

Visitor's Guide to Gemini South Telescope

Revised April 3, 2009

Introduction.....	1
Facilities	1
Contacts	3
Preparing for your Visit	4
Travelling to La Serena	5
Ground Transportation.....	5
Cerro Pachon Lodging	6
Gemini Telescope Safety	7
Appendix A: Gemini South Safety Tour.....	9
Appendix B: Summary of Useful Information.....	10
Telescope Safety	11

Introduction

This guide contains information about the Gemini South Telescope that will be of interest to observers and instrument teams visiting Gemini South and perhaps Chile for the first time. Please direct any comments about this document to Lucía Medina (mailto:lmedina@gemini.edu)

Facilities

The Gemini South Telescope is located on Cerro Pachón, Chile, 20 km on the road, southeast from Cerro Tololo. The altitude at the summit of Pachón is about 2714 meters (8,900 feet). The driving time to the Pachón summit is about 1hr 45min from La Serena and 35 minutes from Tololo.

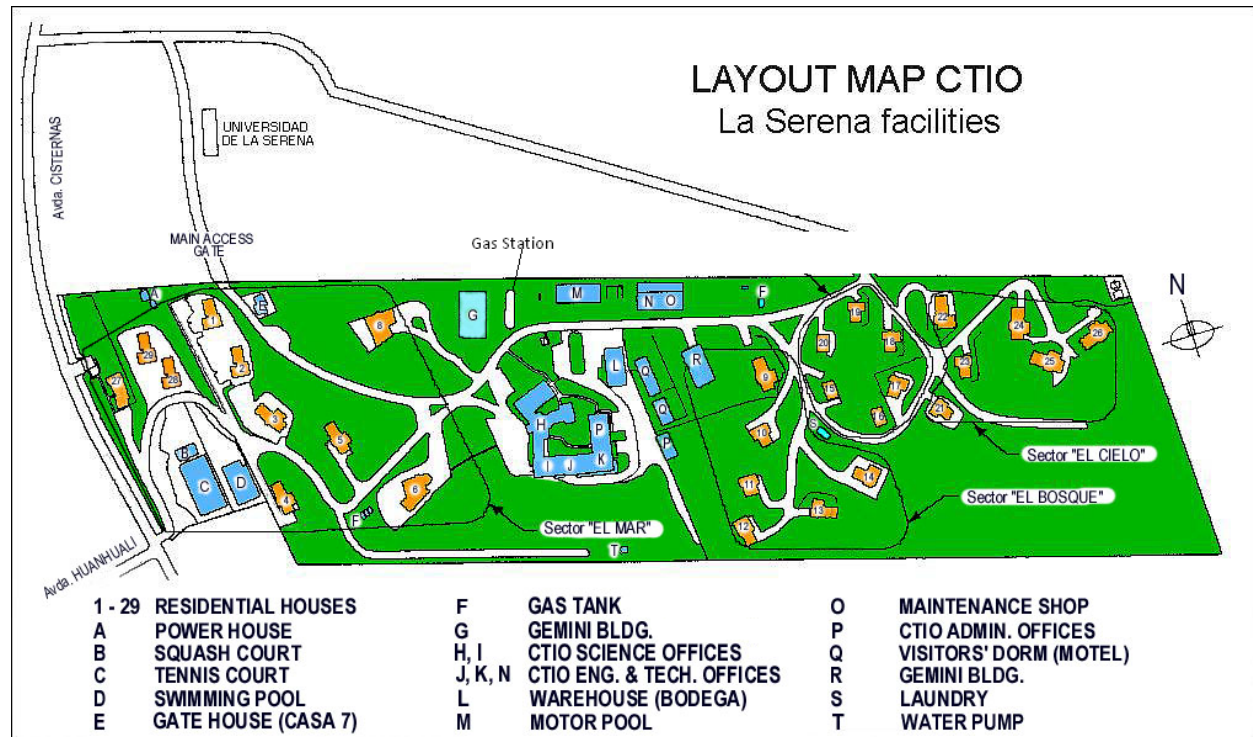
The Pachón facility includes a large instrument lab with a crane, vacuum pumps, manifolds for the compressed helium system and the coolant system, and other basic equipment needed to prepare instruments. Electrical power is 110 V and 220 V, 50 Hz. US-style 3-prong plugs are typical at AURA facilities in Chile. However standard Chilean power is 220V, 50 Hz using narrow 2 or 3-prong round plugs. We have large storage dewars, smaller transfer dewars, and other equipment needed for handling liquid nitrogen, but minimal equipment for liquid helium. Liquid nitrogen is readily available, but liquid helium must be special ordered well in advance. There is a small machine shop with a mill, lathe, drill press, etc., and machinists who can easily handle many jobs, but major machining projects may require facilities on Tololo or in La Serena. Finally, we have a good selection of tools and test equipment, but we do not have a large inventory of specialized equipment that some instruments may require; please inquire about any special needs.

