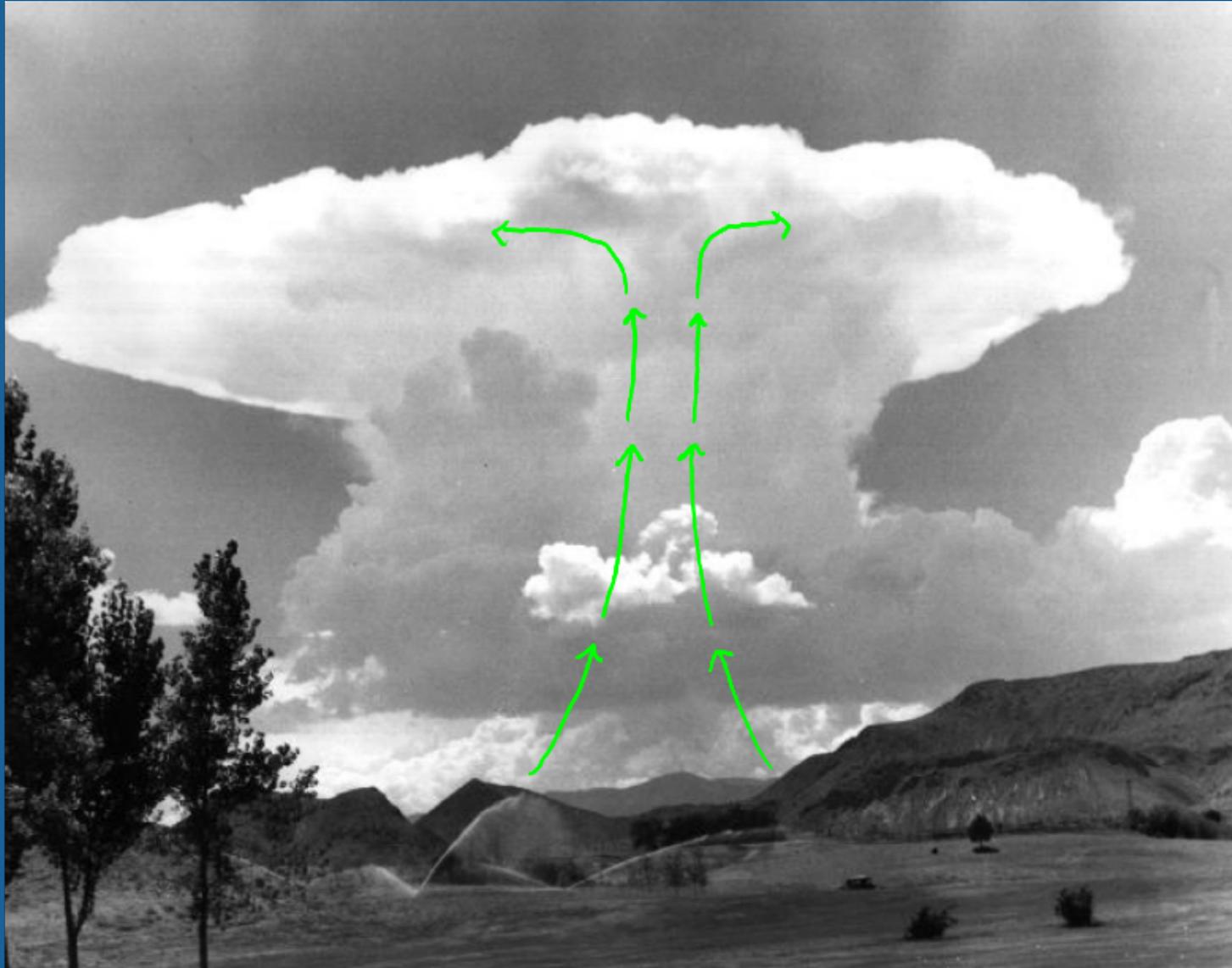
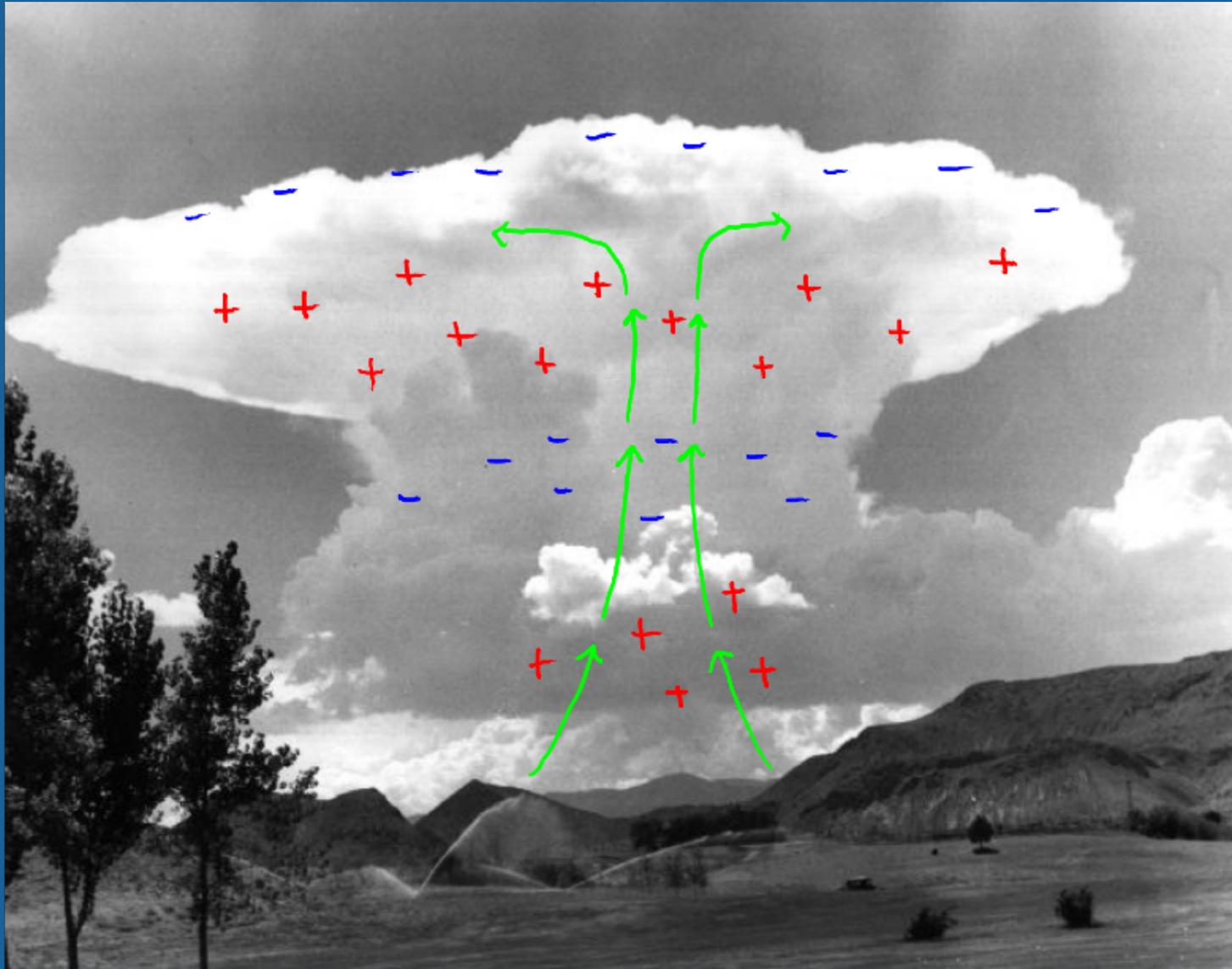


