



## A Possible New Meteor Shower Detected from CMN and SonotaCo Data

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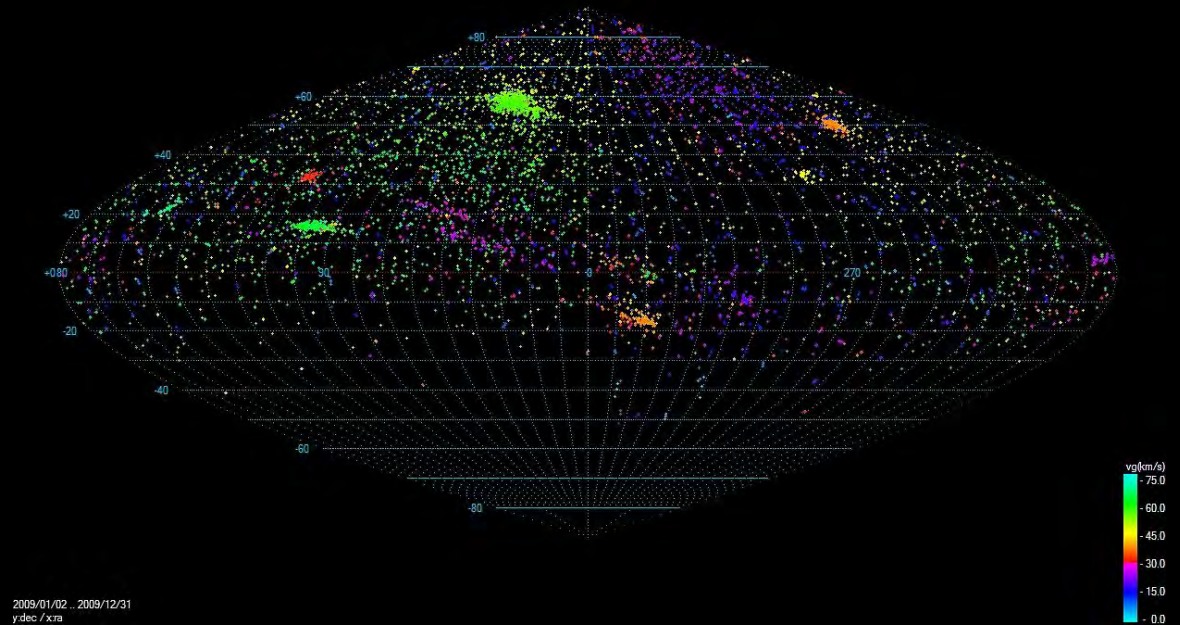
Croatian Meteor Network

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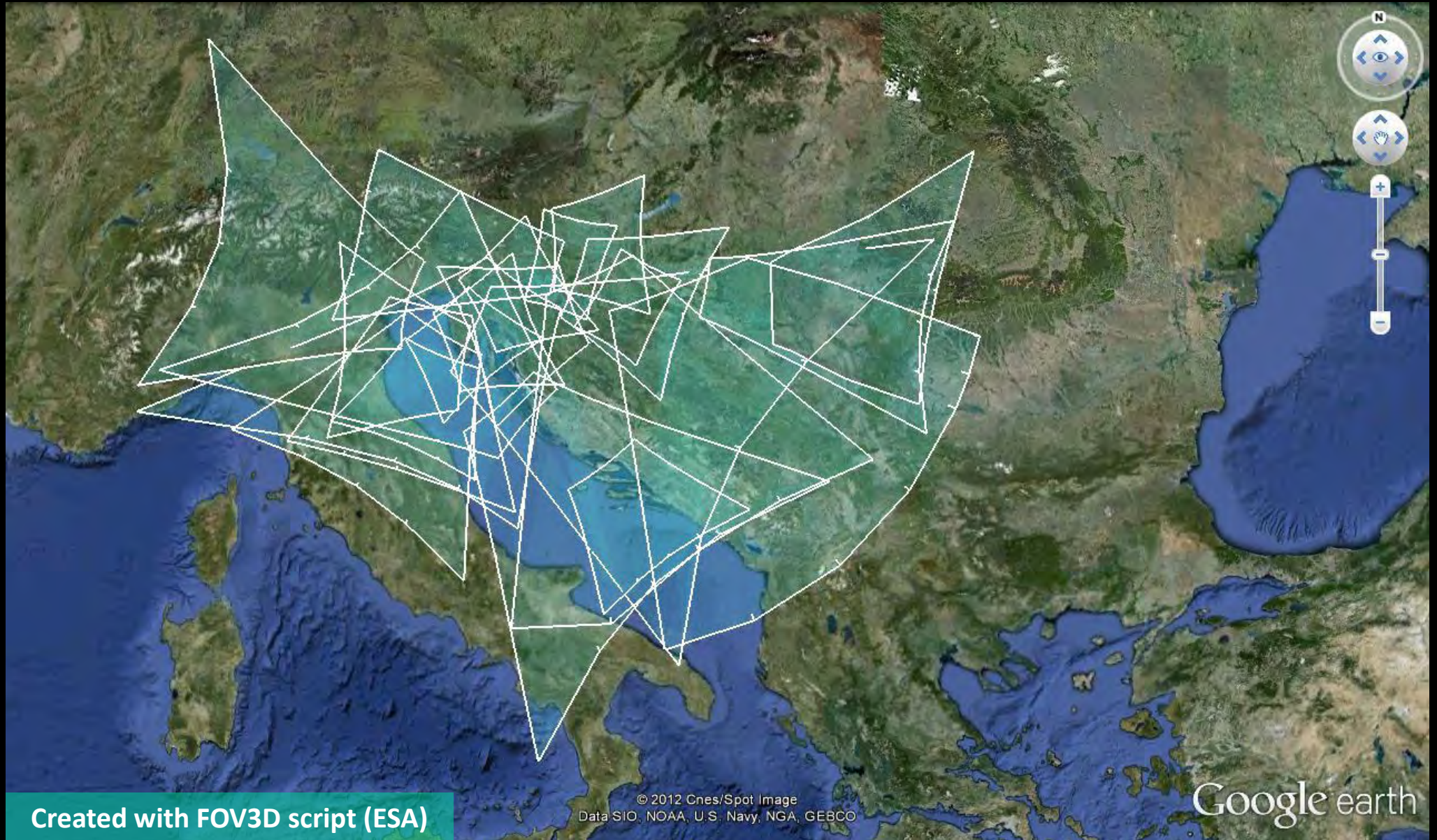
# 1. Croatian Meteor Network (CMN)

- in operation since 2007
- 30 cameras at the moment
- 2007 – 2010 data processed (19 055 orbits)

