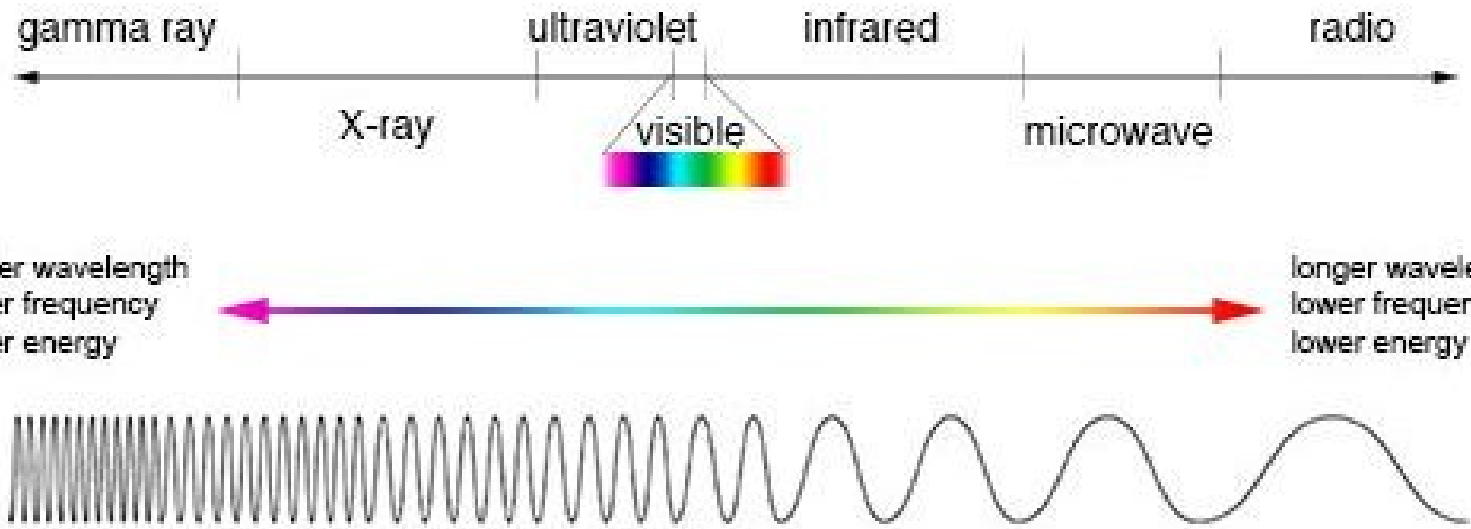
Hírközlési kísérletek a hatvan méteres hullámhosszak alkalmazásával

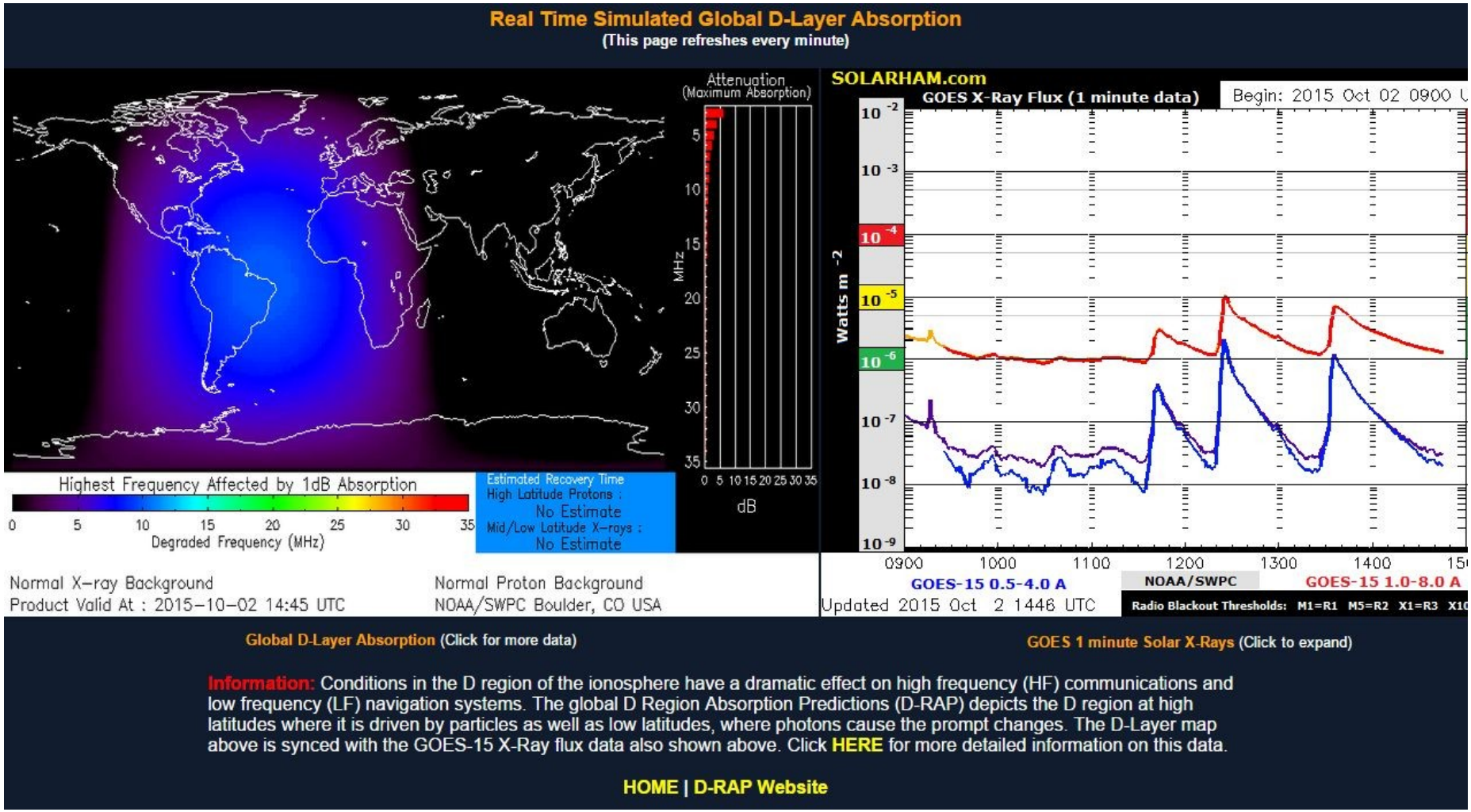
Készítette Bató András HA6NN és Fábián Tamás HA5FTL