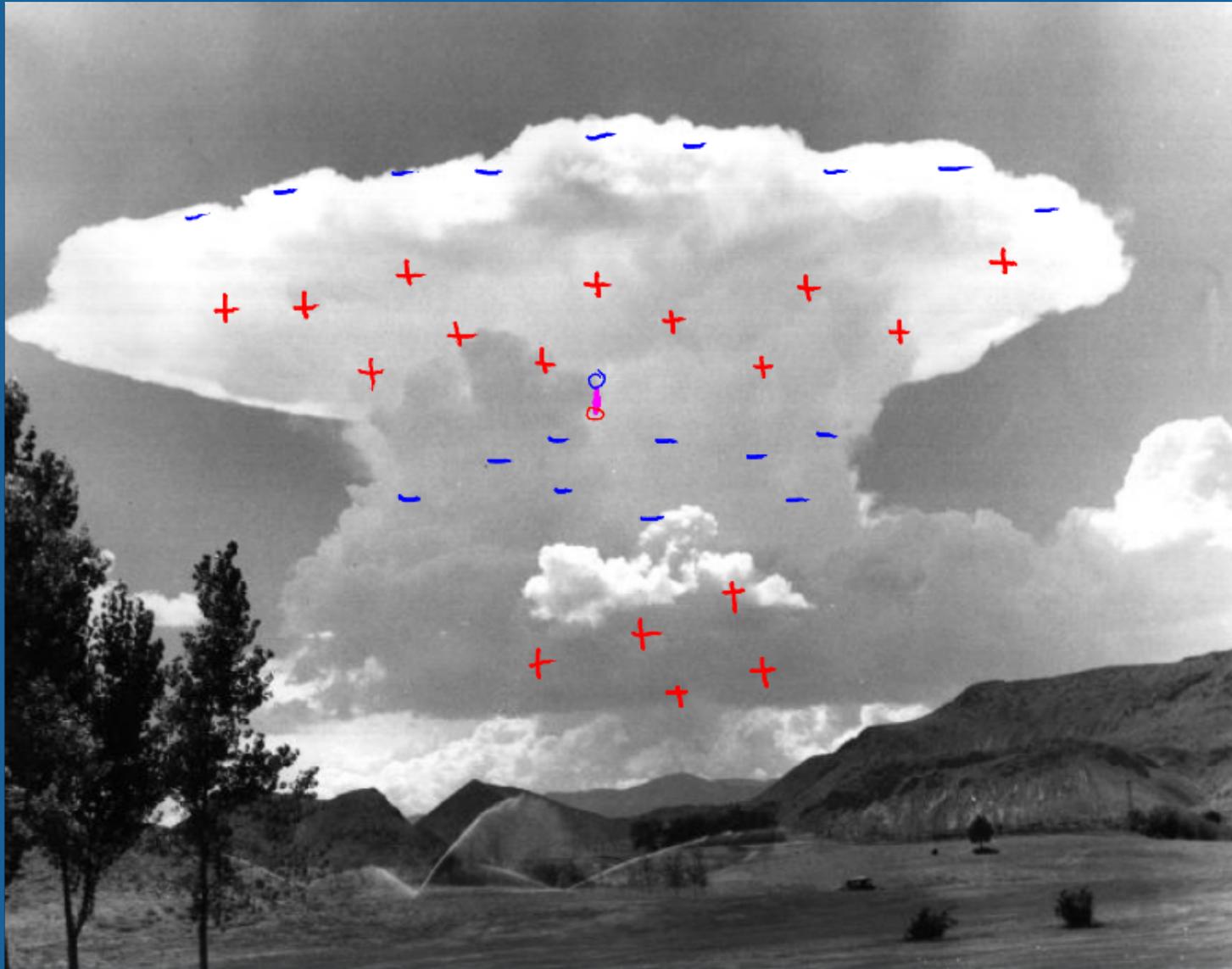
# Lightning

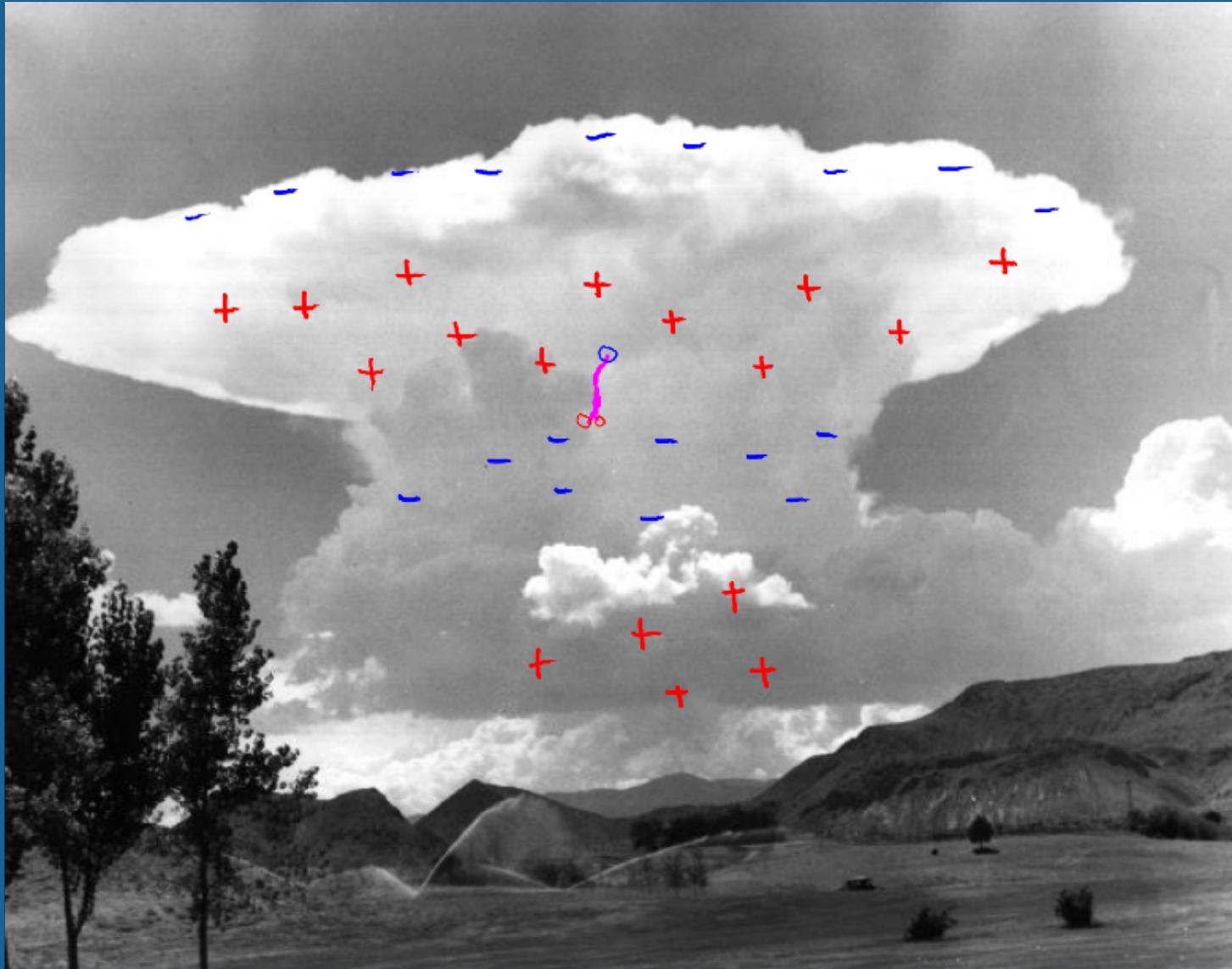
LWA Users Meeting – 2014

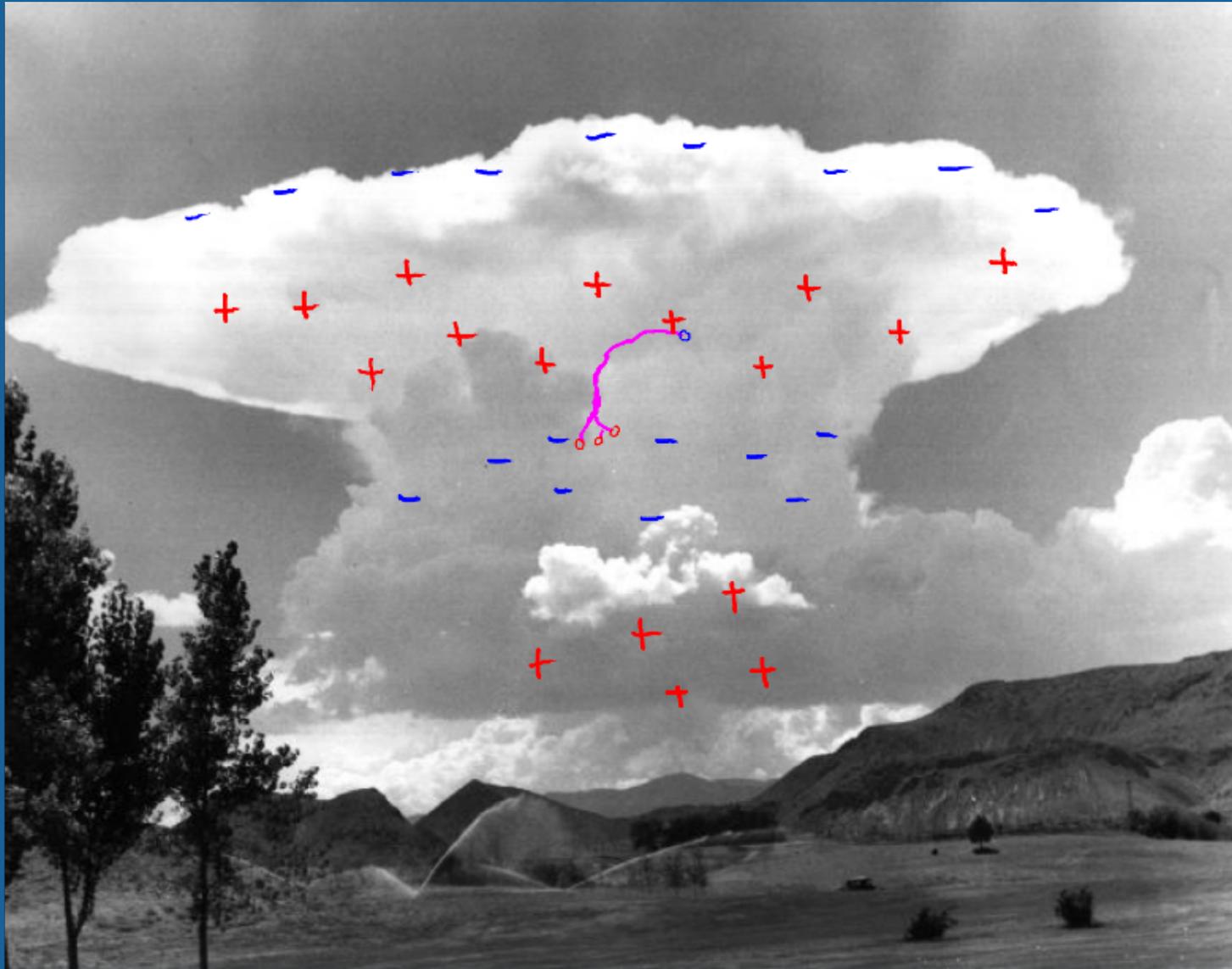
Michael Stock

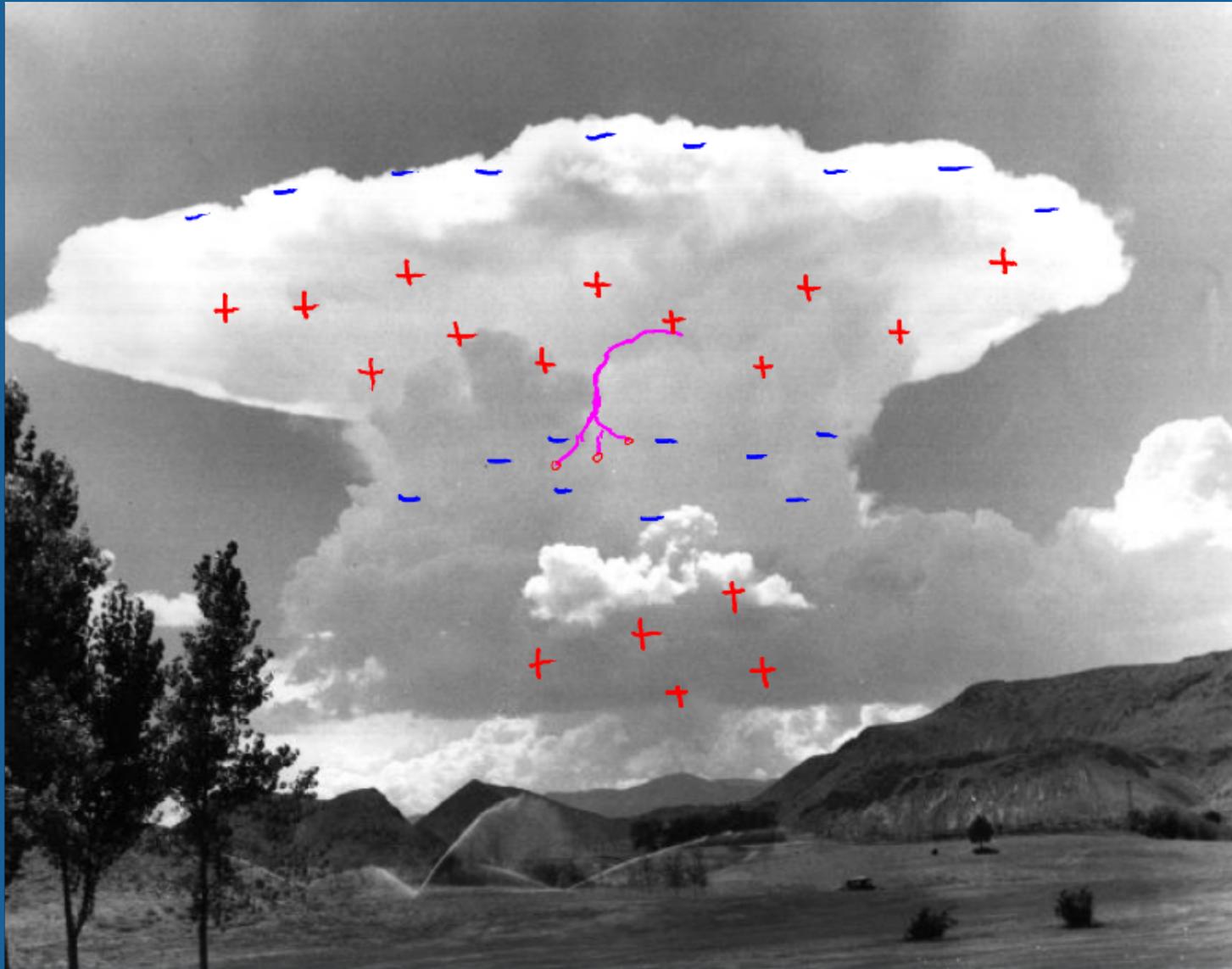


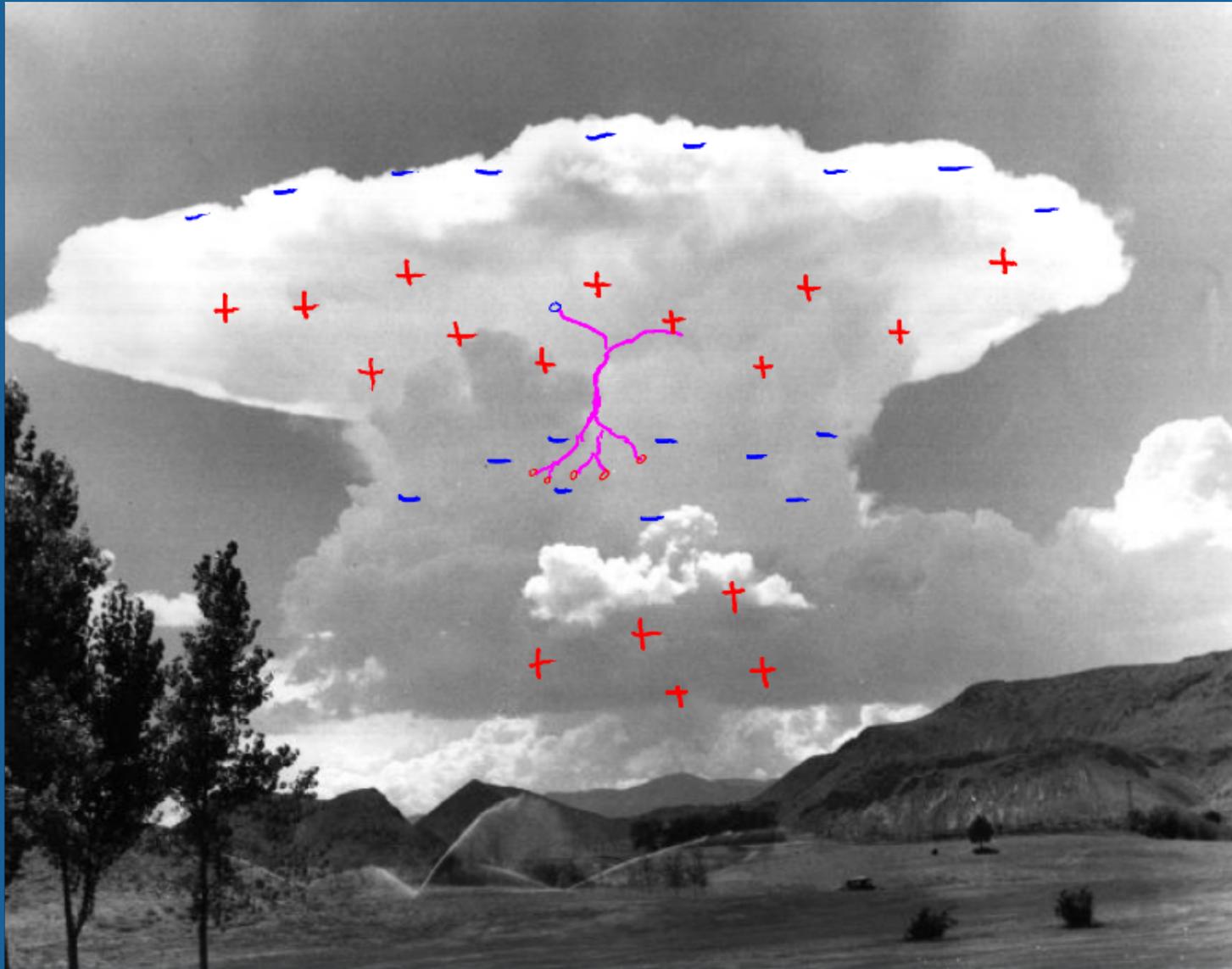


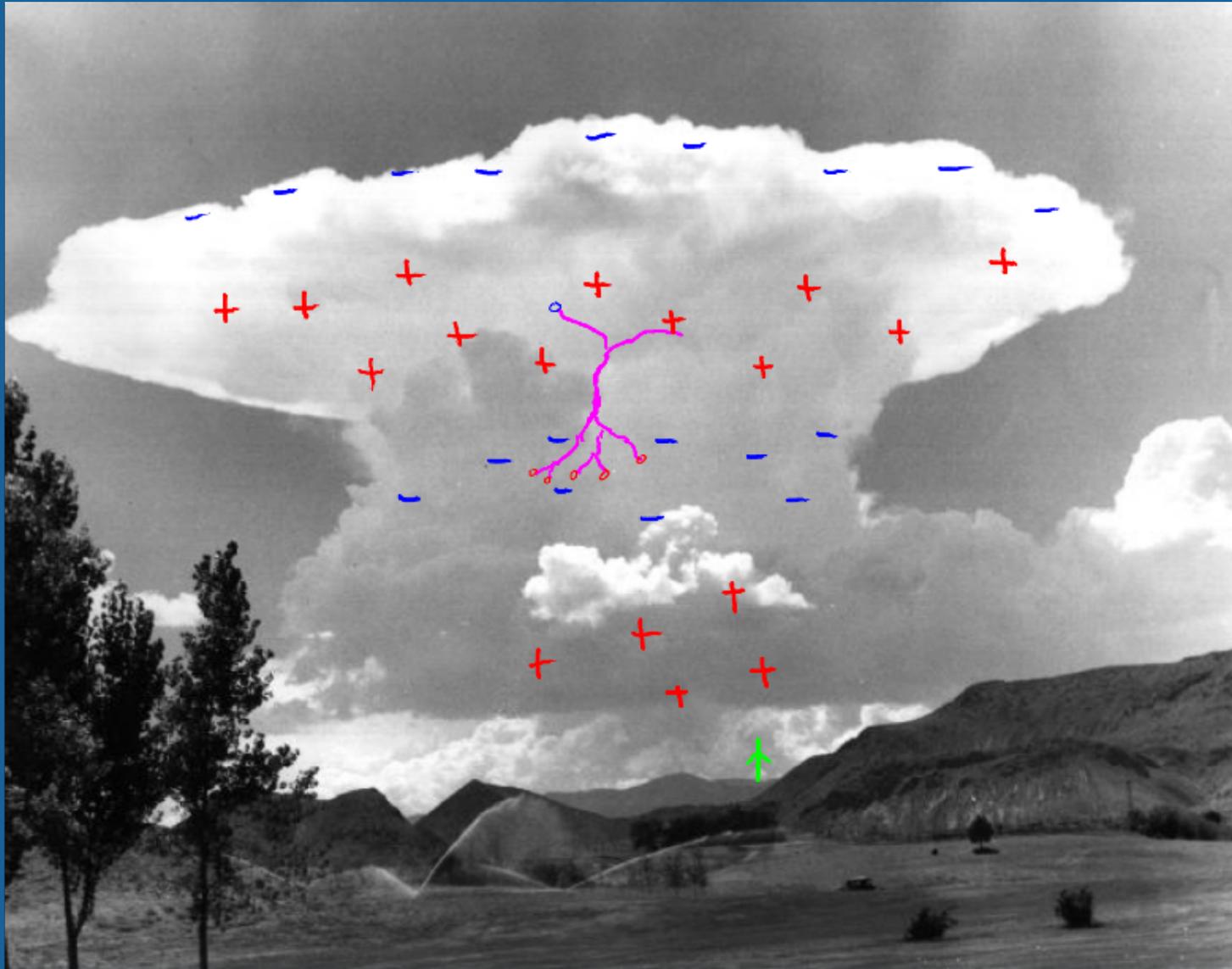


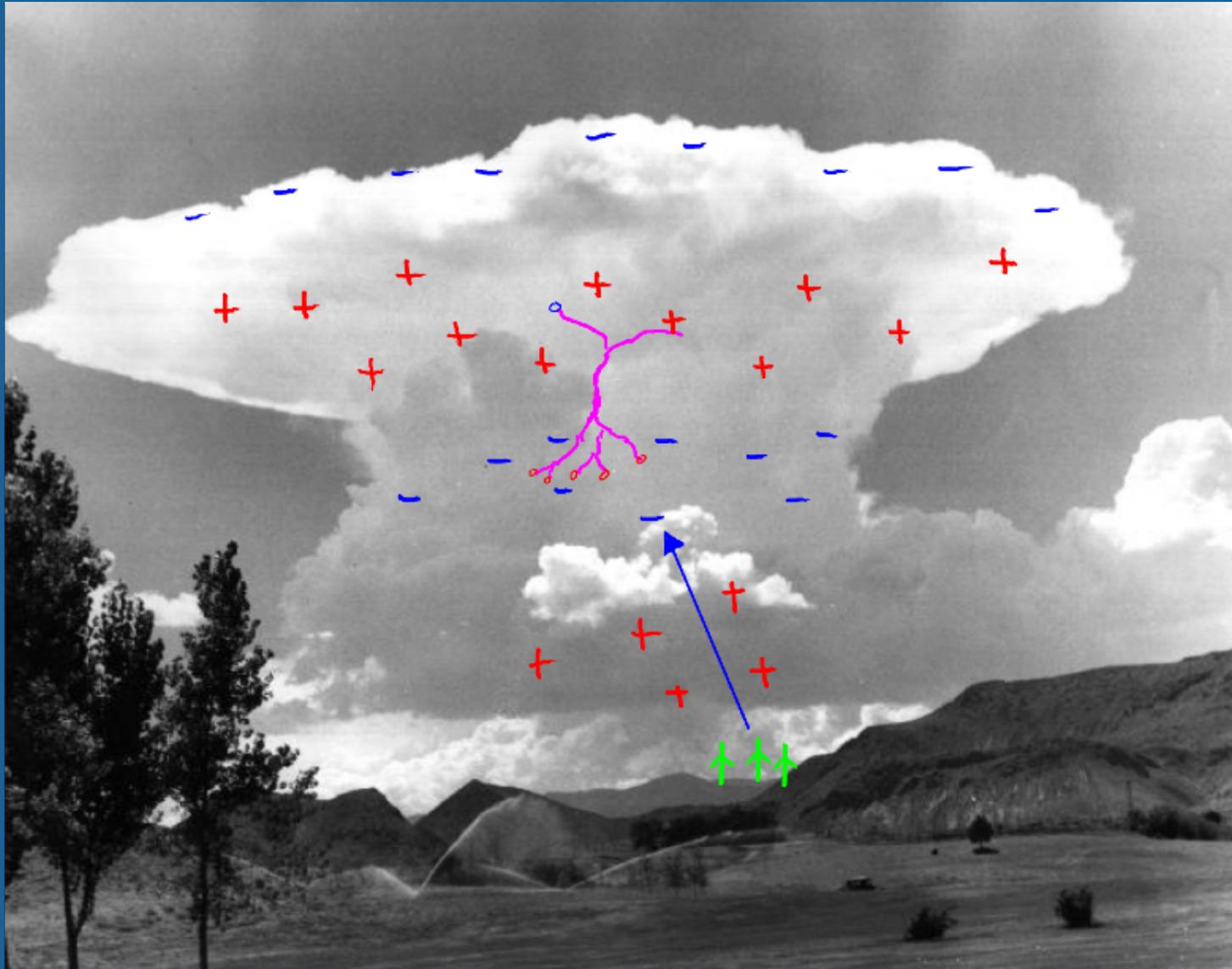




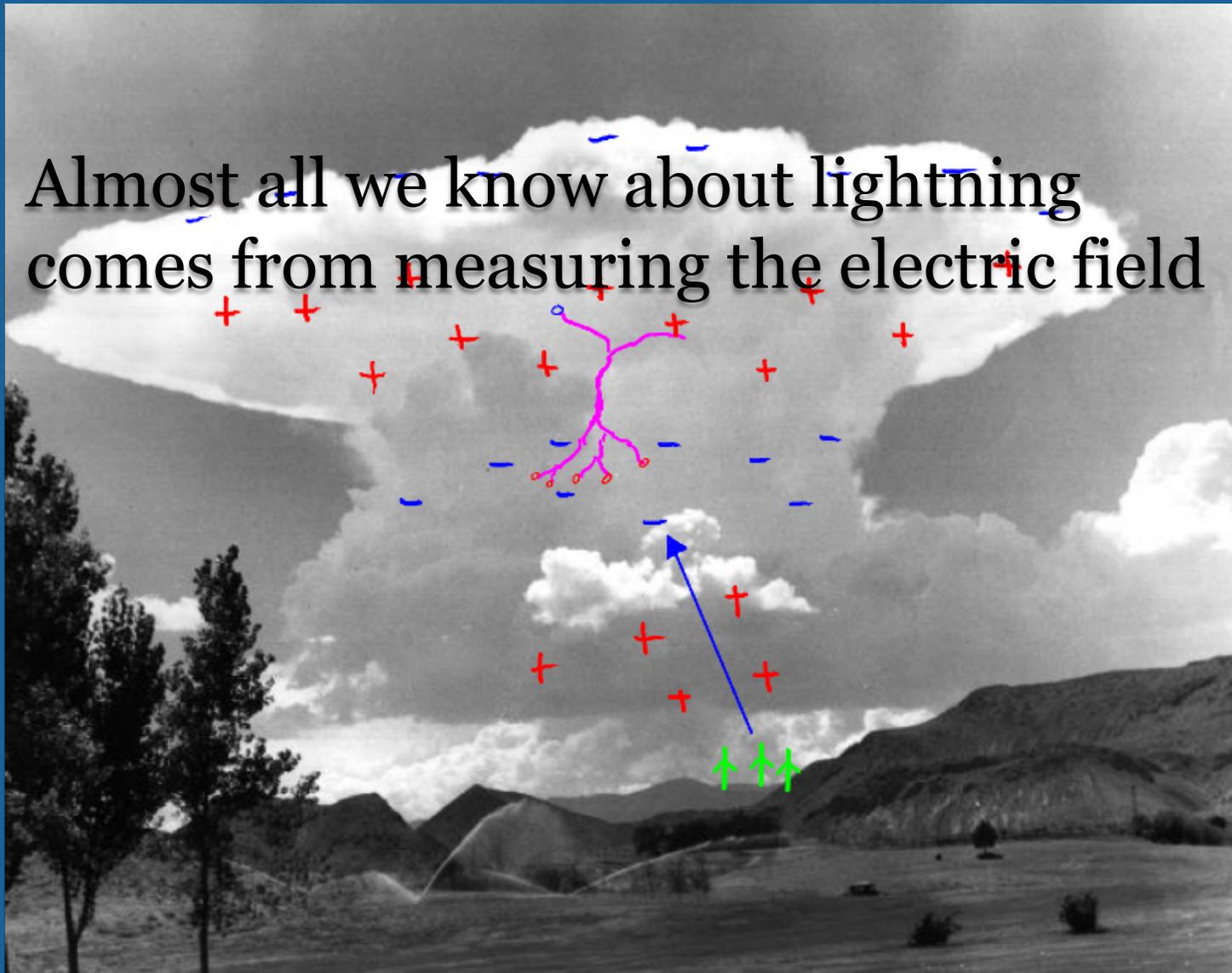


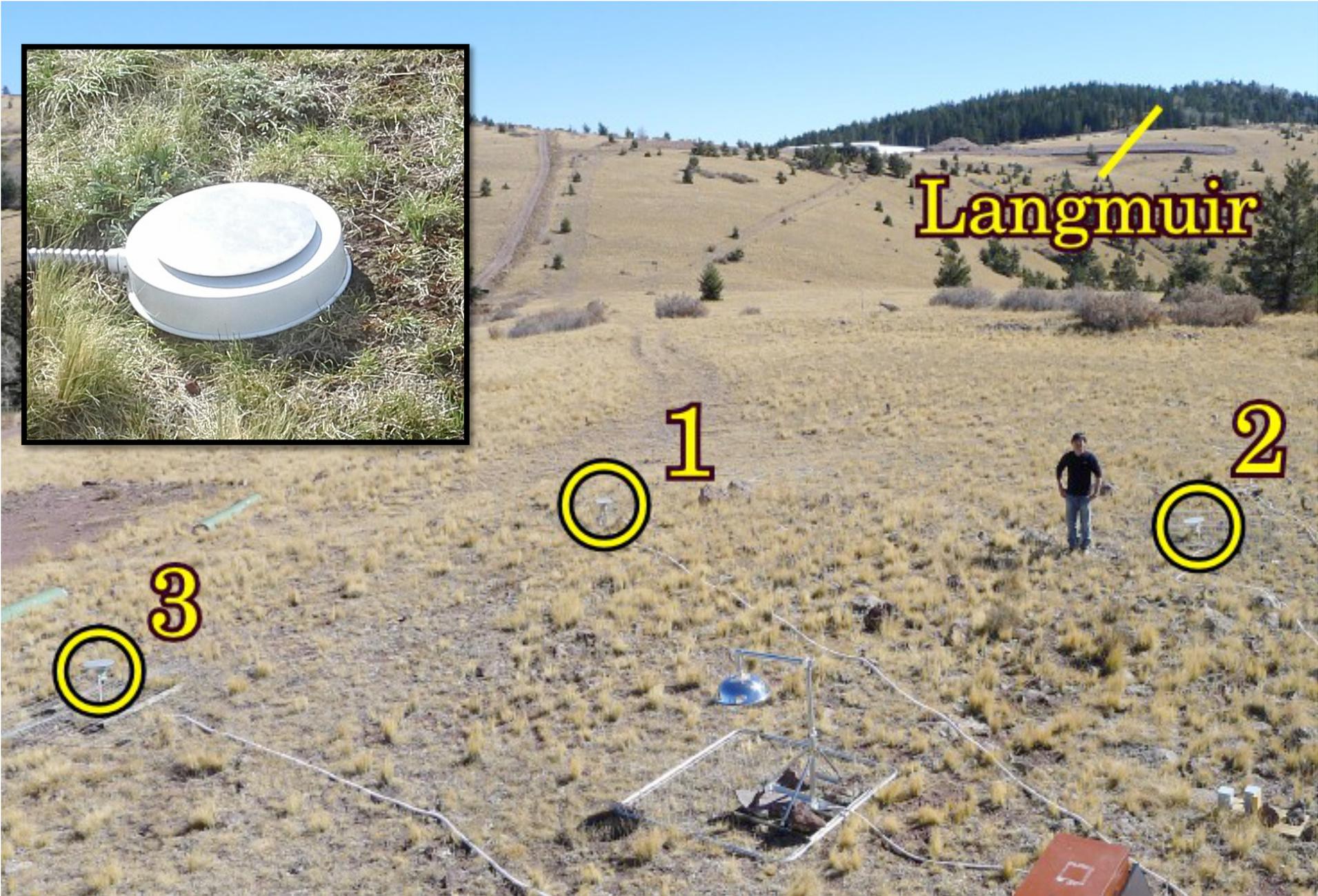






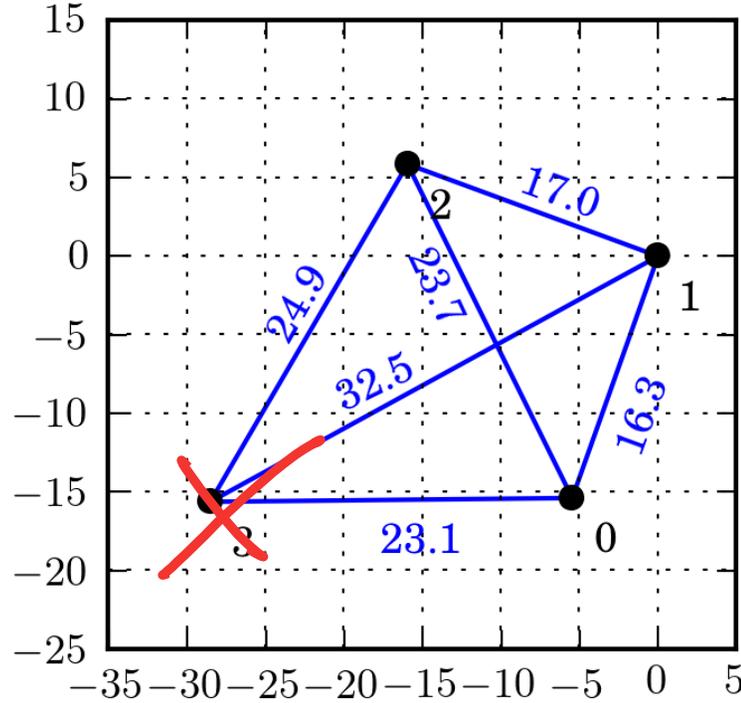
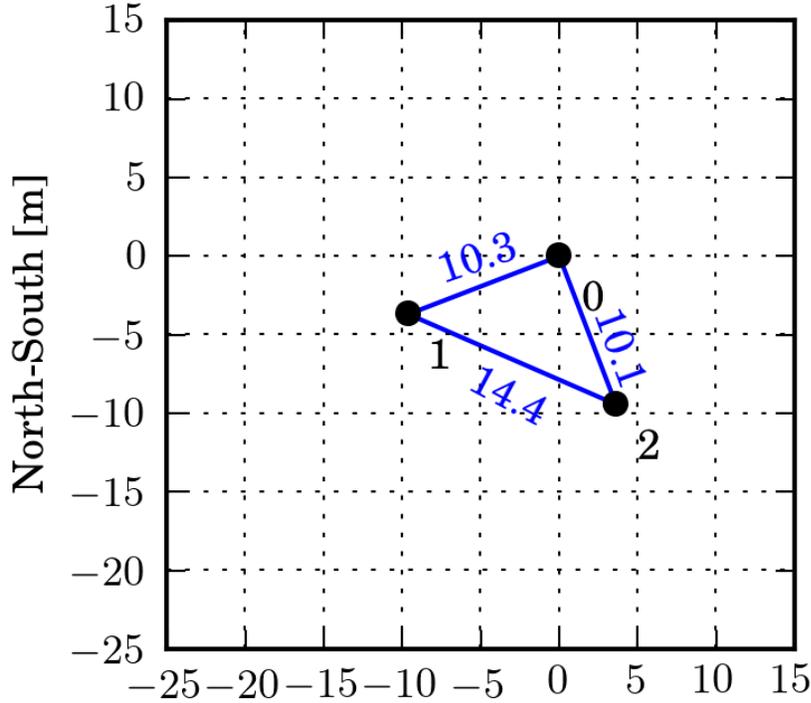
Almost all we know about lightning comes from measuring the electric field





2012

~~2013~~ 2014



ur

