Gran Sasso National Laboratory

INFN
Laboratori Nazionali del Gran Sasso

Gran Sasso National Laboratory

- Largest underground science laboratory in the world
- Three main halls 15-20x100 m^2 - 17,300 m^2 total surface
- 1400 m vertical rock coverage
- Horizontal access trough highway tunnel
- 150 km from Rome international airport

- Surface facilities: mounting hall, workshops, auditorium, conference rooms, canteen, offices

- Run by ~90 staff personnel

- International Scientific Committee acts as advisory committee for LNGS Director

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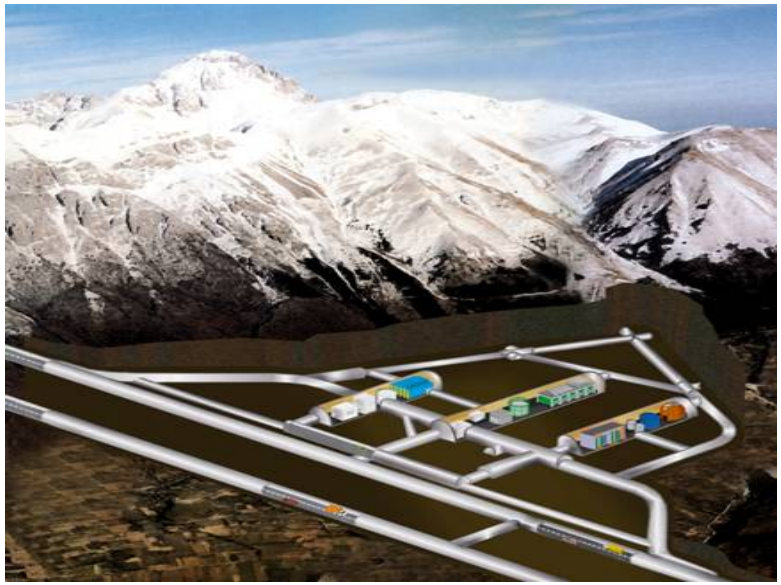
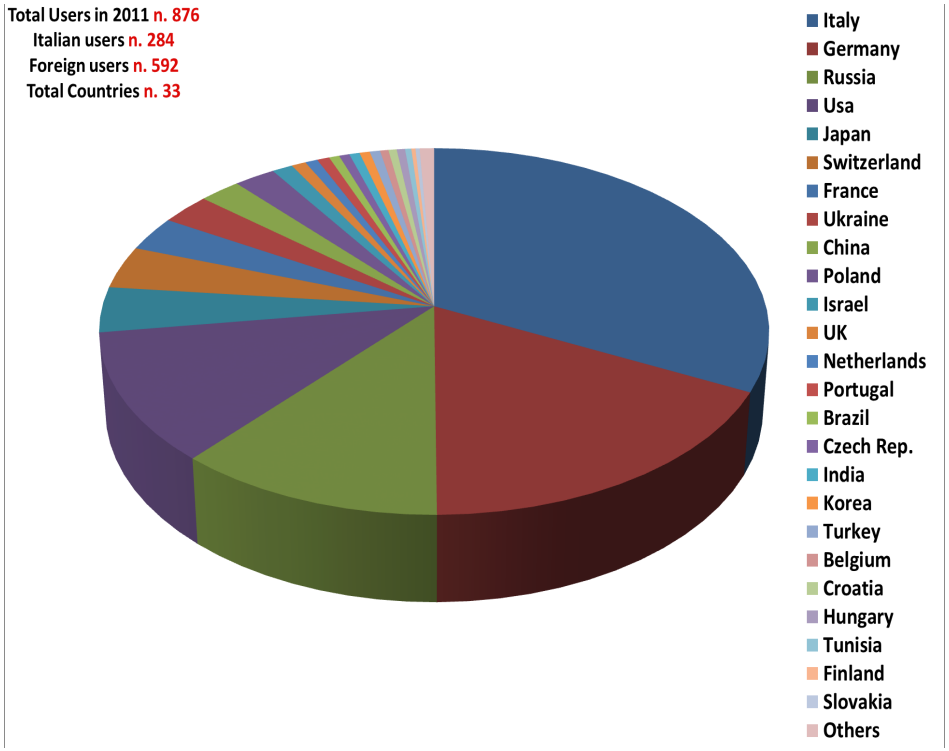
Research activities

