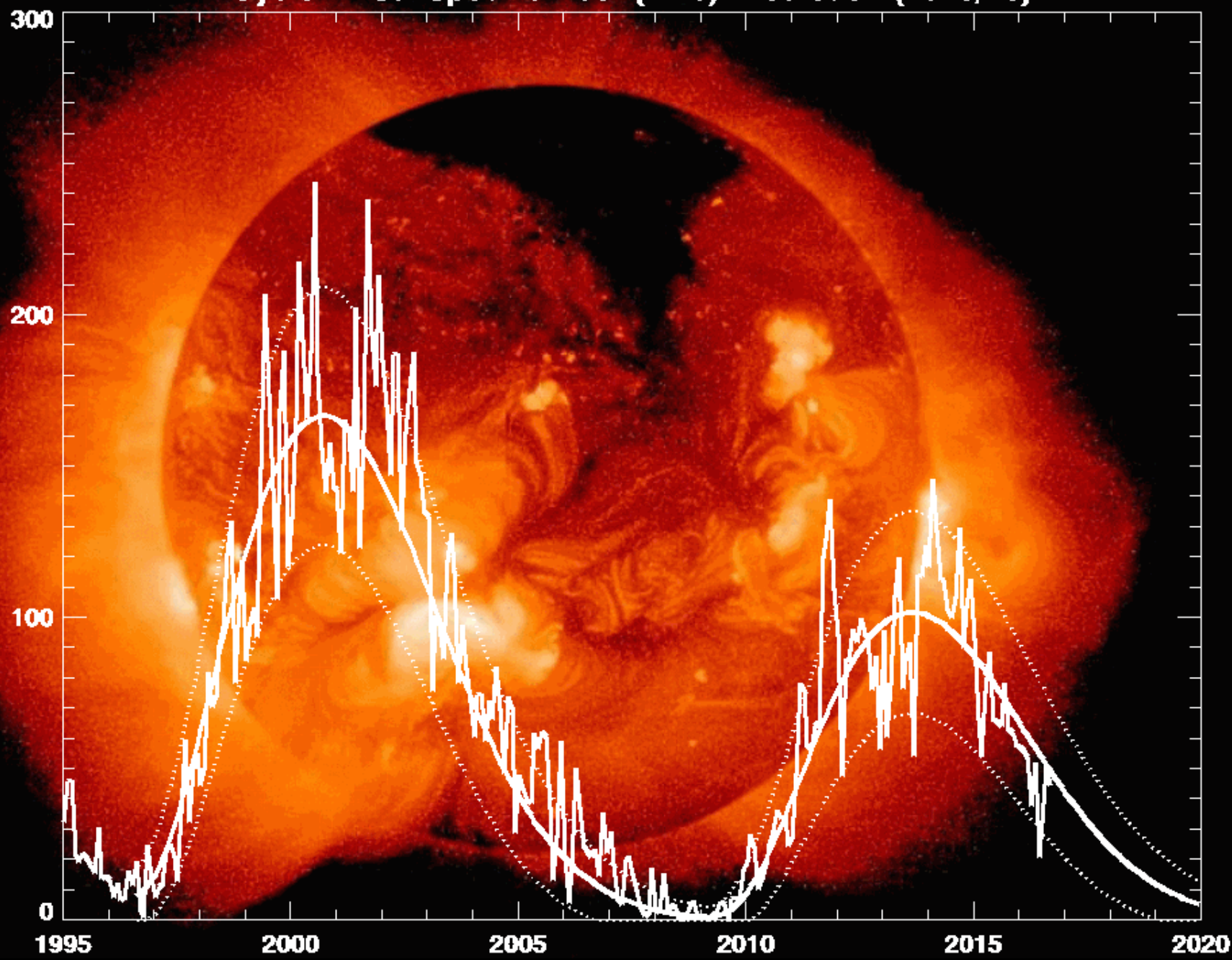


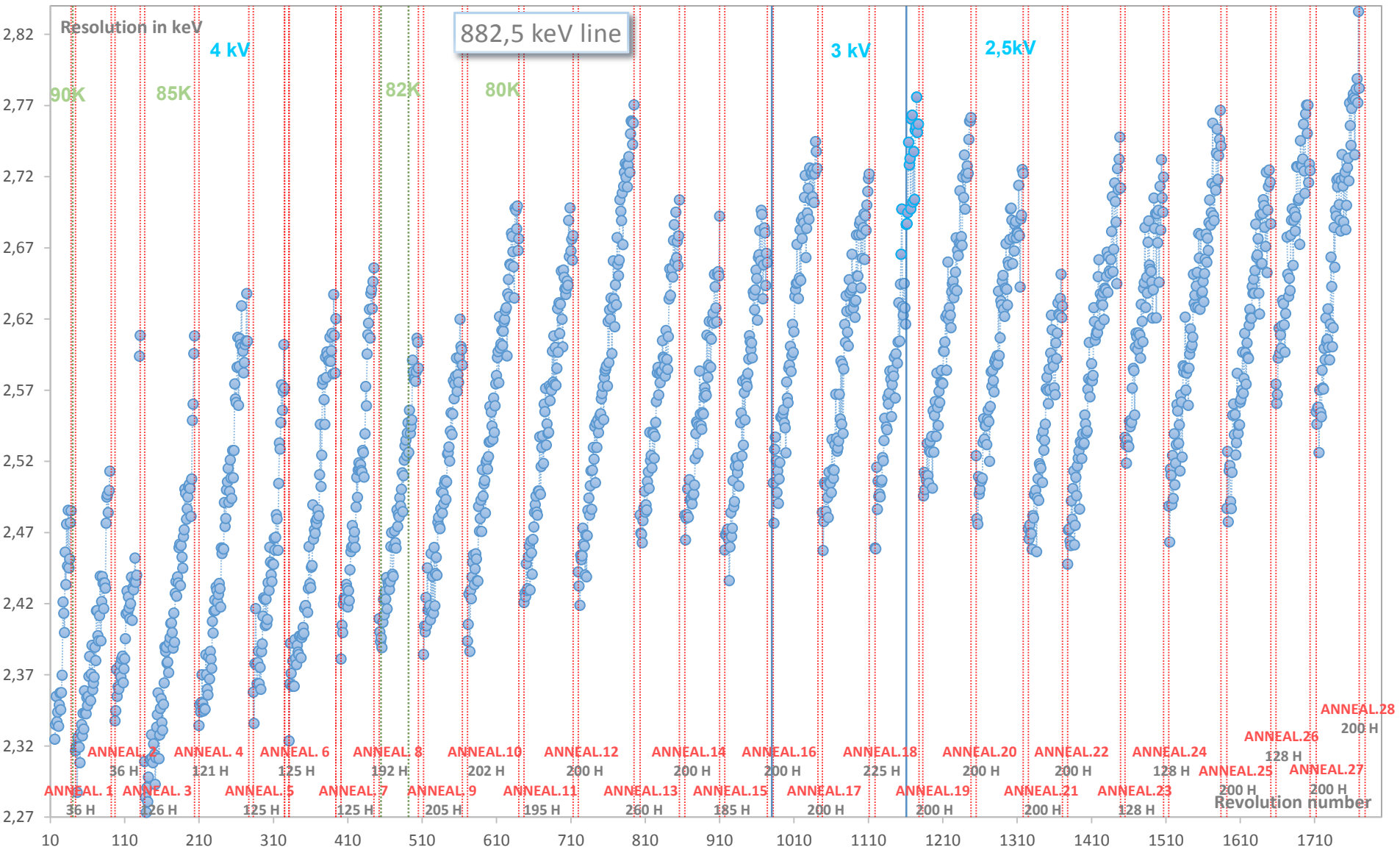
# Cycle 24 Sunspot Number (V2.0) Prediction (2016/10)



