

RESEARCH ON VOLUME EFFECT OF SHALLOW TRANSIENT ELECTROMAGNETIC EXPLORATION
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The volume effect of transient electromagnetic method leads to the erroneous inference of geological bodies, and has some influence on the interpretation accuracy of geological anomalous bodies.

Starting from the fundamental theory of transient electromagnetic method, using EMIT Maxwell transient electromagnetic data processing software, we establish different geological models, then carry on forward modeling through the changes in model parameters of the wall rock's resistivity and depth of anomalous bodies in the paper. By analyzing and simple calculating the forward data of a channel, the influence of the parameters such as resistivity of the surrounding rock and depth of the abnormalities on the effective distance of the volume effect along the survey line direction is studied. The laws are as follows: the larger the resistivity of the surrounding rock, the larger the effective distance of the volume effect along the survey line; the effective distance of abnormal body's volume effect along the survey line direction does not increase with the depth increased, but in the depth of 120m reached maximum, when the depth is more than 120m, the effective distance of volume effect decreases with the increase of depth.

Finally, we get the function curve of effective distance of the volume effect along the survey line direction and depth in plane rectangular coordinate system, and then the relation between the effective distance of volume effect along the line direction and depth is obtained by polynomial fitting.