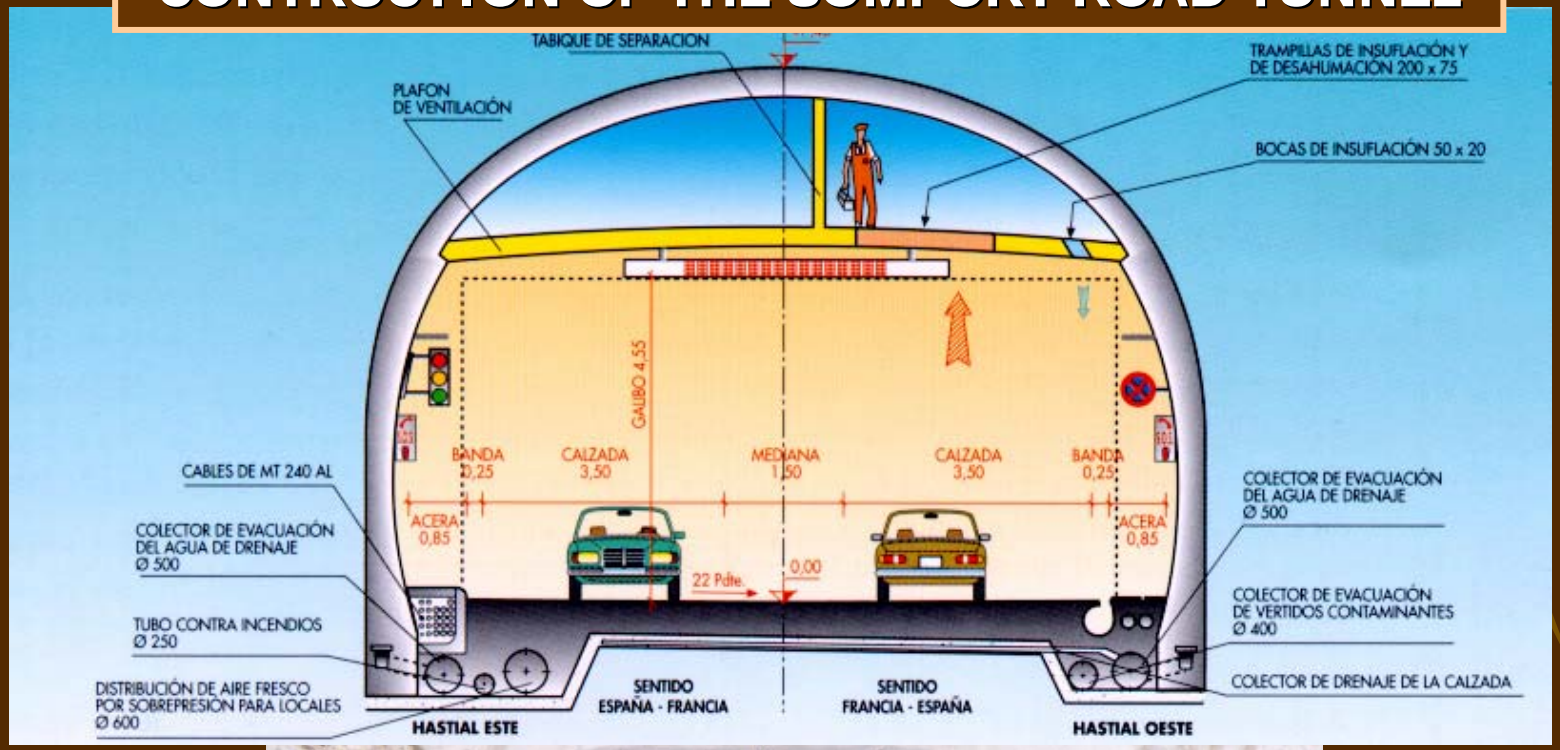
2. Status of the Laboratory today

CONTRUCTION OF THE SOMPORT ROAD TUNNEL




Angers
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Mulhouse
Zurich
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Dijon
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Vaduz
Nantes
Cholet
Tours
Nevers
Berna
Dole
SUIZA
Châtellerault
Bourges
BORGOÑA
Lausana
Bolzano
La Roche-sur-Yon
Poitiers
CENTRO
Moulins
Ginebra
Monte Cervino
4478 m
La Rochela
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OCÉANO
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Angulema
Clermont-Ferrand
Lyon
Aosta
Milán
Brescia
LEMOSÍN
FRANCIA
Périgueux
St.-Étienne
Piacenza
Ferrara
Mar Cantábrico
Burdeos
Dordoña
Turín
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Aurillac
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ITALIA
AQUITANIA
Cahors
Montelimar
Gap
Piedras
Blancas
(Castrillón)
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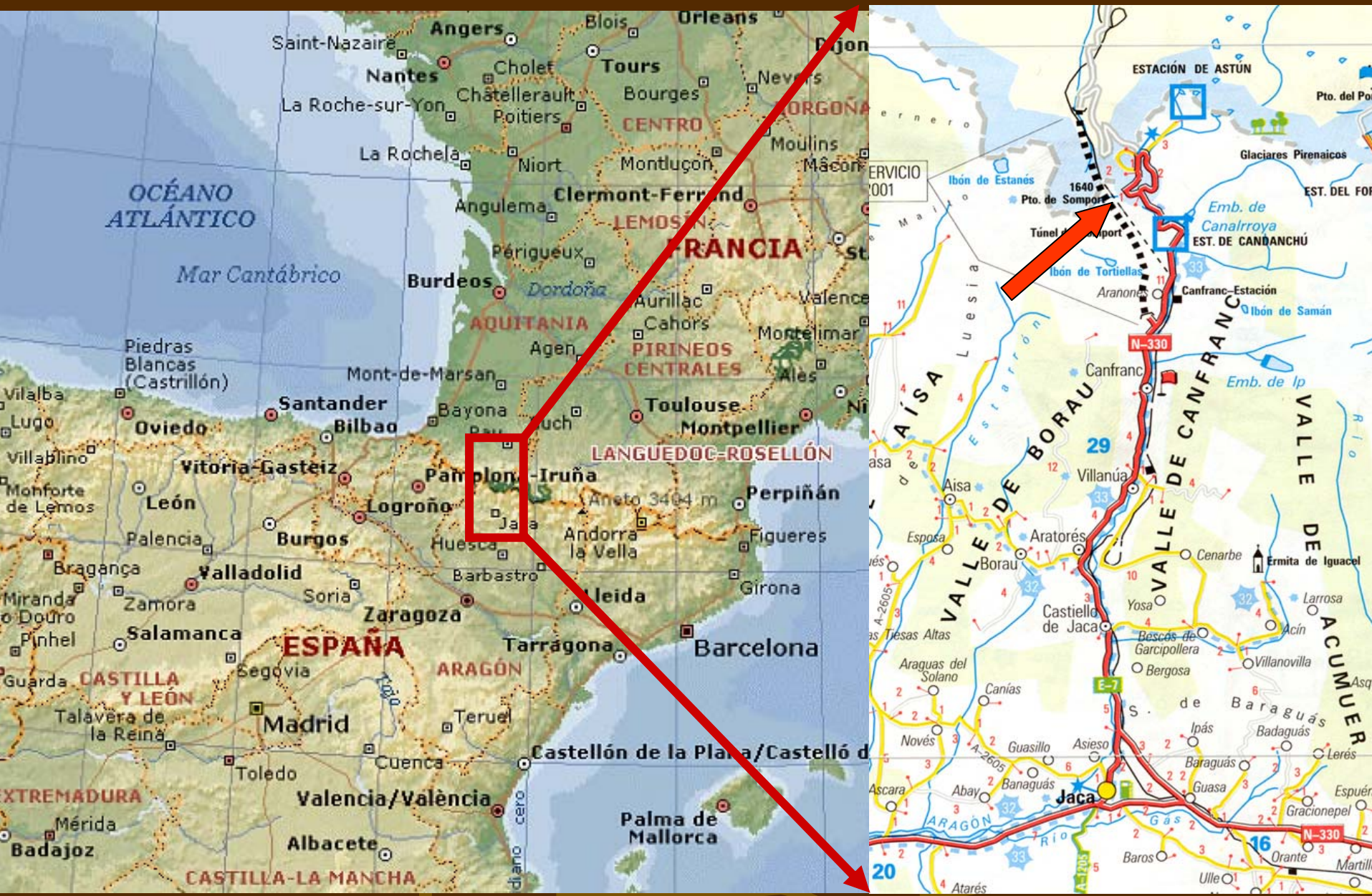
PIRINEOS
CENTRALES
Pistoia
Forlí
La Spezia
Mont-de-Marsan
Alès
Aviñon
Imperia
Mar de Florencia
Vilalba
Santander
Bayona
Toulouse
Nîmes
Mónaco
Liguria
Lugo
Oviedo
Bilbao
Pau
Auch
Montpellier
Marsella
TOSCANA
Villablino
LANGUEDOC-ROSELLÓN
Vitoria-Gasteiz
Pamplona-Iruña
Tolón
Monforte
de Lemos
León
Logroño
Aneto 3404 m
Perpiñán
Bastia
Jaca
Palencia
Burgos
Andorra
la Vella
Figueres
Bragança
Valladolid
Barbastro
Ajaccio
Miranda
o Douro
Zamora
Soria
Girona
Zaragoza
Lleida
Pinhel
Salamanca
ESPAÑA
Tarragona
Barcelona
Guarda
CASTILLA
Y LEÓN
Segovia
ARAGÓN
Sassari
Mar Tirren
Talavera de
la Reina
Madrid
Teruel
Castellón de la Plana/Castelló de la Plana
Toledo
Cuenca
CERDEÑA
EXTREMADURA
Valencia/València
CERDEÑA
Mérida
Palma de
Mallorca
Cagliari
Badajoz
Albacete
CASTILLA-LA MANCHA
Mar Mediterráneo


