



## Sistema de Referencia Geocéntrico para las Américas



Subcomisión 1.3b de la IAG  
Proyecto de la Comisión de CARTografía del IPGH

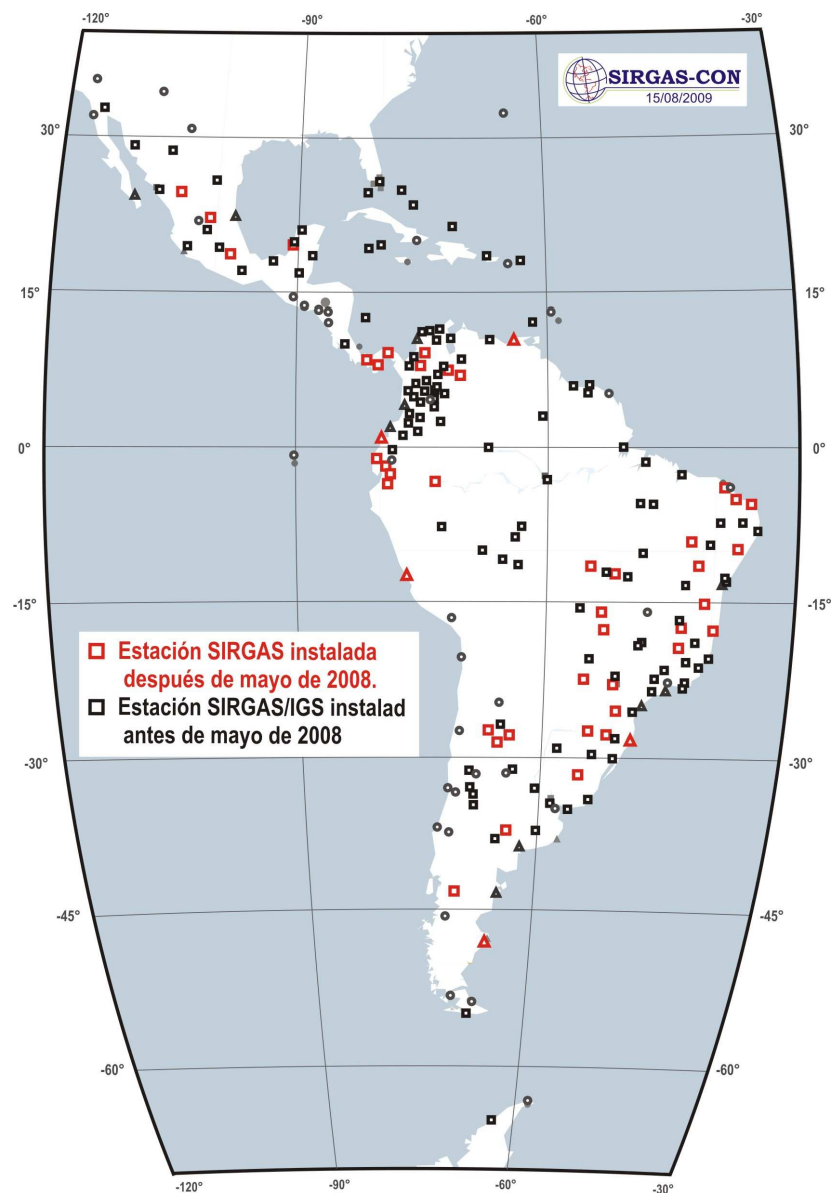
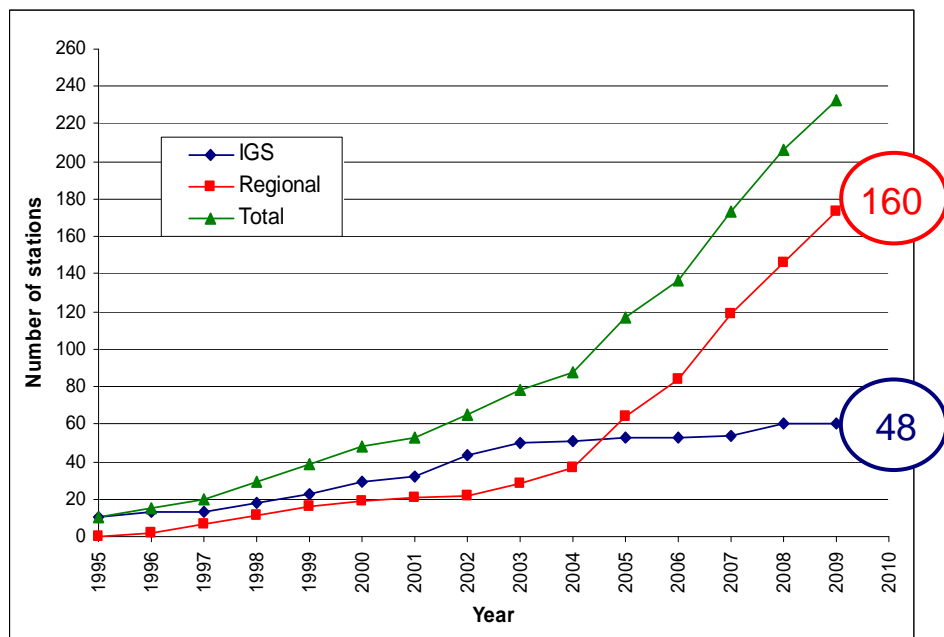


