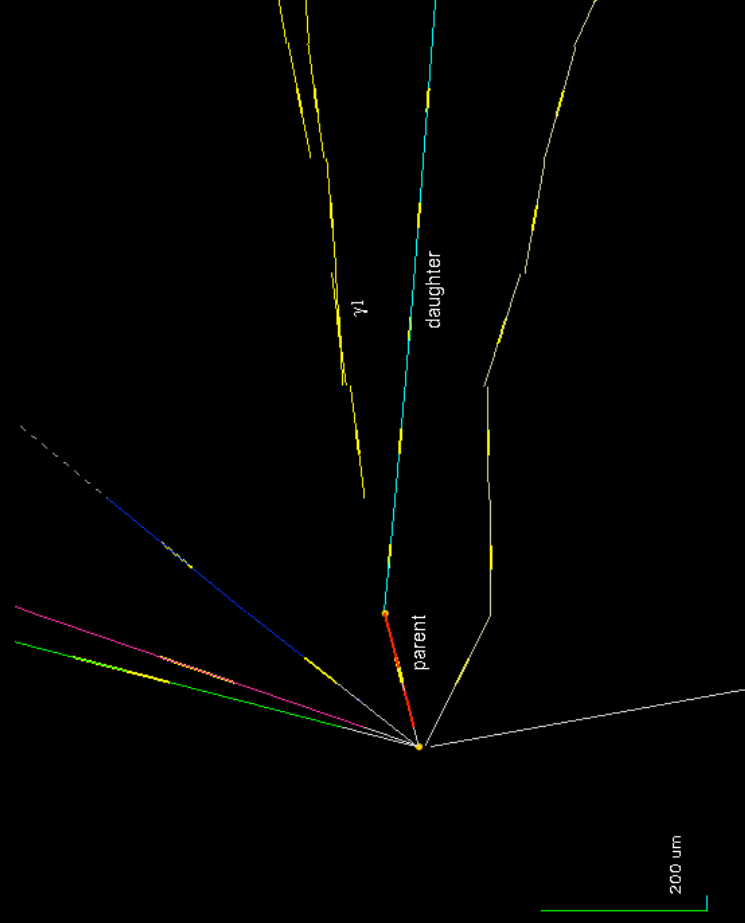




Status of OPERA



A. Ereditato - LHEP Bern



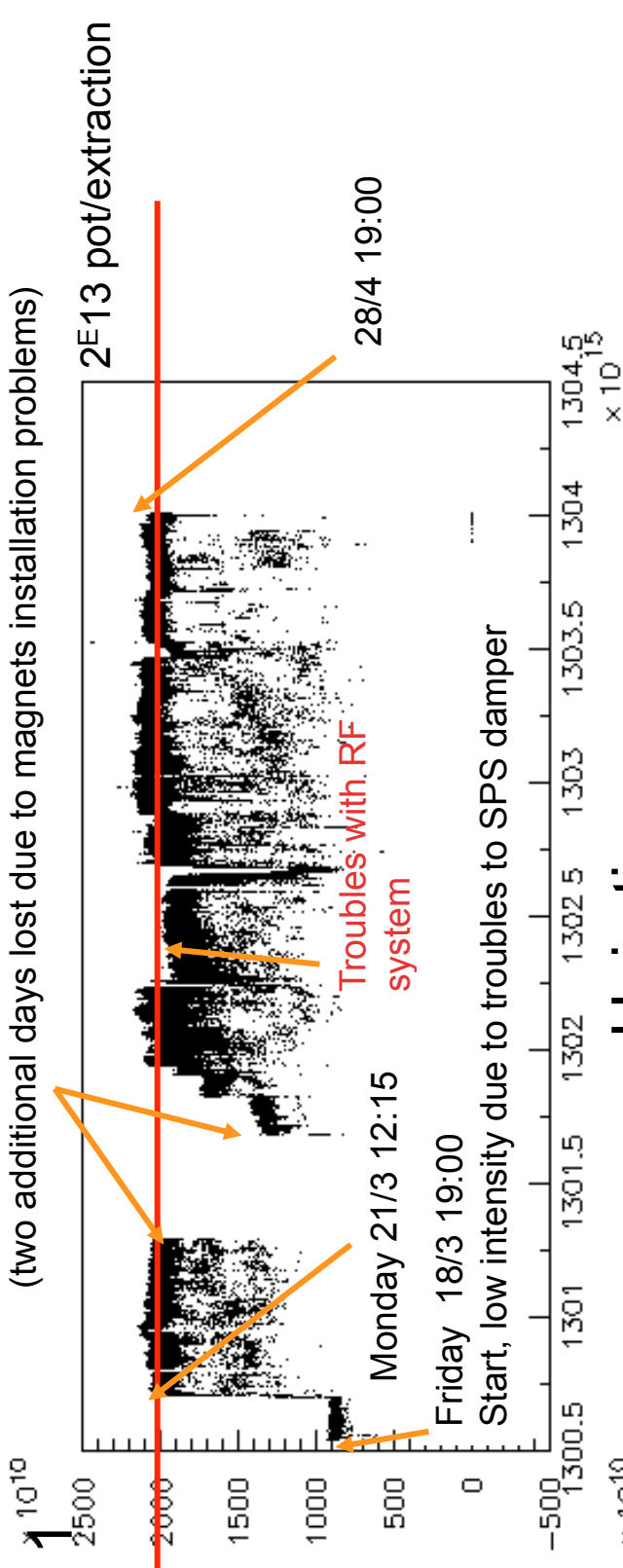
Status of the experiment

- 2010 CNGS run: very good performance so far (started with the dedicated running mode negotiated with CERN last year)
- Status of detectors and facilities: excellent conditions, no major problems
- Manpower issues give some concerns
- Scanning activities hitting record performance, too. Japan scanning station moved from Tono Mine to Nagoya (1 month stop)
- Data analysis: heavily working for the second oscillation paper (June 2011)
- Financial situation better than in recent years: some concerns (see Luca's talk)
- Collaboration life: smooth, executive management confirmed for the next 3 years period
- Future: run in 2012 secured (high integrated intensity?). Possibility of a short 2013 run? Beyond that, long 2013-2014 shut-down. Longer term plans of the Collaboration to be defined

