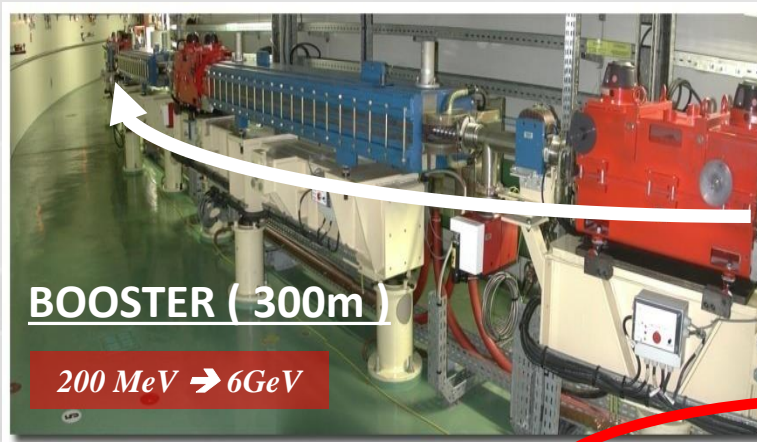


MORE THAN 50 SYNCHROTRON LIGHT SOURCES AROUND THE WORLD



HOW X-RAYS ARE PRODUCED ?



Particles	Electrons
Energy	6 GeV
Intensity	200 mA
Hours/year	5600

Planning 2013 :

