Real-time fluxes from video data

Hello. I'm
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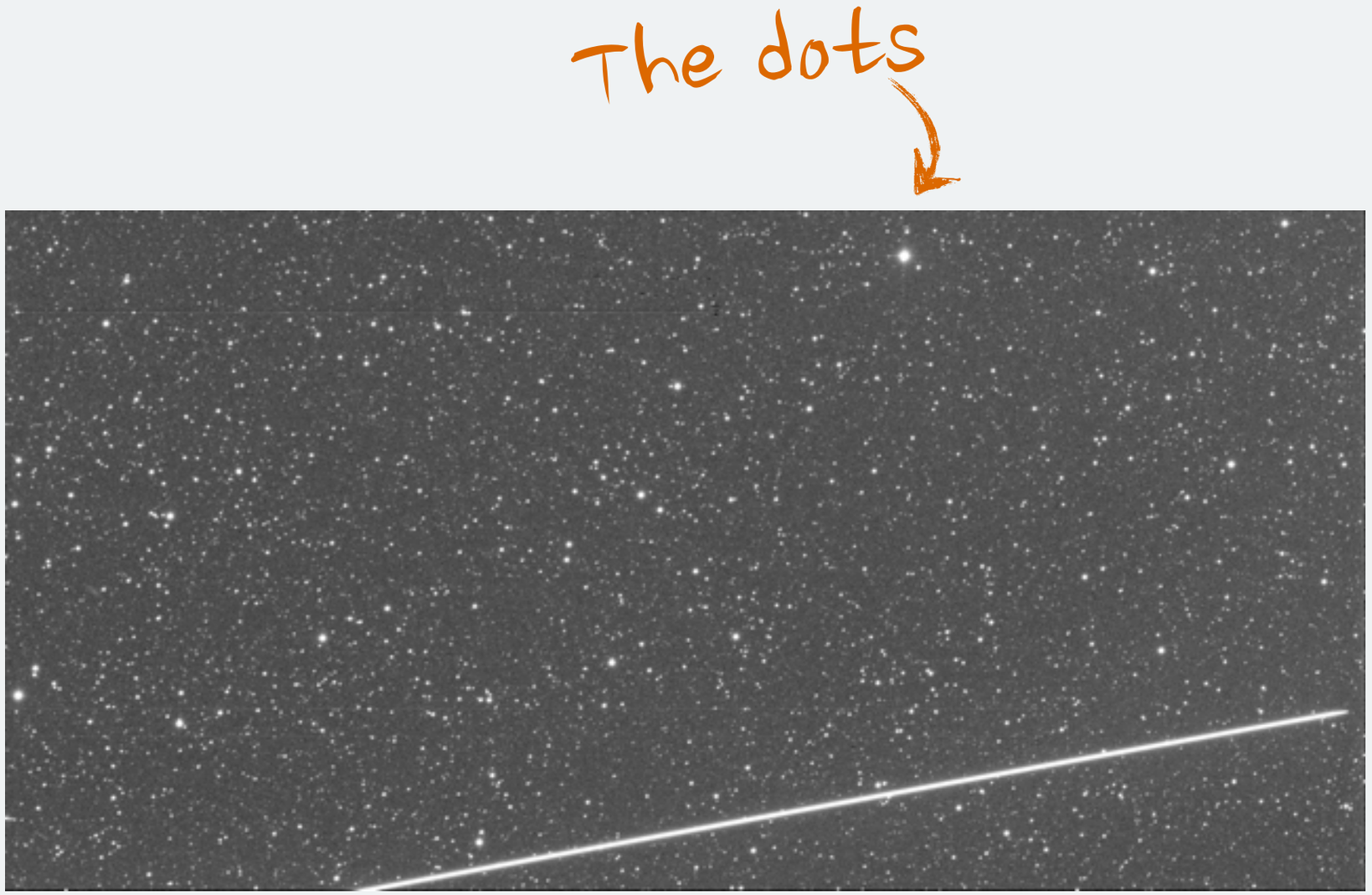
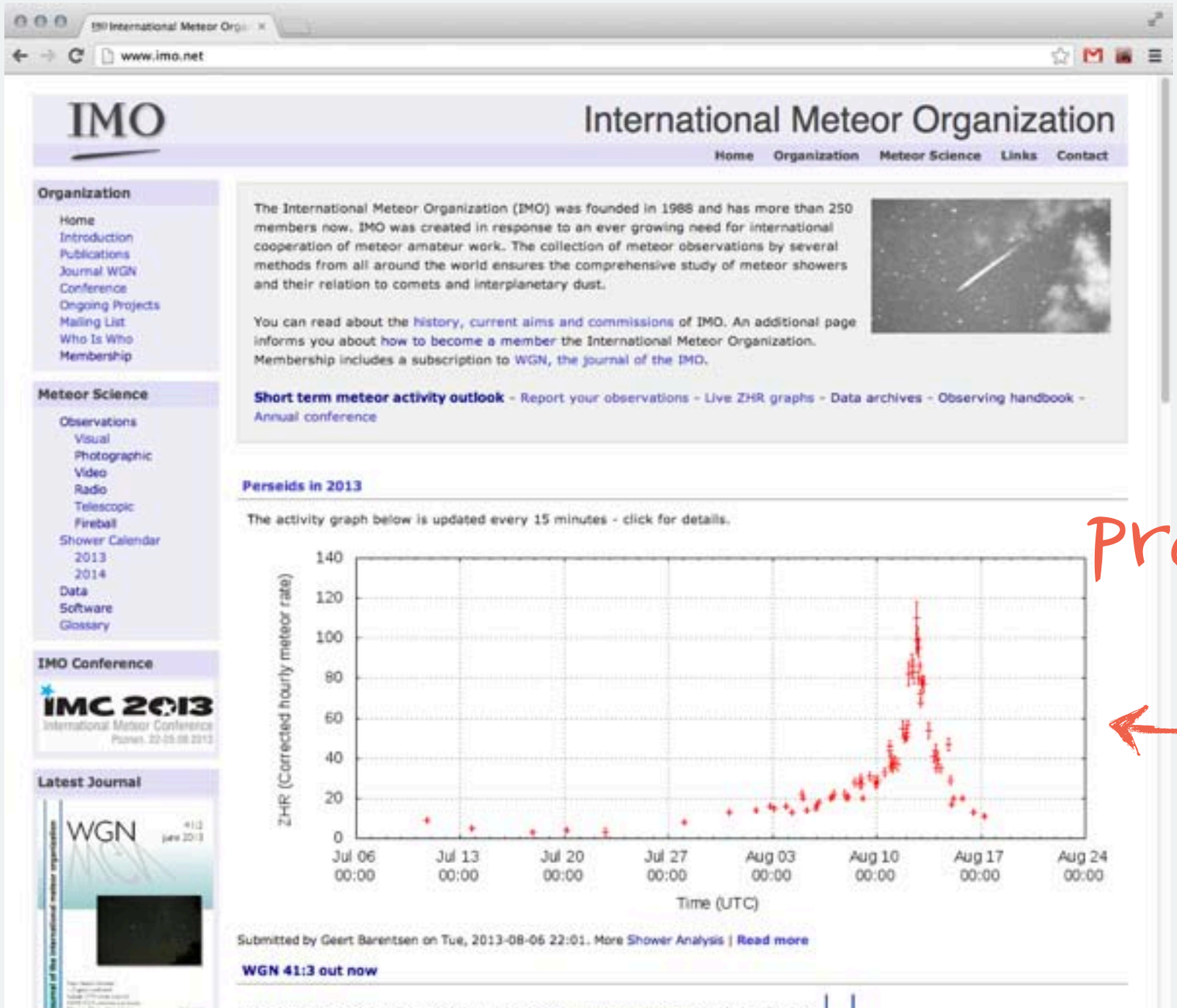
I do galactic astronomy during **daytime**



