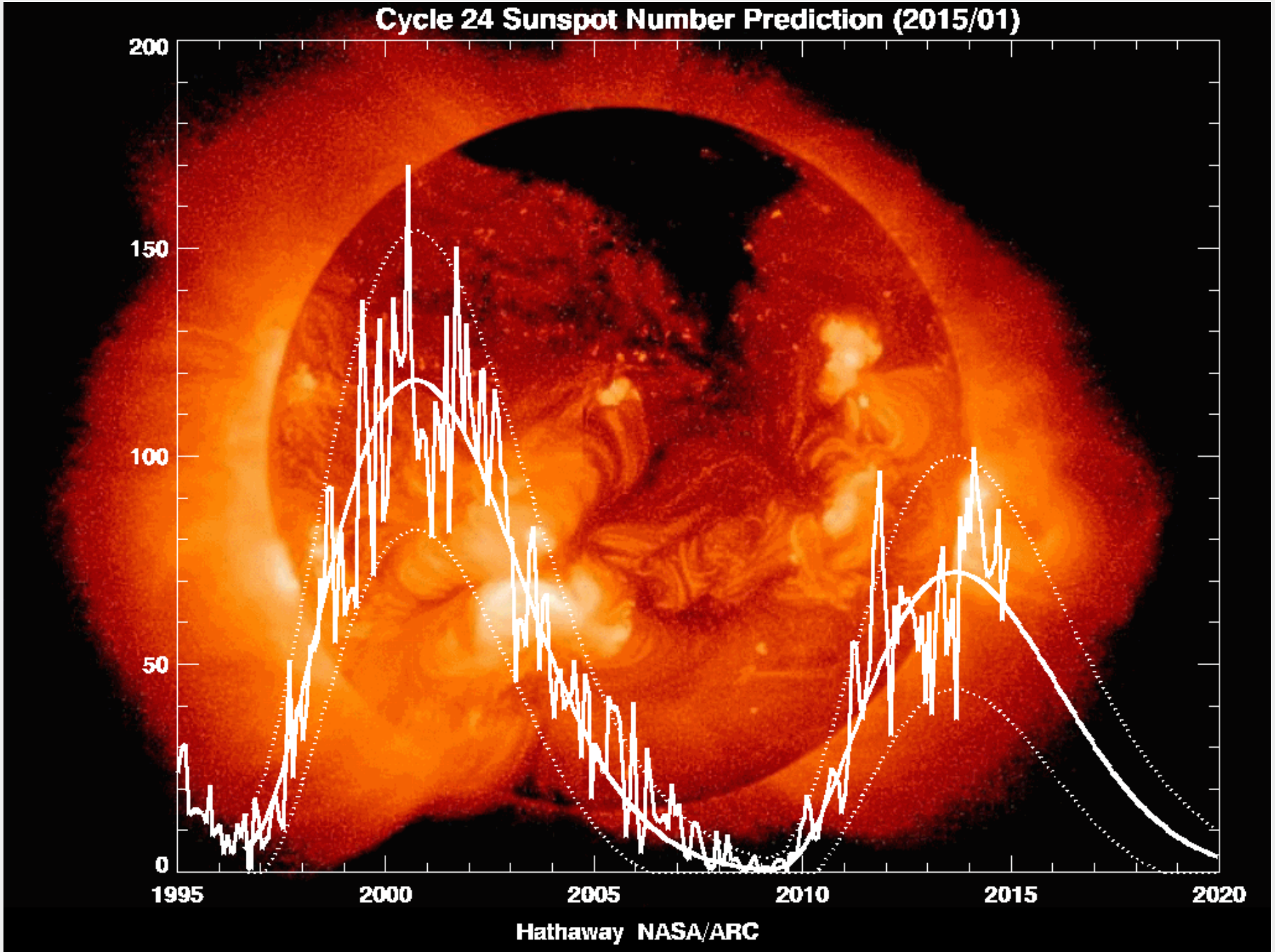

Cycle 24 Sunspot Number Prediction (2015/01)
200
150
100
50
0
1995
2000
2005
2010
2015
2020
Hathaway NASA/ARC

SPI CAMERA STATUS

ANNEALING 23th

- Decrease of the annealing duration: 128H

- Wait a “significant” level of degradation
- Why:
  - More and more “problems” during the switch-on:
  - Some GeD need lower and lower temp to obtain good resolution
  - After 4400 hrs Lithium drift should be very important
    - Electrode dilution…
    - More proximity 0 - +ht

