

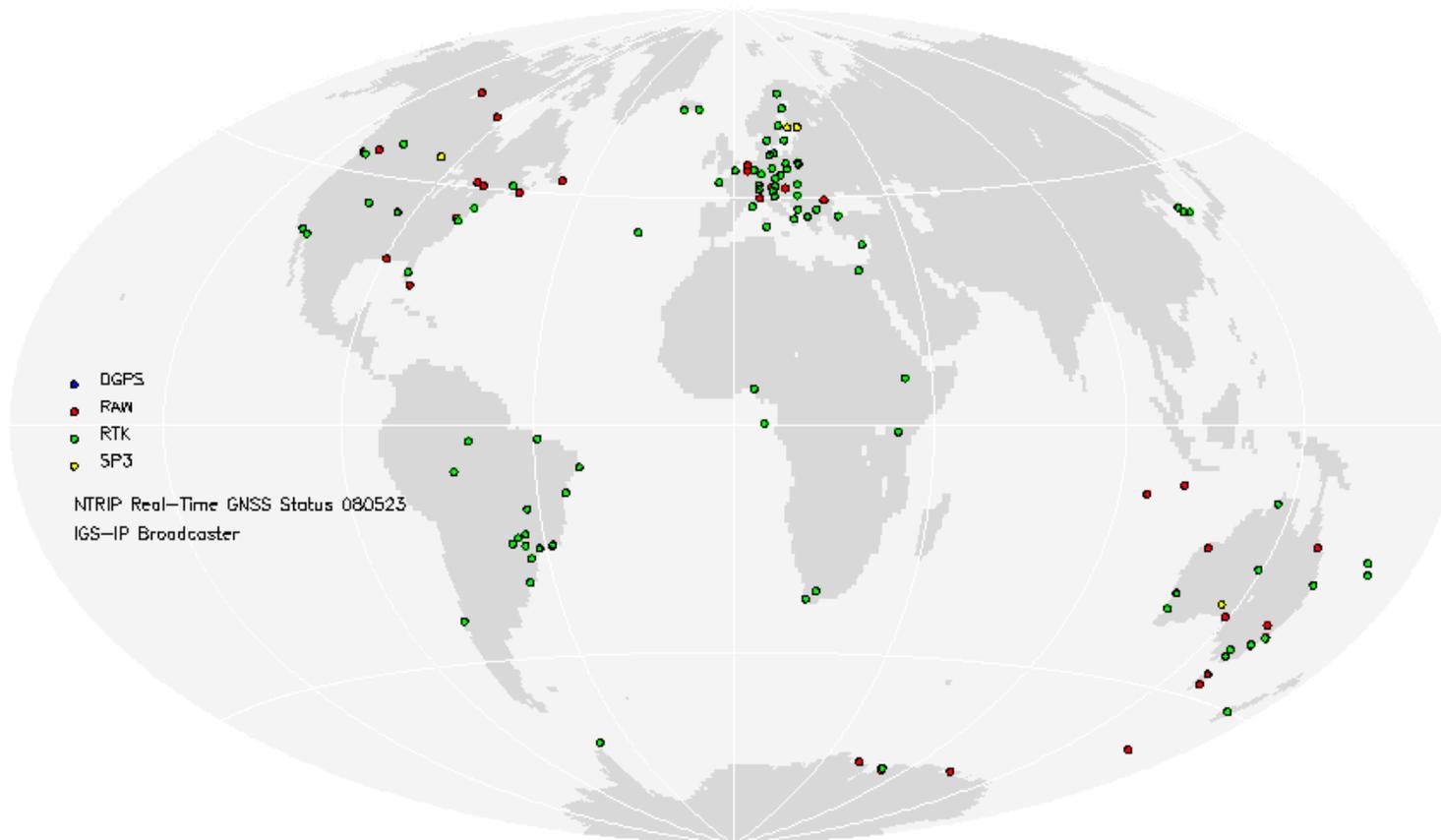
ESTACIONES DE TIEMPO REAL PROPUESTA DE SIRGAS - IP CASTER