Angers
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Bourges
La Roche-sur-Yon
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Niort
Montluçon
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OCÉANO ATLÁNTICO
Clermont-Ferrand
Angulema
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PIRINEOS CENTRALES
Piedras Blancas (Castrillón)
Mont-de-Marsan
Santander
Bayona
Toulouse
Oviedo
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Montpellier
LANGUEDOC-ROSELLÓN
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Soria
Lleida
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Salamanca
ESPAÑA
Tarragona
Barcelona
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ARAGÓN
CASTILLA Y LEÓN
Madrid
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Talavera de la Reina
Castellón de la Plana/Castelló d
Toledo
Cuenca
EXTREMADURA
Valencia/València
Mérida
Palma de Mallorca
Badajoz
Albacete
CASTILLA-LA MANCHA
ESTACIÓN DE ASTÚN
Glaciares Pirenaicos
Ibón de Estanés
1640
Pto. de Somport
Emb. de Canalrroya
EST. DE CANDANCHÚ
Ibón de Tortiellas
Canfranc-Estación
Ibón de Samán
N-330
Canfranc
Emb. de Ip
VALLE DE BORAU
VALLE DE CANFRANC
VALLE DE ACUMUER
29
Villanúa
Aisa
Aratorés
Esposa
Borau
Cenarbe
Ermita de Iguacel
Castiello de Jaca
Yosa
Larrosa
Bescós de Garcipollera
Villanovilla
Araguas del Solano
Bergosa
Canías
E-7
Ipás
Badaguás
Novés
Guasillo
Asieso
Baraguás
Lerés
Ascara
Abay
Banaguás
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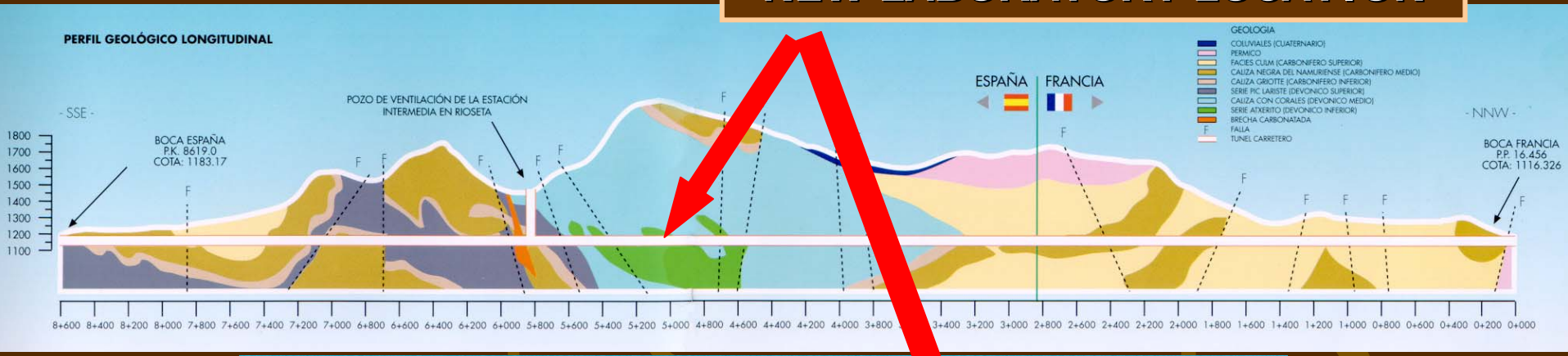
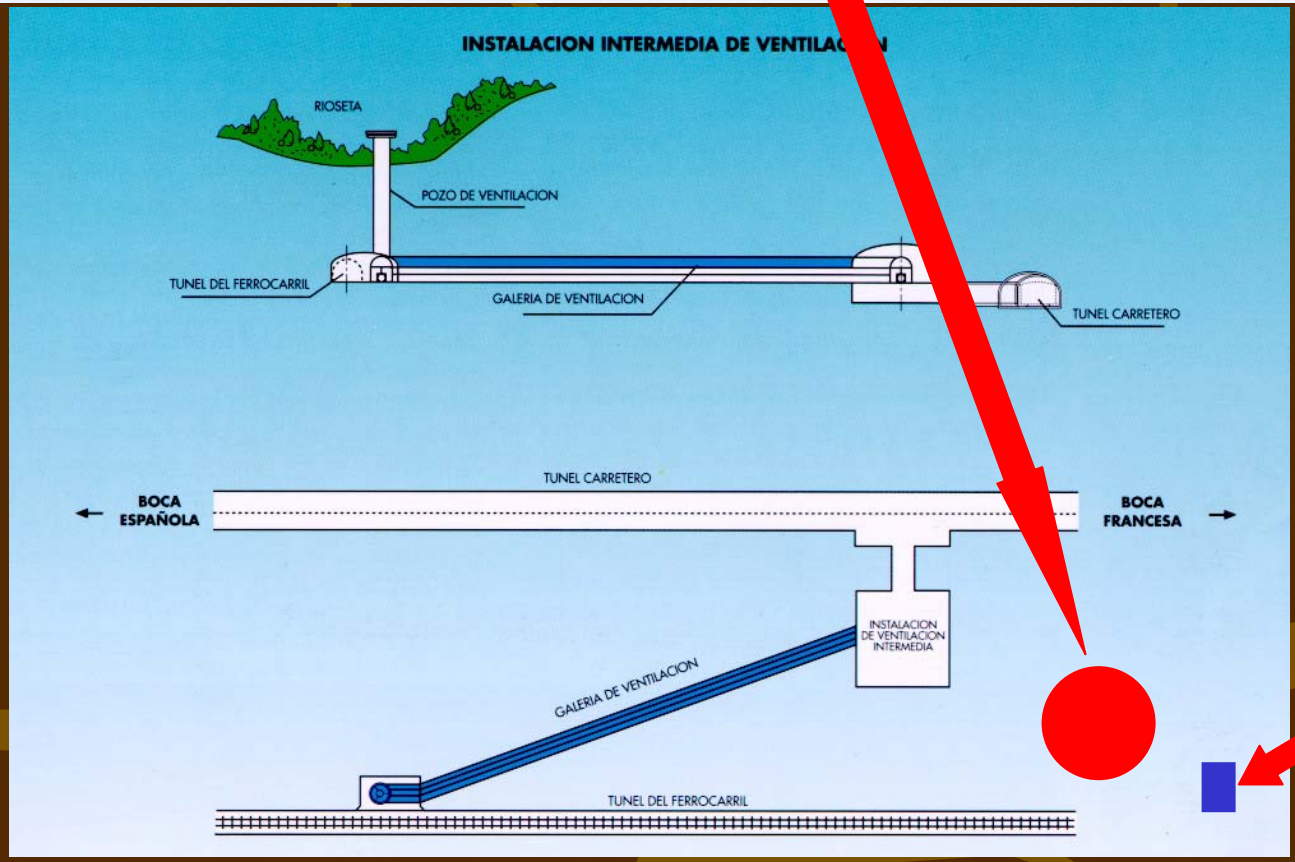
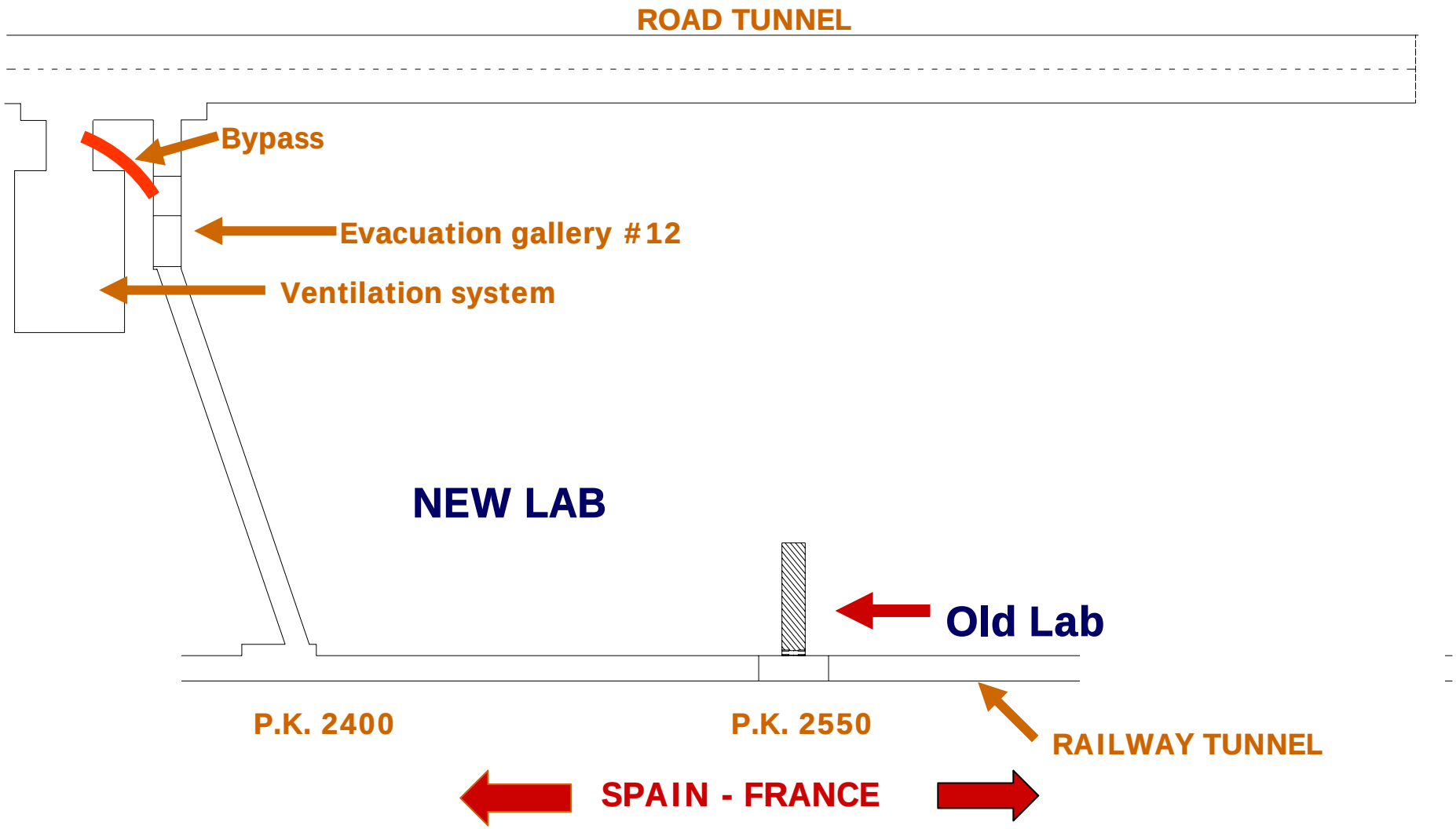
20
Ulle
Atarés

