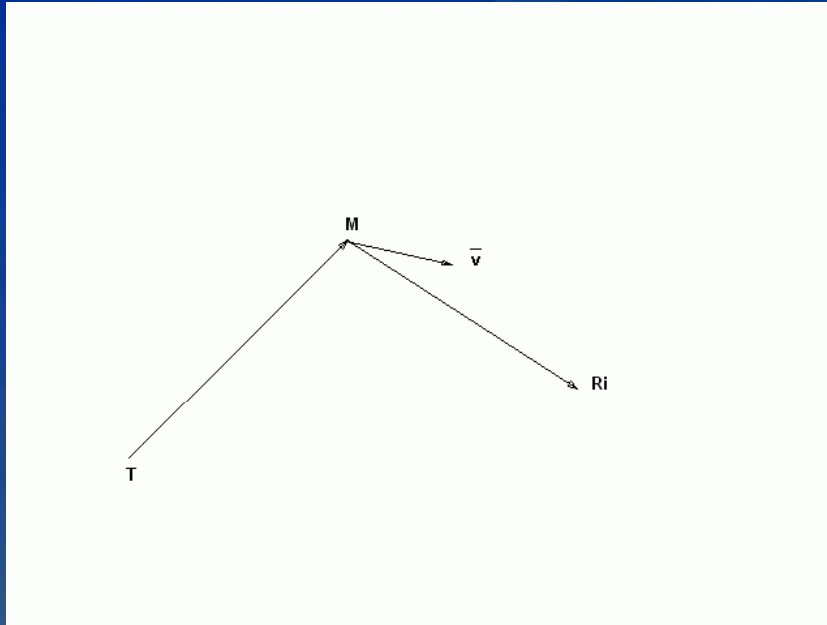


# Global Radio Draconids 2011

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## Some maths



$$Doppl_T = -\frac{\overline{TM}}{|\overline{TM}|} \cdot \frac{\vec{v}}{c} \cdot f$$

$$Doppl_{R_i} = -\frac{\overline{R_i M}}{|\overline{R_i M}|} \cdot \frac{\vec{v}}{c} \cdot f$$

$$\frac{\partial Doppl_T(t)}{\partial t} = -\frac{1}{|\overline{TM}|} \left[ v^2 - \frac{(\overline{TM} \cdot \vec{v})^2}{TM^2} \right] \frac{f}{c}$$

