Automatic event detection in search for

inter-moss loops in IRIS Si IV slit-jaw images

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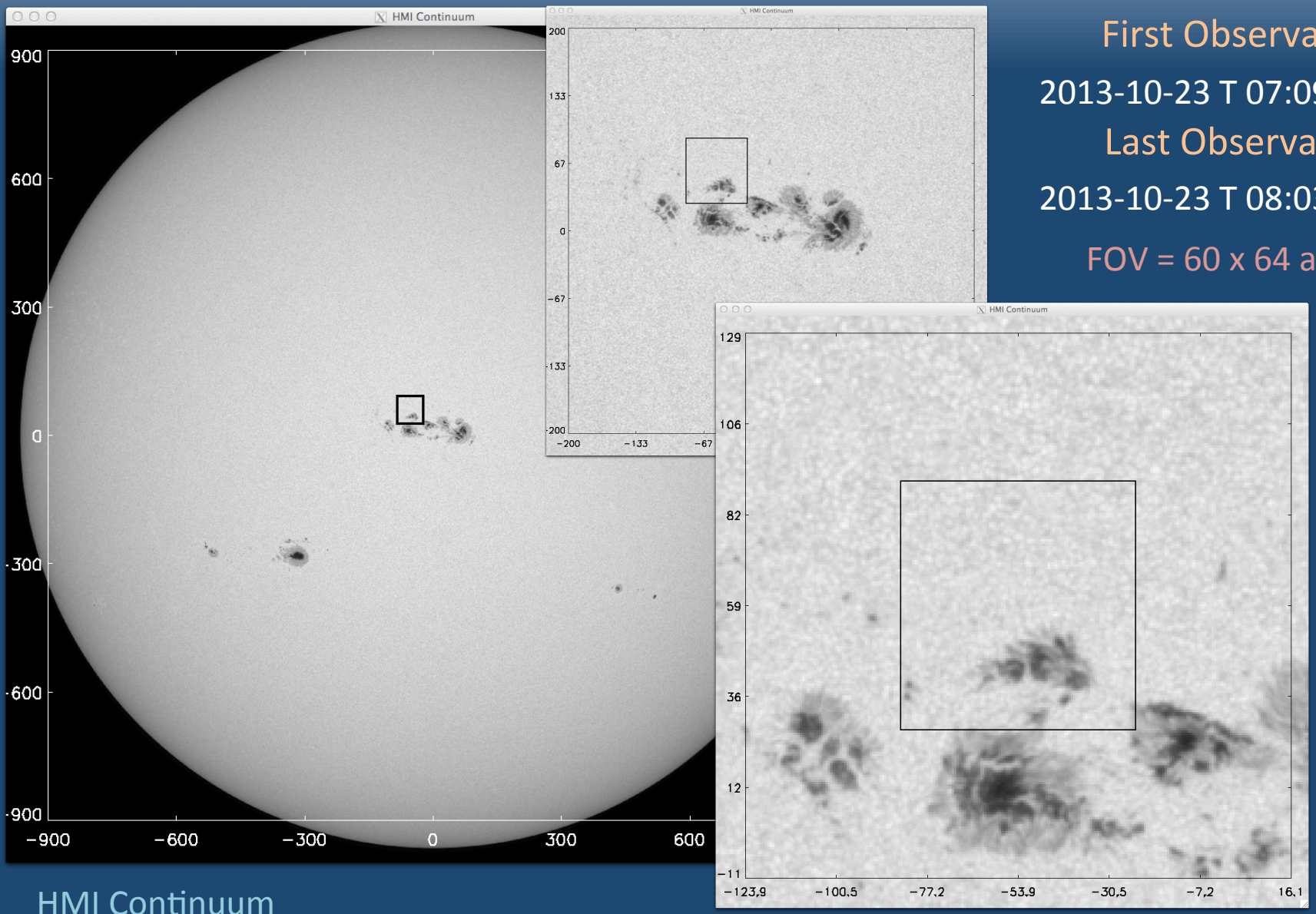
May 21, 2015

