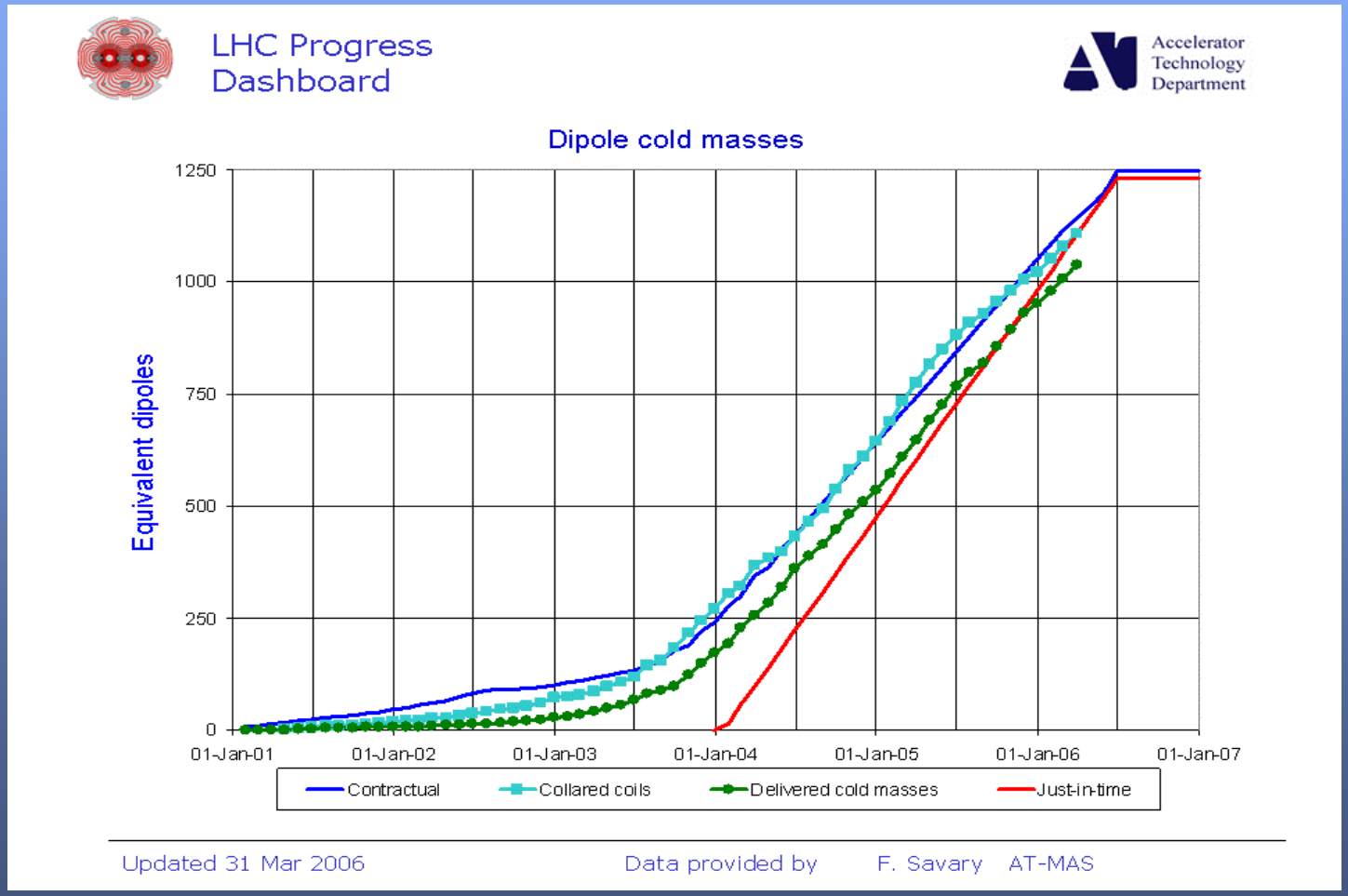
Status of the LHC Project

Lyndon Evans

LHC RRB Meeting

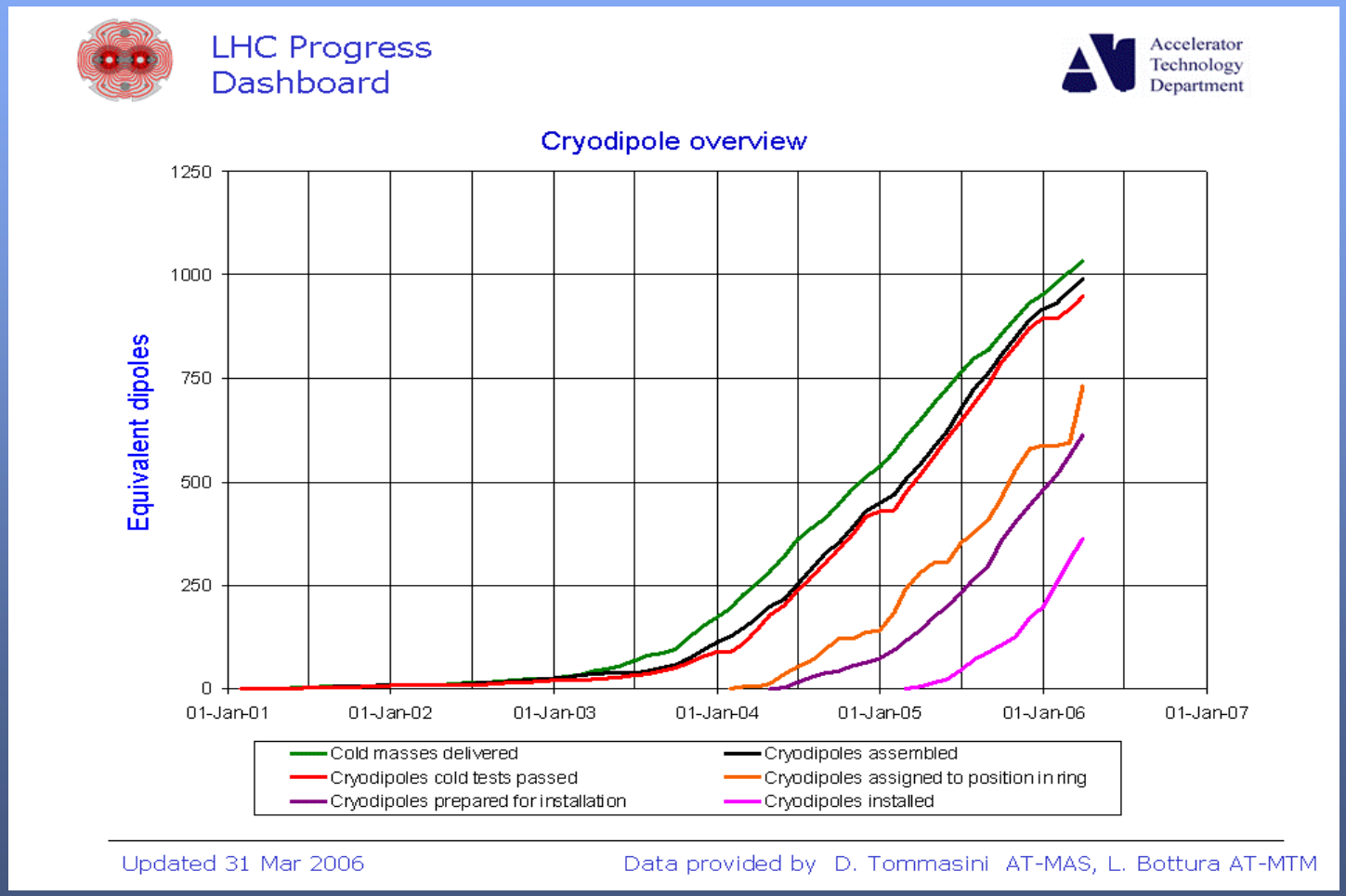