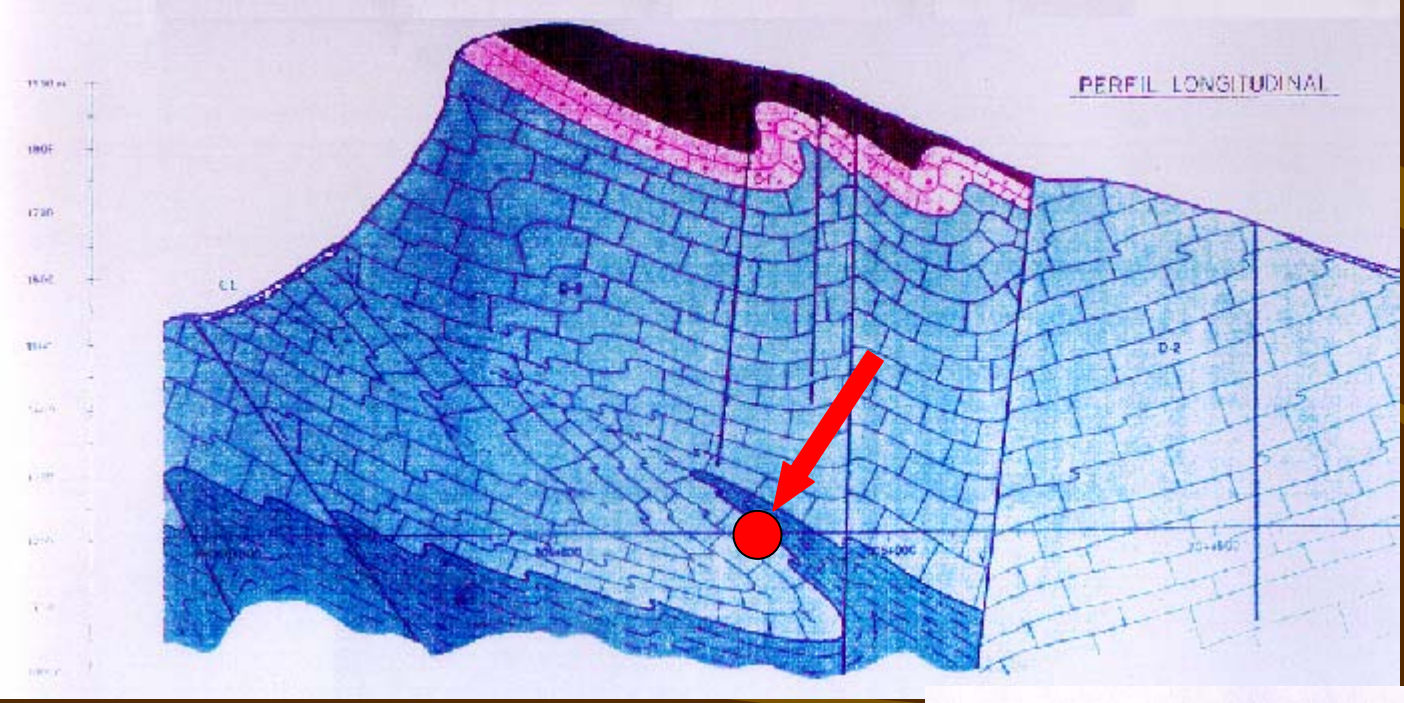
NEW LABORATORY LOCATION

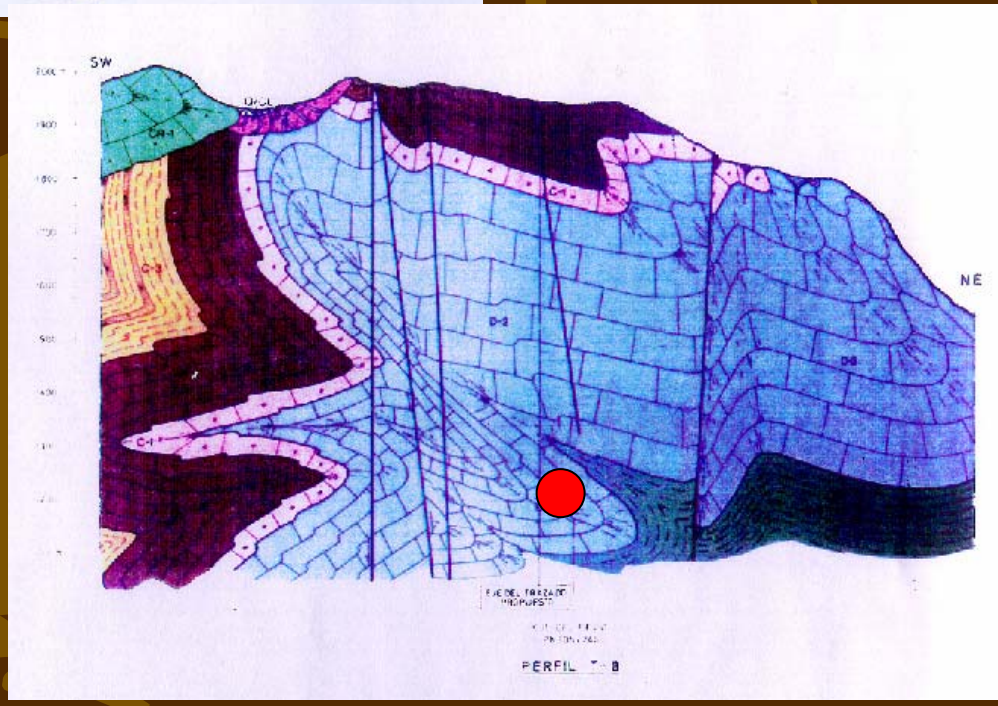




NEW LABORATORY LOCATION




PERFIL LONGITUDINAL
C.L.
D-1
D-2


SW
NE
C-1
D-2
PERFIL

(data from old Laboratory)

LSC EXPERIMENTAL PARAMETERS

Depth : ~ 2500 meters of water equivalent (m.w.e.)