A Nap elektromágneses sugárzása



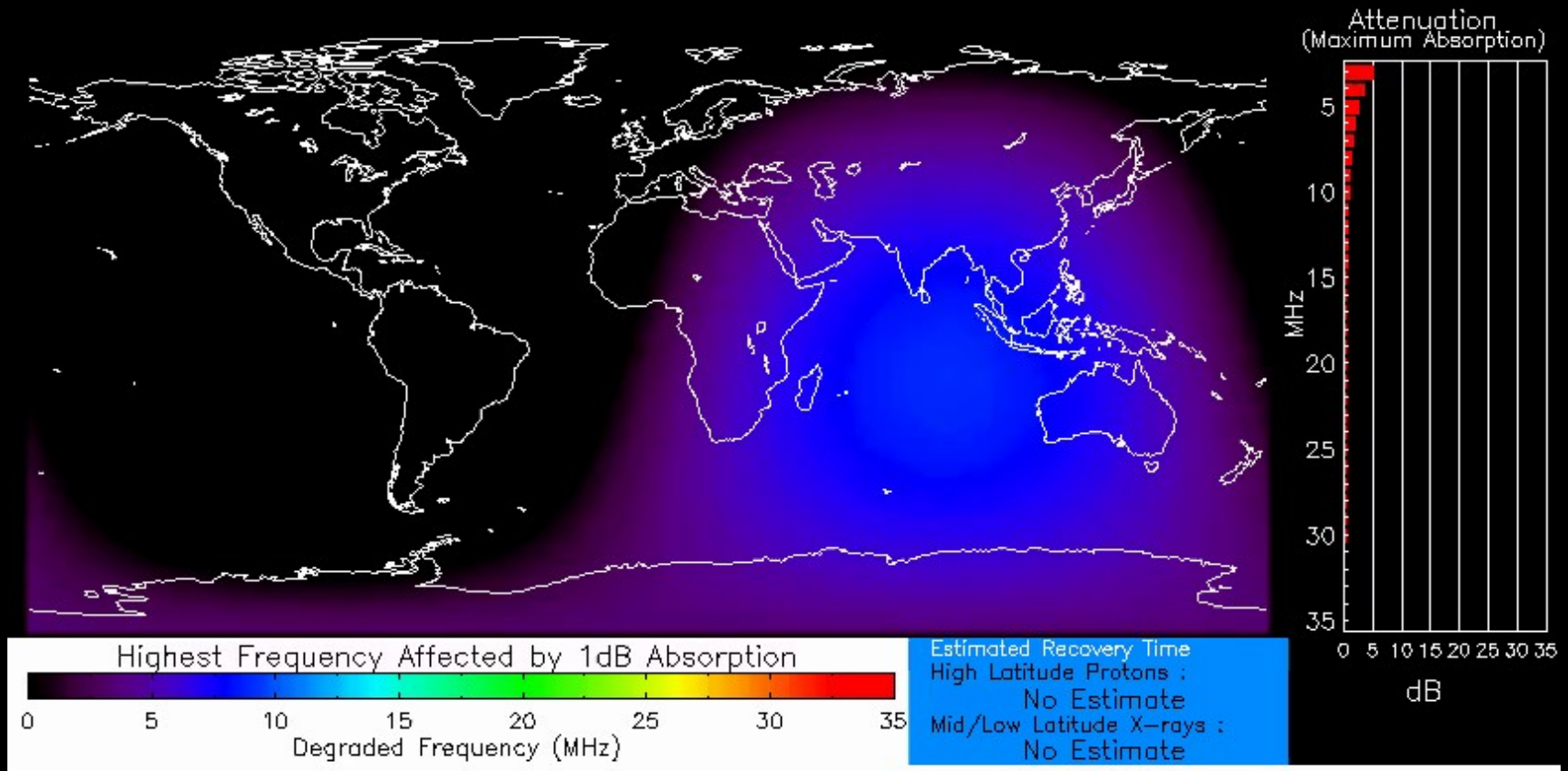
Comparison of wavelength, frequency and energy for the electromagnetic spectrum.
(Click image for a larger version.)