**Segundo Taller del Grupo de Trabajo I: Sistema de Referencia
Mayo 26 - 27, 2008. Montevideo, Uruguay**

NTRIP – Networked Transport of RTCM via Internet Protocol

- ✓ Protocol developed by Federal Agency for Cartography and Geodesy (BKG), Germany
- ✓ Is composed of a subset of HTTP protocol and thus based on TCP. All data streaming is carried out using one single IP port, in most of cases port 80 or 2101.
- ✓ IGS is incentivating institutions (data centers or data operators) to provide real time or near real time data –RTIGS
- ✓ Streaming GNSS Real-Time Data in RTCM (version 3) format or any GNSS format (RAW, RINEX)
- ✓ Open source software, available for LINUX and Windows platforms

What's available today in South America via Misc's Ntrip?



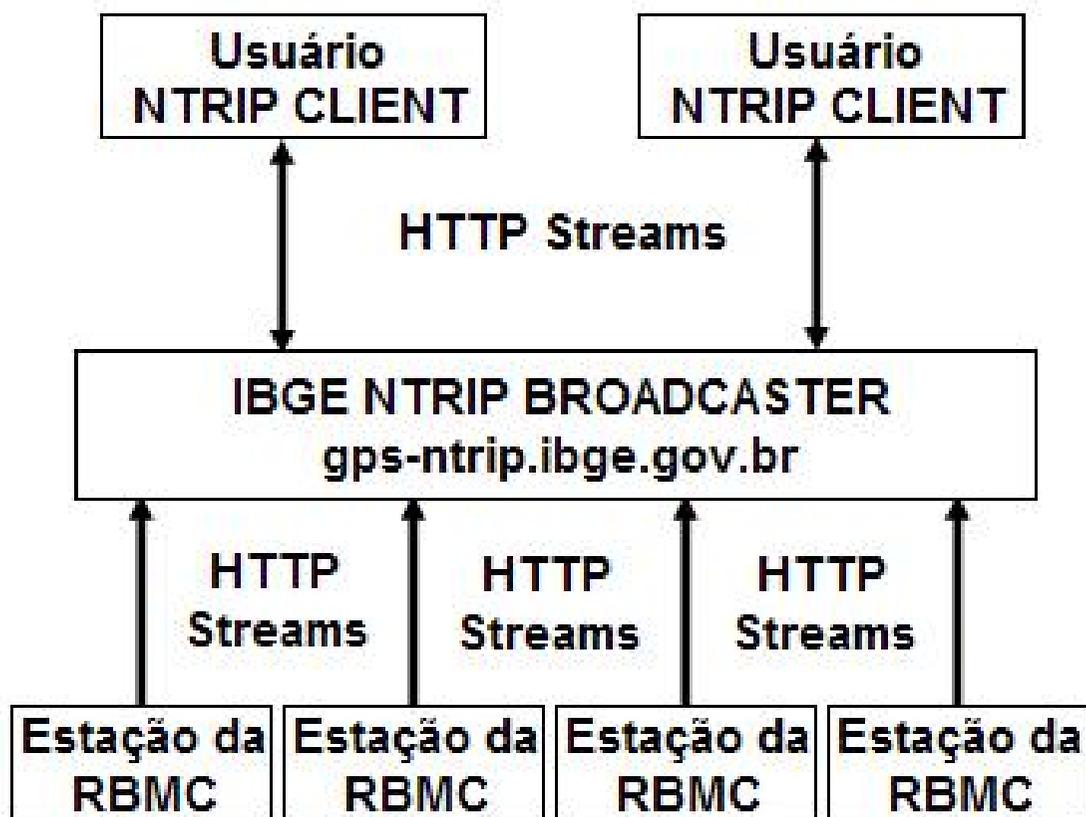
NTRIP Components

Ntrip Server: receives data of NtripSource and forwards it to NtripCaster. It's a PC program sending data to NtripCaster after receiving them, e.g. via the serial port