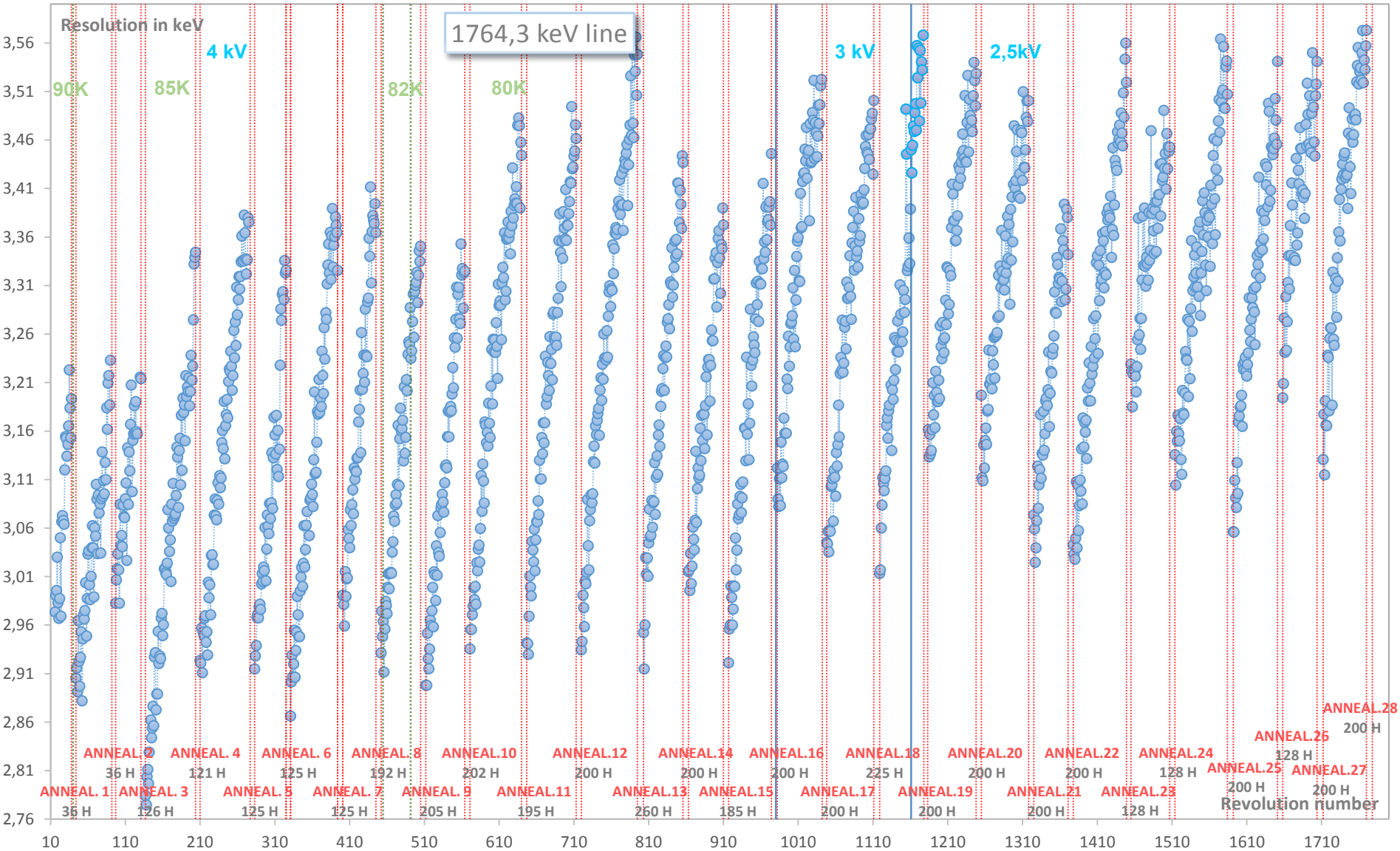
Hathaway NASA/ARC

# **SPI CAMERA STATUS**

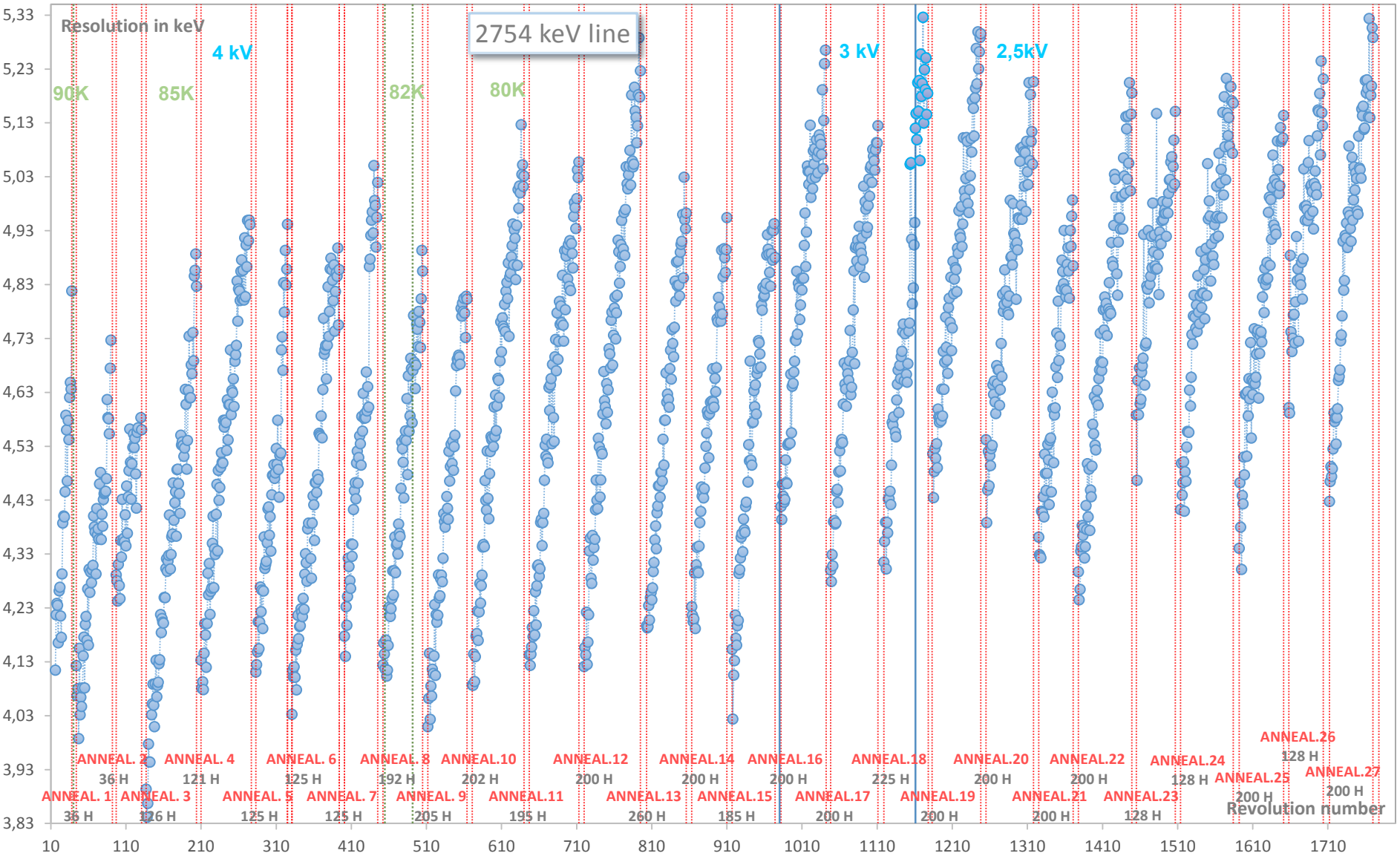
# ENERGY RESOLUTION