Composition of the rock and average density: limestone, mainly calcium carbonate, $\rho \sim 2.7$ g/cm^3 plus traces of quartz, $\rho \sim 2.6$ g/cm^3

Muon flux: $\phi_\mu = 2.5 \times 10^{-7}$ μ/cm^{2}s

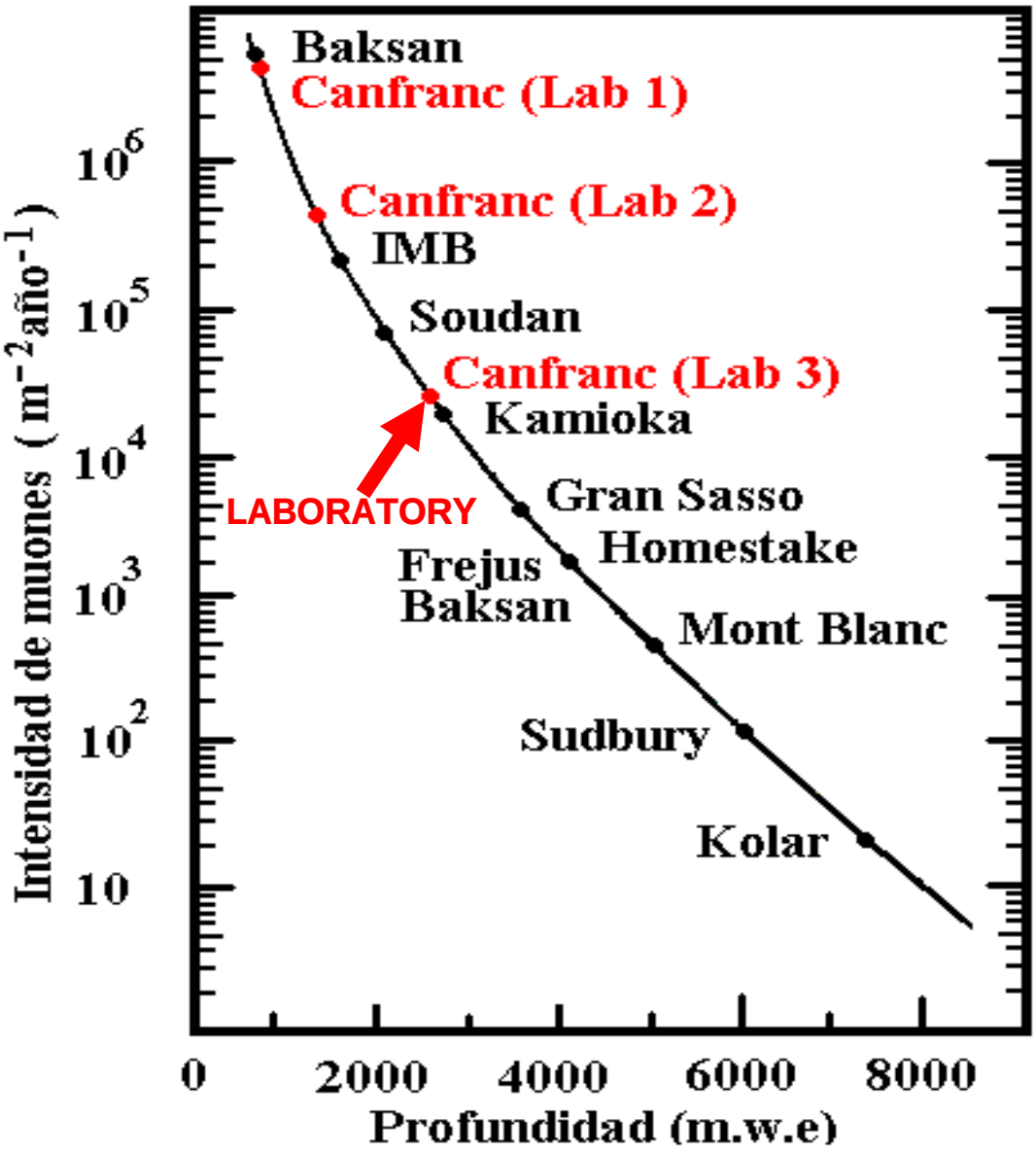
Radon: Variable, 50-100 Bq/m^3 $\rightarrow$ (5-20)

Ambient photon flux: $\phi_\gamma \sim 2 \times 10^{-2}$ γ/cm^{2}s

Neutrons: $\phi_n \sim$ a 3.8 x 10^{-6} n/cm^{2}s (from different sources)

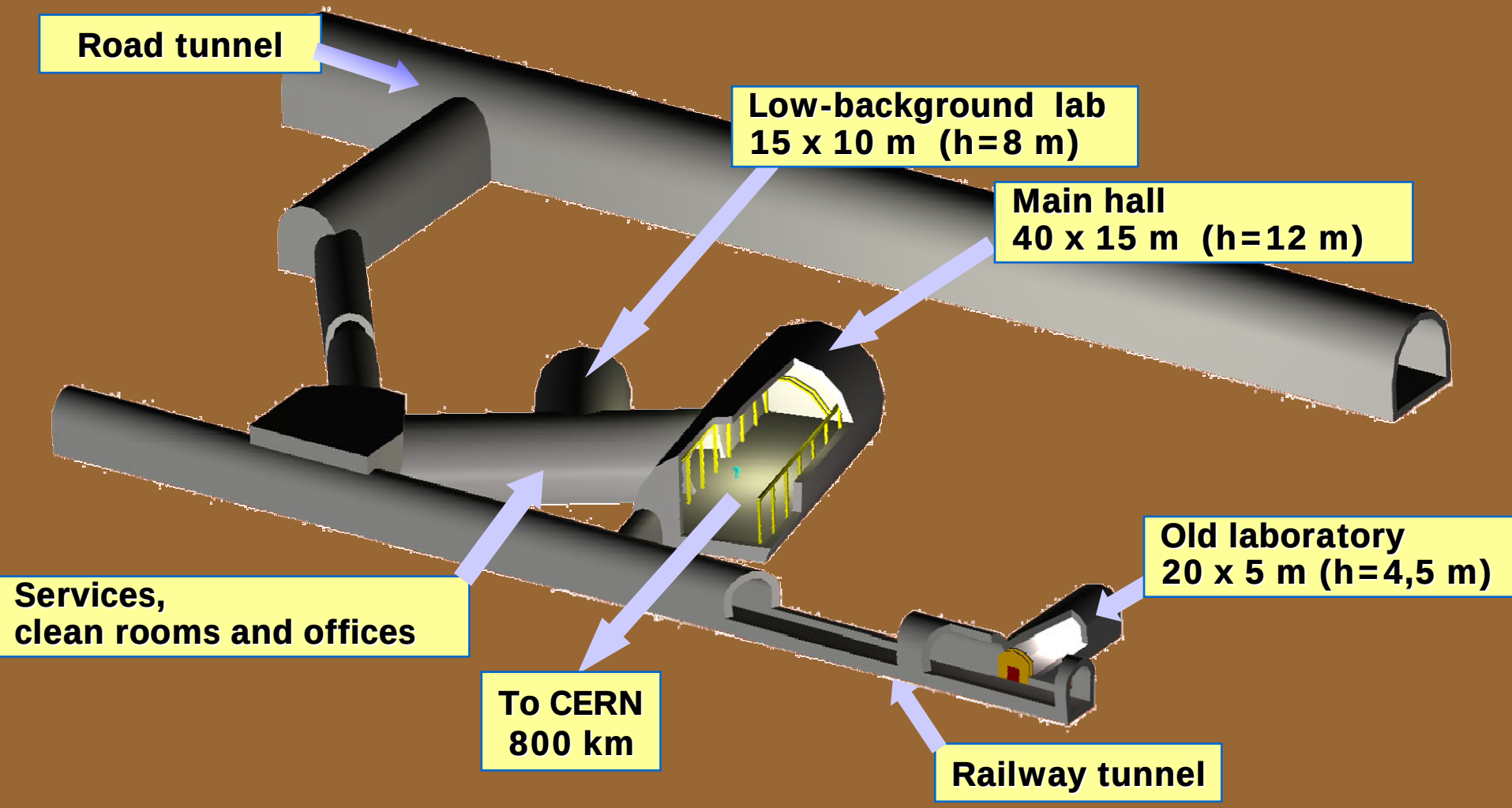
J. M. Carmona et al. Astr Phys. 21 (2004) 523

Characterization on going...