CERN, 24-26 April 2006

Dipole cold masses

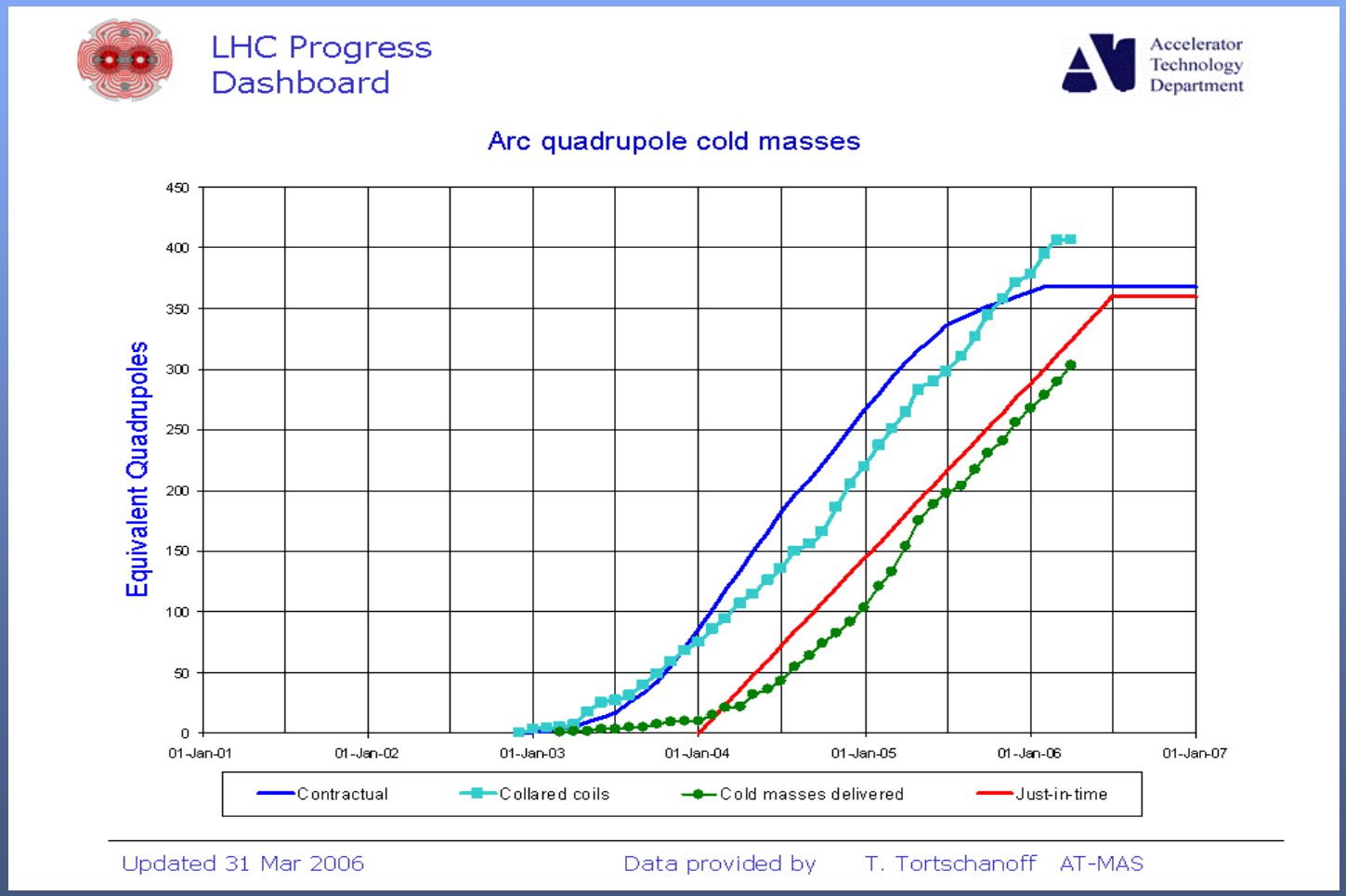


416th and last BNN dipole (November 2005)