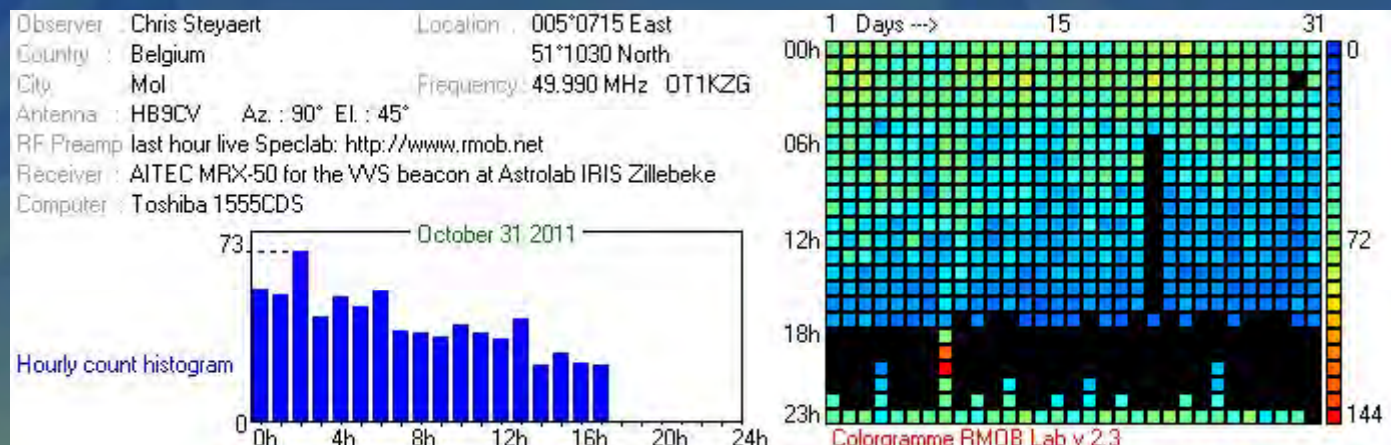
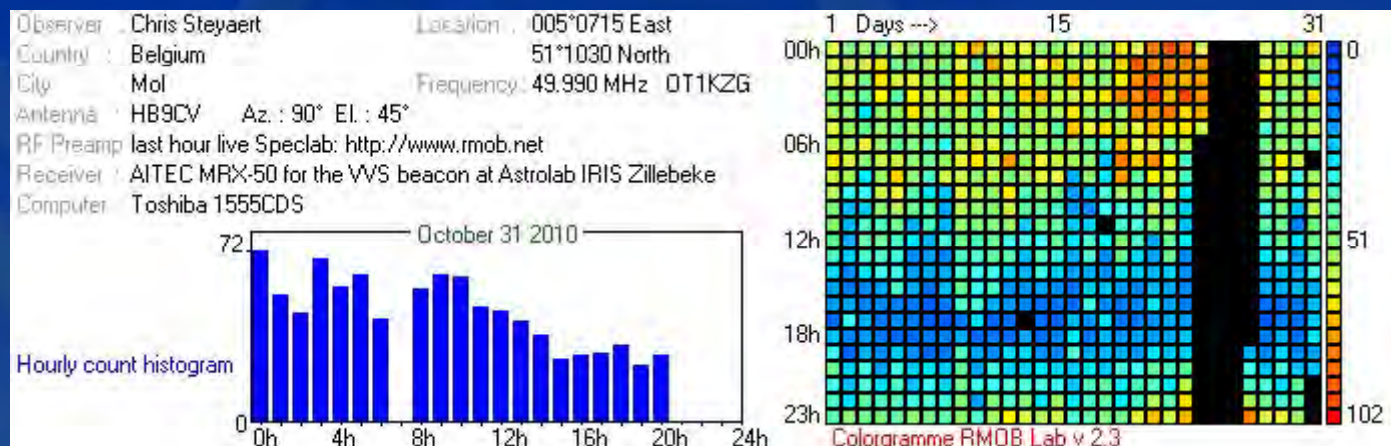
$$\frac{\partial Doppl_{R_i}(t)}{\partial t} = -\frac{1}{|\overline{R_i M}|} \left[ v^2 - \frac{(\overline{R_i M} \cdot \vec{v})^2}{R_i M^2} \right] \frac{f}{c}$$

6 observations  $\rightarrow$   
position M (3 parameters) and velocity vector  $v$  (another 3) can  
be determined