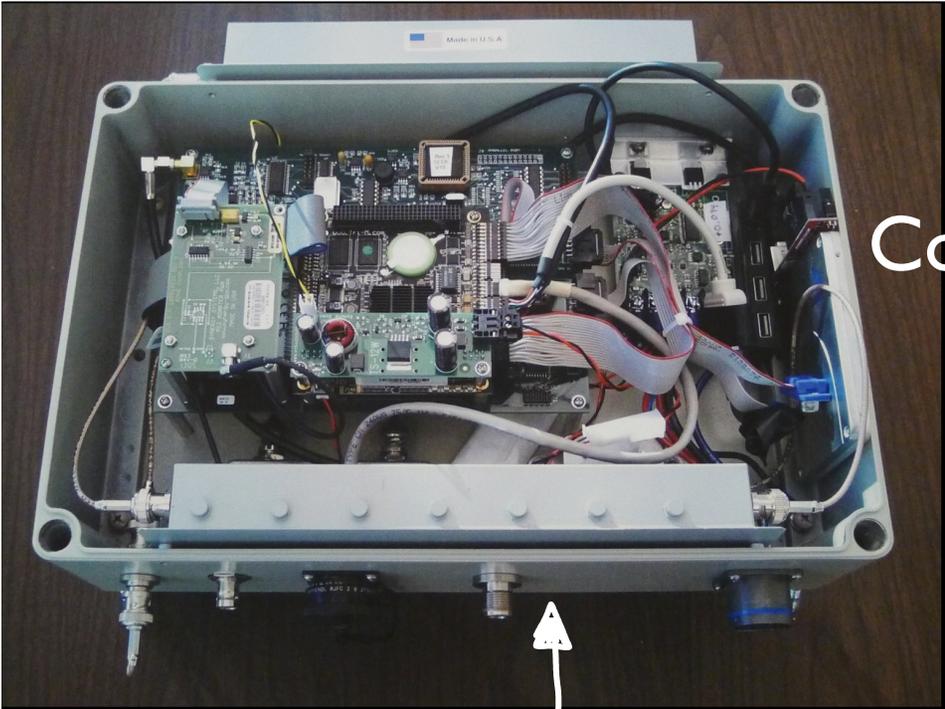
2

	<b>2012</b>	<b>2013</b>	<b>2014</b>
Antennas	3	4	3
Diameter	10.2 m	23.9 m	17 m
Record Length	2 s	5 s	5 s
Gain	39 dB	65 dB	54 dB
Plate Size	10"	10"	13"
Uncertainty	0.24°	0.10°	0.10°



	2012	2013	2014
	3	4	3
	1.2 m	23.9 m	17 m
			60 MHz
Gain			54 dB
Plate Size			13"
Uncertainty			0.10°

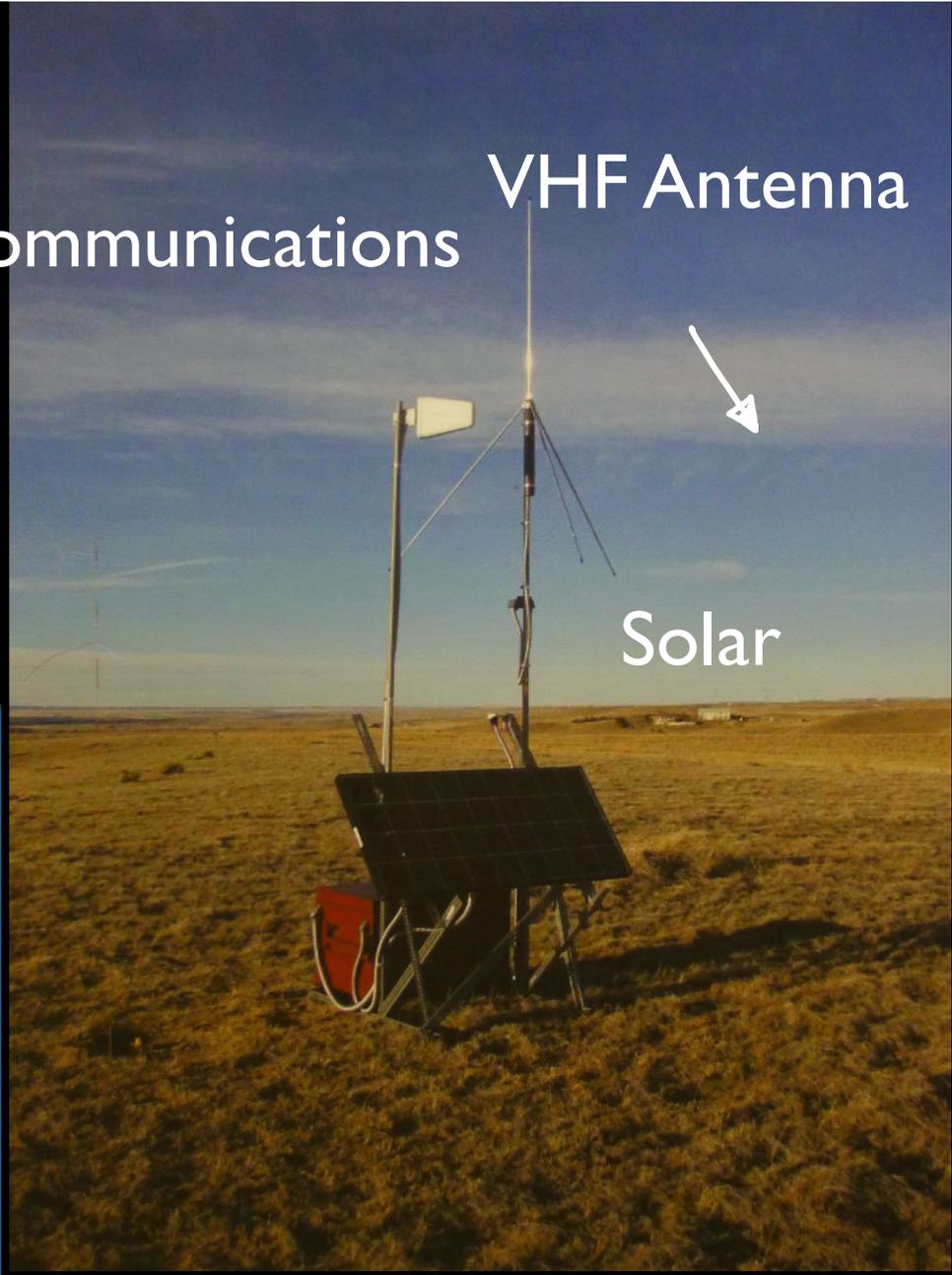




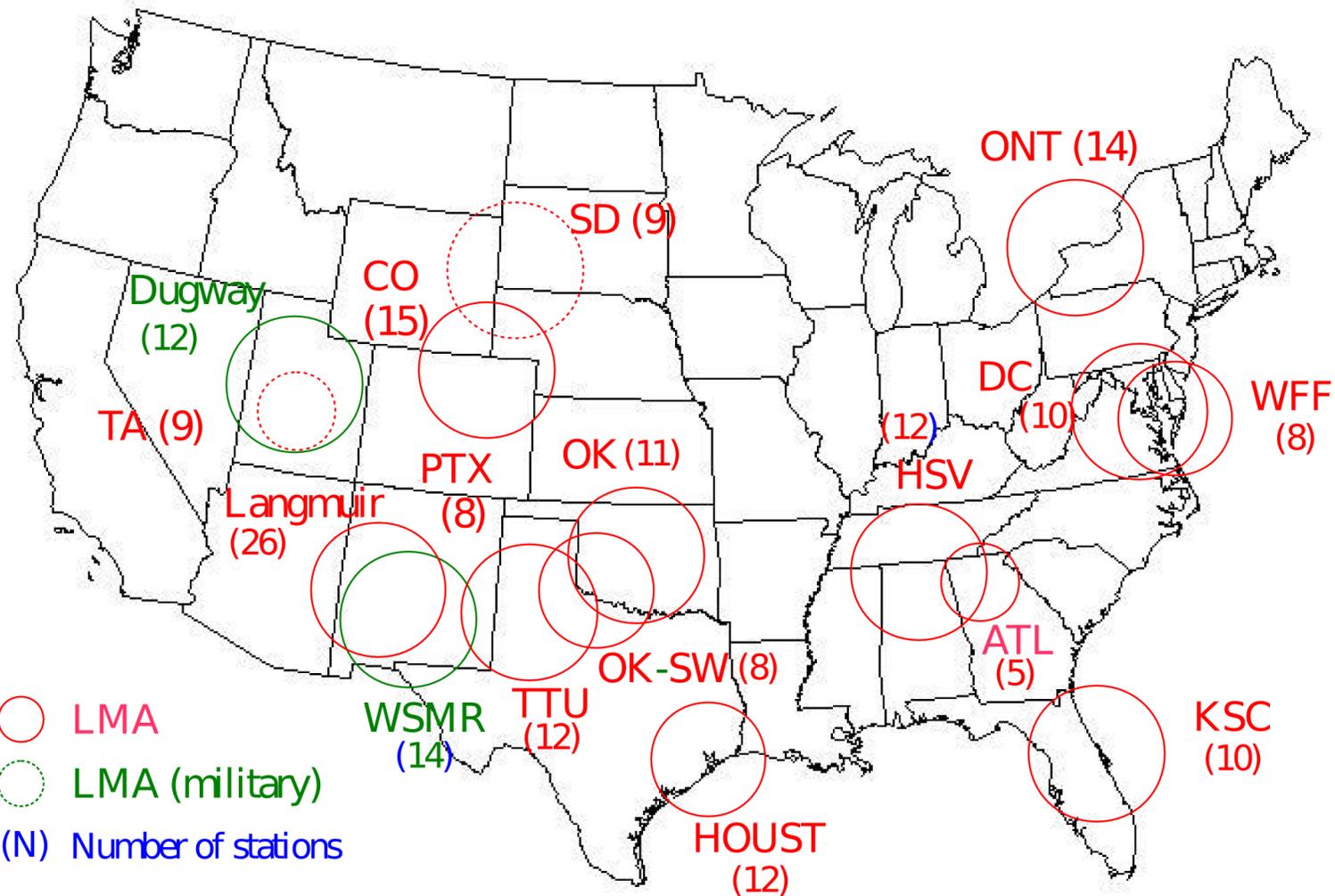
Receiver

Communications

VHF Antenna



Solar



	<b>LMA</b>	<b>INTF</b>
Sensors	12-28	3-4
Diameter	10-50 km	10-30 m
Range	500 km	20 km
Sensitivity	-20 dBW	-20 dBW
Bandwidth	6 MHz	60 MHz
Uncertainty	10-50 m	0.10°