HISTORY: 882.5 keV



# ENERGY RESOLUTION HISTORY: 1764.3 keV

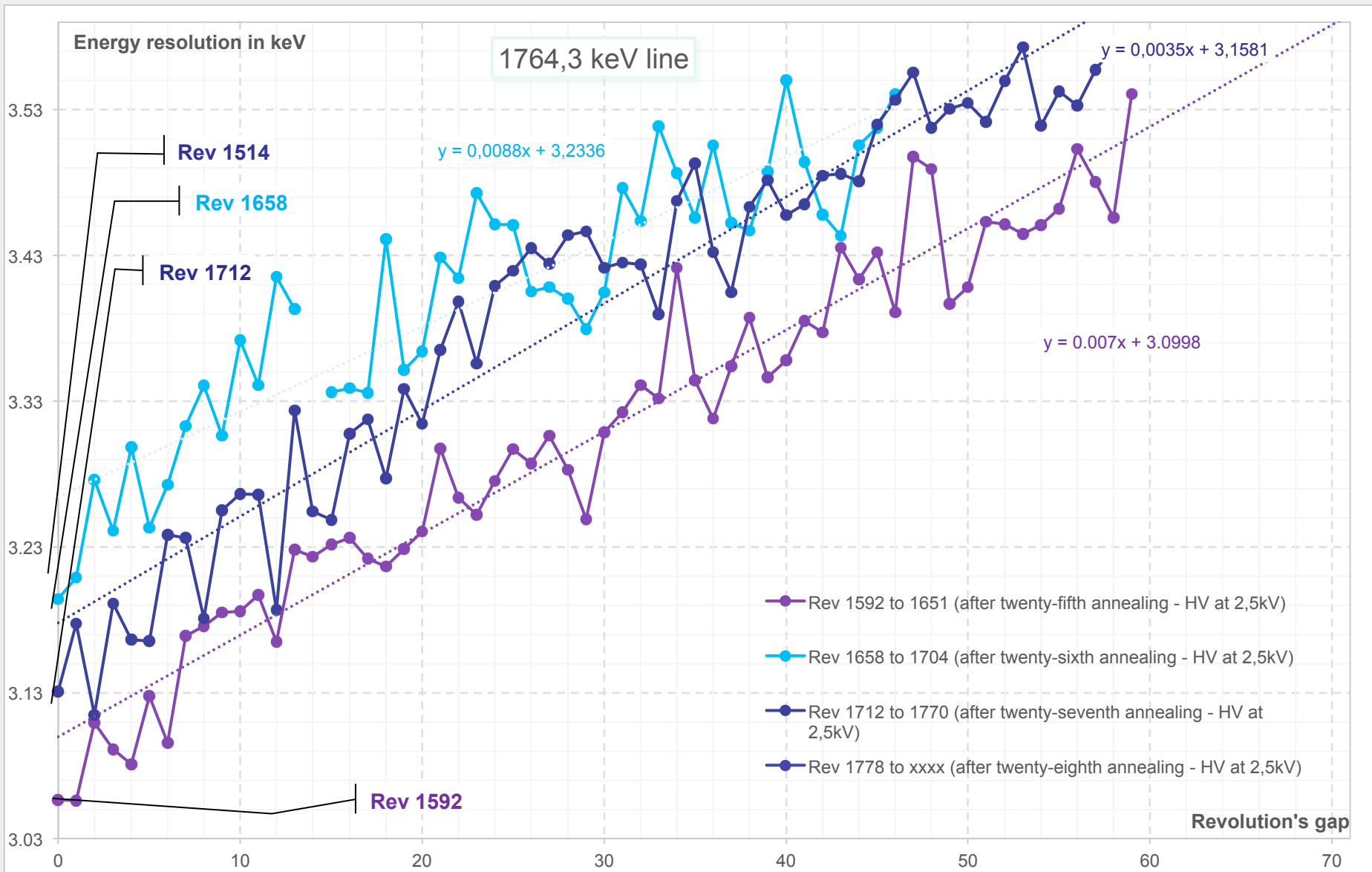


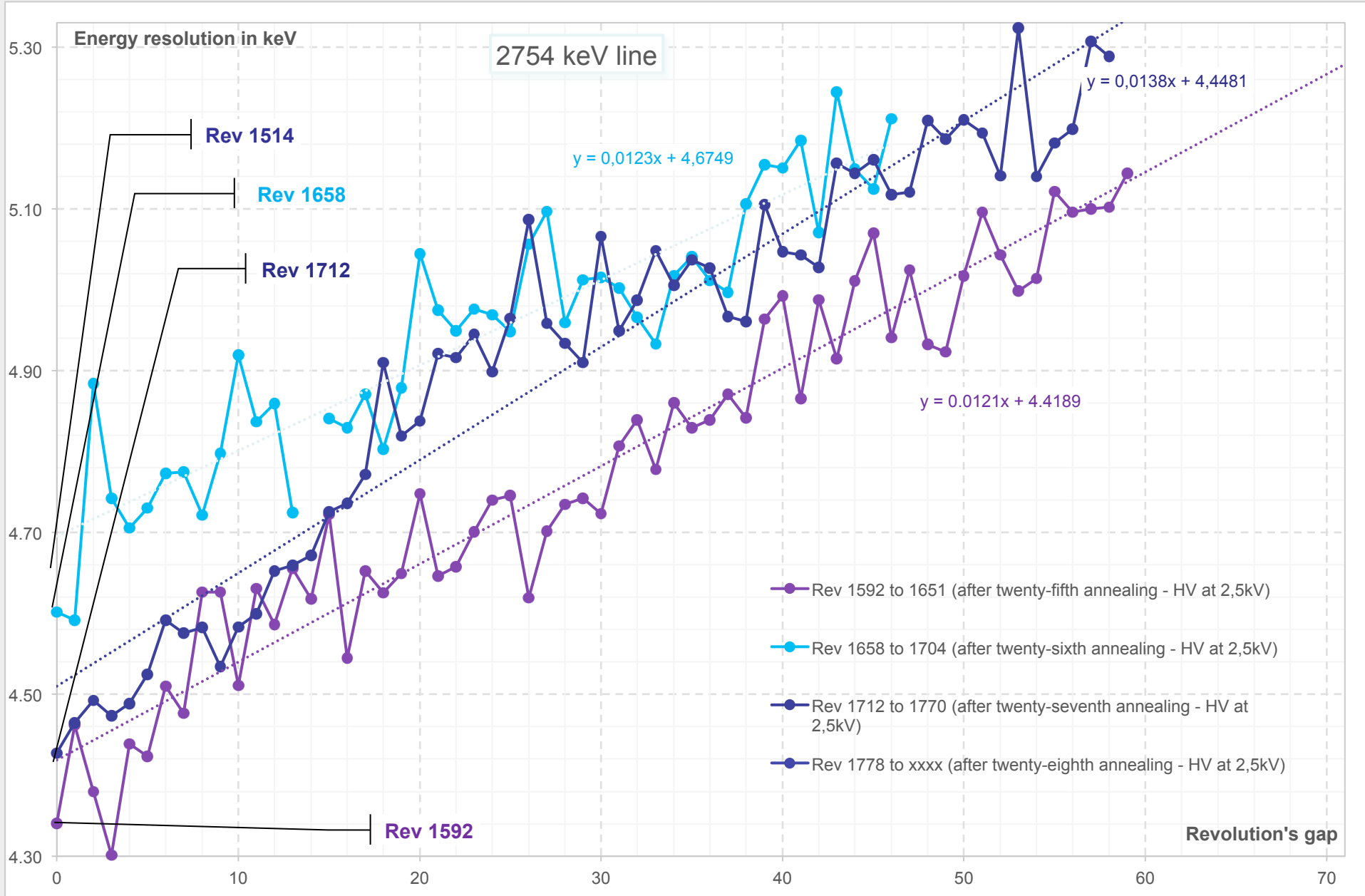
# ENERGY RESOLUTION HISTORY: 2754 keV



# ANNEALING 27th and 28th

- Annealing 27<sup>th</sup> July 22 – Aug 8
- Duration 200hrs
- Satisfactory recovery.
  