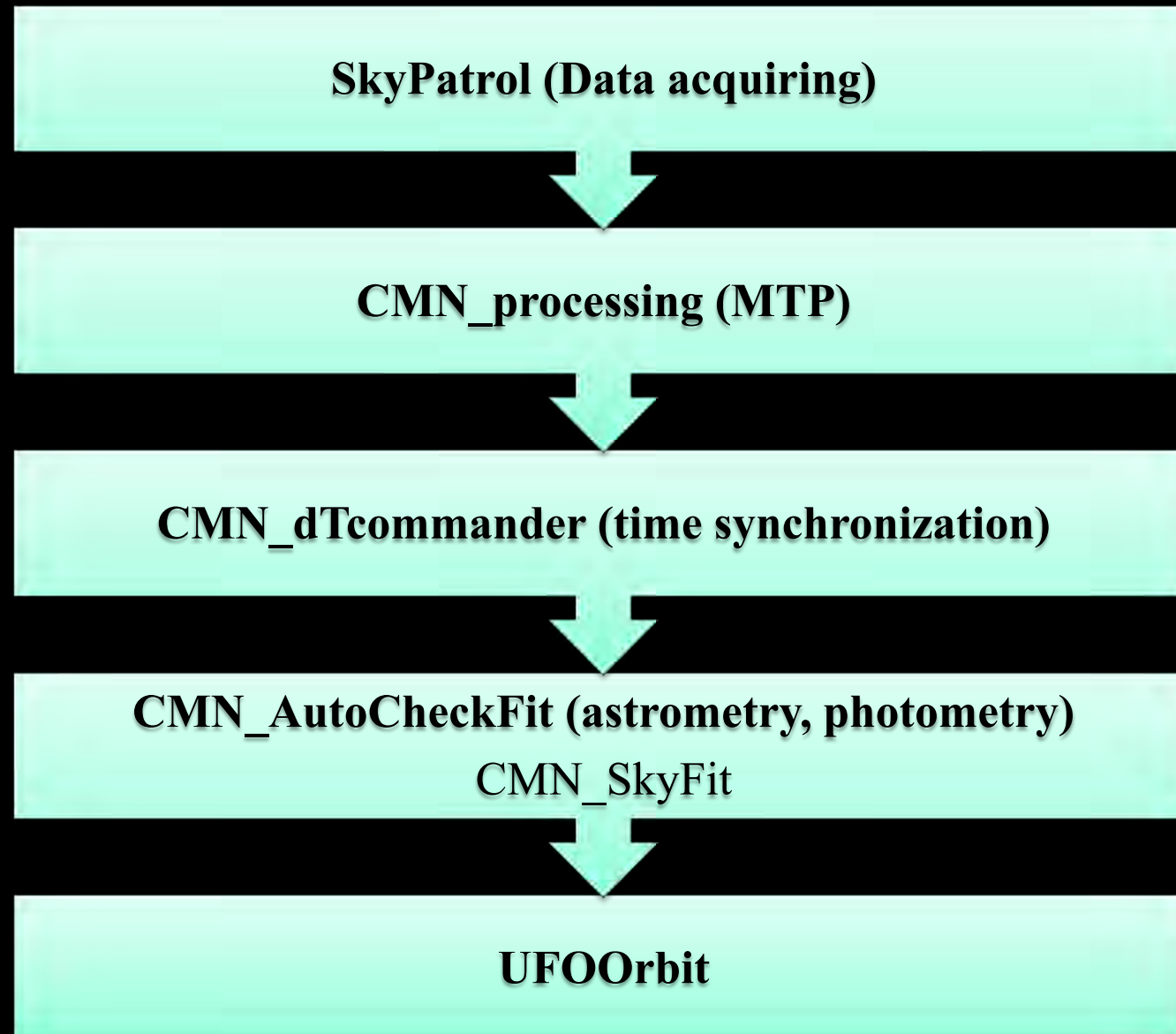


2009 Radiant map (UFOOrbit)

# Sky Coverage

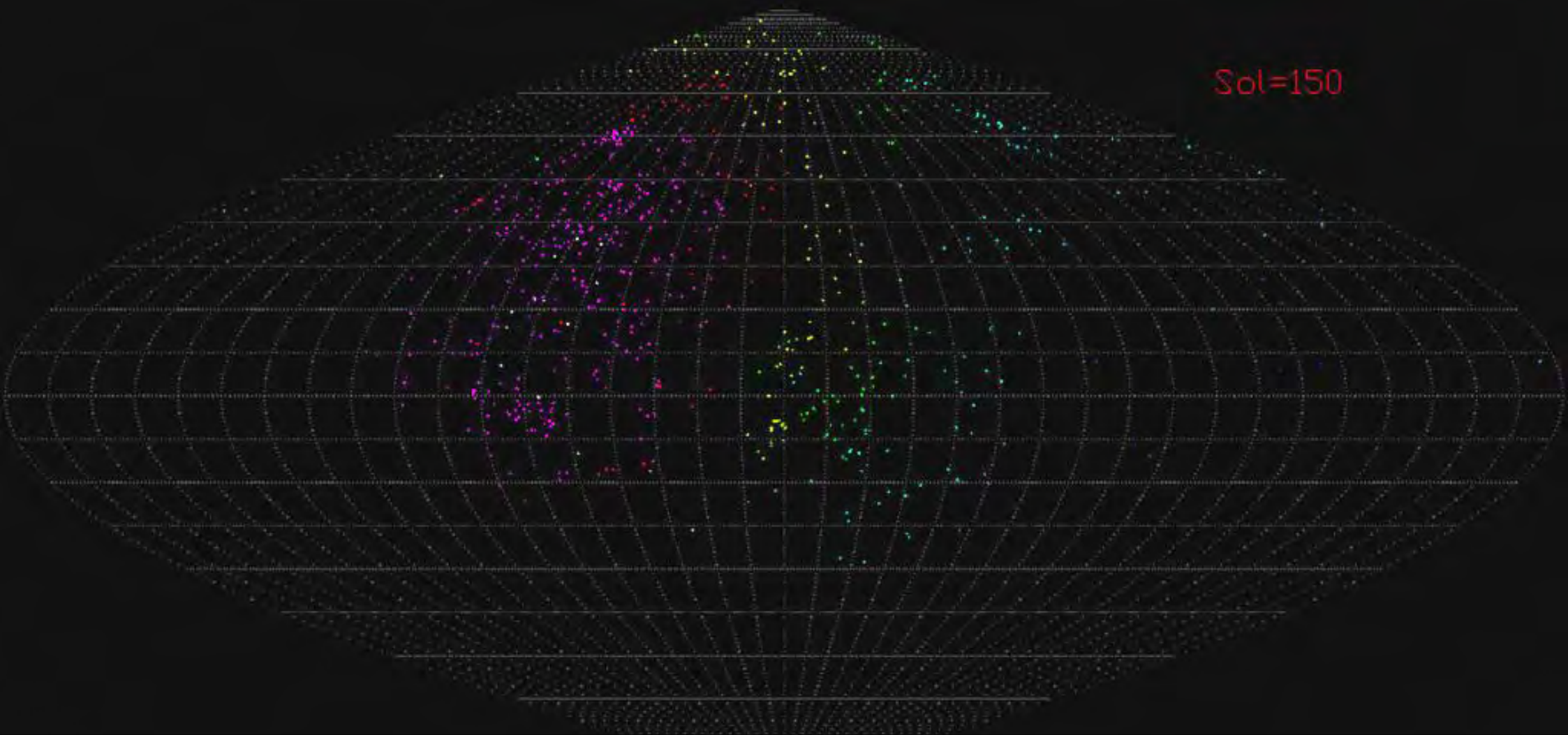


# Data reduction



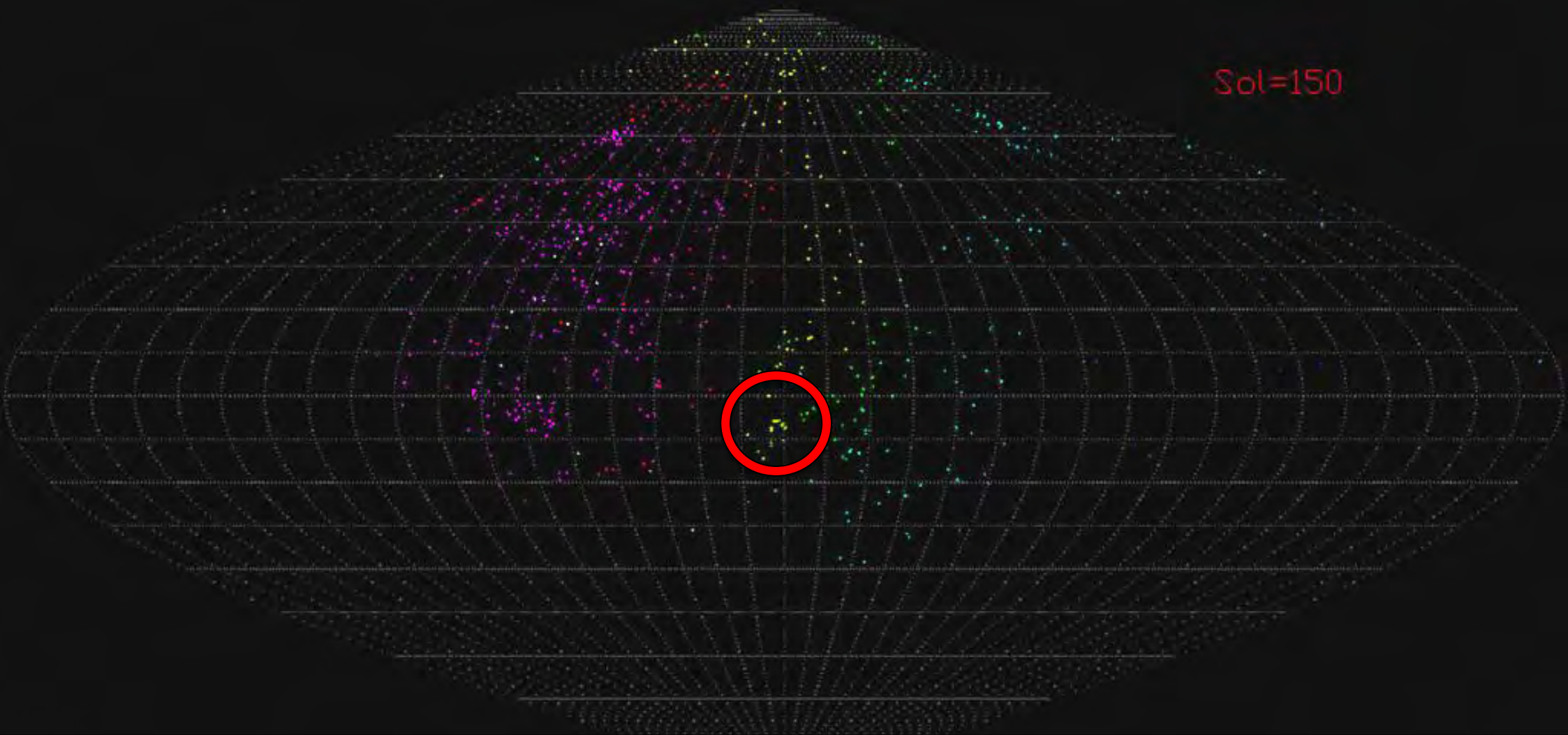
## 2. Finding unknown meteor streams

- plotted sporadics on individual skymap, by solar longitude



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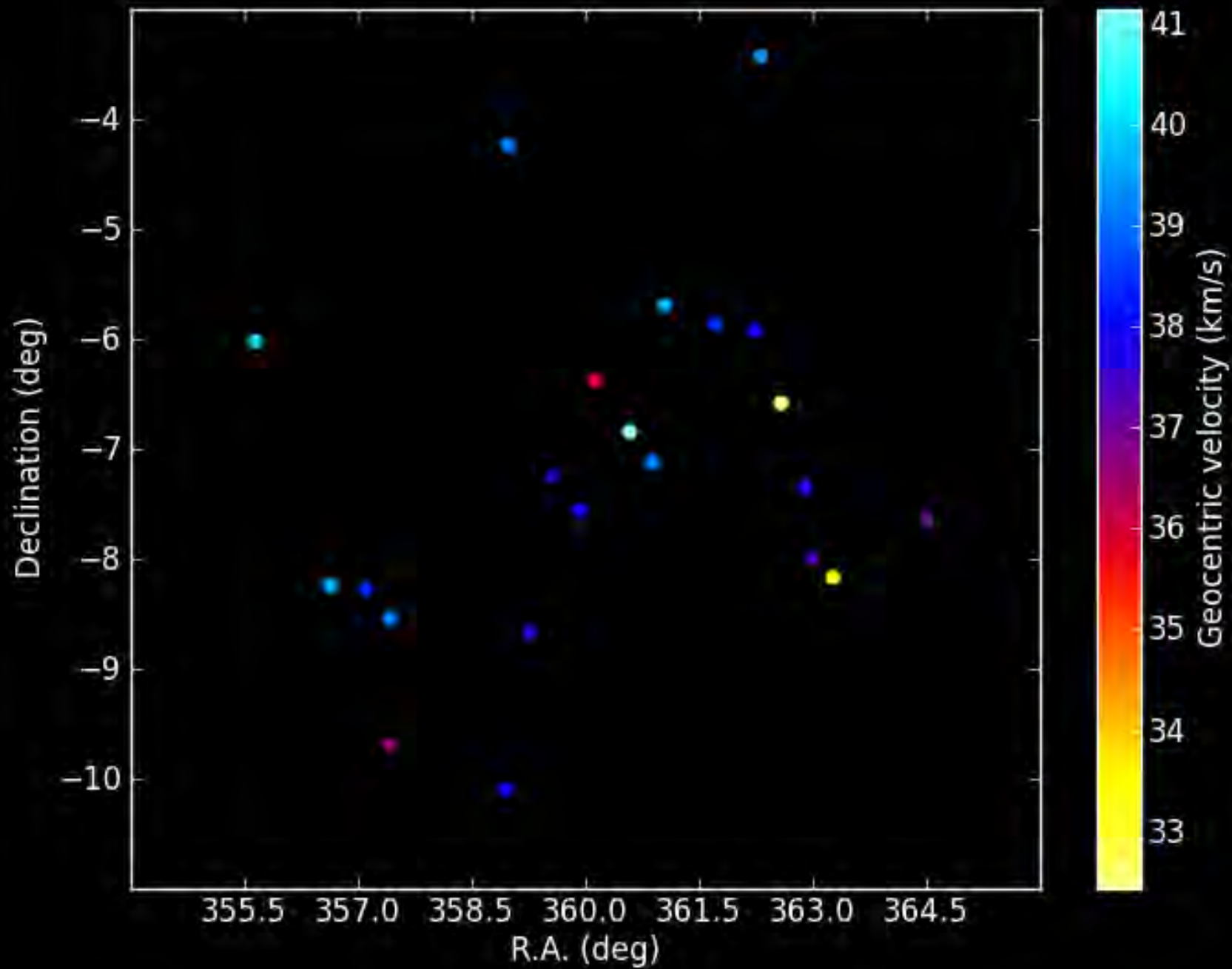


## D – criterion

- possible stream members run through **pyStreamFinder**
- calculating D-criterion for each meteor
  - most similar ones = candidates for a new meteor stream
- D-criterion introduced by Southworth & Hawkins (1963), modified by Drummond 1981, Jopek 1993, Valsecchi et al. 1999, Jopek et al. 2008, Jenniskens 2008
- similarity threshold:  $D_{SH} < 0.15$



NEW



### 3. Results

- unknown meteor stream or part of some larger stream
- 23 orbits (13 CMN, 10 SonotaCo)
- 145° – 153° solar longitude

RA (°)	Dec (°)	a (AU)	e	i (°)	q (AU)	peri (°)	node (°)	Vg (km/s)
0,4	-6,4	2,112	0,951	20,5	0,097	156,8	322,2	37,9