Lodging and meals for Gemini observers are provided at Cerro Pachon facilities. There is a new lodging facility on Cerro Pachon with 4 rooms for our use and any overflow we might have, the 20 Units dorm near the summit will serve as the spare lodging facility.

At the Pachon dormitory, wired and wireless access to the Internet via DHCP is available, and also a video link to Pachon and La Serena.

The map below shows the AURA facilities in the La Serena Recinto, or compound. Dormitory rooms are available on the recinto for personnel staying in La Serena (Q). The Gemini Southern Base Facility (SBF) is

located at G across the main road from the CTIO offices. The floorplans are given below. The SBF contains support staff offices, visitor offices, conference rooms, the AURA auditorium, and the sea level control room. Internet connections are available for laptops via wired or wireless networks and DHCP. Visitor accounts on Gemini machines are also available. The AURA library is located in the main CTIO building (H).



Map of the AURA compound in La Serena.

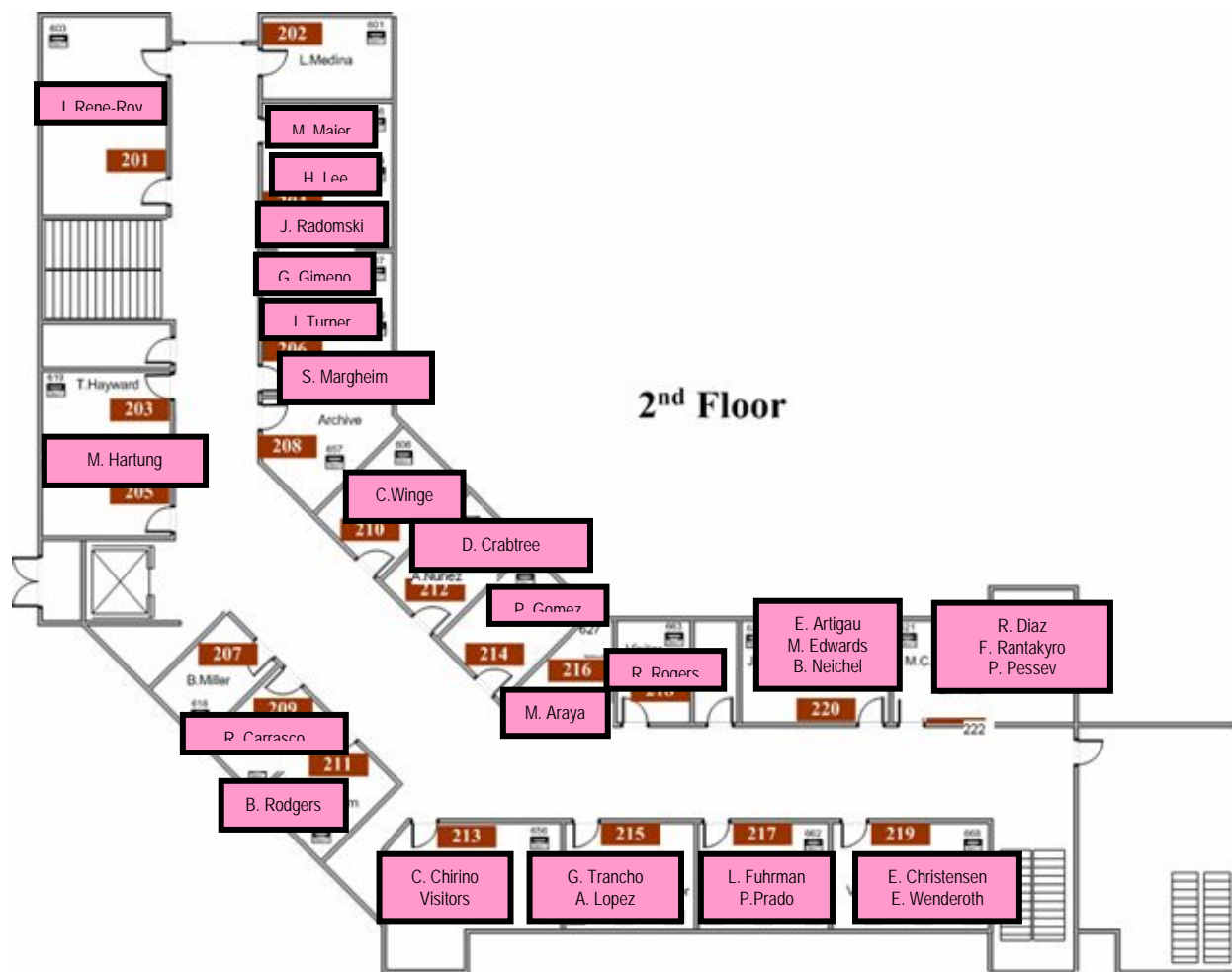


First floor plan for the Gemini SBF.

Contacts

Local arrangements for visitors are handled by staff at the SBF in La Serena. Chile's international telephone access code is 56 and the La Serena city code is 51.

You can find our Staff directory by entering to the Gemini web page : <http://www.gemini.edu/> and go to the staff directory.



Second floor plan for the Gemini SBF.

Preparing for your Visit

Driving: Visiting observers are not permitted to drive Gemini vehicles or rental vehicles to the mountain. Note that, effective October 1, 2005, you are able to drive legally in Chile while on a tourist visa, if you have a valid, current driver's license from your home location and your passport. If your visa is not a tourist visa (e.g. staff or medium-long term contractors who are accredited), in order to drive in Chile, you'll need to have either an International Drivers' License which was obtained in your home country or obtain a driver's license in Chile, which Gemini Human Resources can assist you in obtaining.