Baksan
Canfranc (Lab 1)
Canfranc (Lab 2)
IMB
Soudan
Canfranc (Lab 3)
Kamioka
LABORATORY
Gran Sasso
Homestake
Frejus
Baksan
Mont Blanc
Sudbury
Kolar
Intensidad de muones (m^{-2}año^{-1})
10^6
10^5
10^4
10^3
10^2
10
0
2000
4000
6000
8000
Profundidad (m.w.e)

LABORATORY ENTRANCE

LABORATORY SCHEMATIC VIEW



INDEPENDENT ACCESS TO THE LAB

- By-Pass : 18 m x 4.5 m x 3.5 m
  two 3 m x 3 m RF120 ports (& 2 m x 0,8 m pedestr.)
  connecting with 90 m access gallery (evacuation #12)

LSC MAIN CHARACTERISTICS

- HALL A :

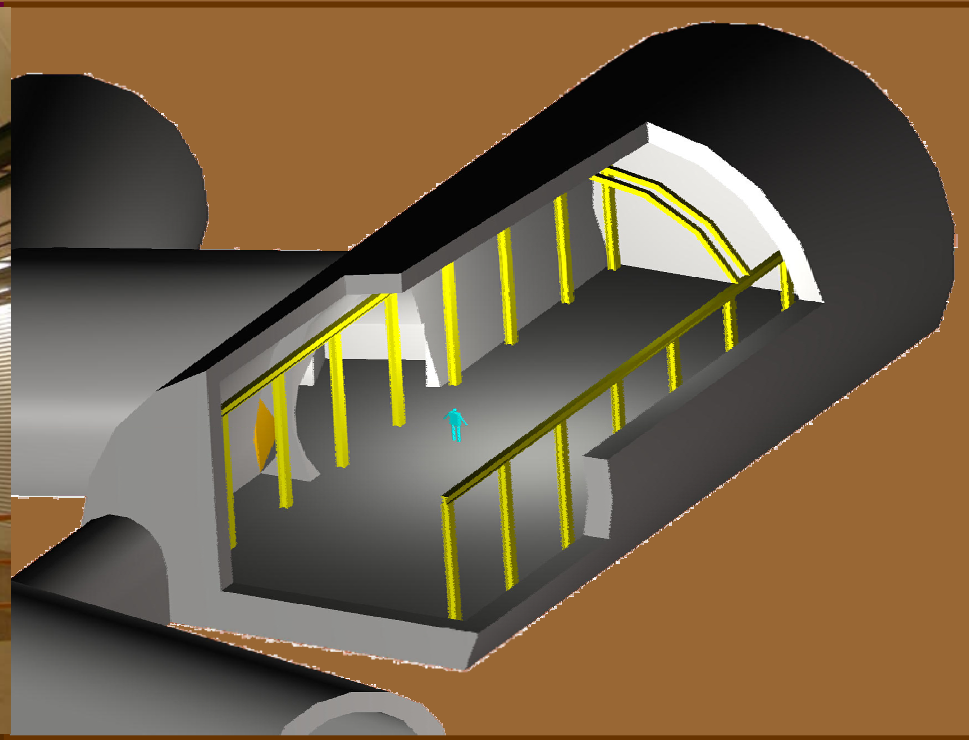
  600 m^2, 40 m x 15 m, 12 m high. (s: 142 m^2, v: 5760 m^3)

  10T overhead crane

  floor: 25 cm concrete;

  wall: 20 cm concrete + polyethylene + steel plate;

  main axis oriented to CERN (800 km);