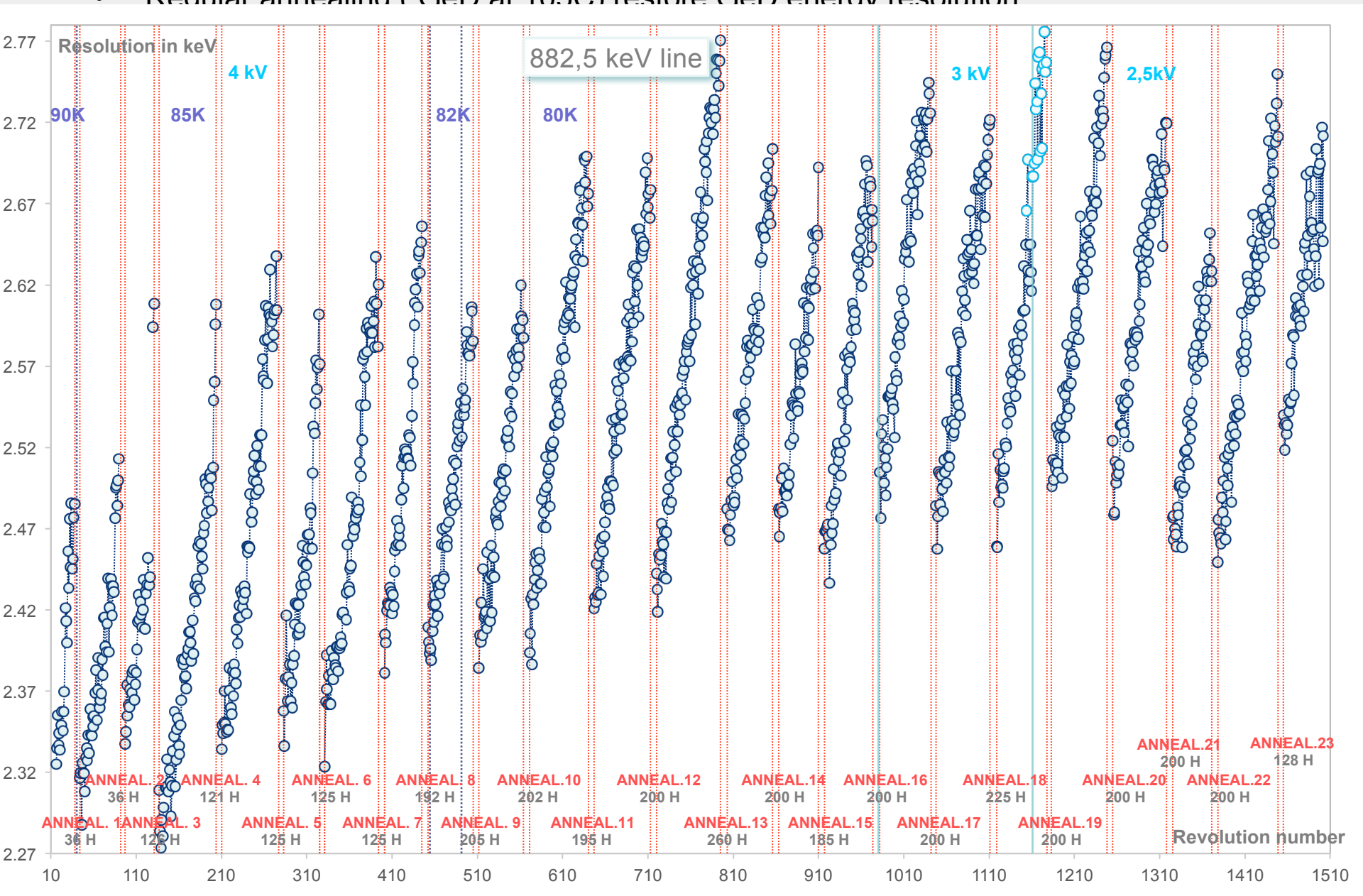
ANNEALING 23th

- Start: 2014, August 28th

- Camera switch on : 2014, September 11th
- Smooth reactivation
- No “problems this time”
- Cold box outgassing successful

