

## Station GPS permanente

IPG Paris

DGF Uchile

UNAP Iquique

Site Name : PICA San Andres School, Pica	Author : <b>Socquet / Carrizo</b>
Site Code : <b>PICC</b>	Date installation : <b>2007 11 06</b>
Coordinates : PICC : <b>-69.33461774 -20.48981328 1366.1768</b>	

### DESCRIPTION

Permanent GPS station Northern Chile I region, Pica city, San Andres School building. Address: Matías de la Fuente, casa 17, Pica.

### MONUMENTATION

Brass (Delmont type) sealed in the top (roof) of the building concrete structural pillar. TOPCON PG-A1 with GP antenna, TOPCON GB-1000 receiver.

### HISTORIC

**PICC:** Permanent station installed on the top of the school building structural pillar since November 06 of 2007.  
(PICB translation to PICC during November 2007- Tying 24 hrs)

**PICB:** Permanent station installed on the top of the wall of a technical building from the Pica Municipalidad  
Between July of 2003 and November 09 of 2007.

**PICN:** Located on the top of the wall of a technical building from the Pica Municipalidad  
Between September 18 of 1999 and July 03 of 2003.

→ See *MissionPICA.pdf* document

*Other points : see description on "pica\_gps\_aux\_points.dα"*

**PIC0:** Old permanent station which was installed in a house from Manuel Olcay ex-wife in the Pica village  
Between 1997.0 and 1999..

**PIC1:** Auxilliary point installed near the house from Manuel Olcay ex-wife.

**PIC2:** Auxilliary point installed in a public garden East of Pica ,near the exit road of Pica in direction of the Huasco salar. Brass little marker ipg'type in the concrete soil of a water basin.

### PRACTICAL INFORMATIONS

state property	<b>YES</b>	<b>NO</b>	San Andres School – Ilustre Municipalidad de Pica
private property		<b>NO</b>	
access restricted	<b>YES</b>	<b>NO</b>	City office working hours

telephone nearby	<b>YES</b>	<b>NO</b>	School Principal: Mr. Hector Cuevas Olmos 56-57-741744
Electric power nearby	<b>YES</b>	<b>NO</b>	
equipment storage available	<b>YES</b>	<b>NO</b>	
possibility of leaving the equipment without watching	<b>YES</b>	<b>NO</b>	
person in charge	<b>YES</b>	<b>NO</b>	Prof. Manuel Olcay ( UNAP Iquique)→ 093701220 (cel.), (57) 310716 , (57) 394369, <a href="mailto:molcay@unap.cl">molcay@unap.cl</a>
person to contact	<b>YES</b>	<b>NO</b>	Mr. Angel Olivares Martinez (Sostenedor de educacion, Pica – Education in charge, Pica) DAEM-IMP phone: (57) 741693 movil phone: 87886997. <a href="mailto:educacion@pica.cl">educacion@pica.cl</a> – <a href="mailto:cceepica@gmail.com">cceepica@gmail.com</a>  Mr. Hector Cuevas Olmos (School Principal) school phone: (57) 741744 , movil phone: 92959138 <a href="mailto:hectorw01@hotmail.com">hectorw01@hotmail.com</a>  Mr.Boris Luza Caceres (informatics in charge) movil phone: 0984796417 <a href="mailto:borisluz@terra.cl">borisluz@terra.cl</a>