I do meteors during **nighttime**



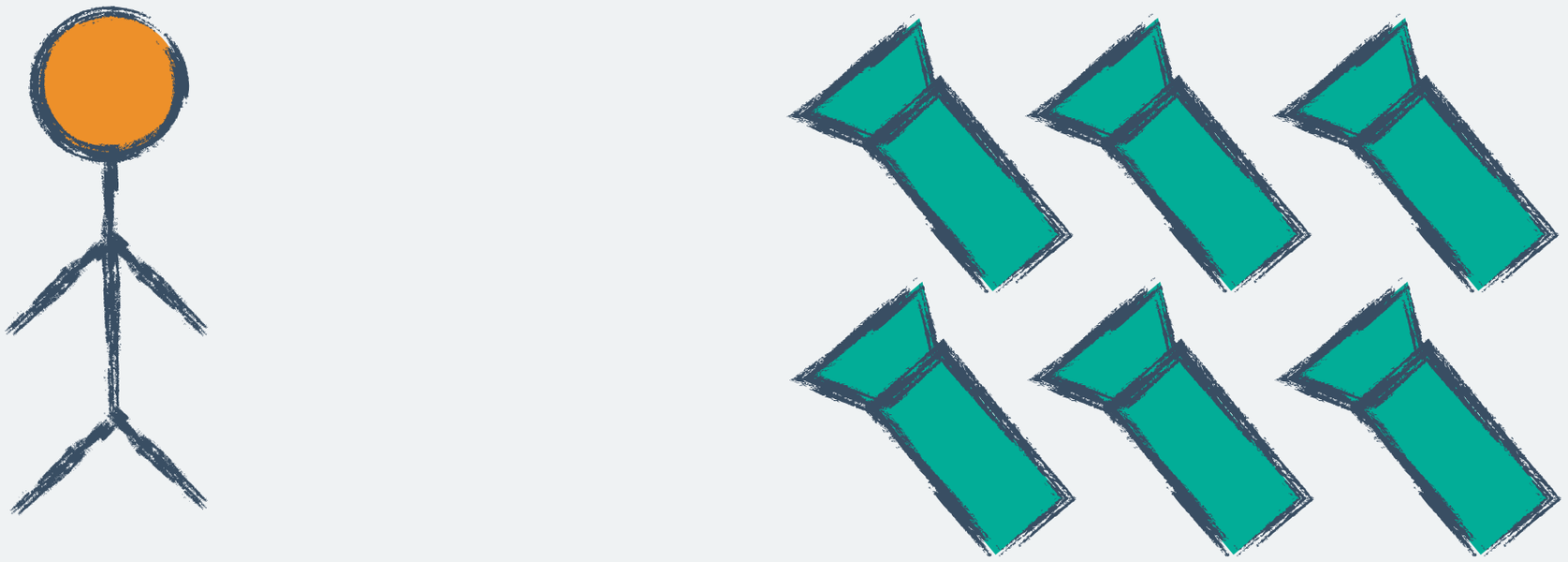
I Produce the Preliminary graphs

Visual observations

*are **awesome**.*

Because human eyes
are ***sensitive.***

One human is worth about ***six cameras***.



*~1 mag deeper**

~3x larger field (100°)*

(Ignoring caveats)*

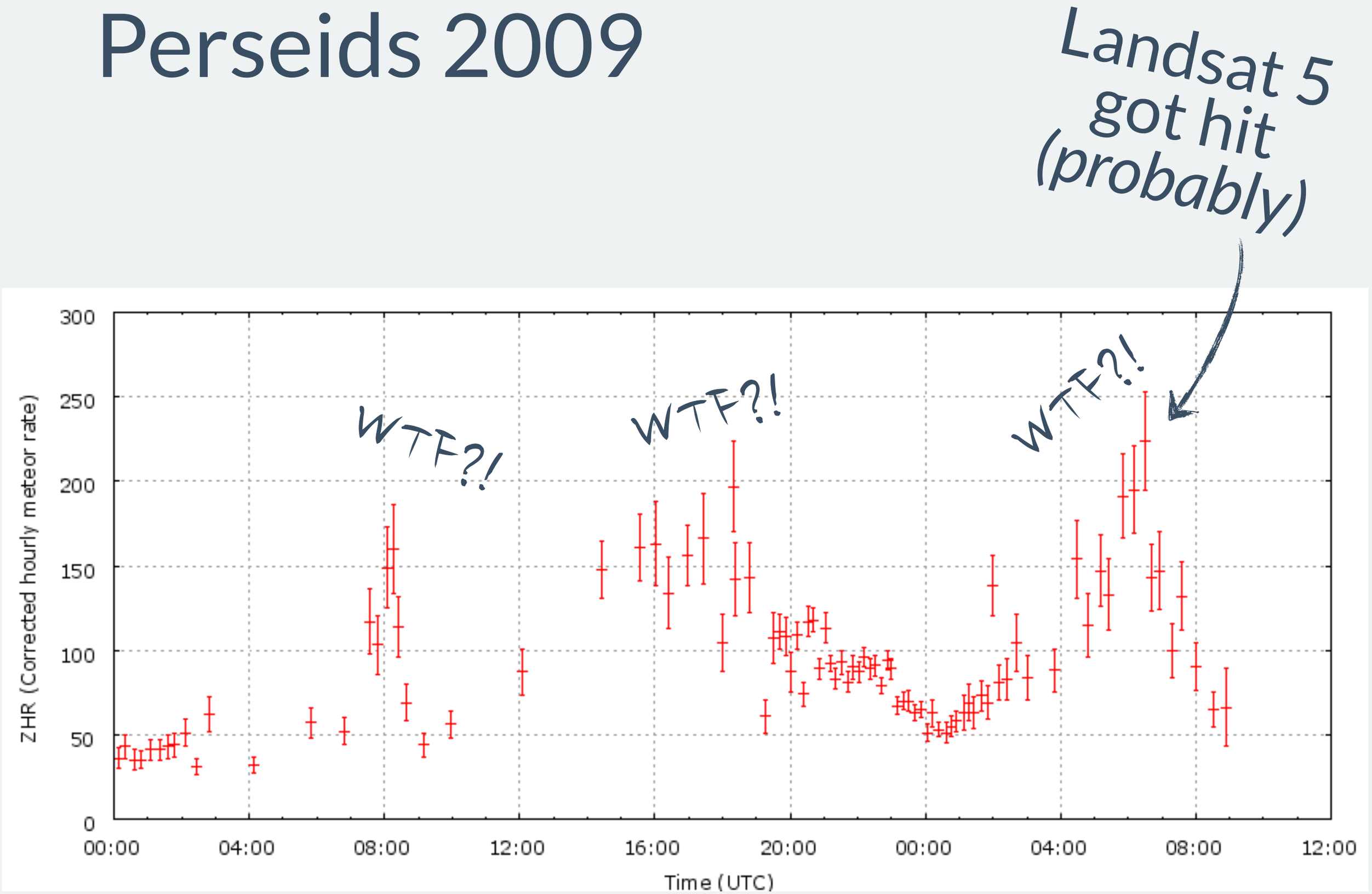
And human eyes

are ***everywhere.***

Perseids 2013 visual data

Visible light observations of meteor rates *are* ***useful***.

