

IMPROVEMENTS IN THE REMOVAL OF VERTICAL STRIPING IN CHRIS/PROBA IMAGES

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INTRODUCTION

CHRIS/PROBA MAIN NOISES:

1. HORIZONTAL LINES.

- SUCCESS REMOVING WITH THE 2004 METHODOLOGY

2. VERTICAL STRIPING.

- 2004 METHODOLOGY CAN BE IMPROVED
 - BEST AVERAGE
 - CLEVER ALGORITHM

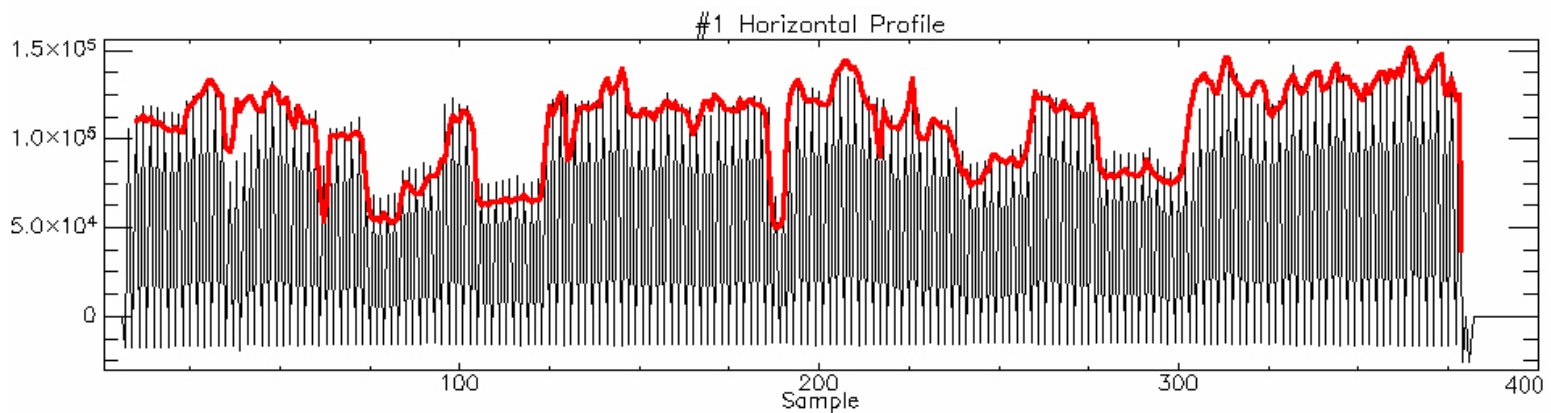
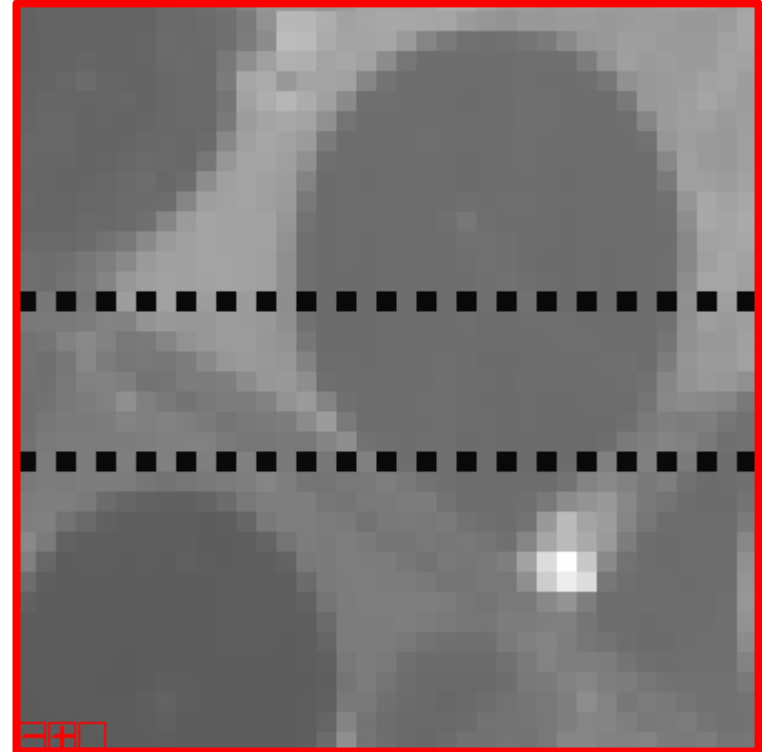
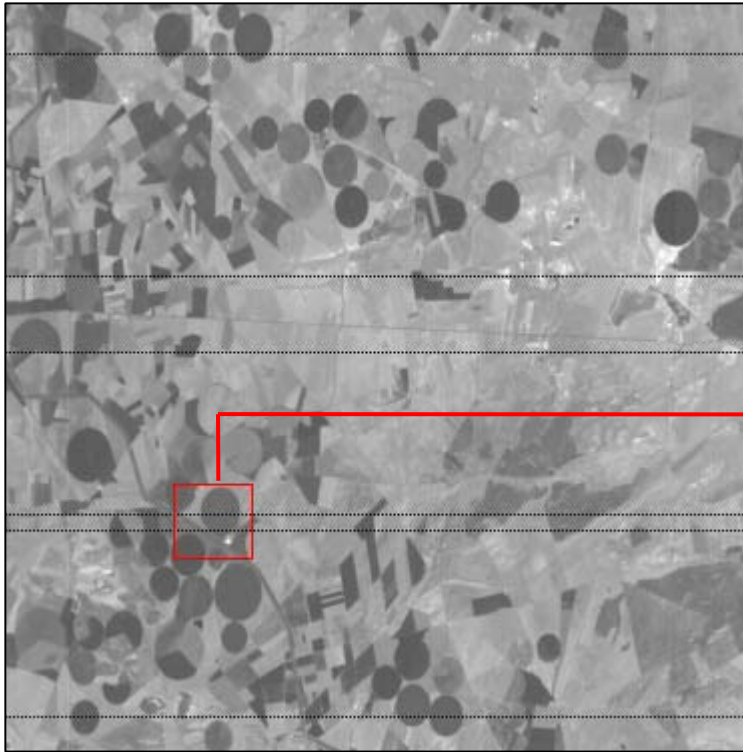