### COORDINATES

Pica_gps continu : Coordonnees geocentriques :							
PXYZ	1	PICC	2109817.818	-5593689.624	-2219050.823		
PXYZ	1	PICB	2110482.386	-5593502.586	-2218919.637		
PXYZ	1	PICN	2110483.609	-5593500.914	-2218922.440		
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Pica_gps continu : coordonnees geographiques							
PICC			-69.33461774	-20.48981328	1366.1768		
PICB			-69.32802587	-20.48851524	1376.057		
PICN			-69.32800925	-20.48854254	1375.977		
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Tying PICB – PICC :							
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Tying PICN – PICB :							
Baseline vector (m ): PICB (Site 5) to PICN (Site 6)							
X(N)	1.22419	Y(E)	1.68547	Z	-2.94099	L	3.60400
	+ - 0.00525		+ - 0.01301		+ - 0.00535		+ - 0.00164 (meters)
Correlations (X-Y,X-Z,Y-Z) =			-0.93575		-0.88558		0.94221
N	-3.15565	E	1.74037	U	-0.04297	L	3.60400
	+ - 0.00169		+ - 0.00173		+ - 0.01482		+ - 0.00164 (meters)
Correlations (N-E,N-U,E-U) =			0.10224		0.04802		0.04285
Approximate coordinates of tying points :							
PXYZ	1	PIC0	2111186.500	-5593419.30	-2218542.20	1.000	1.000 1.000
PXYZ	1	PIC1	2111192.300	-5593410.05	-2218553.60	1.000	1.000 1.000
PXYZ	1	PIC2	2112145.100	-5593145.70	-2218461.40	1.000	1.000 1.000
PIC0			-69.32142800	-20.48478194	1401.958		
PIC1			-69.32134451	-20.48489931	1399.706		
PIC2			-69.3119120	-20.48383711	1453.500		

PICC \_ Site Information Form \_ International GPS Service for Geodynamics

Prepared by (full name) : Anne Socquet; Daniel Carrizo, J.C. Ruegg IPG Paris  
Date Prepared : 20/03/08  
Report Type : UPDATE

### 1. Site Identification of the GPS Monument

Site Name : PICA, Chile, San Andres School Tracking Station  
Four Character ID : PICC  
Monument Inscription :  
IERS DOMES Number :  
CDP Number : (XXXX)  
Date Installed : 06-Nov-2007 hh:mm UT  
Geologic Characteristic : CONGLOMERATE/GRAVEL/SAND  
Bedrock Type : IGNEOUS-SEDIMENTARY  
Bedrock Condition : (FRESH/JOINTED/WEATHERED)  
Fracture Spacing : (1-10 cm/10-50 cm/50-200 cm/over 200 cm)  
Notes : (multiple lines)  
Additional Information : Geological Province: Andean Pre-Cordillera  
: Local Geology: basement Miocene ignimbrites deposits; coverture: gravels and sand deposits.  
: Geological information  
: Program: Catalogue of Site Information", PICN

### 2. Site Location Information

City or Town : Pica  
Country : Chile  
Tectonic Plate : South American  
Approximate Position  
PICC\_2109817.818 -5593689.624 -2219050.823  
X coordinate (m) : 2109817.818  
Y coordinate (m) : -5593689.624  
Z coordinate (m) : -2219050.823  
  
PICC\_GPS\_2109817.818 -5593689.624 -2219050.823 2008.0  
Latitude (deg) : -20.48981328  
Longitude (deg) : -69.33461774  
Elevation (m) : 1366.1768

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PICB\_2110482.386 -5593502.586 -2218919.637

X coordinate (m) : 2110483.44  
Y coordinate (m) : -5593501.596  
Z coordinate (m) : -2218922.58

PICB\_GPS\_2110482.386 -5593502.586 -2218919.637 1997.0

Latitude (deg) : -20.48851524 -20.484782  
Longitude (deg) : -69.32802587  
Elevation (m) : 1376.057

PICB--PICN dN = -3.15565 dE = 1.74037 dU = -0.04297

Additional Information : Latitude, Longitude and Elevation derived from J.C. Ruegg, IPGParis  
: 2  
: Class B Station Coordinates at Epoch 1997.0",  
: The site is on the roof of the building of Chemistry, within the Universidad  
: Prat, Iquique  
: Site information from J.C. Ruegg, IPG P / Jaime Campos, DGF

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### 3. GPS Receiver Information

3.1 Receiver Type : Ashtech Z-12  
Serial Number : s/n 700  
Firmware Version : xxx  
Date Installed : 18-SEP-1999  
Date Removed : 7-Nov-2007  
Additional Information : (multiple lines)

Note : receptor and antenna moved from UAP0 (top of Dept of Chemistry)  
Note 2 : to the point PICN (top of the Dept of Physics) on 20-SEP-1999  
: by Jean-Bernard de Chaballier (IPG Paris).