Ntrip Caster: Is an HTTP server supporting a subset of HTTP messages, NtripClient and NtripServer. Acts as "switch board" for connecting NtripClients to required streams

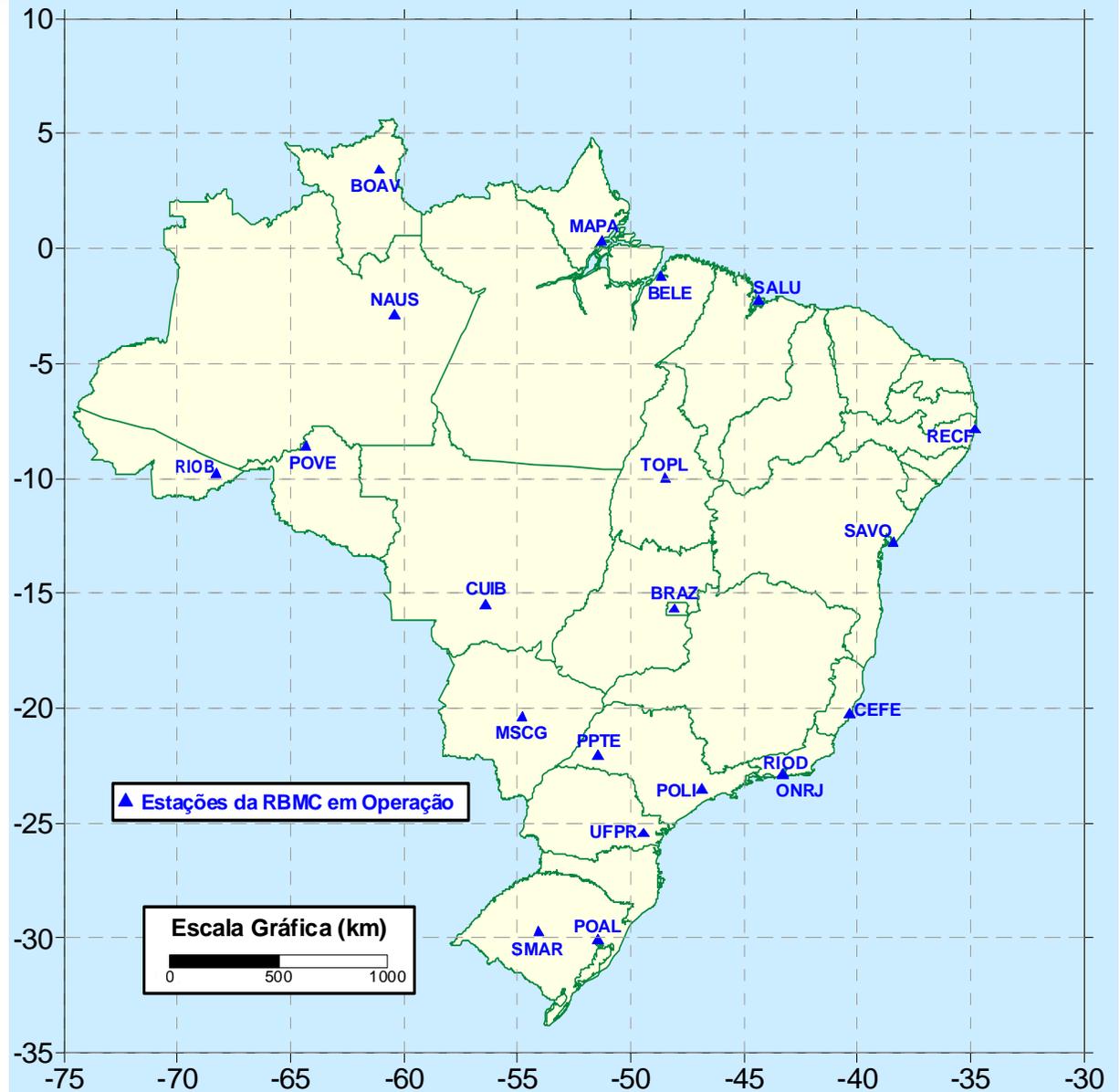
Ntrip Client: Sends and receives data from NtripCaster, may retrieve list of available NtripSources. Forwards data either to rover RTK GPS receiver or to an processing software in an application terminal for calculating position.