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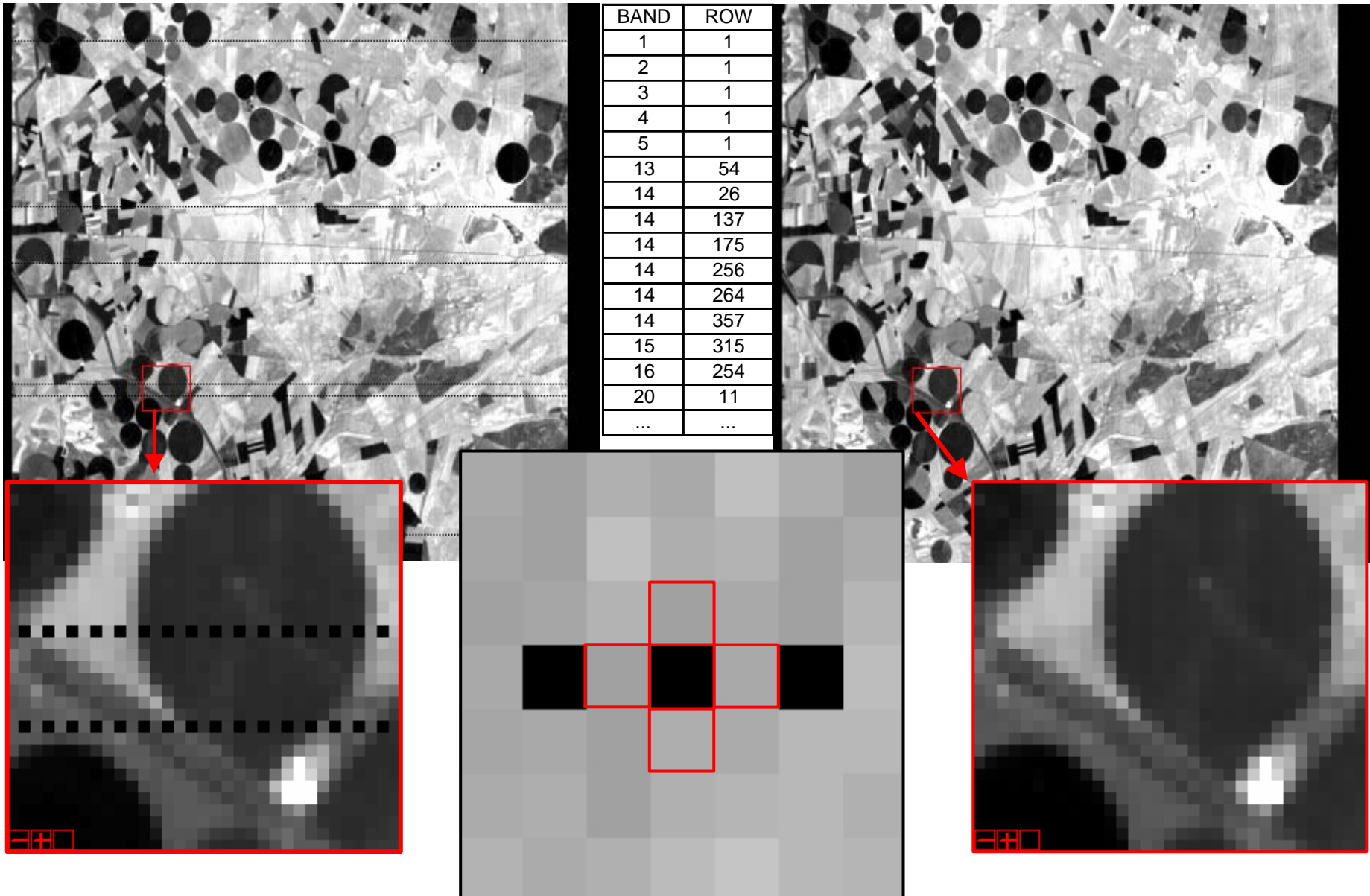
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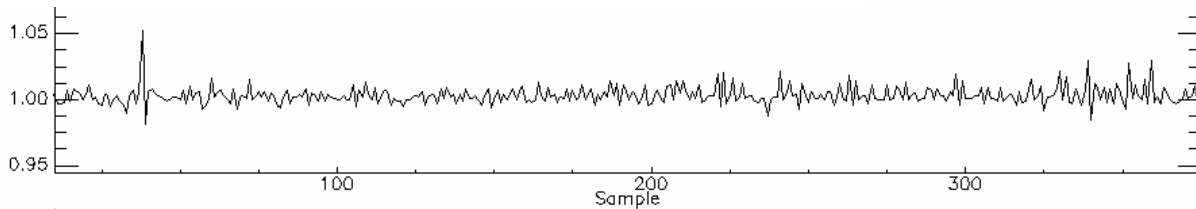
HORIZONTAL NOISE (12/07/2003, NADIR, BAND 14)



HORIZONTAL NOISE (12/07/2003, NADIR, BAND 14)