Jan 2013	Feb 2013	Mar 2013	Apr 2013	May 2013	Jun 2013	Jul 2013	Aug 2013	Sep 2013	Oct 2013	Nov 2013	Dec 2013	Jan 2014
Tue 01 s s s	Fri 01 . . .	Fri 01 . . .	Mon 01 . . .	Wed 01 . . .	Sat 01 MMM	Mon 01 . . .	Thu 01 s s s	Sun 01 . . .	Tue 01 MMM	Fri 01 . . .	Sun 01 . . .	Wed 01 s s s
Wed 02 s s s	Sat 02 . . .	Sat 02 . . .	Tue 02 MMM	Thu 02 . . .	Sun 02 MMM	Tue 02 MMM	Fri 02 s s s	Mon 02 . . .	Wed 02 . . .	Sat 02 . . .	Mon 02 . . .	Thu 02 s s s
Thu 03 s s s	Sun 03 . . .	Sun 03 . . .	Wed 03 . . .	Fri 03 . . .	Mon 03 MMM	Wed 03 . . .	Sat 03 s s s	Tue 03 MMM	Thu 03 . . .	Sun 03 . . .	Tue 03 . . .	Fri 03 s s s
Fri 04 s s s	Mon 04 . . .	Mon 04 . . .	Thu 04 . . .	Sat 04 . . .	Tue 04 . . .	Thu 04 . . .	Sun 04 s s s	Wed 04 . . .	Fri 04 . . .	Mon 04 . . .	Wed 04 MMM	Sat 04 s s s
Sat 05 s s s	Tue 05 MMM	Tue 05 MMM	Fri 05 . . .	Sun 05 . . .	Wed 05 . . .	Fri 05 . . .	Mon 05 s s s	Thu 05 . . .	Sat 05 . . .	Tue 05 MMM	Thu 05 . . .	Sun 05 s s s
Sun 06 s s s	Wed 06 MMM	Wed 06 . . .	Sat 06 . . .	Mon 06 MMM	Thu 06 . . .	Sat 06 . . .	Tue 06 s s s	Fri 06 . . .	Sun 06 . . .	Wed 06 . . .	Fri 06 . . .	Mon 06 s s s
Mon 07 s s s	Thu 07 . . .	Thu 07 . . .	Sun 07 . . .	Tue 07 . . .	Fri 07 . . .	Sun 07 . . .	Wed 07 s s s	Sat 07 . . .	Mon 07 . . .	Thu 07 . . .	Sat 07 . . .	Tue 07 s s s
Tue 08 s s s	Fri 08 . . .	Fri 08 . . .	Mon 08 . . .	Wed 08 . . .	Sat 08 . . .	Mon 08 . . .	Thu 08 s s s	Sun 08 . . .	Tue 08 . . .	Fri 08 . . .	Sun 08 . . .	Wed 08 s s s
Wed 09 s s s	Sat 09 . . .	Sat 09 . . .	Tue 09 MMM	Thu 09 . . .	Sun 09 . . .	Tue 09 MMM	Fri 09 s s s	Mon 09 . . .	Wed 09 s s s	Sat 09 . . .	Mon 09 . . .	Thu 09 s s s
Thu 10 s s s	Sun 10 . . .	Sun 10 . . .	Wed 10 . . .	Fri 10 . . .	Mon 10 . . .	Wed 10 . . .	Sat 10 s s s	Tue 10 MMM	Thu 10 s s s	Sun 10 . . .	Tue 10 . . .	Fri 10 s s s
Fri 11 s s s	Mon 11 . . .	Mon 11 . . .	Thu 11 . . .	Sat 11 . . .	Tue 11 MMM	Thu 11 . . .	Sun 11 s s s	Wed 11 . . .	Fri 11 s s s	Mon 11 . . .	Wed 11 MMM	Sat 11 s s s
Sat 12 s s s	Tue 12 MMM	Tue 12 . . .	Fri 12 . . .	Sun 12 . . .	Wed 12 . . .	Fri 12 . . .	Mon 12 s s s	Thu 12 . . .	Sat 12 s s s	Tue 12 MMM	Thu 12 . . .	Sun 12 s s s
Sun 13 s s s	Wed 13 . . .	Wed 13 s s s	Sat 13 . . .	Mon 13 . . .	Thu 13 . . .	Sat 13 . . .	Tue 13 s s s	Fri 13 . . .	Sun 13 s s s	Wed 13 . . .	Fri 13 . . .	Mon 13 s s s
Mon 14 s s s	Thu 14 . . .	Thu 14 s s s	Sun 14 . . .	Tue 14 MMM	Fri 14 . . .	Sun 14 . . .	Wed 14 s s s	Sat 14 . . .	Mon 14 s s s	Thu 14 . . .	Sat 14 . . .	Tue 14 s s s
Tue 15 s s s	Fri 15 . . .	Fri 15 s s s	Mon 15 . . .	Wed 15 . . .	Sat 15 . . .	Mon 15 . . .	Thu 15 s s s	Sun 15 . . .	Tue 15 s s s	Fri 15 . . .	Sun 15 . . .	Wed 15 s s s