CNGS BEAM

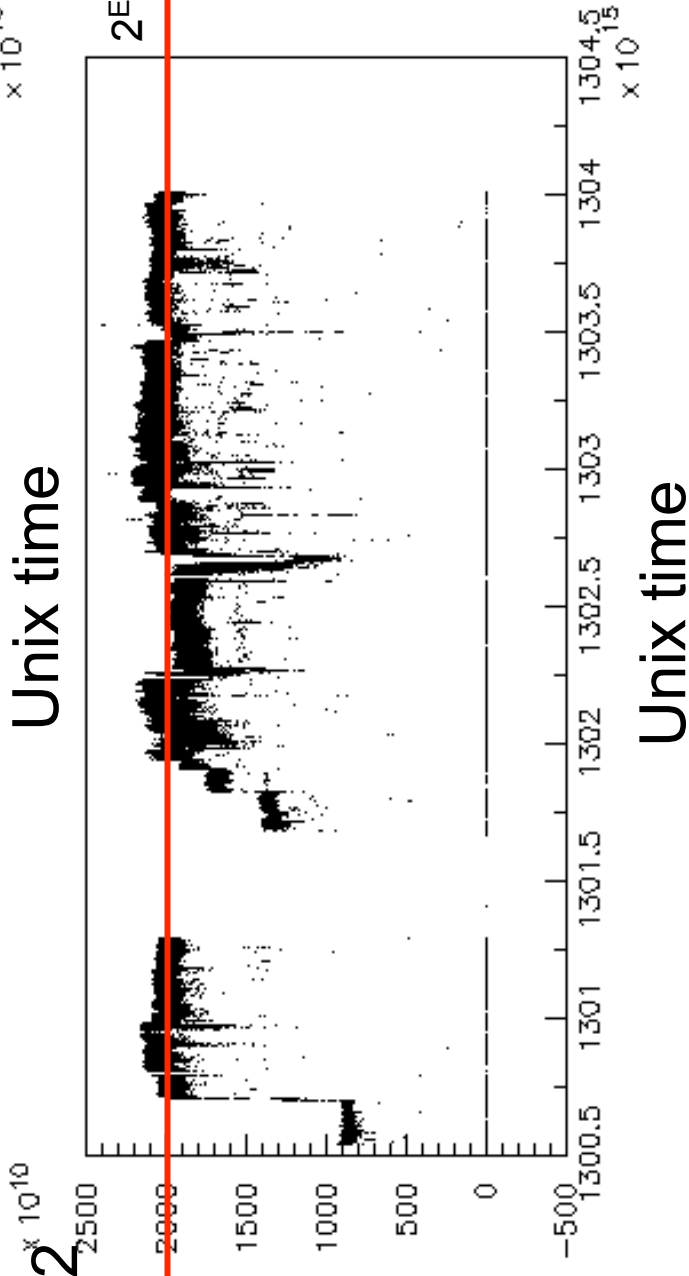
Extraction 1

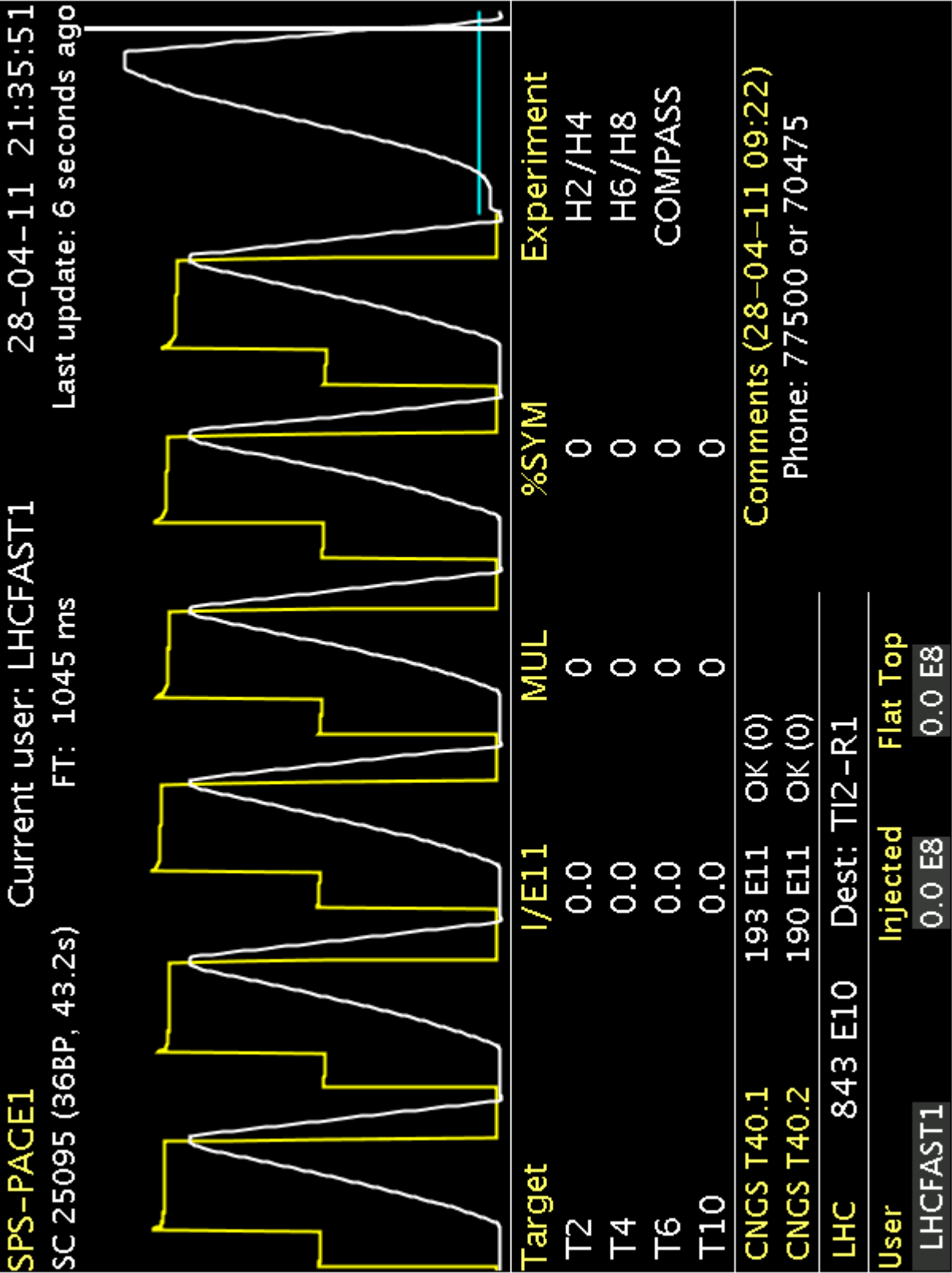
Technical stop: 28/3 8:00 – 1/4 20:00
(two additional days lost due to magnets installation problems)