Geostationary Operational Environmental Satellite



http://www.swpc.noaa.gov/products/d-region-absorption-predictions-d-rap

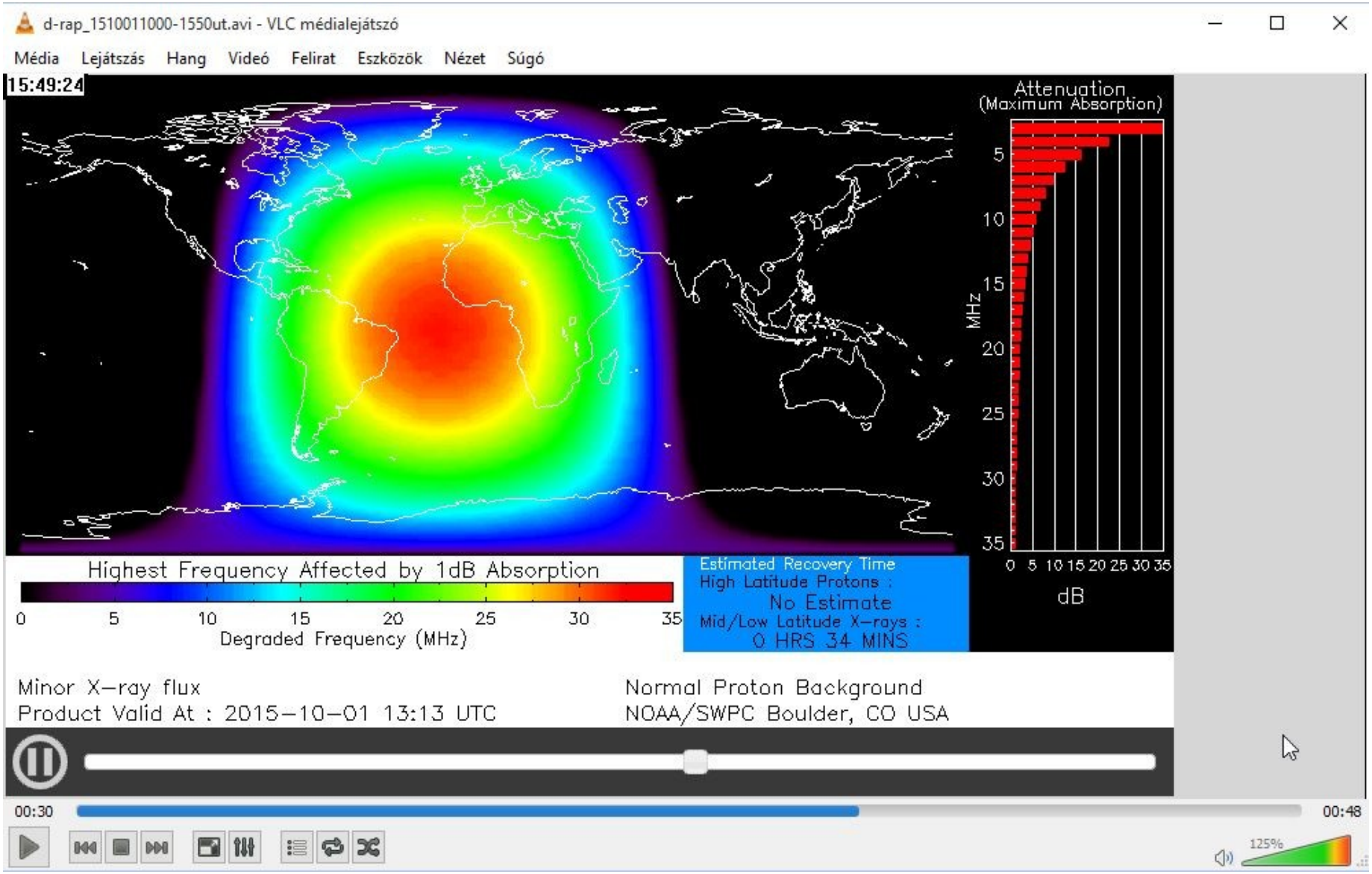
http://www.solarham.net/globald.htm



Normal X-ray Background
Product Valid At : 2015-11-01 06:17 UTC

Normal Proton Background
NOAA/SWPC Boulder, CO USA

A D-réteg maximális abszorpciója: 13:13 UTC



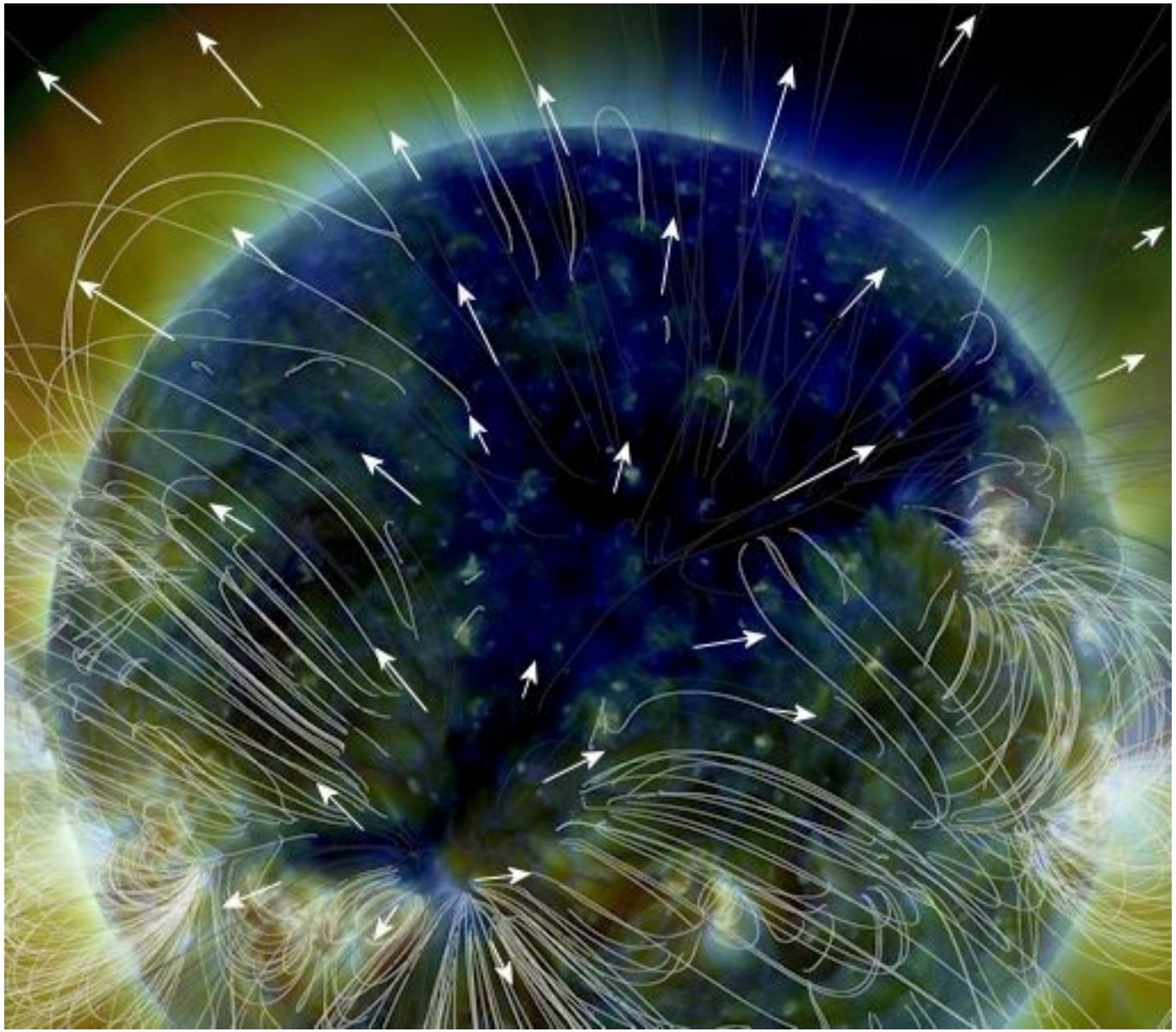
A napszél sebessége