Perseids 2009

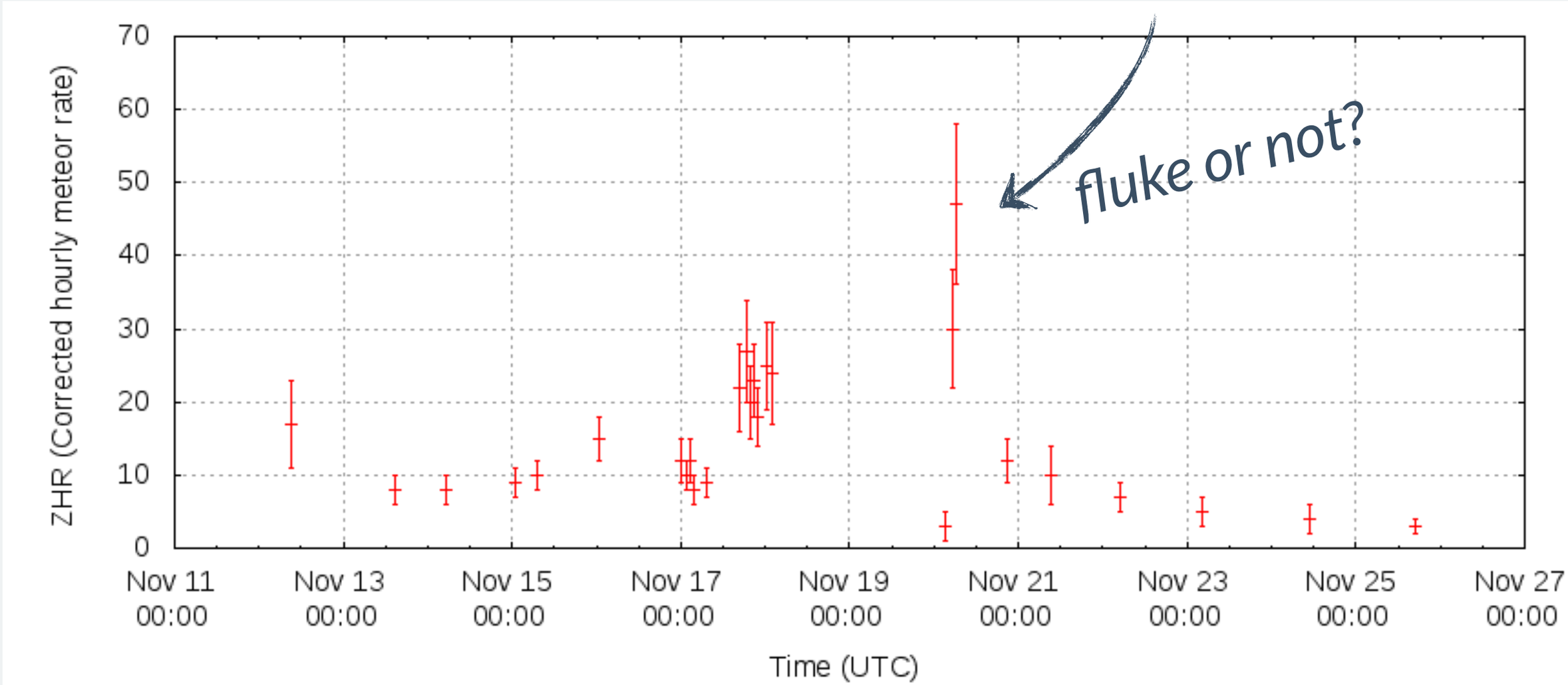


But not all showers

are ***observed well.***

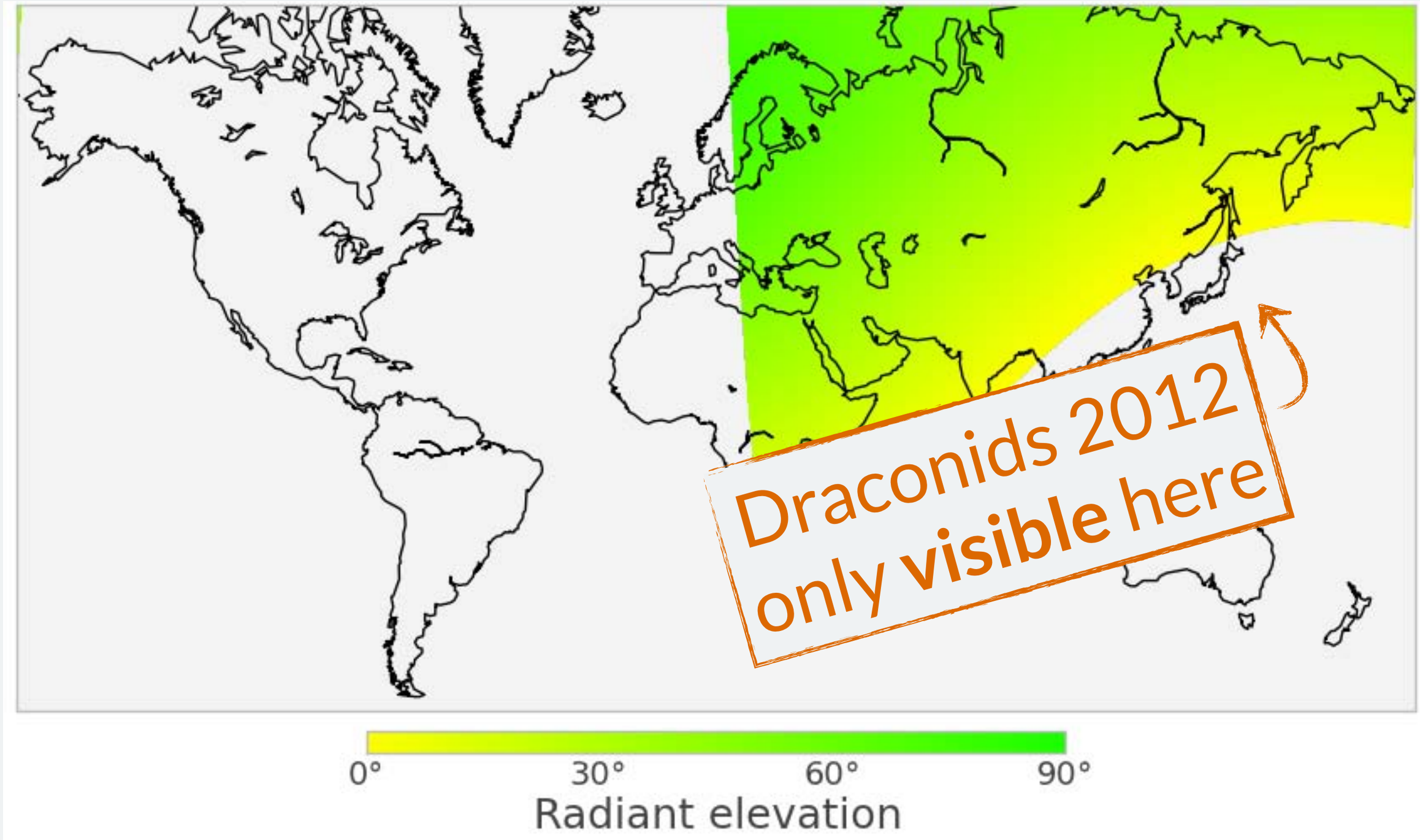
Leonids 2012

20 Nov 2012, 6 UT:
counted 33 Leonids in 1 hour



How many minor outbursts are being *missed?*

Possibly *a lot*.



Does it ***matter***?

YES.

Because outbursts
constrain ***models***.

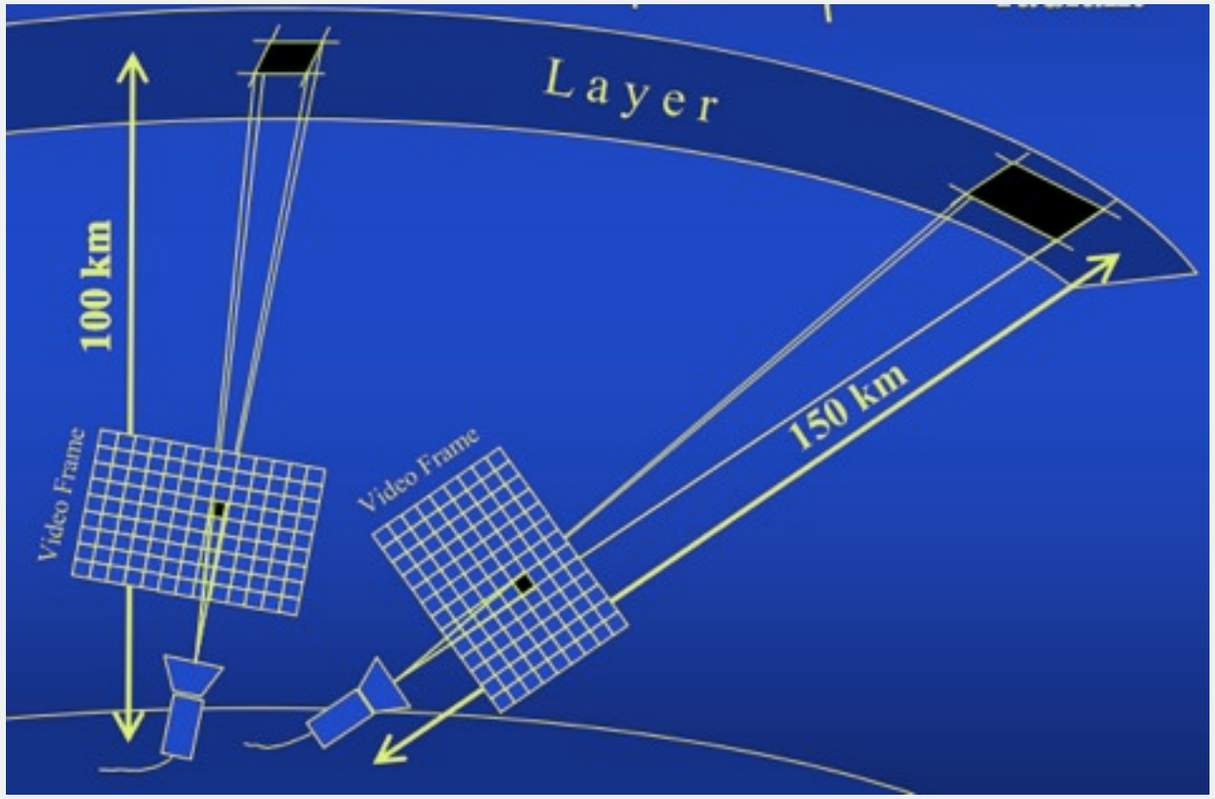
OK.

Now that we agree.
How do we **fix** this?

Super Sirko
to the rescue

In 2011, MetRec started estimating fluxes.

