Learning IDL
Image Analysis

January 2007

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Edge Detection

- Derivative
- Sobel / Roberts
- Laplacian
- Kernel →

- Running Difference

Sobel

-1	0	+1
-2	0	+2
-1	0	+1

Gx

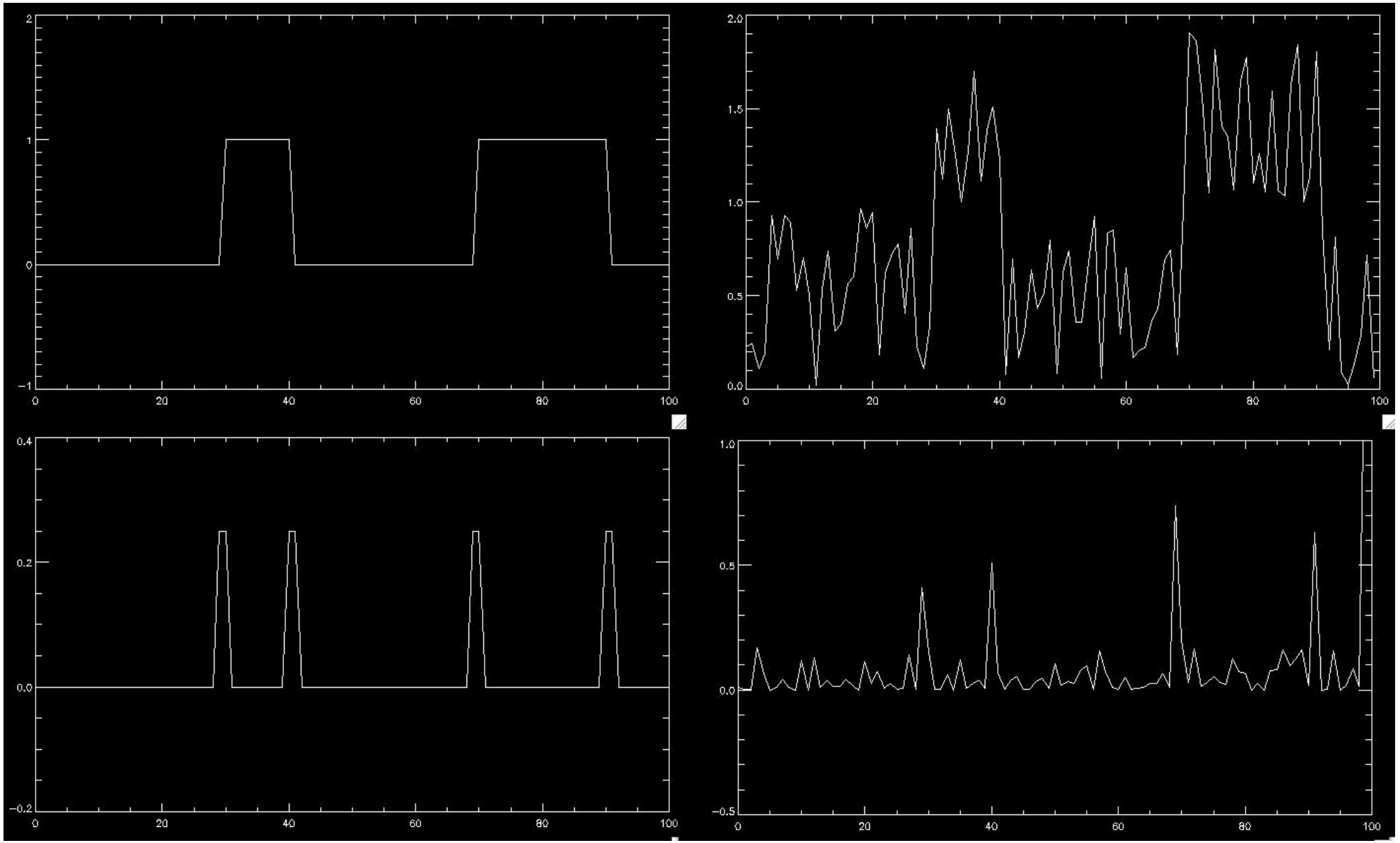
+1	+2	+1
0	0	0
-1	-2	-1

Gy

$$|G| = |Gx| + |Gy|$$

Signal