### Report Working Group I

María Virginia Mackern

# SIRGAS-CON

Year	IGS	Regional	Total
2008	60	146	206
July 2009	60	173	233
Decommiss.	12	13	25
<b>July 2009</b>	<b>48</b>	<b>160</b>	<b>208</b>



# New Stations



<b>ARGENTINA</b>	<b>7</b>
<b>BRASIL</b>	<b>11</b>
<b>COLOMBIA</b>	<b>2</b>
<b>ECUADOR.</b>	<b>5</b>
<b>MEXICO</b>	<b>3</b>
<b>PANAMA</b>	<b>3</b>
<b>PERU</b>	<b>2</b>
<b>VENEZUELA</b>	<b>1</b>

Nº	sirgas mail	EP name	country	start	PC	network	week Proc.
1	80	MTBA	BRASIL	01/09/2008	IBGE	middle	1495
2	90	GYEC	ECUADOR	22/06/08 (según amsur)	IBGE	middle	1494
3	93	SRLP	ARGENTINA	20/06/08 (según amsur)	CIMA-IGMA	surth	1496
4	104	AZUE	PANAMA	10/10/07 (según amsur)	IGAC	north	1502
5		DAVI	PANAMA	10/06/07 (según amsur)	IGAC	north	1502
6		IGN1	PANAMA	15/05/07 (según amsur)	IGAC	north	1502
7	110	UYTA	URUGUAY	21/09/06 (según amsur)	CIMA	surth	1504
8	114	PTEC	ECUADOR	30/10/08 (según amsur)	IBGE	middle	1506
9		CUEC	ECUADOR	28/10/08 (según amsur)	IBGE	middle	1506
10	115	MAGA	COLOMBIA	03/12/08 (según amsur)	IGAC	north	
11		CASI	COLOMBIA	09/12/08 (según amsur)	IGAC	north	
12	125	LJEC	ECUADOR	16/01/2009	IBGE-ECU	middle	1517
13	127	BAIR	BRASIL	27/07/2008	IBGE	middle	1517
14		BATF	BRASIL	28/05/2008	IBGE	middle	1517
15		MGBH	BRASIL	17/09/2008	IBGE	middle	1517
16		RNMO	BRASIL	01/08/2008	IBGE	middle	1517
17		RNNA	BRASIL	27/07/2008	IBGE	middle	1517
18	130	ALUM	ARGENTINA	06/10/2008	CIMA	surth	1519
19		CATA	ARGENTINA	22/09/2008	CIMA	surth	1519
20		ESQU	ARGENTINA	04/09/2009	CIMA-DFGI	surth	1519
21		TERO	ARGENTINA	22/05/2009	CIMA	surth	1519
22	138	ICAM	MEXICO	16/12/2008	norte	north	1524
23		IDGO	MEXICO	28/01/2009	norte	north	1524
24	155	ICEP	MEXICO	20/05/2009	IGAC-INEGI-LUZ	north	1538
25		ESMR	ECUADOR	03/04/2009	IBGE-ECU	middle	1538
26		MSDO	BRASIL	29/10/2008	IBGE	middle	1540
27		MTCO	BRASIL	29/11/2007	IBGE	middle	1540
28		PISR	BRASIL	20/11/2008	IBGE	middle	1540
29		PRGU	BRASIL	10/12/2008	IBGE	middle	1540
30		PRMA	BRASIL	08/12/2008	IBGE	middle	1540
31	161/162	CALL	PERU	03/07/2009	DFGI-IBGE-ECU	middle	1542
32		IQUI	PERU	26/06/2009	DFGI-IBGE-ECU	middle	1543
33		SVIC	ARGENTINA	01/12/2008	CIMA-URY	surth	1542
34		PDES	ARGENTINA	19/11/2008	CIMA-DFGI	surth	1542
35		CRIS	VENEZUELA	05/02/2009	IGAC-LUZ	north	1542