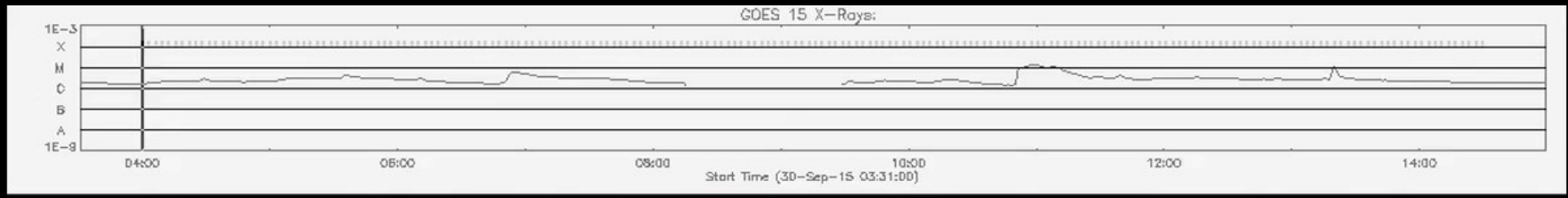
260 – 2000 km/s

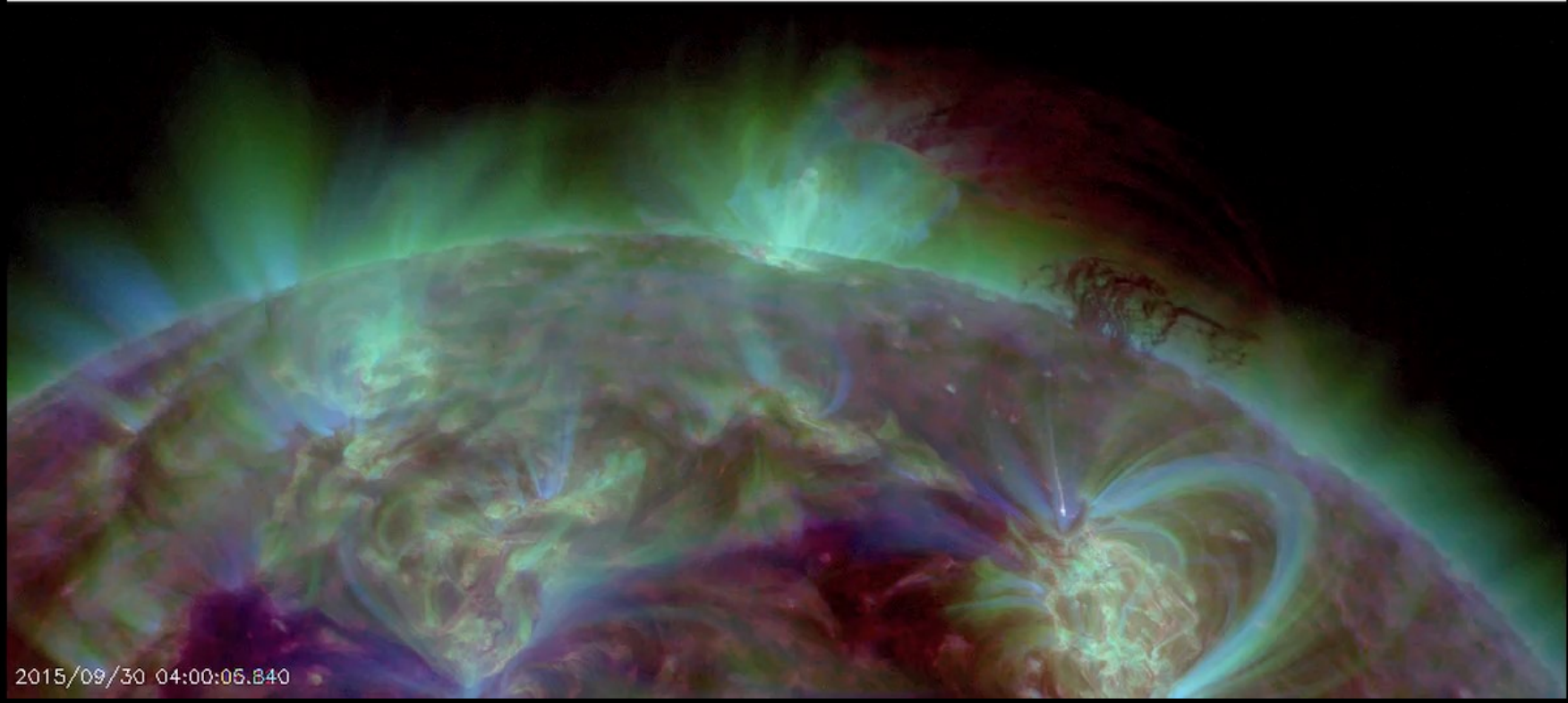
A napszél forrásai

- Koronalyukak
- Flerek
- Plazmatömeg-kilökődések (CME)
- A nyugodt Nap

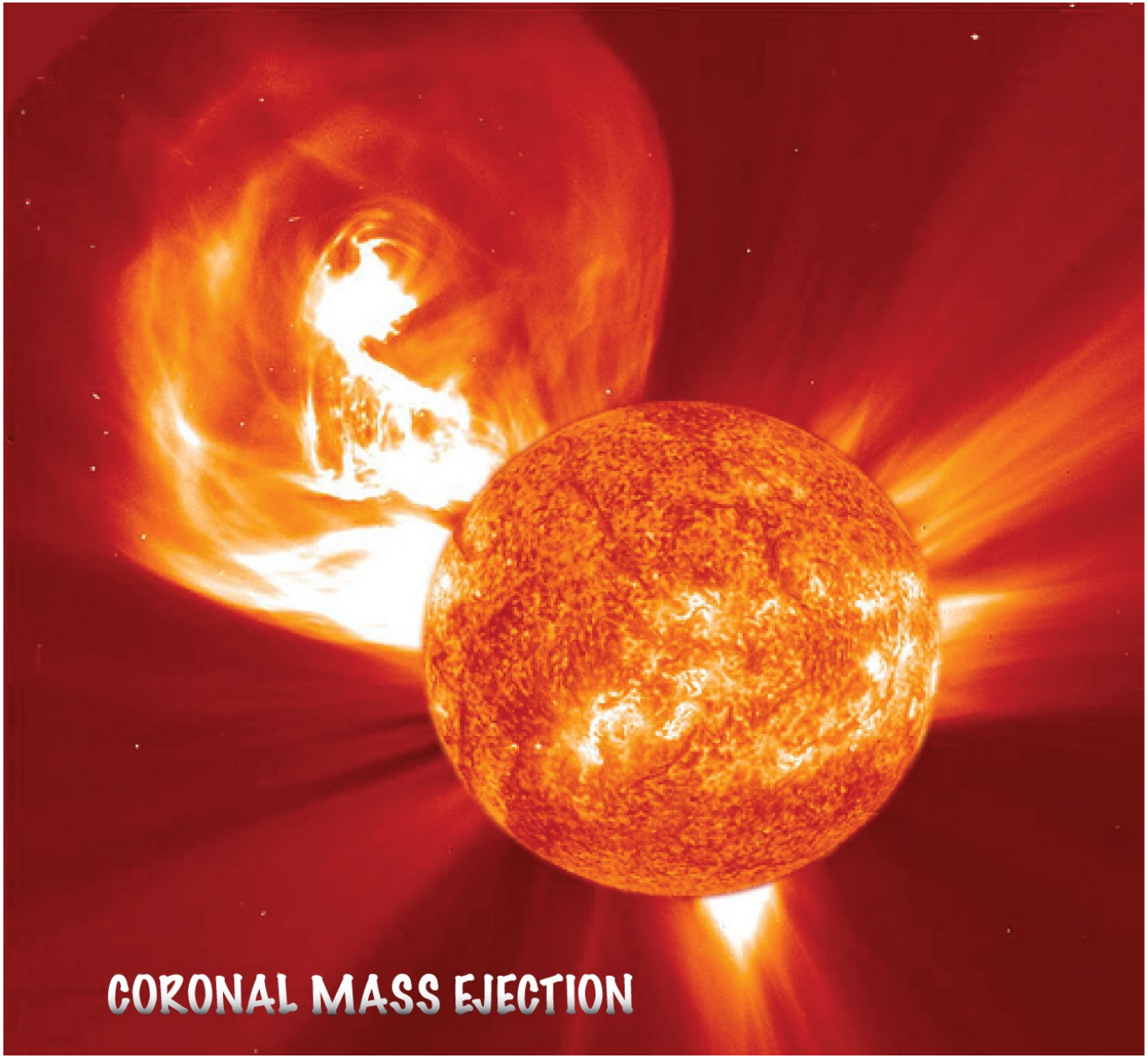
Koronalyuk CH695 2015. október 13.



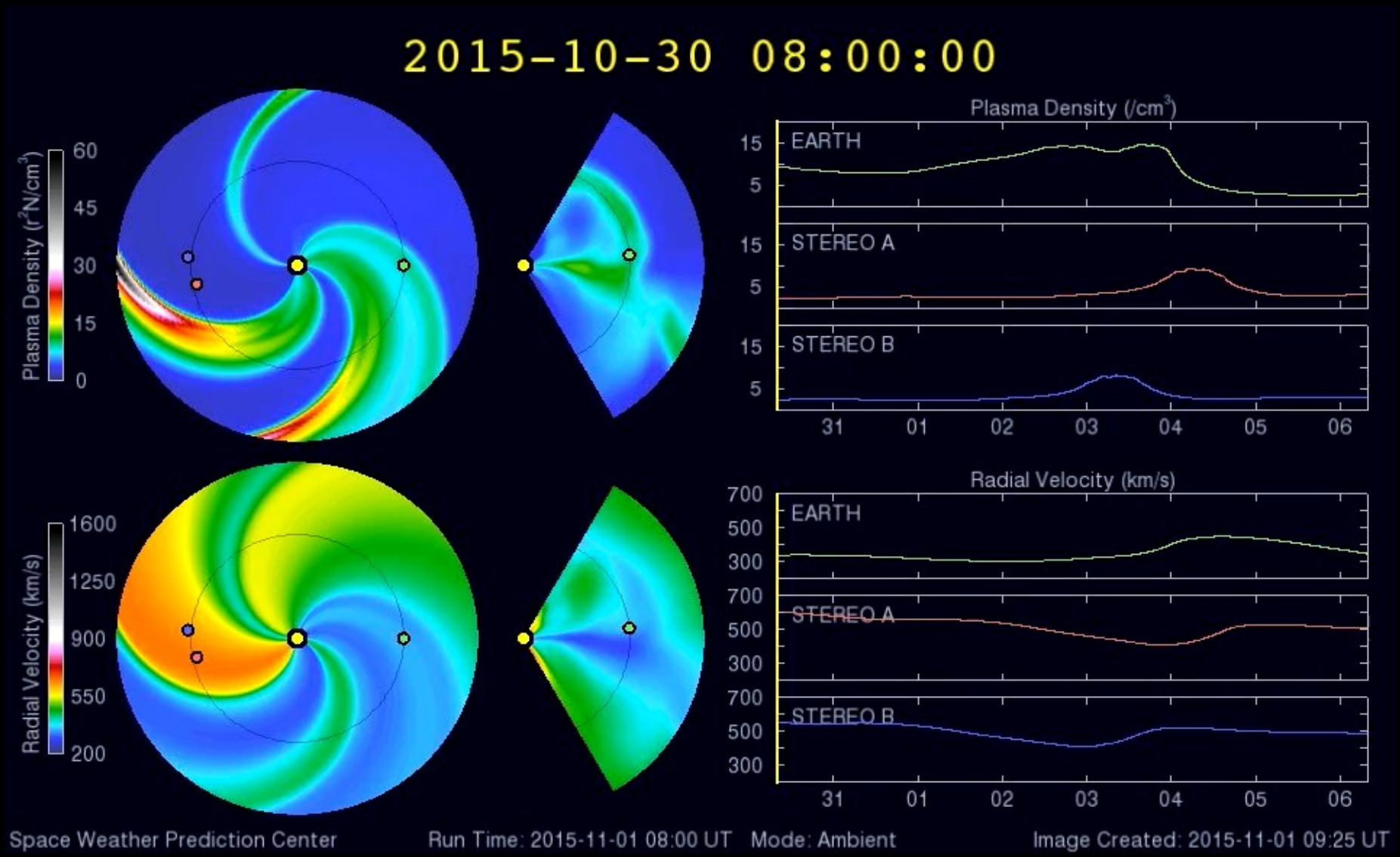

GOES 15 X-Rays
1E-3
X
M
C
B
A
1E-9
04:00
06:00
08:00
10:00
12:00
14:00
Start Time (30-Sep-15 03:31:00)