VERTICAL STRIPING



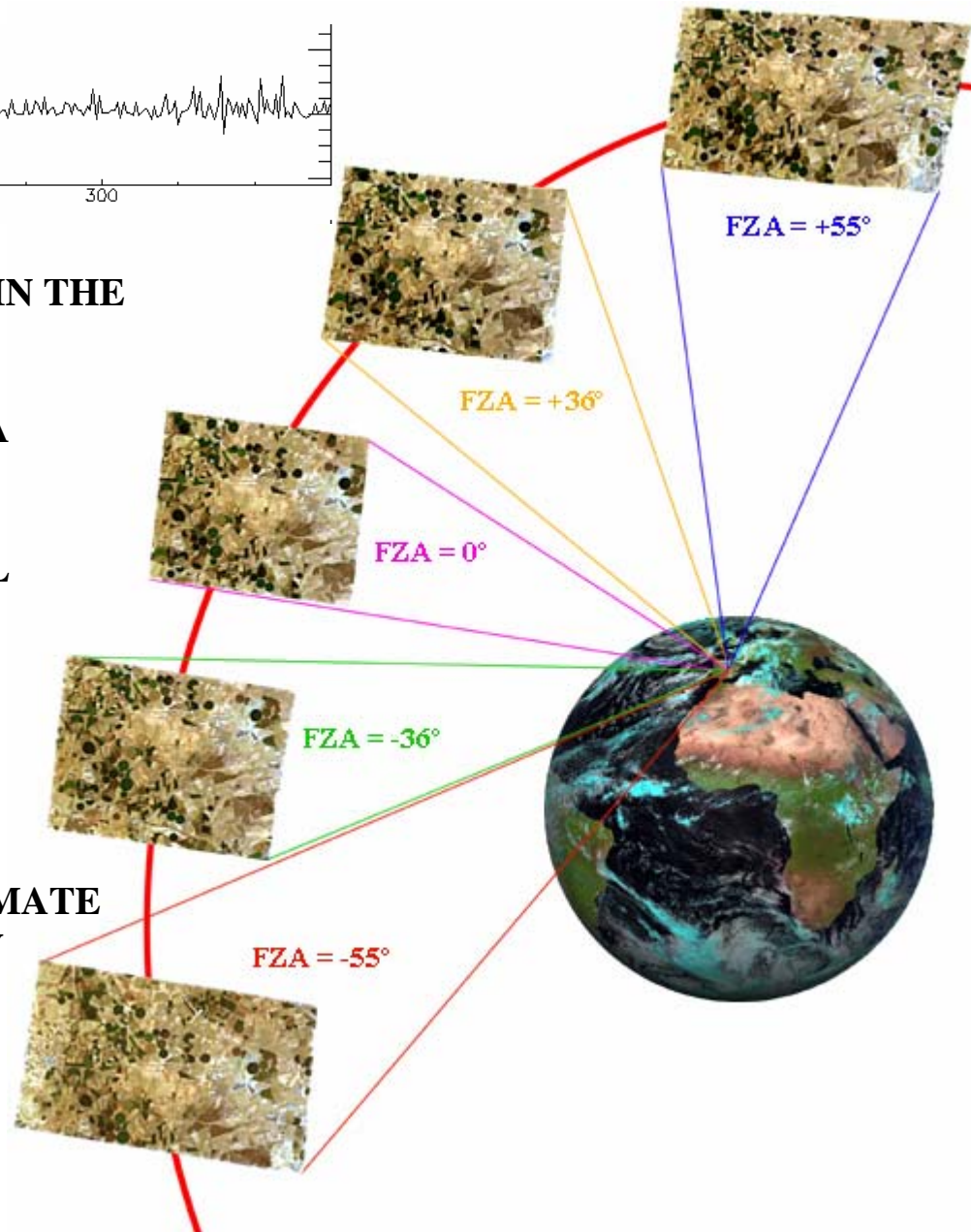
• **VERTICAL STRIPING IS DUE TO ERRORS IN THE CONSTRUCTION OF THE INSTRUMENT.**

• **WE CAN CONSIDERE THESE ERRORS AS A CONSTANT.**

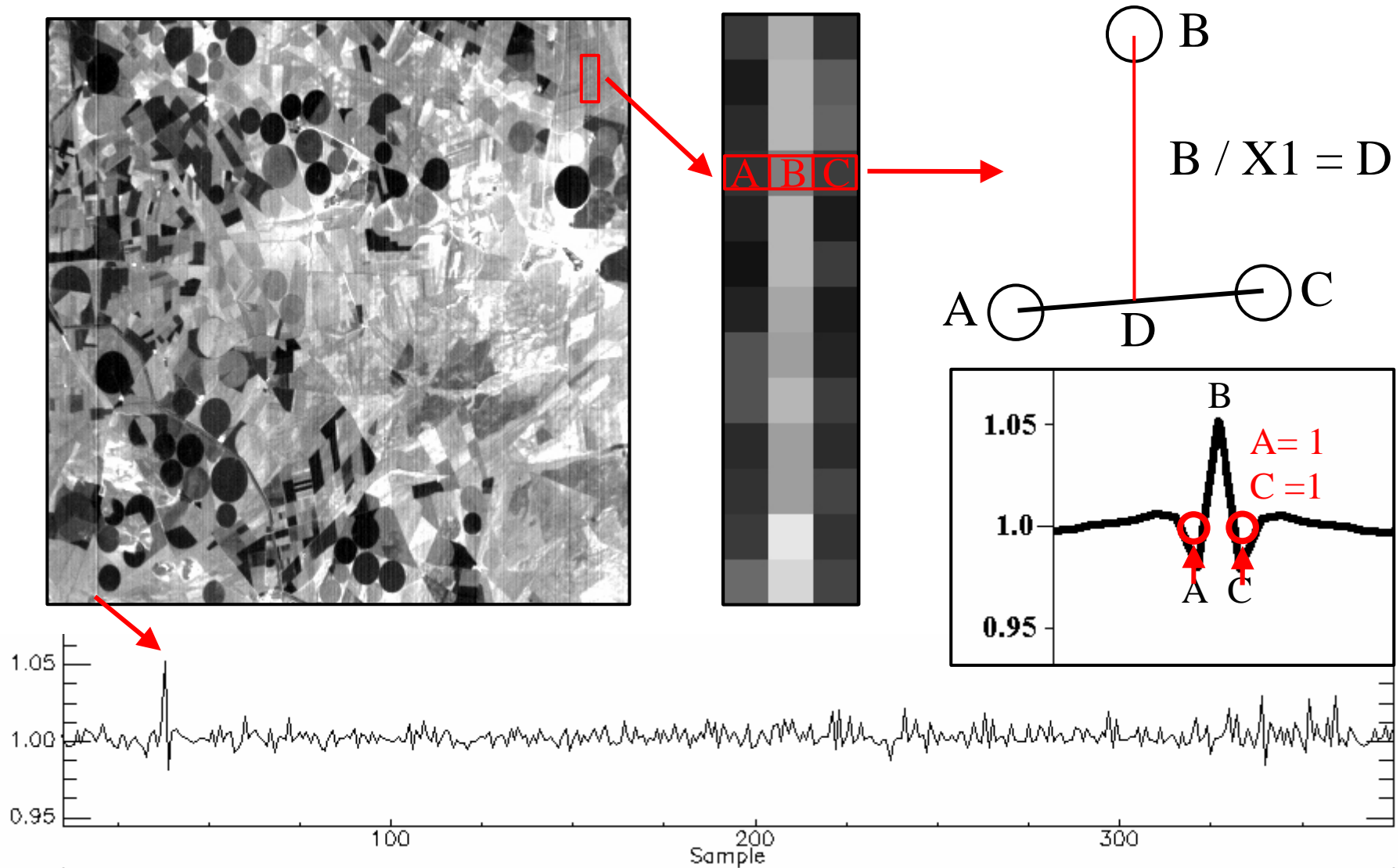
• **THERMAL FLUCTUATIONS CAUSE SMALL VARIATIONS IN THE FACTORS (MULTIPLICATIVE EFFECT) .**