**Sirgas mail  
AMSUR.STA  
C.Combination**



## Stations modified



# AMSUR.STA



SIRGAS mail	EP name		day	Antenna	radome	Receiver	receiver configuration
125	OHI2	IGS	30/01/2009 (030) a las 17:45	TPSCR.G3	TPSH	---	ARP Up Ecc.(m) de - 00.0080 a 000.0375
	UCOR	ARGENTINA	19/12/2008	NOV702GG	sin radome	SOKKIA GSR2700 RSX	
132	UYMO	URUGUAY	10/03/2009	Leica AT504 GG	---	---	---
135	UYMO	URUGUAY	09/03/2009	AT504 GG	---	---	---
145	PPTE	BRASIL	09/04/2009 (según amsur)	---	---	TRIMBLE NETR5 (según amsur)	---
149	GCGT		09/04/2009 (según amsur)	TRM57971.00 (según amsur)	---	TRIMBLE NETR5 (según amsur)	---
153	QUI1	ECUADOR	01/01/06 (según amsur) before station S061		---		
156	RIOP	ECUADOR	31/06/2009 (181) a las 18:48	TRIMBLE Zephyr (TRM41249.00)	sin radome	TRIMBLE NETRS	---
158	MARA	VENEZUELA	27/07/2009	---	---	SOK GSR2700 RS	---
159	MARA	VENEZUELA	27/07/2009	---	---	SOK GSR2700 RS	---

# Processing Centres

CENTRE	INSTITUTION	Responsible	Network	E-mail	
DGFI	Geographisches Institut Geodäsie	Friday 11:30 Combination S.5	Friday 16:15 Multiyear solution S.5	AS-CON-C 107	<a href="mailto:seemueller@dgfi.badw.de">seemueller@dgfi.badw.de</a> <a href="mailto:sanchez@dgfi.badw.de">sanchez@dgfi.badw.de</a>
IGAC	Instituto Geográfico Codazzi	William A. Martinez, Laura Téllez Pedroza, Iván D. Herrera Pinzón	SIRGAS-CON-D- North 94	<a href="mailto:wamartin@igac.gov.co">wamartin@igac.gov.co</a> <a href="mailto:ltellez@igac.gov.co">ltellez@igac.gov.co</a> <a href="mailto:iherrera@igac.gov.co">iherrera@igac.gov.co</a>	
IBGE	Bureau de a	Thursday 18:30 Combination S.5	Alberto Luis da Silva Jhonnes A. Vaz Sônia M. Alves Costa	SIRGAS-CON-D- Middle 94	<a href="mailto:alberto.luis@ibge.gov.br">alberto.luis@ibge.gov.br</a> <a href="mailto:jhonnes.vaz@ibge.gov.br">jhonnes.vaz@ibge.gov.br</a> <a href="mailto:sonia.alves@ibge.gov.br">sonia.alves@ibge.gov.br</a>
CIMA	de Ingeniería ad Nacional de Cuyo	M. Virginia Mackern M. Laura Mateo Andrea Calori Ana María Robín	SIRGAS-CON-D- South 50	<a href="mailto:vmackern@lab.cricyt.edu.ar">vmackern@lab.cricyt.edu.ar</a> <a href="mailto:lmateo@lab.cricyt.edu.ar">lmateo@lab.cricyt.edu.ar</a> <a href="mailto:acalori@lab.cricyt.edu.ar">acalori@lab.cricyt.edu.ar</a> <a href="mailto:amrobin@lab.cricyt.edu.ar">amrobin@lab.cricyt.edu.ar</a>	