Outline of Presentation

- Field of view for data set – IRIS Si IV – 1400 A
- Event detection process
- Application to IRIS 1400 data
- Event grouping
- Statistical characteristics

Field of View – IRIS Si IV – 1400 A



First Observation

2013-10-23 T 07:09:30.590

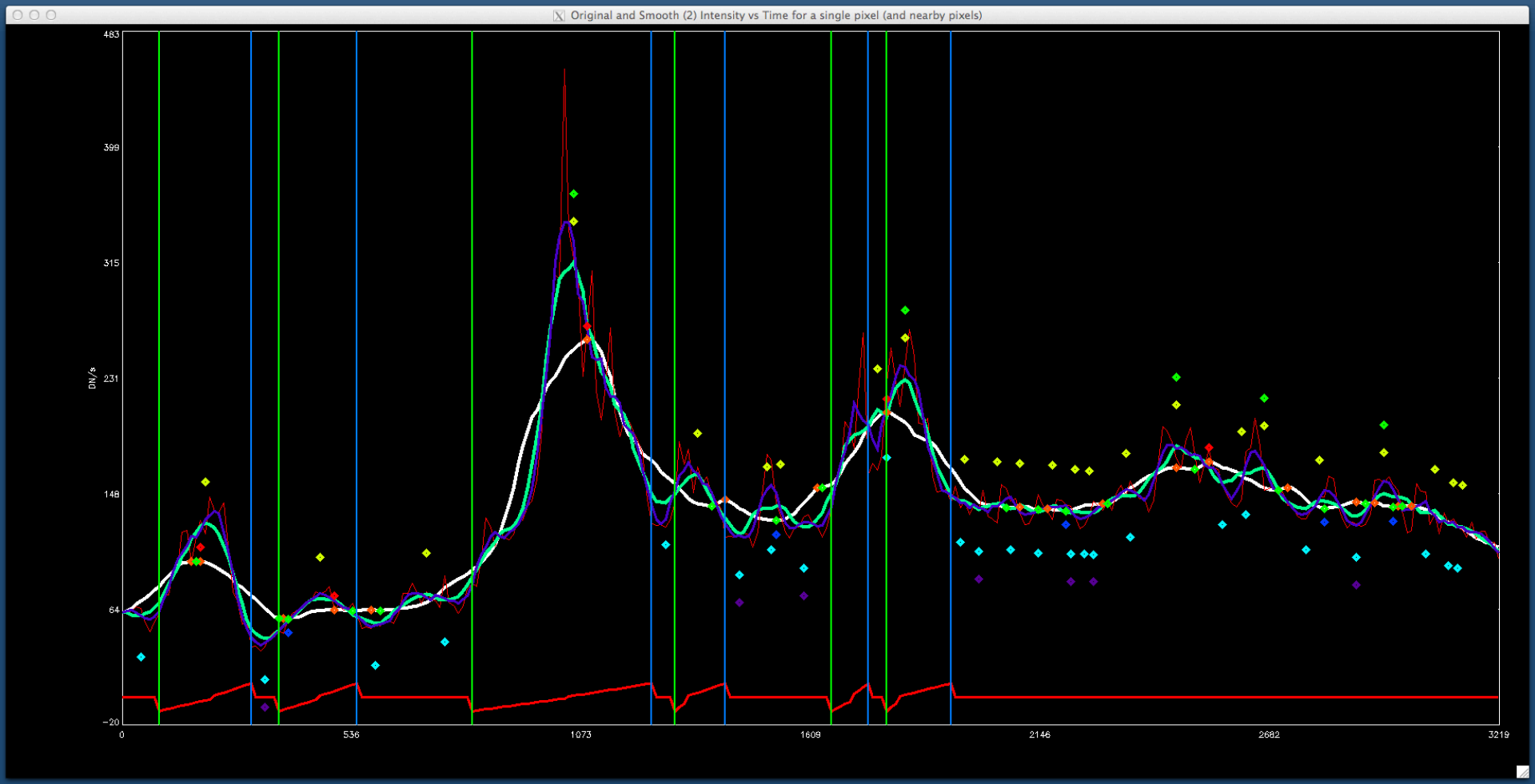
Last Observation

2013-10-23 T 08:03:09.510

FOV = 60 x 64 arcsec