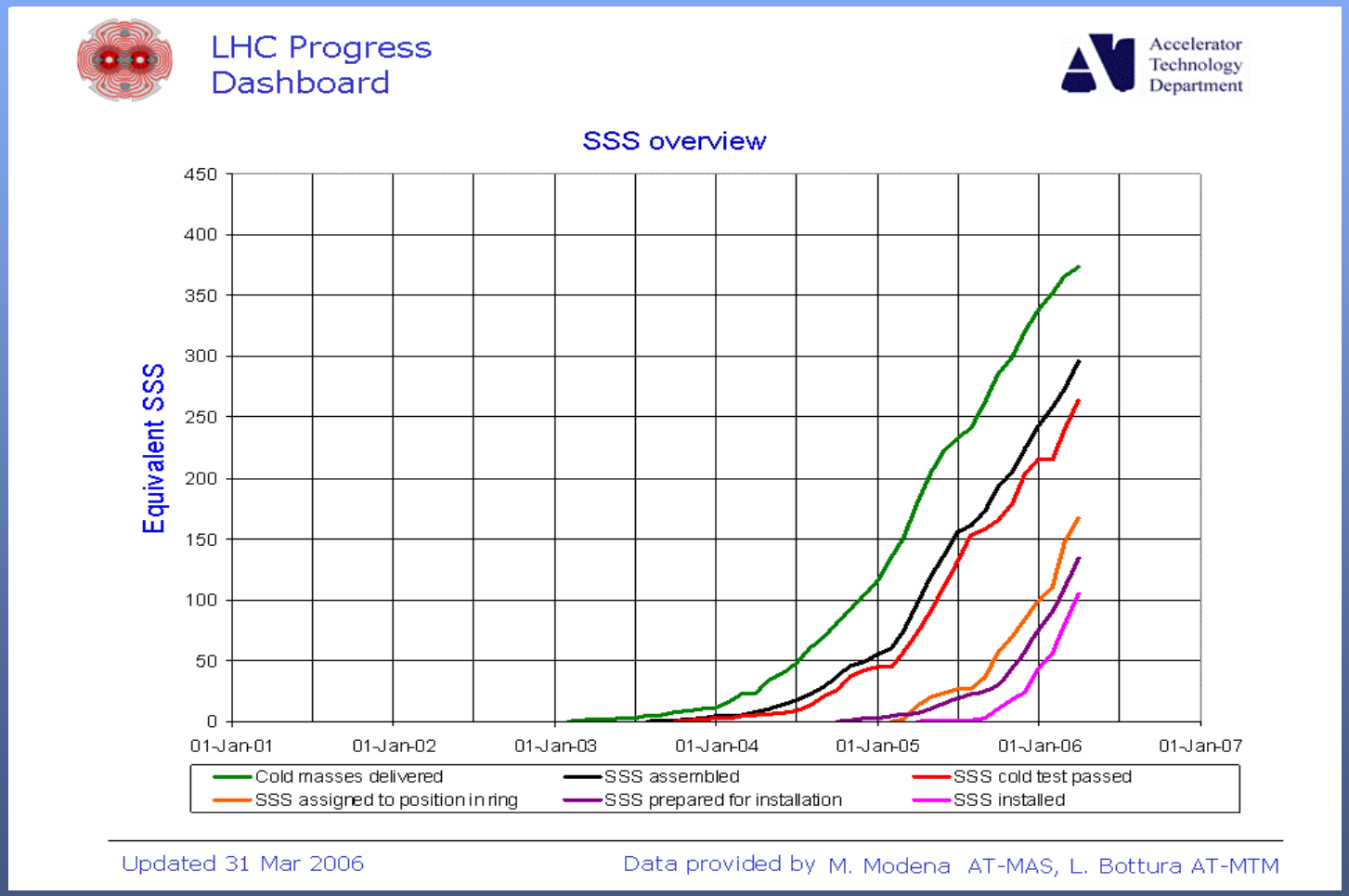
Cryodipole overview



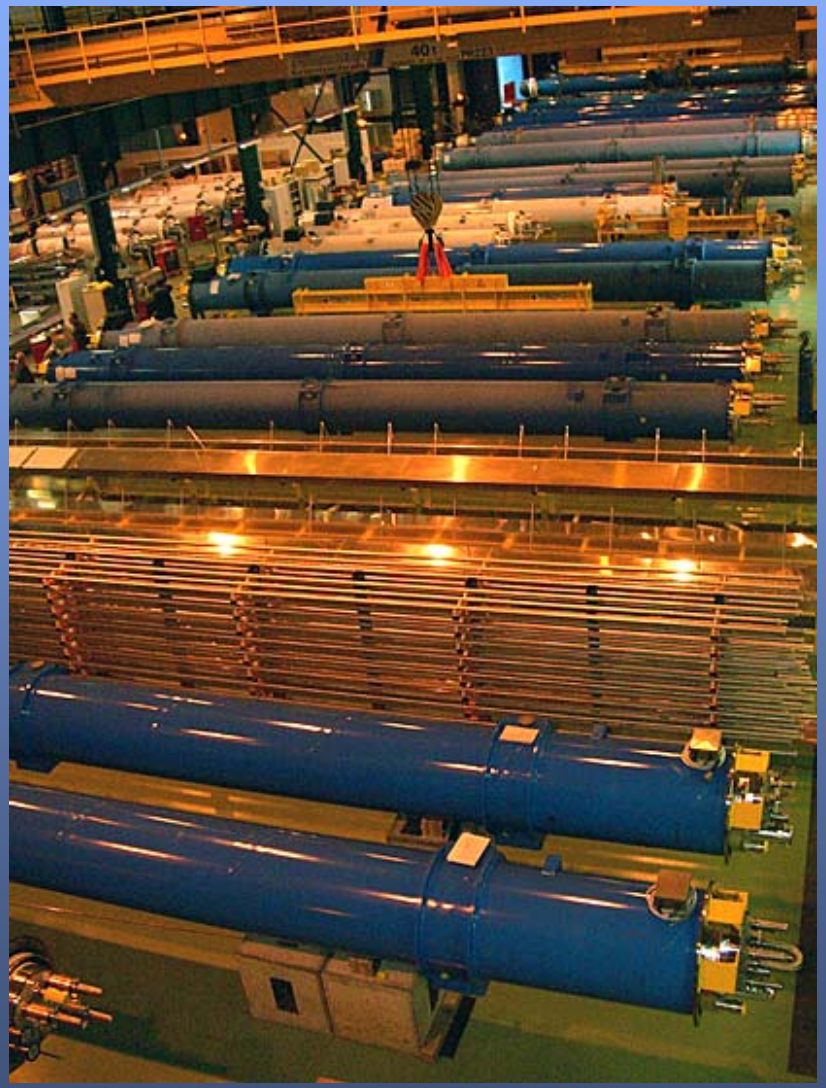
Arc quadrupole cold masses



SSS overview