# 'Global' hourly counts

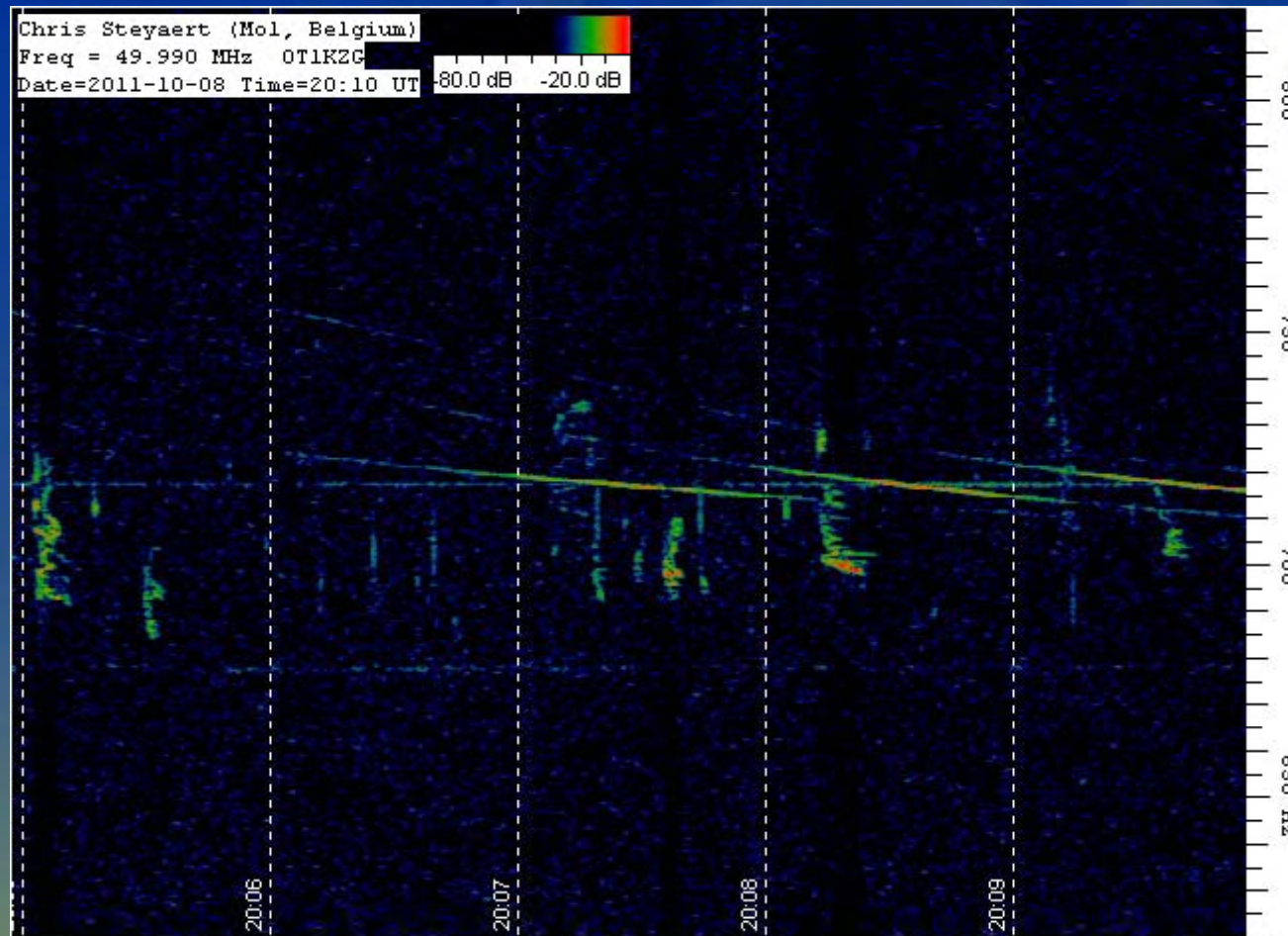
The screenshot shows a web browser window titled "Radio Meteor Observatory's On Line - Google Maps - Windows Internet Explorer". The address bar displays "http://www.rmob.org/livedata/main.php". The page content includes the title "Radio Meteor Observatory's On Line", a link to "About Radio Meteor Observatory's DATA", and instructions: "Click on red points onto this World Map to see observer data and use left zoom function for navigate into the map". Below this is a link to "Google Maps observer coordinates HELP". The main feature is a world map with red pins indicating observer locations, primarily in North America and Europe. The map includes navigation controls on the left and a style selector (Map, Satellite, Hybrid, Terrain) at the top right. At the bottom of the map area, it says "POWERED BY Google". Below the map, there is a note: "Server Powered by INFOSAT under Linux" and a link to "Please see new version available for Colorgramme Lab on this site here : www.rmob.org". At the very bottom, there is a link to "Tepliczky August 2012 Datas in RMOB Text Format". The browser's status bar at the bottom shows "Internet" and "100%" zoom.