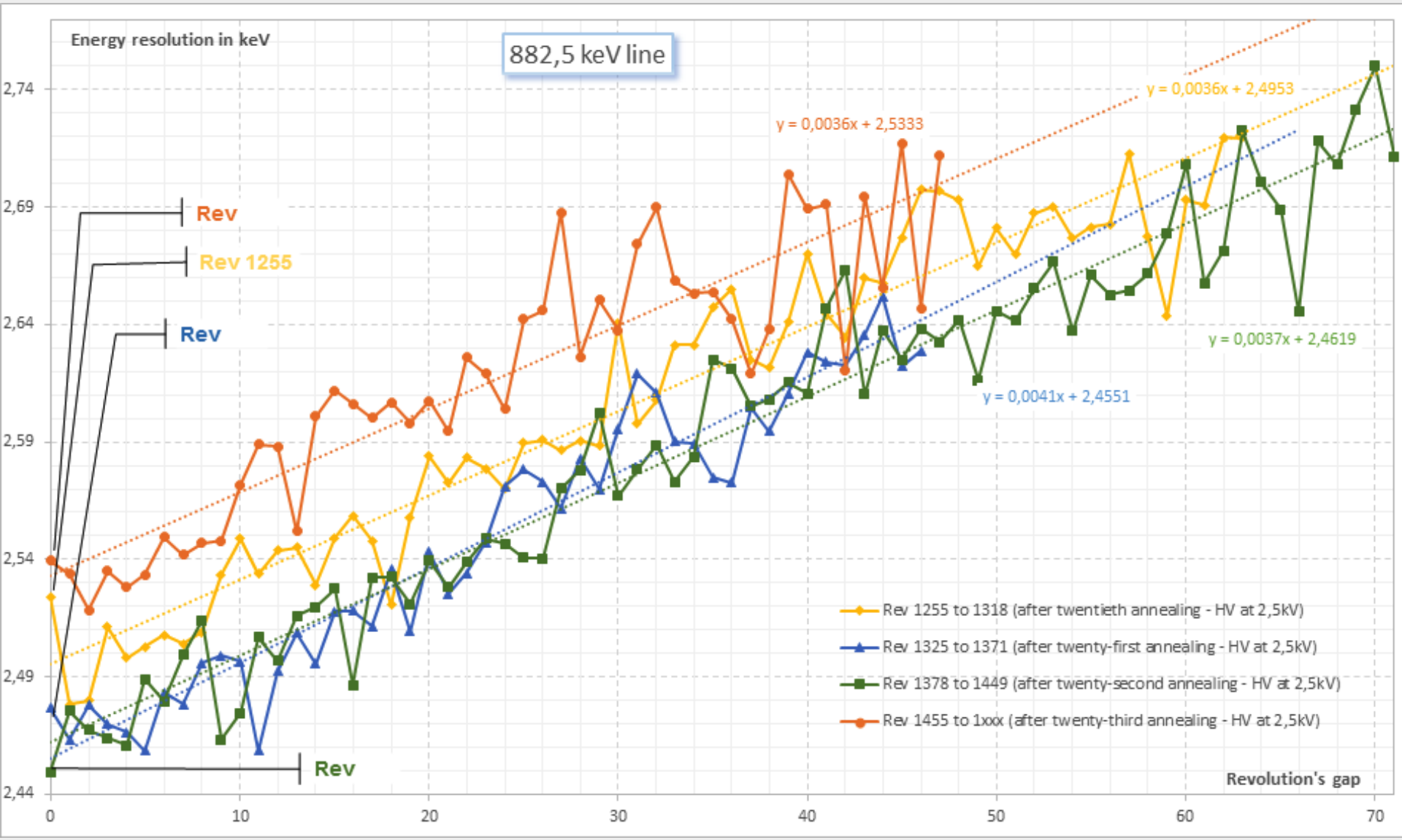
ENERGY RESOLUTION HISTORY: 882.5 keV

- Regular annealing (GeD at 105C) restore GeD energy resolution