- Annealing 28<sup>th</sup>:
- Start 2017- Jan 14th
- Duration ~200hr
- Switch-on : Jan 31th
- Smooth switch-on

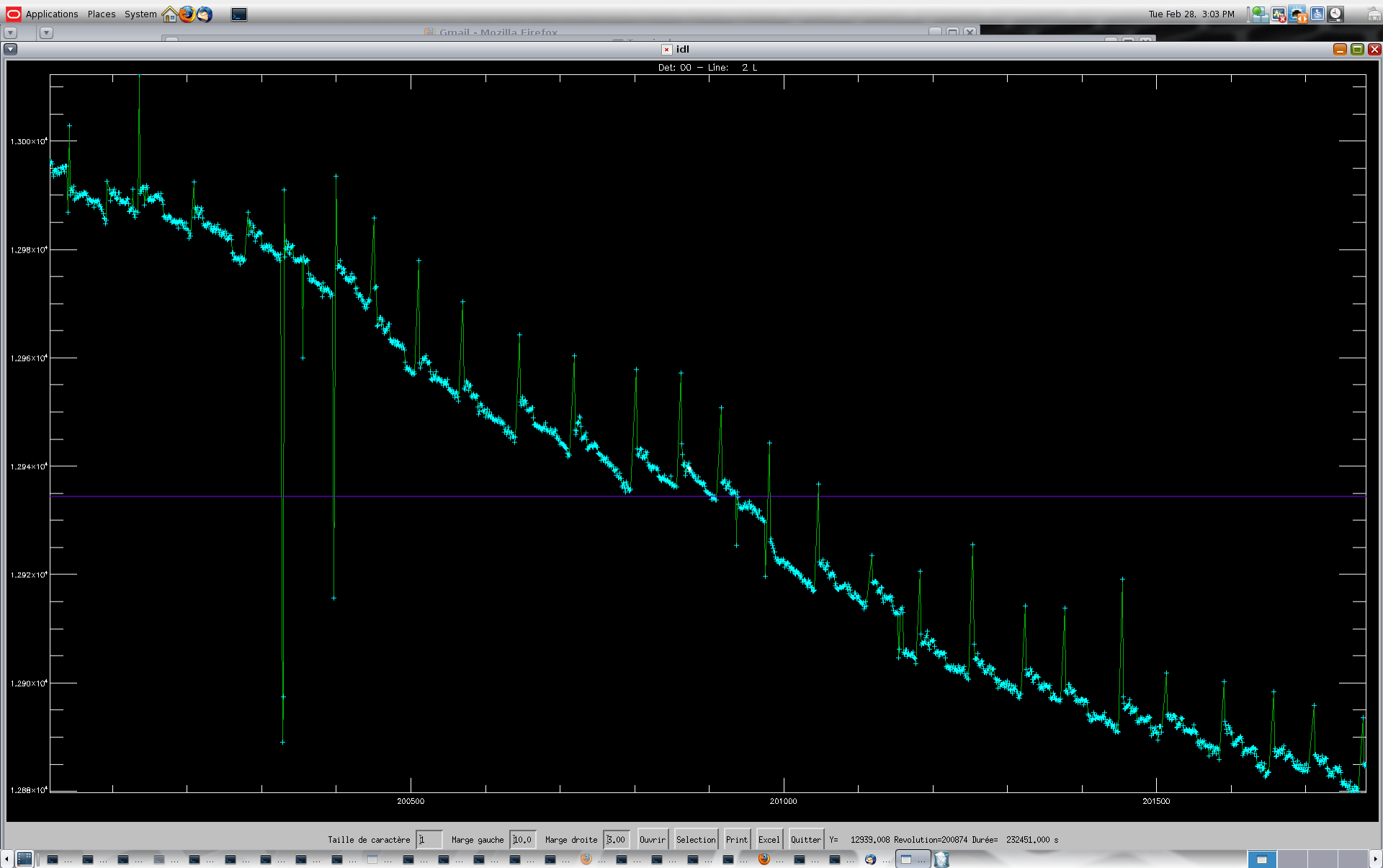




# ANNEALING 27th and 28th

- Degradation slope higher.
  - Fast evolution and flattening
- Why ?
  - Fit shape no more adapted ?
  - Charge collection problem ?
- Long term irradiation effects of the GeD's
- Energy resolution still under control !

# Line position history: all mission



# LINE POSITION HISTORY

- Continuous gain decrease during the mission.
- Amplitude: 1%
- Electronic drift ? or Charge collection in GeD ?
- Link with the degradation rate ?
  
- The energy thresholds should also drift:
  - Switches High/low range (around 2MeV) to be looked at...

# SPI Crab calibration

Common fit:

With Ebreak fixed at 100keV

Alpha1= 2.08 , alpha 2 = 2.27

Flux 100 keV:

6.69  $10^{-4}$  ph/cm<sup>2</sup>/s/keV 2003

6.43  $10^{-4}$  ph/cm<sup>2</sup>/s/keV spring 2016

6.38  $10^{-4}$  ph/cm<sup>2</sup>/s/keV autumn 2016

Common fit;

alpha=1 2.05, alpha2=2.2 Eb =66.5

Flux 100 keV:

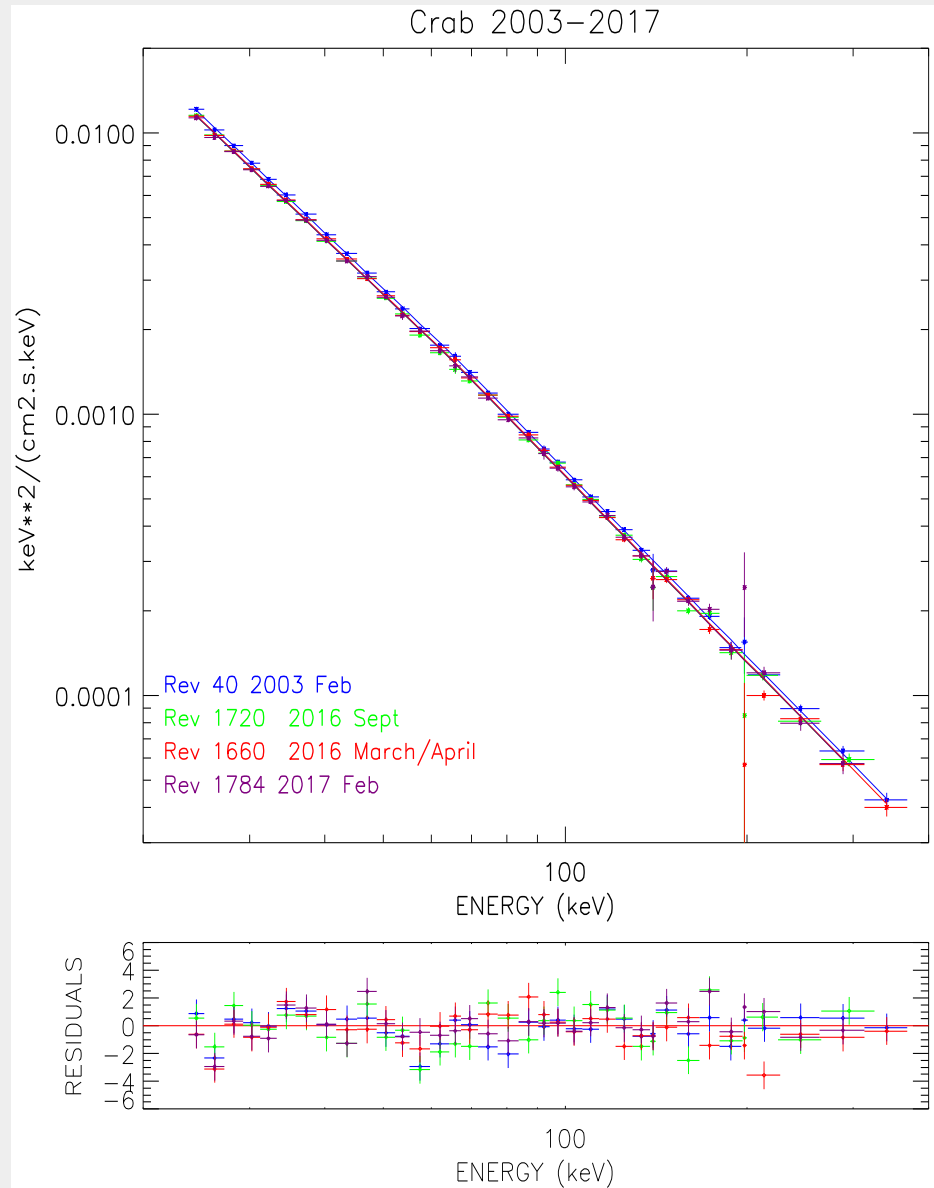
6.5  $10^{-4}$  ph/cm<sup>2</sup>/s/keV 2003

