



**Robust estimation of multivariate location and scatter in the presence
of cellwise and casewise contamination**

Agostinelli, Claudio
Universita Ca' Foscari di Venezia, Venezia, Italy claudio@unive.it

Leung, Andy
University of British Columbia, Vancouver, Canada, andy.leung@stat.ubc.ca

Yohai, Víctor J.*
Universidad de Buenos Aires, Buenos Aires, Argentina, victoryohai@gmail.com

Zamar, Ruben
University of British Columbia, Vancouver, Canada, ruben@stat.ubc.ca

Multivariate location and scatter matrix estimation is a cornerstone in multivariate data analysis. We consider this problem when the data may contain independent cellwise and casewise outliers. Flat data sets with a large number of variables and a relatively small number of cases are common place in modern statistical applications. In these cases global down-weighting of an entire case, as performed by traditional robust procedures, may lead to poor results. We highlight the need for a new generation of robust estimators that can efficiently deal with cellwise outliers and at the same time show good performance under casewise outliers.

Keywords: Robust estimation; Covariance estimates; Multivariate data analysis; Independent contamination.