# 'Global' hourly counts





# October 11 ~ 20h UT



- Carrier
- underdense meteors
- Planes
- $\epsilon$

# Simultaneous observations

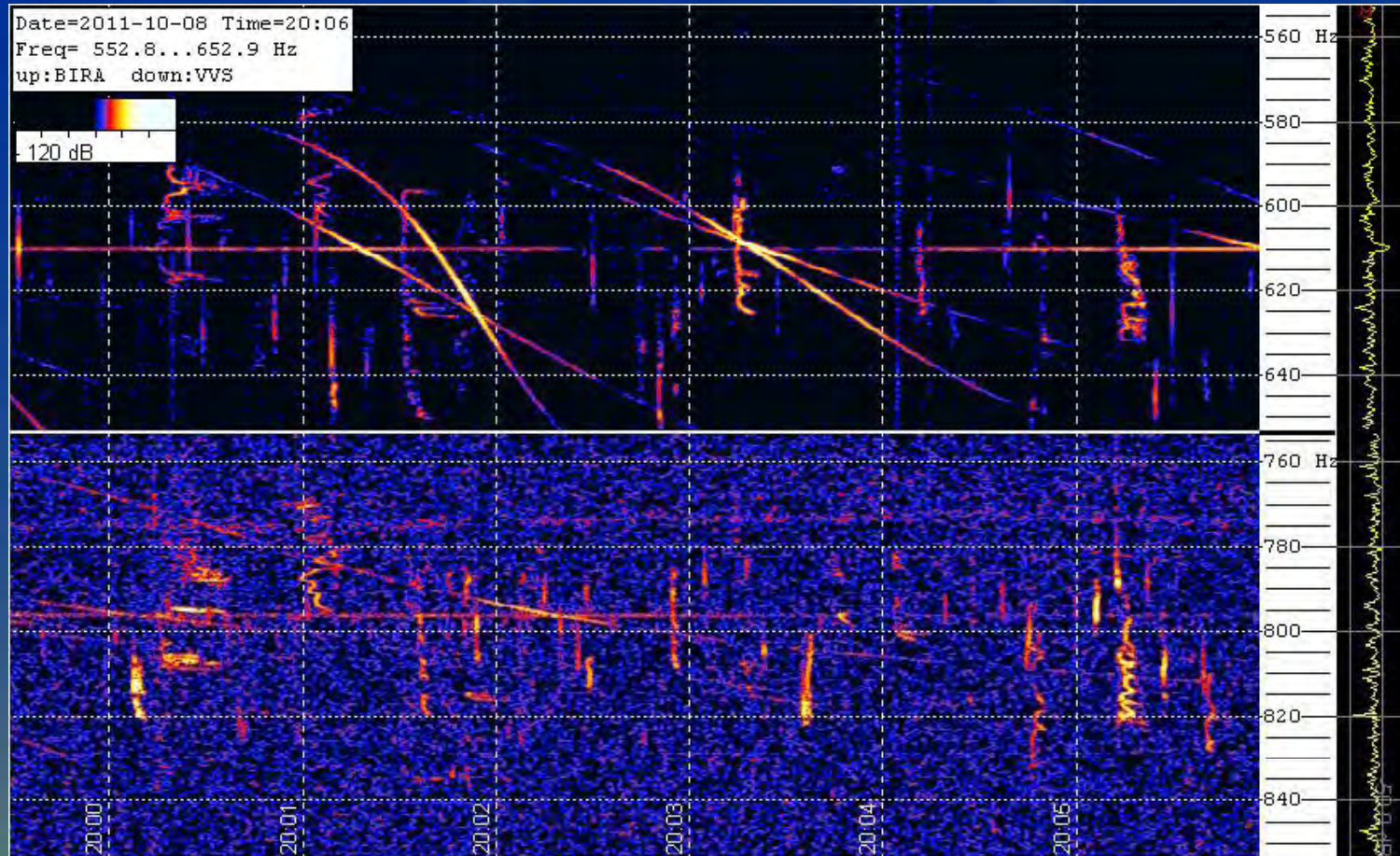


Dessel-  
Zillebeke  
150 km

Two beacons



# Simultaneous observations

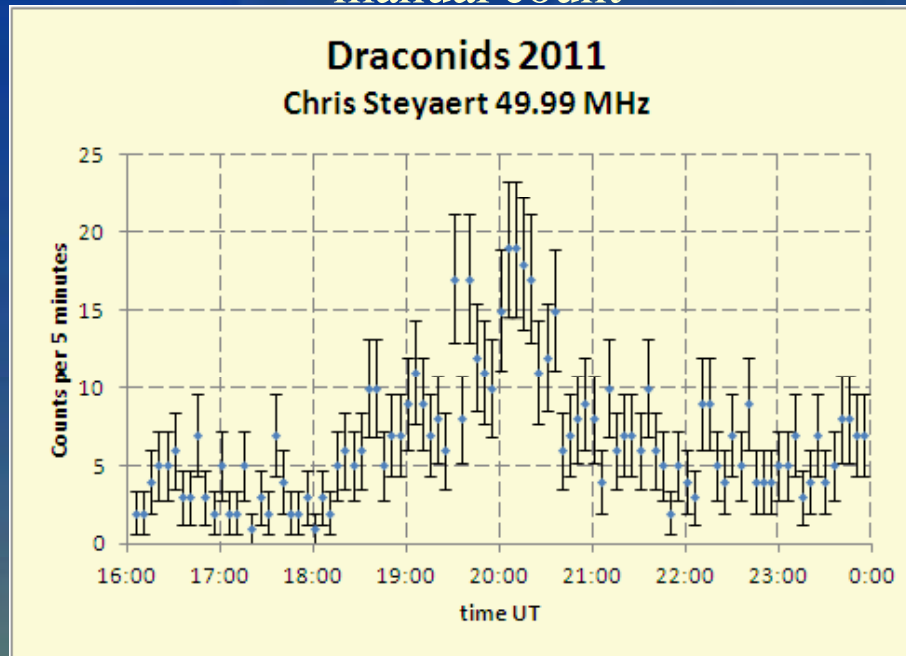


