

# A COMBINED DESTRIPIING ALGORITHM FOR IMAGING SPECTROMETER DATA

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## **ABSTRACT:**

Imaging spectrometers can generally be divided into whiskbroom and pushbroom categories depending on their scanning principle. Both implementations have associated challenges and choosing a scanning principle always involves tradeoffs. For pushbroom instruments, one of the inherent problems is image striping, i.e. striping in along track direction effected by irregularities in the optical/detector chain. Ideally, striping correction should be accomplished as a system level correction, however, there may still be residual striping apparent in the imagery that needs to be tackled in a post data calibration process. The optimal destripping procedure should remove striping while preserving the structural patterns and spectral integrity of the imaged features. Several different methods based on spatial or frequency domain analysis for stripe reduction have been proposed in the past. In this research we propose a method based on wavelet decomposition and Fourier filtering in combination with an additional statistical method compensating for wrongly removed structural patterns. The new method has been developed on and applied to APEX (Airborne Prism EXperiment) data and has shown to effectively remove striping while preserving the original image information.

**TOPIC:** Multi-spectral and hyperspectral remote sensing

**ALTERNATIVE TOPIC:** Image processing and pattern recognition