New stream mean orbital elements

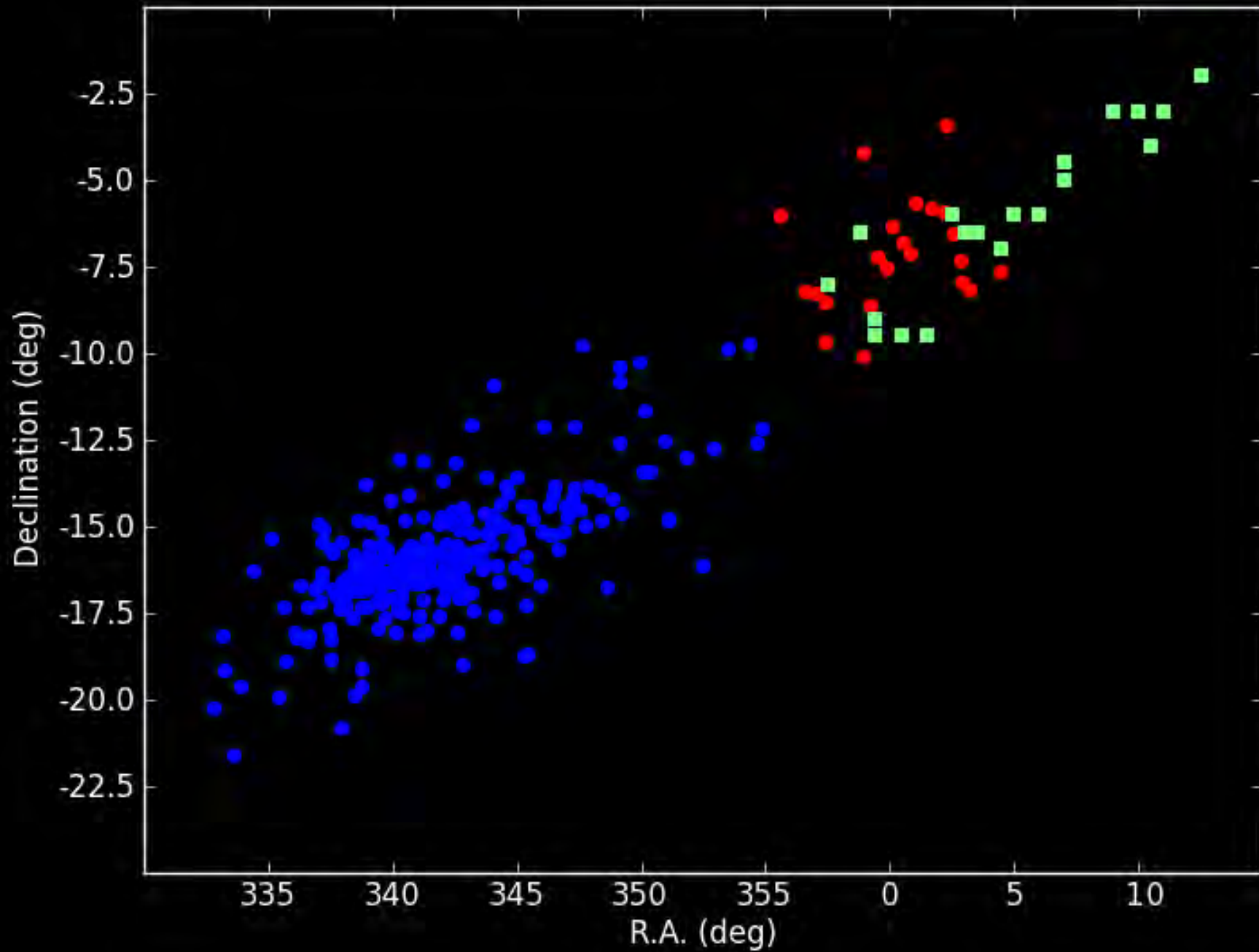
2011 Oct 08 19:40:08 UTC  
Real time

Speed: 0,00000 m/s

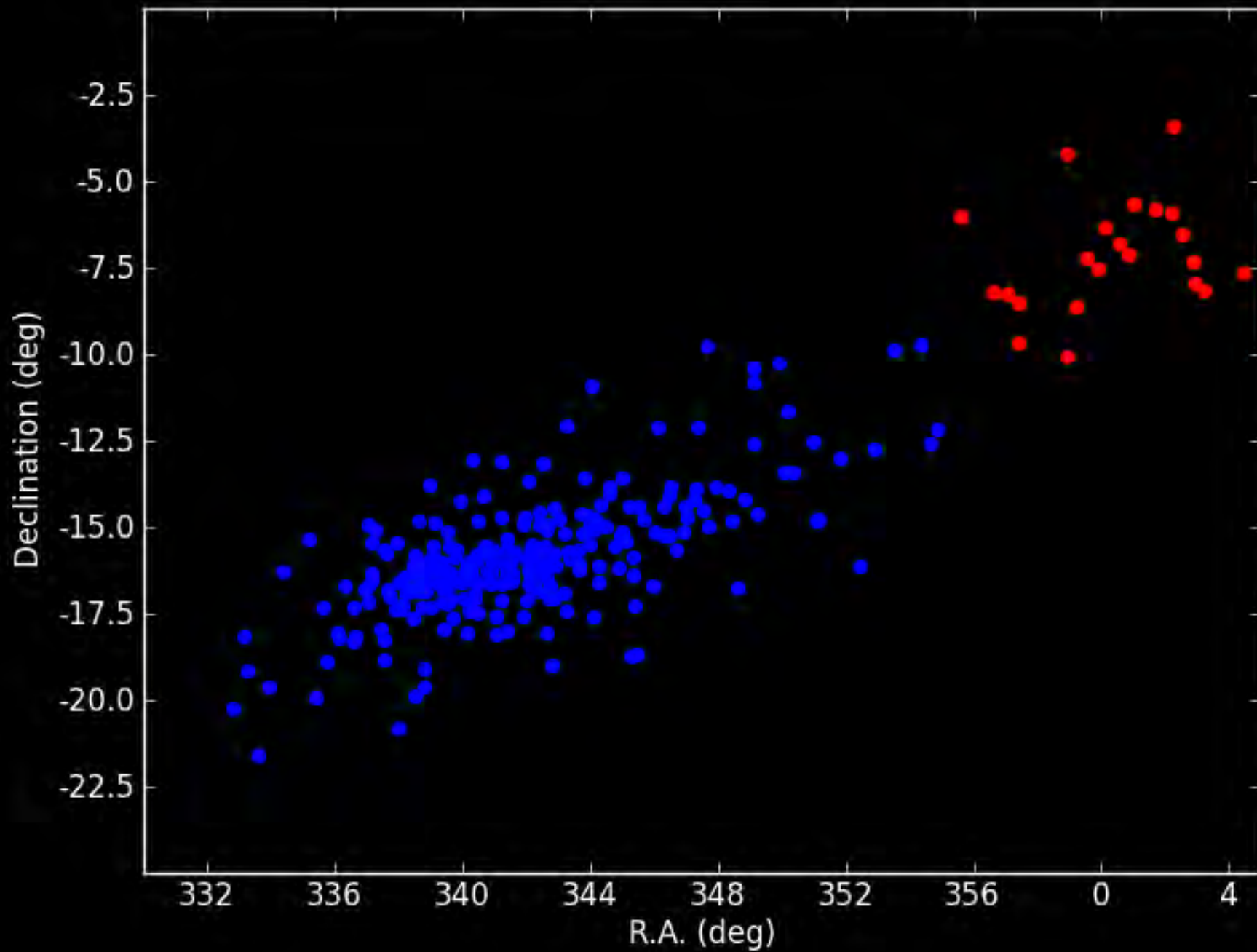
Follow Earth  
FOV: 27° 13' 5,6" (1,00x)

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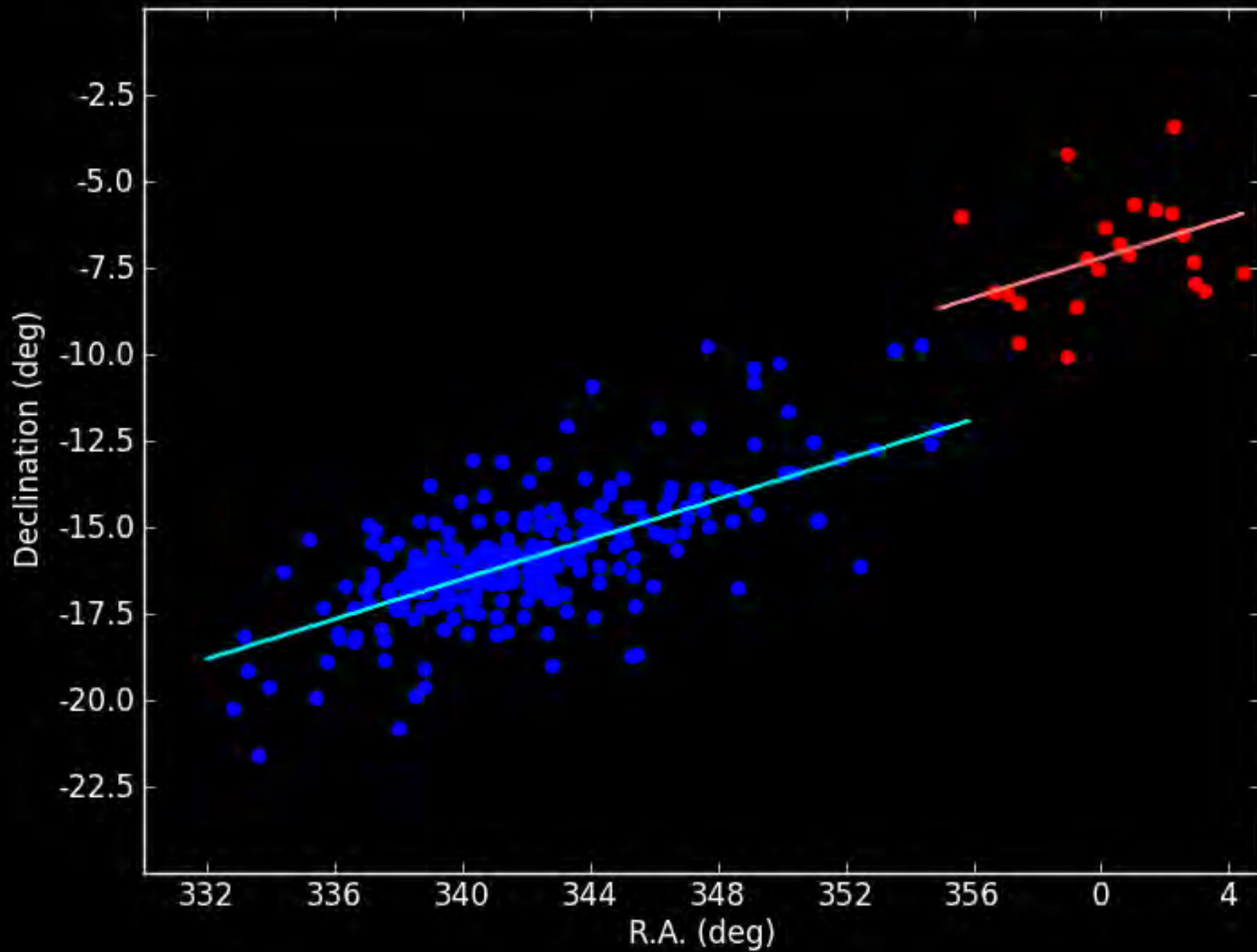
sDA+new+IMO



