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方差分量的MINQUE通用公式

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摘　要：从概括函数模型出发，研究了最小范数二次无偏估计应具有的性质：不变性、无偏性和最小范数性，导出了适用于所有平差函数模型的方差分量的最小范数二次无偏估计的通用公式，该公式在特定条件下与Helmert型通用公式、极大似然估计通用公式、最优二次无偏估计通用公式一致。由国外学者C.R.Rao导出的方差分量最小范数无偏估计公式以及由Lars E.Sj berg所给出的方差分量最优二次无偏估计公式，都是该通用公式的特例.

关键字：方差；分量；最小范数二次无偏估计

A universal formula of MINQUE of variance components

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Abstract: Starting from the general functional formula, the properties of minimumnormquadratic unbiased estimation are studied, including invariant, unbiased and minimum norm properties. A universal formula of minimum norm quadratic unbiased estimation, adopting all the leastsquares adjustmentwith unknown parameters, is derived. This formula is in agreement with the Helmert type formula, maximum like lihood formula and best quadratic unbiased formula under the given condition based on the general functional model. It is shown that the formulae of minimumnorm quadratic unbiased estimation derived by C.R.Rao and the formulae of best quadratic unbiased estimation derived by Lar e. Sj berg are special cases of this estimate.

Key words:variance; component; minimum norm quadratic unbiased estimation

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