BIRAs) Doves, VVS in the Perseid NO

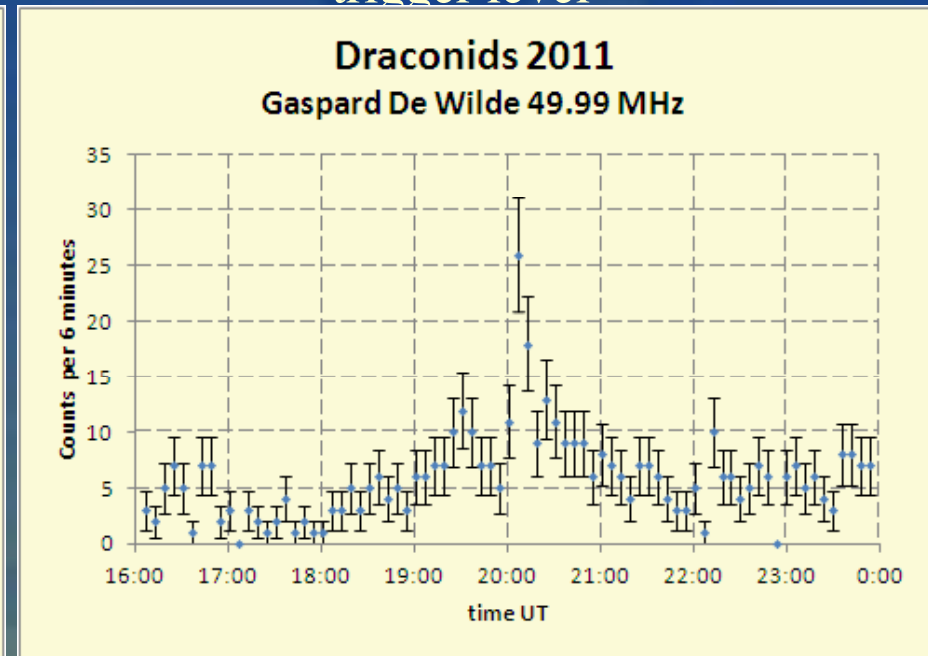
# Detailed counts

Sufficiently high counts → smaller intervals justified

manual count



trigger level



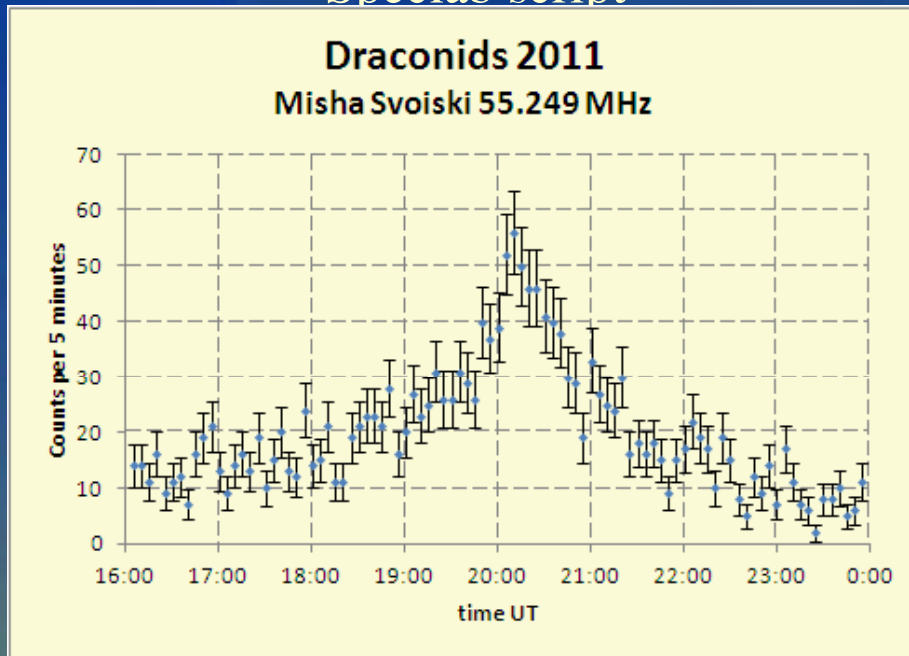
Error bars:  $\sqrt{n}$