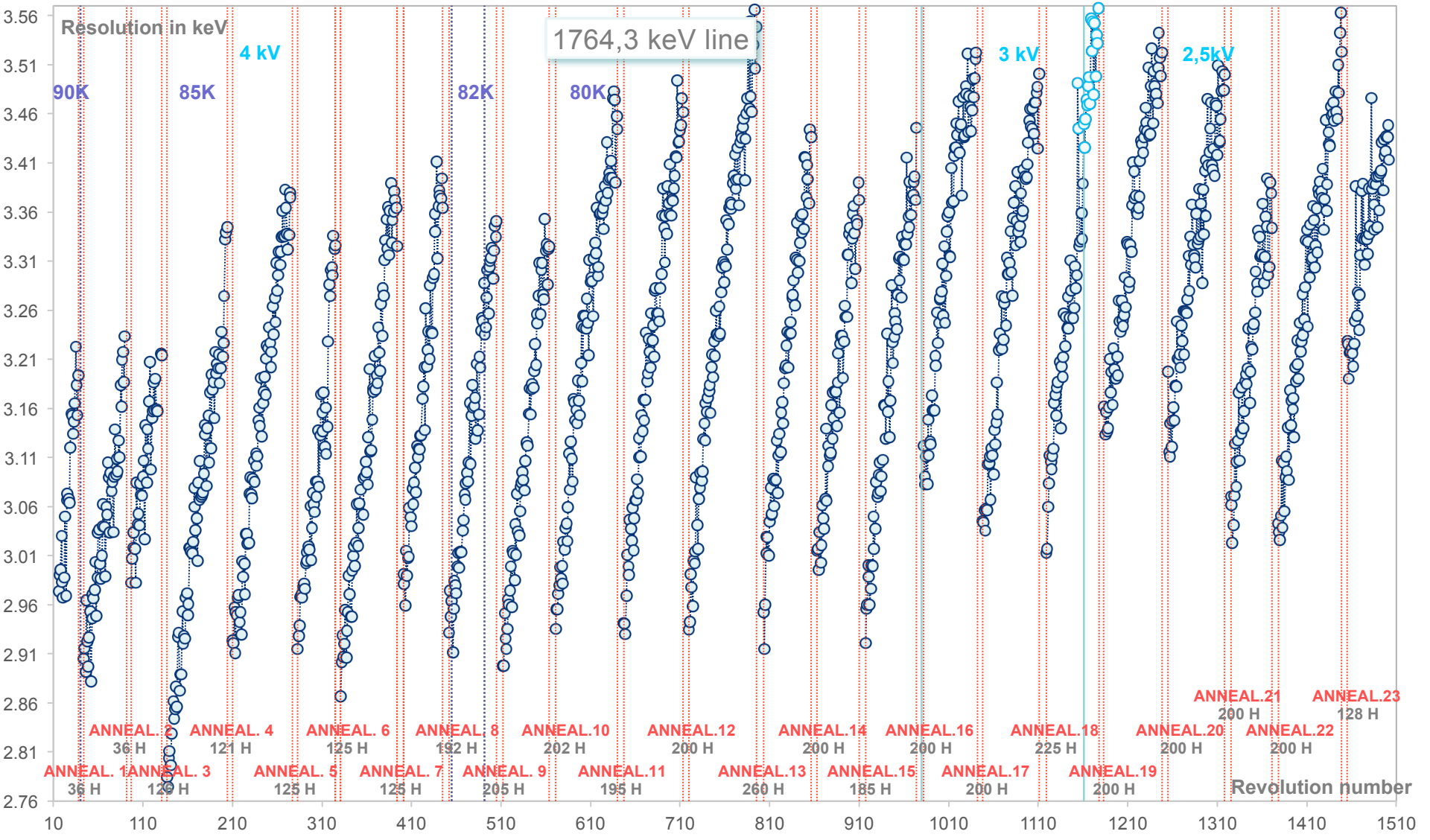


ENERGY RESOLUTION HISTORY: 882.5 keV

- Regular annealing (GeD at 105C) restore GeD energy resolution.