Environmental conditions: Cerro Pachón's altitude of 2714 m (8,900 feet) is not high enough to cause significant health problems for most visitors, although slight shortness of breath and perhaps headaches can occur especially on the first day of a visit. The altitude is high enough that visitors with certain medical conditions may wish to seek medical advice in advance and exercise caution while they are at the summit.

The nighttime temperature on Pachón can vary from a mild 10-20 C during the summer months to below 0 C in the winter. In winter there can be snow, high winds, and very low wind chill temperatures. Gemini

does not currently have a supply of winter clothing for visitors, so please bring appropriate clothing and a flashlight of your own.

Safety Shoes: Steel-toed shoes are required on summit. Additional protective equipment and clothing will be worn as specific work assignments require [see also Gemini Telescope Safety, page 8]

Travelling to La Serena

Upon arrival in Chile, you will land at Santiago's Arturo Merino Benitez International Airport; their website is <http://www.aeropuertোসantiago.cl> which is accessible in both Spanish and English. Both international and domestic terminals are housed in the same building; the domestic terminal is located in the eastern side of the facility. You will arrive at the International Terminal. If you arrive in Chile for the first time or carry a new passport, you will be required to pay a "reciprocity fee" or "entry tax". The fee equals the amount a Chilean national has to pay to obtain a visa or to enter any of the mentioned countries. That is the "reciprocity!" Fortunately, credit cards are now accepted! Although these fees may vary, these are the latest we know of:

Country	Fee
Australia	\$61
Canada	\$132
United States	\$131
Mexico	\$23

If you have to pay the fee, save yourself some time: As you come down the stairs into Immigration, look to your left and you will see the payment area. Settle your payment there, before continuing to the line of International Police. The fee has to be paid before. There are now more booths. After exiting Chilean Customs, you will find yourself on Level 1 of the building. To proceed to the domestic terminal, exit international Customs, turn left, take the elevator or stairs to Level 3, and walk to the Lan airline counters for domestic departures (Nacional) to check-in for your flight to La Serena.

Ground Transportation

There are several options for transportation in and around La Serena. In general ground transportation arrangements are handled by Lucía Medina (56-51-205-601, lmolina@gemini.edu). Lucia should be informed of all travel requirements well in advance.

When arriving by plane at "La Florida" airport in La Serena you can take a taxi to the AURA-O (directions in Spanish for the driver are given in the next paragraph) but you will have to pay for the drive. The cost from the airport to the AURA compound is ~US\$10 (4.500 pesos).

"Lléveme a las oficinas de Cerro Tololo"

Gemini does not provide a vehicle for observers, but will provide schedule transportation between La Serena and the summit of Cerro Pachon. Carryall timetable is as follows:

"Chilean Summer"		"Chilean Winter"	
Leaving La Serena		Leaving La Serena	
Weekdays	Weekends & Chilean holidays (on request, check availability with Lucia Medina)	Weekdays	Weekends & Chilean holidays (on request, check availability with Lucia Medina)
6.30am (Bus)		6.30am (Bus)	
9.00am (Carryall)		9.00am (Carryall)	
4.20pm (Carryall)		2.00pm (Carryall)	
Leaving Cerro Pachon		Leaving Cerro Pachon	
Weekdays	Weekends & Chilean holidays (on request, check availability with Lucia Medina)	Weekdays	Weekends & Chilean holidays (on request, check availability with Lucia Medina)
12.00pm, noon (Carryall)		12.00pm, noon (Carryall)	
4.30pm (Bus)		4.30pm (Bus)	
6.30pm (Carryall)		6.30pm (Carryall)	

The journey between La Serena and the telescope takes 1 hour, 45 minutes

Note that for the purpose of this timetable, "Chilean Summer" is when Daylight Saving applies in Chile, which is between the first Sunday falling on October 9 or thereafter each year until the first Sunday that falls on March 9th the following year or thereafter.

"Chilean winter" relates to the dates outside this period.

*Weekends - Service is on demand and departure times may vary.

Classical visitors, NGO observers, or any non-Gemini staff staying at the summit on official business, are allowed to drive Gemini vehicles between the Cerro Pachon hotel and the summit (the restaurant and the telescope), provided they are in possession of a valid driver's license. Since there are two cars available at the summit, this allows the visitors to keep a different schedule from the night crew without impacting operations or forcing the night staff to "chauffer" them. Remember that keys should be left in the car *parked at the CP hotel*.

Gemini Bus: Visitors wishing to work on Pachón during the day and spend the night in La Serena can ride the bus that transports Gemini daytime workers. The bus leaves the recinto at 6:30 AM and the Pachón summit at 4:30 PM on weekdays only. Seat reservations are limited so please let us know in advance that you will be using the daily crew bus being specific on the period of time you will require this service.

Cerro Pachon Lodging

Lodging for Cerro Pachón visitors is provided at CP dorm. Room keys may be picked up from the key rack placed in the hall area of the building with the name of the user. Please contact lmolina@gemini.edu for reservations.

In the event of unexpected needs, difficulties or emergencies (reservations, room assignment, special needs, etc.) during out of office working hours, please contact any of the following persons:

- Ricardo Aguirre – Phone 9205383 – CEL 09-7426840
- Janitor (must be contacted by radio) MON-FRI 12:00 – 23:00 hrs.
- Paramedic – day phone 9-205577, or night phone 9-205578

Meals for Gemini visitors are provided in the CP restaurant.