NTRIP Scheme

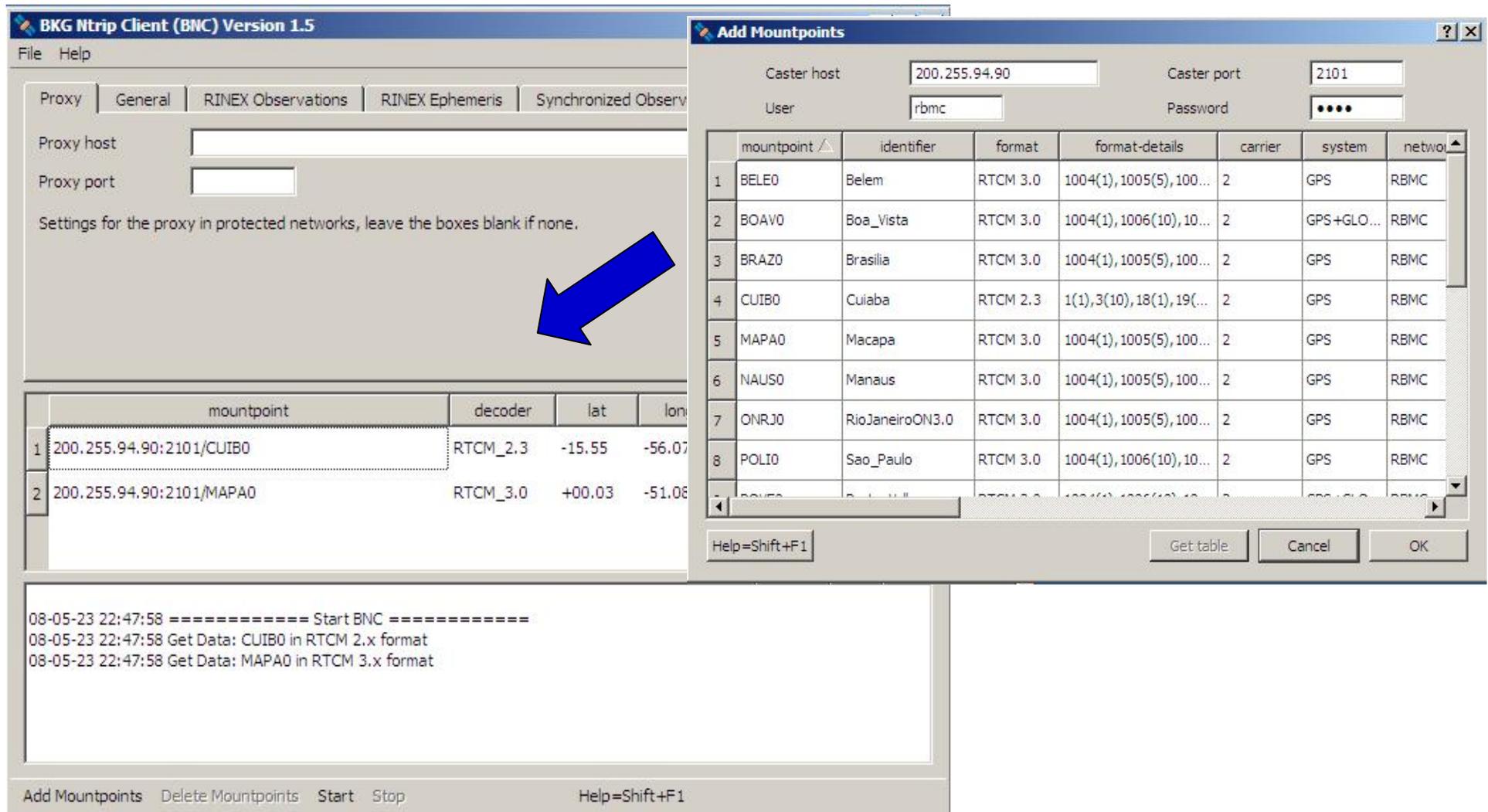


-Real time data from RBMC

- 19 stations in operation in capital of states;
- 2 stations in operation in Universities.



NTRIP Client – BKG Ntrip Client (BNC), version 1.5



BKG Ntrip Client (BNC) Version 1.5

File Help

Proxy General RINEX Observations RINEX Ephemeris Synchronized Observations

Proxy host

Proxy port

Settings for the proxy in protected networks, leave the boxes blank if none.

	mountpoint	decoder	lat	lon
1	200.255.94.90:2101/CUIB0	RTCM_2.3	-15.55	-56.07
2	200.255.94.90:2101/MAPA0	RTCM_3.0	+00.03	-51.08

08-05-23 22:47:58 ===== Start BNC =====
 08-05-23 22:47:58 Get Data: CUIB0 in RTCM 2.x format
 08-05-23 22:47:58 Get Data: MAPA0 in RTCM 3.x format

Add Mountpoints Delete Mountpoints Start Stop Help=Shift+F1

Add Mountpoints

Caster host Caster port

User Password

	mountpoint	identifier	format	format-details	carrier	system	network
1	BELE0	Belem	RTCM 3.0	1004(1), 1005(5), 100...	2	GPS	RBMC
2	BOAV0	Boa_Vista	RTCM 3.0	1004(1), 1006(10), 10...	2	GPS+GLO...	RBMC
3	BRAZ0	Brasilia	RTCM 3.0	1004(1), 1005(5), 100...	2	GPS	RBMC
4	CUIB0	Cuiaba	RTCM 2.3	1(1), 3(10), 18(1), 19(...)	2	GPS	RBMC