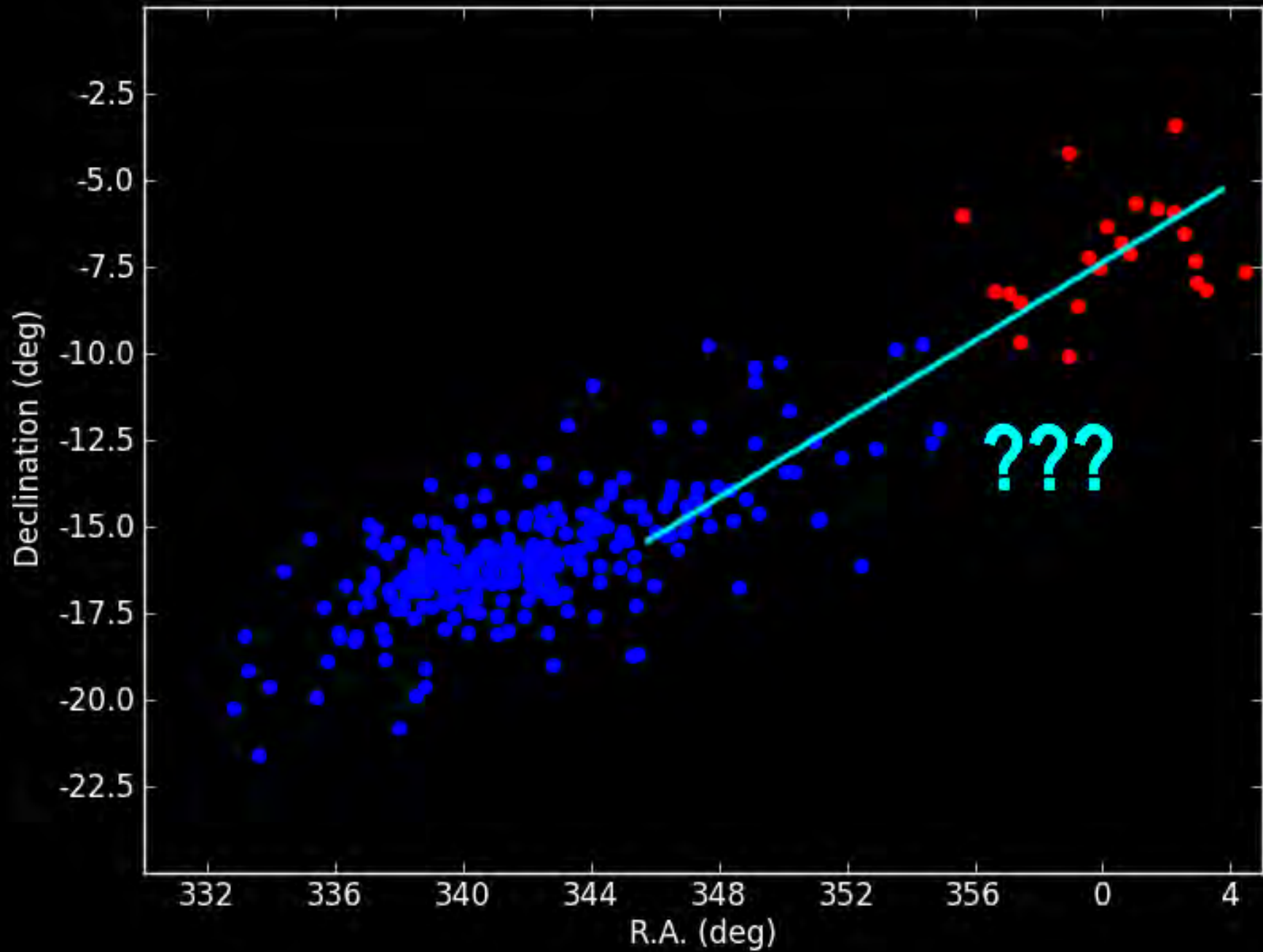
sDA+new



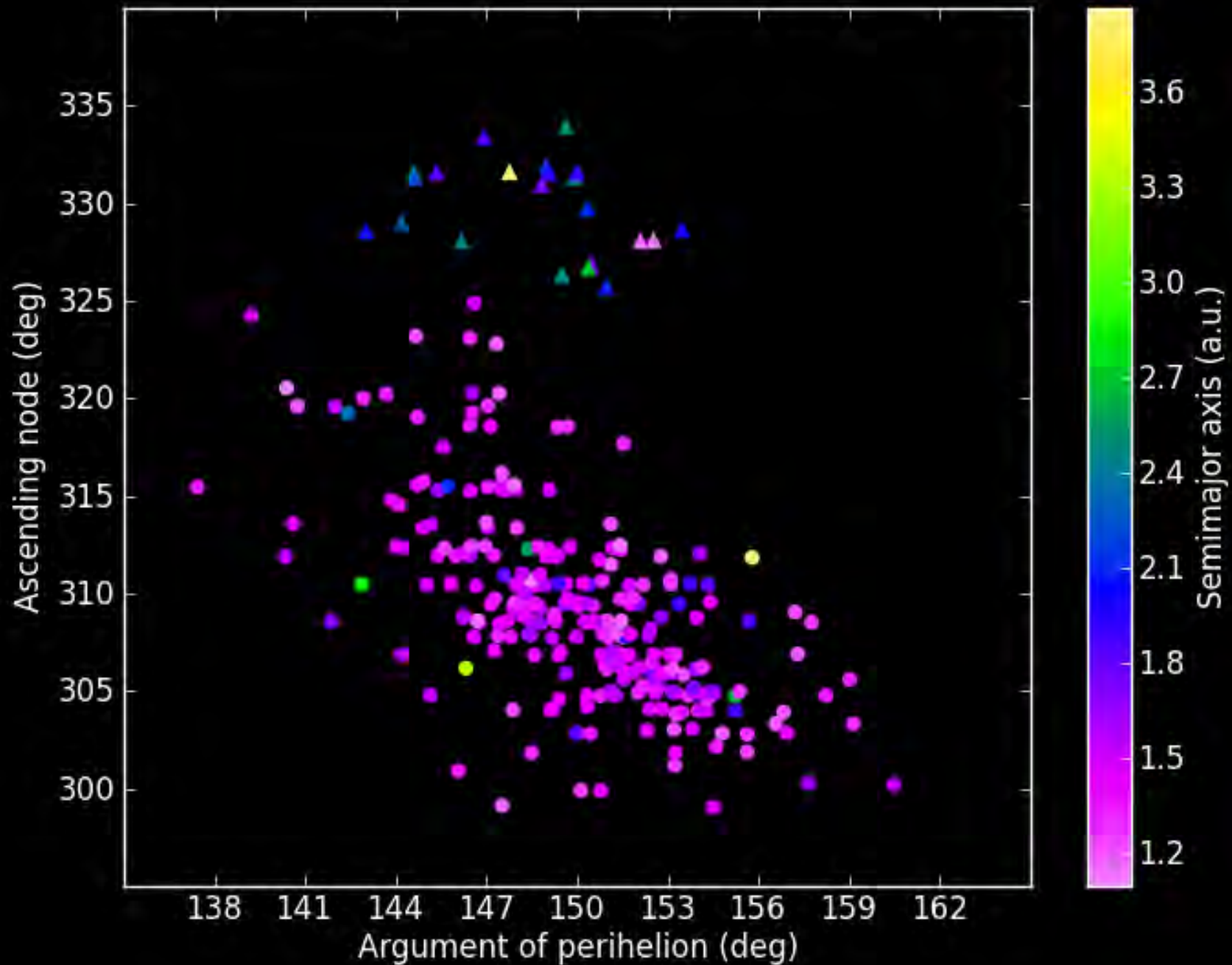
sDA+new



sDA+new



sDA+new





# Southern Delta Aquarids (sDA)

- 268 orbits from 2007 – 2009 (UFOOrbit: Q1, Gm = 2, dV = 15, GD > 10)
- 119° – 144° solar longitude

RA (°)	Dec (°)	a (AU)	e	i (°)	q (AU)	peri (°)	node (°)	Vg (km/s)
341,9	-15,9	2,452	0,961	26,2	0,087	150	309,2	39,7

sDA mean orbital elements

RA (°)	Dec (°)	a (AU)	e	i (°)	q (AU)	peri (°)	node (°)	Vg (km/s)
0,4	-6,4	2,112	0,951	20,5	0,097	156,8	322,2	37,9

New stream mean orbital elements

2011 Oct 08 19:40:26 UTC  
Real time

Speed: 0,00000 m/s

Follow Earth  
FOV: 27° 13' 5,6" (1,00×)