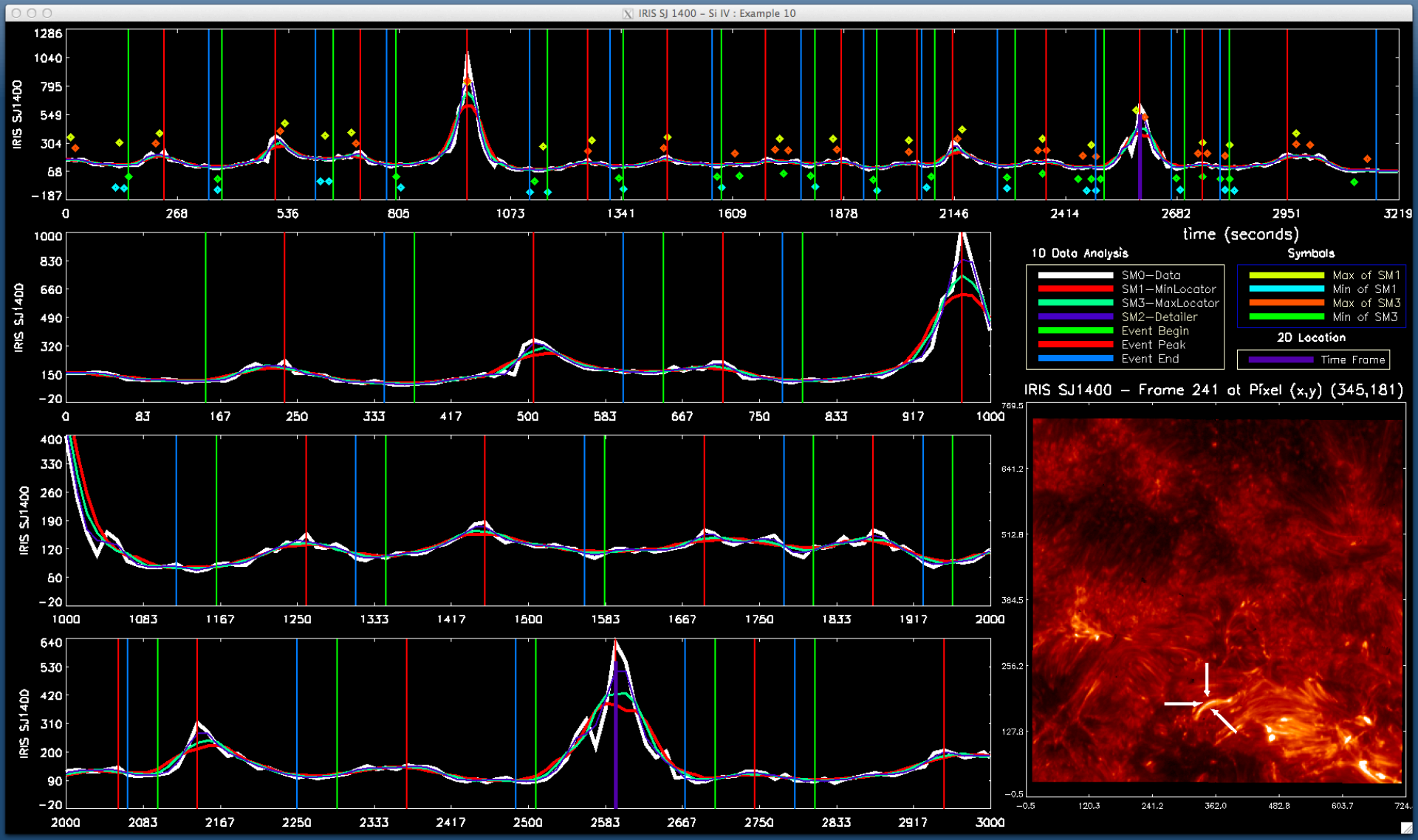
HMI Continuum

Event Detection

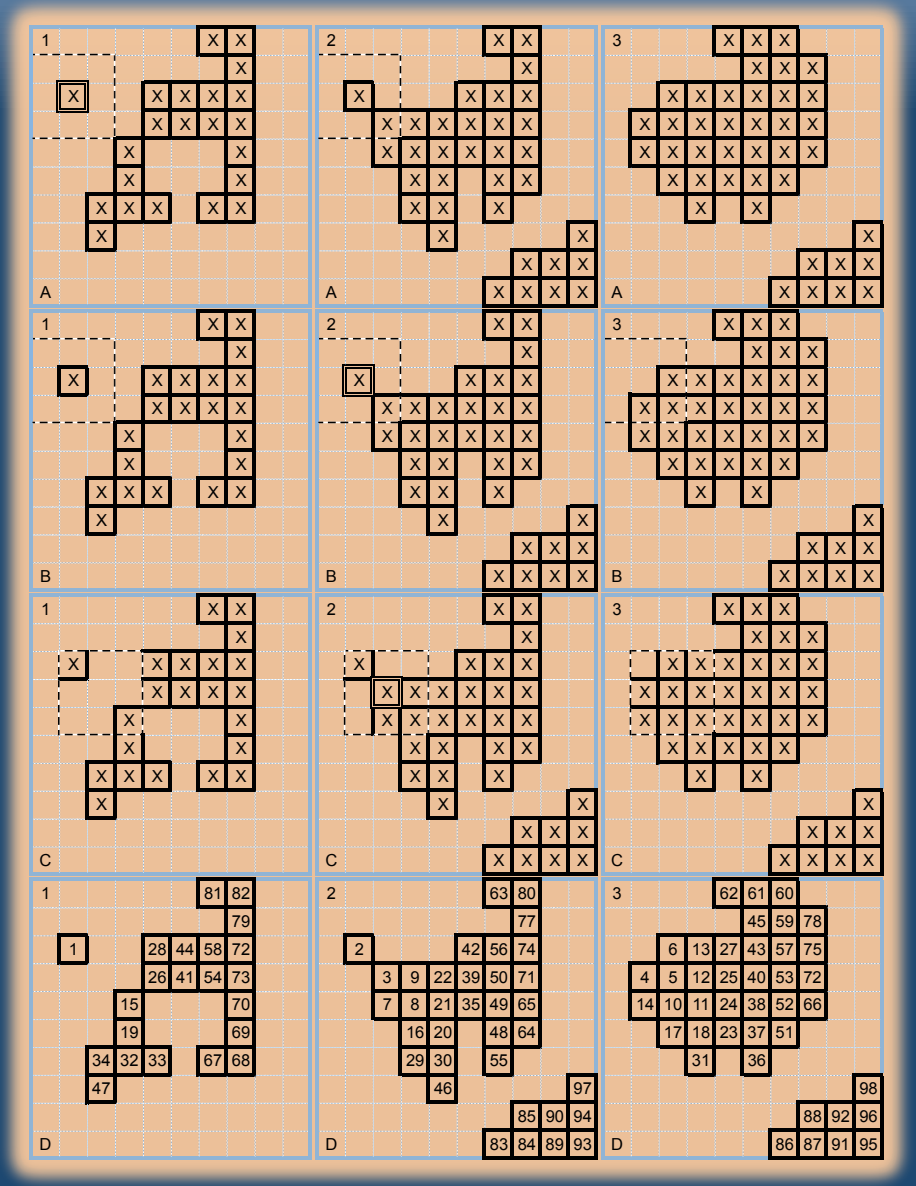


Algorithm detects the beginning and end of pixel brightening

Event Detection