• **WE CAN CONSIDER THAT THE FACTORS ARE CONSTANT DURING ONE ORBIT.**

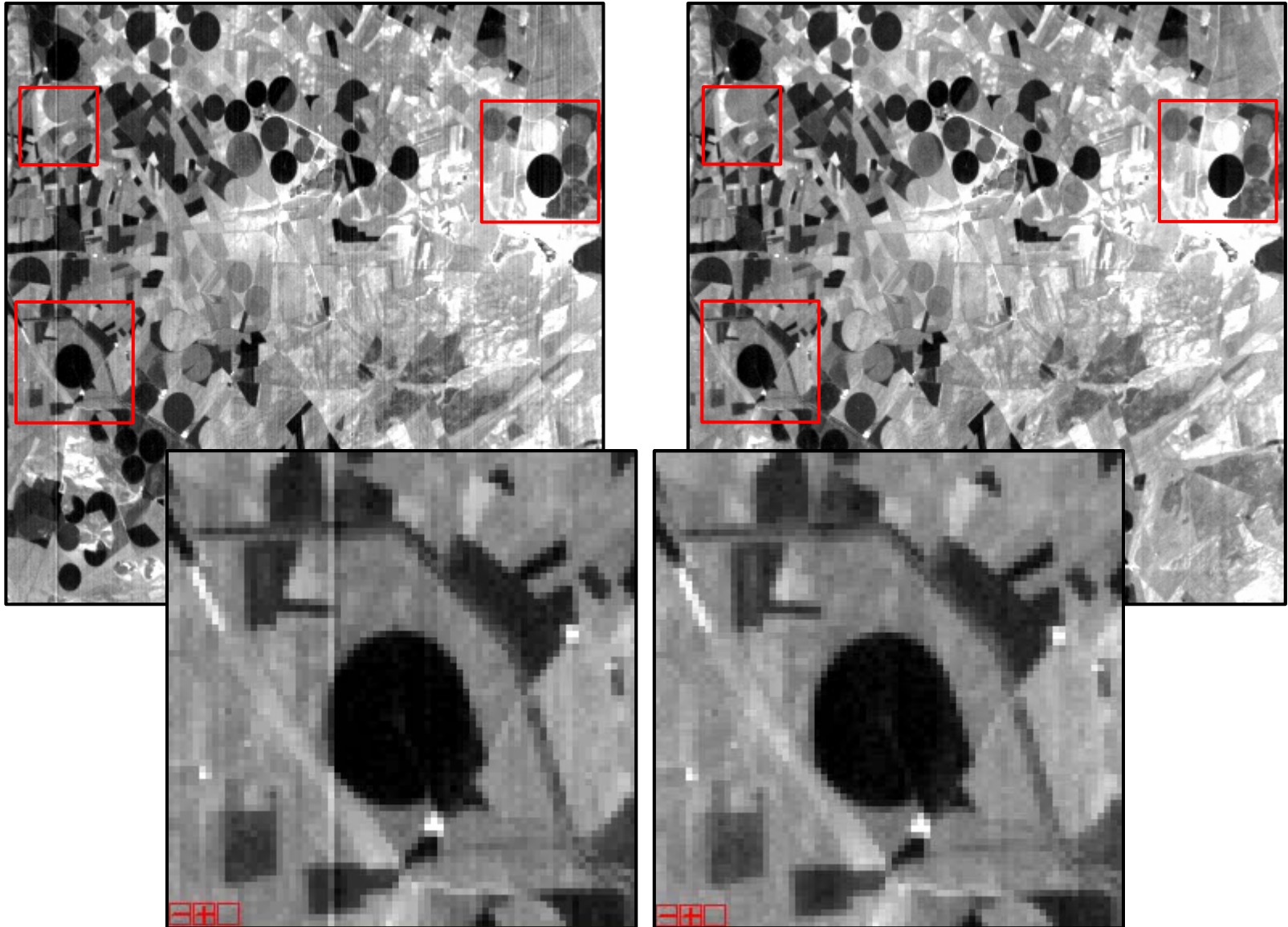
• **WE CAN USE THE NADIR IMAGE TO ESTIMATE THE FACTORS IN EACH ORBIT AND APPLY THESE FACTORS TO THE REST OF THE IMAGES OF THE ORBIT.**