MetRec estimates the ***Effective Collection Area (ECA)***

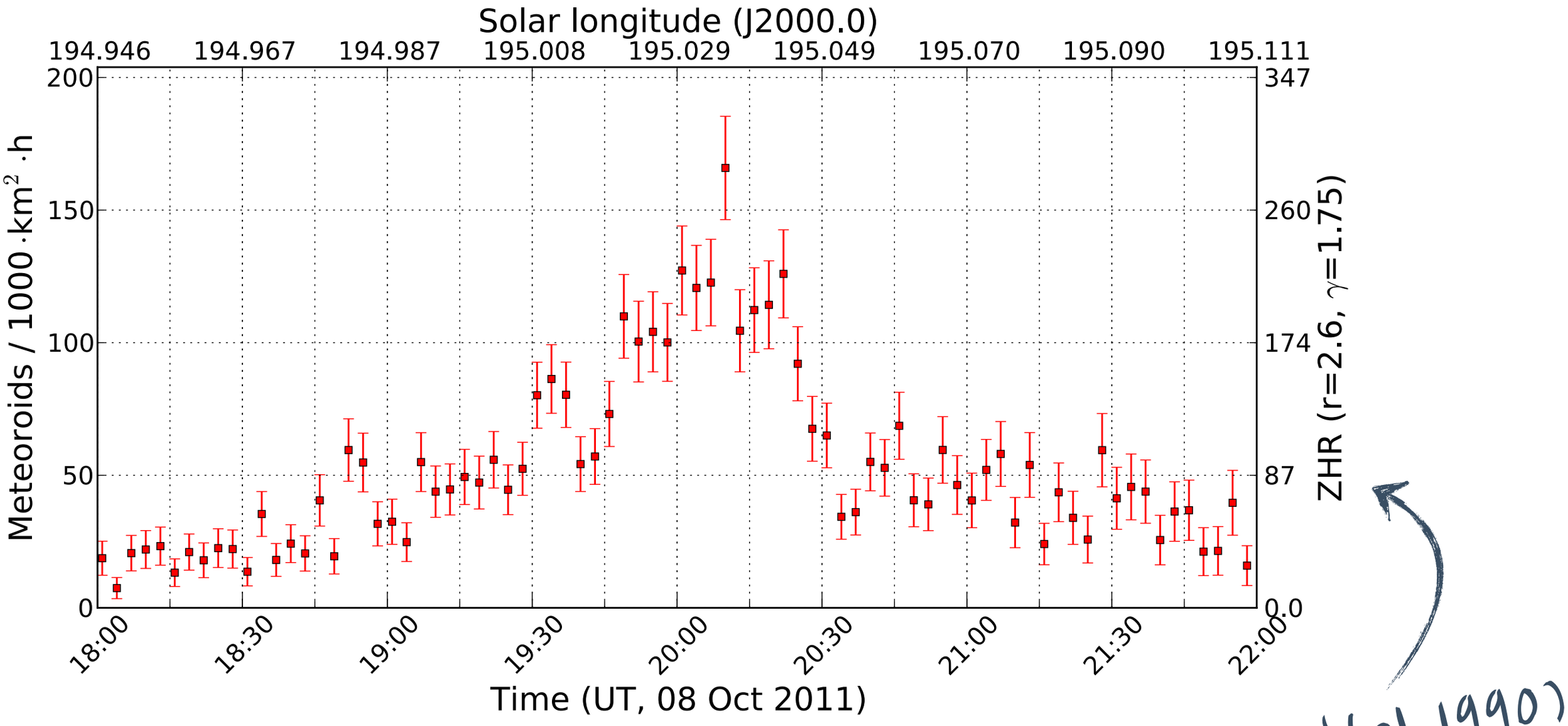


Area corrected for direction, extinction and limiting magnitude. (cf. Molau 2011)

flux(mag < 6.5) = #meteors / ECA [$km^{-2}\ h^{-1}$]

Draconids 2011

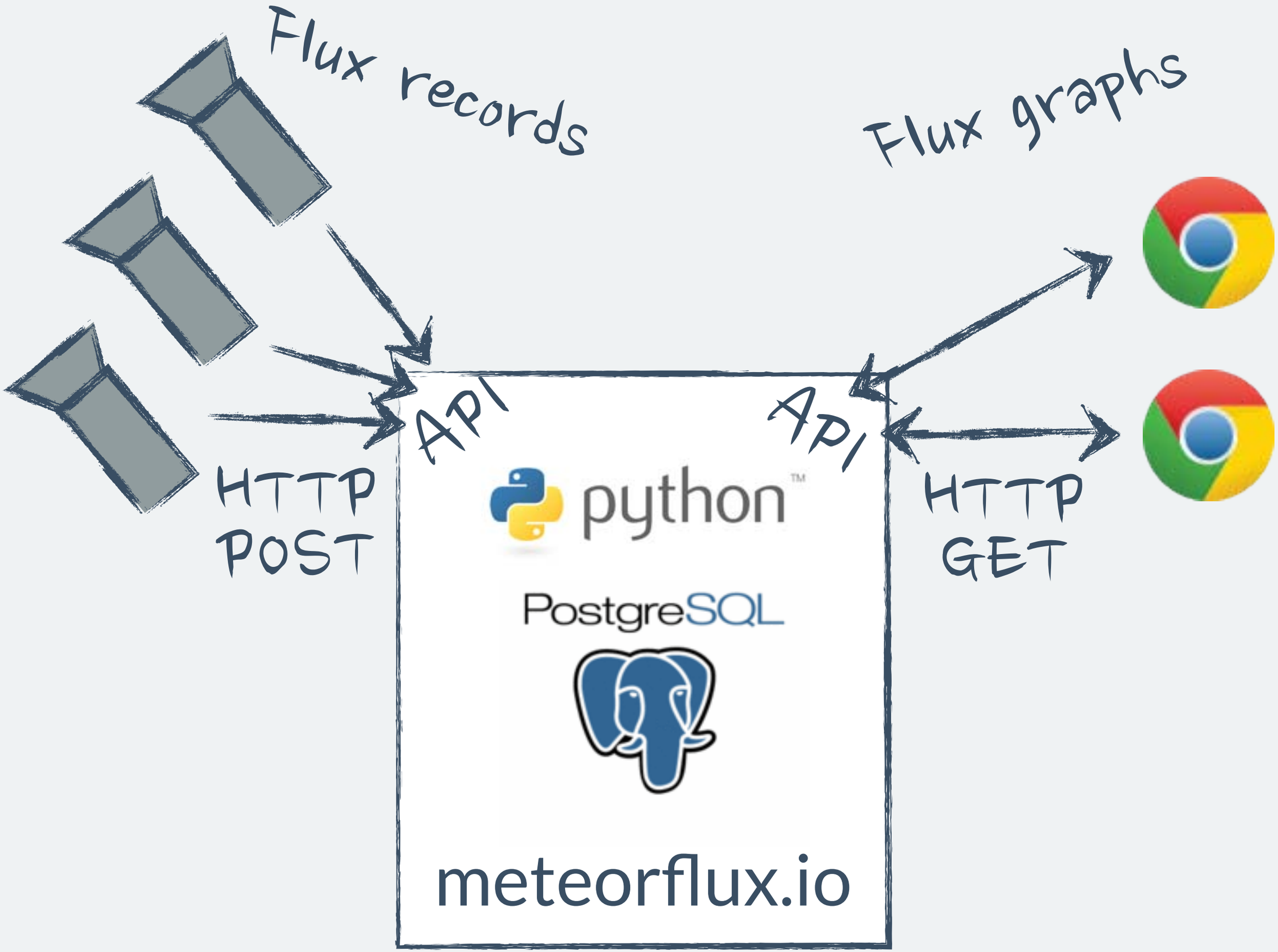
Made available in real-time at http://imonet.org

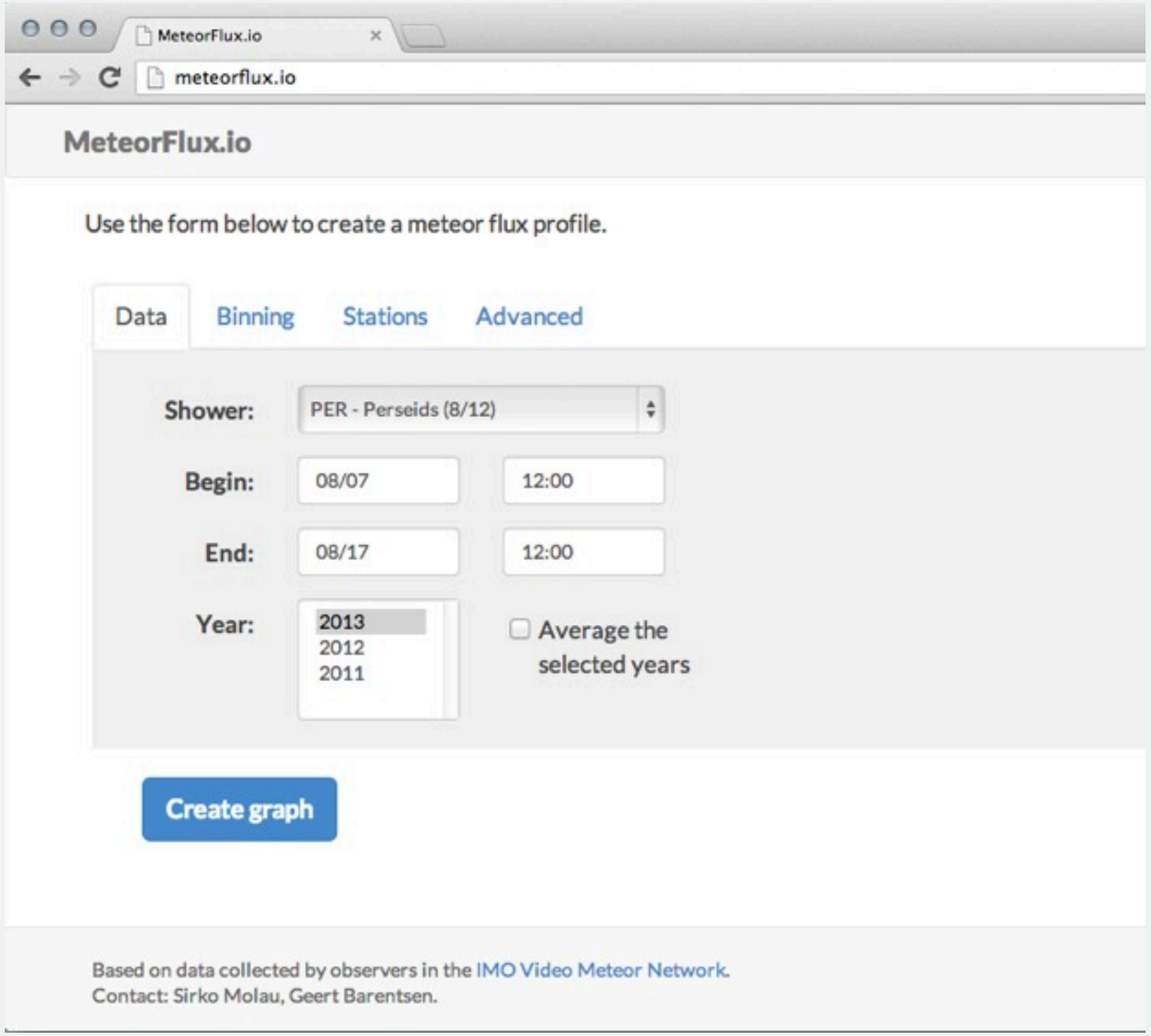


(Koschack & Rendtel 1990)

Every clear minute, MetRec produces a ***flux record***.