2015/09/30 04:00:05.840

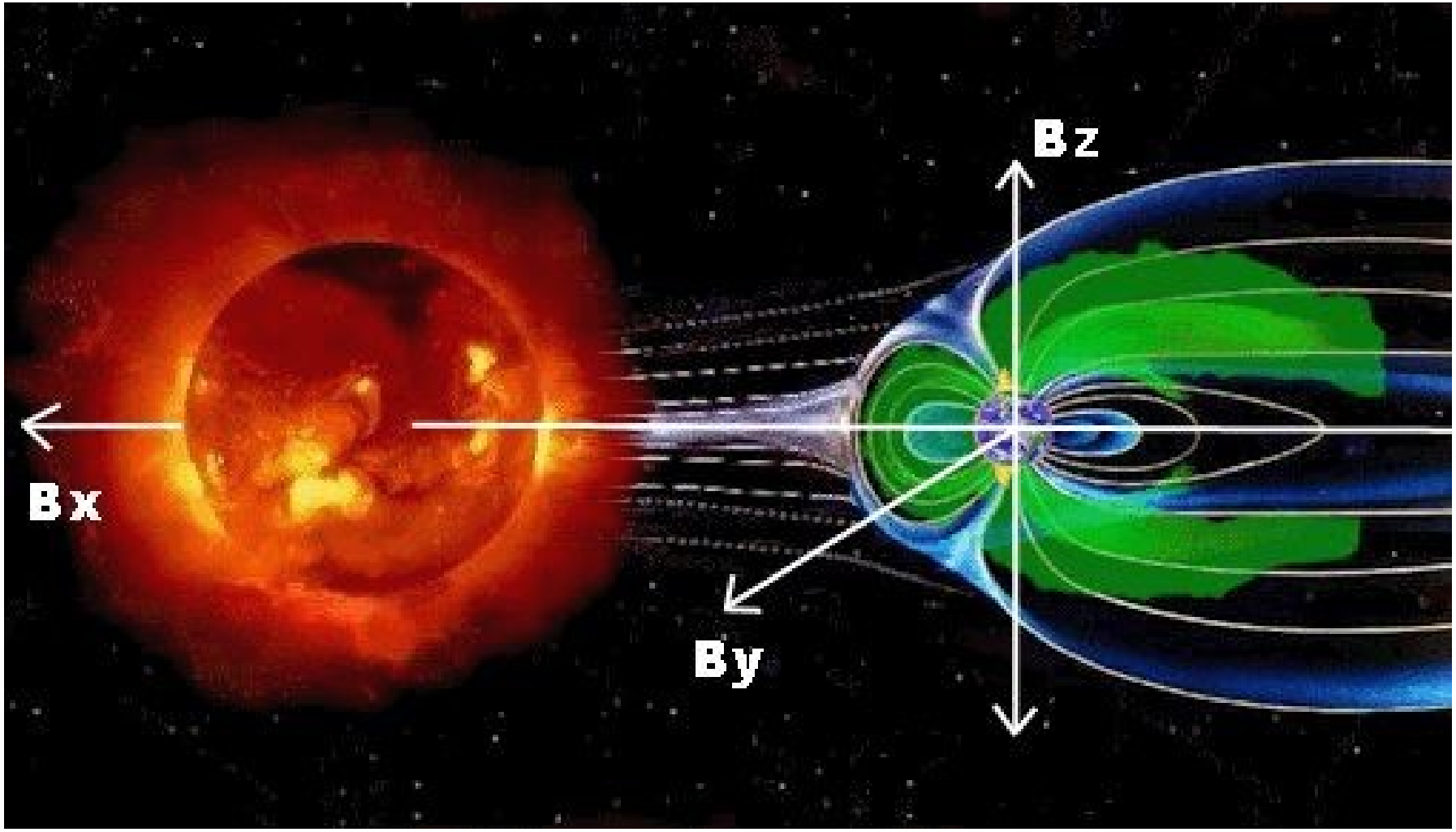
Solar flare



Forrás: http://www.cmso.info/cme


2015-10-30 08:00:00
Plasma Density (r²N/cm³)
60
45
30
15
0
Plasma Density (/cm³)
EARTH
STEREO A
STEREO B
15
5
31
01
02
03
04
05
06
Radial Velocity (km/s)
1600
1250
900
550
200
700
500
300
Space Weather Prediction Center
Run Time: 2015-11-01 08:00 UT
Mode: Ambient
Image Created: 2015-11-01 09:25 UT

IMF Interplanetary Magnetic Field

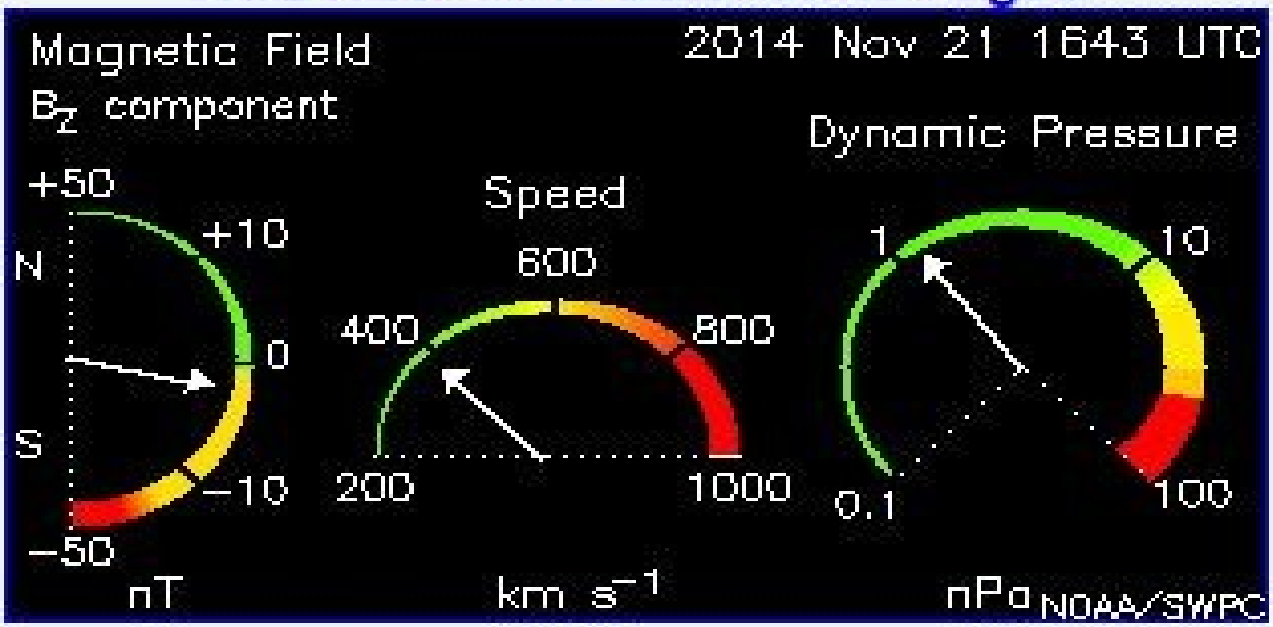


Advanced Composition Explorer

Alerts

Latest Alert: Nov 21 1529 UTC EXTENDED WARNING: Geomagnetic K-index of 4 expected

ACE Real-Time Solar Wind Pages

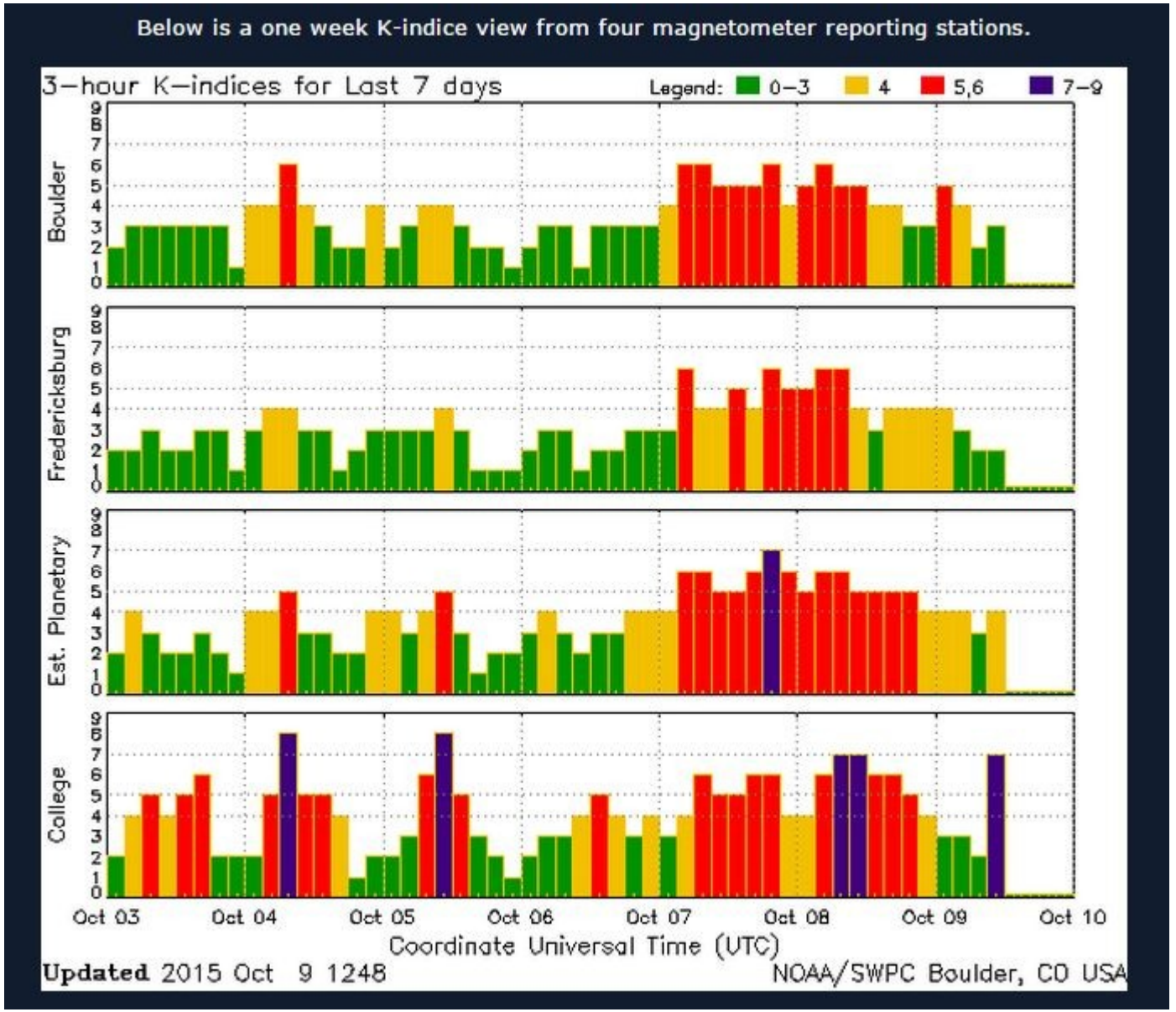


Average over last 15 minutes

10 frames/sec

Space Weather User Groups

K-index, Kp index



HG7BHB beacon megfigyelés

VVV DE HG7BHB QTH JN97LE34SF PWR 50W

- HA5CLF István: http://rksz.freeforums.org/meresek-60-m-en-21-napos-periodus-131-meres-pont-t70.html