5	MAPA0	Macapa	RTCM 3.0	1004(1), 1005(5), 100...	2	GPS	RBMC
6	NAUS0	Manaus	RTCM 3.0	1004(1), 1005(5), 100...	2	GPS	RBMC
7	ONRJ0	RioJaneiroON3.0	RTCM 3.0	1004(1), 1005(5), 100...	2	GPS	RBMC
8	POLI0	Sao_Paulo	RTCM 3.0	1004(1), 1006(10), 10...	2	GPS	RBMC

Help=Shift+F1 Get table Cancel OK

NTRIP Usage – Real time applications

- ✓ Networked DGPS/RTK
- ✓ Navigation

Proposal : SIRGAS–IP Pilot Project

- ✓ IGS highly recommends to upgrade all IGS reference stations to real-time as soon as possible - RTIGS
- ✓ This will also mark an important step towards global and unrestricted stream exchange.
- ✓ As a consequence this will open a way to generate and disseminate real-time products like satellite orbits, clocks, atmosphere maps or models.

Internet Links

Real Time IGS Working Group

<http://igscb.jpl.nasa.gov/projects/rtwg/index.html>

IGS NTRIP Caster <http://www.igs-ip.net/home>

NTRIP Homepage http://igs.bkg.bund.de/index_ntrip.htm

EUREF-IP Pilot Project

http://www.epncb.oma.be/_organisation/projects/euref_IP/index.html

EUREF NTRIP Caster <http://www.euref-ip.net/home>

Global NTRIP Caster Overview <http://www.rtcn-ntrip.org/home>