The current meal schedule is:

Southern summer Time

Breakfast:	7:30 to 8:30
Lunch:	13:00 to 14:00
Dinner:	18:00 to 19:00

Southern Winter Time

Dinner:	17:00 to 19:00
---------	----------------

Gemini Telescope Safety

Like all observatories, Gemini South has a number of hazards of which visitors need to be aware. Cerro Pachón is a remote site, nearly two hours from major medical services, so even minor accidents can place personnel in serious danger. Please note the following procedures and precautions that will help make your visit a safe one.

Emergency Contacts: Paramedics are stationed on Pachón clinic and nurses are stationed on Tololo. They should be first contacts in any emergency. They will notify other Chilean authorities if additional aid is deemed necessary.

The Pachón paramedic can be contacted in the following ways:

1. Use the Gemini external Frequency hand-held radios, channel 1.
2. Use the Tololo Repeater Frequency hand-held or vehicles radios, channel 1.
3. Use the Tololo Repeater Frequency emergency radios located on the road.
4. Call the Paramedic clinic on Pachón, dialing **205 732**.

The Tololo nurse can be contacted in the following ways:

1. Use the Gemini external Frequency hand-held radios, channel
2. Use the Tololo Repeater Frequency hand-held or vehicles radios, channel 1.
3. Use the Tololo Repeater Frequency emergency radios located on the road.
4. Call the nurse clinic on Tololo, dialing **205 440**.

Closing/opening limits and nighttime evacuations: During nighttime operations the Systems Support Associate (SSA) is the duty officer and so has responsibility for the safety of both telescope and personnel. *Therefore, the SSA has the authority to close the dome if they feel that conditions are unsafe for the telescope and to evacuate the Telescope if conditions are unsafe for people.* In general, the closing guidelines are as follows.

Status	Wind speed
Loose snow/dust, extreme caution	8 m/s
Loose snow/dust, close	12 m/s
Work out of wind	10-15 m/s
Close	17-20 m/s

Status	Humidity
High caution	80%
Extreme caution	85%
Close	90%

Status	Pressure
Caution	<730 mb
Extreme caution	<725 mb

The SSA can modify these guidelines if they feel it is appropriate, for example if there is a lot of wind-born dust. After closing the dome cannot be opened again until the humidity has remained below 80% and the wind speed below 15 m/s for 30 minutes.

14-hour rule: Gemini has a 14hr rule on Cerro Pachon. This rule sets the maximum time of 14 hours that ANY staff member or visitor may work and drive without explicit personal approval from the Head of Gemini South.

Take into account that is a maximum limit. NO ONE may work BEYOND this limit.

Aside from this rule, all employees and visitors should always consider their own overall physical and mental condition (tiredness/readiness) and not take any action that might prejudice their safety because of lack of sleep. This common sense advice applies, for example, even when considering driving to the mountain without proper rest even before starting work.

Note that the hours that staff may work are set by the terms and conditions of their employment, which differs according to contract status. For example, under Chilean labor law for Gemini South staff that are AURA-O hires, staff hours per day/night are normally limited to 8, or a maximum of 10, except in truly emergency situations.

Remember, these are legal limits. Don't compromise anyone else's safety or compliance with the law by any actions you might take. Treat the law and the company's regulations as maximum limits that may not be transgressed. Use your commonsense at all times.

Safety Tour: First-time visitors must receive a safety tour of the facility from an authorized Gemini employee. The contents of this tour are described in the appendix to this document.

Clothing: As a minimum, sturdy leather shoes or boots, full length pants, and shirts with minimum four inch sleeves will be worn. Steel-toed shoes are required for those working with instrumentation and other heavy equipment additional protective equipment and clothing will be worn as specific work assignments require. Hard hats may be required when working in the dome area.