VHF Antenna

Communications



*Jacob Trueblood*



← LANGMUIR  
MAIN BUILDING  
&  
MRDF

KIVA & SINGLE DISH →

*Jacob Trueblood*



STAND HERE



*Jacob Trueblood*

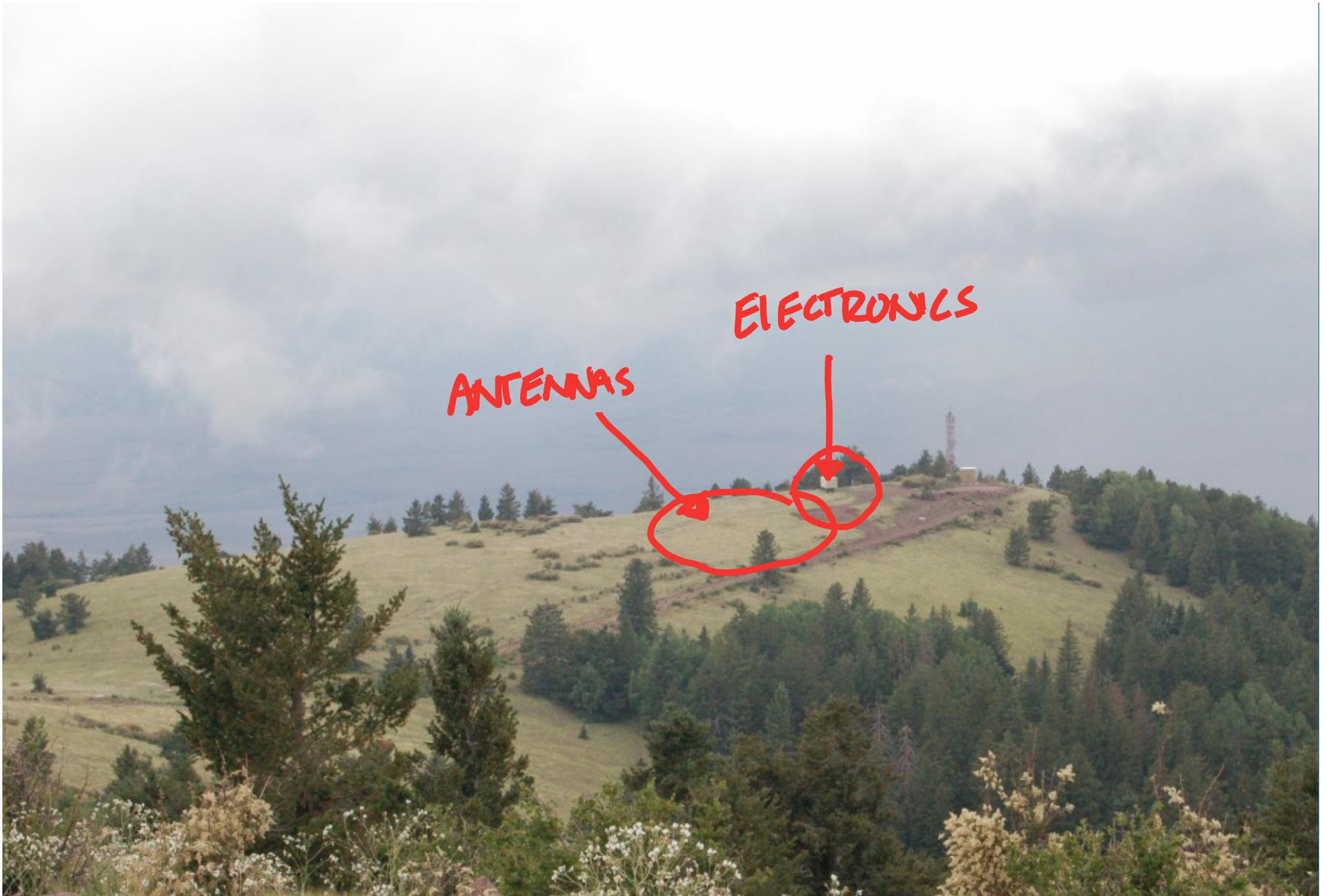


*Jacob Trueblood*





ELECTRONICS



ANTENNAS

ELECTRONICS





LMA Station

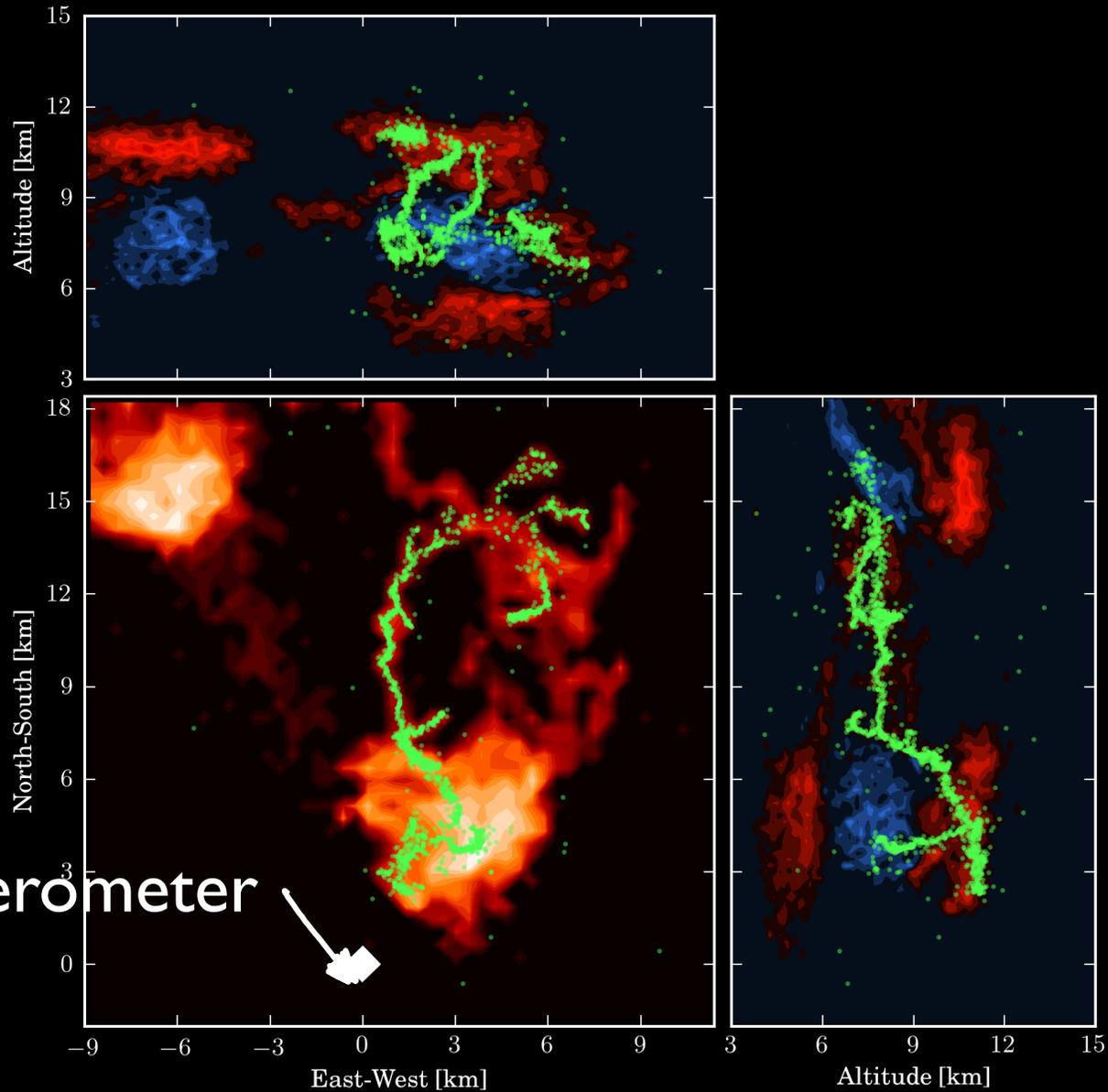


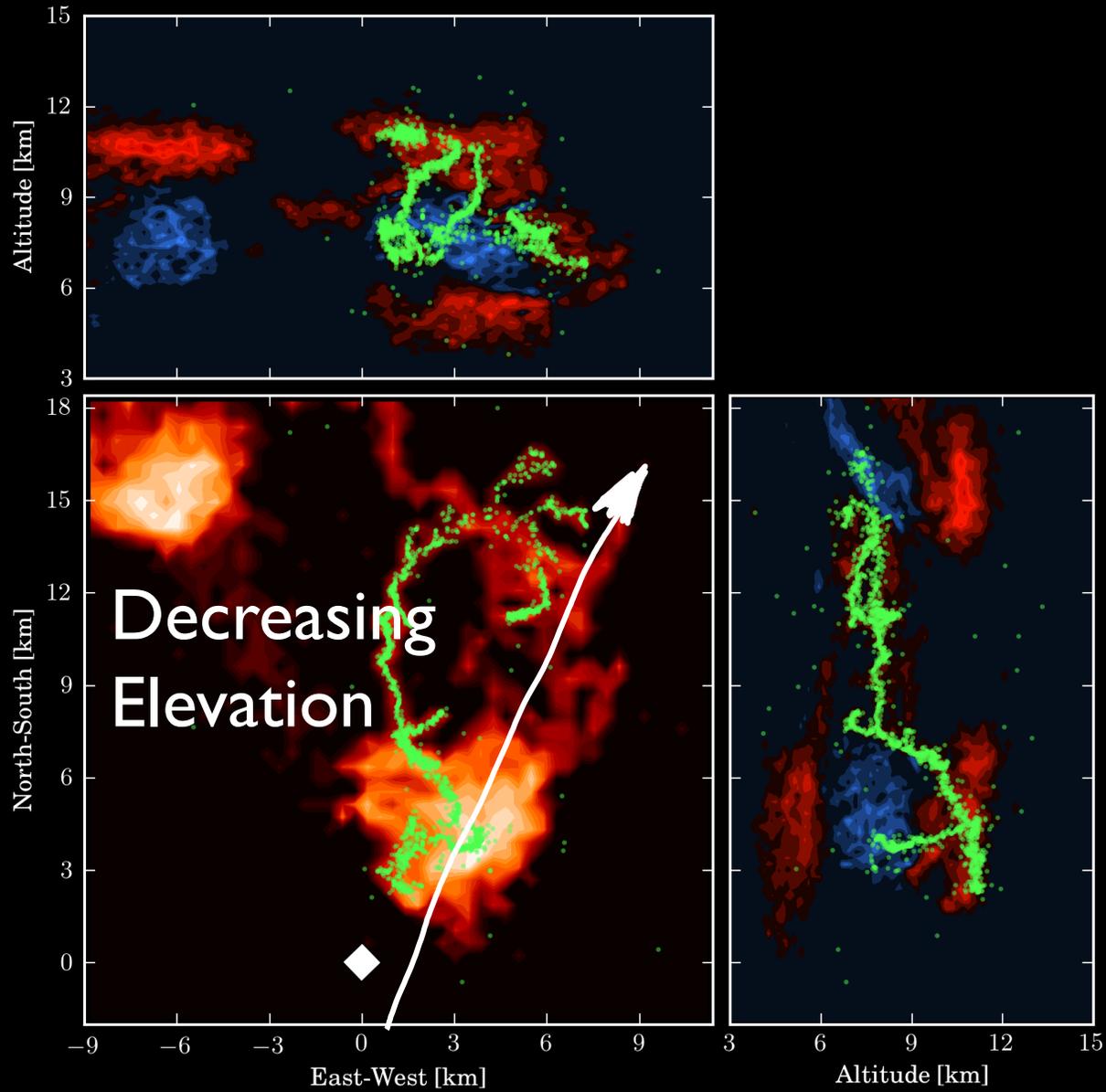


LMA Station

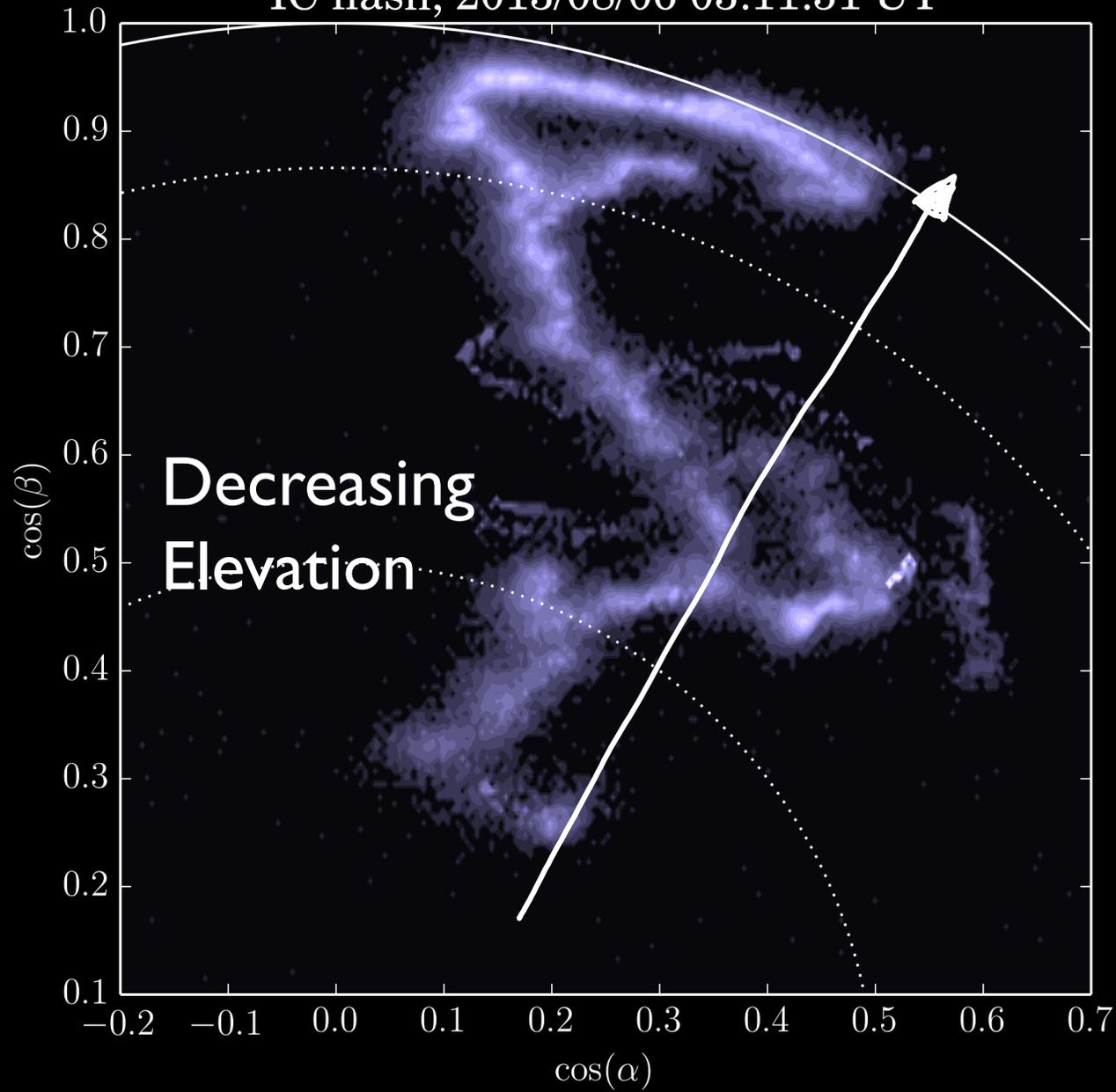


*Jacob Trueblood*

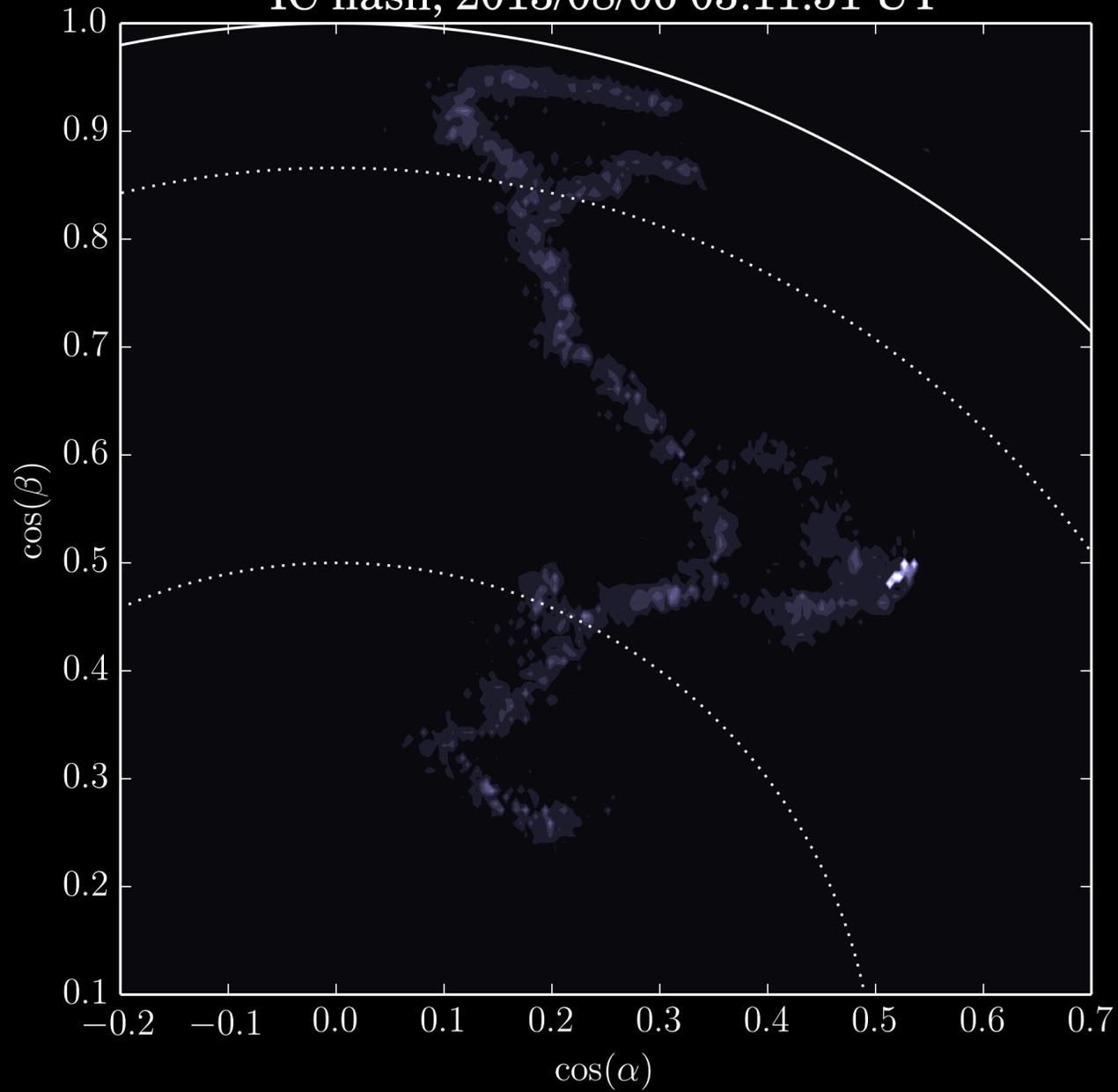




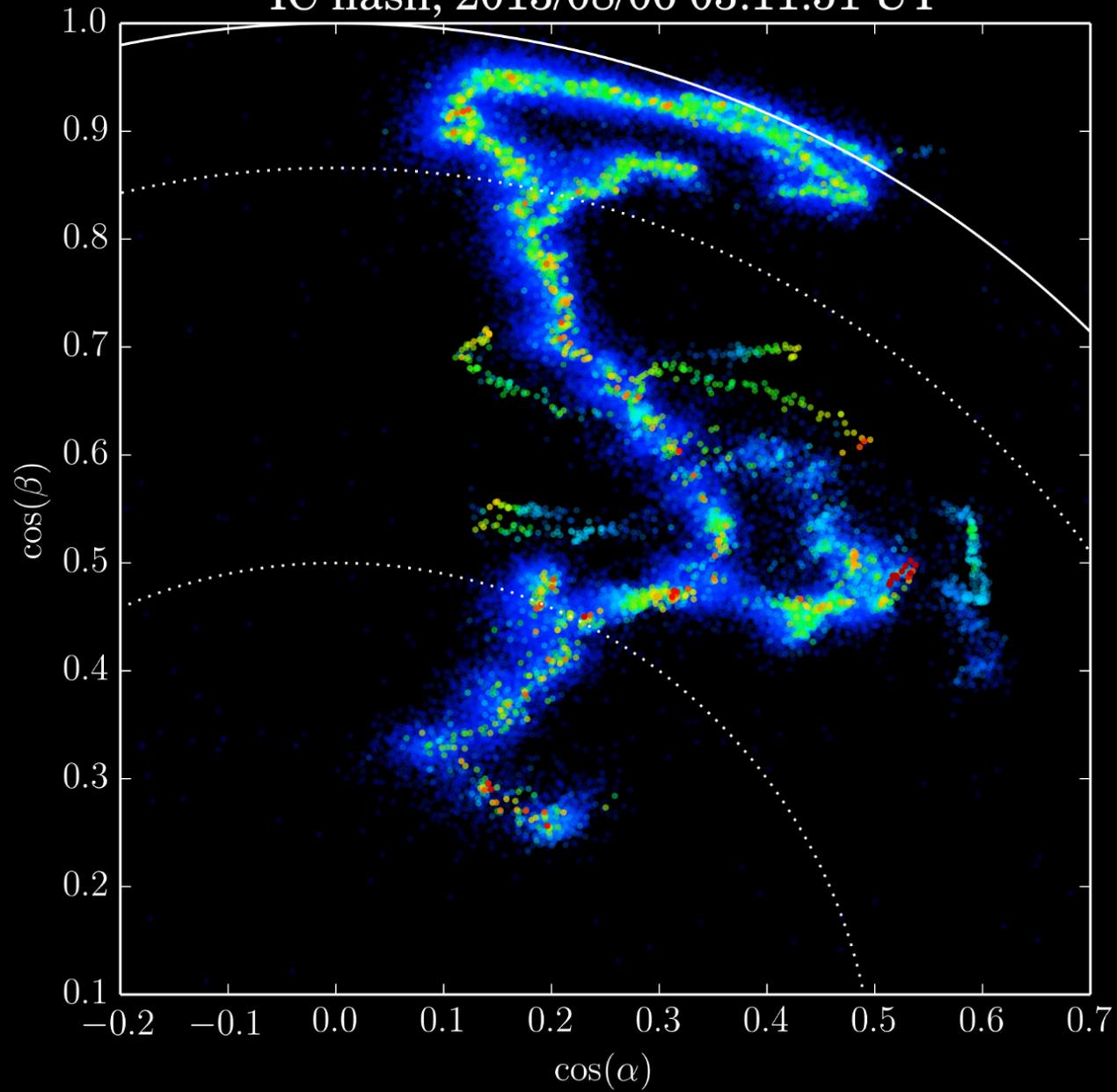
IC flash, 2013/08/06 03:11:51 UT



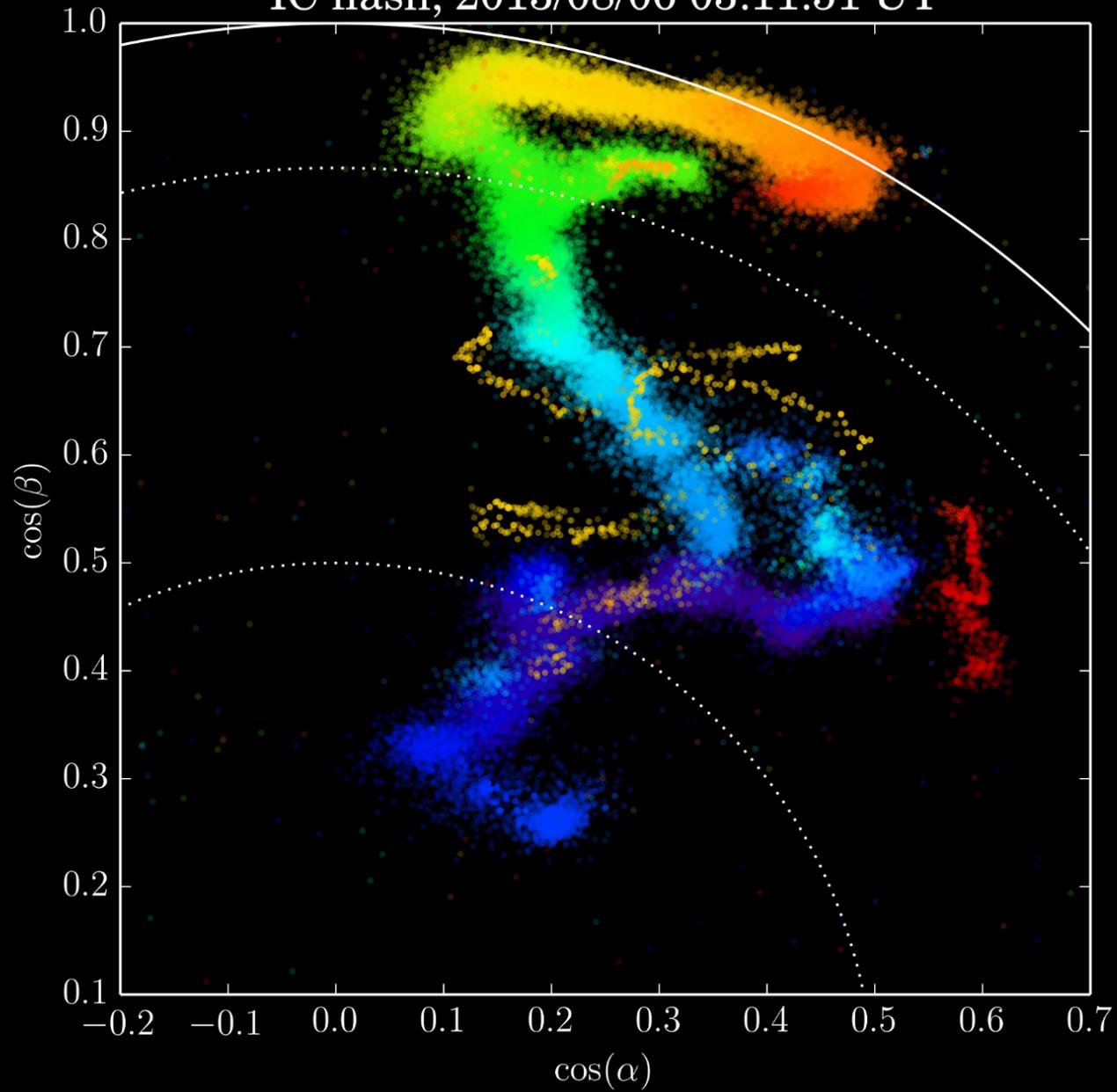
IC flash, 2013/08/06 03:11:51 UT