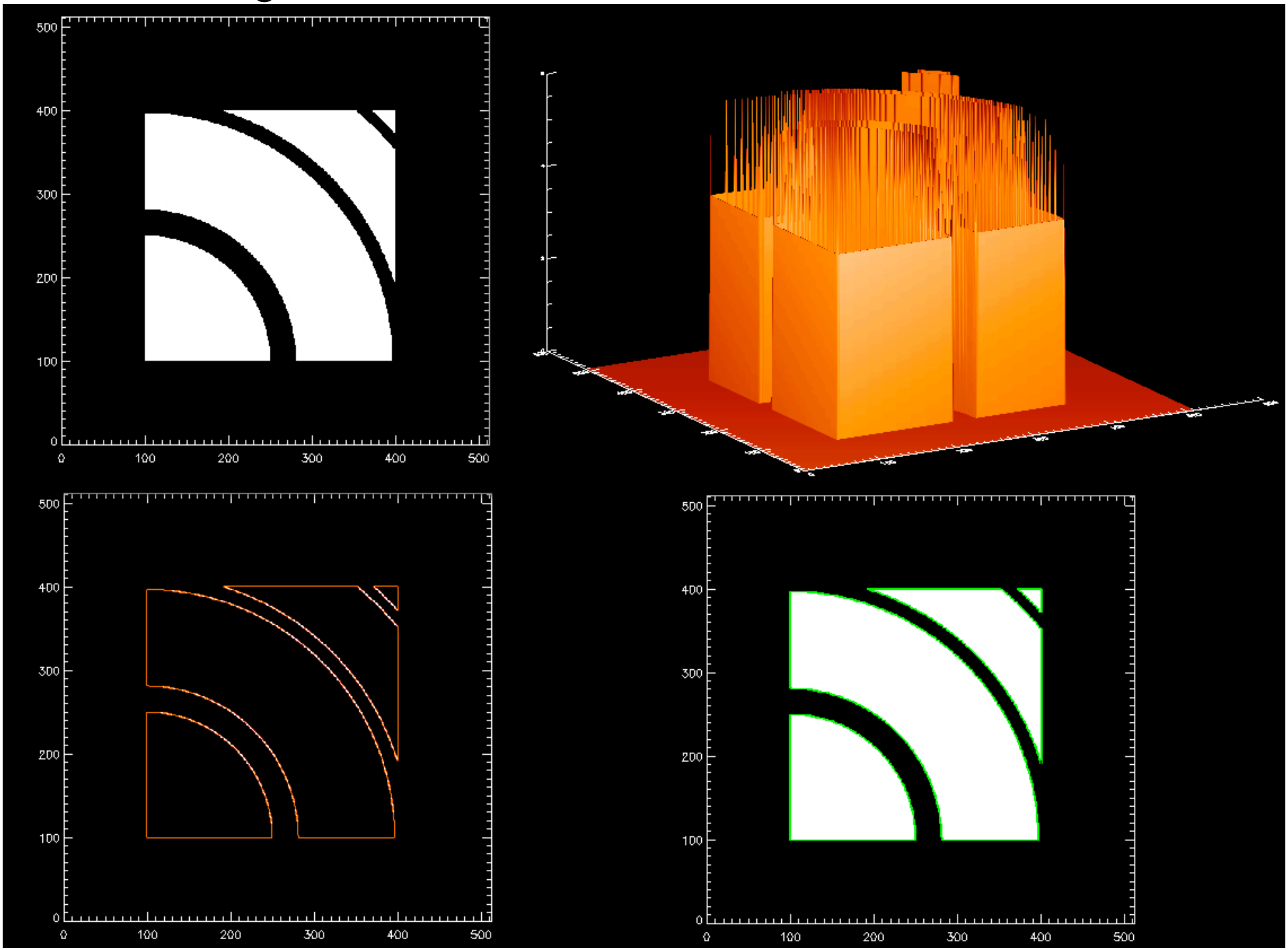
Noised Signal

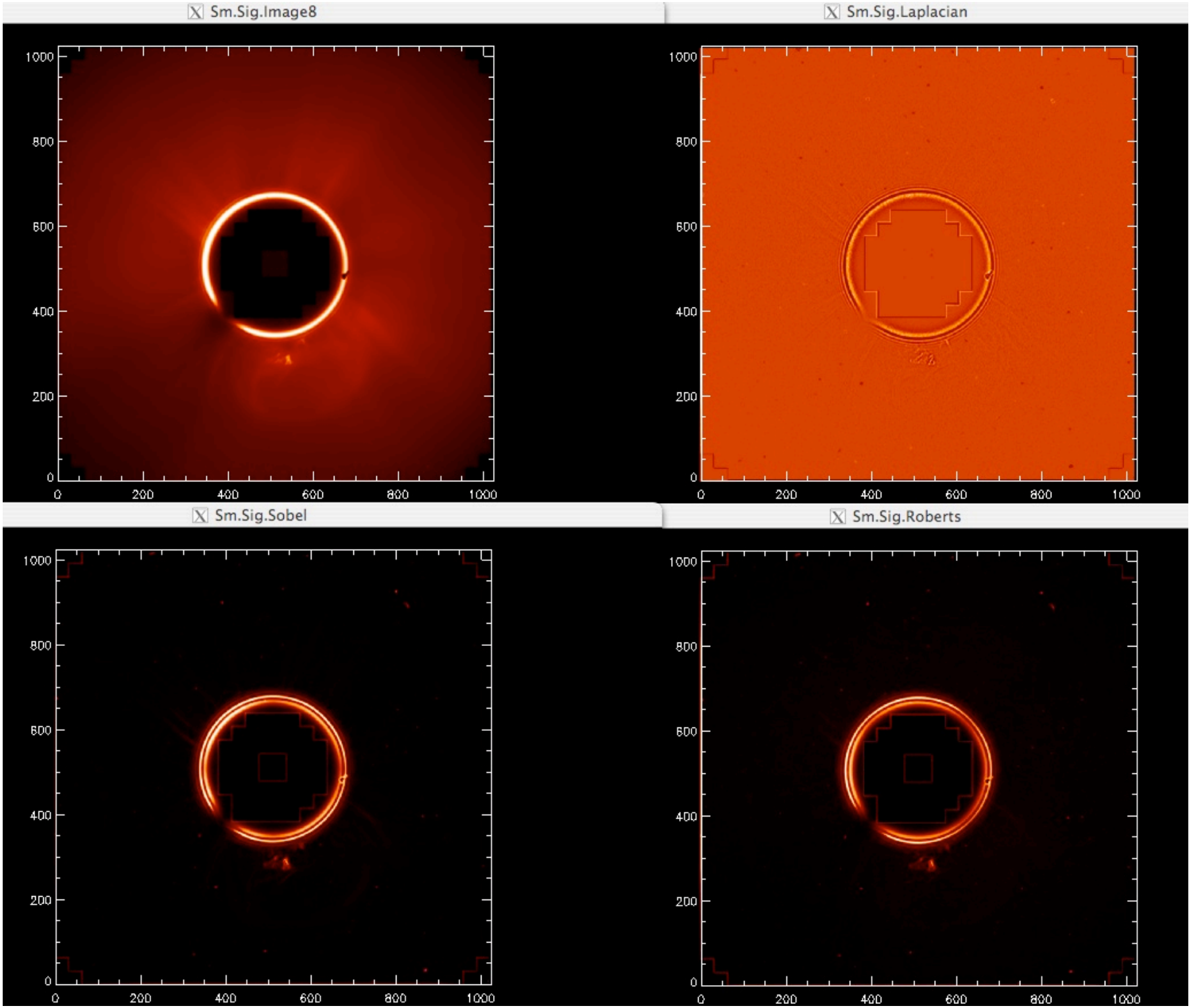


Derivative^2