Extraction 2

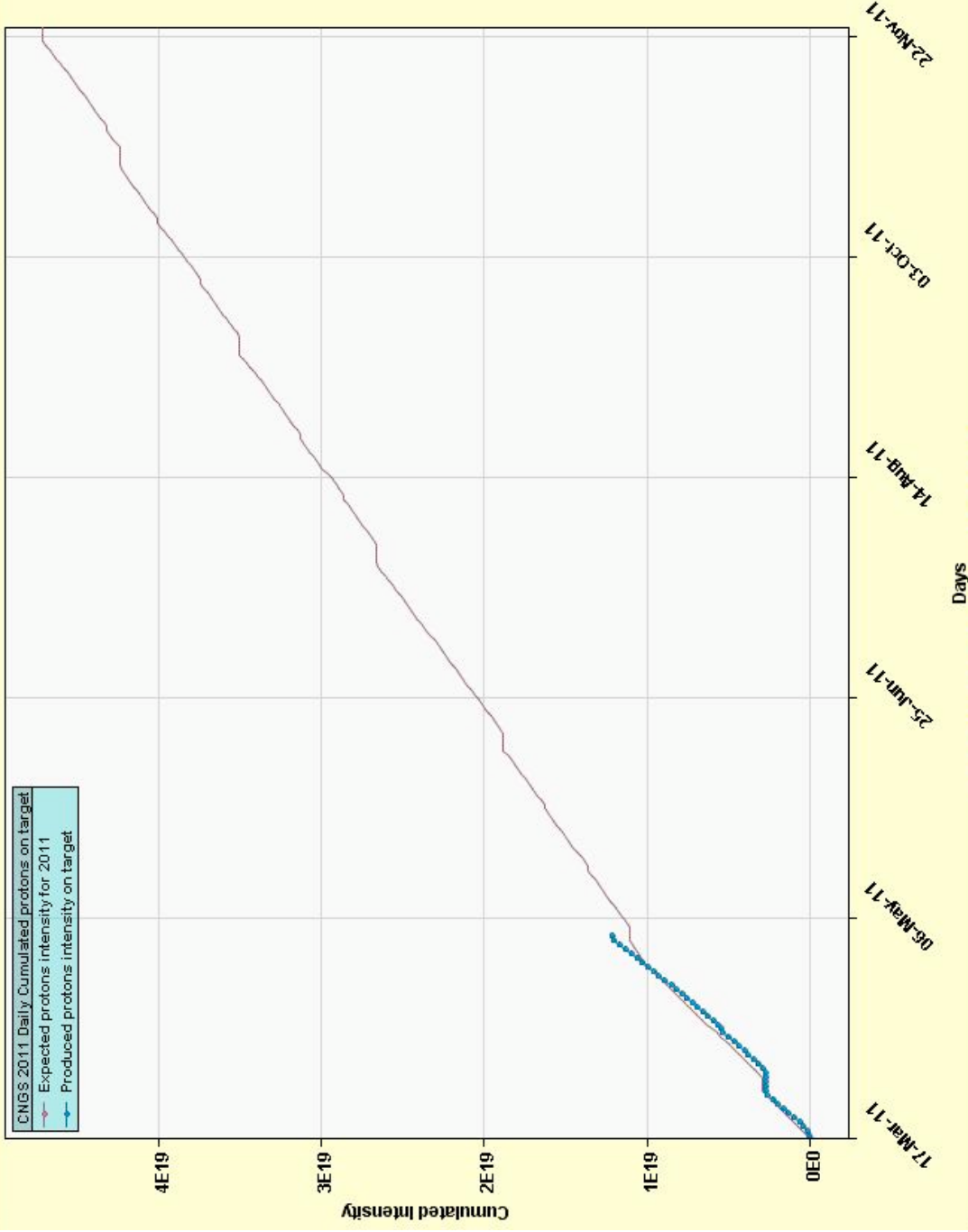
$2E13$ pot/extraction





6 CNGS cycles + LHC

CNGS 2011 Daily Cumulated protons on target



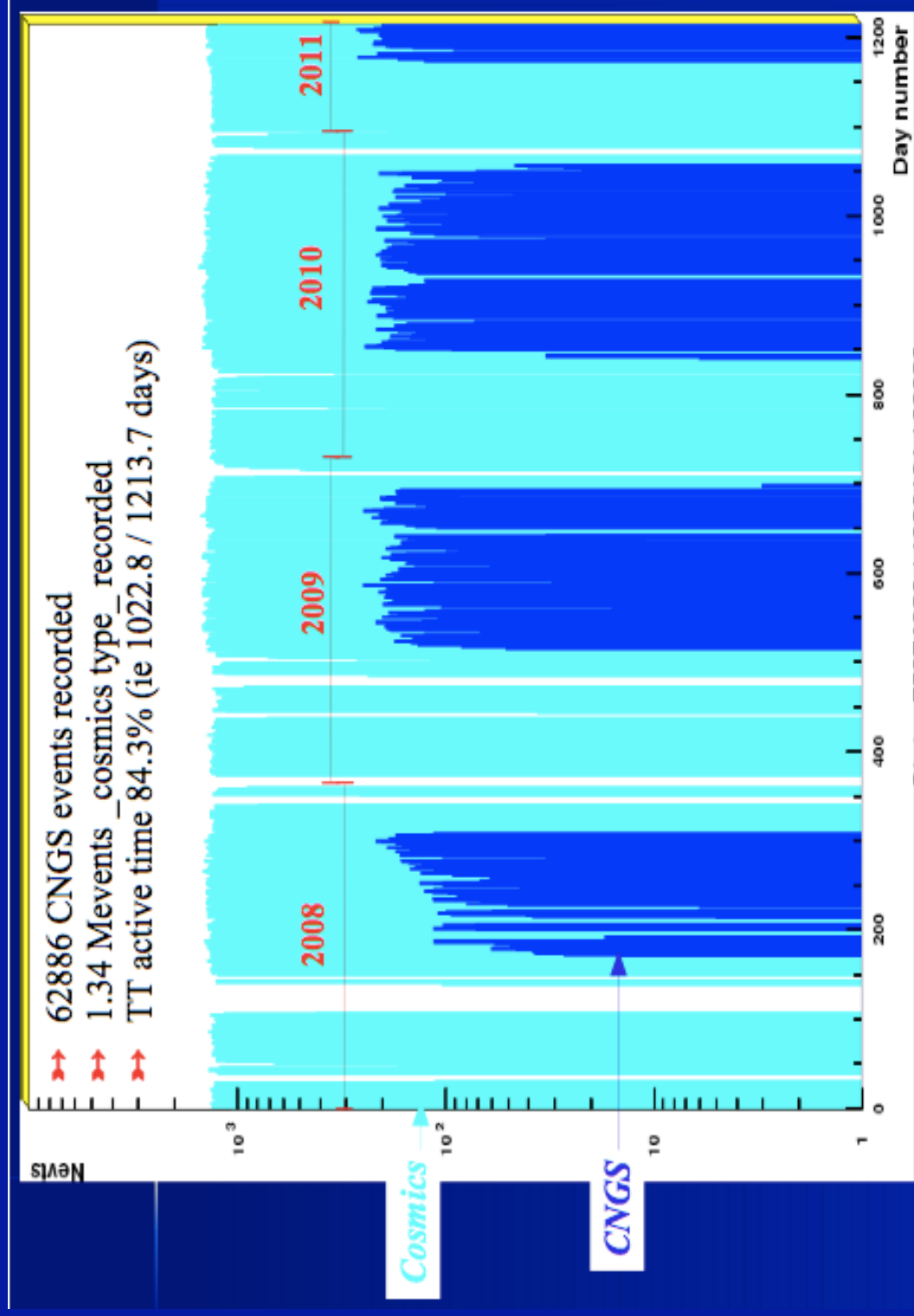
Last update : 02-May-11 07:00