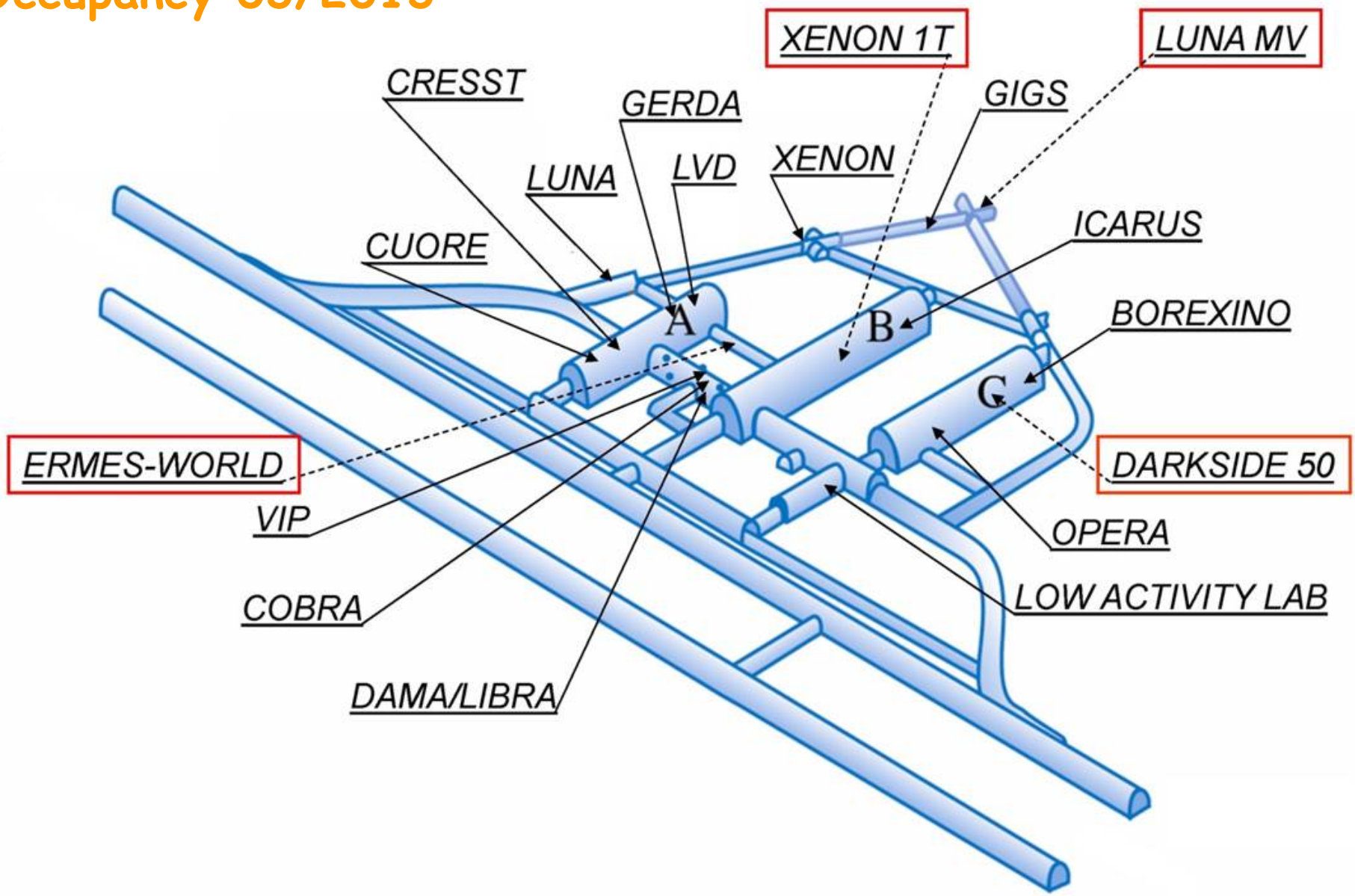
- Neutrino physics (OPERA, BOREXINO, ICARUS, LVD, GERDA, CUORE,COBRA)
- Dark matter (DAMA/LIBRA, DARKSIDE, XENON, CRESST)
- Nuclear reactions of astrophysics interest (LUNA)
- Fundamental Physics (VIP)
- Geophysics
- Biology