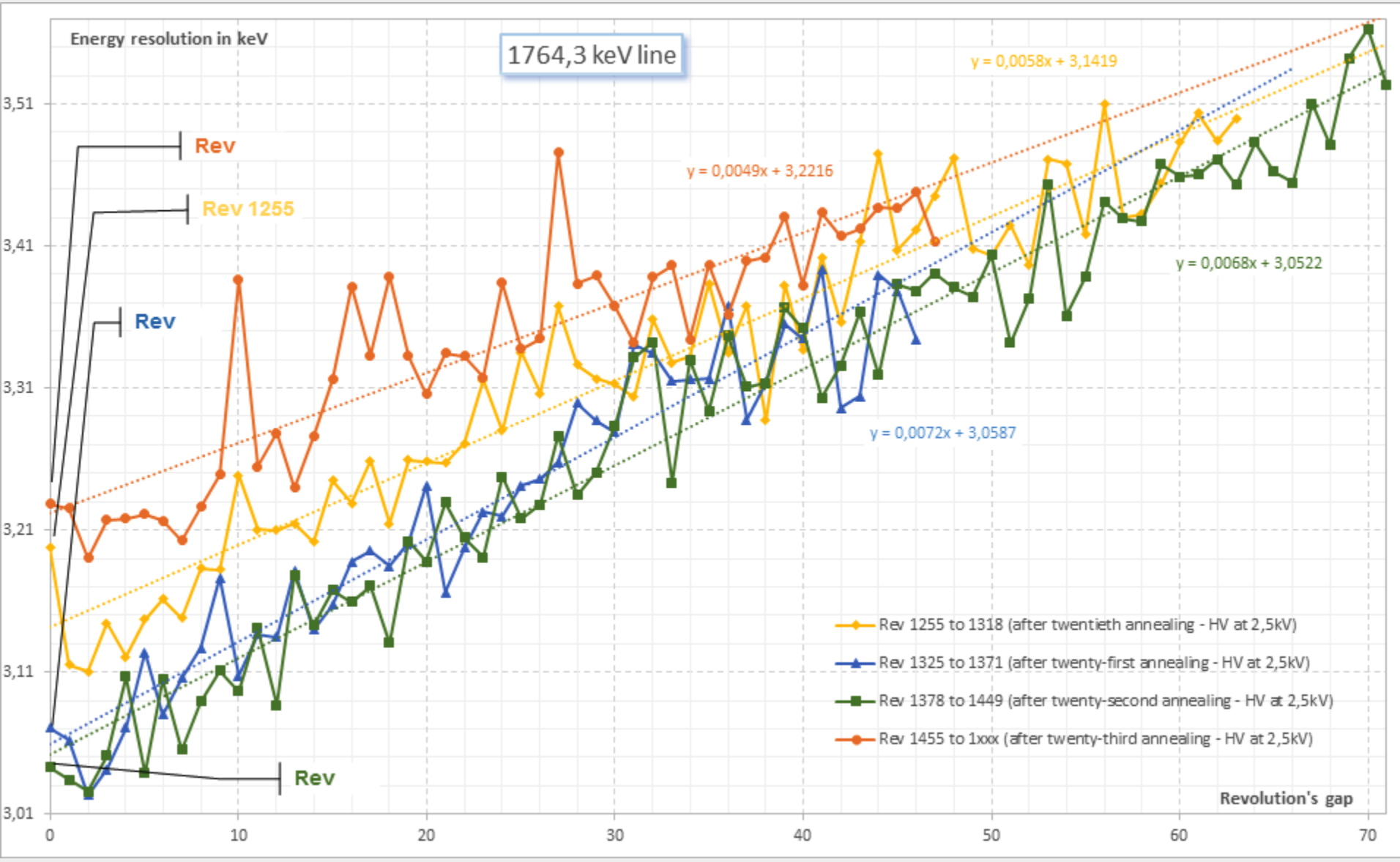


ENERGY RESOLUTION HISTORY: 1764.3 keV



ENERGY RESOLUTION HISTORY: 1764.3 keV

- Regular annealing (GeD at 105C) restore GeD energy resolution.



ANNEALING 23th and 24th

- High level of pre-annealing degradation + reduced annealing duration.
- while good performance recovery is not perfect

-
- Annealing 24th:
- Start planned Fev 15th
- Duration ~128 hr

SPI budget in France

- Strong decrease in 2015
- Operation support – performance monitoring will continue.

- On-board software maintenance – if needed – will not be possible

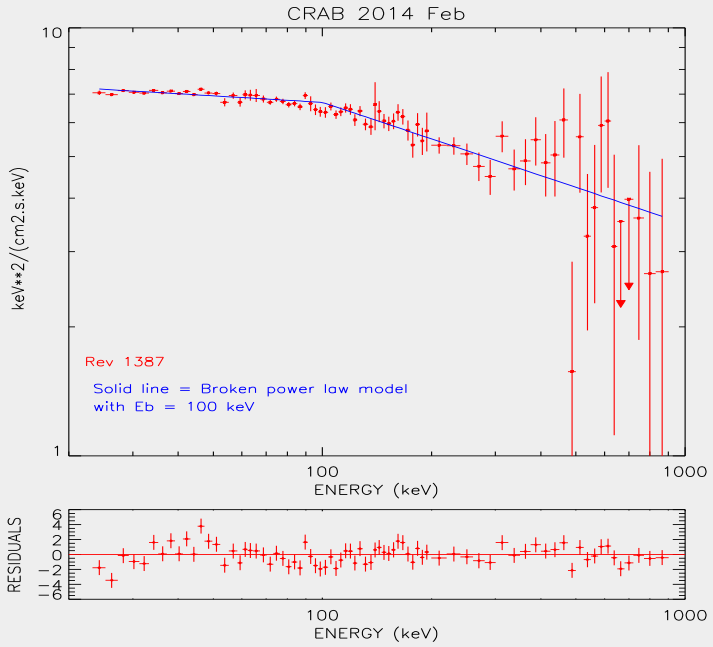
- One temporary position will be cut in 2015
- A second in 2016….