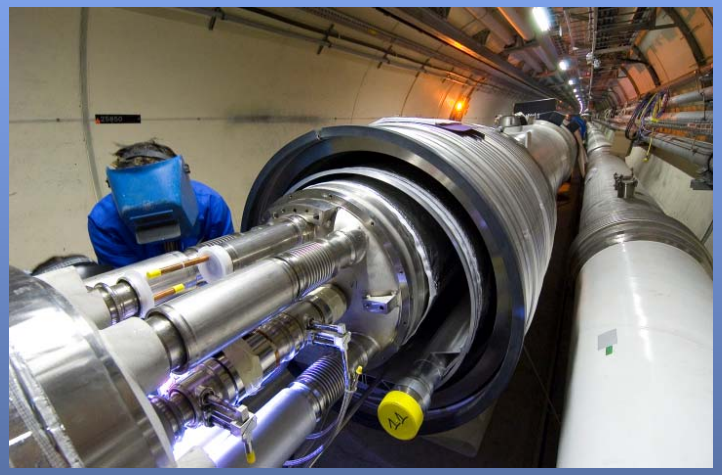


Preparation for installation in SMI2

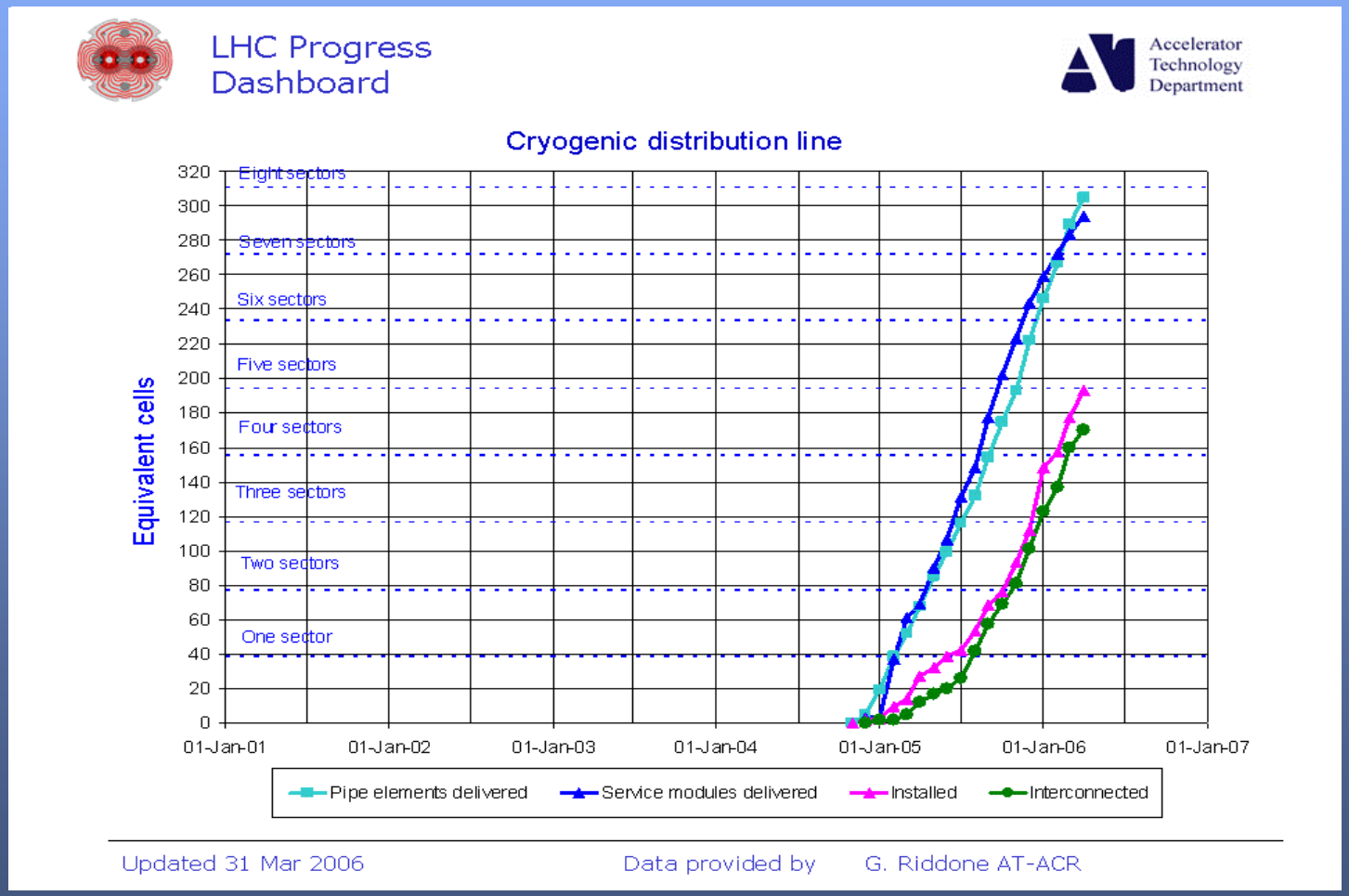


Hall SMI2

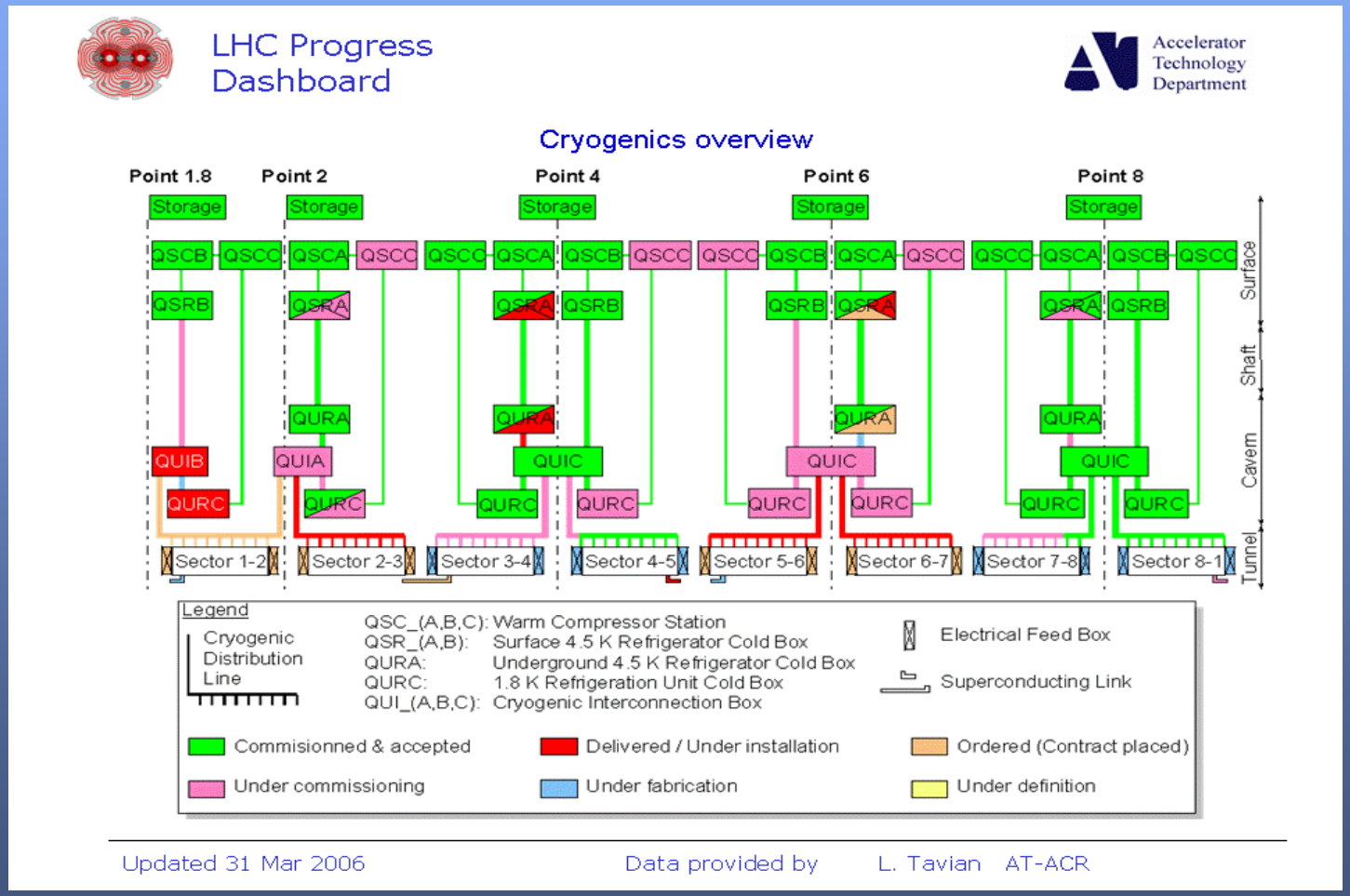
Underground



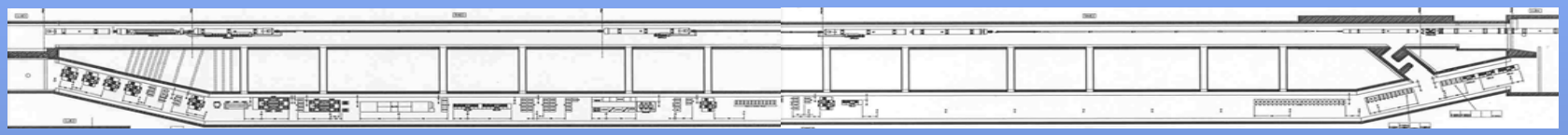
Cryogenic distribution line



Cryogenics overview



24h endurance test of all power converters in 8-left (13-14 October 2005)