Wed 16 s s s	Sat 16 . . .	Sat 16 s s s	Tue 16 MMM	Thu 16 . . .	Sun 16 . . .	Tue 16 MMM	Fri 16 s s s	Mon 16 MMM	Wed 16 s s s	Sat 16 . . .	Mon 16 . . .	Thu 16 s s s
Thu 17 . . .	Sun 17 . . .	Sun 17 s s s	Wed 17 . . .	Fri 17 . . .	Mon 17 . . .	Wed 17 . . .	Sat 17 s s s	Tue 17 . . .	Thu 17 s s s	Sun 17 . . .	Tue 17 . . .	Fri 17 MMM
Fri 18 MMM	Mon 18 . . .	Mon 18 s s s	Thu 18 . . .	Sat 18 . . .	Tue 18 MMM	Thu 18 . . .	Sun 18 s s s	Wed 18 . . .	Fri 18 MMM	Mon 18 . . .	Wed 18 s s s	Sat 18 MMM
Sat 19 MMM	Tue 19 MMM	Tue 19 s s s	Fri 19 . . .	Sun 19 . . .	Wed 19 . . .	Fri 19 . . .	Mon 19 s s s	Thu 19 . . .	Sat 19 MMM	Tue 19 MMM	Thu 19 s s s	Sun 19 MMM
Sun 20 MMM	Wed 20 . . .	Wed 20 s s s	Sat 20 . . .	Mon 20 . . .	Thu 20 . . .	Sat 20 . . .	Tue 20 s s s	Fri 20 . . .	Sun 20 MMM	Wed 20 . . .	Fri 20 s s s	Mon 20 MMM
Mon 21 MMM	Thu 21 . . .	Thu 21 s s s	Sun 21 . . .	Tue 21 . . .	Fri 21 . . .	Sun 21 . . .	Wed 21 s s s	Sat 21 . . .	Mon 21 MMM	Thu 21 . . .	Sat 21 s s s	Tue 21 . . .
Tue 22 . . .	Fri 22 . . .	Fri 22 MMM	Mon 22 . . .	Wed 22 s s s	Sat 22 . . .	Mon 22 . . .	Thu 22 s s s	Sun 22 . . .	Tue 22 . . .	Fri 22 . . .	Sun 22 s s s	Wed 22 . . .
Wed 23 . . .	Sat 23 . . .	Sat 23 MMM	Tue 23 MMM	Thu 23 s s s	Sun 23 . . .	Tue 23 MMM	Fri 23 MMM	Mon 23 . . .	Wed 23 . . .	Sat 23 . . .	Mon 23 s s s	Thu 23 . . .
Thu 24 . . .	Sun 24 . . .	Sun 24 MMM	Wed 24 . . .	Fri 24 s s s	Mon 24 . . .	Wed 24 . . .	Sat 24 MMM	Tue 24 MMM	Thu 24 . . .	Sun 24 . . .	Tue 24 s s s	Fri 24 . . .
Fri 25 . . .	Mon 25 . . .	Mon 25 MMM	Thu 25 . . .	Sat 25 s s s	Tue 25 MMM	Thu 25 . . .	Sun 25 MMM	Wed 25 . . .	Fri 25 . . .	Mon 25 . . .	Wed 25 s s s	Sat 25 . . .
Sat 26 . . .	Tue 26 MMM	Tue 26 . . .	Fri 26 . . .	Sun 26 s s s	Wed 26 . . .	Fri 26 . . .	Mon 26 MMM	Thu 26 . . .	Sat 26 . . .	Tue 26 MMM	Thu 26 s s s	Sun 26 . . .
Sun 27 . . .	Wed 27 . . .	Wed 27 . . .	Sat 27 . . .	Mon 27 s s s	Thu 27 . . .	Sat 27 . . .	Tue 27 . . .	Fri 27 . . .	Sun 27 . . .	Wed 27 . . .	Fri 27 s s s	Mon 27 . . .
Mon 28 . . .	Thu 28 . . .	Thu 28 . . .	Sun 28 . . .	Tue 28 s s s	Fri 28 . . .	Sun 28 . . .	Wed 28 . . .	Sat 28 . . .	Mon 28 . . .	Thu 28 . . .	Sat 28 s s s	Tue 28 MMM
Tue 29 . . .		Fri 29 . . .	Mon 29 MMM	Wed 29 s s s	Sat 29 . . .	Mon 29 . . .	Thu 29 . . .	Sun 29 . . .	Tue 29 MMM	Fri 29 . . .	Sun 29 s s s	Wed 29 . . .
Wed 30 . . .		Sat 30 . . .	Tue 30 . . .	Thu 30 s s s	Sun 30 . . .	Tue 30 . . .	Fri 30 . . .	Mon 30 . . .	Wed 30 . . .	Sat 30 . . .	Mon 30 s s s	Thu 30 . . .
Thu 31 . . .		Sun 31 . . .		Fri 31 MMM		Wed 31 s s s	Sat 31 . . .		Thu 31 . . .		Tue 31 s s s	Fri 31 . . .