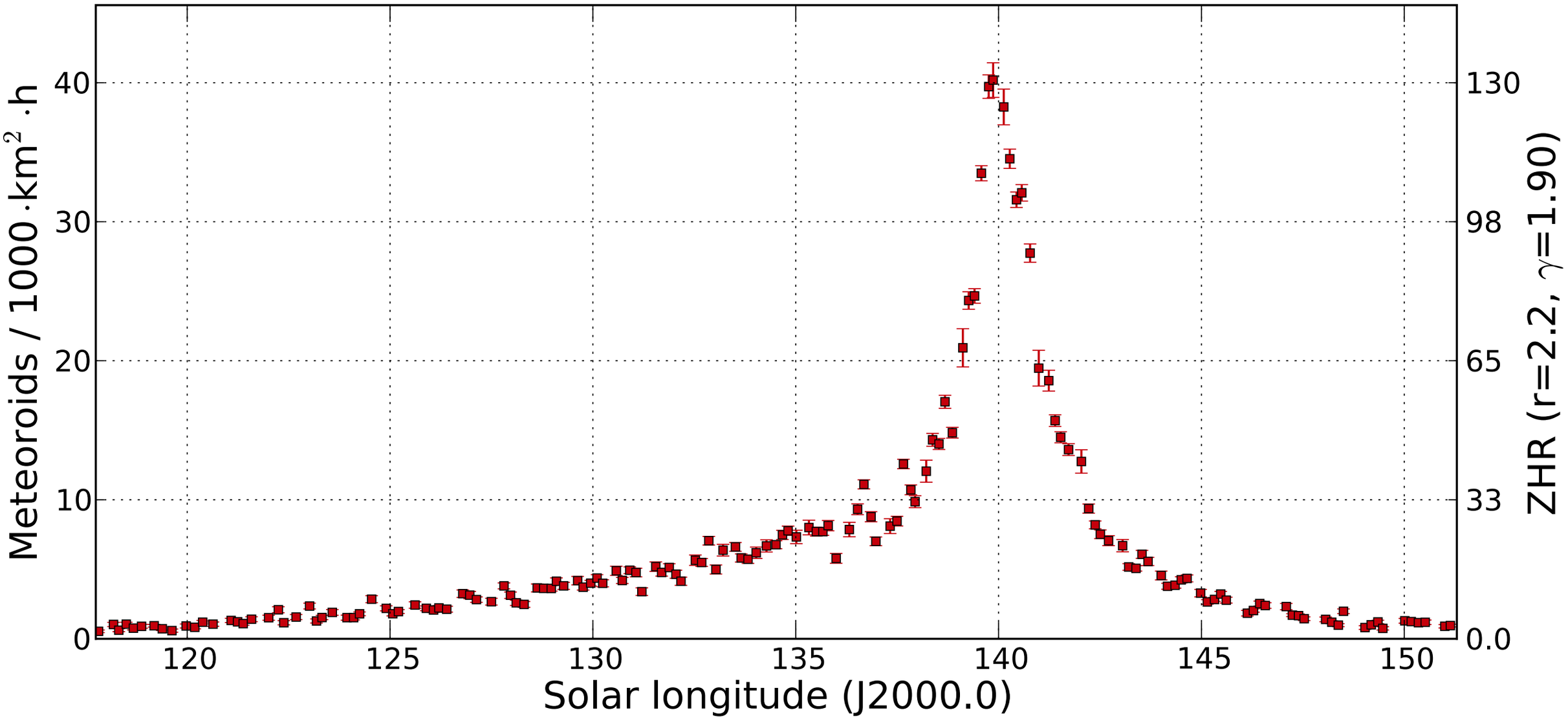
```
{
   'time': '2013-08-21 03:42',
   'station': 'MINCAM1',
   'shower': 'PER',
   'eca': 3.18,
   'met': 3,
   'mag': [2, -1, 3],
   'lm': 4.2,
   ...
}
```


Flux records
Flux graphs
API
API
HTTP
POST
HTTP
GET
python
PostgreSQL
meteorflux.io