3.2 Receiver Type : Topcon GB-1000  
Serial Number : S/n T224972

Firmware Version : xxx  
Date Installed : 06-Nov-2007  
Date Removed :

4. GPS Antenna Information

4.1 Antenna Type : Ashtech Choke Ring  
Serial Number : S/N  
Antenna Height (m) : 0.120 L1PHC  
Antenna Reference Point :  
Degree Offset from North :  
Antenna Radome Type :  
Date Installed : 18-SEP-1999  
Date Removed : 07-Nov-2007  
station.info :  
PICN PICN Pica\_new 0.1200 0.0000 0.0000 ASHZ12 ASHDMG L1PHC 8.70 1999 261 0 0 0 0 24 0 0  
JCR z 348 chil2

4.2 Antenna Type : Topcon PG-A1 with GP  
Serial Number :  
Antenna Height (m) :  
Antenna Reference Point :  
Degree Offset from North :  
Antenna Radome Type :  
Date Installed : 06-Nov-2007  
Date Removed :

5. Local Site Ties

5.1 Monument Name : PIC0 \_ Pica \_ Old house of Manuel Olcay \_ old point 1994-1999 (destroyed)  
Site Ref CDP Number :  
Tying :  
# PIC0 (1997,00-1998.6) et PICN0 (inst. 1999-j261)  
# rename PIC0\_GPS PICN\_GPS 97 01 01 0 0 98 12 31 0 0 -703.120 -81.602 -380.310 XYZ (1997-99 GPPS)  
# rattachement inverse  
rename PICN\_GPS PIC0\_GPS 99 01 01 0 0 99 12 31 0 0 +702.457 +83.360 +381.011 XYZ (1997-99 GPPS)

Differential Components from GPS Mark to Site Reference (ITRS)

dx (m) :  
dy (m) :  
dz (m) :  
Accuracy (mm) : (mm)  
Date Measured : (dd-MMM-yyyy hh:mm UT)  
Additional Information : Mark IPGP

6. Frequency Standard : -- No ---

9. On-Site, Point of Contact Agency Information

Agency : Department of Physics\_ Universidad Arturo Prat, Iquique, Chile  
Mailing Address :  
Primary Contact : Contact Name : Manuel Olcay, David Lazo  
Telephone (primary) : 447070 Fax :  
E-mail : molcay@cavanha.cec.unap.cl  
Secondary Contact : Contact Name : Socquet Anne  
Telephone (primary) : 0 33 1 44 27 24 99 Telephone (secondary) :  
Fax : 0 33 1 44 27 38 94 E-mail : socquet@ipgp.jussieu.fr

10. Responsible Agency (if different from 9.)

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**ADDITIONAL INFORMATION**

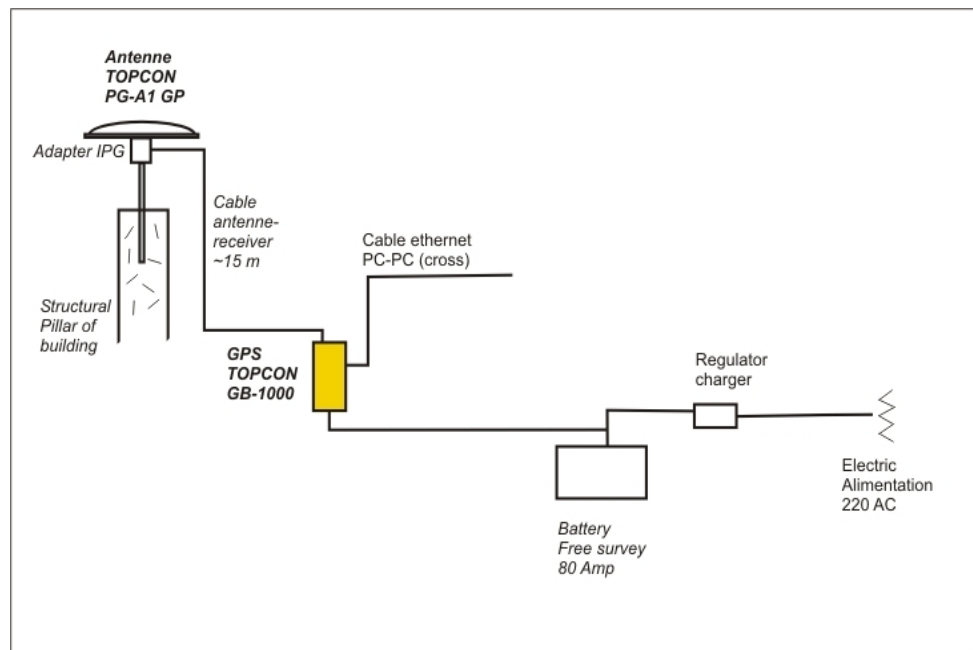
Battery : 80 Amp (sealed)