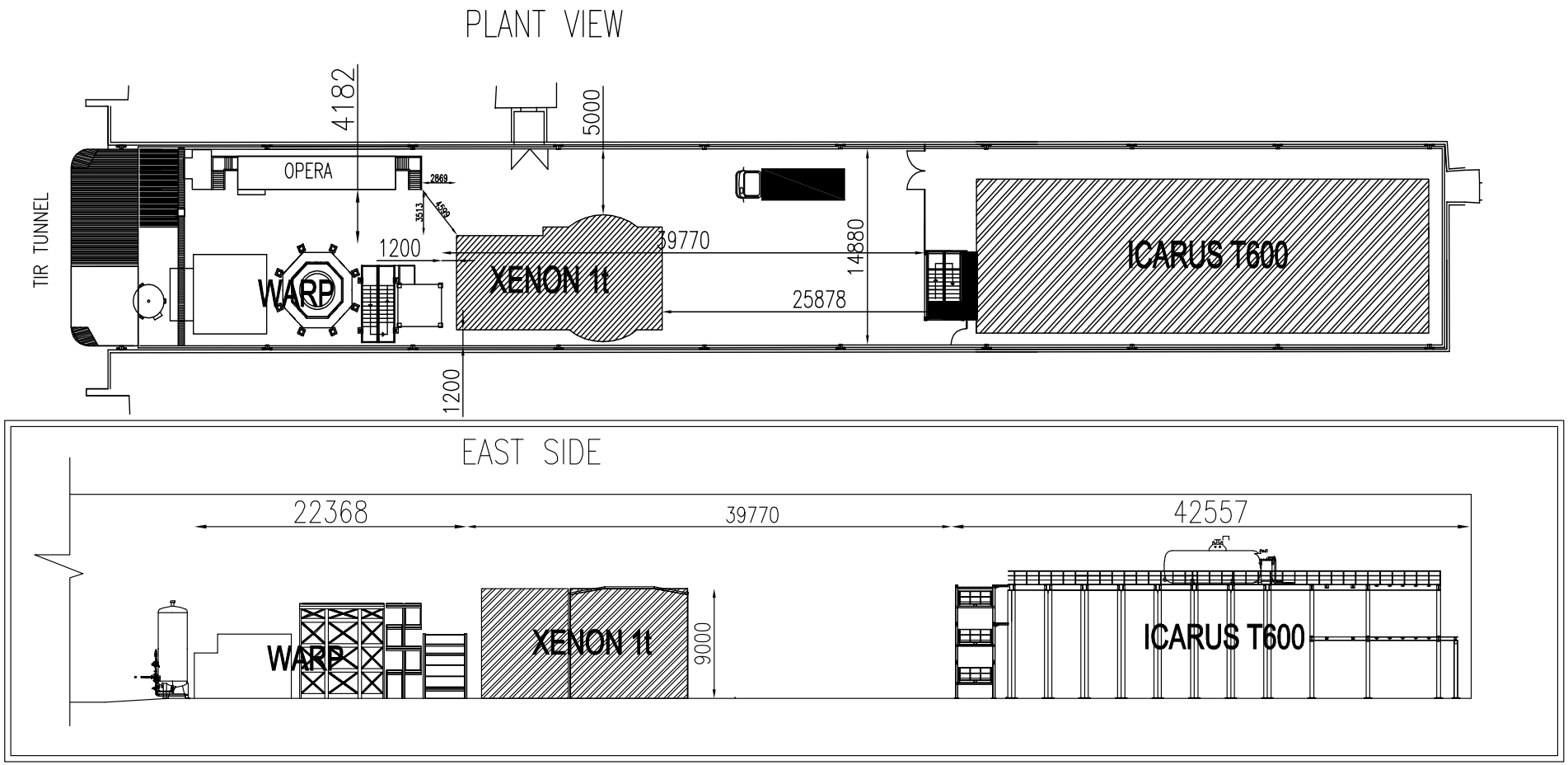
- Opening: 1987
- 1400 m rock coverage
- Muon flux = $3.0 \times 10^{-4}\ s^{-1}\ m^{-2}$
- Experimental Area = 3 halls for about 17300 m^2
- Access: horizontal through the express way tunnel

