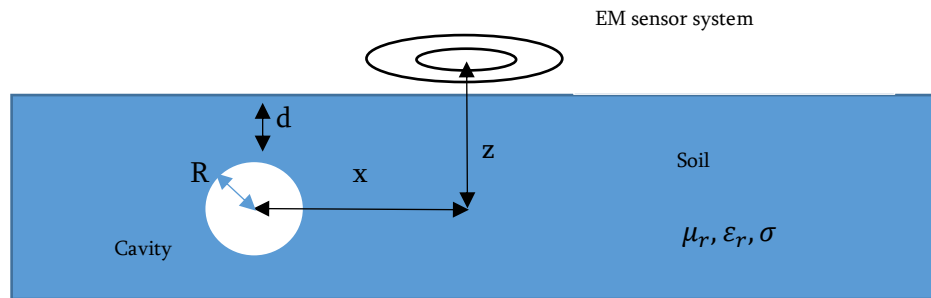
Modeling subsurface object detection by electromagnetic sensors

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In order to study the capabilities of plastic mine detection with electromagnetic sensors [1,2], the interaction between spherical cavity in the soil and the electromagnetic system is considered. A numerical model based on auxiliary sources is used to conduct numerical experiments. The electromagnetic system is located in the semi-free space, the spherical depth is located in the environment with soil electromagnetic parameters. numerical experiments for various values of geometric and physical parameters have conducted in a wide frequency range of EM excitation.



Model approached to realistic conditions. The electromagnetic sensor system is in a free half space, while in the other half space is soil (conductive space) and spherical cavity under the plane of separation.

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References

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- [2] J. B. Sigman, B. E. Barrowes, K. O'Neill, Y. Wang, J. E. Simms, H. H. Bennett, Jr., D. E. Yule, and F. Shubitidze, "High-Frequency Electromagnetic Induction Sensing of Nonmetallic Materials," IEEE TRANSACTIONS ON GEOSCIENCE AND REMOTE SENSING, PP(99):1-10 · June 2017 .