USM : 231days - Shutdowns : 80 days - - MDT : 54 days

ORGANIZATION :

❑ 620 employees, 18% work for the Machine

❑ Annual budget : 100 M€

❑ Number of assets : 20 000

❑ Annual maintenance budget : 13 M€

❑ Management responsible : For asset & maintenance each group is responsible in close collaboration with the Operation group

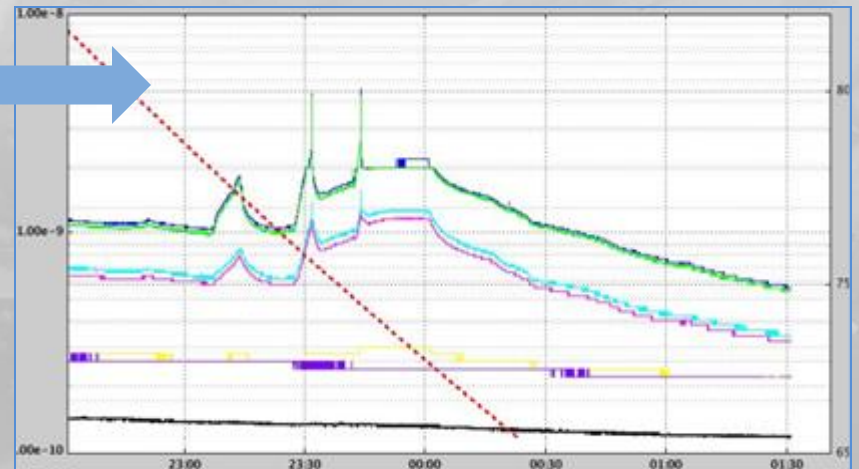
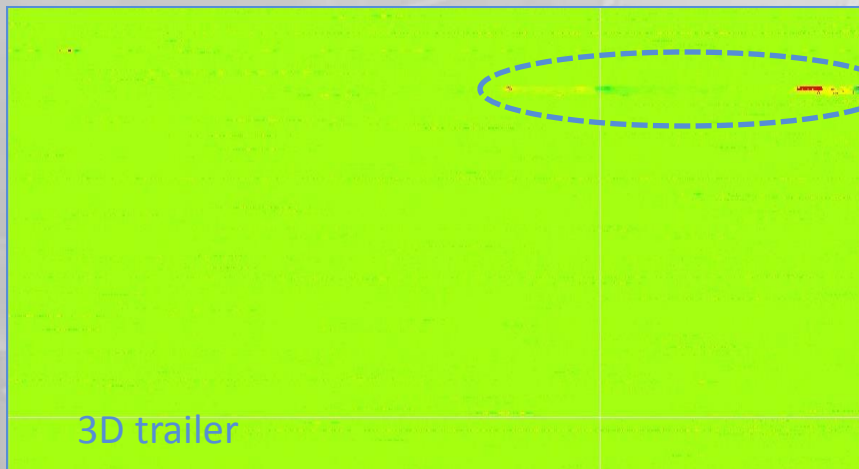


Tools for operation tracking:

- ❑ Fast data loggers for quick events

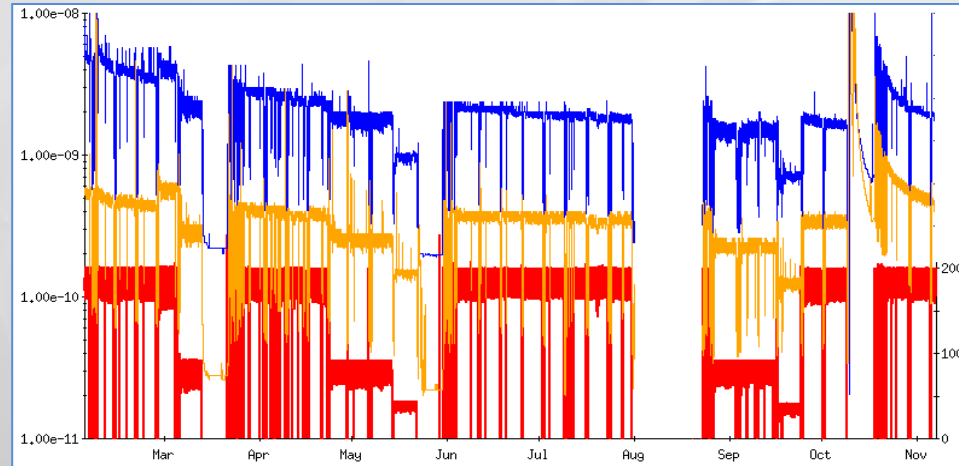


- ❑ 1 hour buffer



Tools for operation tracking:

- Historical data base, recalls in the past months and /or years



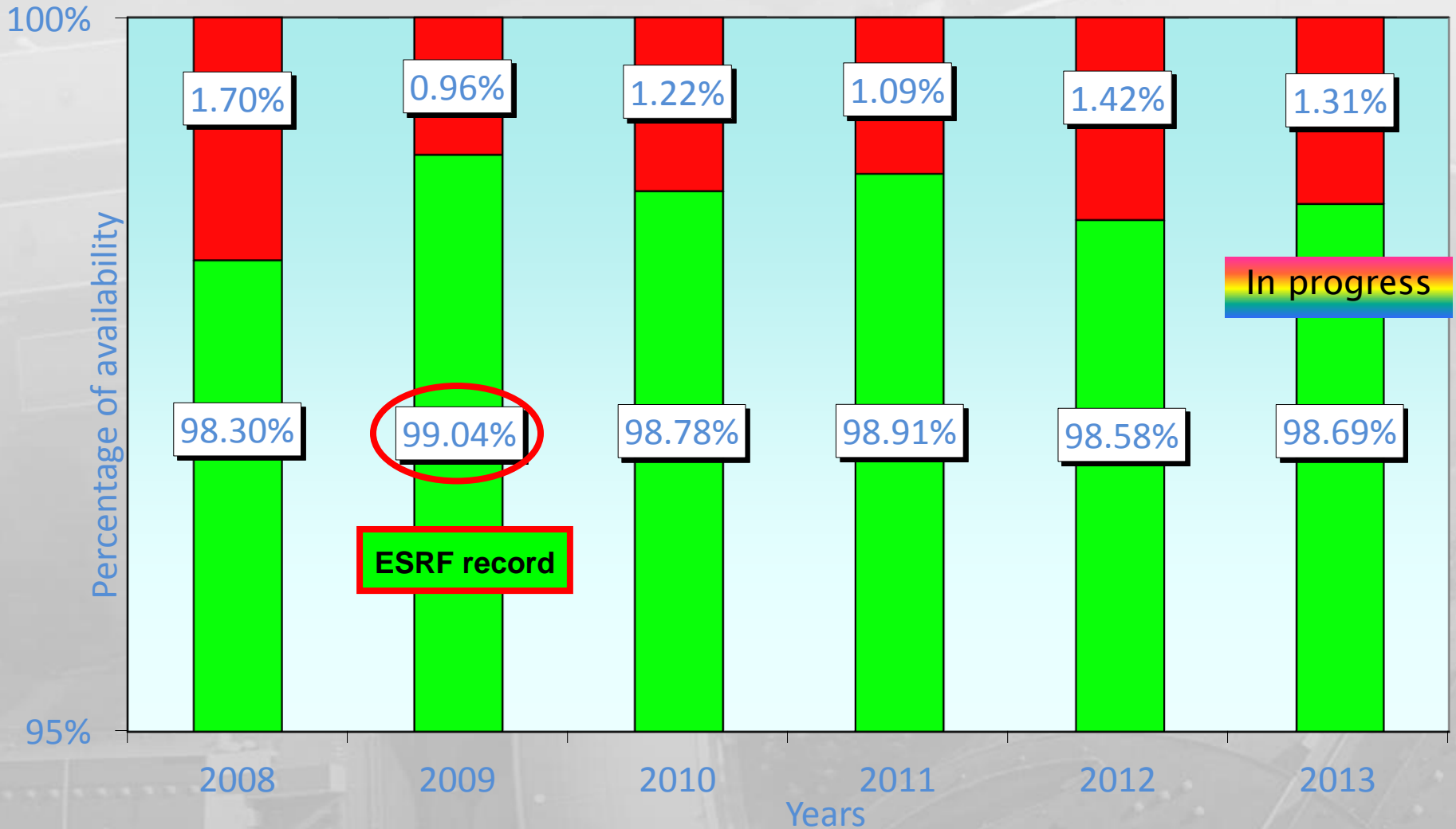
- Jlogbook (selections by date/events/equipment ...) used daily by the Operator on crew in the Control Room

Date & Time	Machine Mode	Event	Accelerator	Equipment	Message	Expert's reply	Failure duration (min)	CTRM hardcopies	Attachment	Resolution Status (for expert)
Friday 18-10-13 08:56	MDT	Failure (NO BEAM)	SR	Diagnostics	Pierre : Beam lost due to wrong manip... Refill ASAP...		0			Not Fixed
Friday 18-10-13 07:29	MDT	Failure (NO BEAM)	SR	SRRF	Pierre : We loss the beam again at 199mA due to the same think on the new Cavities... So, we decide to switch in 2times1third to see if we reach 200mA with a better detune...		0			Not Fixed
Friday 18-10-13 07:07	MDT	Failure (NO BEAM)	SR	SRRF	Pierre : We loss the beam at 190mA due to too much reflected power into the new Cavities in cell23... JM Mercier tries to find a better detune before the new fill in 1/3...		0			Not Fixed
Wednesday 02-10-13 08:19	USM	Failure (NO BEAM)	Human mistake	SRRF	Stephane Chiappinelli writes: Human mistake RF		19			Fixed
Wednesday 25-09-13 07:49	MDT	Failure (NO BEAM)	Unidentified		Marc, GG & Pierre : Beam lost due to an unknown raison... No interlock on Machine Interlock, just the both RF transmitters stopped !!! NB from Hardy: 21 mins = 11 in MDT + 10 in USM. For Storm, only 10 mins is considered.		21			Not Fixed