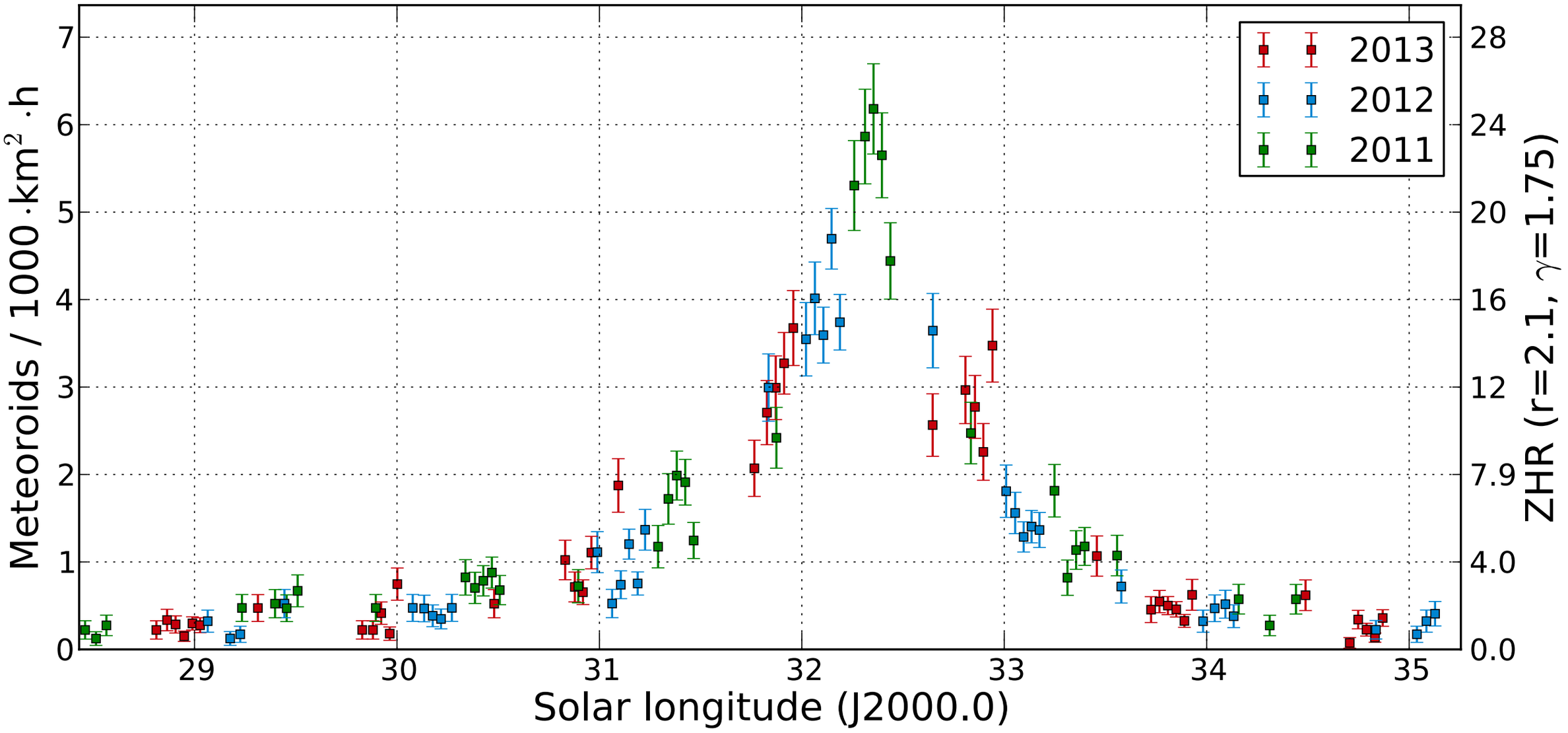


http://meteorflux.io

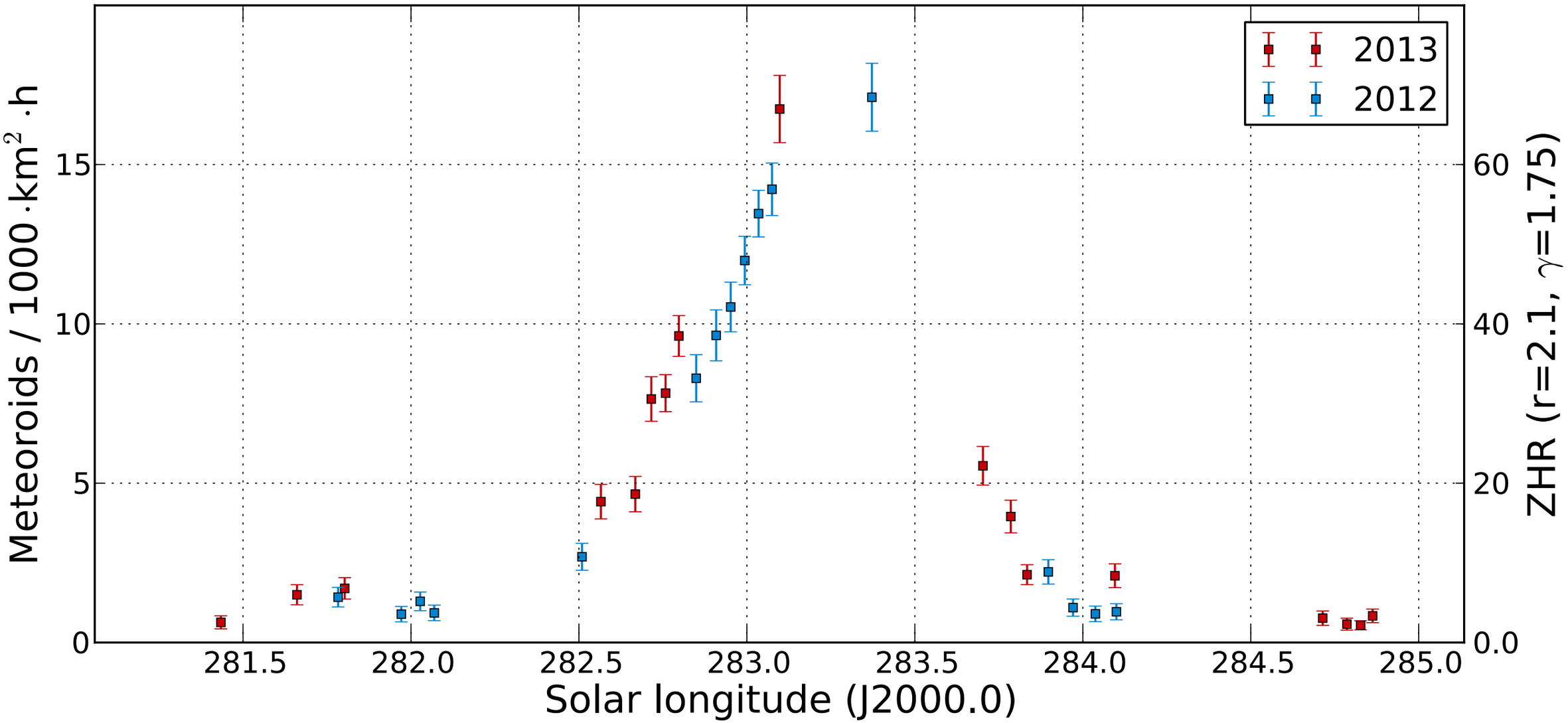
Perseids 2011-2013 (averaged)