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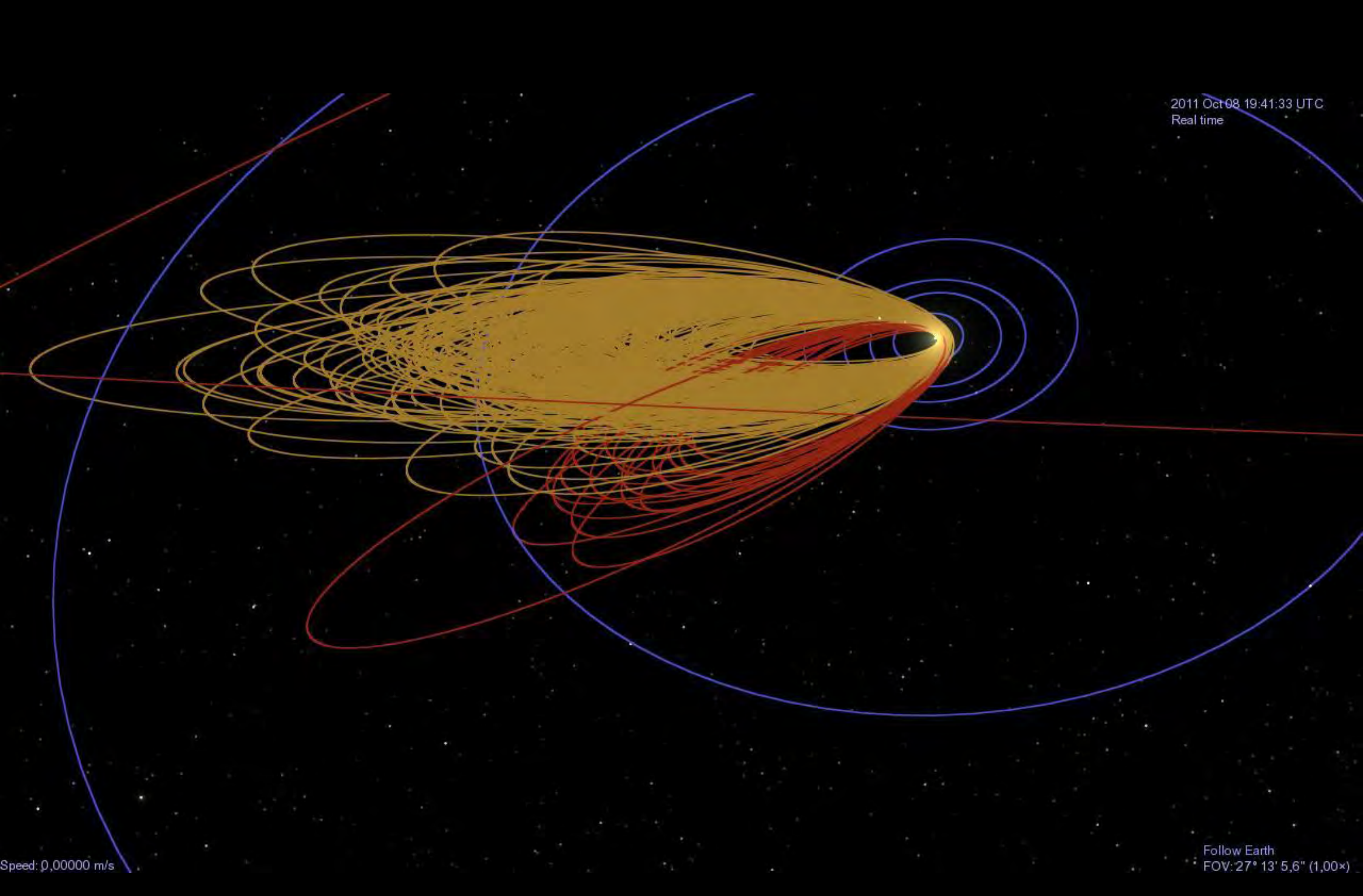
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Real time

Speed: 0,00000 m/s

Follow Earth  
FOV: 27° 13' 5,6" (1,00×)

Filip Novoselnik & Denis Vida: A Possible New Meteor Shower Detected from CMN and SonotaCo Data

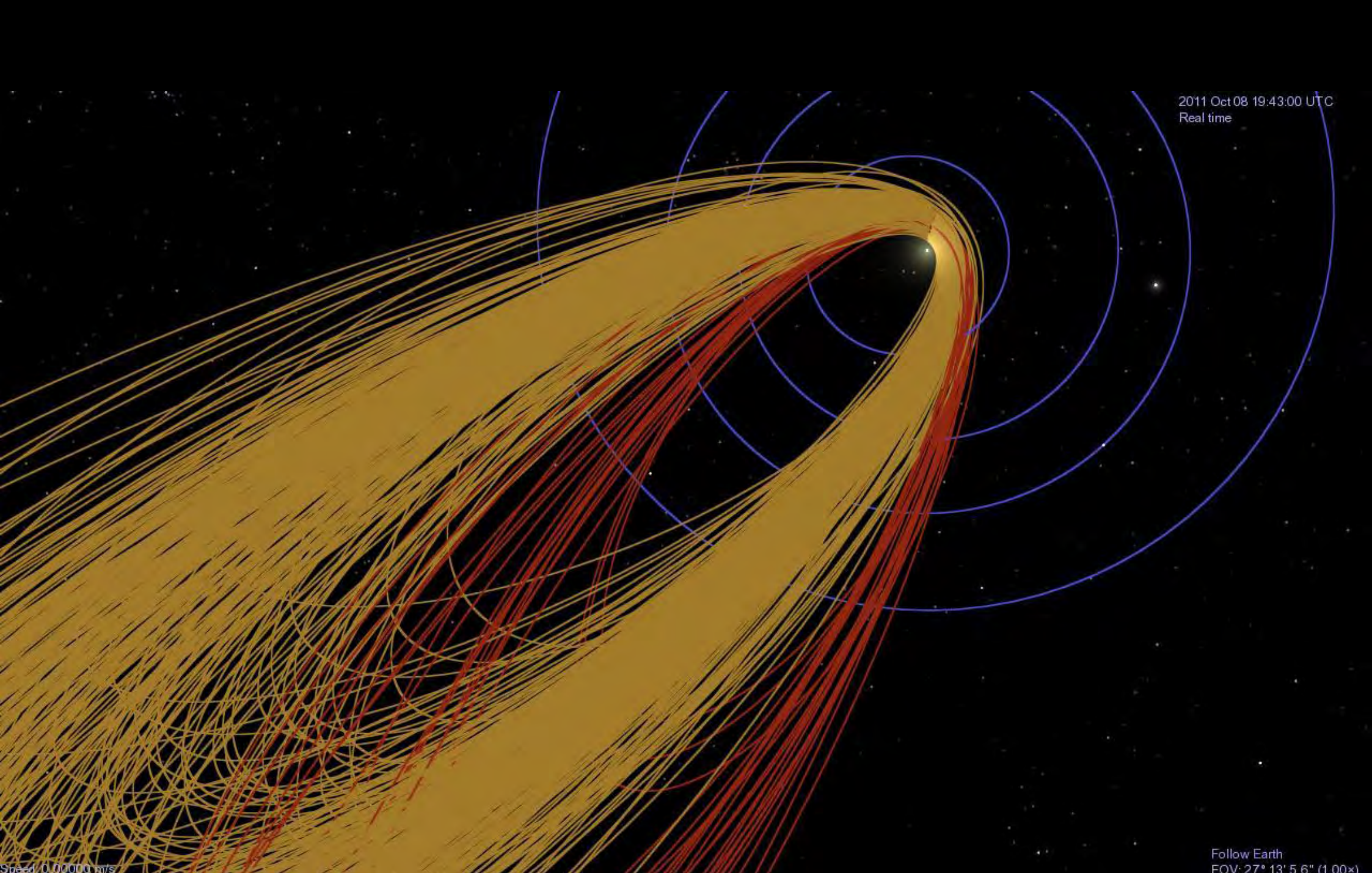
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Real time



Speed: 0,00000 m/s

Follow Earth  
FOV: 27° 13' 5,6" (1,00x)

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2011 Oct 08 19:43:00 UTC  
Real time

Speed: 0.00000 m/s

Follow Earth  
FOV: 27° 13' 5,6" (1,00x)

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## 4. Discussion

- D\_SH → new stream (different from sDA)
- orbits and graphs → continuation of sDA?  
→ sDA has longer activity period?
- possible source - another Macholz group comets, or a fragment of SDA main body?

## 5. Conclusion

- possible new stream discovered
- not clear if part of sDA
- further analysis and observations needed