Crab observations in 2014

Rev 1387 : 2014 Feb 21 – 23
180 ks

$\alpha 1 = 2.05 \pm 0.01$
$\alpha 2 = 2.28 \pm 0.03$

$F_{100\ keV} = 6.75 \times 10^{-4}$ ph/cm^2 s keV

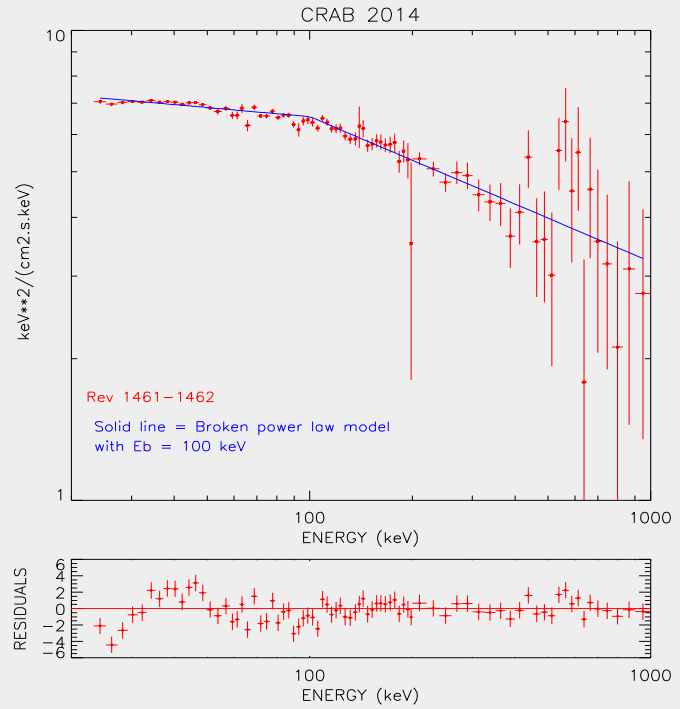


Usual Model : Broken Power Law with
E_{break} = 100 keV

Rev 1461-1462 : 2014 Sept 30 - Oct 6 355 ks

$\alpha 1 = 2.06 \pm 0.01$
$\alpha 2 = 2.31 \pm 0.02$

$F_{100\ keV} = 6.61 \times 10^{-4}$ ph/cm^2 s keV



Comparison with 2003 spectrum

Rev 1387 : 2014 Feb 21 – 23
180 ks

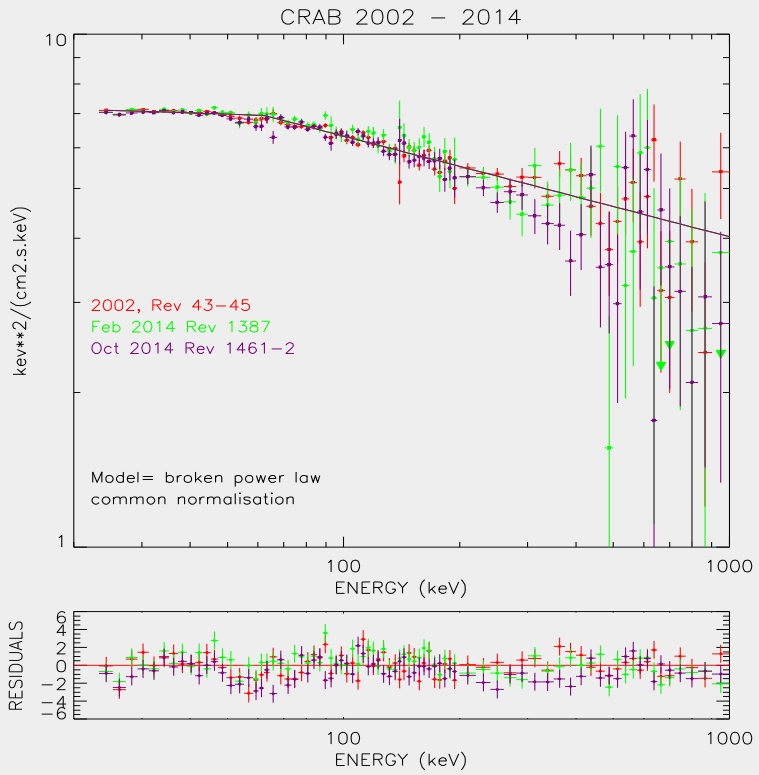
Rev 1461-1462 : 2014 Sept 30 - Oct 6
355 ks

