Mathematical simulation of space imagery radiometric correction

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The paper presents the mathematical model of radiometric image correction. Techniques to define a distorting system function are considered. The following image restoration algorithms: inverse filtering, minimum mean square error (Wiener) filtering and constrained least squares filtering (ridge regression) are provided and implemented in software. A comparative analysis of the mentioned algorithms has been carried out and their advantages and disadvantages relating to space imagery reconstruction have been elucidated.

Keywords: *distorting function, point spread function, inverse filtering, minimum mean square error (Wiener) filtering, constrained least squares filtering, residual functional.*

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