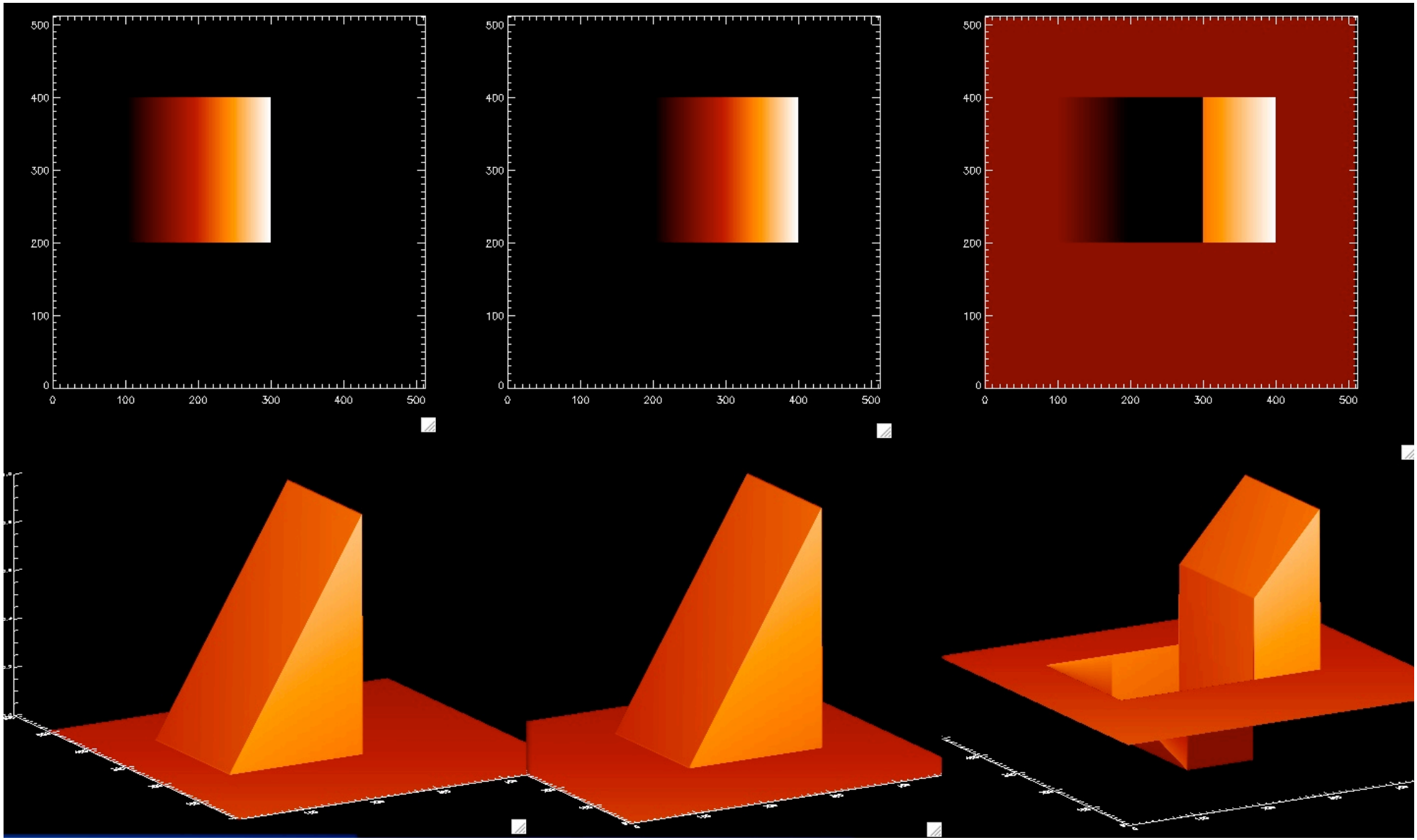
Derivative^2

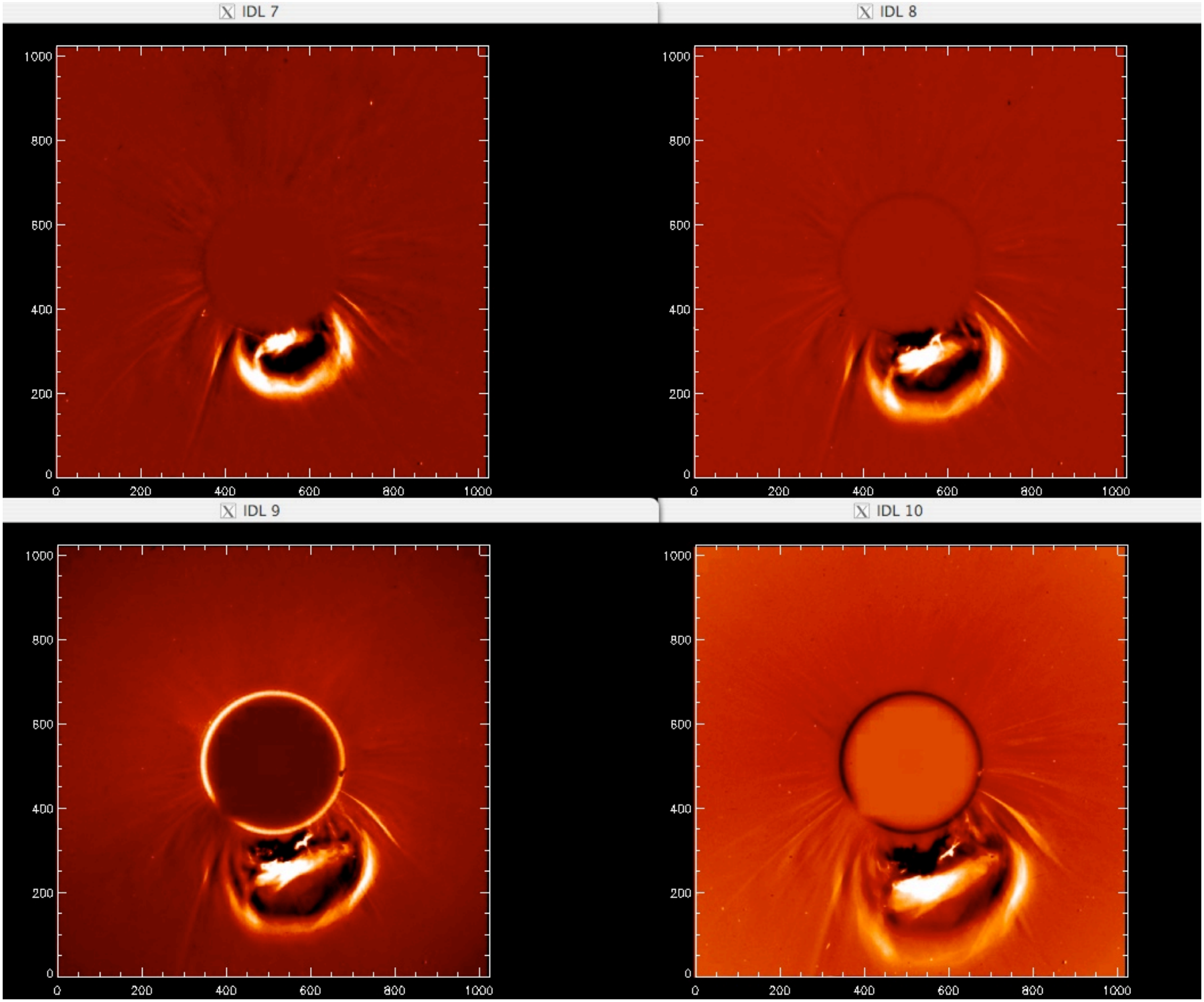
Sobel Edge Detection