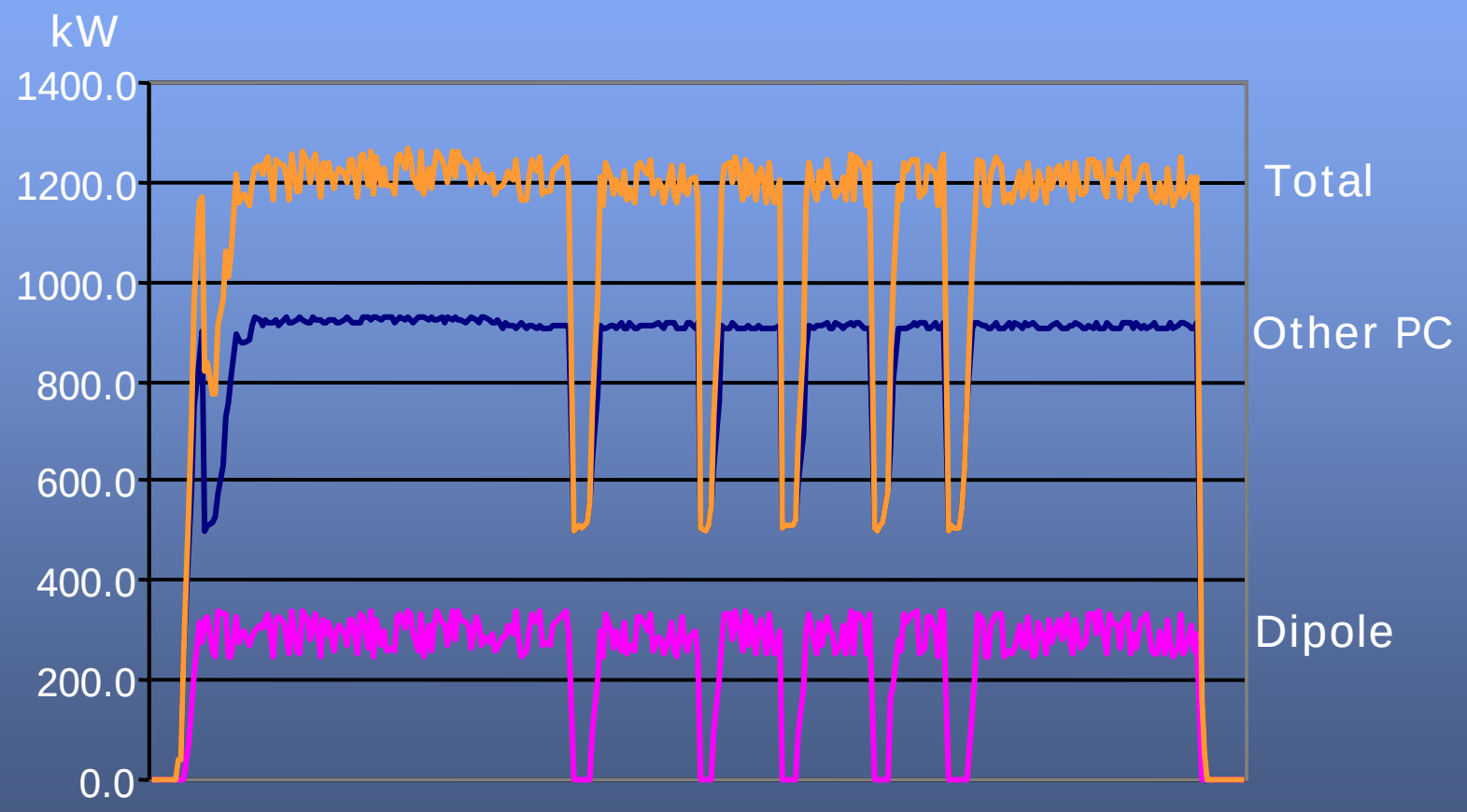


81 power converters in UA83

- ✓ 3 x 13 kA power converters
- ✓ 18 x 4 to 7 kA power converters
- ✓ 31 x 600 A power converters
- ✓ 29 x 120 A power converters