# Experimental Processing Centres

CENTRE	INSTITUTION	Responsible	Network	E-mail
INEG	Instituto Nacional de Estadística y Geografía	<b><u>Guido A. González F.</u></b> Jose G. Gasca Moncayo, Luis E. Becerril Rodriguez,	SIRGAS-CON-D-North 25??	<a href="mailto:guido.gonzalez@inegi.org.mx">guido.gonzalez@inegi.org.mx</a> <a href="mailto:Guillermo.gasca@inegi.org.mx">Guillermo.gasca@inegi.org.mx</a> <a href="mailto:Edgar.Becerril@inegi.org.mx">Edgar.Becerril@inegi.org.mx</a>
GMA	Instituto Geográfico Nacional Argentina	<b><u>Sergio Cimbaro</u></b> Diego Piñón	SIRGAS-CON-D-South	<a href="mailto:scimbaro@ign.gob.ar">scimbaro@ign.gob.ar</a> <a href="mailto:dpinon@ign.gob.ar">dpinon@ign.gob.ar</a>
ECU 1513 1-2009	Instituto Geográfico Nacional Ecuador	<b><u>Cesar Leiva</u></b> David Cisneros Miguel Bayas Marco Amores	<b><u>REGME</u></b> - Middle 31	<a href="mailto:cleiva@mail.igm.gov.ec">cleiva@mail.igm.gov.ec</a> <a href="mailto:dcisneros@mail.igm.gov.ec">dcisneros@mail.igm.gov.ec</a> <a href="mailto:mbayas@mail.igm.gov.ec">mbayas@mail.igm.gov.ec</a> <a href="mailto:vamores@mail.igm.gov.ec">vamores@mail.igm.gov.ec</a>
LUZ 1525 3-2009	Laboratorio de Geodesia Física y Satelital de la Universidad del Zulia Venezuela	<b><u>Víctor José. Ciocce P</u></b> Renny Espinosa Tracy Méndez María Angarita Ing. Melvin Hoyer Eugen Wildermann	SIRGAS-CON-D-North 94	<a href="mailto:vjciocce@gmail.com">vjciocce@gmail.com</a> <a href="mailto:renny_espinosa@hotmail.com">renny_espinosa@hotmail.com</a> <a href="mailto:tracy12_669@hotmail.com">tracy12_669@hotmail.com</a> <a href="mailto:maryangelsone@hotmail.com">maryangelsone@hotmail.com</a> <a href="mailto:mhoyer@gmail.com">mhoyer@gmail.com</a> <a href="mailto:ewilderm2007@gmail.com">ewilderm2007@gmail.com</a>
URY 1526 4-2009	Instituto Geográfico Uruguay	<b><u>José María Pampillón</u></b> Pedro Sandoval Mabi Maldonado Gabriela Sanabria	<b><u>URY</u></b> SIRGAS-CON-D-South - Middle 44	<a href="mailto:sgmgeodesia@ejercito.mil.uy">sgmgeodesia@ejercito.mil.uy</a> <a href="mailto:jmpb77@hotmail.com">jmpb77@hotmail.com</a> <a href="mailto:pesa1977@gmail.com">pesa1977@gmail.com</a> <a href="mailto:mabimaldonado@yahoo.com">mabimaldonado@yahoo.com</a> <a href="mailto:gabi.snbr@gmail.com">gabi.snbr@gmail.com</a>