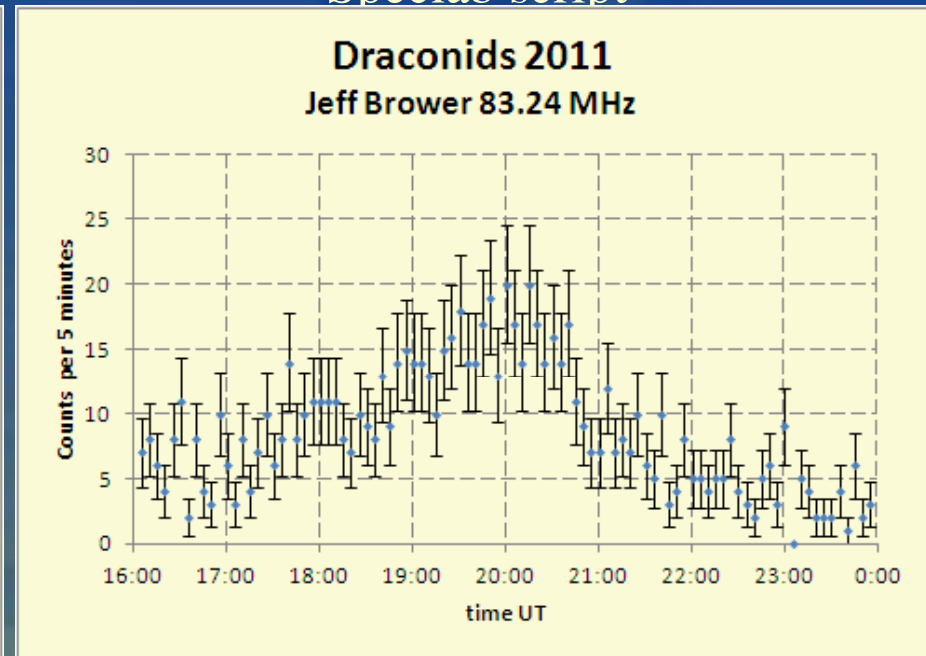
# Detailed counts

Sufficiently high counts → smaller intervals justified

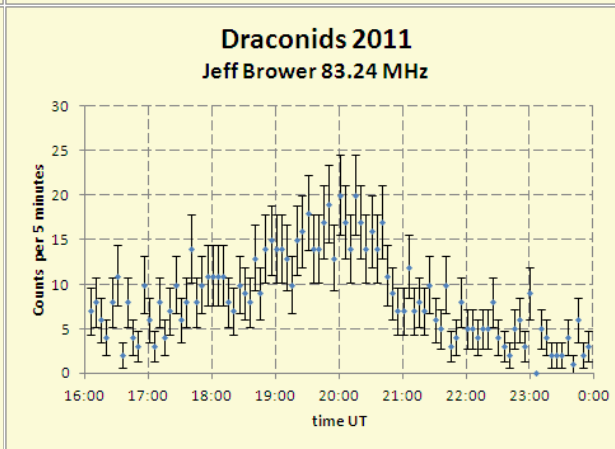
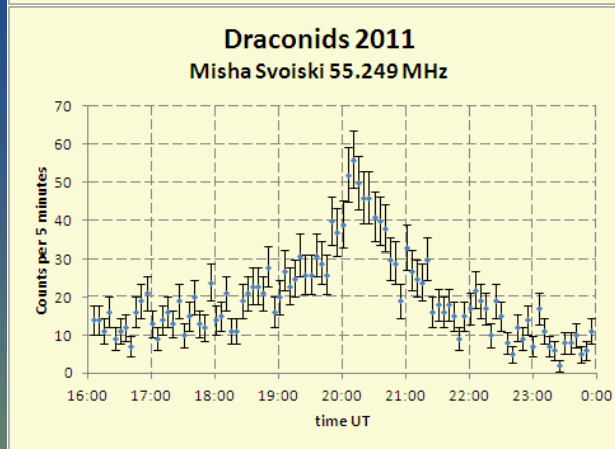
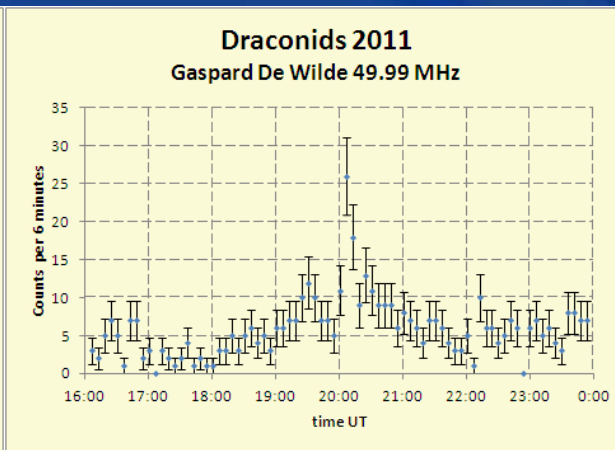
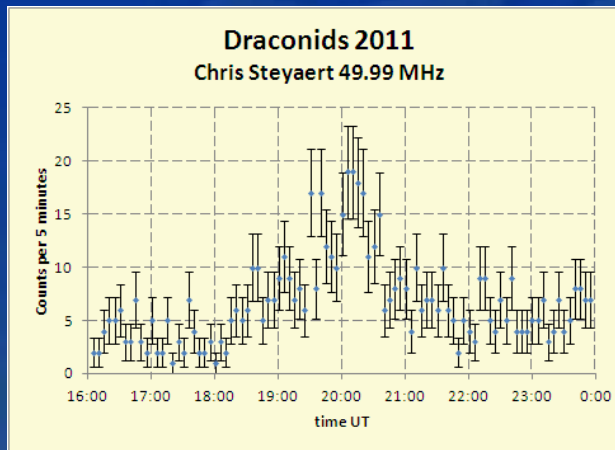
Speclab script