## Acknowledgements

All the CMN members for their devoted work and persistence

Višnjan Science and Education Center, Croatia

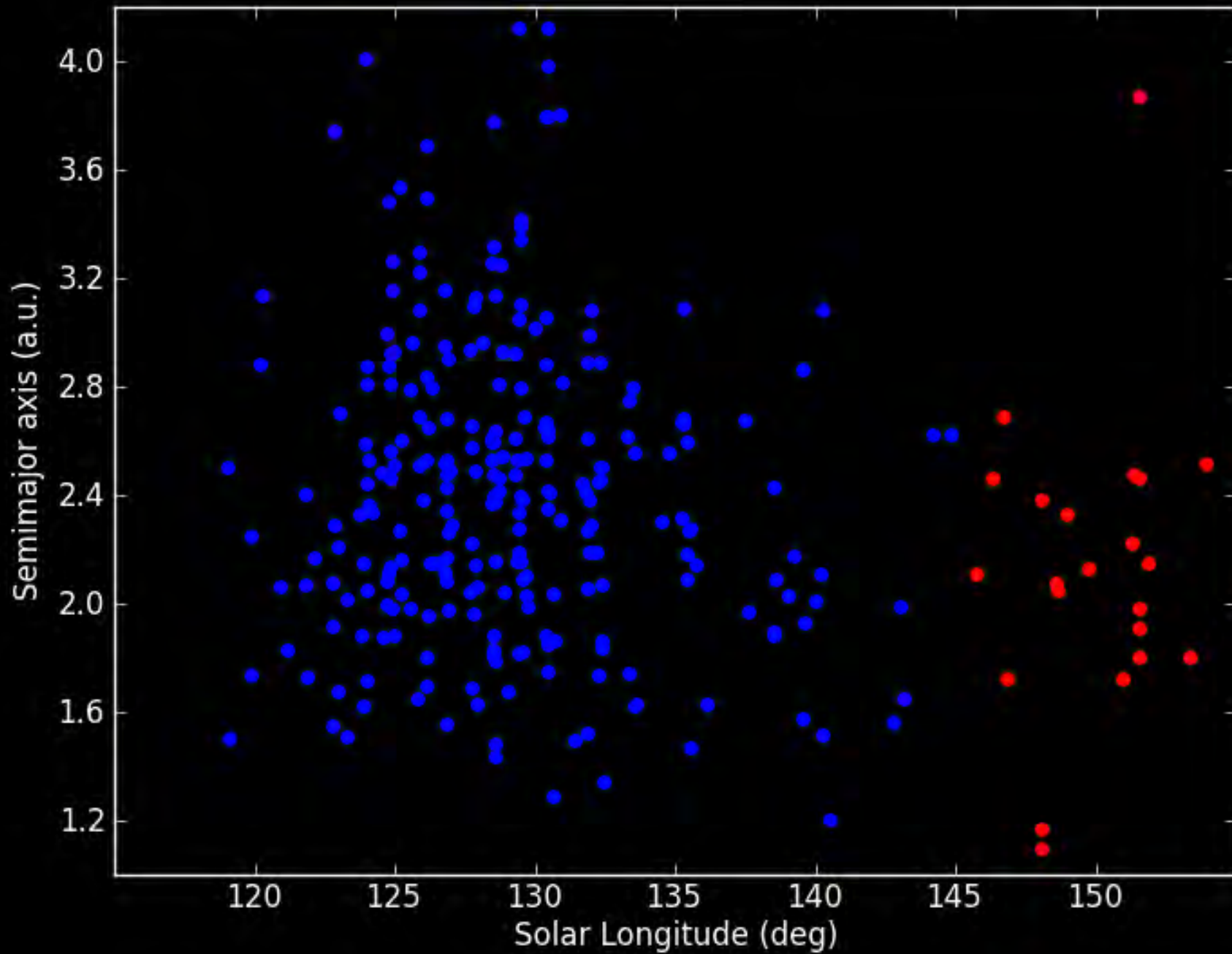




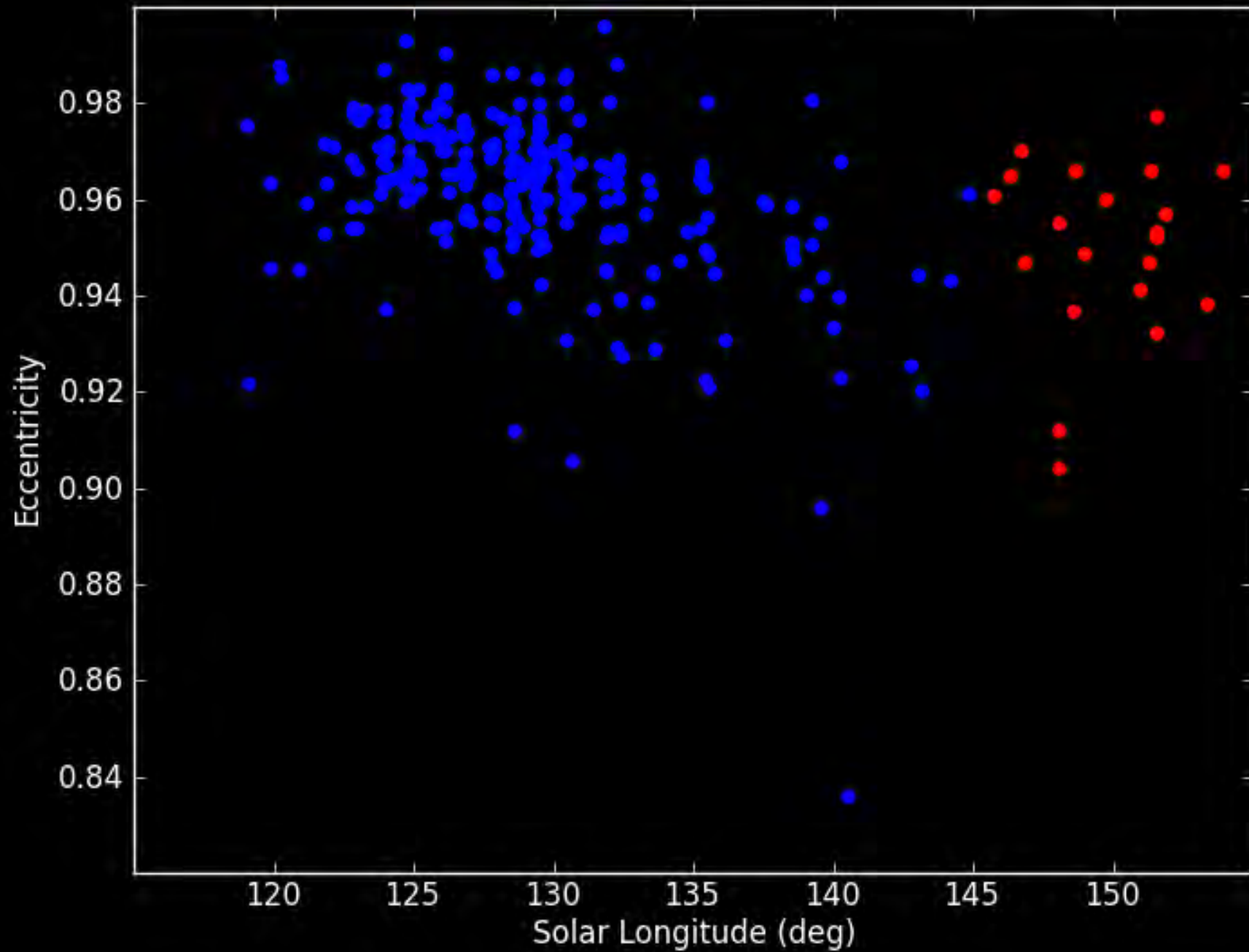
**Thank you for your attention!**

**Questions?**

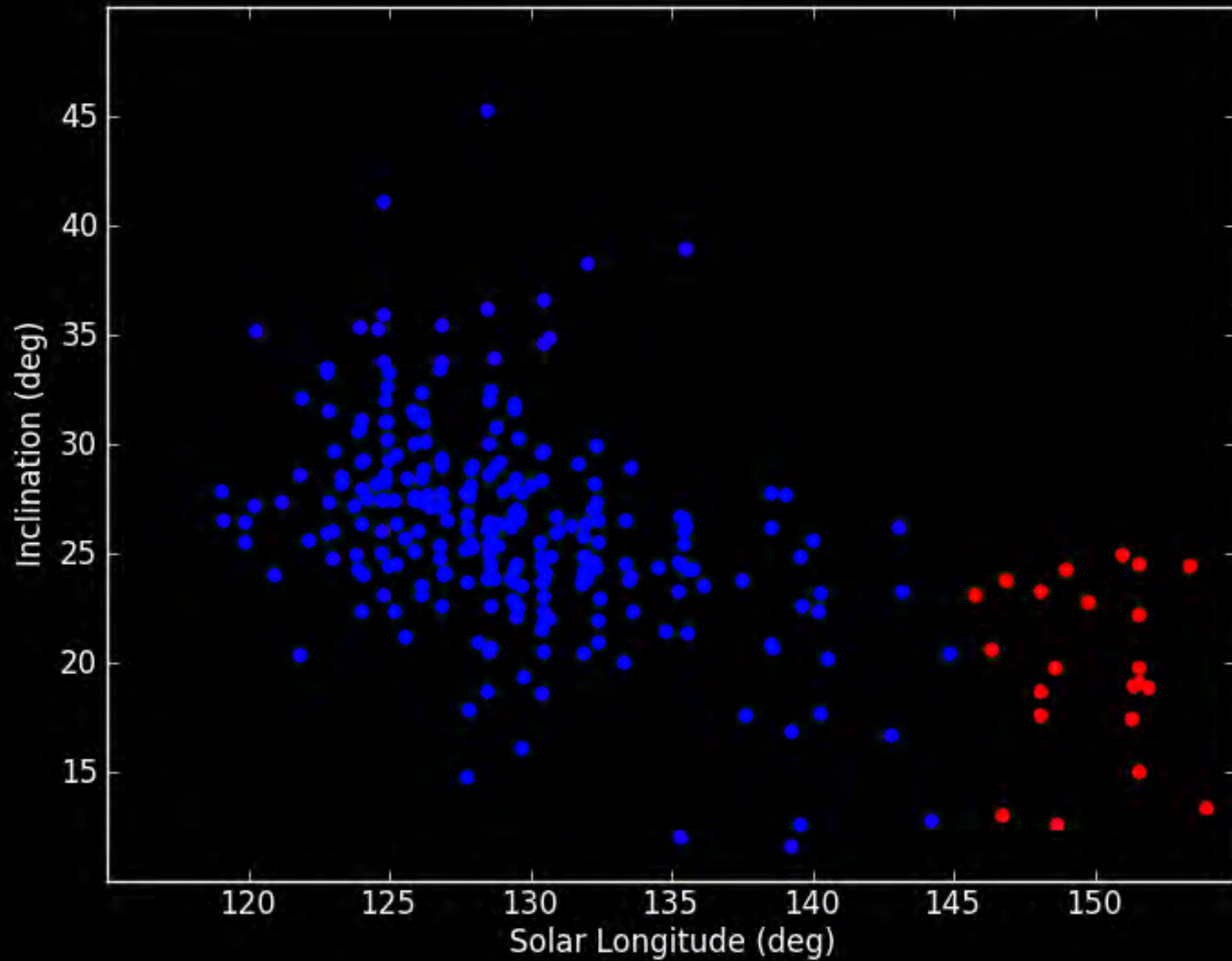