Occupancy 03/2013



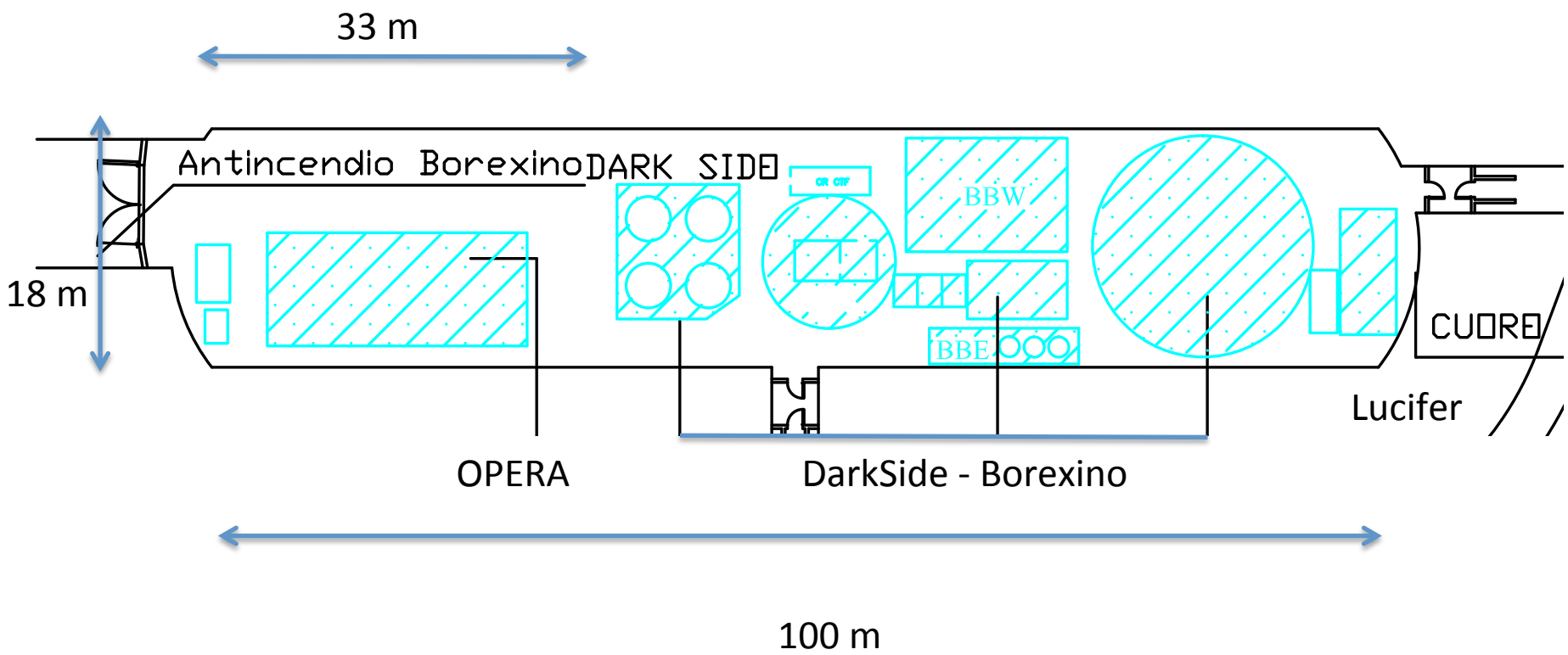
Hall b - present status

- Warp decommissioning: to be completed by June 1st 2013
- Icarus decommissioning: June 2013 -> October 2014