Speclab script

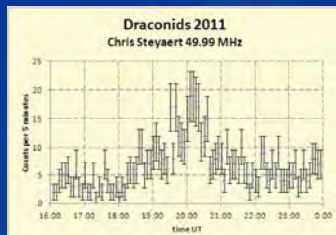


# Detailed counts



Observability  
Function: No  
Sporadics

# Peak locations



20h08

19h30-40

16h45

22h12



20h06

19h30

16h48

22h12



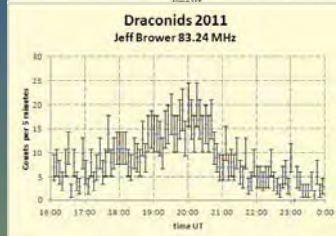
20h10

(19h35)

16h52

22h05

23h05



20h0

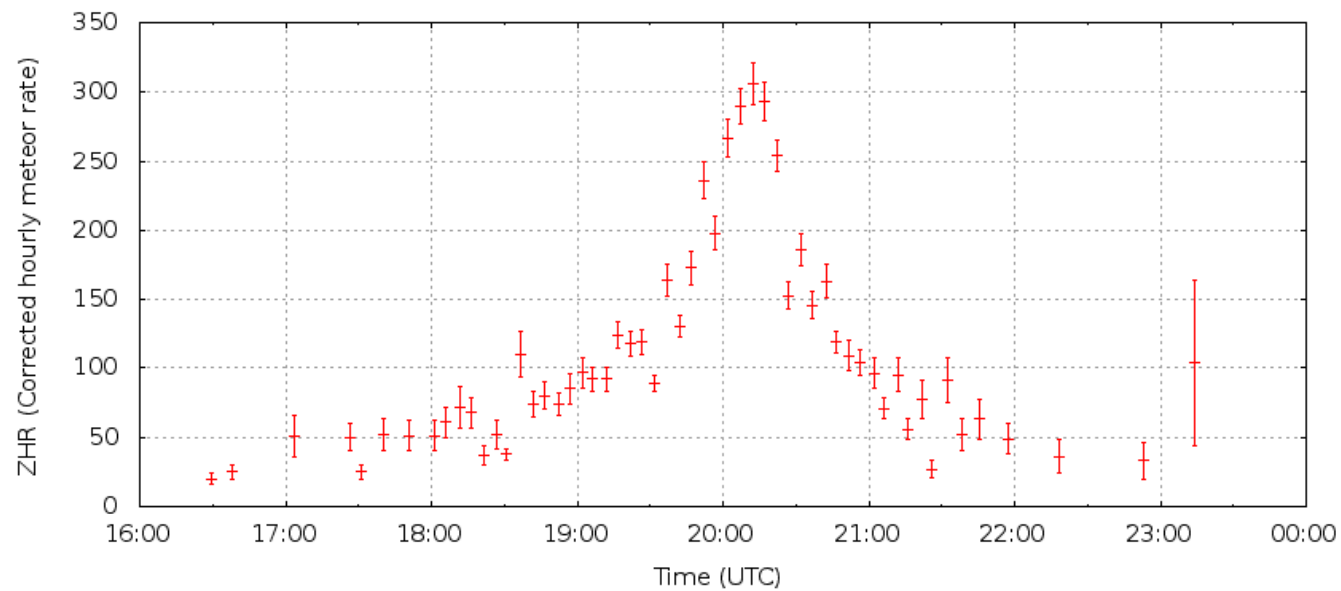
19h30



# Visual comparison

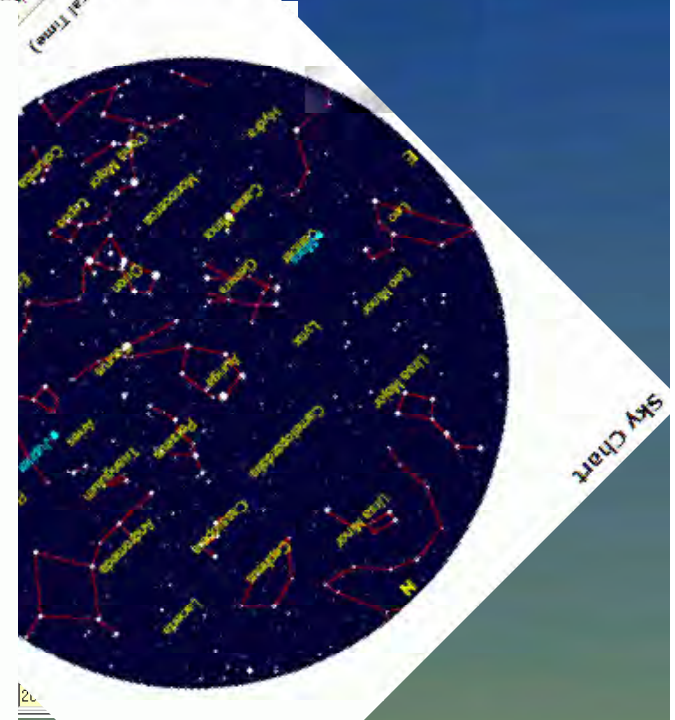
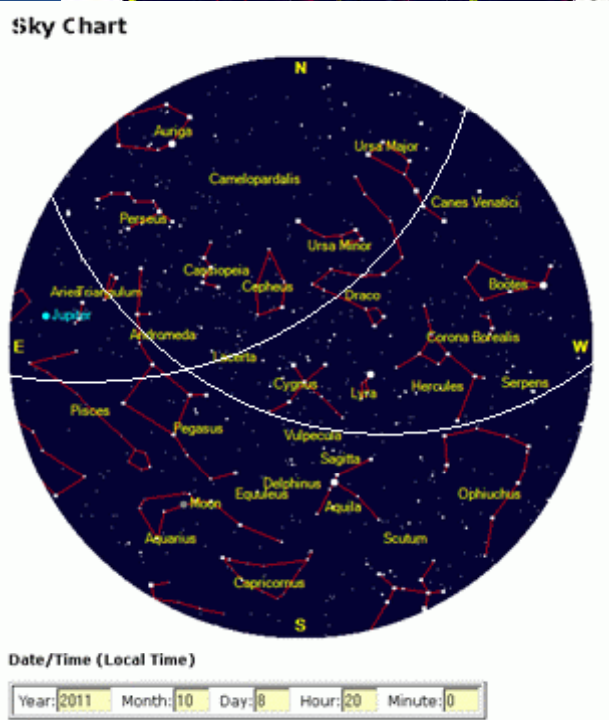
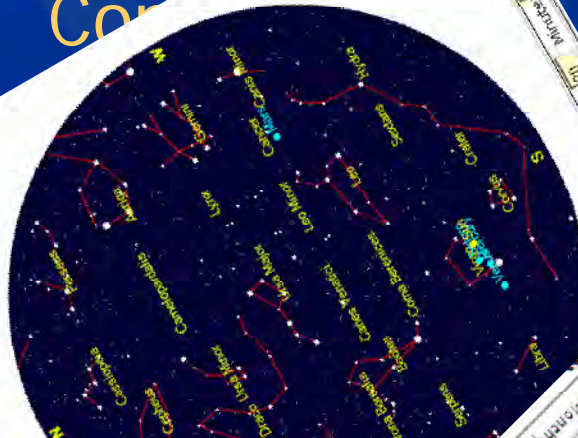
<http://www.imo.net/live/draconids2011/>

## 8 October in detail



Com

- Discovery potential
- 'half' Earth / galactic streams



## Thanks to / acknowledgments

- Jeff Brower
- Micha Svoiski
- Gaspard De Wilde
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- Radio Meteor Observatories On Line
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- VVS
- IMO
- IMC2011 Asher Vaubillion
- BIRA IASB Belgium
- Heavens-above