Model : Broken power law
syst = 0.5 %

$\alpha 1$= 2.03 +/- 0.01
Eb = 63.7 +/- 4
$\alpha 2$ = 2.2 +/- 0.01

N = 7.69

$F_{100\ keV} = 6.4 \times 10^{-4}$ ph/cm^2 s keV



χ^2 = 347 / 236

Comparison with 2003 spectrum

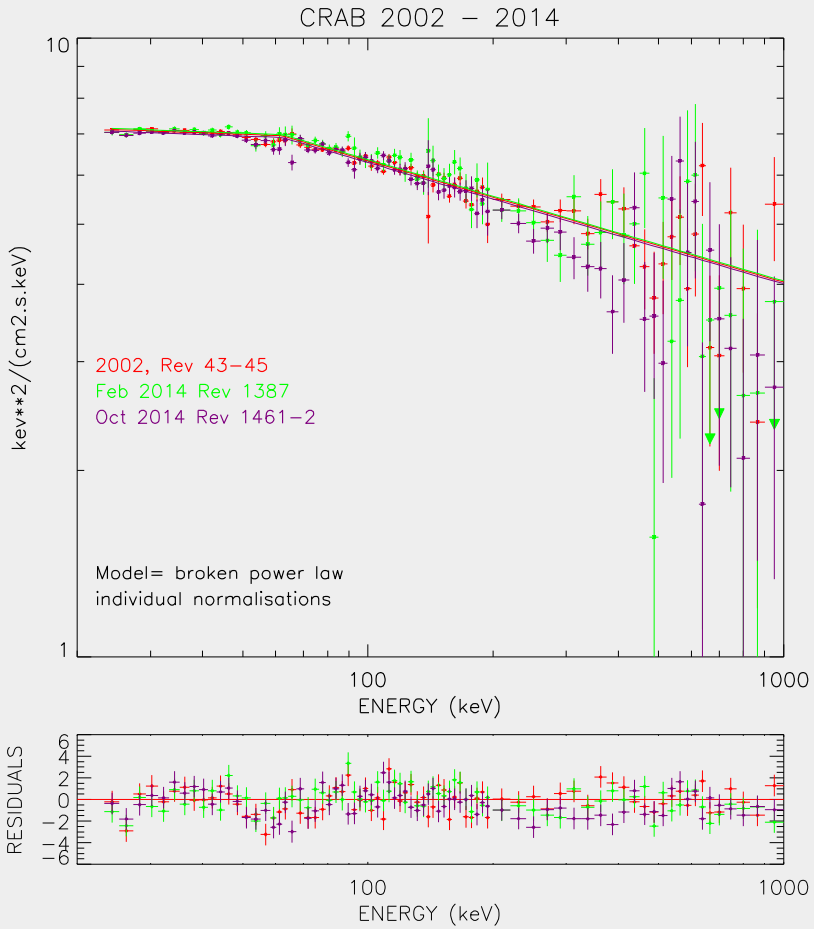
Rev 1387 : 2014 Feb 21 – 23
180 ks

Rev 1461-1462 : 2014 Sept 30 - Oct 6
355 ks

Model : Broken power law
syst = 0.5 %

$\alpha 1 = 2.03 \pm 0.01$
Eb = 63.7 +/- 4
$\alpha 2 = 2.2 \pm 0.01$

$F_{100\ keV} = 6.40 \times 10^{-4}$ ph/cm^2 s keV
$F_{100\ keV} = 6.43 \times 10^{-4}$ ph/cm^2 s keV
$F_{100\ keV} = 6.36 \times 10^{-4}$ ph/cm^2 s keV



$\chi^2 = 325 / 234$