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# A HIGH-PRECISION DF METHOD WITH DOUBLE STATION BASED ON PHASE-DIFFERENTIAL MEASURE

**Abstract**

Firstly, the DF algorithm based on path difference is respectively depicted making use of single baseline and two-base arrays. Thereout, the behavior whose measured deviation of DF held by two adjacent single baselines is fitly opposite is revealed. Then, the simplified solution whose calculation accuracy can still keep a good is derived from exact solution obtained based on two-base arrays. On this basis, according to DF theory of two-base arrays, the long baseline DF system is constructed by using two independent short baseline phase interferometer as DF substation. By applying geometric similarity method, the path difference measured by short baseline phase interferometer can be recursive to long baseline. Moreover, the path difference correspond with long baseline can be corrected by using cut angle between two substations. Thus, the high-precision DF method in the double stations form can be realized base on the measuring result of phase difference in short baseline. The error analysis shows that the phase difference DF precision of two stations obtained based on the DF theory of two-base arrays will be much higher than that of single baseline approximation accuracy of direction finding. The new method presented in this paper opens a new way which can realize a high precision of direction finding.