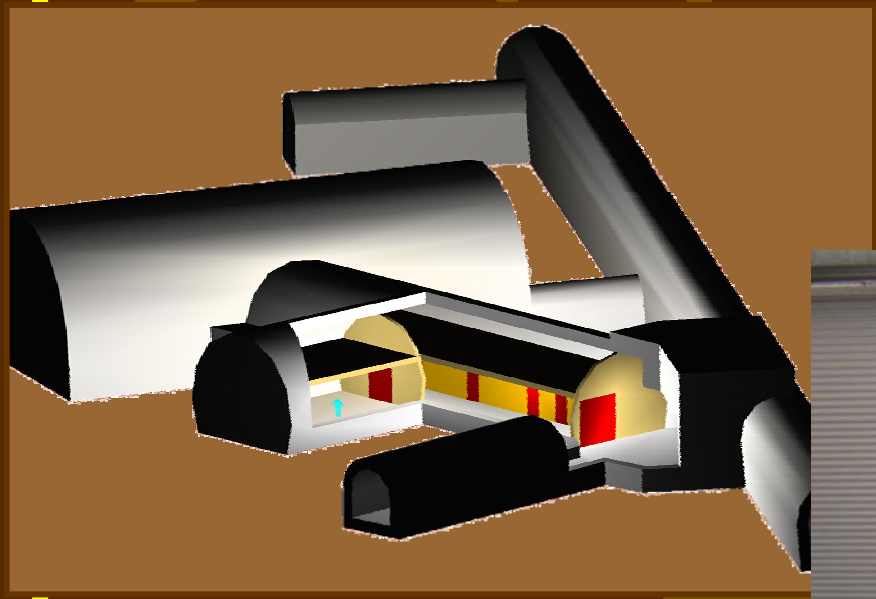



6m 105


INDUSTRIAS AJUSCAL, S.L.
10 Tn
DRAGADOS
DRAGADOS

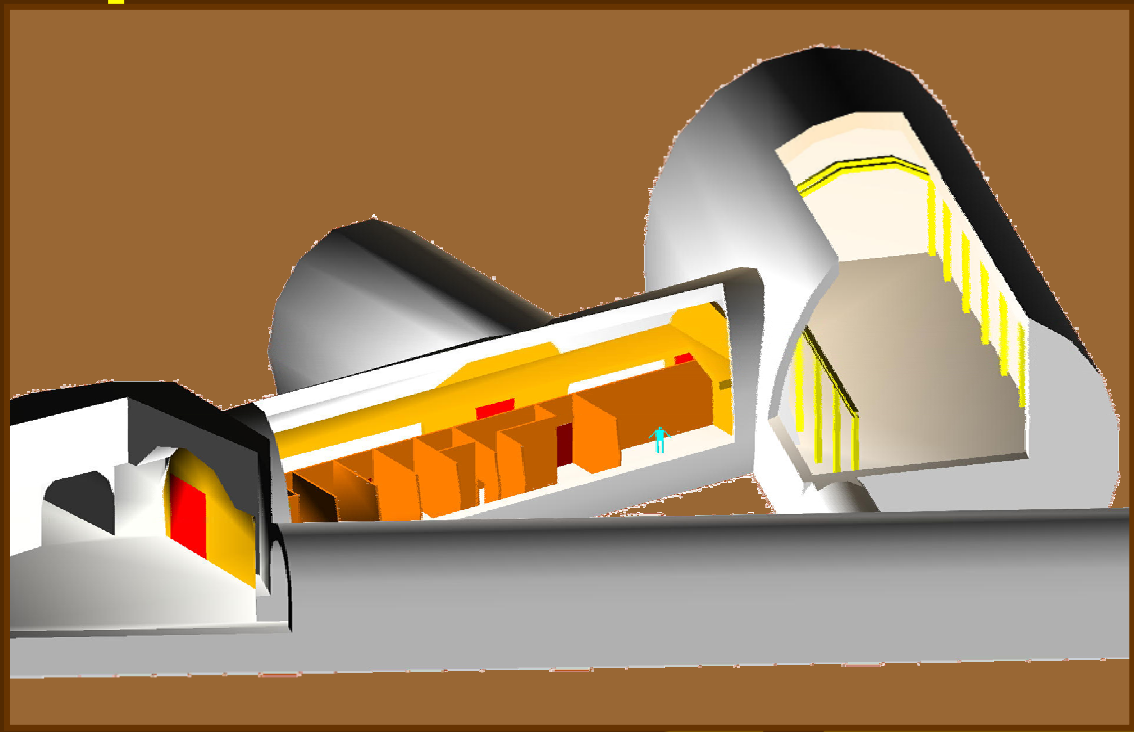
LSC MAIN CHARACTERISTICS

- **HALL B :**
  100+50 m², 10+5 m x 10 m, 8 m high. (s:67 m², v: 998 m³)



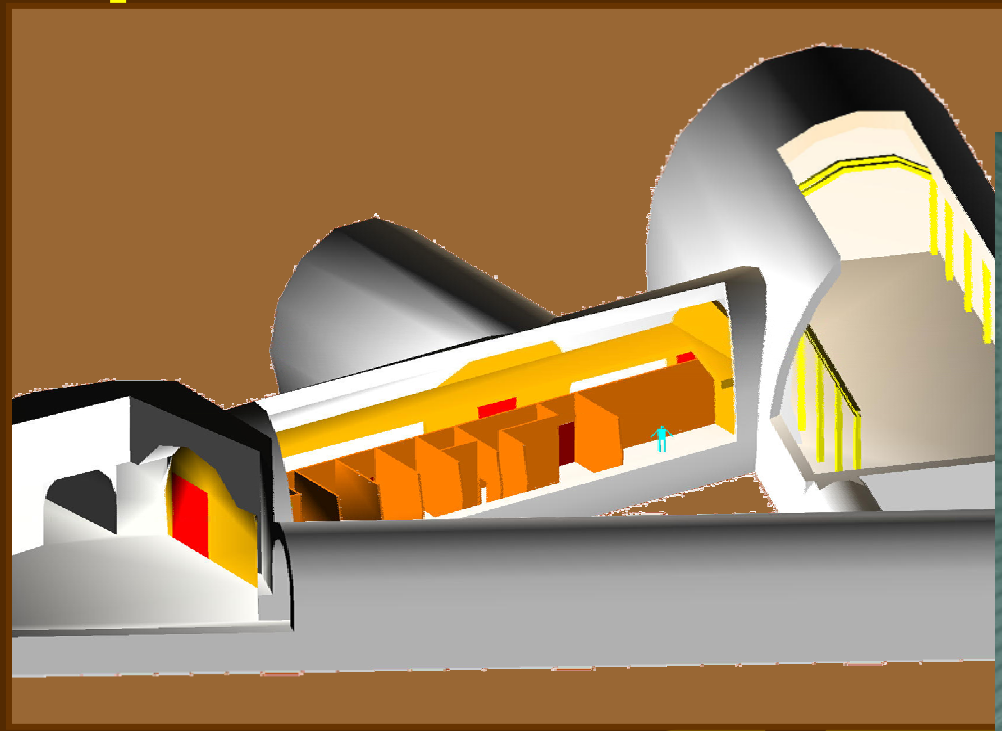
LSC MAIN CHARACTERISTICS

- **CLEAN ROOM (10000):**
  - **41 m^2 3m high; (12 m^2 $\rightarrow$ 1000)**
    - **specific air treatment: 5100 m^3/h, P=1103 pa**
    - **HEPA filters (mpps > 99,995%) + charcoal**



LSC MAIN CHARACTERISTICS

- **Gallery : 36 m x 10 m x 7,5 m**
  - **Main door: 4 m x 4 m RF120 (& 2 m x 1.2 m pedestrian)**
  - **Access to Hall A: 36 m x 4 m x 4 m**
  - **General services: 36 m x 4 m x 4 m**
  - **Mezzanine (Offices...): 17.5 m x 6.8 m x 3 m**