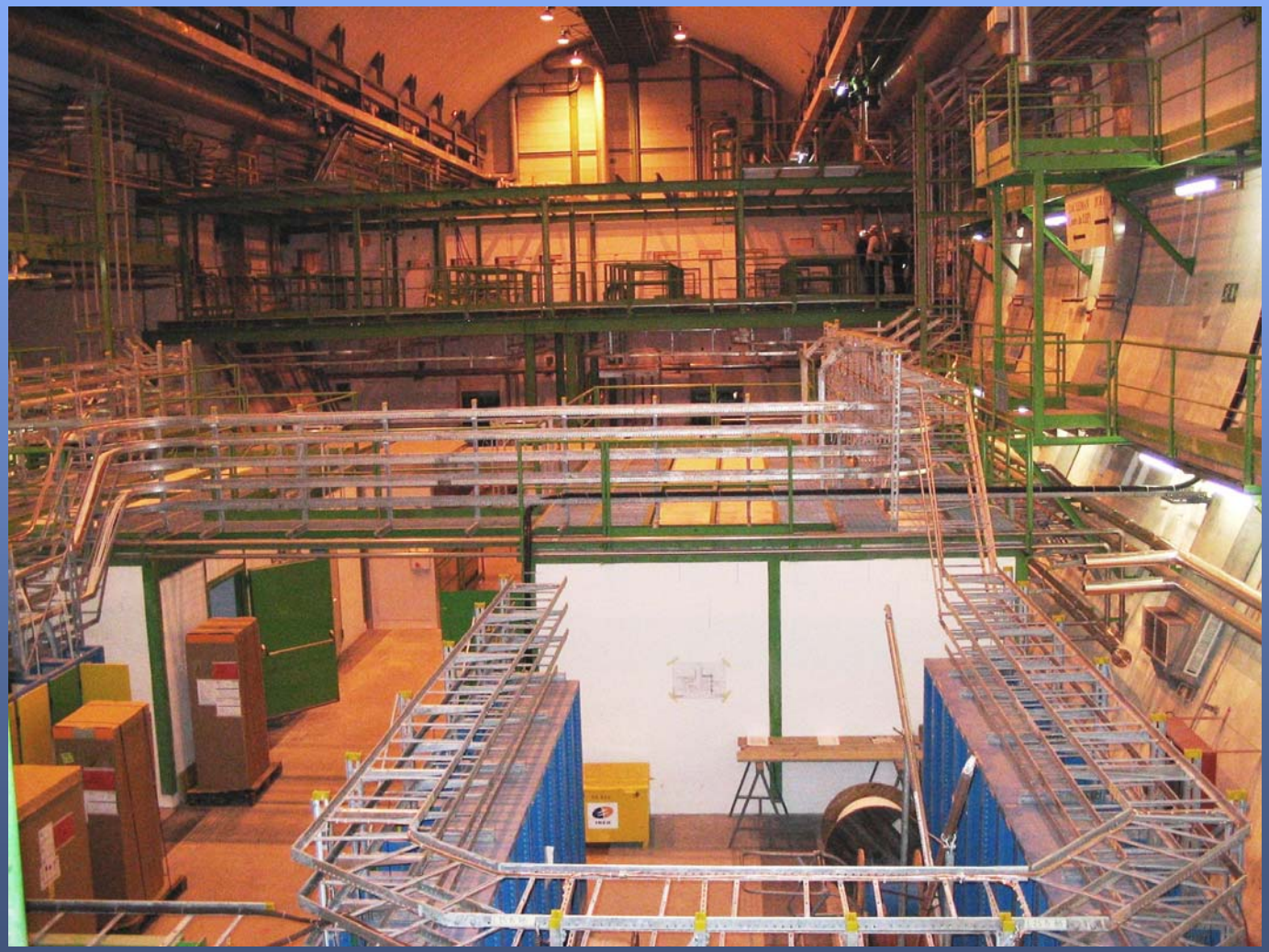
156 kA and 1.2 MW dissipated: PCs and Cables (estimation)

24h endurance test of electrical network (13-14 October 2005)