Appendix A: Gemini South Safety Tour

First-time visitors to the Gemini South Telescope must receive a safety tour of the facility from a Gemini employee. The tour guide will brief the visitor on the following topics.

Flashlight and Radio: Always carry a flashlight and a hand-held radio when you are inside the building. This is particularly important when you are going to the 4th level, using the stairs or the elevator.

Observatory Grounds:

- Be wary when walking around the summit, always use the walkways especially at night. There are shears, long drops within meters of Telescope exits.
- **Accessible areas:**
 - Visitors are generally permitted anywhere on level 1 (ground level) and level 4 (the observing floor) if is possible, after they have received a safety orientation from an authorized Gemini employee.
 - Off-limits areas may be declared by Gemini personnel in the event of hazardous operations such as mirror recoating.
 - Visitors are permitted on the telescope structure and the center section (the part that moves in elevation), but approval to enter these areas must be granted by an authorized Gemini employee each time to ensure safety.
 - Levels 2 and 3 are more hazardous and visitors must not enter them without a Gemini escort.
 - The mirror cell is strictly off-limits to anyone but Gemini employees with authorization.

Emergency Exits: Emergency exits are located on the east side of the dome area on level 1, and in a special cubicle on level 4 (the observing level), roughly opposite the main entrance. The level 4 emergency exit leads down a separate stairwell and directly out of the dome. Caution must be taken on this stairwell as the steps are narrow and steep.

Signs posted inside the building indicate the emergency exits.

Safety equipment: Note the locations of the following safety equipment, especially on level 4:

- Telephones
- Placards listing emergency procedures and phone numbers
- Fire extinguishers
- First-aid kits and other equipment
- Evacuation Exits

Platform lift: A large section of the floor on level 4 consists of a moveable platform lift. When the lift is lowered to level 1, there is a 3-story drop from level 4 down to it, with only bolted-down railings to protect

against a fall. Note the position of the lift whenever you are on level 4, and exercise extreme caution if the lift happens to be down, especially in the dark.

Power bars: The bars that distribute high-voltage electrical power to the rotating dome are at shoulder level around the outer perimeter of level 4. The bars are fairly well shielded with orange plastic covers, but the protection is not complete. Always maintain a discrete distance from the power bars, especially when carrying tools, ladders, or other metal equipment.

Oil on floor: The mirror cell and moving platforms in the dome can leak oil and coolant fluid, especially onto the azimuth platform under the center section. Walk carefully in this area and be alert for oil slicks.

Telescope motion: The telescope makes absolutely no sound when it slews in azimuth or elevation. Be alert for sudden, unannounced telescope motions when on level 4, especially at night when observations are in progress. All parts of the telescope that can move are painted blue.

Pinch points: Railings and other equipment around the telescope can act as pinch points when the telescope moves in azimuth. One especially dangerous area is just in front of the emergency exit cubicle. Be aware of these areas and avoid them if there is any possibility the telescope may move.

Access to center section catwalk: No access to the center section catwalk is permitted unless the elevation locking pins are engaged and permission is given by a Gemini employee. Learn how to check that the locking pins are engaged.

Appendix B: Summary of Useful Information

Telephone numbers: international callers add 56 51

Person/Location	Number	Person/Location	Number
Pachón Paramedic	205 722	Tololo Paramedic	205 440
Pachón control room (SSA)	205 701	La Serena gate	205 282
Pachón control room (Ast.)	205 730	ROB offices	205 459/463
Pachón control room FAX	205 710	La Serena control room	205 614
Pachón reception	205 700	La Serena reception	205 600
Pachón observing floor	205 724/5	La Serena FAX	205 650

Telescope Safety

- The duty officer (SSA at night) is responsible for safety and has authority for opening/closing the telescope and evacuating the Telescope.
- On the observing floor [4th floor] anything that colored or painted blue can move. Beware of telescope motion and pinch points.
- Be wary when walking around the summit, especially at night.
- Always carry a flashlight and radio.
- Plan your work to comply with the 14-hour maximum stay rule.
- Always be mindful of the safety of yourself and others.