

学术论文

几类正态过程的CUSUM图

涂玉娟, 冯士雍

中国科学院数学与系统科学研究院

收稿日期 修回日期 网络版发布日期:

摘要 本文针对呈正态分布的过程数据, 讨论当过程参数 (μ, σ^2) 已知或未知时单参数变化、双参数变化的过程控制问题. 针对均值未知情况, 利用Quesenberry提出的 Q 统计量构造了一系列标准化的CUSUM图; 对于方差未知时的复杂情形, 给出了一种构造更为简单的CUSUM图的方法;

对于未知(或不关心) (μ, σ^2) 中何者变化的特殊情形, 文章提出了纯变化的概念, 给出了相应统计量及由该统计量构造的CUSUM-D图, 针对每个考虑的情形, 通过模拟计算本文给出了相应于统计量的条件期望延时(CED), 同时在文章最后给出了本文提出的CUSUM图与已有的CUSUM图(Q 图)的模拟比较, 结果表明新的CUSUM图是可行的.

关键词 [累积和](#), [Q统计量](#), [单\(双\)参数变化](#), [纯变化问题](#), [条件期望延时](#).

分类号

扩展功能

本文信息

- ▶ [Supporting info](#)
- ▶ [PDF\(266KB\)](#)
- ▶ [\[HTML全文\]\(0KB\)](#)
- ▶ [参考文献](#)

服务与反馈

- ▶ [把本文推荐给朋友](#)
- ▶ [复制索引](#)
- ▶ [Email Alert](#)
- ▶ [文章反馈](#)
- ▶ [浏览反馈信息](#)

相关信息

- ▶ [本刊中 包含“累积和, Q统计量, 单\(双\)参数变化, 纯变化问题, 条件期望延时.” 的相关文章](#)
- ▶ [本文作者相关文章](#)

- [涂玉娟](#)
- [冯士雍](#)

Several Types of CUSUM Charts for Normal Distribution Process

Tu Yujuan, Feng Shiyong

Academy of Mathematics and Systems Science, CAS

Abstract According to different cases of normal-distribution process parameters (μ, σ^2) , several problems are studied in this paper, for monitoring the process with parameters known or unknown, with single-parameter-deviation or with double-parameter-deviation. A series of CUSUM Charts are proposed in standardized or simpler forms mainly based on Q -statistics proposed by Quesenberry. In the last part of the paper, the concept of deviation-interested-only (DIO) is put forward and the relevant statistics are given where there is no need to know which has deviated, process mean or process variance. The simulation results of Conditional Expected Delay (CED) are shown in each case, and the comparisons in the end of the paper show which new CUSUM charts act well.

Key words [CUSUM, \$Q\$ -Statistics, Single\(Double\)-parameter-deviation, DIO, CED.](#)

DOI

通讯作者 涂玉娟