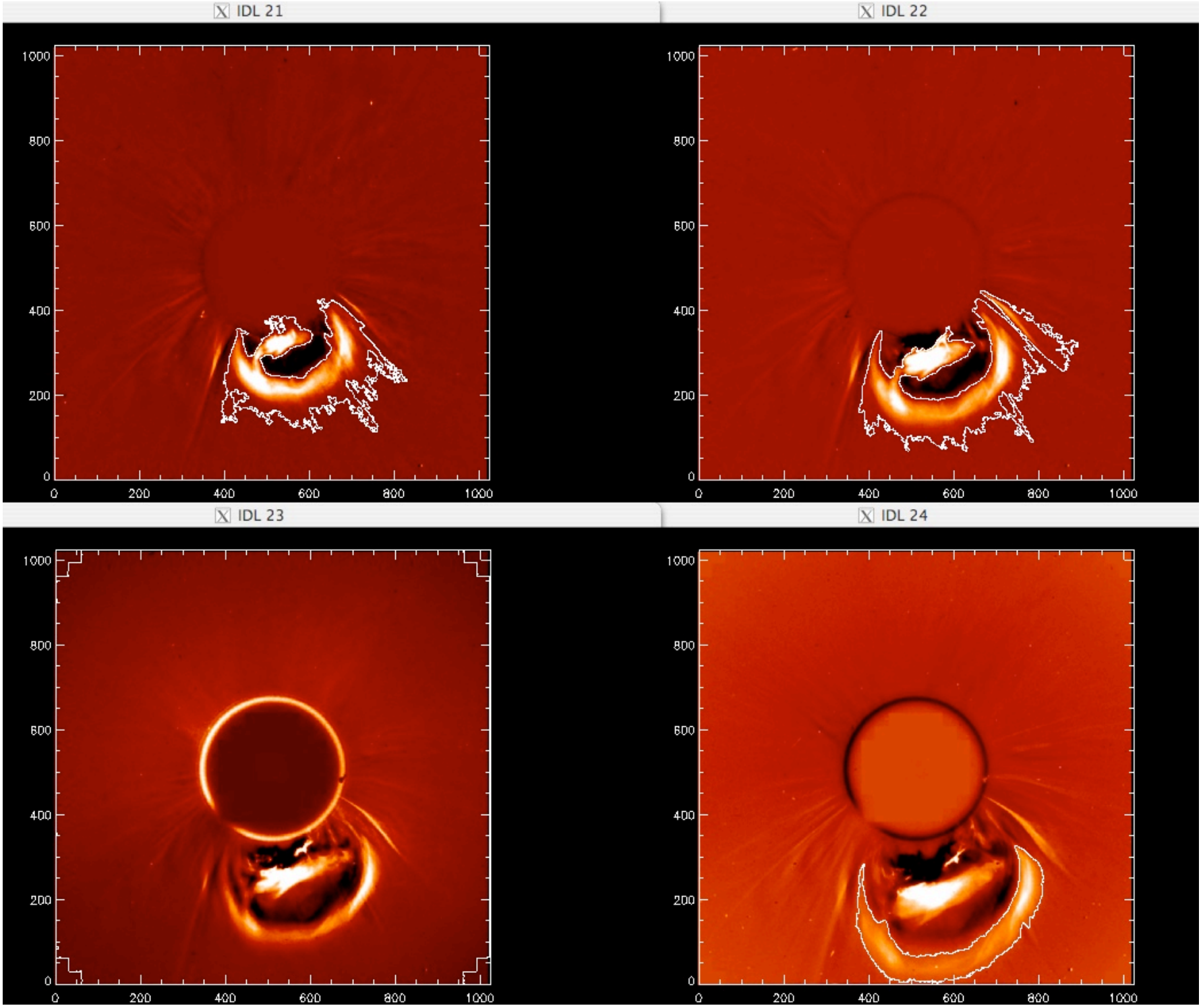



Sm.Sig.Image8
Sm.Sig.Laplacian
Sm.Sig.Sobel
Sm.Sig.Roberts
0
200
400
600
800
1000