REMOVAL OF VERTICAL STRIPING: DIELMO 2004

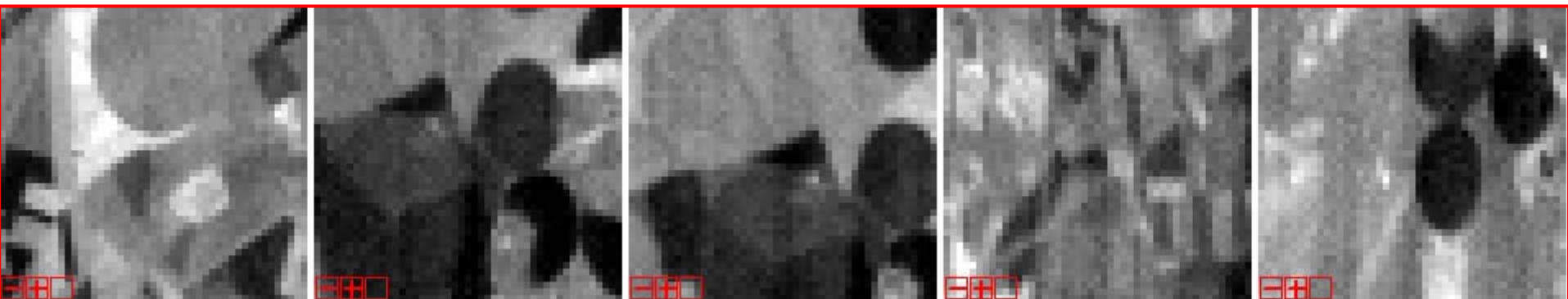
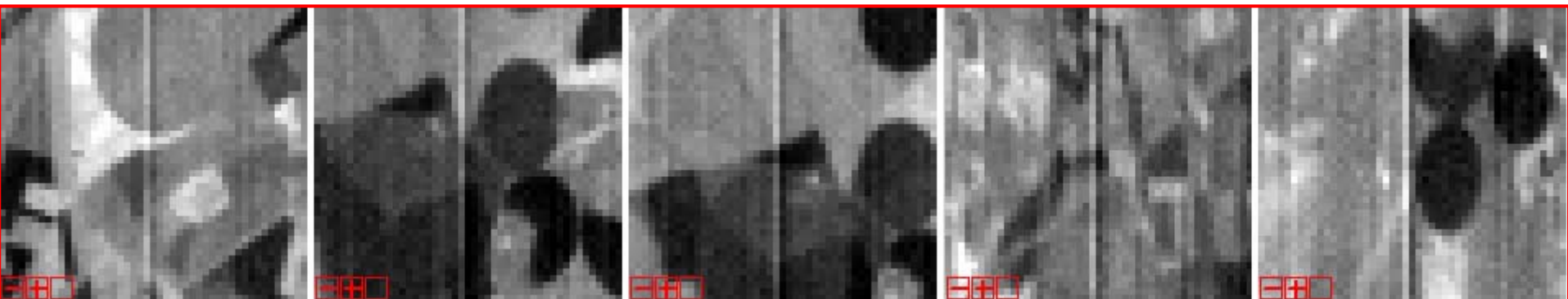
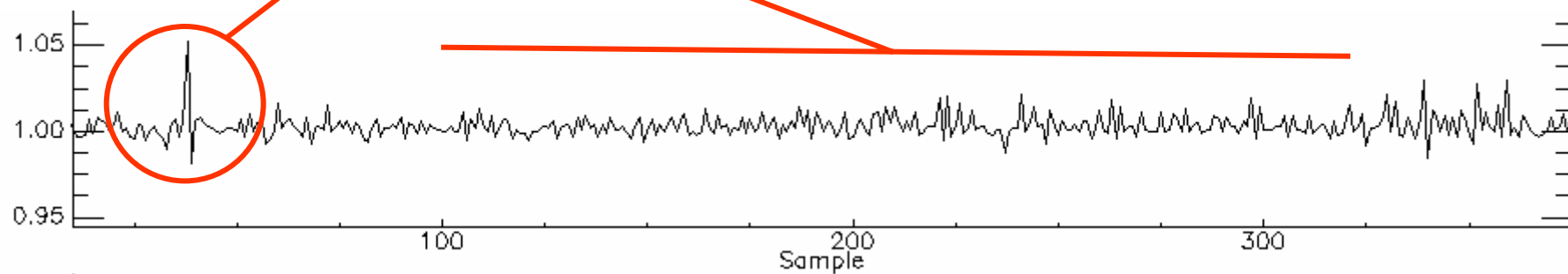


VERTICAL STRIPING: 2004 method



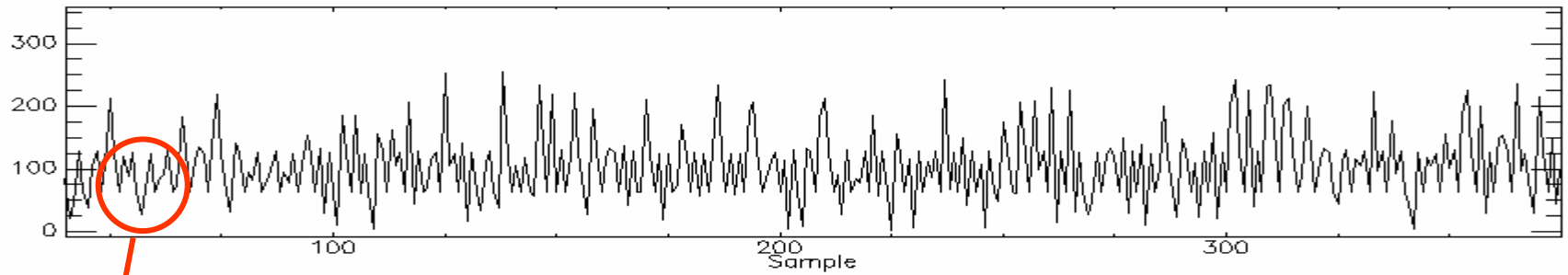
2004 METHOD CORRECTS SUCCESSFULLY:

- SMOOTH VERTICAL NOISE
- ISOLATED ROWS

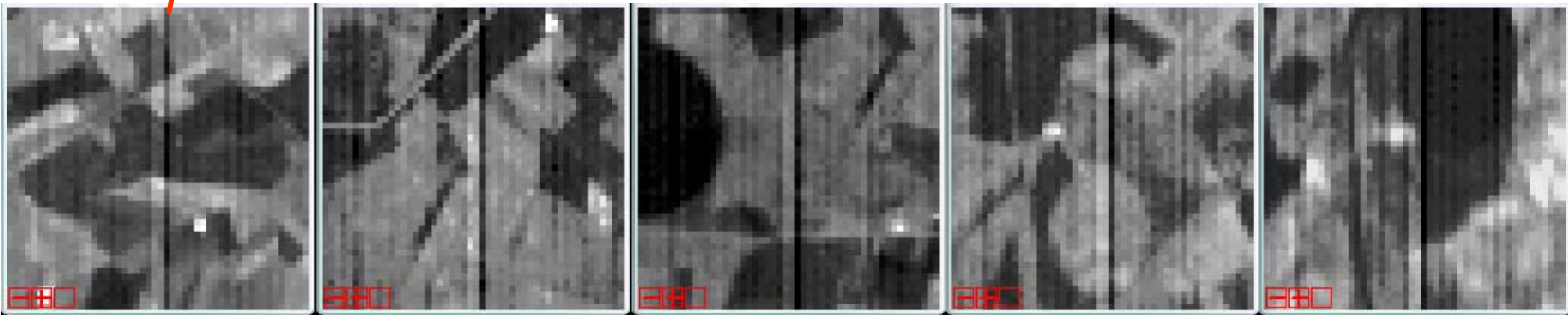


2004 METHODOLOGY WEAKNESS:

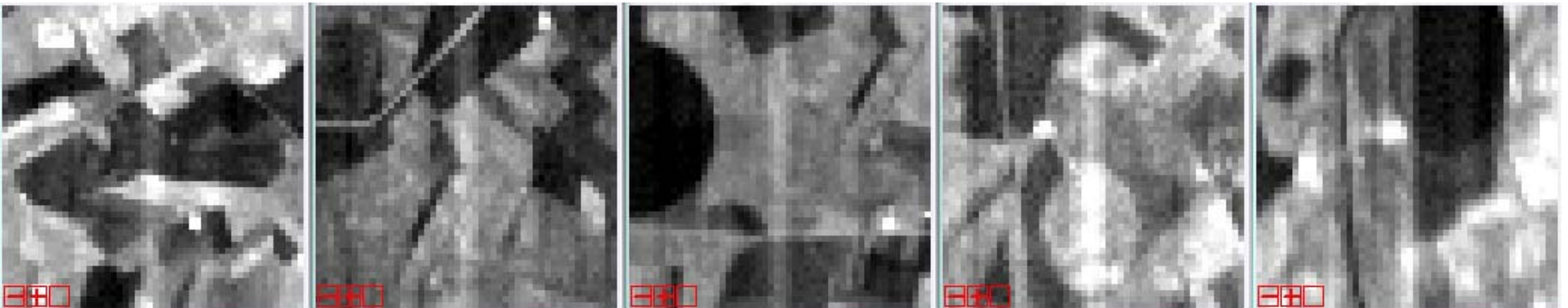
- HIGH VERTICAL STRIPPING IN CONTINUOUS ROWS



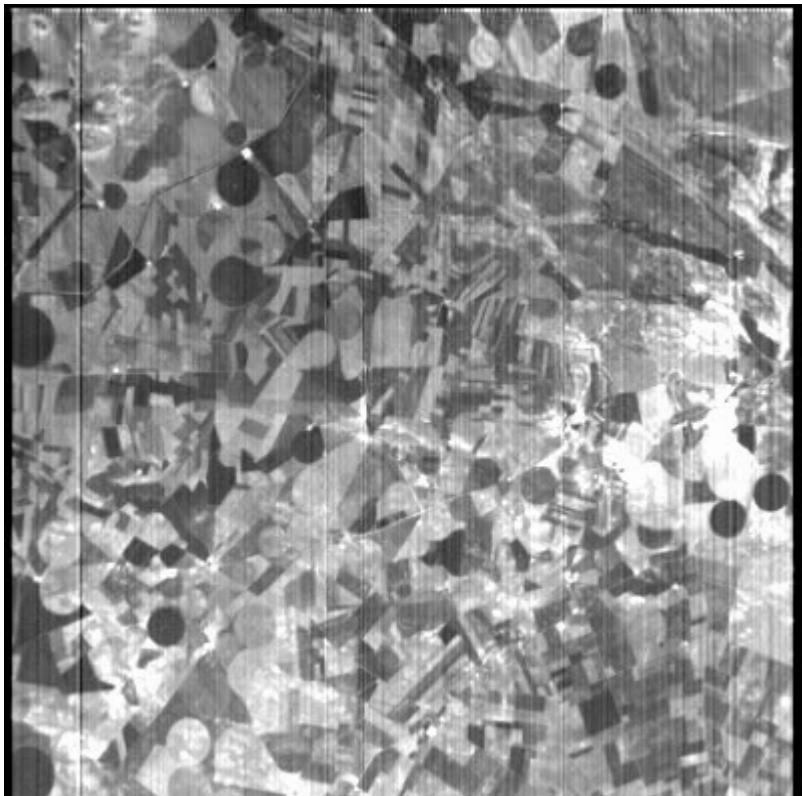
ORIGINAL IMAGE



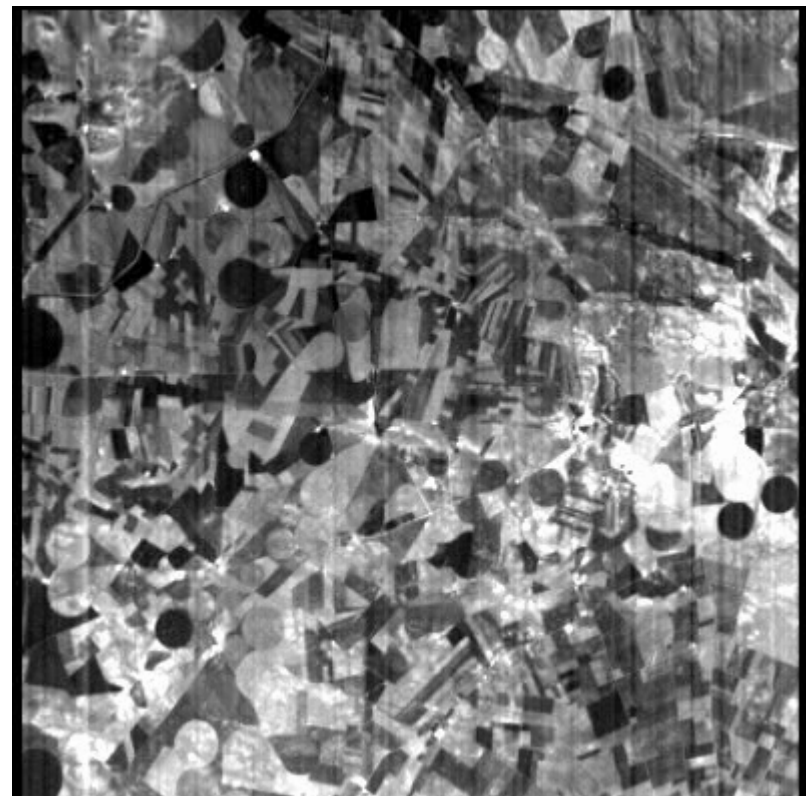
CORRECTED IMAGE (2004)



VERTICAL STRIPING: DIELMO - UV method

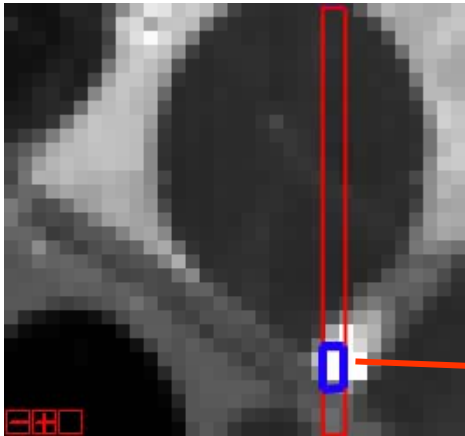


ORIGINAL IMAGE



CORRECTED IMAGE (2004)