Current expected intensity : 1.11E19 Achieved intensity : 1.21E19

End of 2011 run expected intensity : 4.71E19

Estimated goal of the dedicated period: 1.54E19 pot in 52.5 active beam days (longer than initially foreseen)

DETECTOR & FACILITIES



CNGS Brick candidate extraction status April 29th 2011 :

Run 2008: 2651 bricks extracted (for 1700 events)

+

=> 1.56 brick/event

Run 2009: 5512 bricks extracted for 3560 evts

+

=> 1.55 brick/event

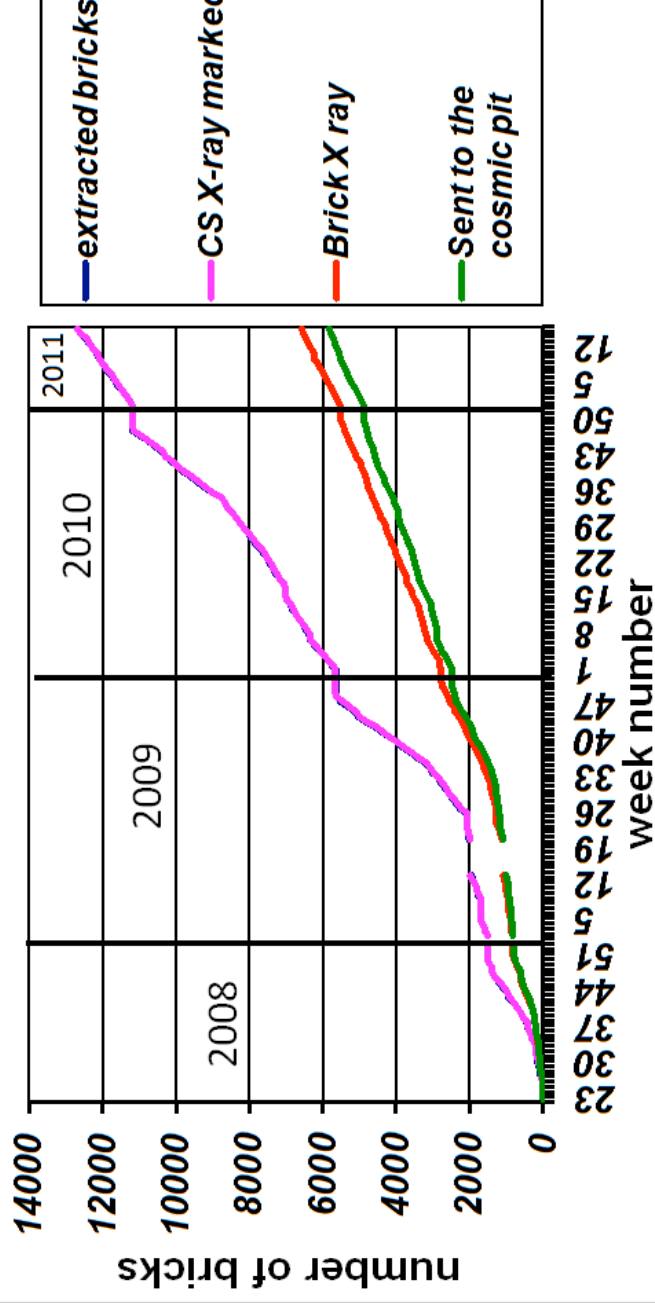
Run 2010: 4262 bricks extracted for 4246 evts