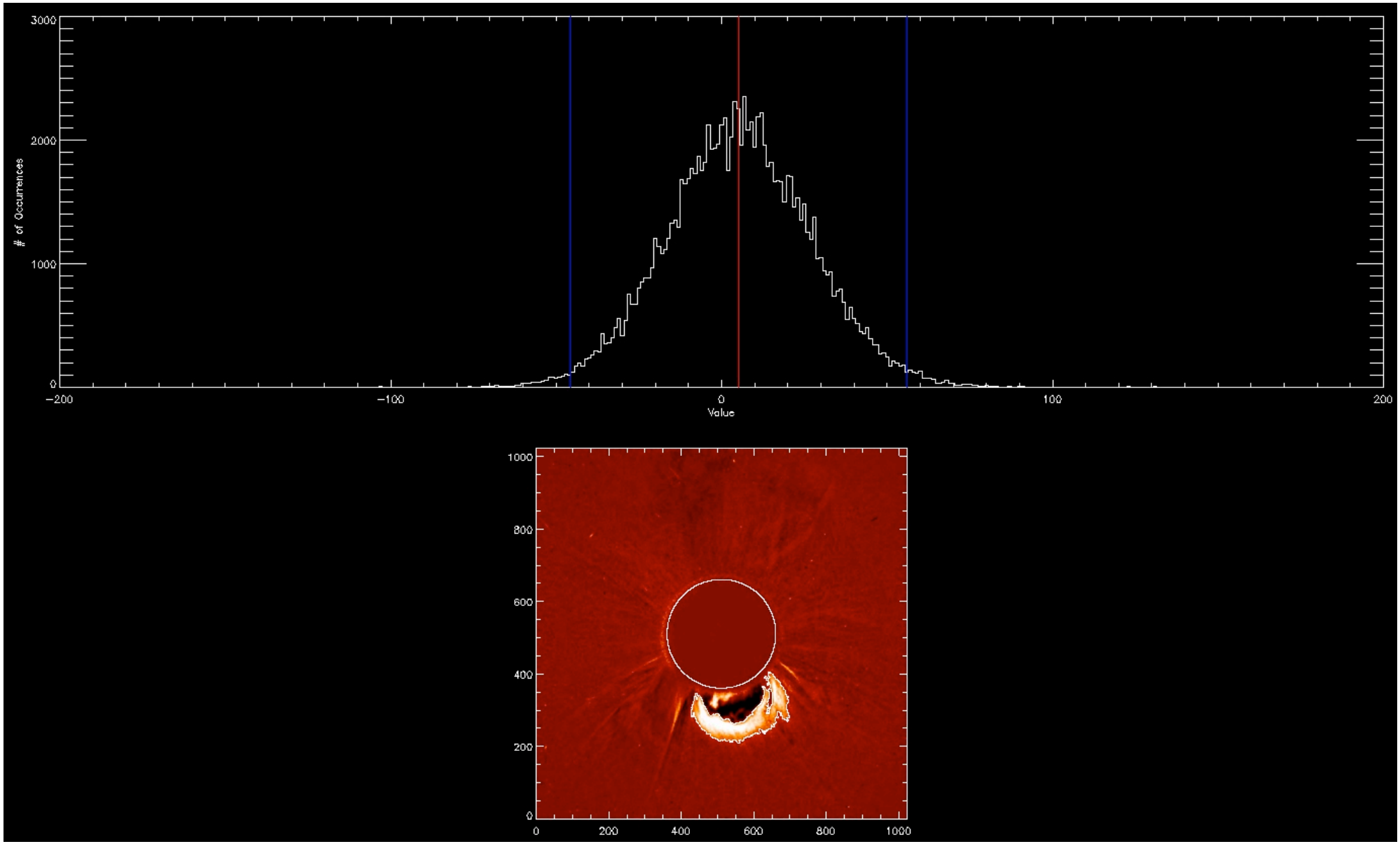
Running Difference



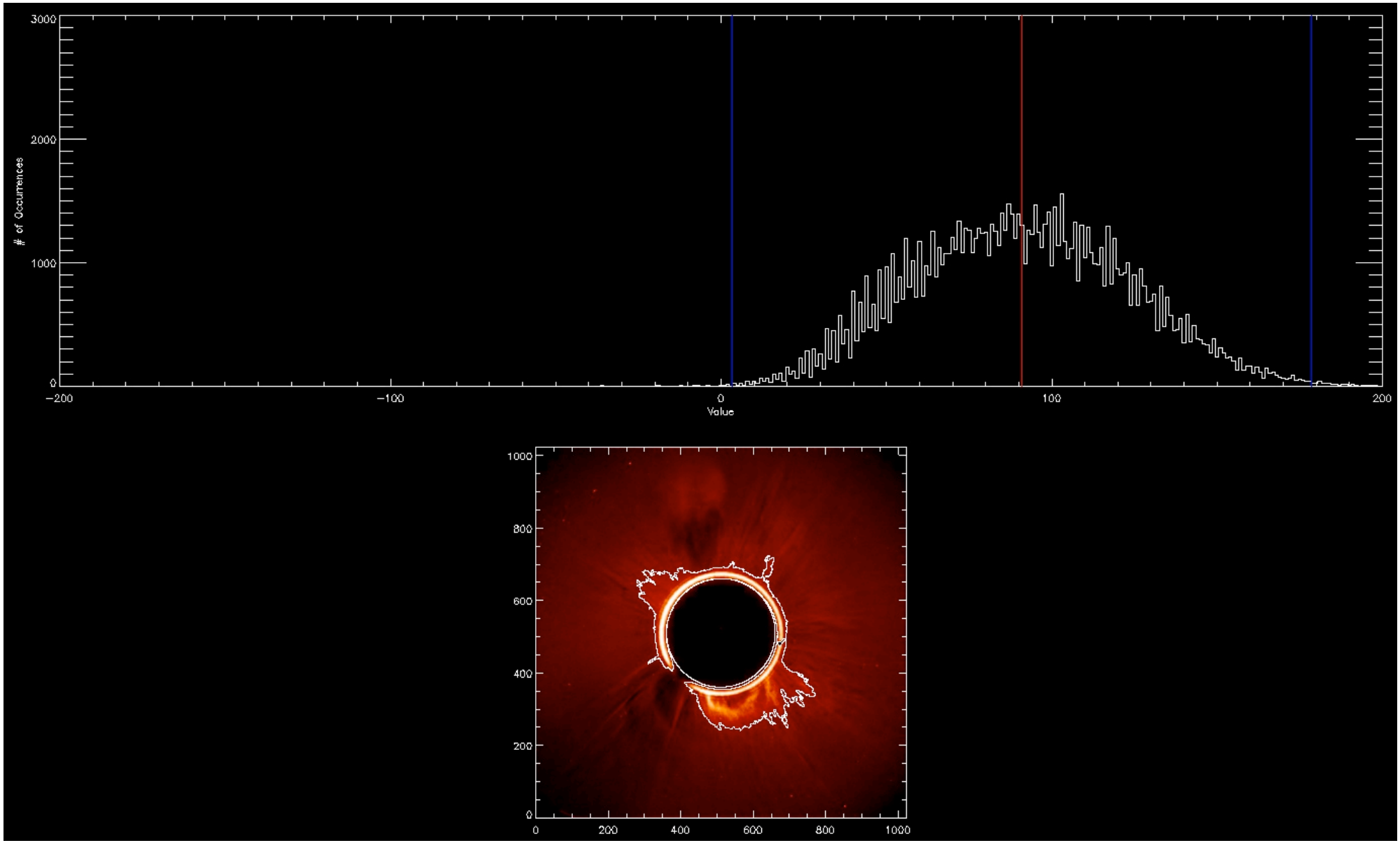

IDL 7
IDL 8
IDL 9
IDL 10
0
200
400
600
800
1000


IDL 21
IDL 22
IDL 23
IDL 24
0
200
400
600
800
1000

Histogram (for background segment)



Histogram (for background segment)



Data(*,*,0)
.
.
.
Data(*,*,14)

Diff(*,*,0)
.
.
.
Diff(*,*,13)

Diff(*,*,0) = Data(*,*,1) - Data(*,*,0)

Problem: Images Data(*,*,4) & Data(*,*,9)
The Mean shifts!

Emphasized by Differencing

- Normalizing?
- Wavelets?
- STEREO data?