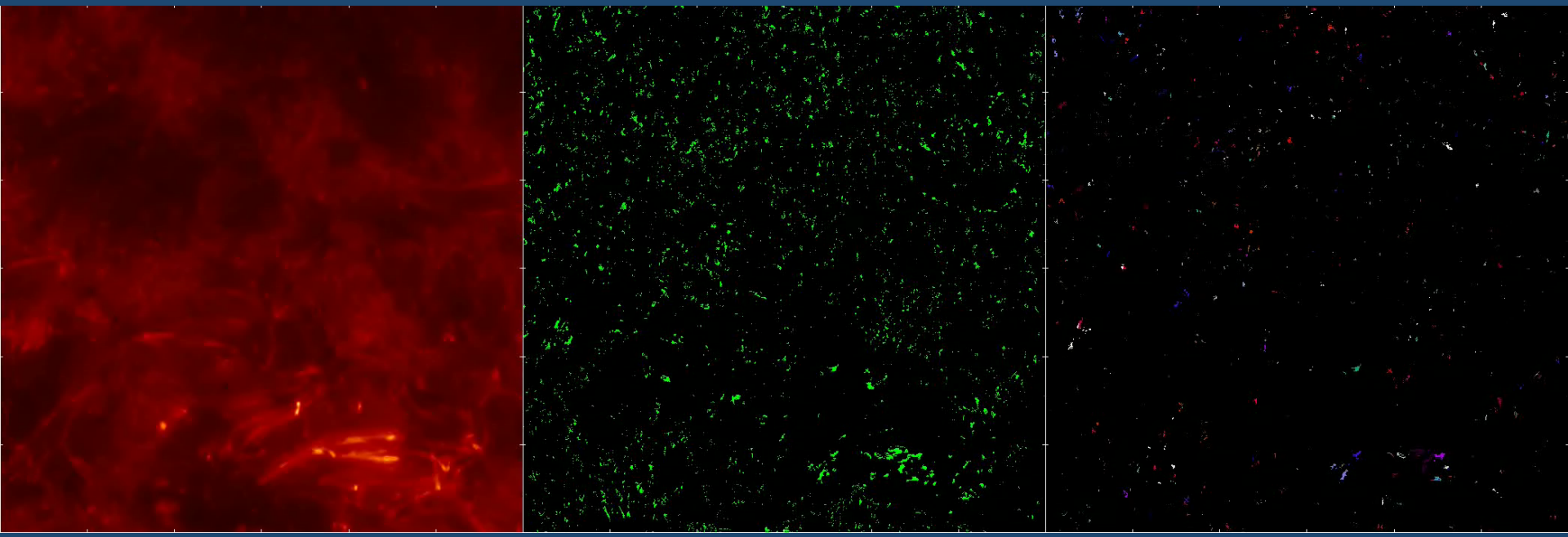
Event Grouping



- Focus on one pixel
- Search adjacent pixels
- Must be within 20% of lifetime and 20% of progress data
- Continue through all detected pixels