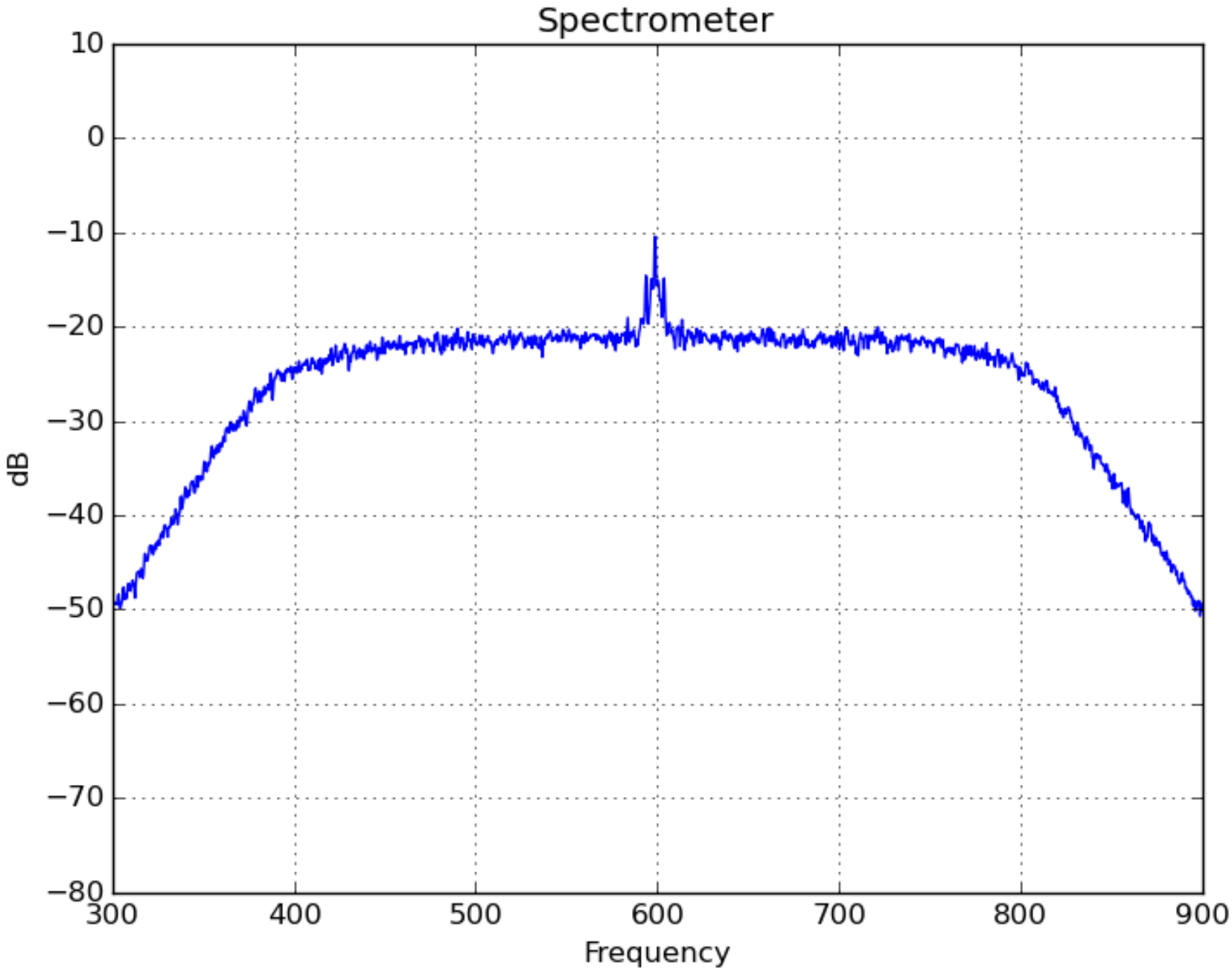
HG7BHB beacon megfigyelés

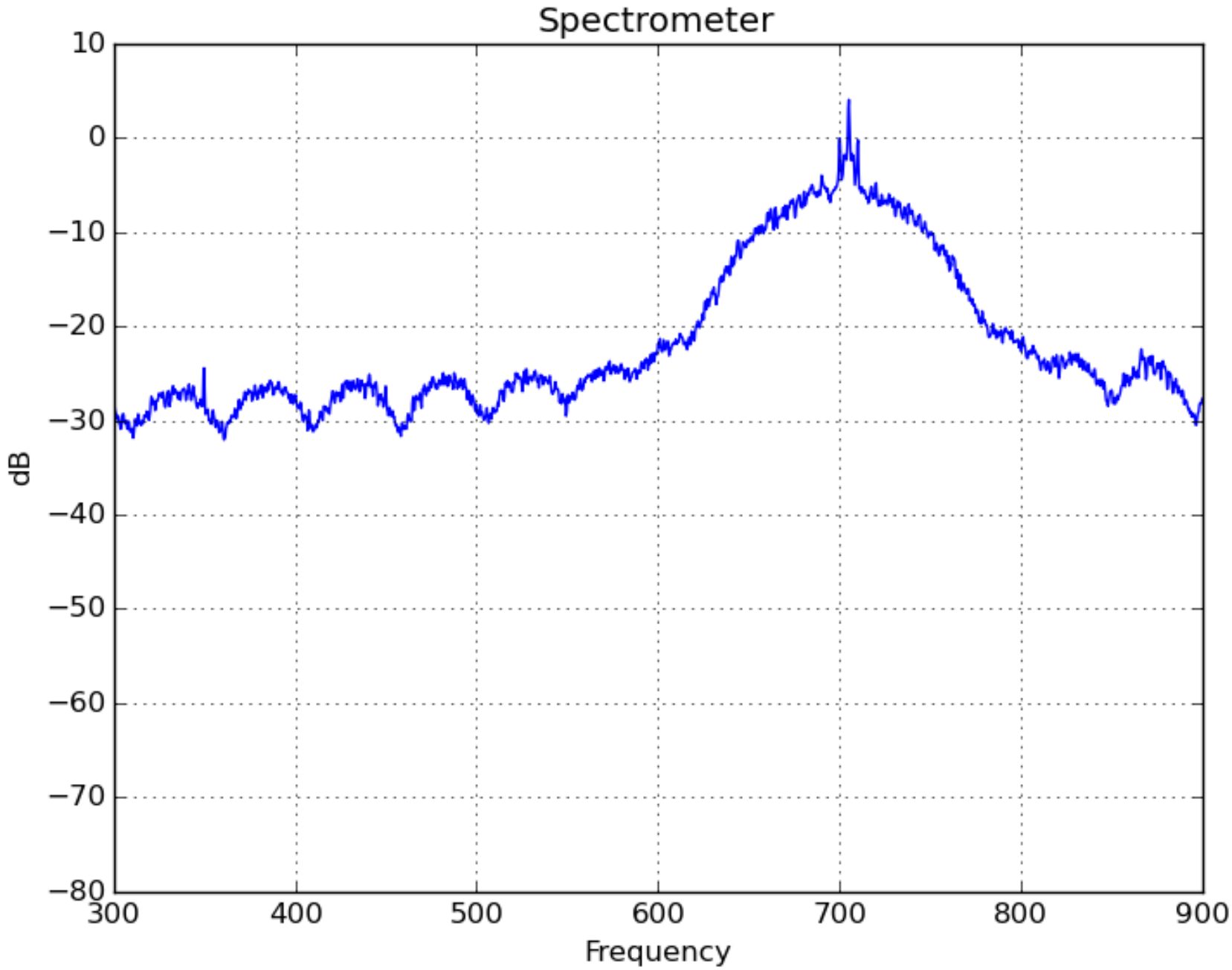
VVV DE HG7BHB QTH JN97LE34SF PWR 50W

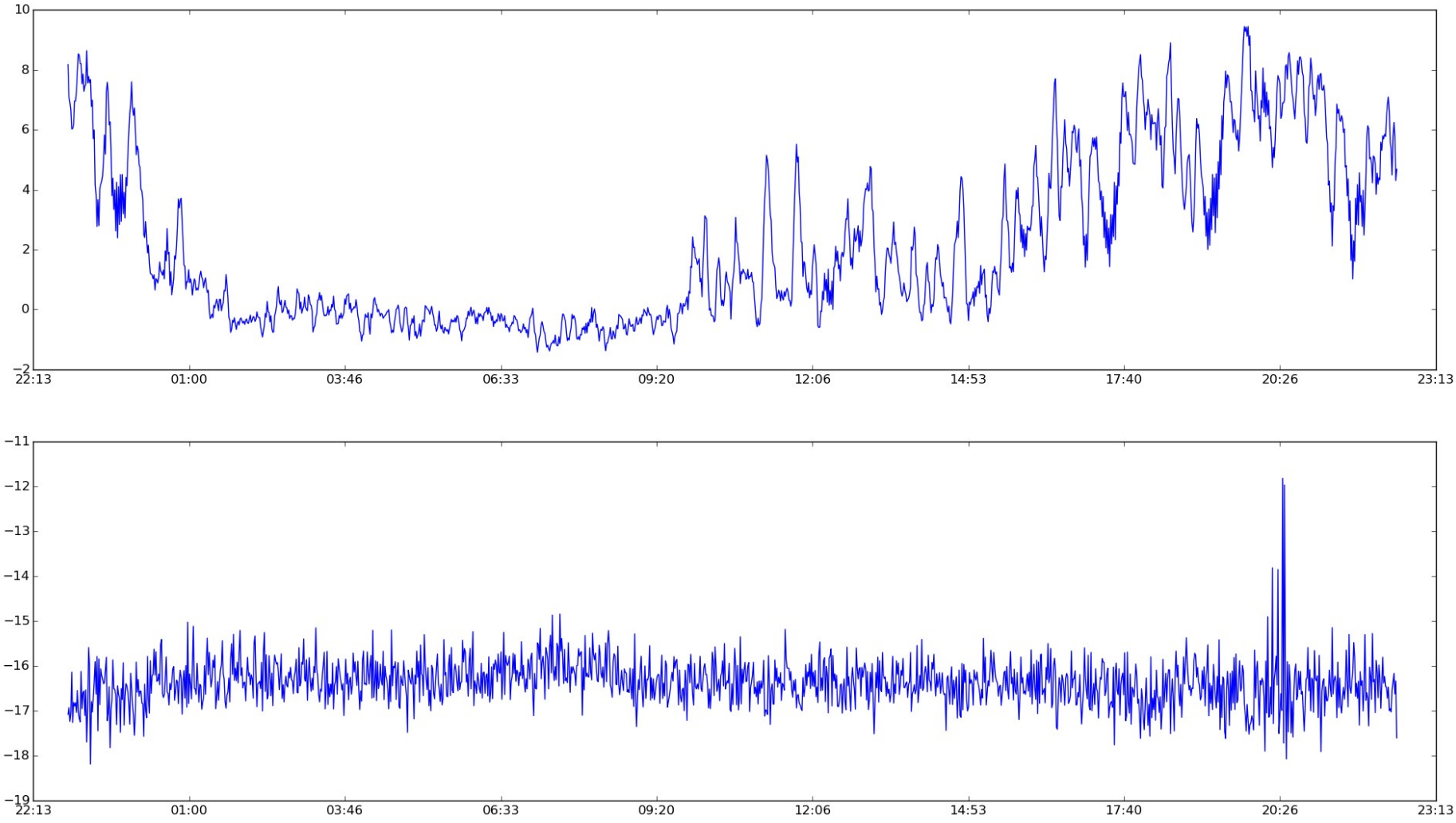
- Cél: skimmereknél jobb felbontású mérés
  - Jelszint, zajszint
  - Lehetséges?
  - Milyen nehéz?
- Bármi más :)