Hall C – present status

Opera decommissioning: start mid/end 2014 + 18 months



DM3 – Very Low Background Facility – Hall C

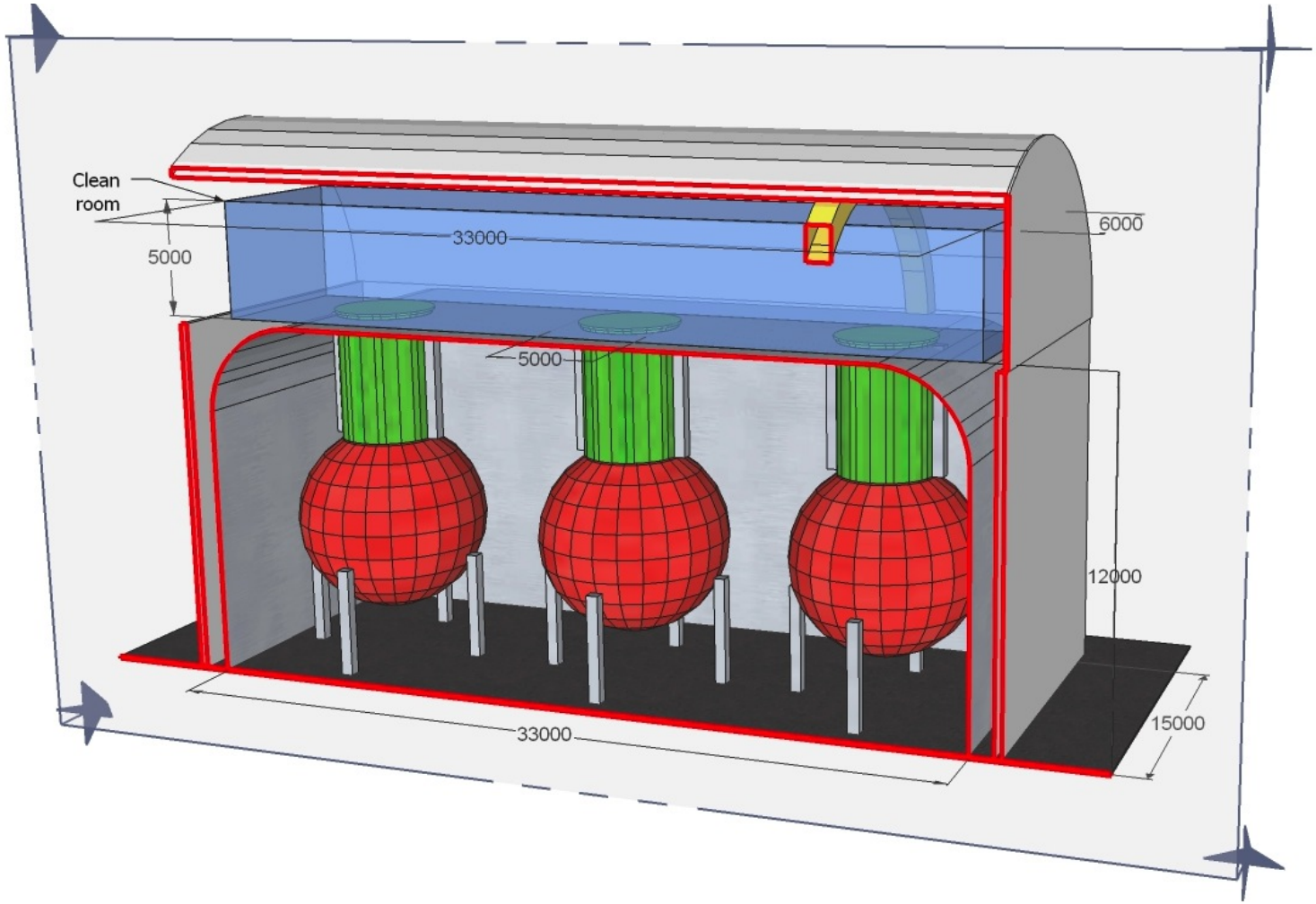


FIG. 1: *3D rendering of the water and scintillator tanks for DM3. Pale Gray: the walls of LNGS Hall C. Dark Gray: the DM3 water tank. Red: the DM3 scintillator tanks. Blue: the DM3 radon-suppressed clean rooms. Green: the chimneys allowing access from the clean room to each individual scintillator tank. Yellow: the LNGS Hall C arched crane.*

Summary - I

- HALL B:
  - Warp location available by 2nd half 2013 – 20 m
  - Icarus location available by 4th quarter 2014 -> 70 m (14.8 m wide)
- HALL C:
  - Opera location available ~ early 2016 (start of Opera decommissioning is being discussed)

Summary - II

- Proposals for next generation DBD and Dark Matter searches are encouraged
- Plenty of space is being made available for them
- US participation/initiatives are highly welcome

- Space allocation
  i. Informal contact with LNGS director
  ii. LOI – not binding
  iii. Proposal to LNGS SC