sDA+new



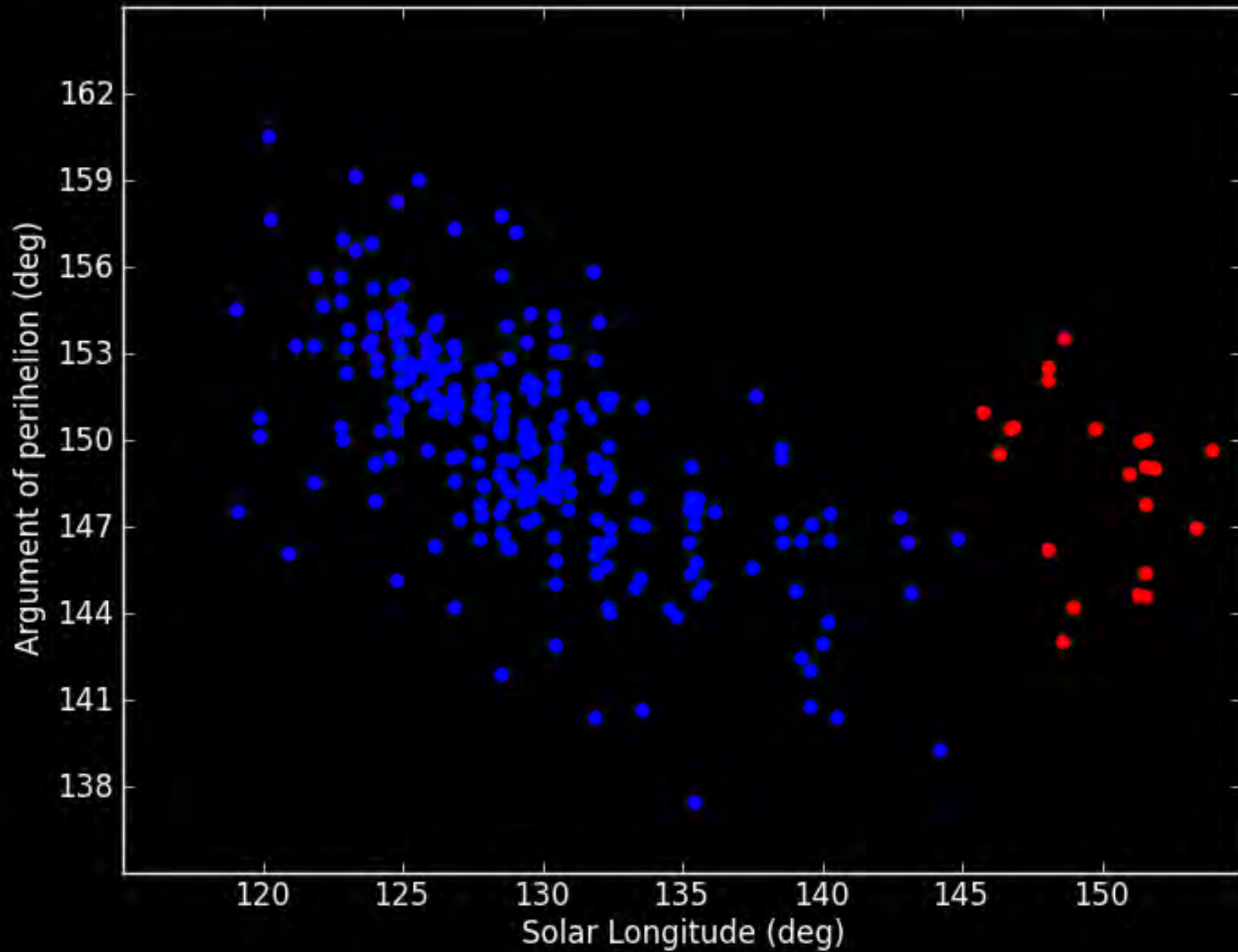
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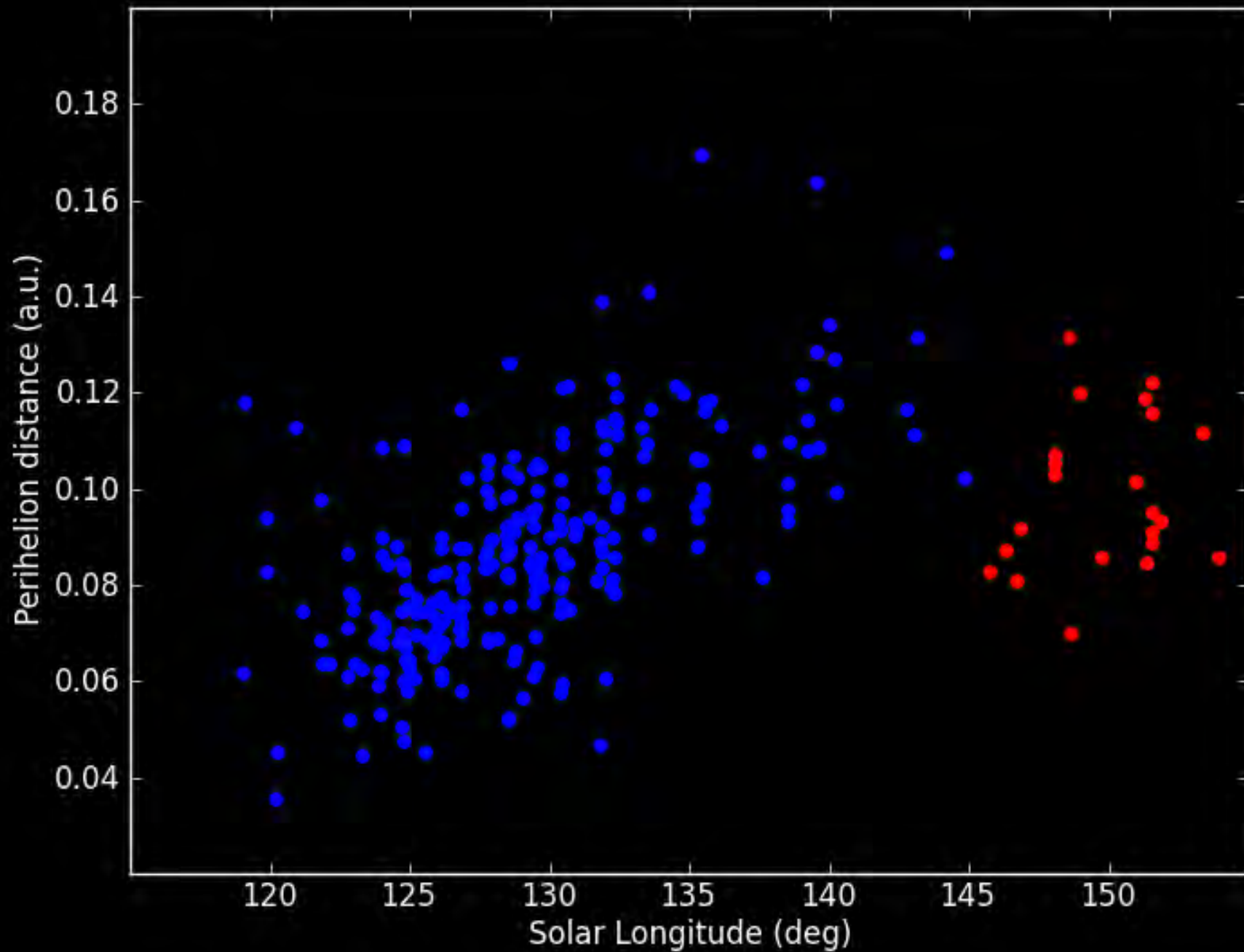
sDA+new



sDA+new



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sDA+new