6.24  $10^{-4}$  ph/cm<sup>2</sup>/s/keV spring 2016

6.19  $10^{-4}$  ph/cm<sup>2</sup>/s/keV autumn 2016

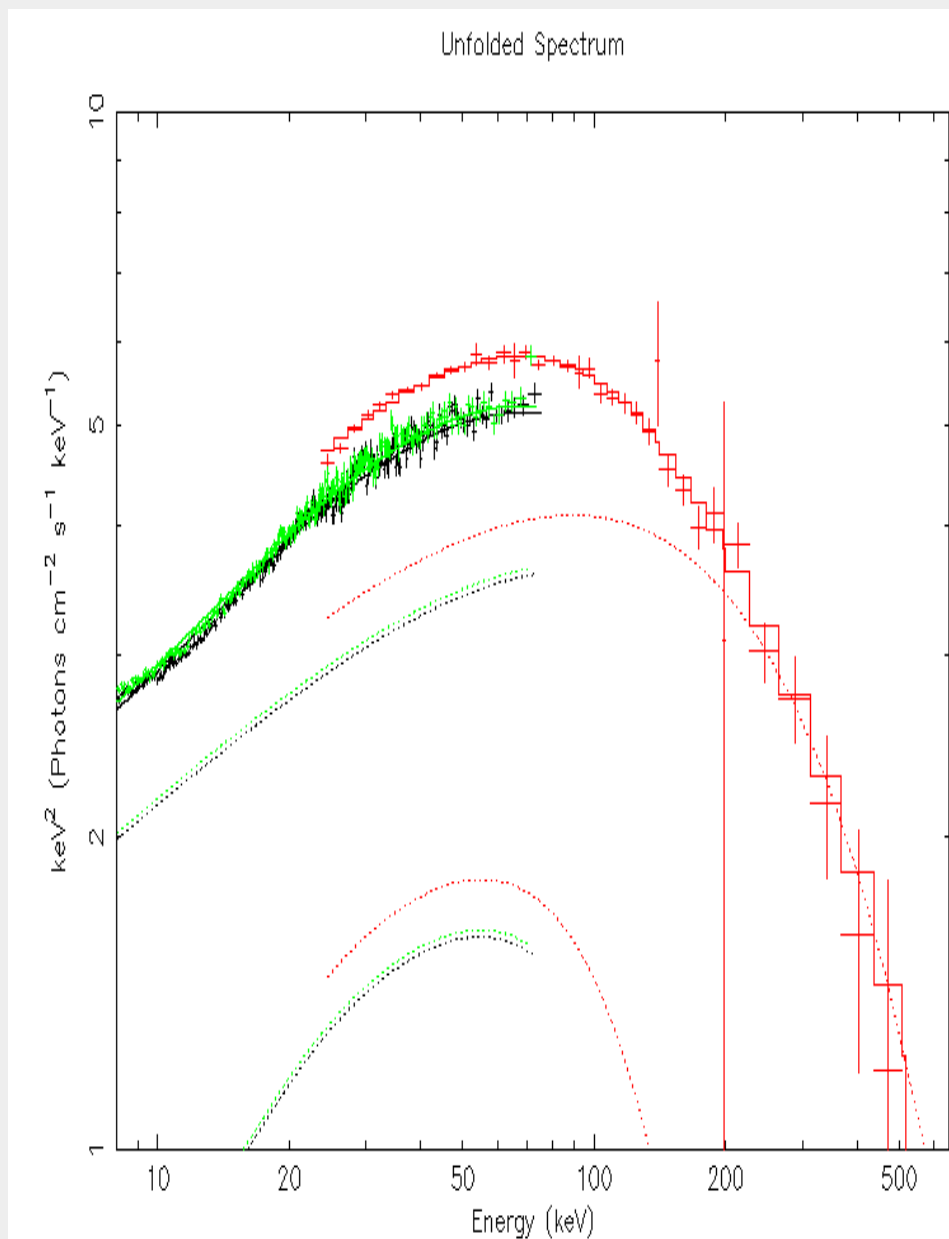
1784 similar to others...

Ready for cross-calibration



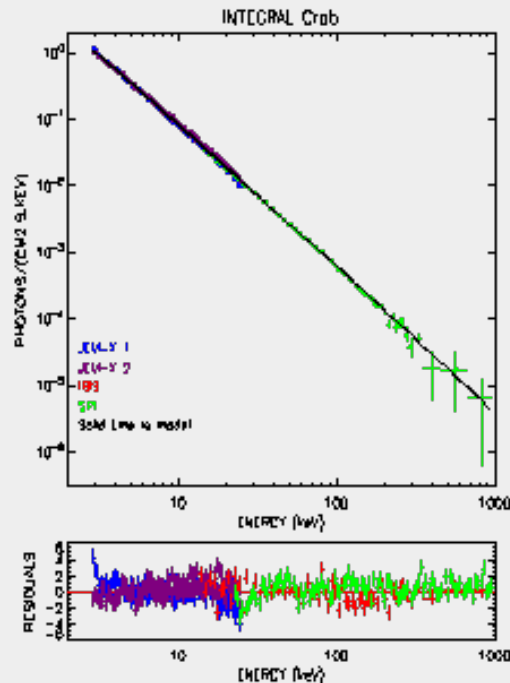
# Cygnus X1: SPI / NuStar cross calibration

- Common fit :
  - $E > 20$  keV
- Shapes are similar
- Normalisation differs by 12-16% depending on models
- 35ks NuStar (20/05/2014)
- 256ks SPI (5-6/05/2014 and (20/05/2014)



# Integral cross-calibration

- Last cross calibration effort done after OSA7 release!
- Effort coordinated by E. Jourdain with D. Gotz and N.J. Westergaard. In 2007!



- Should be good to restart that. But after OSA 11.....
- E.J. is willing to coordinate that .....



# SPI budget in France

- Strong decrease in 2017
- Operations-performance monitoring no more supported by CNES.
- Temporary position of J.Rodi ends (Fev 24<sup>th</sup> 2017)
- Industrial contract for technical/ performance verification and operation support stopped Jan 31<sup>th</sup> 2017
- Operation support – performance monitoring will continue on best effort basis.
- On-board software maintenance no more possible in Toulouse.
- Calibration activities will be maintained (E. Jourdain and JPR)