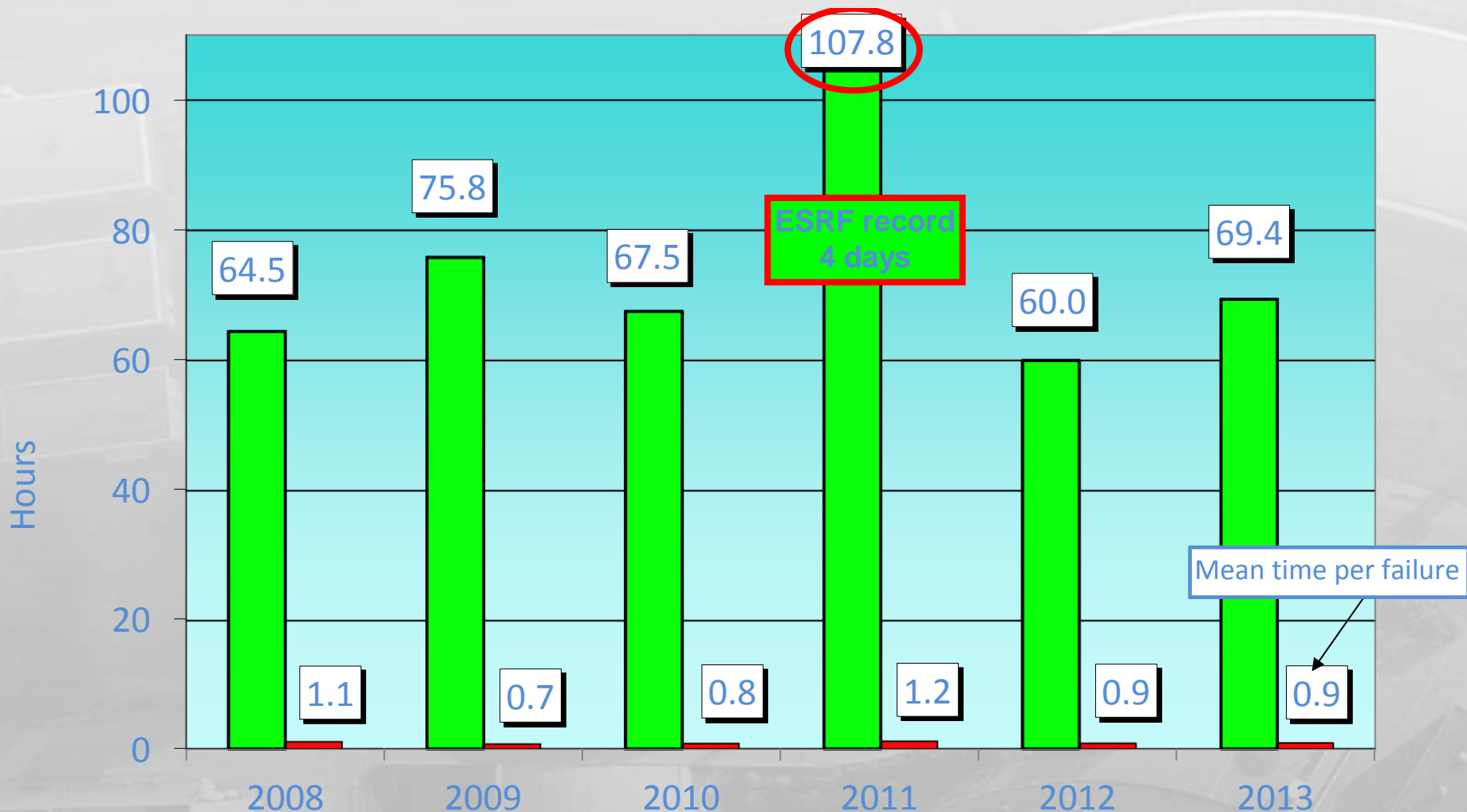
AMM enterprise strategy :


- No dedicated tools for the accelerators up to now,
but we plan to develop our Jlogbook in this way
(Infrastructure group and RF group use CARL master software)
- Our goals are :
 - Machine availability
 - Mean Time Between Failures

ACCELERATOR'S AVAILABILITY FROM 2008 TO 2013



MEAN TIME BETWEEN FAILURES FROM 2008 TO 2013



A large circular aerial photograph of the ESRF building, showing its distinctive ring-like structure with a central green courtyard. The building is surrounded by roads, parking areas, and other smaller buildings. In the background, there are mountains under a blue sky with light clouds. The text "THANK YOU FOR YOUR ATTENTION" is overlaid in white capital letters on the upper part of the circular image.

THANK YOU FOR YOUR ATTENTION