+

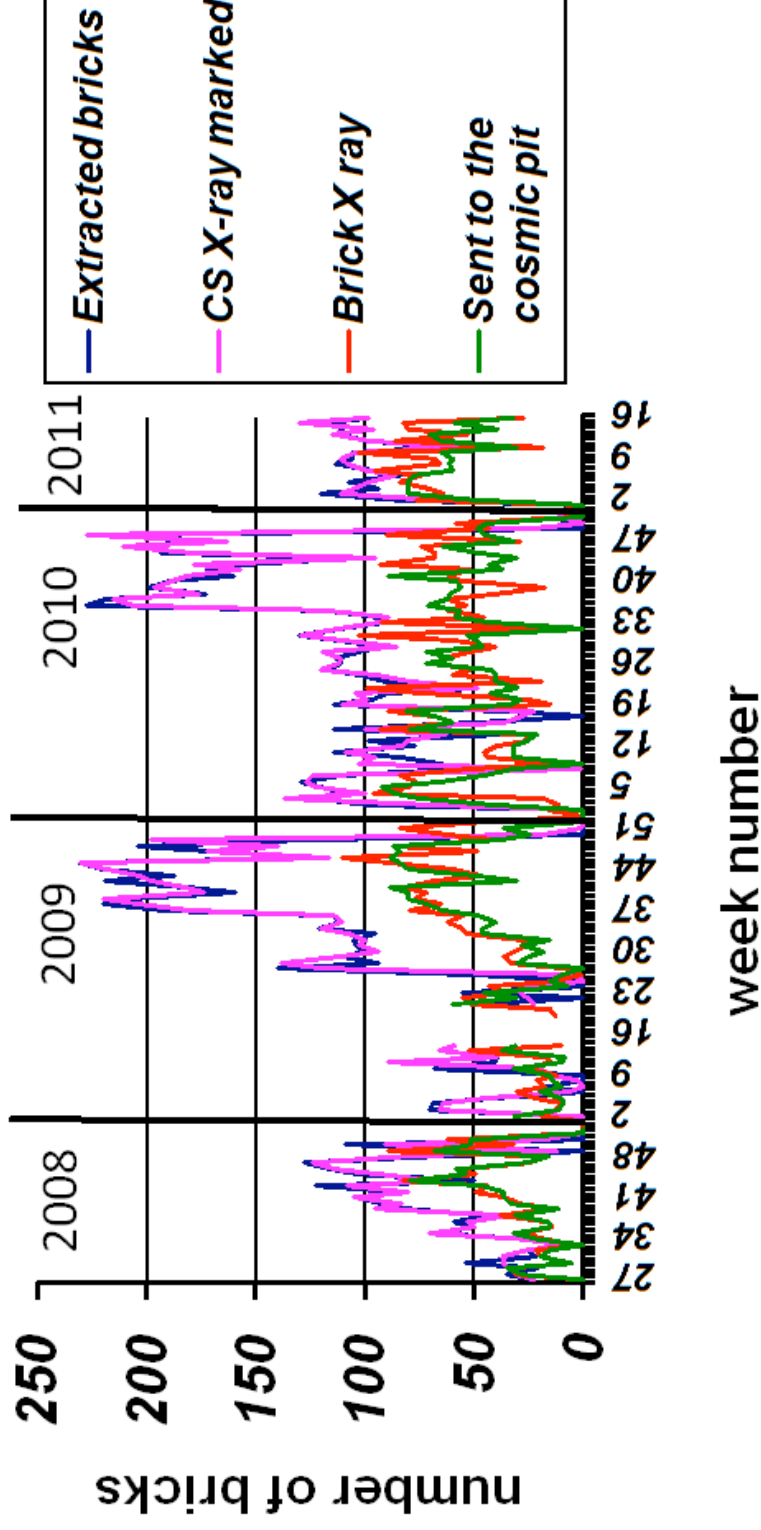
=> 1.00 brick/event

Total: 12773 bricks

Run 2011: 348 bricks extracted for 1114 evts



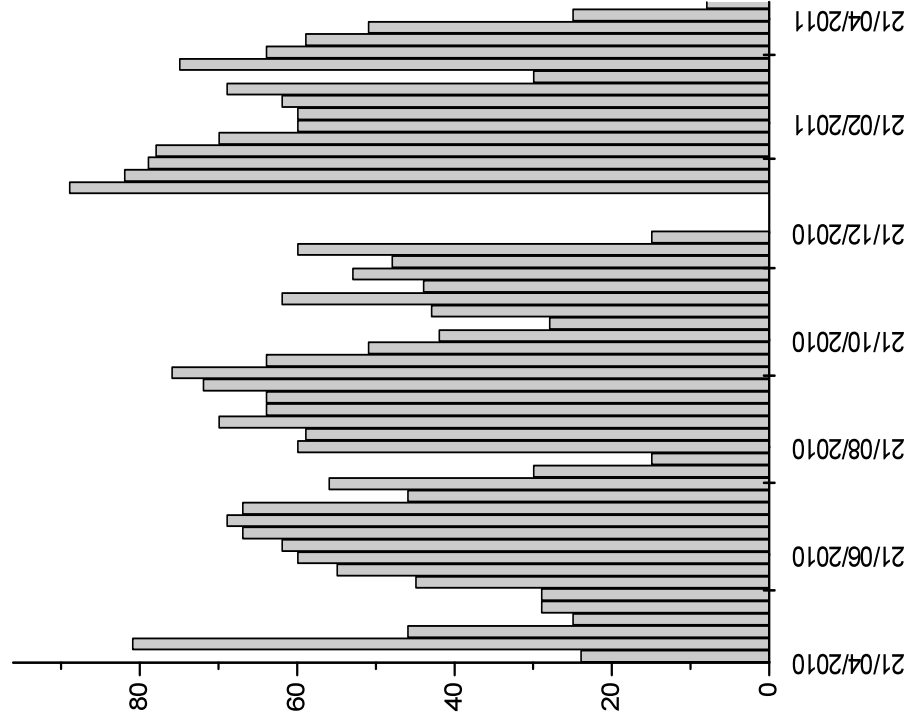
Brick handling activity per week



Total: 5800 bricks can be extracted this year:

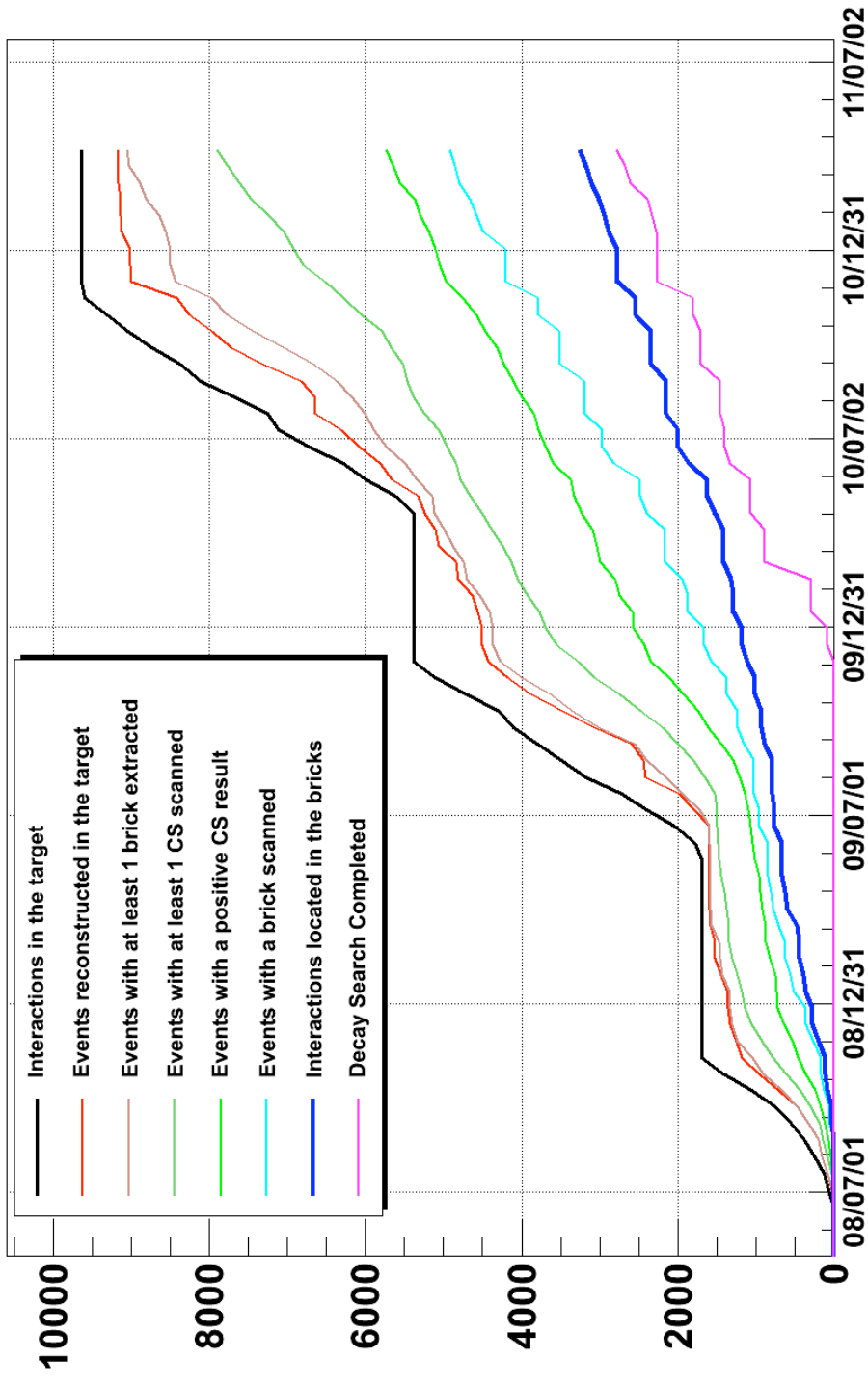
=> 2500 remaining from 2010 run + 3300 bricks from 2011 run

Status of film development



SCANNING

Analysis status of the first 3 physics runs



3285 interactions located,
2819 decay search completed

Event location summary for 2008 run

	0mu	1mu	All
Events predicted by the electronic detector	406	1292	1698
Found in CS	275	1053	1328
Interactions located in ECC	168	829	997
Located in dead material	21	86	107
Interactions in the upstream brick	3	11	14
Decay search performed	159	797	956

Status of event location for 2009 run

	0mu	1mu	All
Events predicted by the electronic detector	1097	2460	3557
Extracted CS	1080	2434	3512
CS Scanned	1011	2349	3360
Found in CS	718	2057	2775
Interactions located in ECC	329	1361	1690
Located in dead material	21	118	139
Interactions in the upstream brick	26	89	115
Decay search performed	287	1210	1497

Status of event location for 2010 run

	0mu	1mu	All
Events predicted by the electronic detector	1165	2747	3912
Extracted CS	1143	2699	3842
CS Scanned	857	2132	2989
Found in CS	440	1198	1638
Interactions located in ECC	127	471	598
Decay search	81	285	366

PHYSICS ANALYSIS

Ongoing activities

- Electronic detector paper accepted by NJP
- Oscillation analysis paper #2 being prepared for Phys. Lett B. Dead line June 2011 (as also anticipated in the October 2010 F.A. meeting)
- Task Force and Editorial Group Meetings set up for the purpose (next meeting 6 May)
- Main new features:
 - 2008-2009 statistics
 - standardized decay search progressing
 - Full MC available for efficiency calculations
 - New tool for detection of heavy fragments (interaction – decay)
 - improved muon recognition
 - track follow down systematically applied
 - large pion interaction event sample (2 different laboratories in Europe and Japan)
 - better knowledge of the main backgrounds (e.g. charm)
 - statistical treatment of data

One year old slide...still valid

- We must all understand that the OPERA scientific goal is the statistically significant discovery of “appearance of neutrino oscillations” .
- Given all the experimental and physics constraints this likely translates into a ~ 4 sigma signal. With less than this we would fail (including CERN and FAs).
- Possible scenarios:
 - 1) we obtain ≥ 4 sigma with the 2011 statistics
 - 2) we will be in the 2-3 sigma region at the end of 2011 data analysis
 - 3) we will have ≤ 2 sigma signal by 2011
- Therefore, we will have to critically review the situation and define our strategy based on scientific arguments to be in turn confronted with financial and political constraints.
- At the moment our reference is 2009 report to the SPSC: approved by the SPSC and by the RB