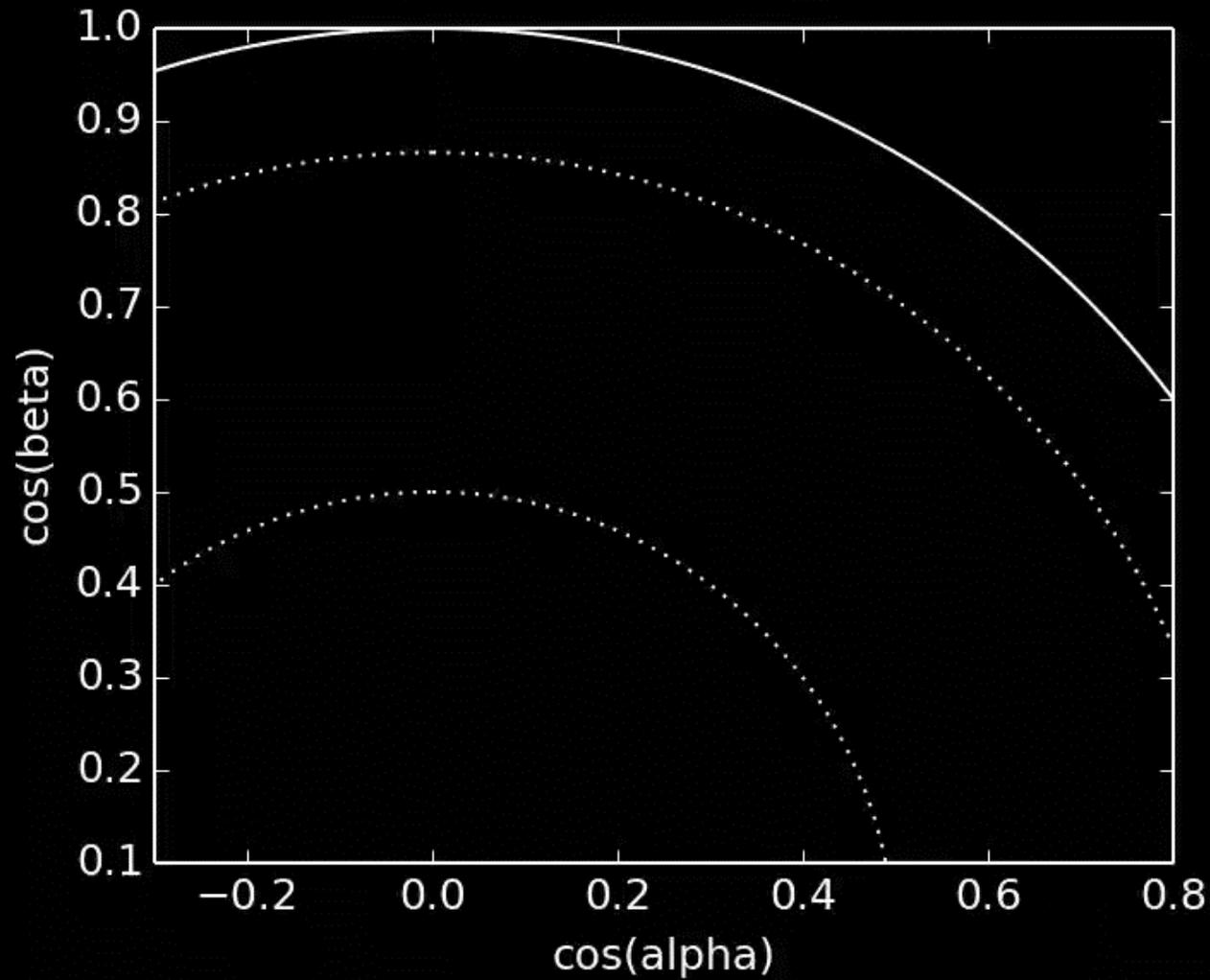
IC flash, 2013/08/06 03:11:51 UT

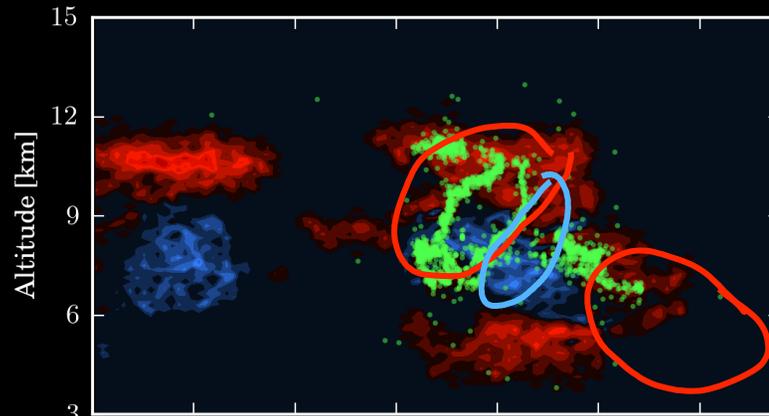


IC flash, 2013/08/06 03:11:51 UT

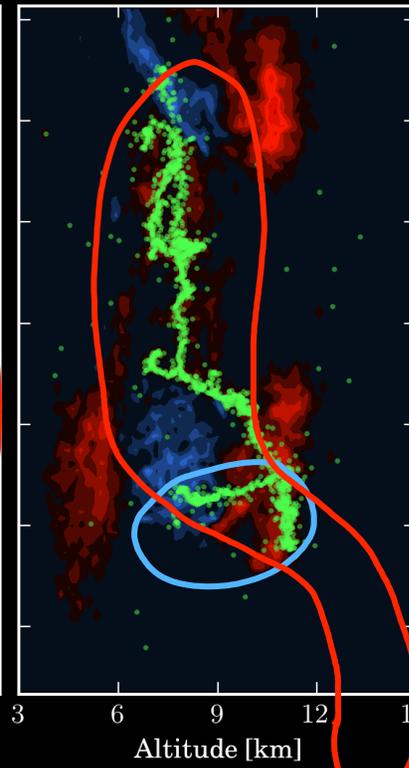
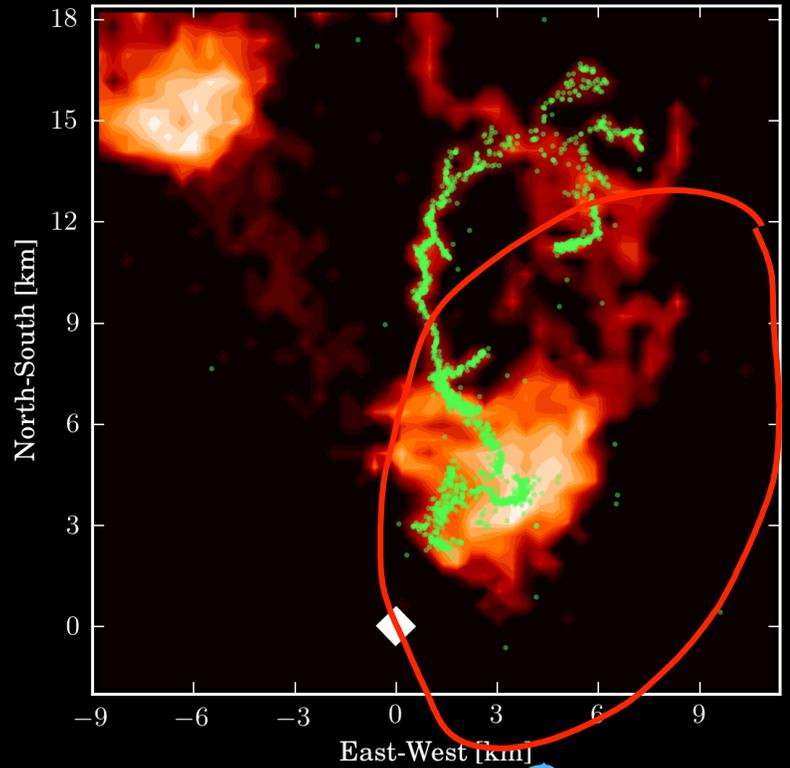


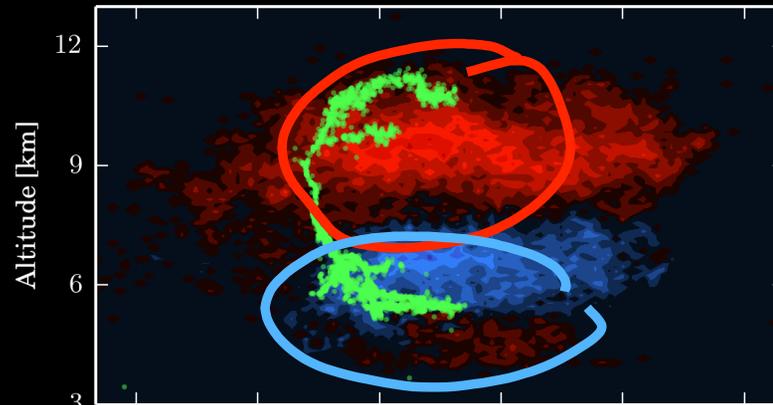
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Frame Rate: 6666 fps  
361.933



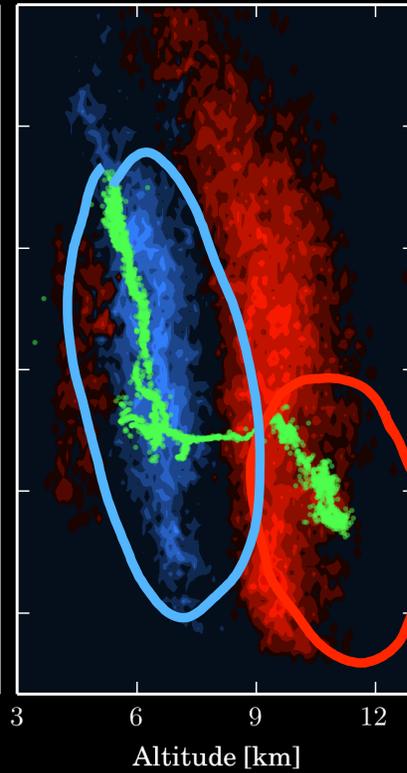
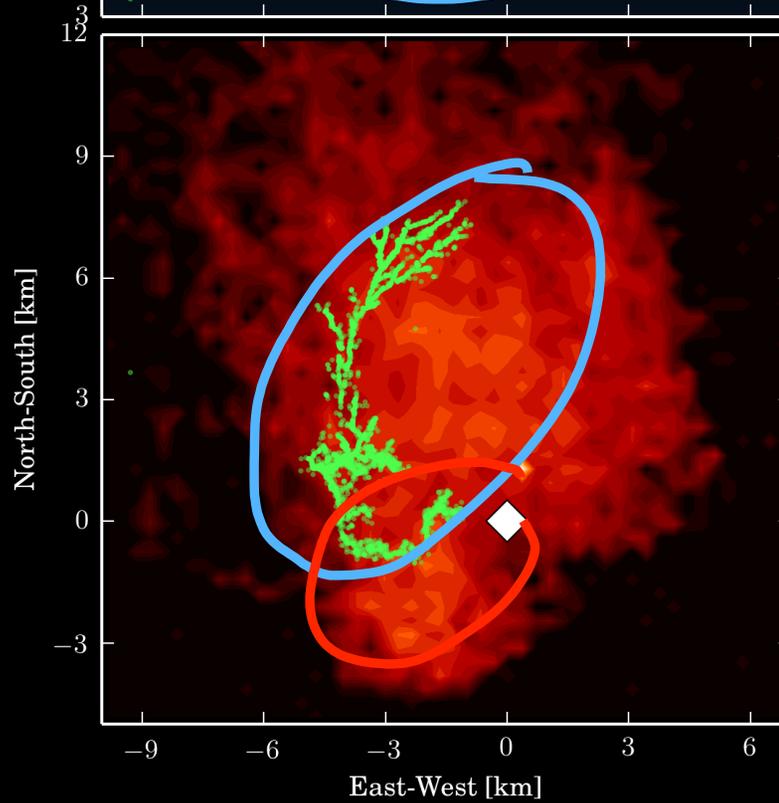


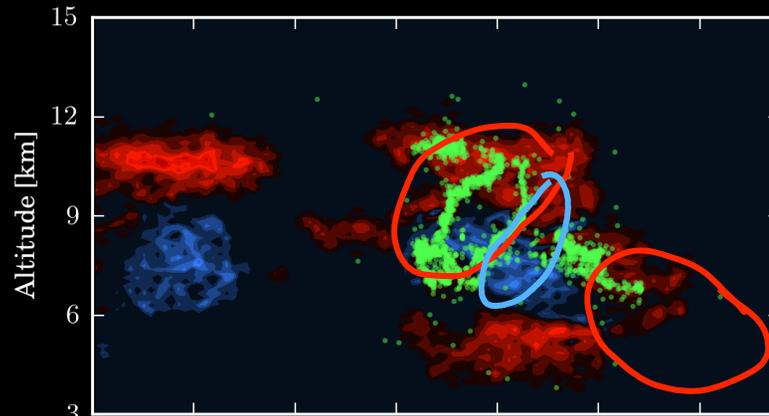
Negative Breakdown Region  
Positive Breakdown Region



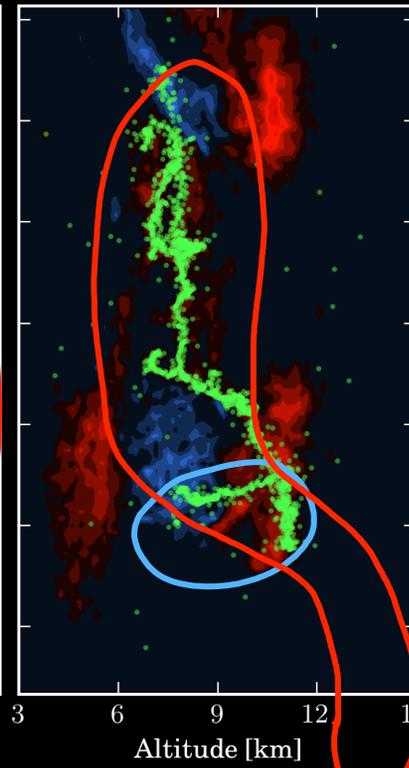
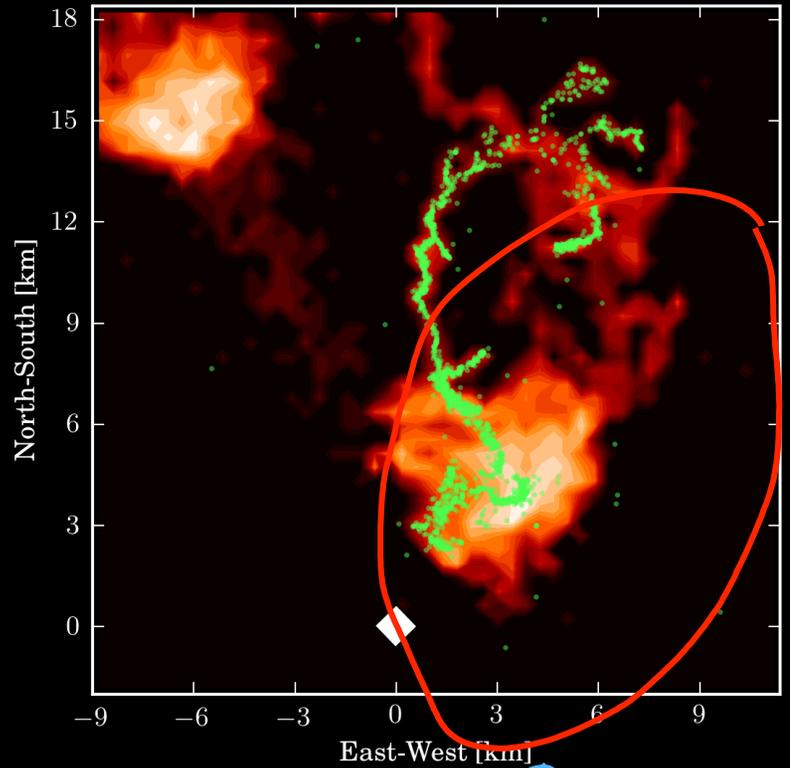