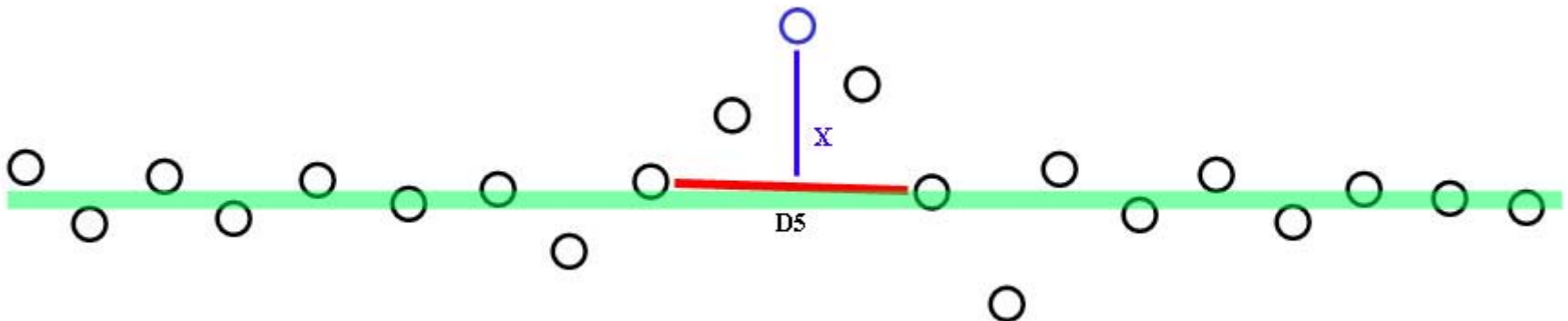
2006 MOTHODOLOGY IMPROVEMENTS



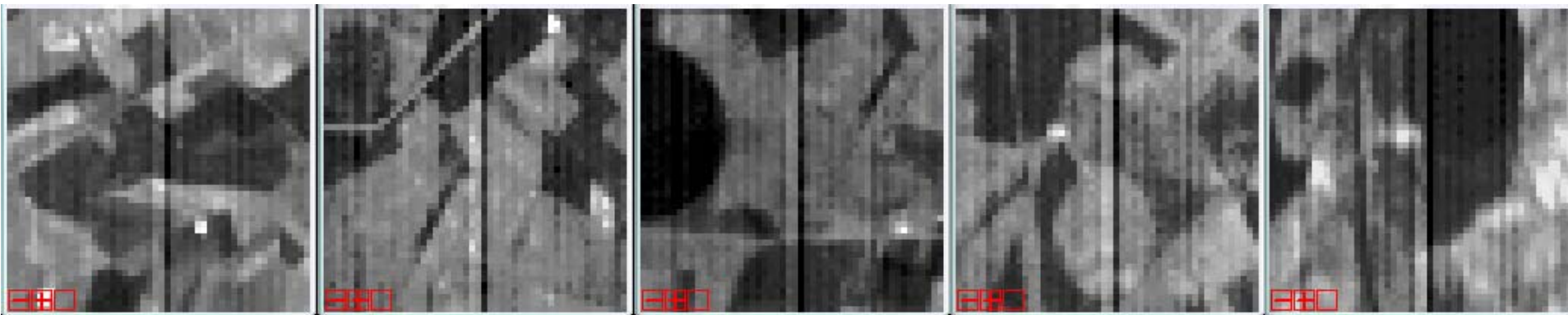
- BEST ROW AVERAGE STIMATION INVOLVING STD OF ROW VALUES
 - TO REMOVE CLOUDS
 - OTHER PUNTUAL AERIAL OR GROUND ARTIFACTS

DISCARTED POINTS IN
ROW AVERAGE BY STD
CRITERIUM

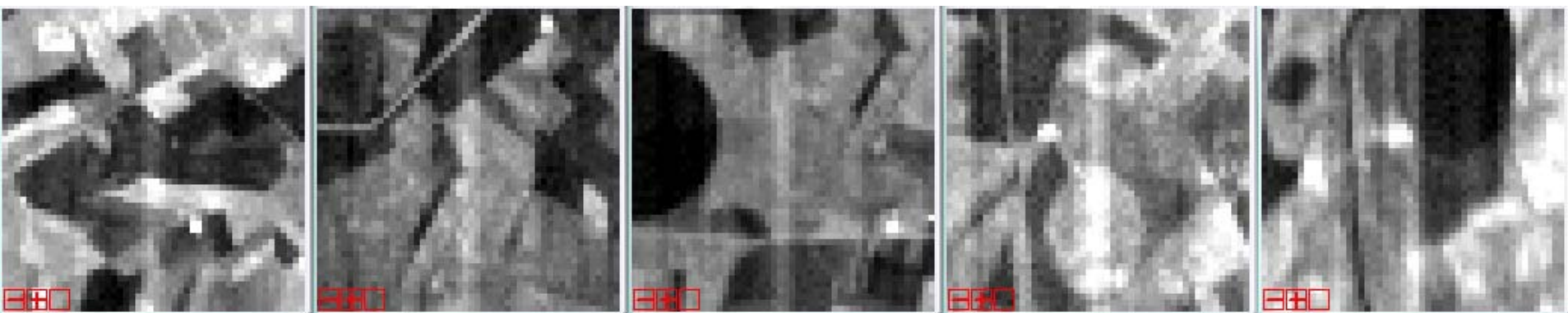
- INCREASE OF THE ALGORITHM INTELIGENCE TO STIMATE THE BEST FACTOR