Results

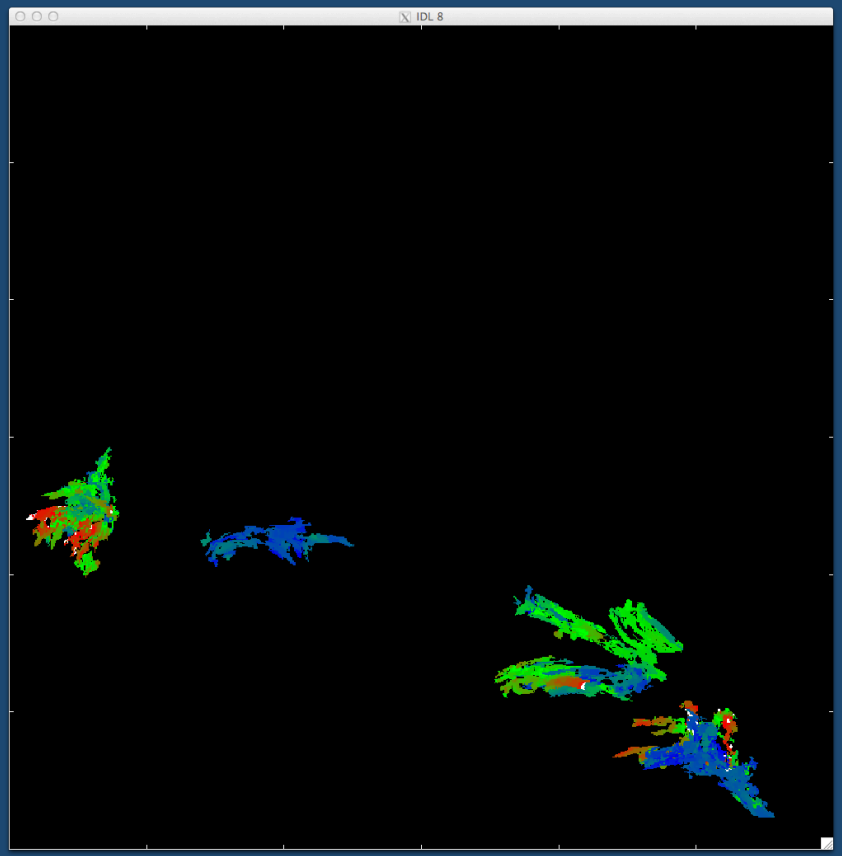
Si IV - 1400 | Progress Meta Data | Grouping



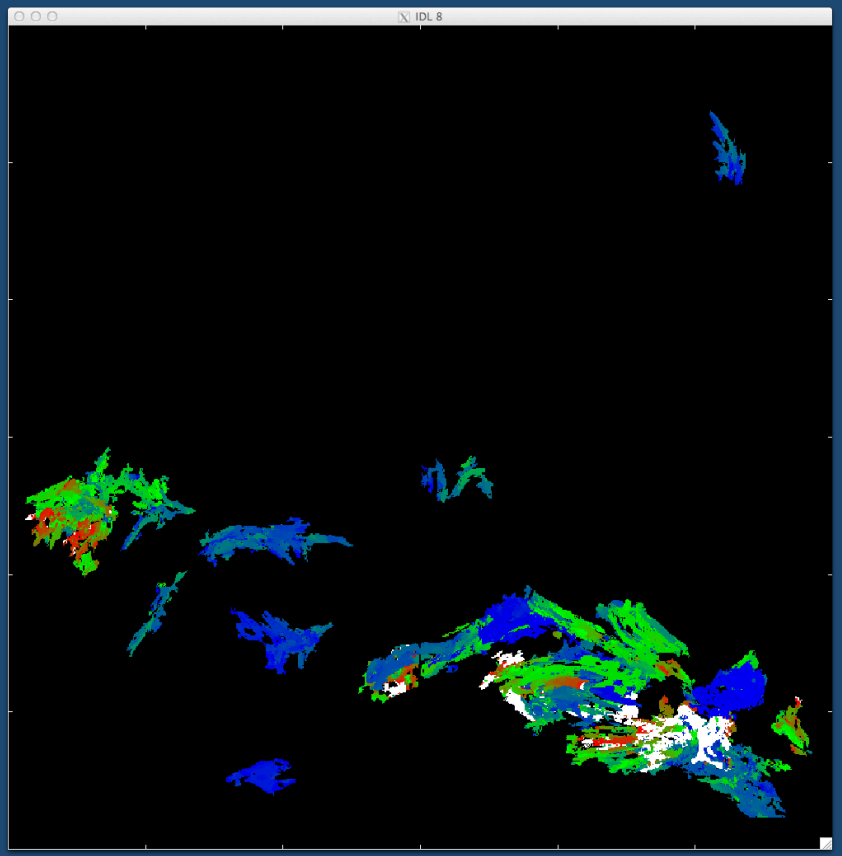
- GREEN = beginning of an event
- **BLUE = time of peak emission**
- RED = end of an event