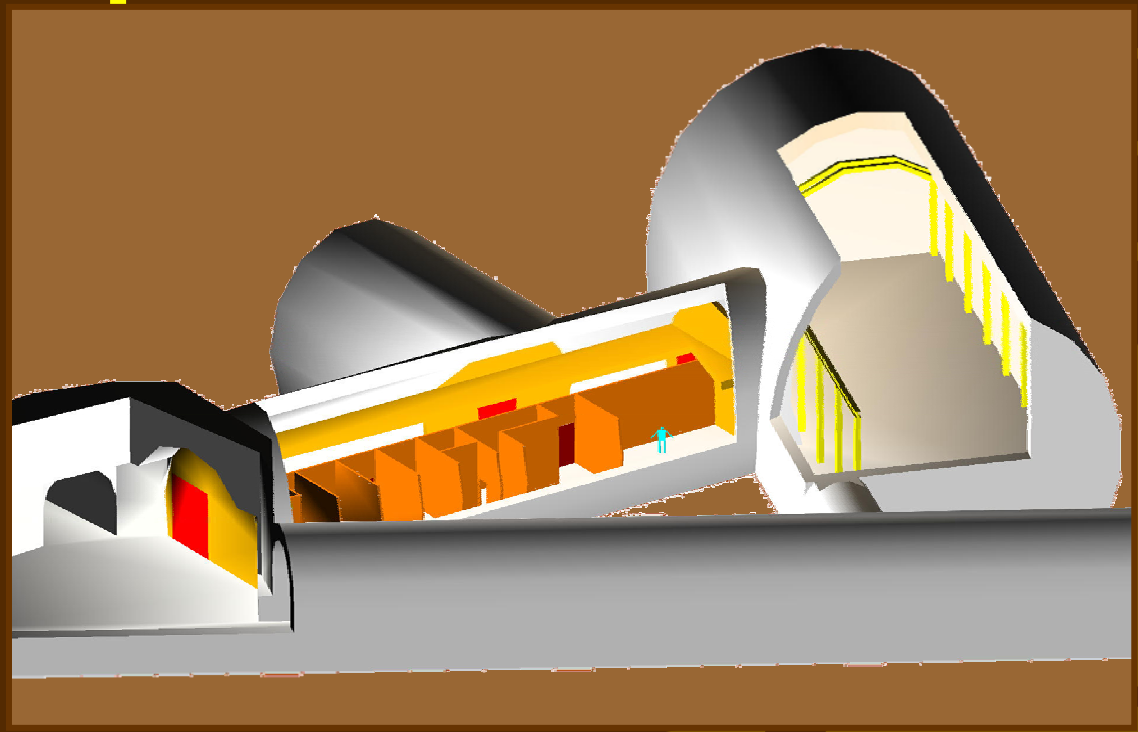
LSC MAIN CHARACTERISTICS

- Loading bay & parking : 17 m x 17 m x 5 m

J. Morales, LSC & UZ February /2006

LSC MAIN CHARACTERISTICS

- **Emergency exit**
  pedestrian passage connecting directly the Hall A with the railway tunnel



LSC MAIN CHARACTERISTICS

- **Ventilation and air conditioning:**
  - **11,000 m^3/h fresh air from Rioseta: 1,5 r/h**
  - **25,000 m^3/h recirculation (dust HE + charcoal): 3 r/h**

- **Electric power:**
  - **17,000 V 630 KVA transfo**
  - **60KVA emergency power plant**
  - **16 KVA UPS**

- **Safety, Fire precautions:**
  - **thermic + optical fire detectors**
  - **oxygen monitors**
  - **automatic CO_2 fire extinguishers + portables**
  - **control in permanent connection with the CCTC & UZ**
  - **27,600 m^3/h extractor fan**

EXTERNAL SERVICES

- Workshop (mechanical & electronic): 400 m^2, 6m high
- Cryogenic area: 50 m^2, 10,000 l. N_2L reservoir
- Garage
- Provisional barracks for offices 350 m^2 **ready**
- New building (Administration, offices ...) 1,200 m^2 **approved**

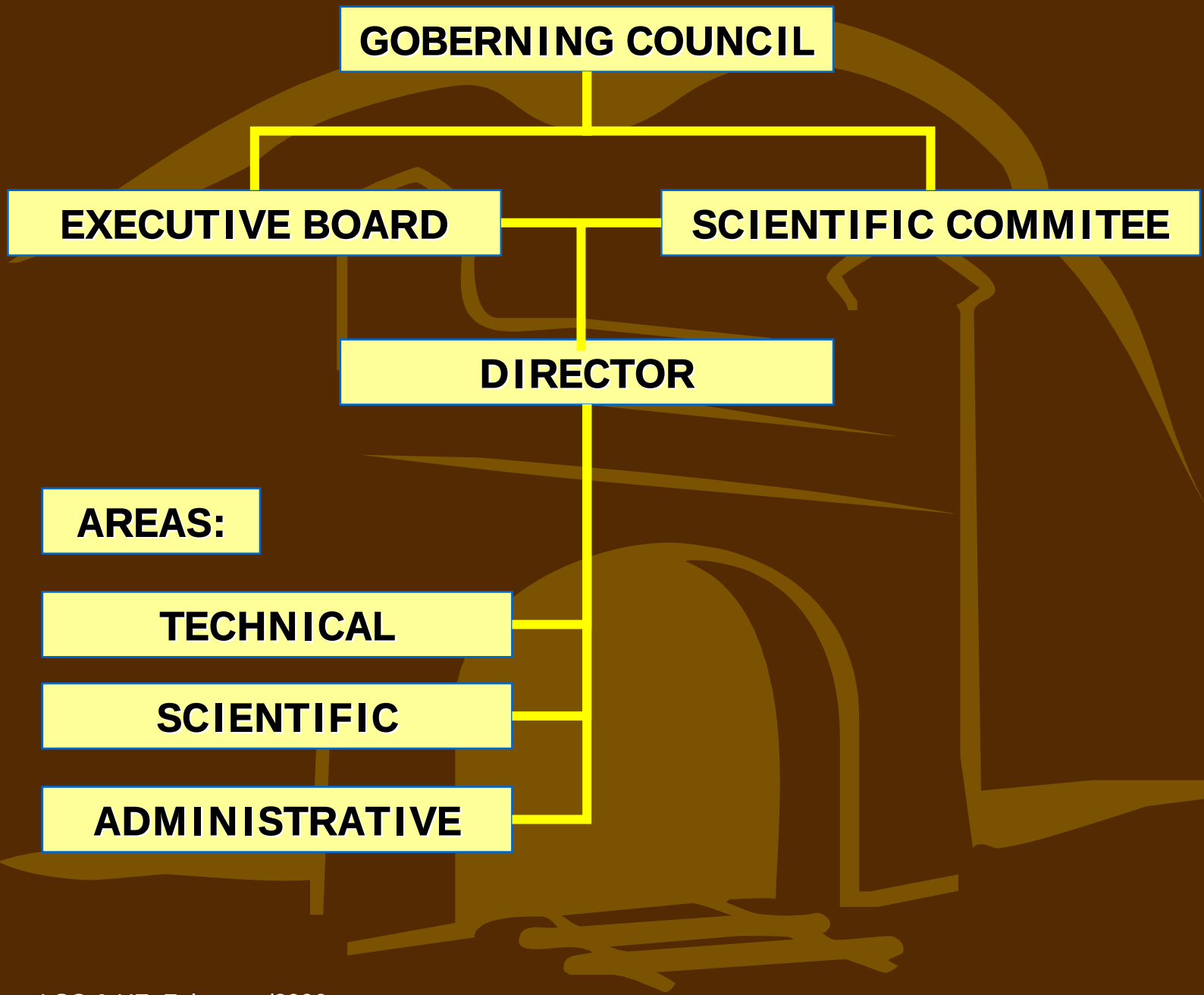
✓ MANAGEMENT ⇒ DGA-UZ-MEC CONSORTIUM

✓ EXPECTED START ⇒ JANUARY-MARCH 2006

(11/11/2005, end of works)

EXPRESSIONS OF INTEREST @ www.unizar.es/lsc

PARTNERSHIP WITH (within ILIAS)
LNGS (Laboratori Nazionali del Gran Sasso. Italia)
LSM (Laboratoire Souterrain de Modane. France)
Boulby (Institute for Underground Science. Boulby Laboratory. UK)


GOBERNING COUNCIL
EXECUTIVE BOARD
SCIENTIFIC COMMITEE
DIRECTOR
AREAS:
TECHNICAL
SCIENTIFIC
ADMINISTRATIVE

BUDGET (APPROVED) FOR THE NEXT 10 YEARS: 18 M€

1.6 M€ FOR 2006

PERSONNEL STAFF: 10-12