Negative Breakdown Region  
Positive Breakdown Region



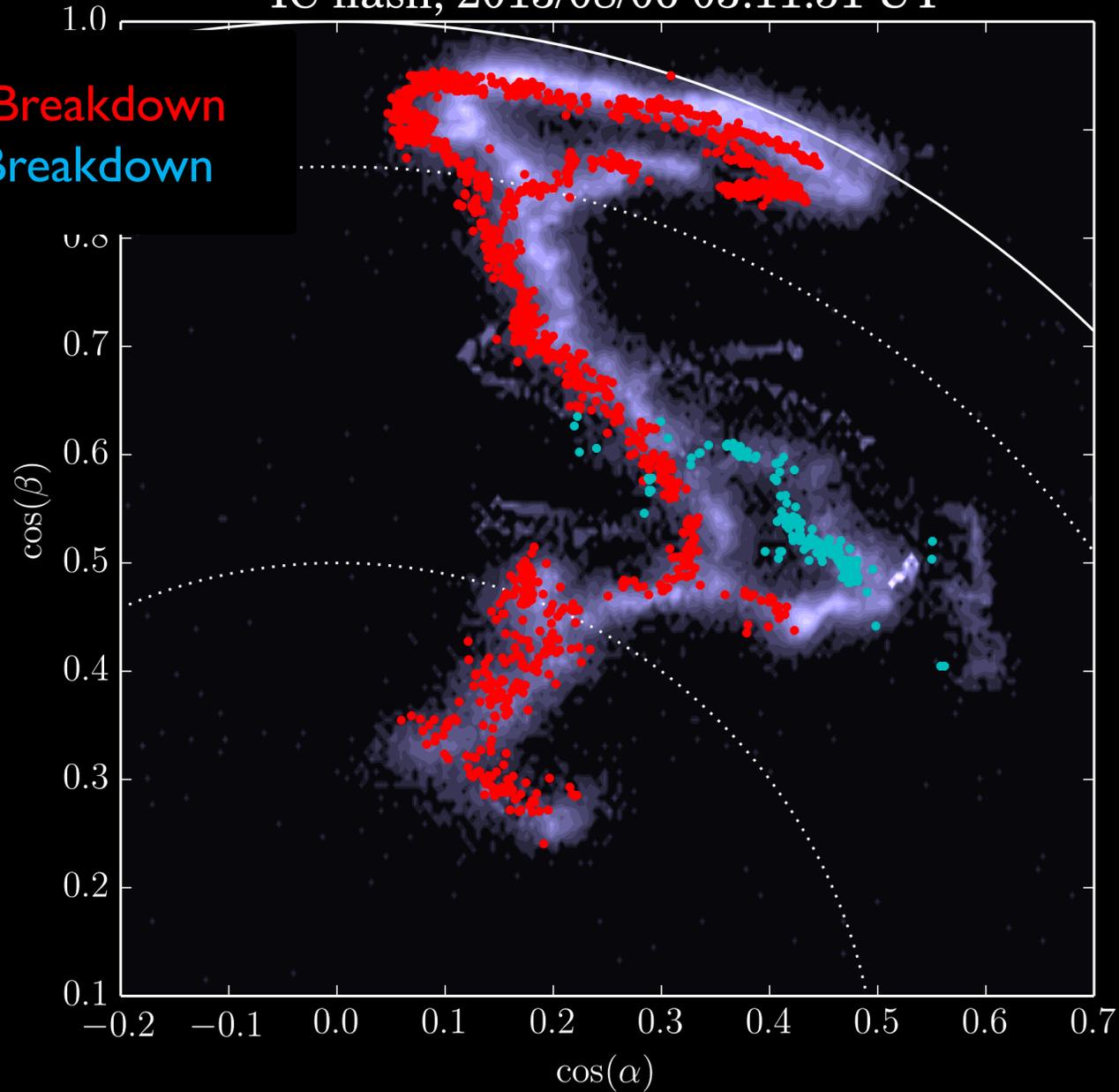


Negative Breakdown Region  
Positive Breakdown Region

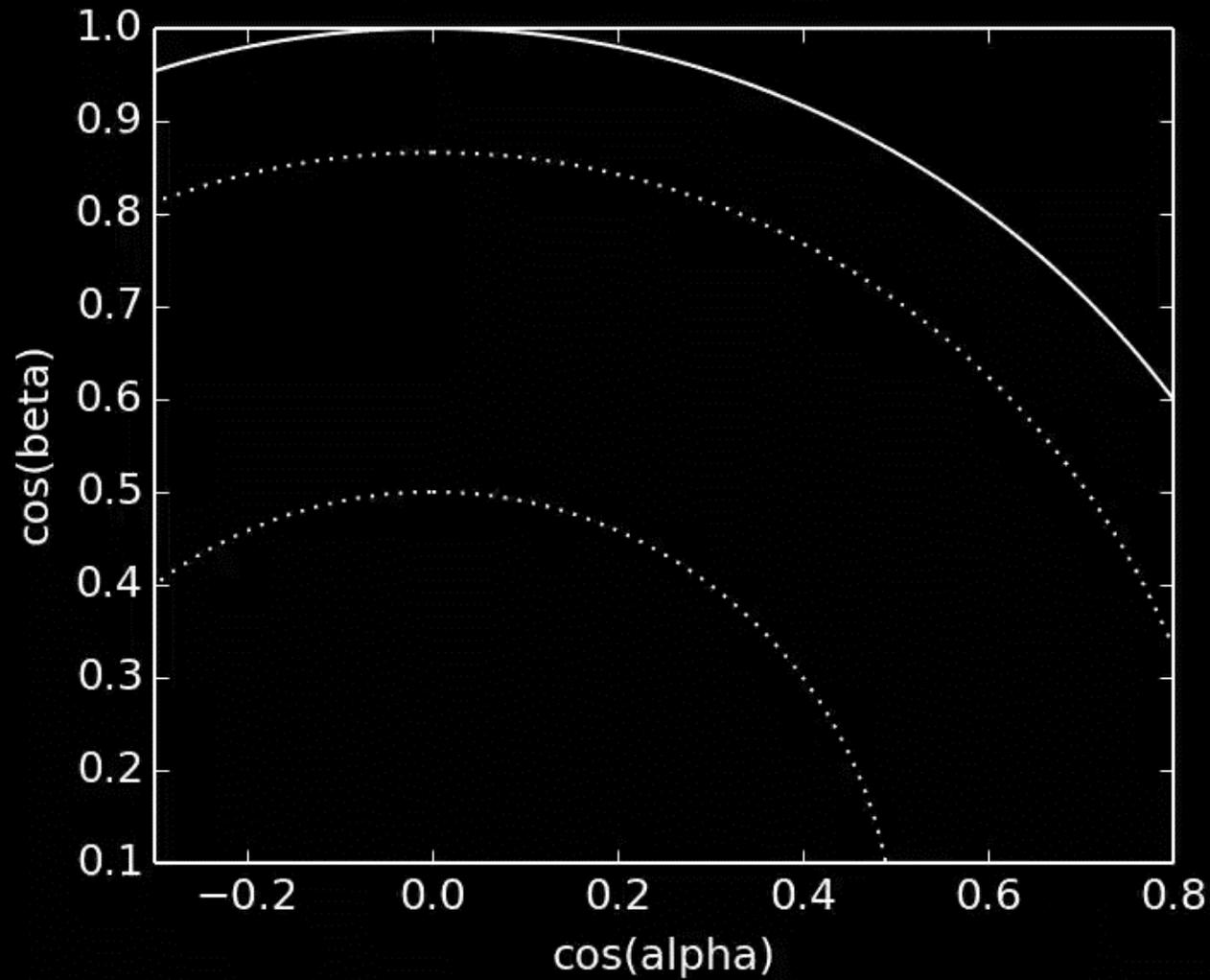


IC flash, 2013/08/06 03:11:51 UT

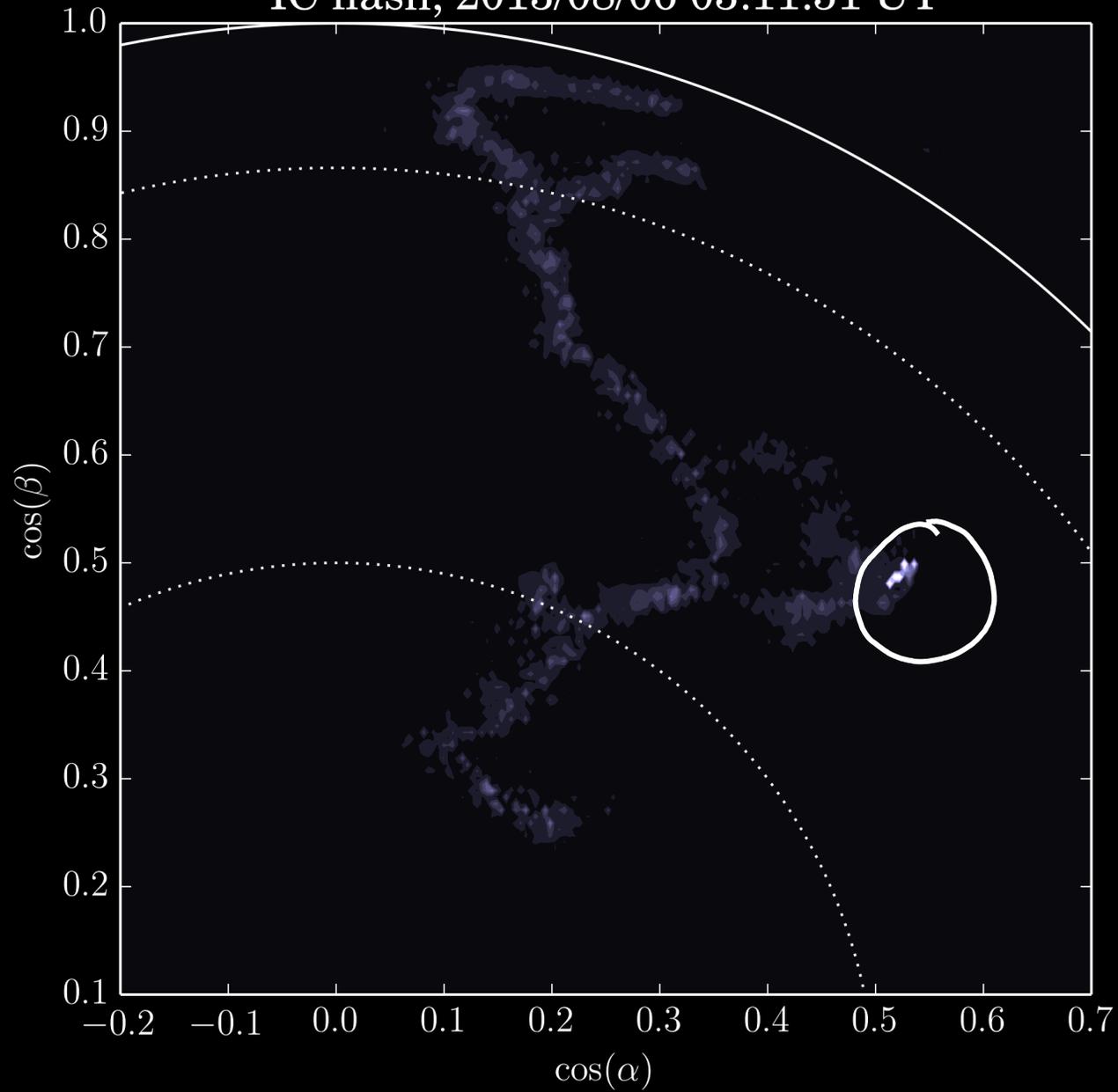
Negative Breakdown  
Positive Breakdown



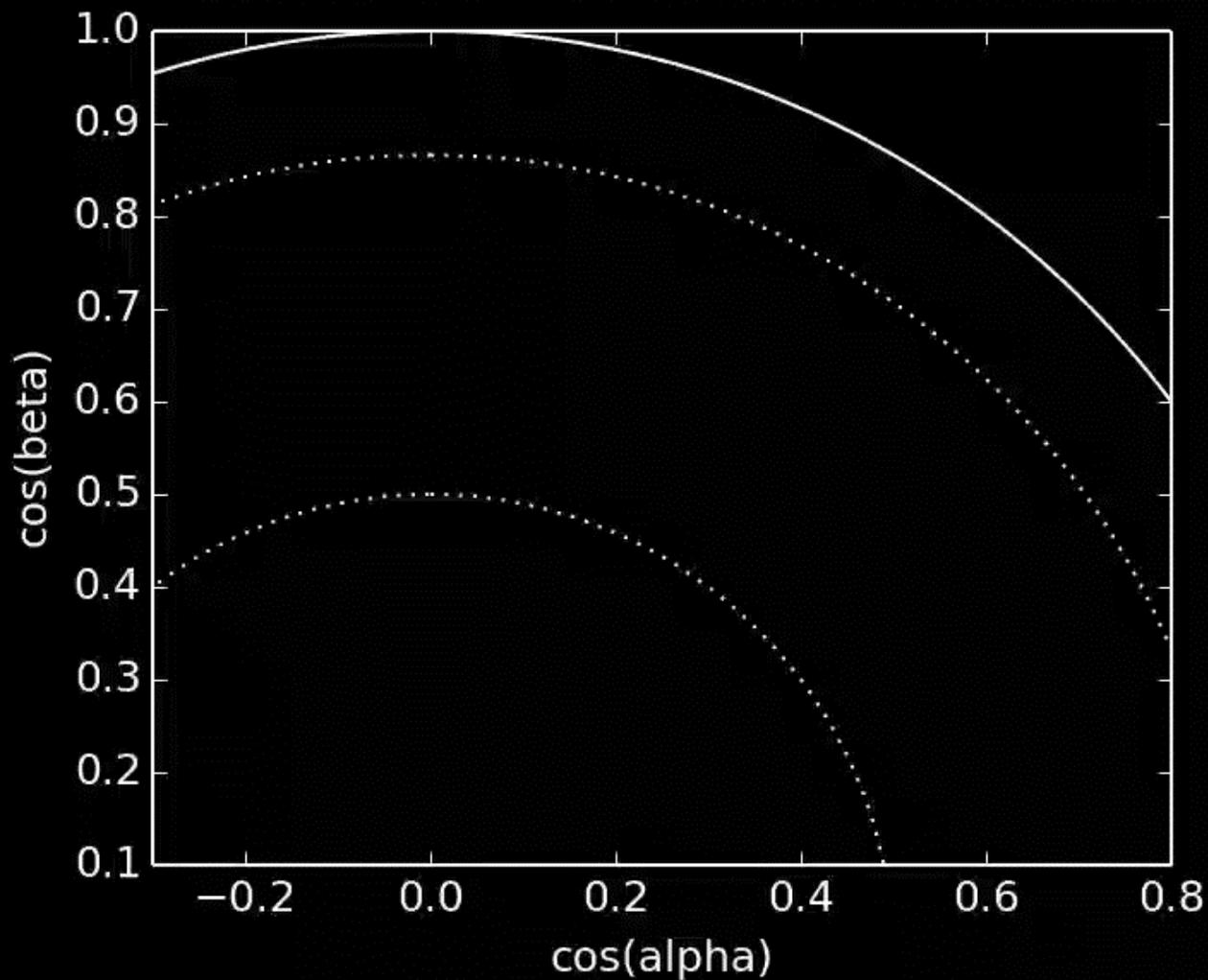
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361.933



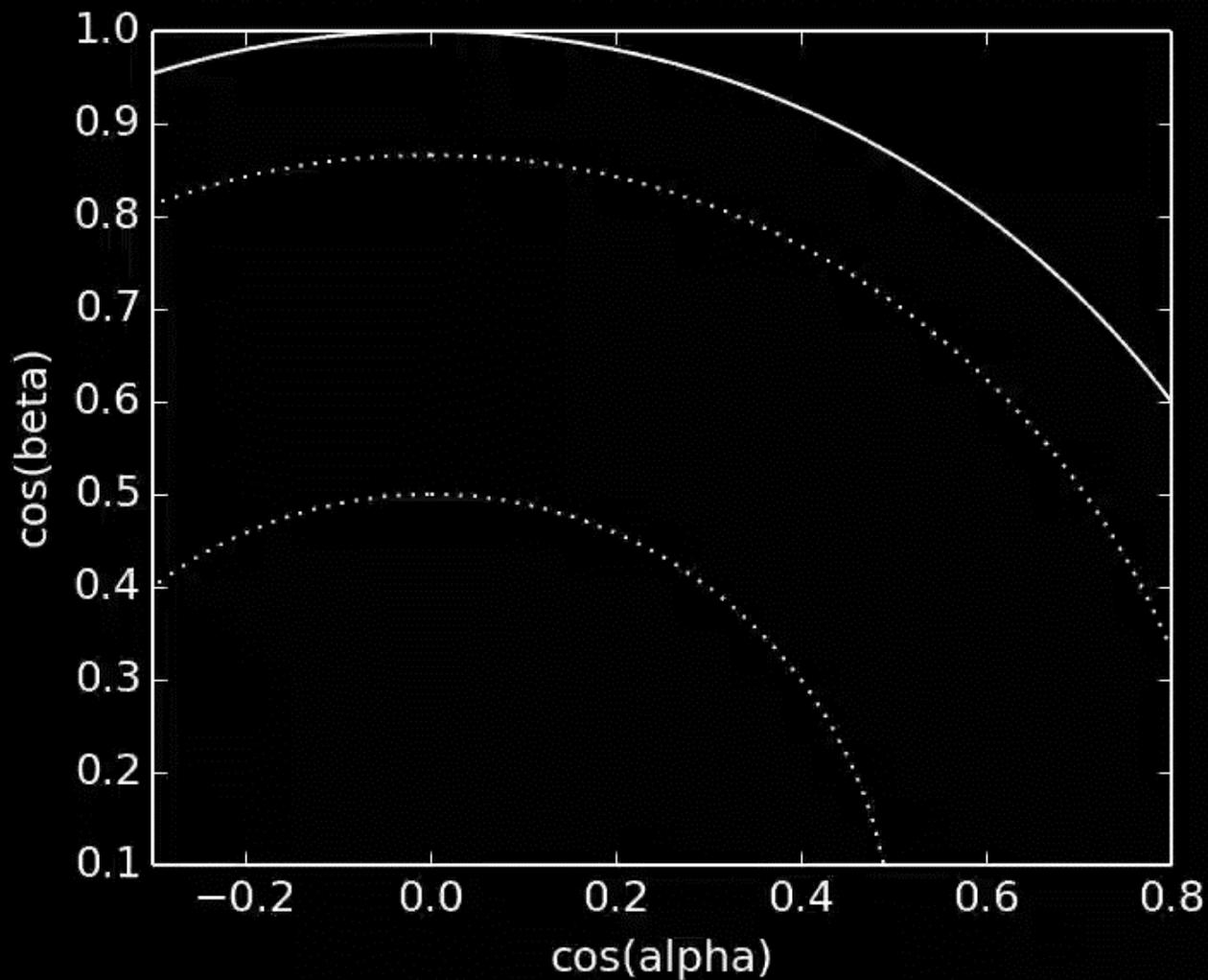
IC flash, 2013/08/06 03:11:51 UT



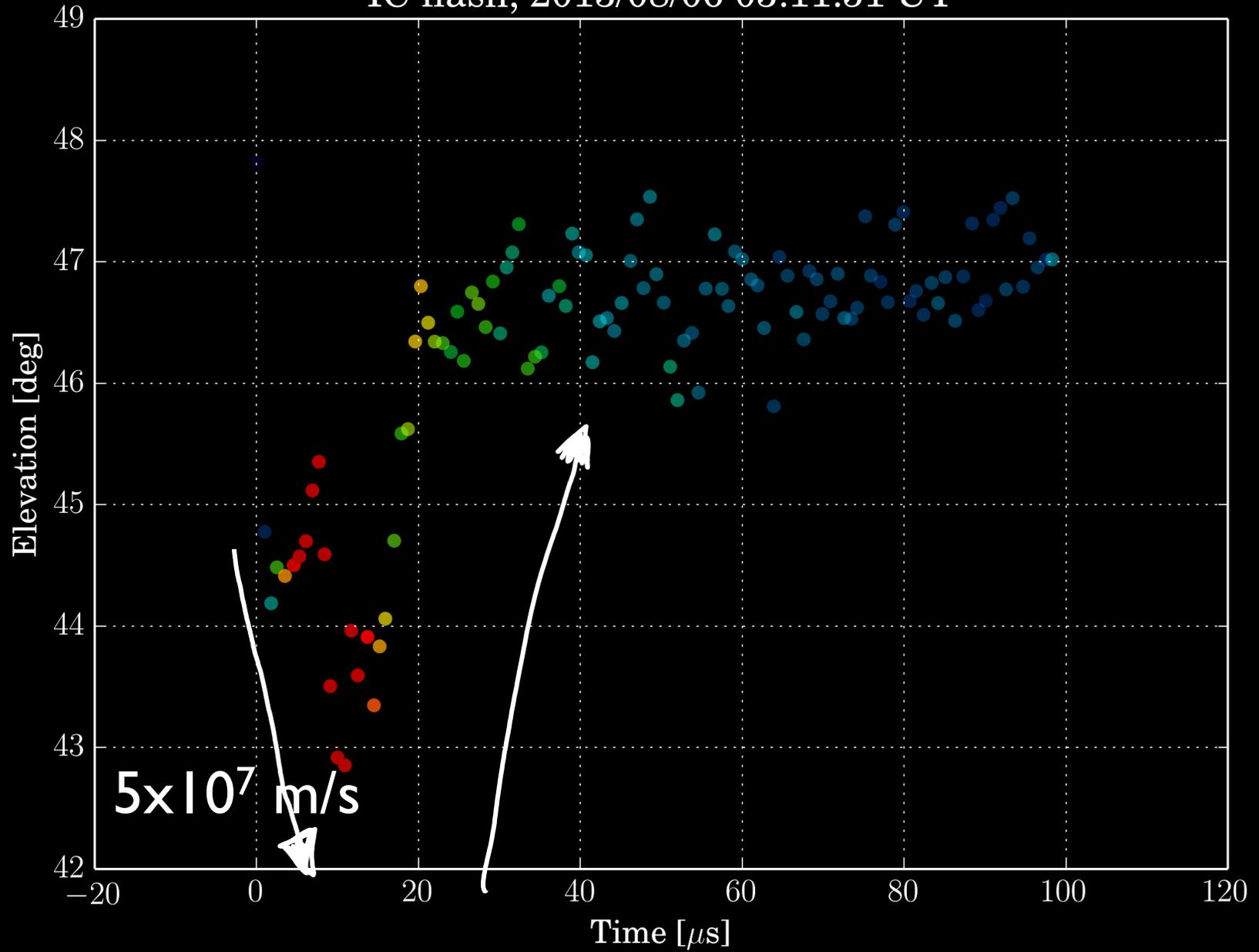
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372.000