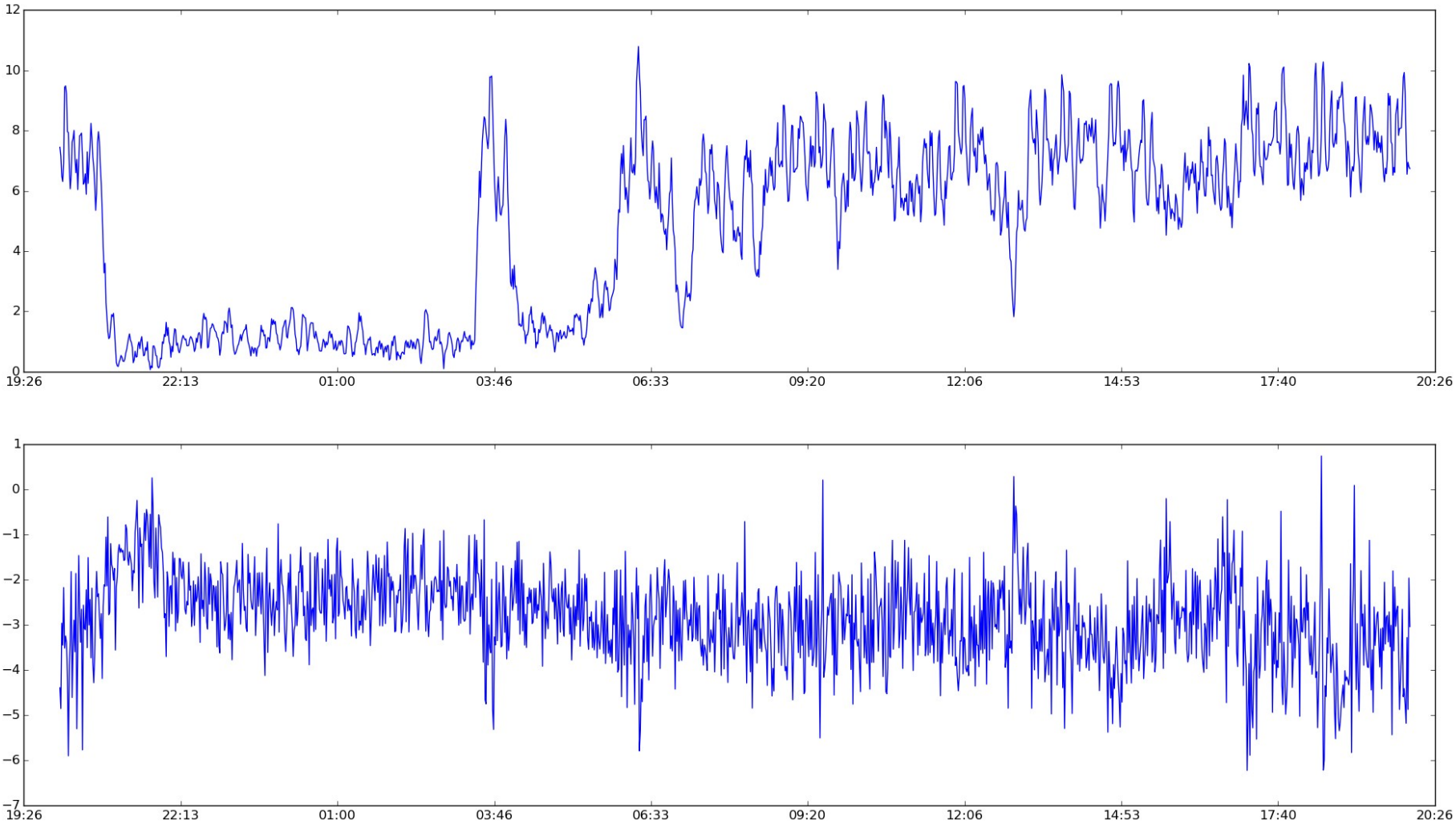
HG7BHB beacon megfigyelés

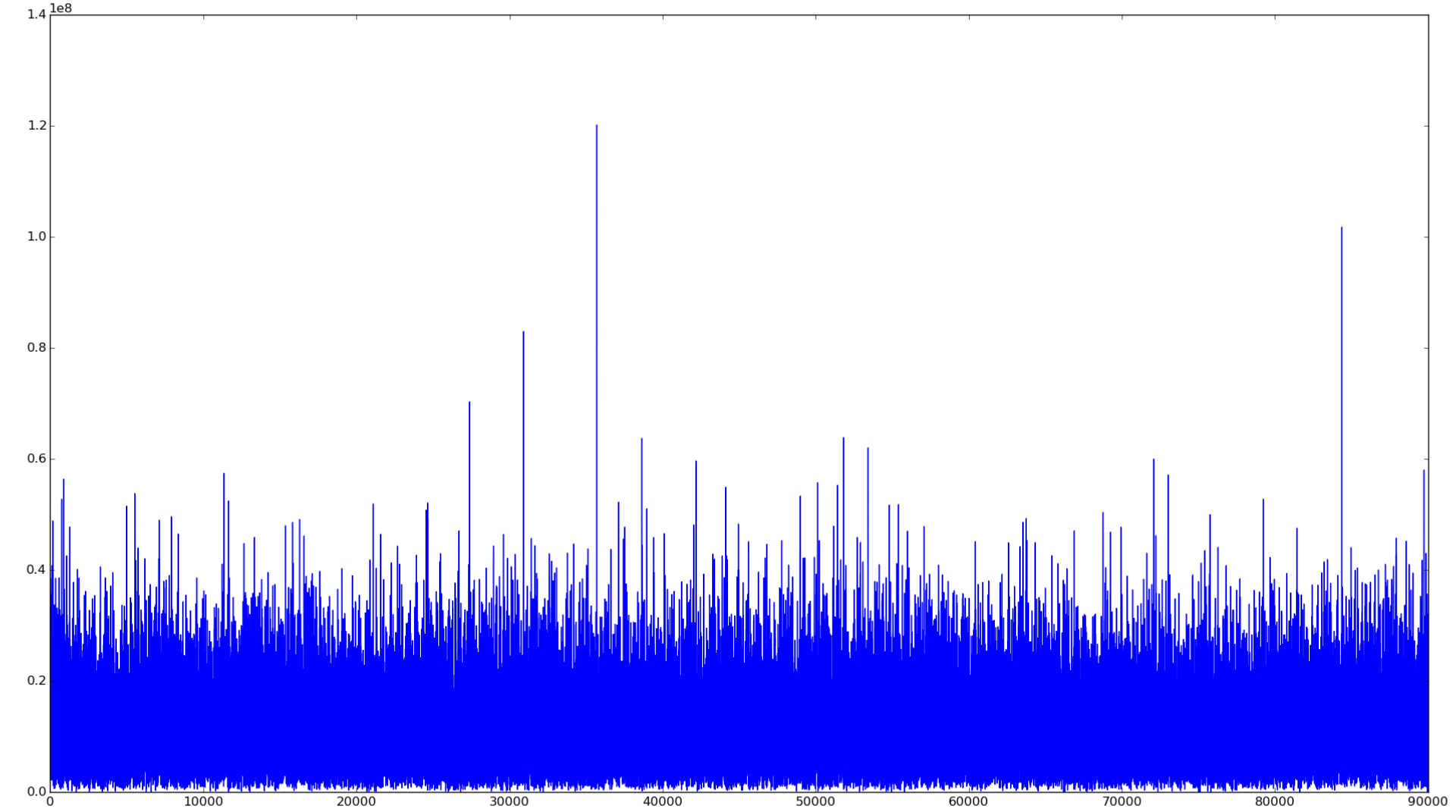
- Módszer: (legalább) 24 órás hangfelvételek
- Utólagos szoftveres elemzés
  - Jelszint
  - Zajszint
- Eredmények
  - Jelszint grafikon ~perces felbontással
  - Háttérzaj / QRM grafikon
  - Van éjszaka terjedés?

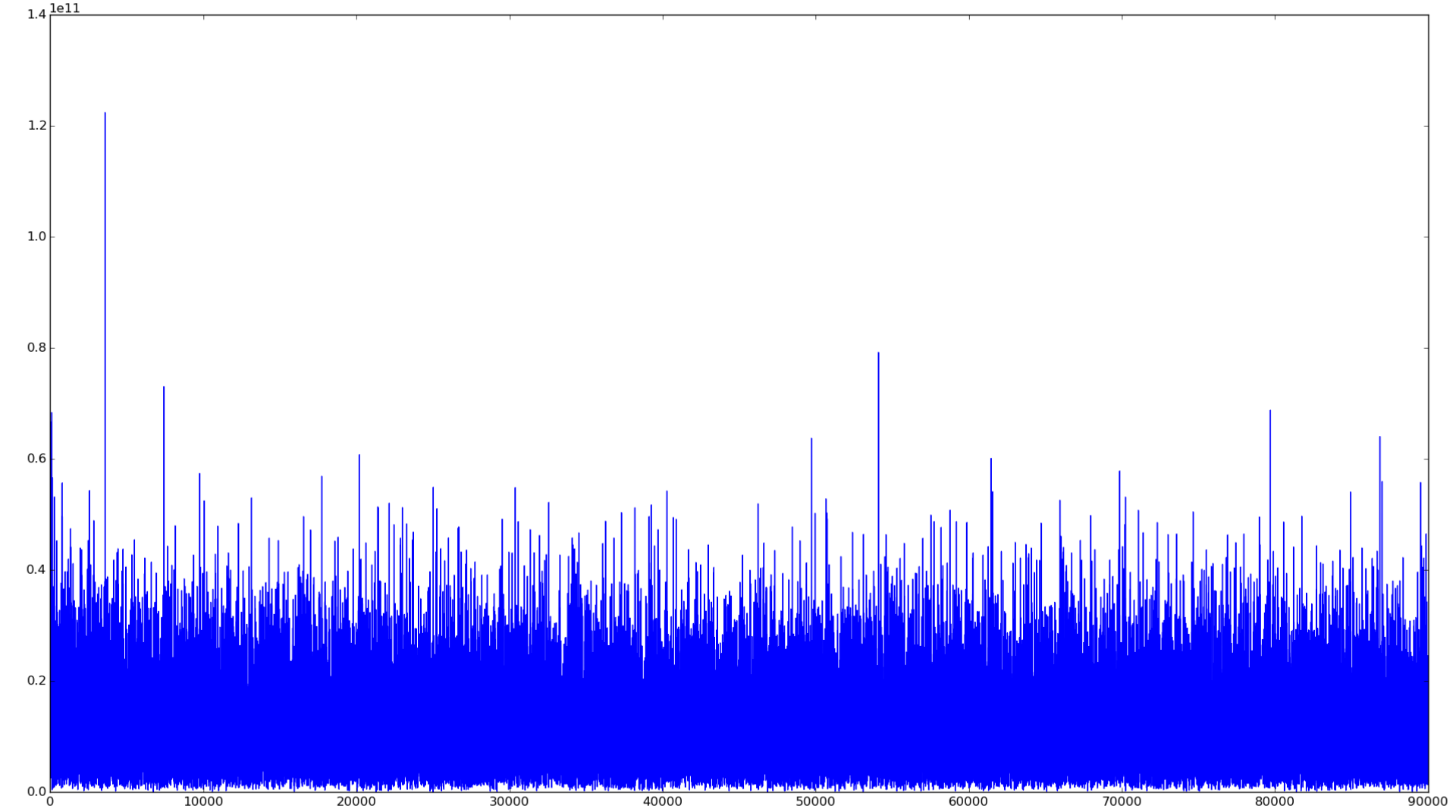

Spectrometer
10
0
−10
−20
−30
−40
−50
−60
−70
−80
dB
300
400
500
600
700
800
900
Frequency


Spectrometer
10
0
−10
−20
−30
−40
−50
−60
−70
−80
dB
300
400
500
600
700
800
900
Frequency


10
8
6
4
2
0
−2
22:13
01:00
03:46
06:33
09:20
12:06
14:53
17:40
20:26
23:13
−11
−12
−13
−14
−15
−16
−17
−18
−19
22:13
01:00
03:46
06:33
09:20
12:06
14:53
17:40
20:26
23:13


12
10
8
6
4
2
0
19:26
22:13
01:00
03:46
06:33
09:20
12:06
14:53
17:40
20:26
1
0
−1
−2
−3
−4
−5
−6
−7
19:26
22:13
01:00
03:46
06:33
09:20
12:06
14:53
17:40
20:26


1e8
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0
10000
20000
30000
40000
50000
60000
70000
80000
90000


1e11
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0
10000
20000
30000
40000
50000
60000
70000
80000
90000