Grouping Results

Largest 5

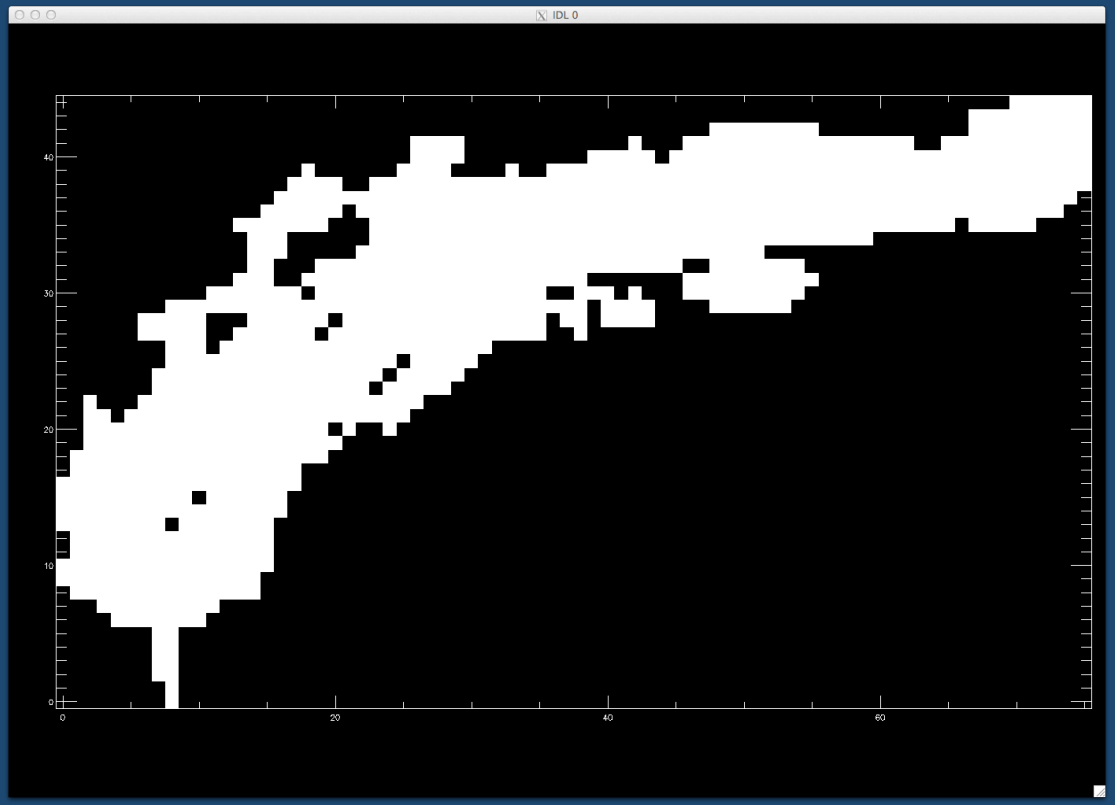


Largest 50



Best Loop of Interest

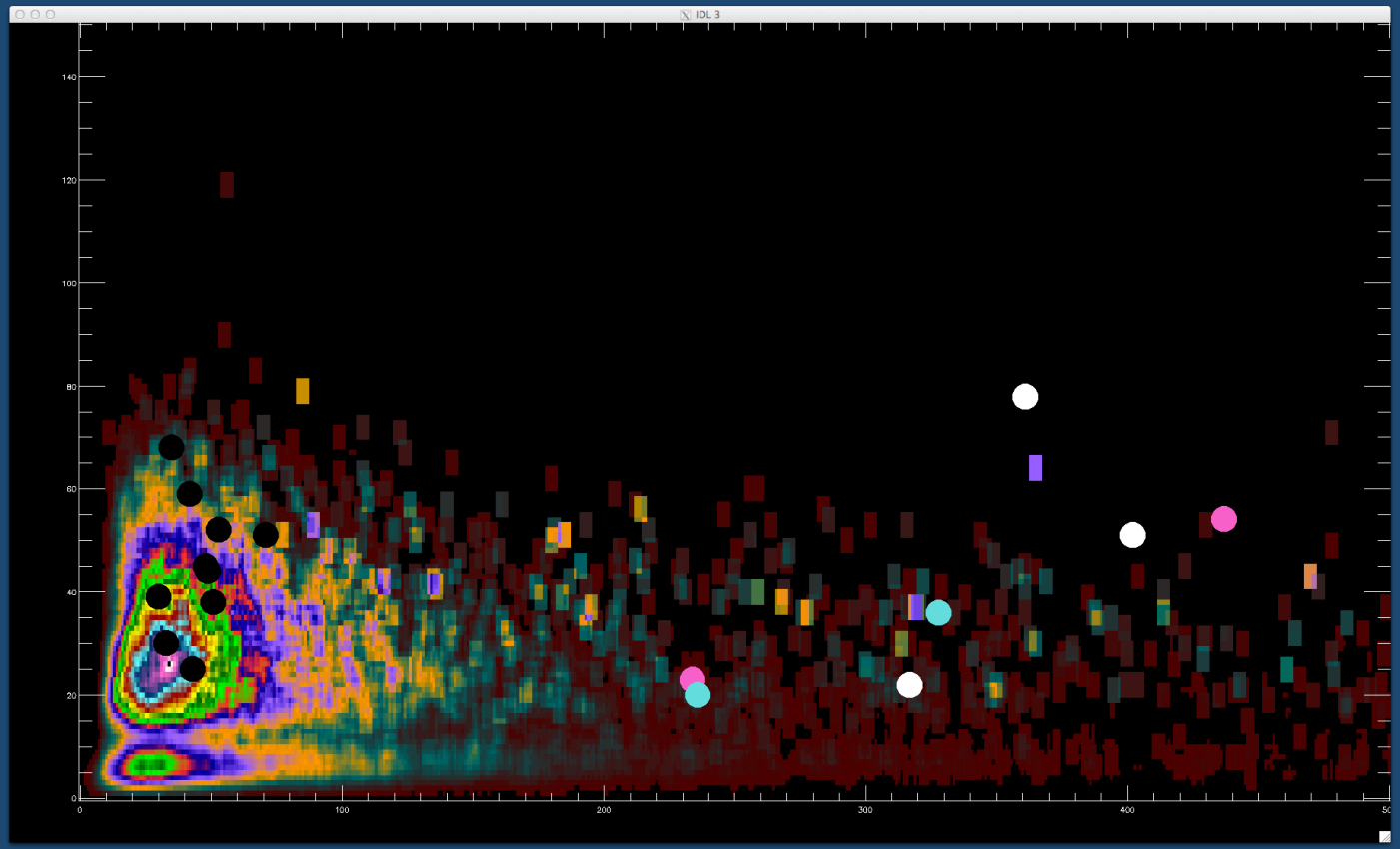
Grouped & Condensed to 1 image



Trouble is that groups are generally not as well-defined as this

Statistical Results

Examples of Loops & Samples of Moss Activity



Identification of loops will most likely come from statistical results

Concluding Remarks

Event Detection

- Algorithm is still being fine-tuned as more data sets are explored
- Capable of obtaining all types of activity
- Statistics can limit determination of structure types
- Automatic characterization is still in development

Groups/structures can currently be selected by pixel location for individual character analysis: size, pixel density, lifetime

Current results suggest that the statistics can be used to determine the probability of whether a structure is classified as moss activity or something else