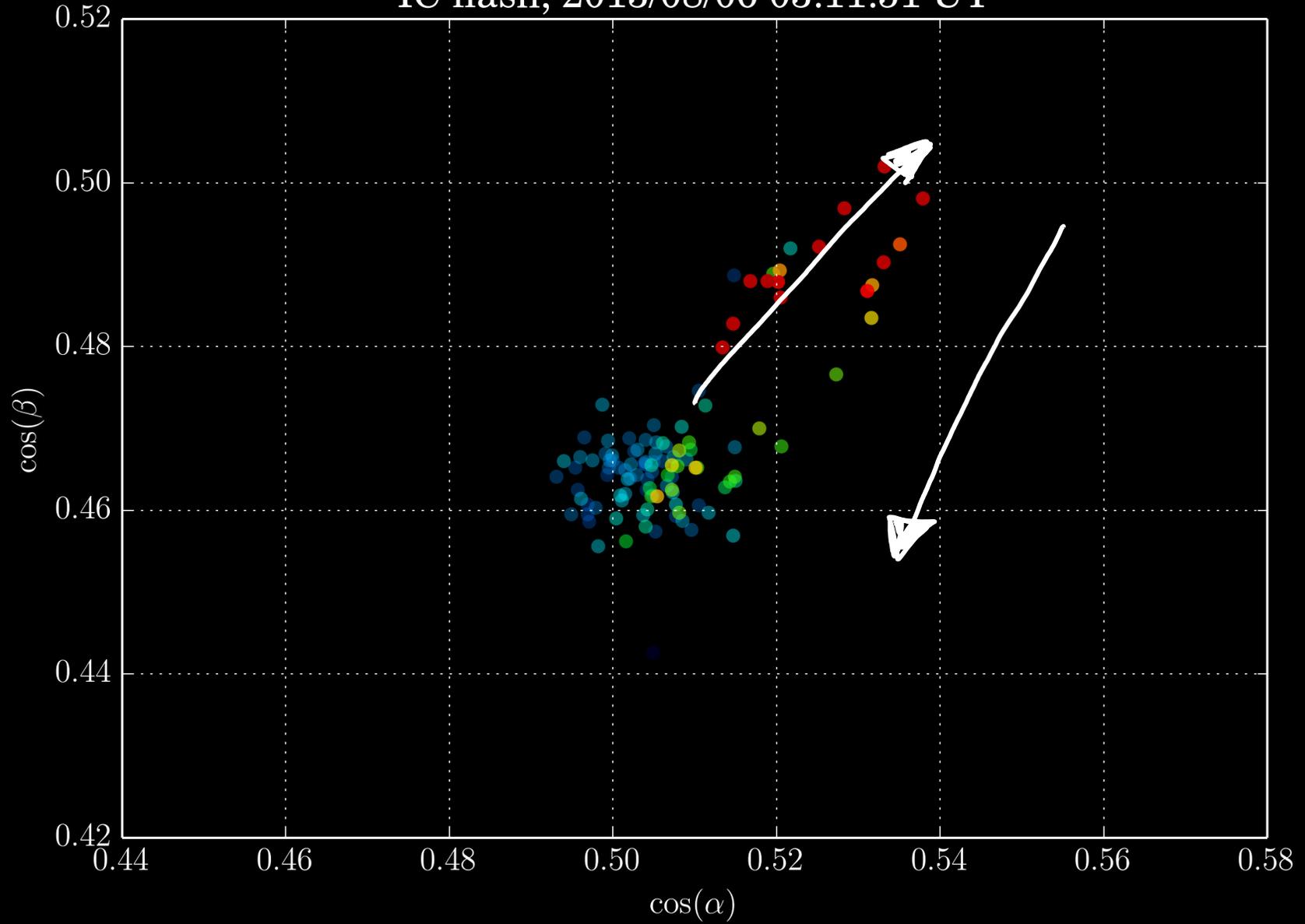
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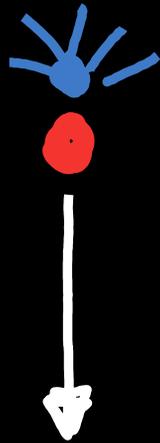