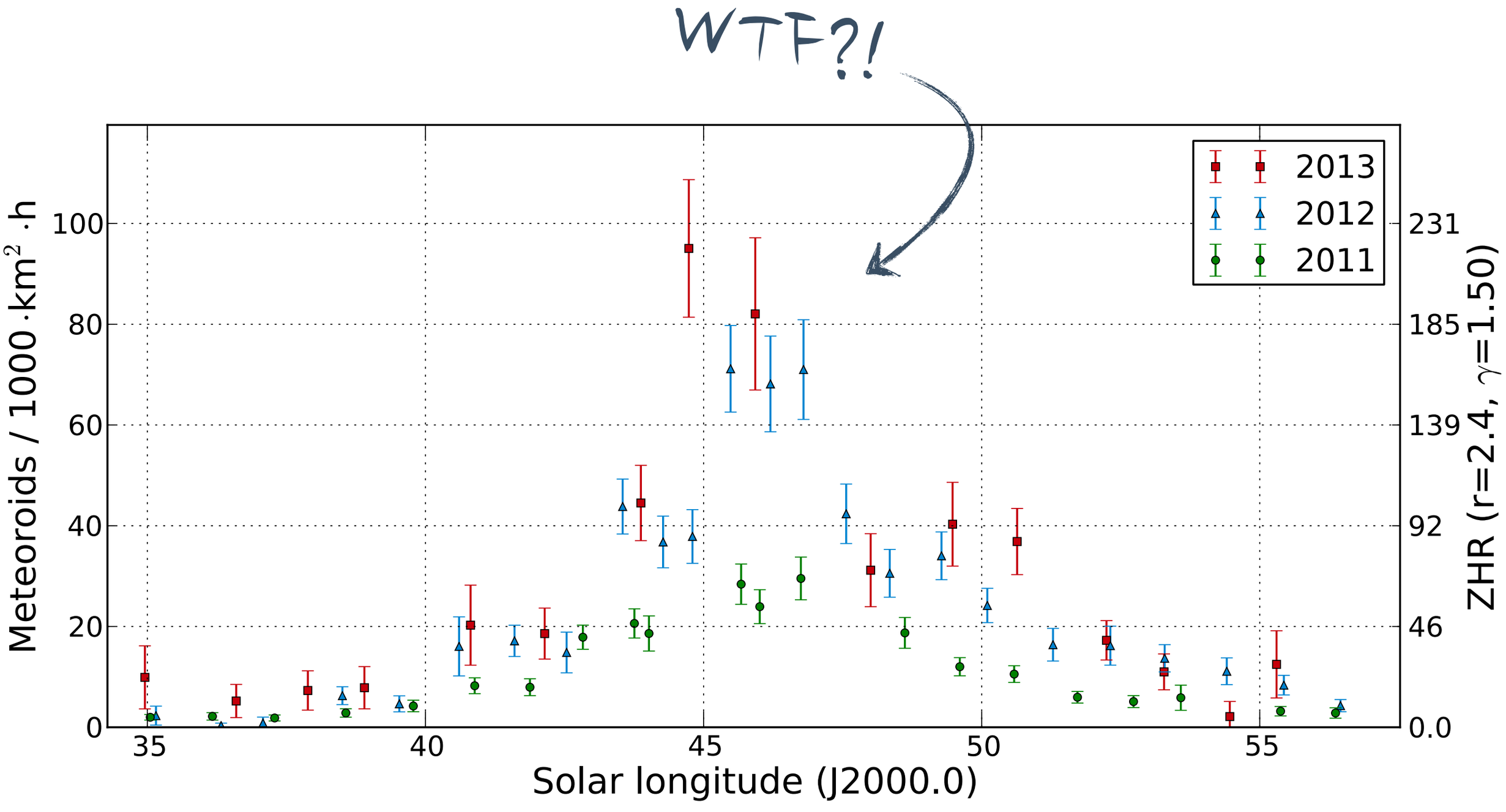
Lyrids 2011-2013



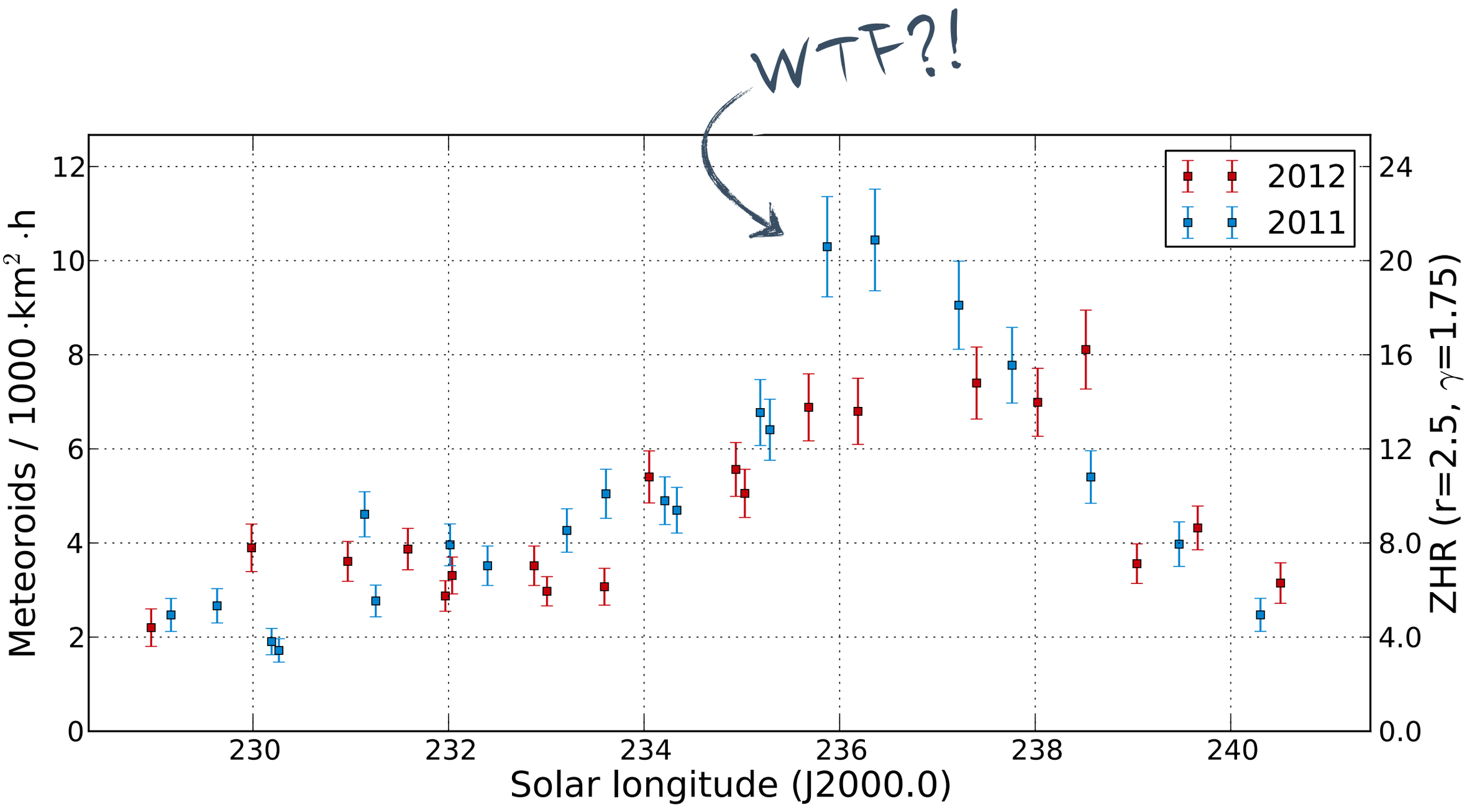
Quadrantids 2012-2013



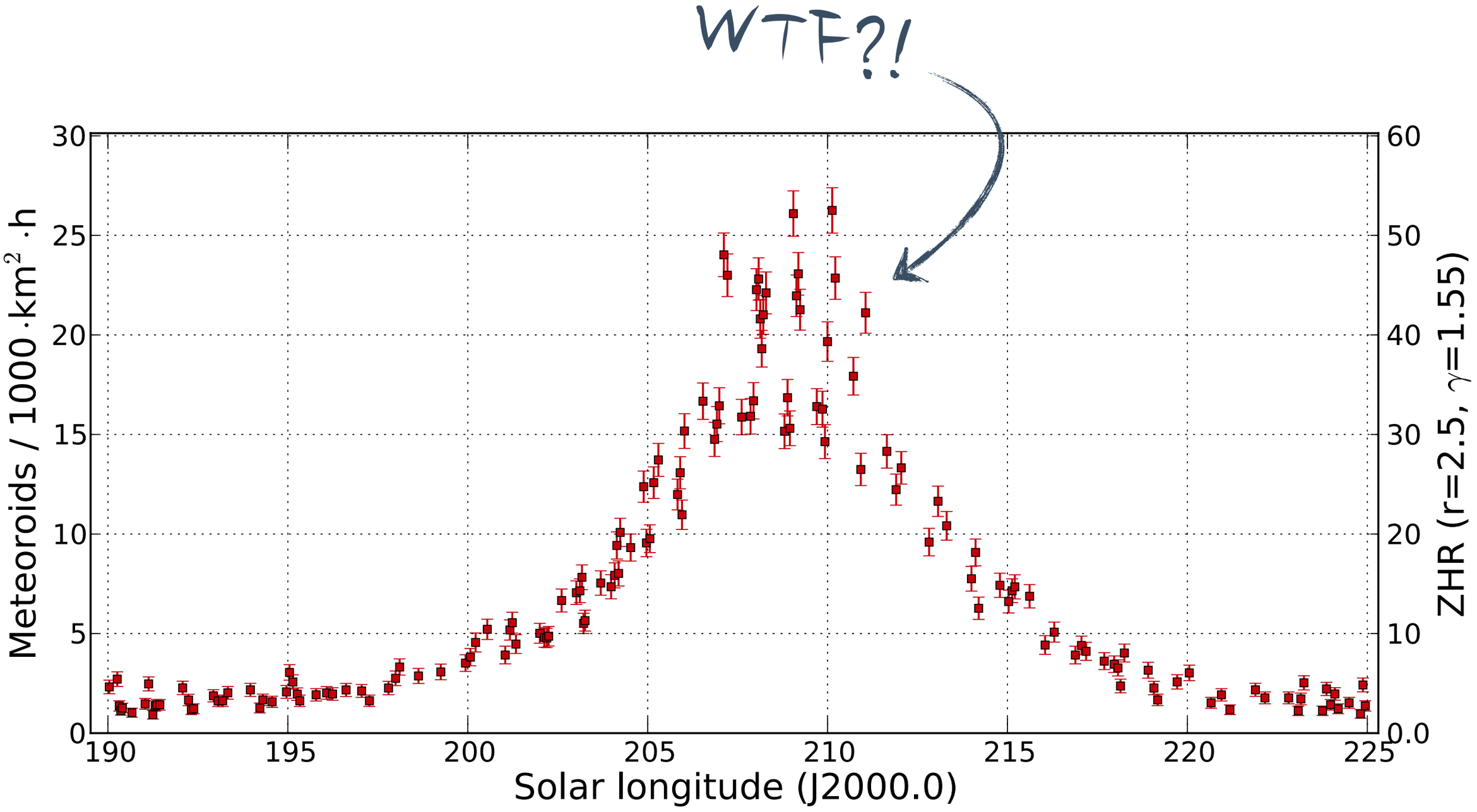
eta-Aquariids 2011-2013



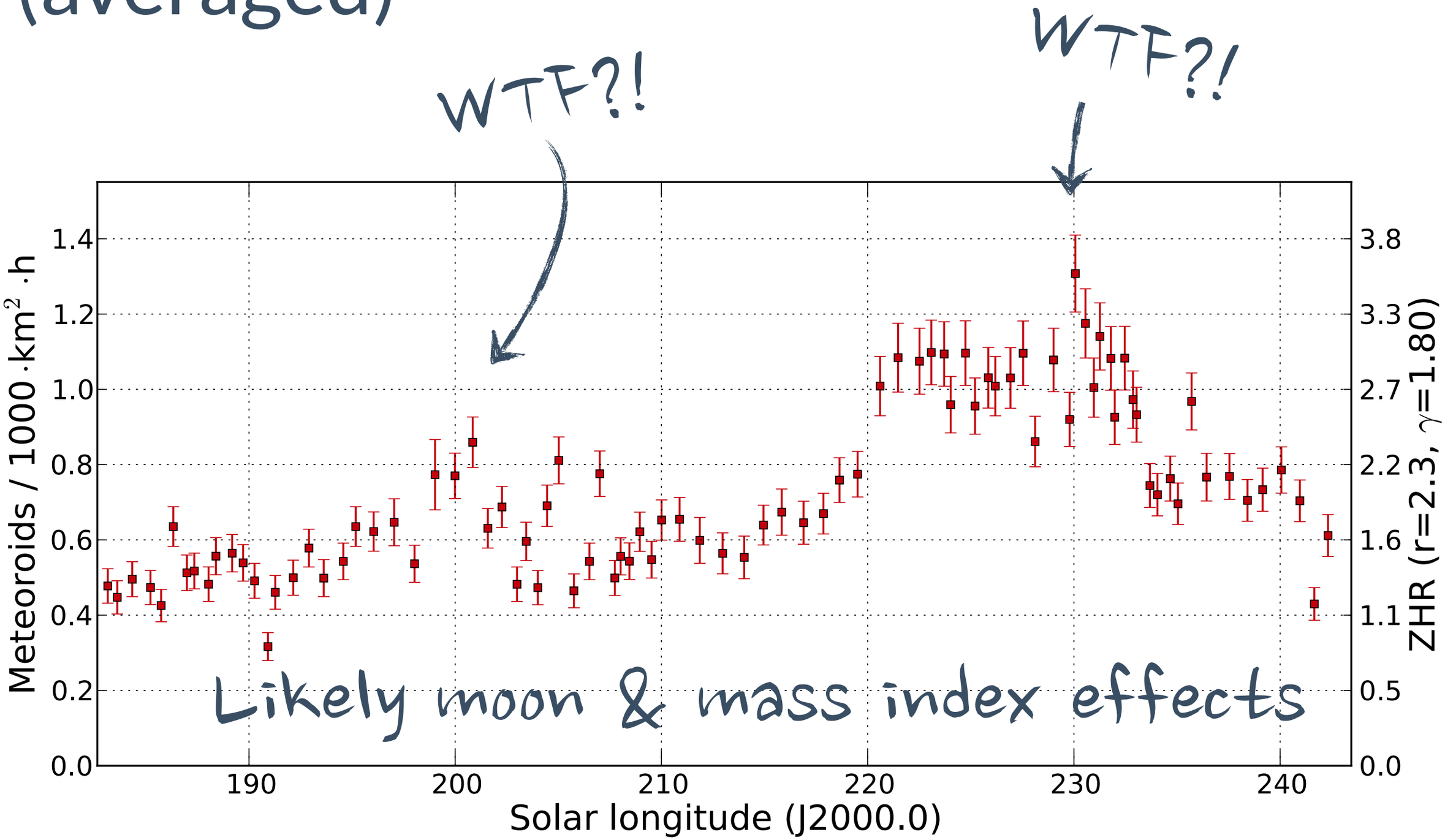
Leonids 2011-2012



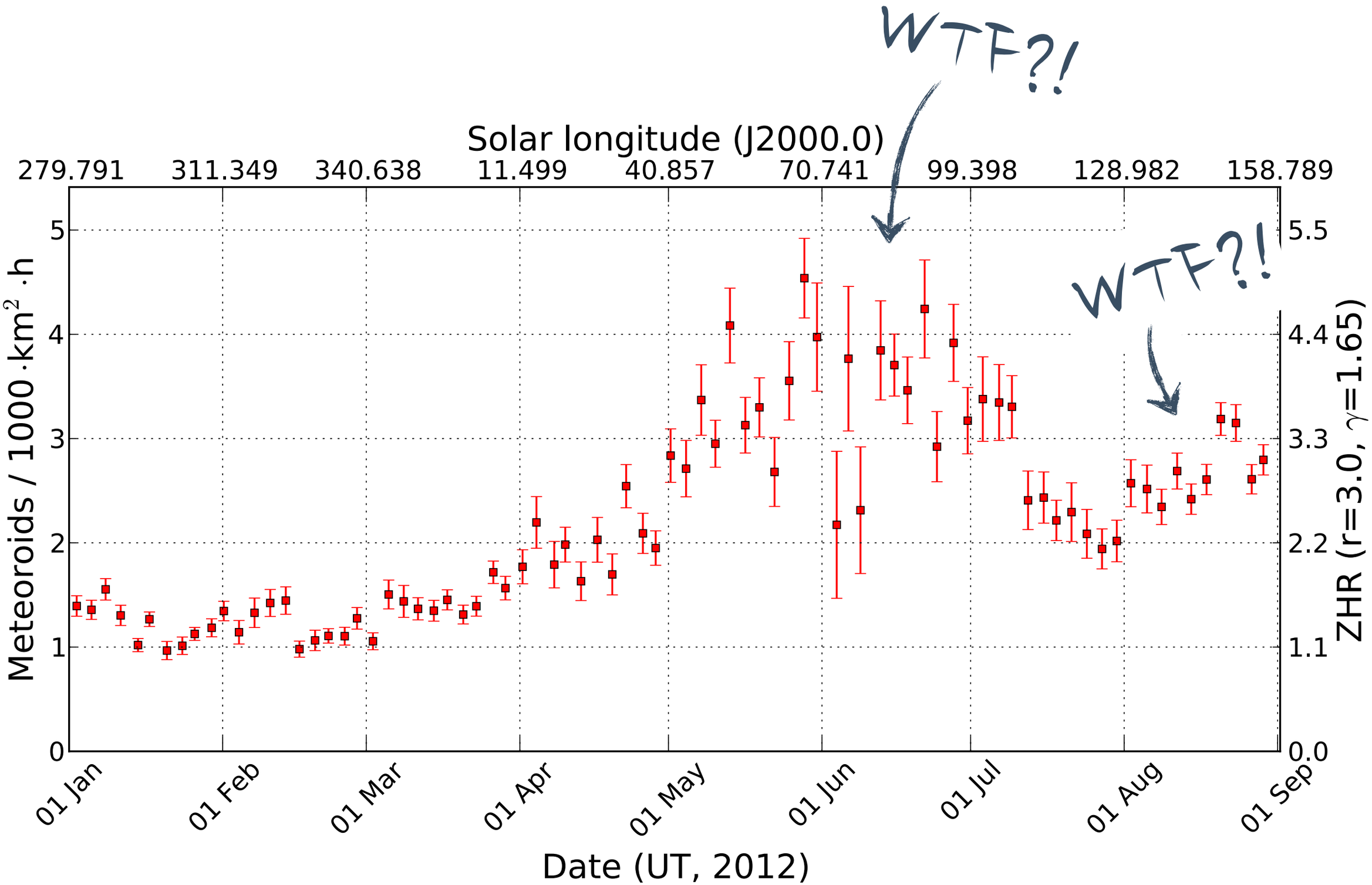
Orionids 2011-2012 (averaged)



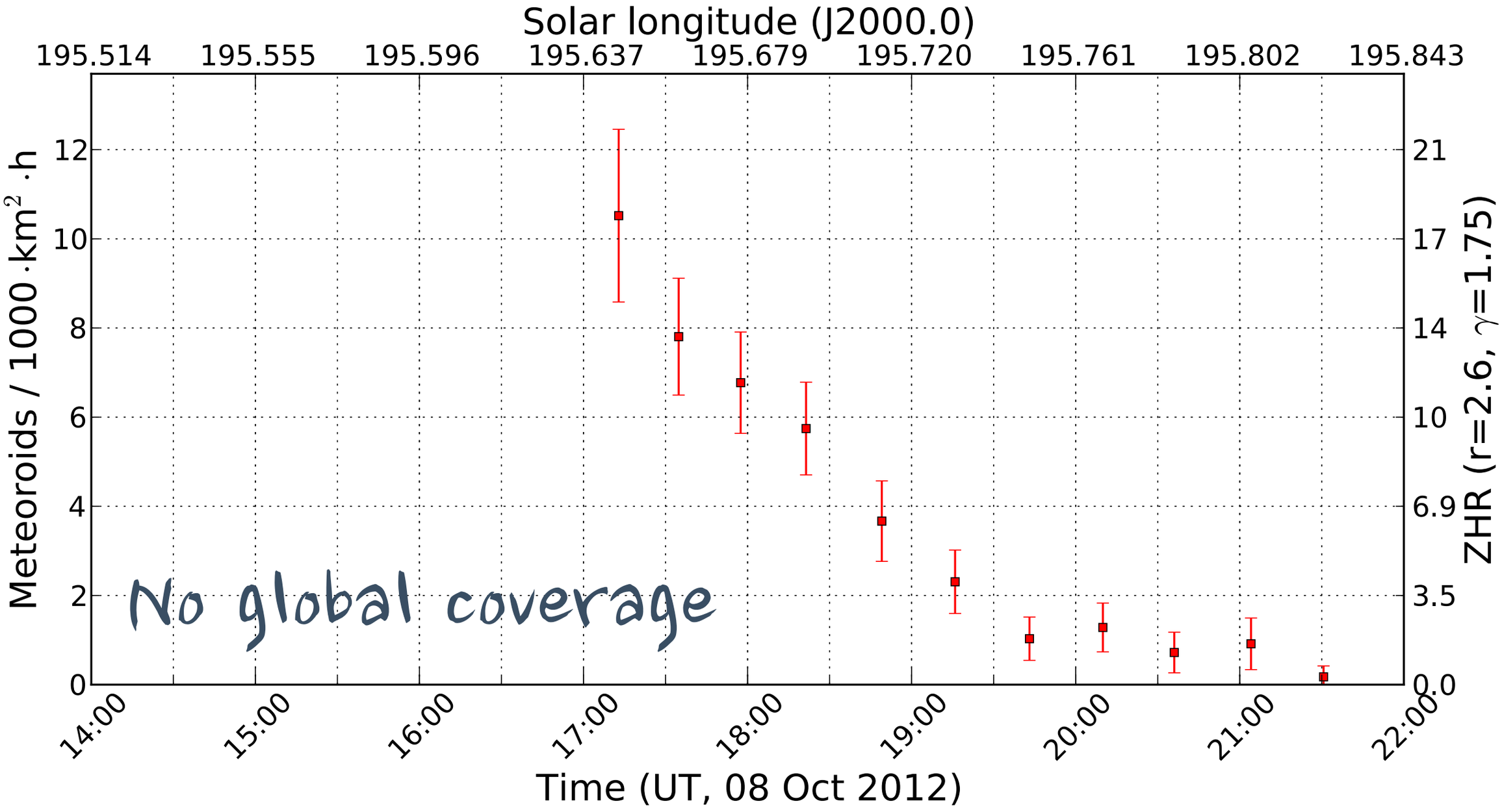
Northern Taurids 2011-2012 (averaged)



Antihelion 2012



Draconids 2012



Draconids 2012
visual observations

Alexandr Maidik (Ukraine)
55 Draconids (16h00-18h00 UT)
peak at ~16h50

Jakub Koukal (Czech Republic)
60 Draconids (17h00-19h10 UT)
peak at ~17h05

Visual observations

are still ***awesome*****.**

... let's add them to the tool.

Code is open
under MIT license.

https://github.com/barentsen/meteor-flux

Anyone wants to join?

Next steps:

... include mass index;
... understand systematics (moon, clouds);
... switch on real-time reporting in MetRec.

Thanks Poznyan.