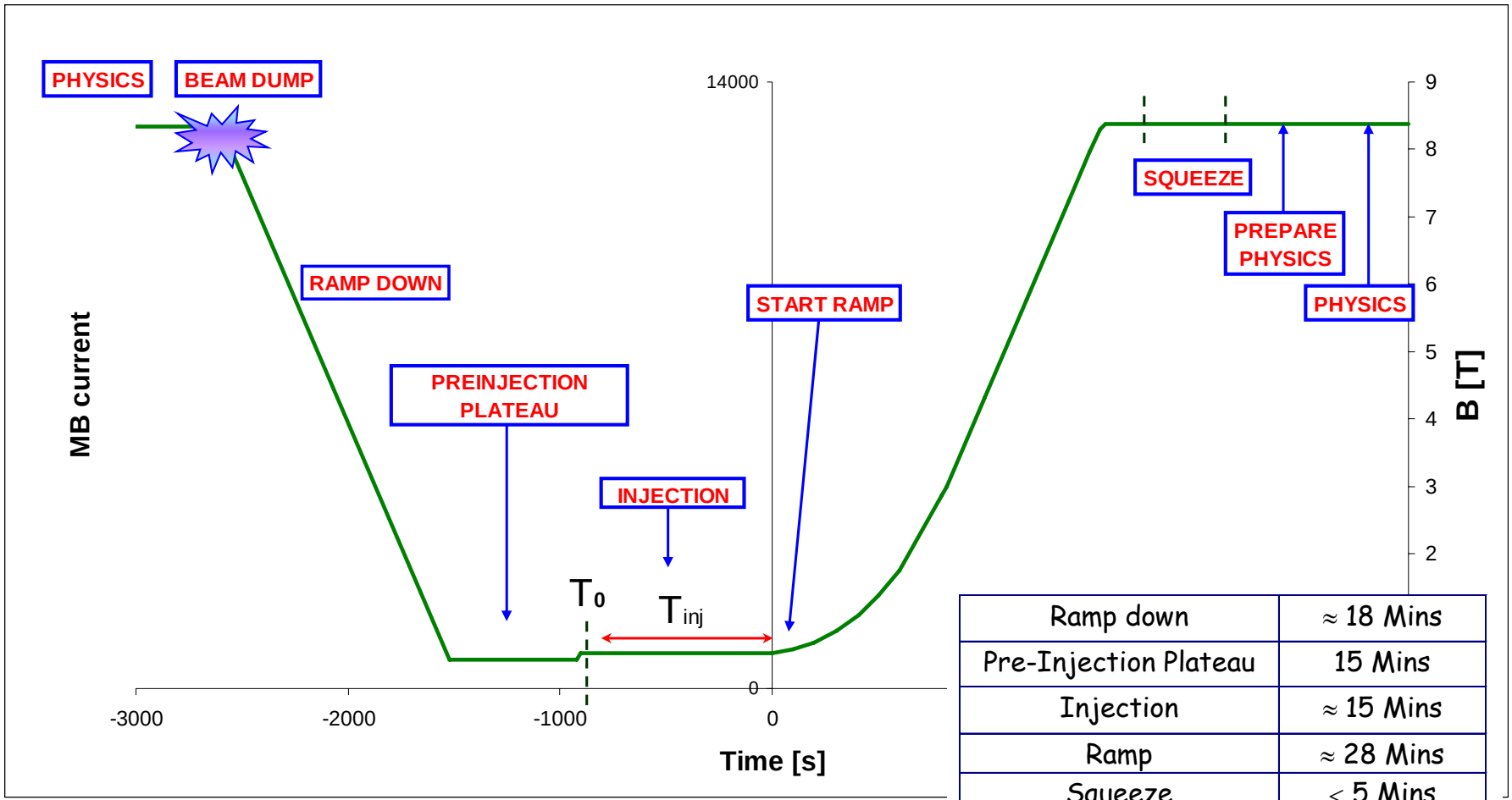


Power measured by TS-EL in SE8

Infrastructure for RF at Point 4

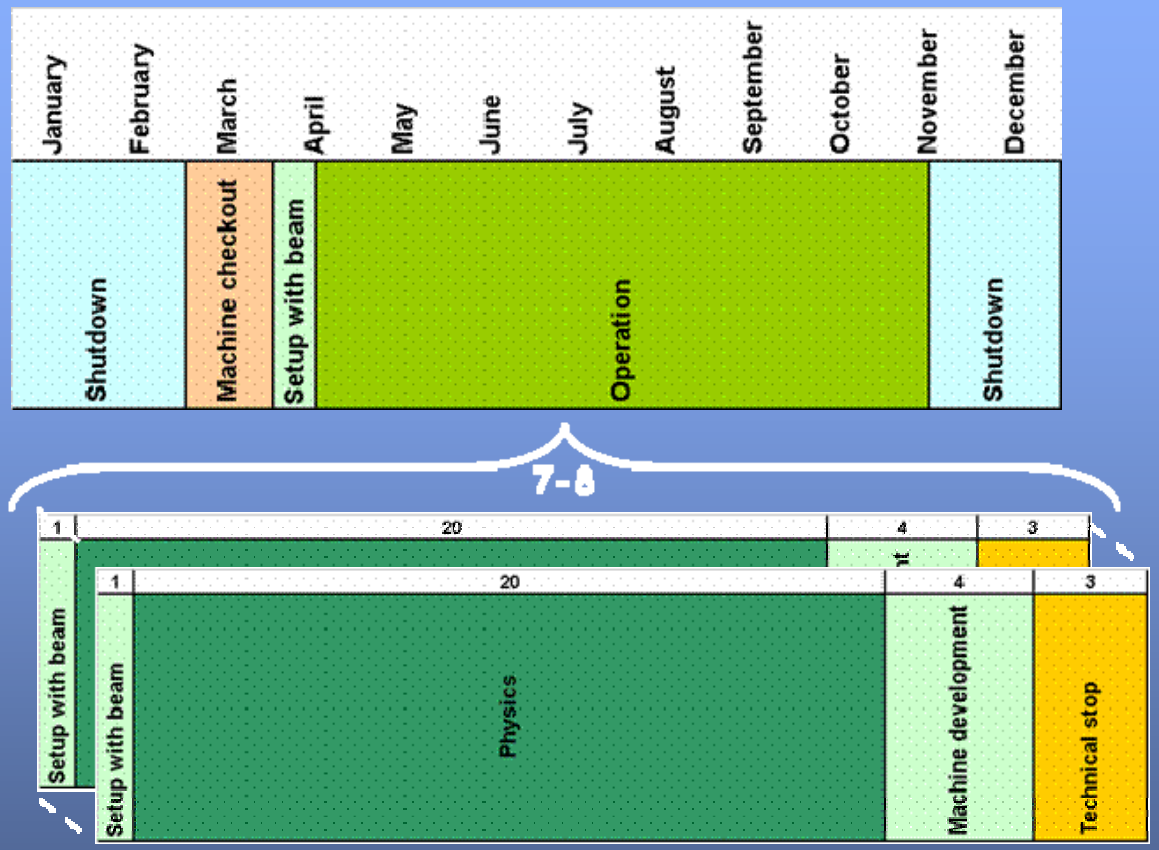


LHC operational cycle



Ramp down	≈ 18 Mins
Pre-Injection Plateau	15 Mins
Injection	≈ 15 Mins
Ramp	≈ 28 Mins
Squeeze	< 5 Mins
Prepare Physics	≈ 10 Mins
Physics	10 - 20 Hrs

Breakdown of a normal year



~ 140-160 days for physics per year
Not forgetting ion and TOTEM operation
Leaves ~ 100-120 days for proton luminosity running
? Efficiency for physics 50% ?
~ 1200 h or ~ 4 10^6 s of proton luminosity running / year

Conclusions

- All key objectives have been reached for the end of 2005.
  - End of repair of QRL, reinstallation of sector 7-8 and cold test of sub-sectors A and B.
  - Cool-down of full sector 8-1.
  - Pressure test of sector 4-5.
  - Endurance test of full octant of power converters.
- Approximately one third of the machine is now installed. Interconnect work can now proceed in two octants without interference from other activities. All effort will be made to get a colliding beam run in 2007.