# IC flash, 2013/08/06 03:11:51 UT

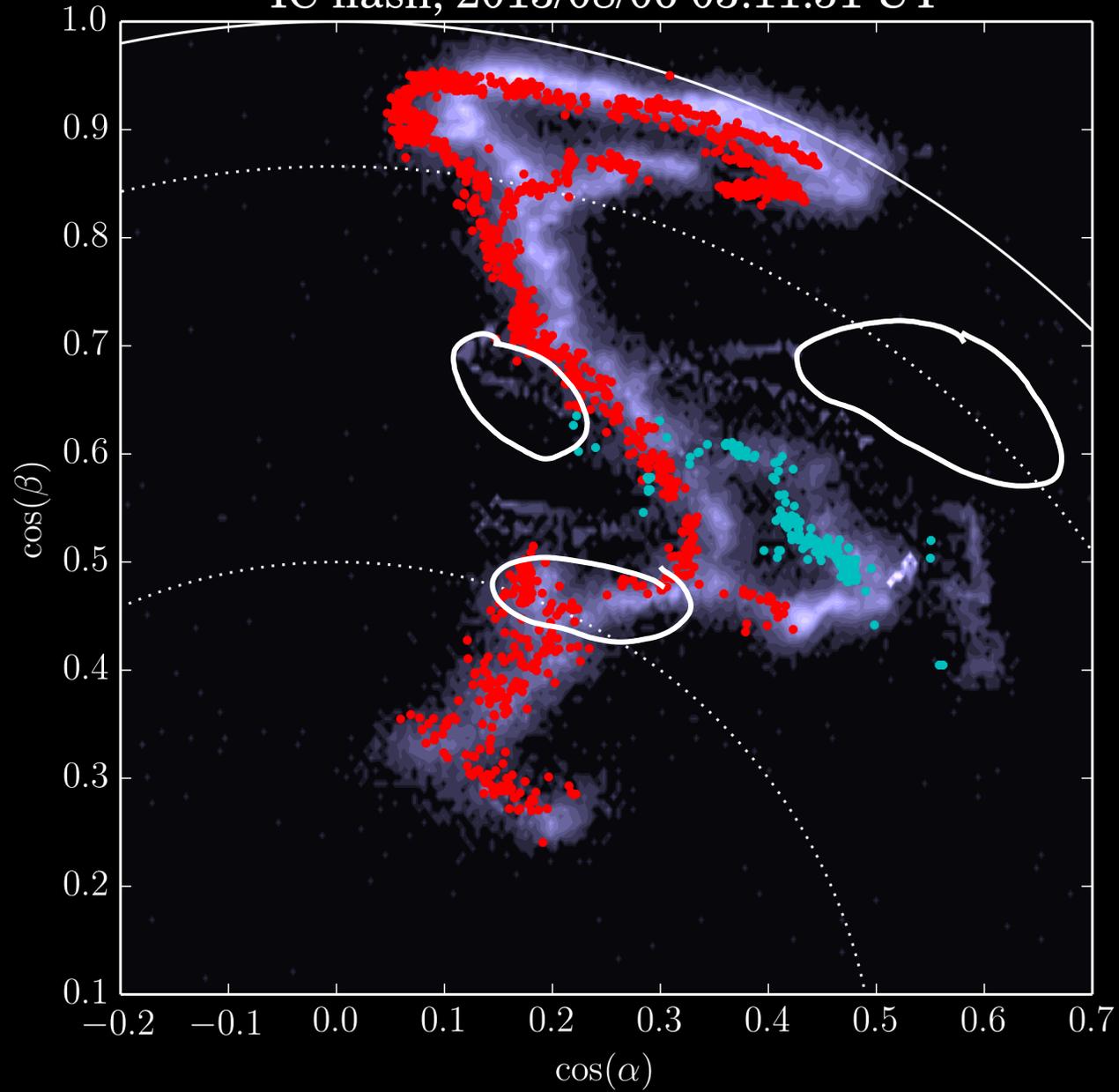


IC flash, 2013/08/06 03:11:51 UT

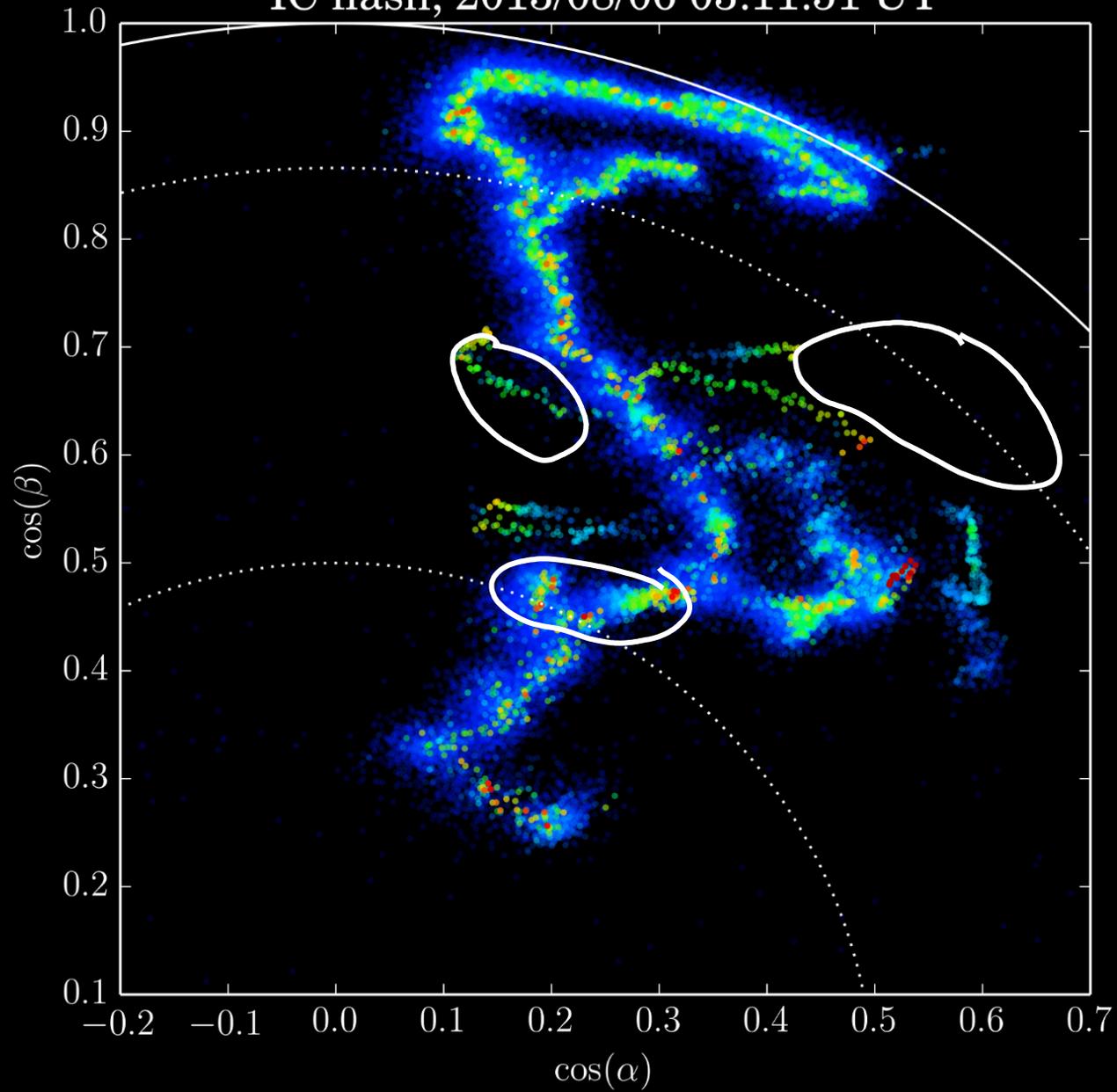




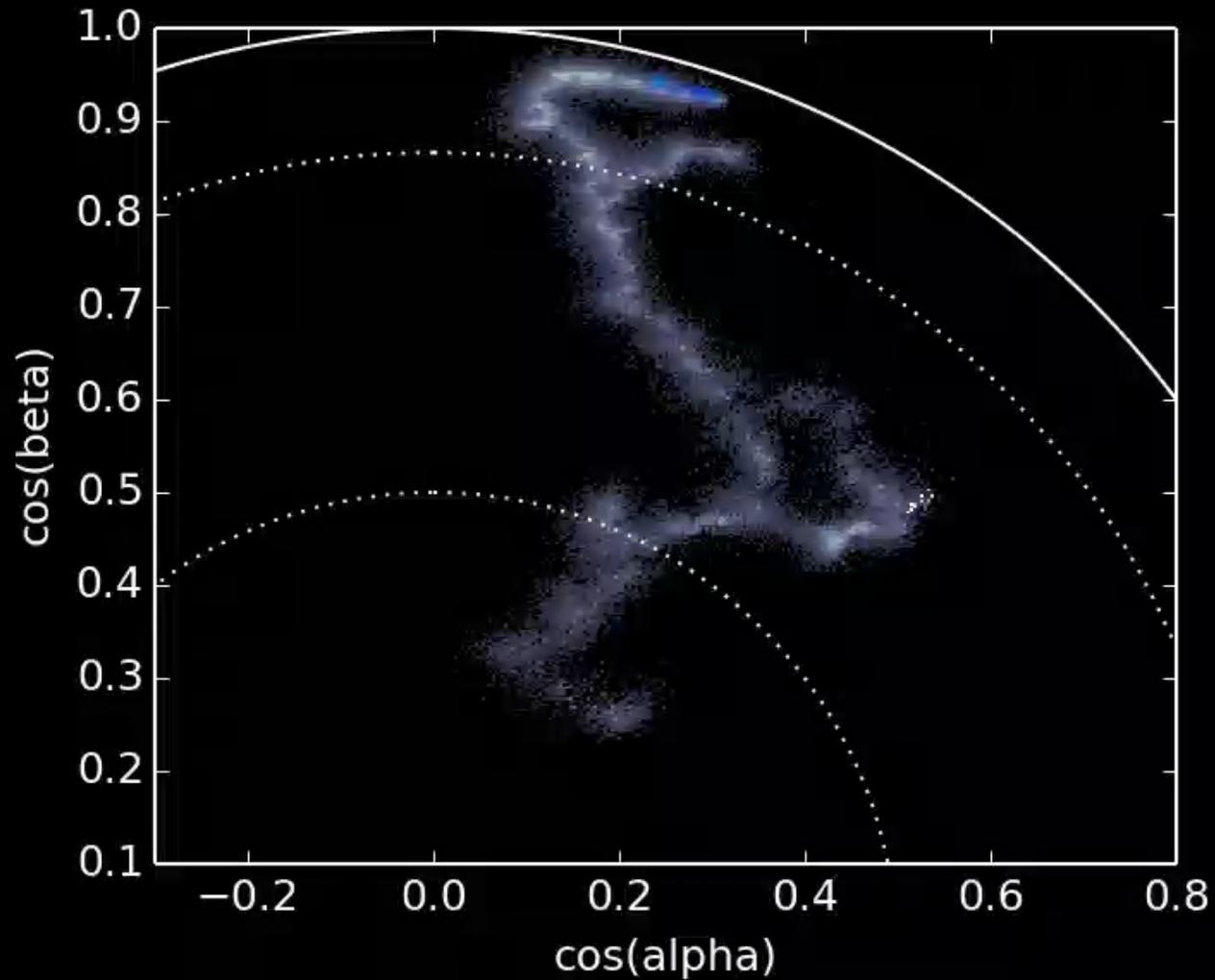
IC flash, 2013/08/06 03:11:51 UT



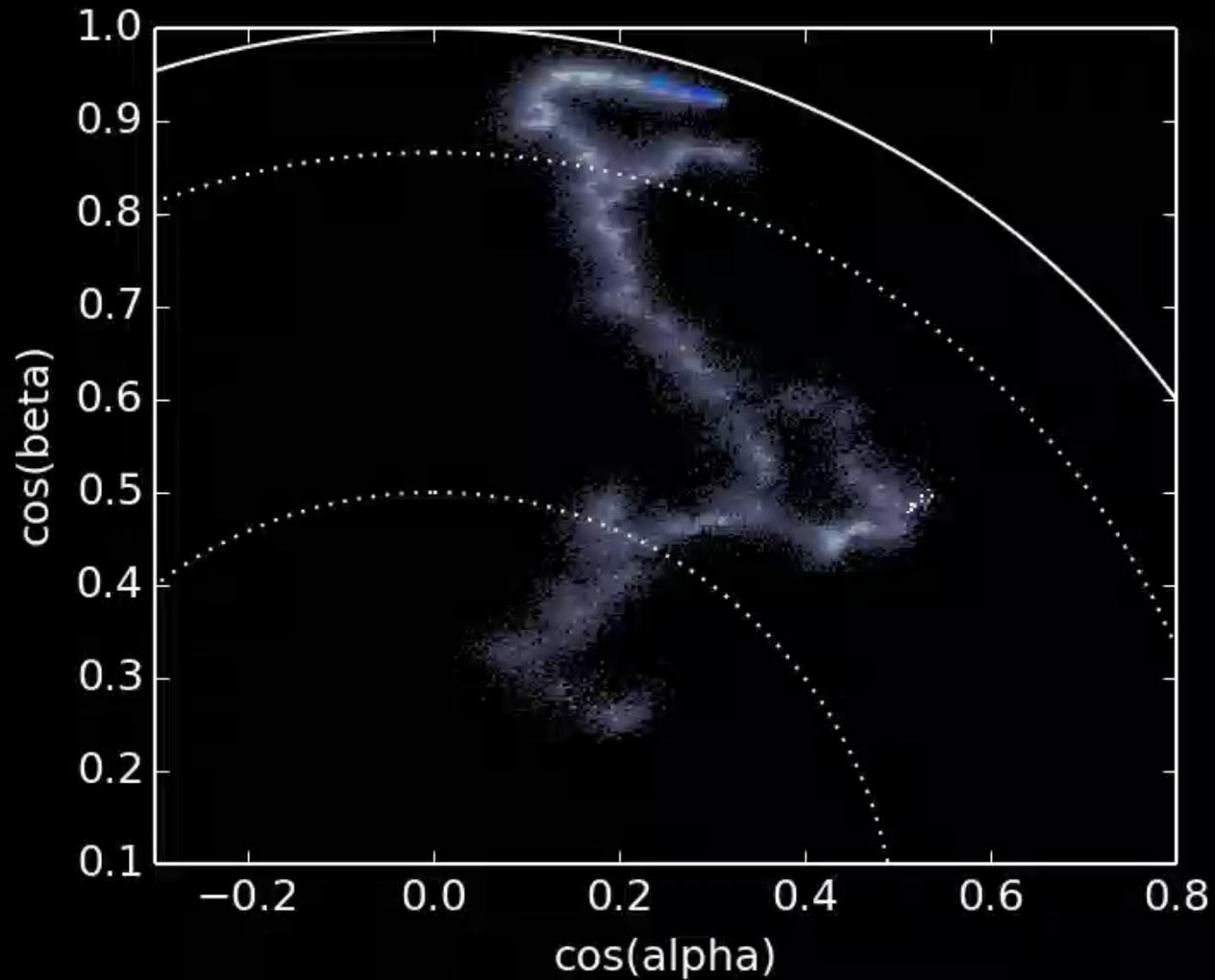
IC flash, 2013/08/06 03:11:51 UT



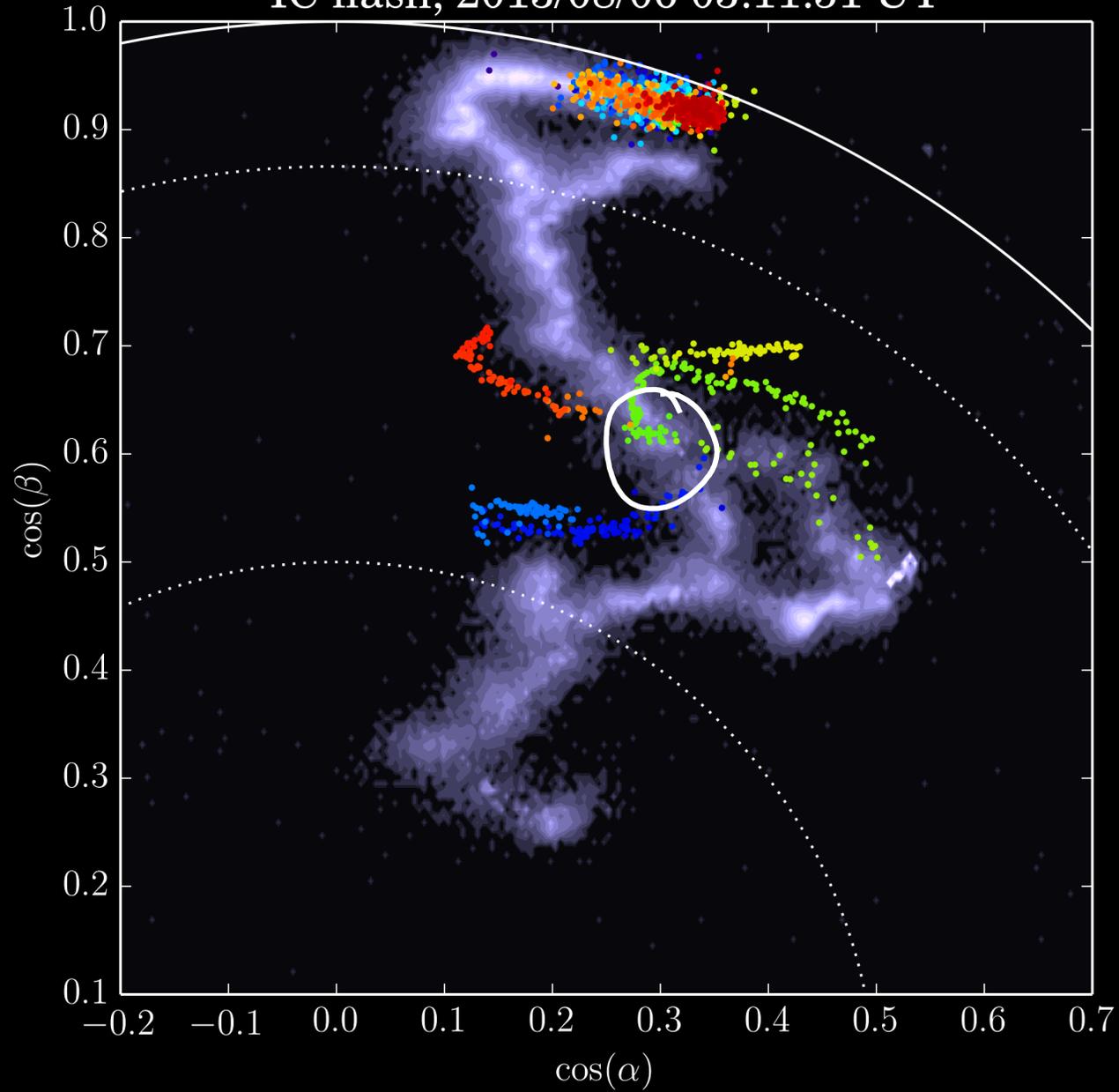
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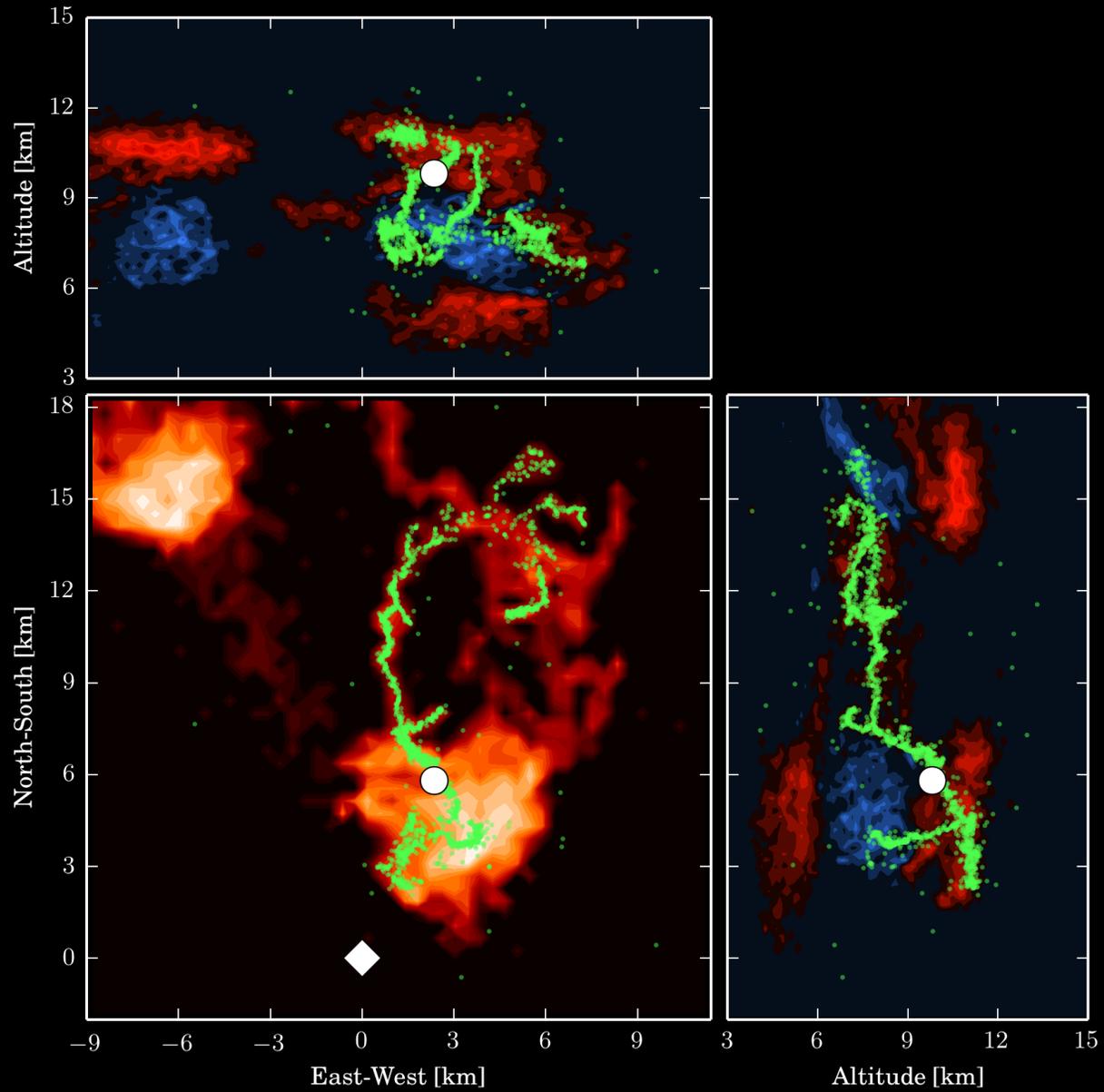


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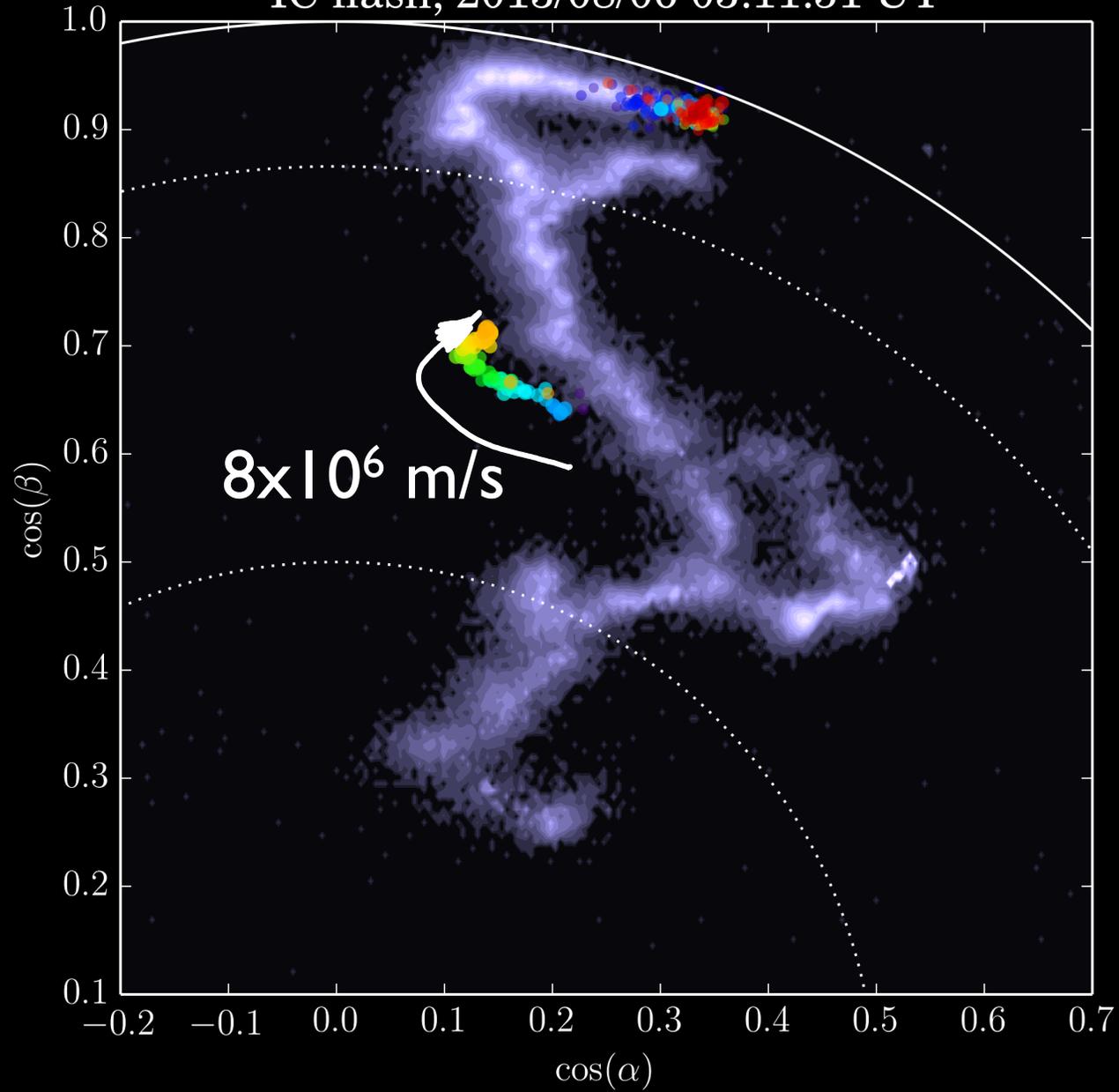


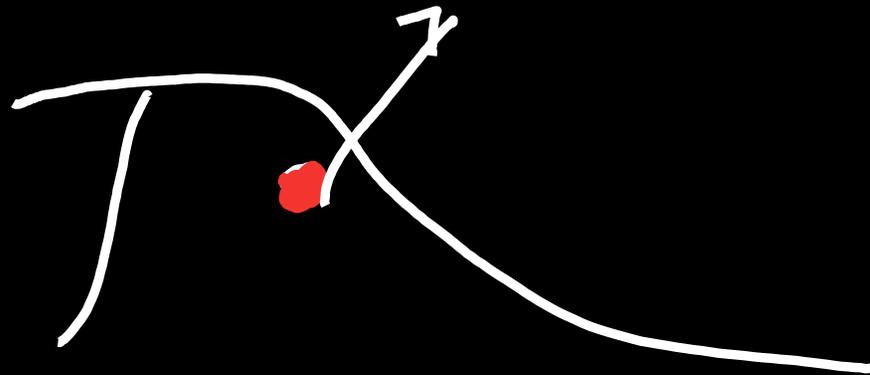
IC flash, 2013/08/06 03:11:51 UT



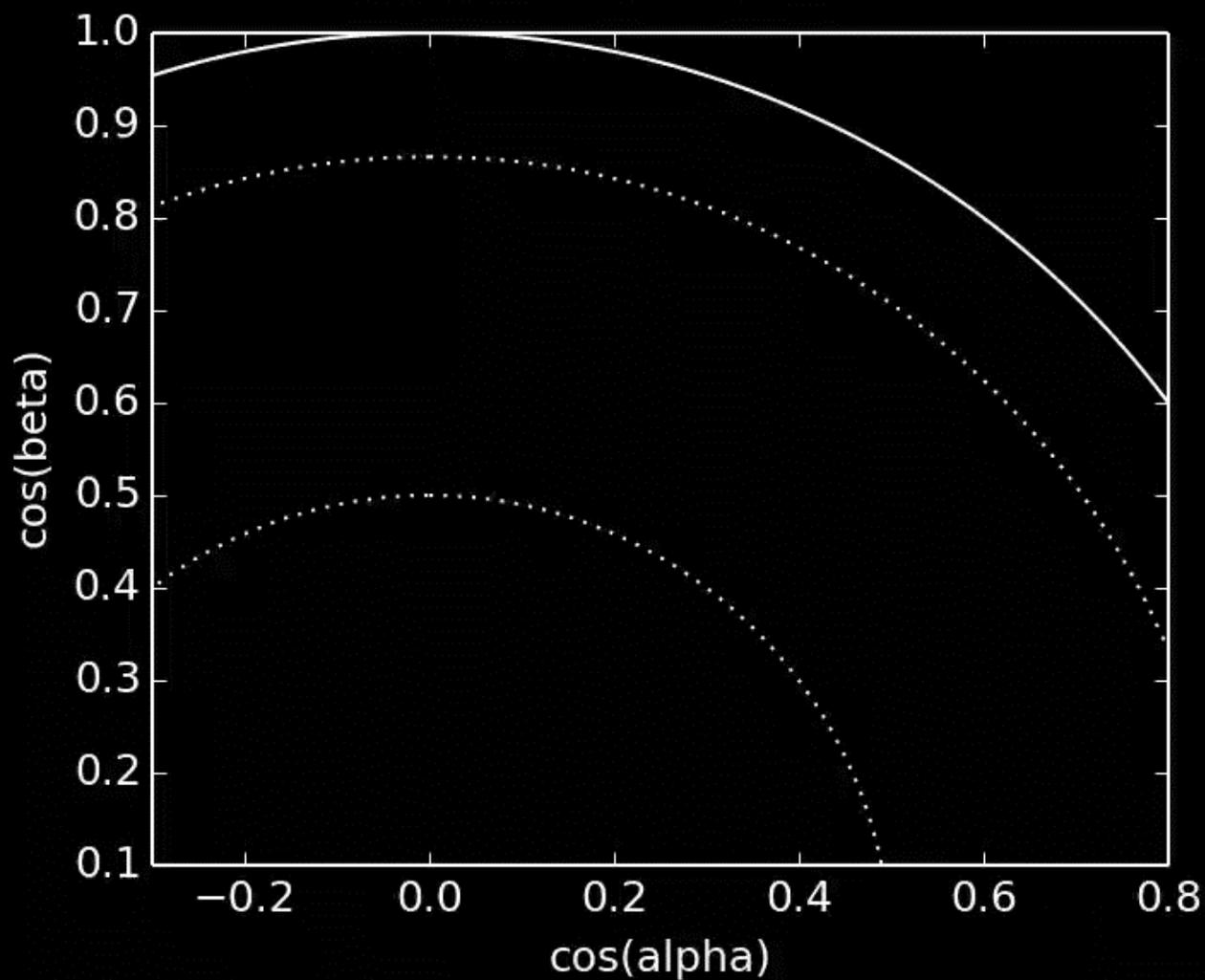


IC flash, 2013/08/06 03:11:51 UT

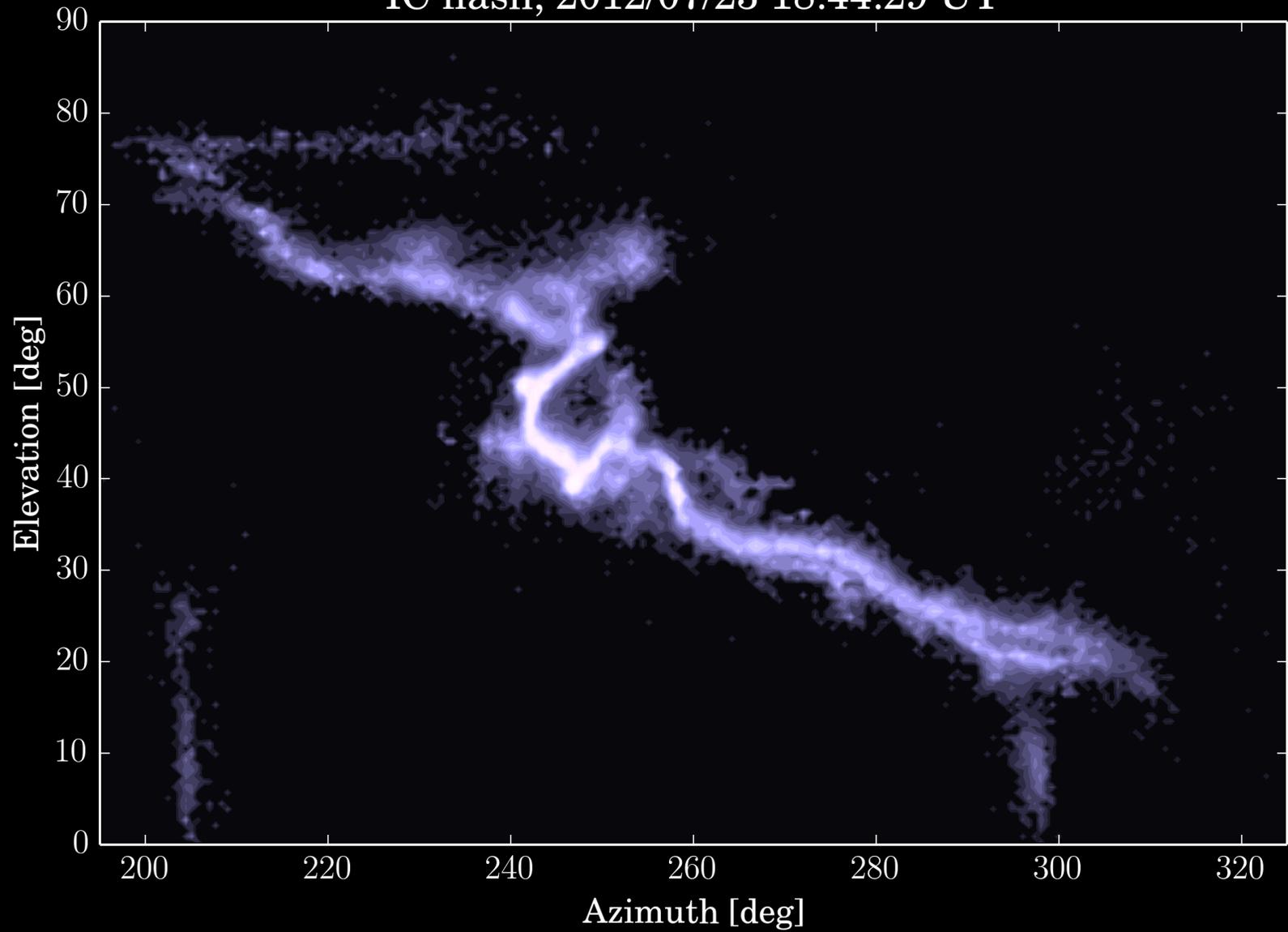




Flash at 2013/08/05 20:25:12.461933 UT  
Frame Rate: 6666 fps  
361.933



IC flash, 2012/07/23 18:44:29 UT



Flash at 2012/07/23 18:44:29.000000 UT  
Frame Rate: 4000 fps  
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