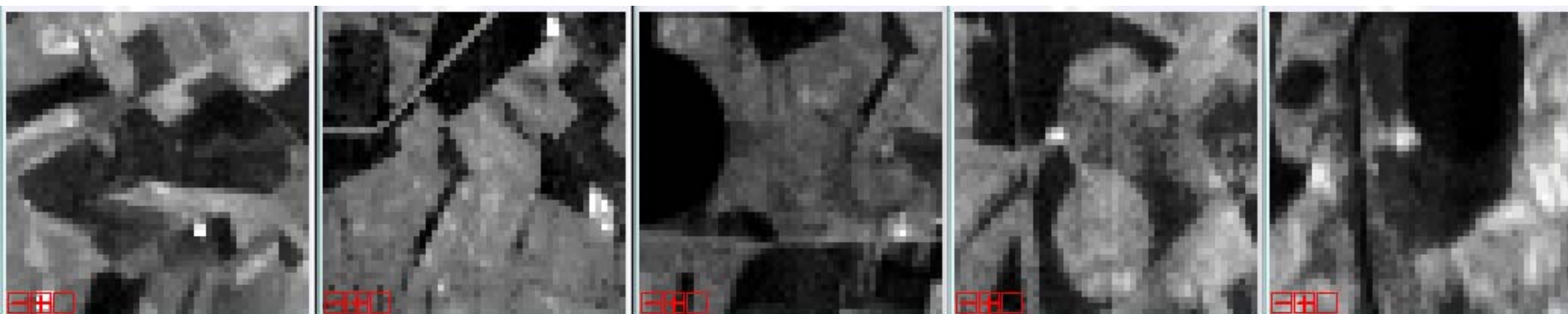
ORIGINAL IMAGE



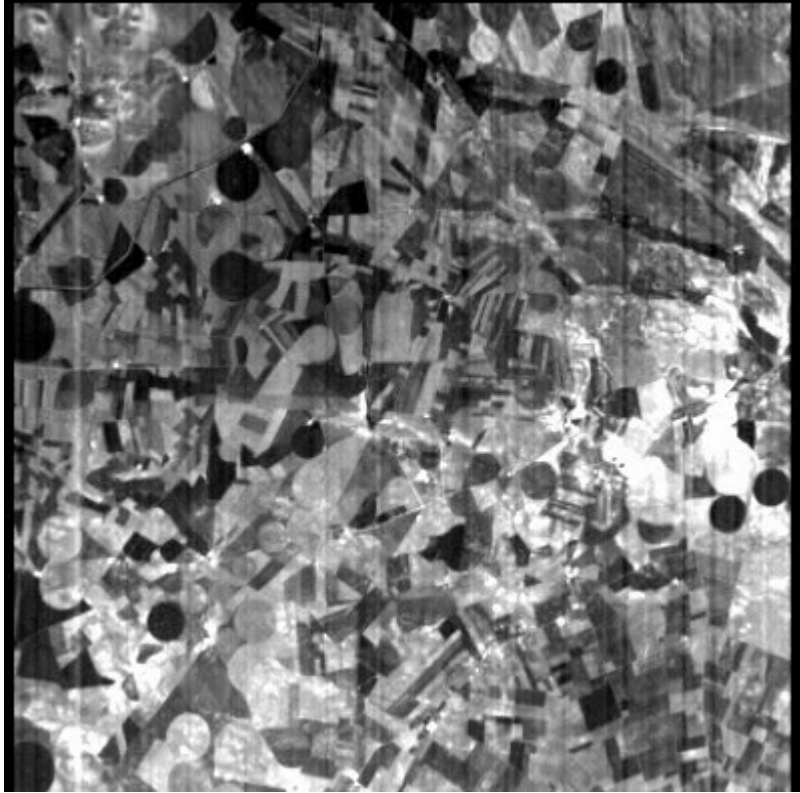
CORRECTED IMAGE (2004)



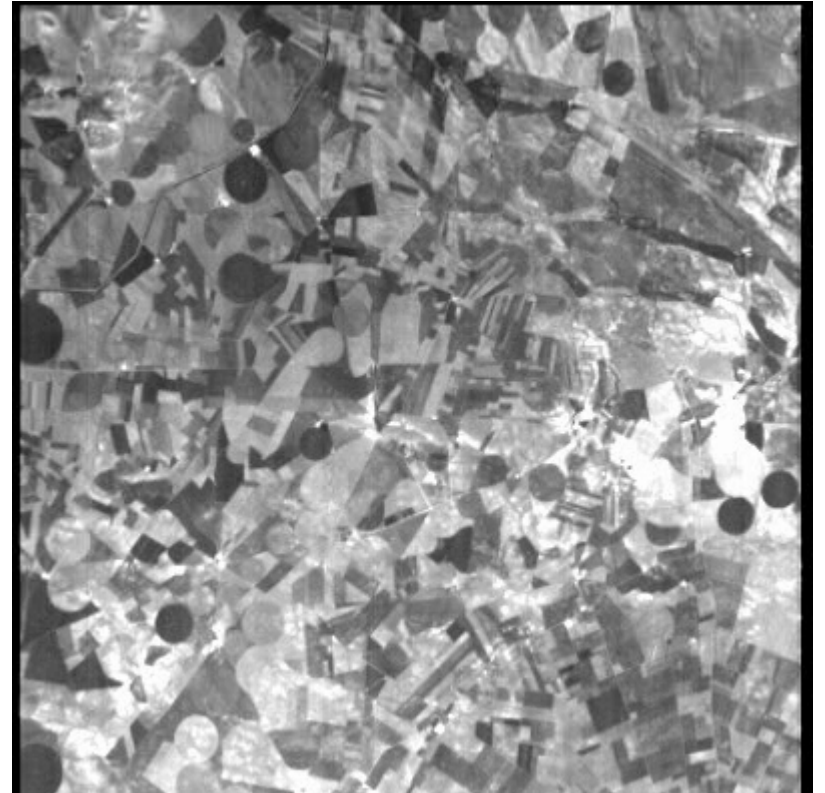
CORRECTED IMAGE (2006)



REMOVAL OF VERTICAL STRIPING: DIELMO 2006



CORRECTED IMAGE (2004)



CORRECTED IMAGE (2006)

CONCLUSIONS

- **WE HAVE IMPROVED THE METHODOLOGY TO CORRECT VERTICAL STRIPING:**

- 1. BETTER ROW AVERAGE.**

- 2. MORE CLEVER ALGORITHM TO ESTIMATE THE CORRECTION FACTOR.**

- **IN THE FUTURE WE HAVE TO IMPROVE THE RESIDUAL LOW FREQUENCY VERTICAL STRIPING AND TEST WITH MORE SITES.**



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