Antenna cable : (30 m – low release)

Dual power connection : battery charger

Connexion Internet: No, (telephonical connexion internet- proxy aviable)

## Station sketch



## Locations

<http://www.turistel.cl/v2/secciones/mapas/ruteros/tarapaca.htm>





Photography N°1 : View from outside of the San Andres school - Pica. Antenna fixed to a structural pillar of the school building (at roof level - 10 m height).



Photography N°2 : Antenna placement detail. (tige Delmont + antenna adapter). Roof made of Zinc material.





Photography N°3 :The roof of building is located directly to the east of the antenna



Photography N°4 : At SE of the antenna position is located a big metallic roof (made of iron) which top have the relative same level (height) than the antenna.

## Procedure de communication & download (receiver - pc\_linux)

### 1. Make a Intranet between the receiver and the laptop.

- Check the internet configuration on the receiver (IP, mask and Getaway)
- Configure the Ethernet (eth0 or eth1) card in the laptop with the same receiver parameters (just the last number of the laptop-IP must be major than receiver-ip last number)  
expl.

	RECEIVER	LAPTOP
IP	192.168.49.72	192.168.49.75
Mask	255.255.0.0	255.255.0.0
GW	192.168.0.1	192.168.0.1

### 2. Establish the communication via FTP (data downloading)

- One time configured the laptop ip, connect the receiver with the laptop LAN port (using an crossover cable).
- Reboot the laptop for update the configuration. Then make de connection using FTP protocol. (for test the connection it's possible to make a "ping <receiver-ip>".  
expl.  
`ftp 192.168.49.72`  
e (port utilized), you can test with a, b, c, d also  
T224972 (password)
- One time connected, the receiver show the directory where the data has been accumulated. It's possible to download directly using wget or get command. If was installed lftp in the laptop is possible to applied the command "mirror -C".
- The native TOPCON GB-1000 files are: ???MMDDs expl. PICC1123a (av. ~2.3 Mb)
- Do not forget makes extra copy of data.

### 3. Check the receiver configuration.

- One time configured the laptop ip, connect the receiver with the laptop LAN port (using an crossover cable).
- Reboot the laptop for update the configuration. Then make de connection using telnet protocol. (for test the connection it's possible to make a "ping <receiver-ip>".  
expl.  
`telnet 192.168.49.72`  
e (port utilized), you can test with a, b, c, d also) or 08002\*  
T224972 (password)
- One time connected is possible check and edit the configuration using GRILL language.

\*Always check the connection parameter in the receiver (IP – FTP – TELNET). See GRILL manual of INSU webpage).

## RECOMMENDATIONS

For access to the school contact the principal (Hector Cuevas Olmos-School Principal; school phone: (57) 741744 , movil phone: 92959138). For access to the antenna is necessary to solicit a ladder at the Municipalidad.

Equipments required:

1. The metallic case-lock piece is located on the battery case.
2. Laptop with linux environment.
3. Bring a crossover cable PC-PC.
4. Voltage tester.