# Sub Networks

**IGAC (94)**  
SIRGAS-CON-D-North

**INEG (25)**  
SIRGAS-CON-D-North

**LUZ (94)**  
SIRGAS-CON-D-North

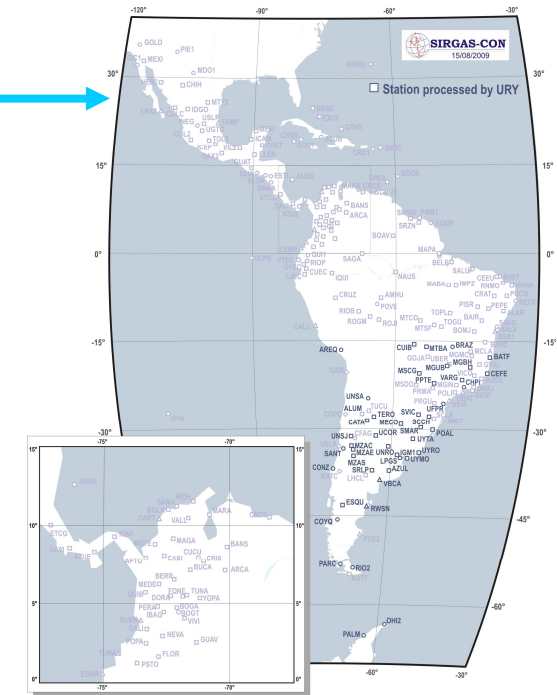
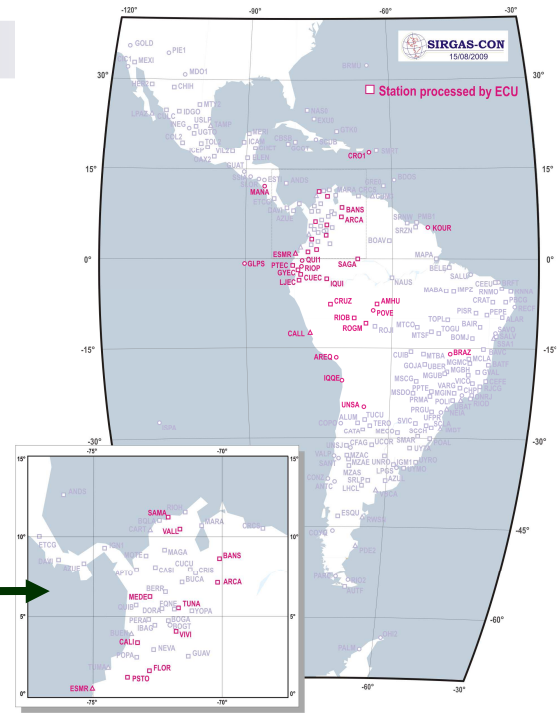
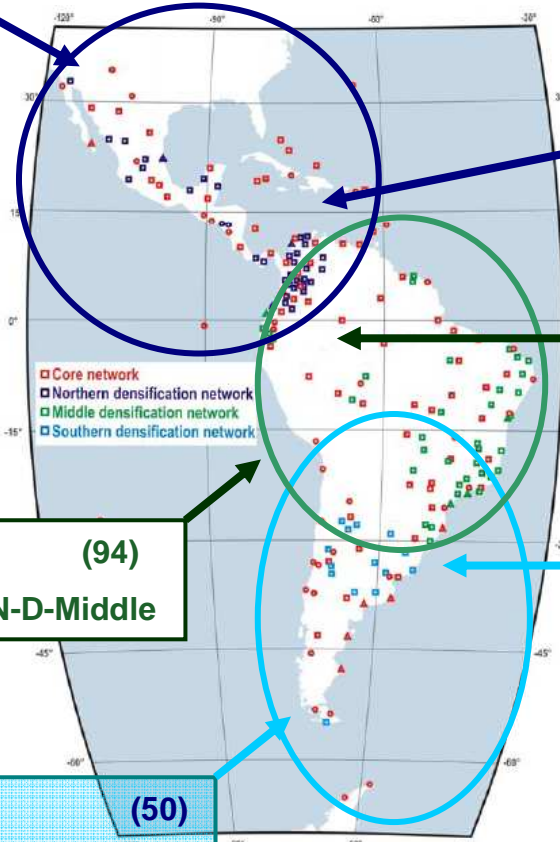
**ECU REGME (31)**  
SIRGAS-CON-D-Middle

**IBGE (94)**  
SIRGAS-CON-D-Middle

**URY URY (44)**  
SIRGAS-CON-D-South

**CIMA (50)**  
SIRGAS-CON-D-South

**GMA**  
SIRGAS-CON-D-South



¿Podría ECU procesar SIRGAS-CON-Middle?  
¿Podría URY procesar SIRGAS-CON-South?

# Punctuality on delivering weekly solutions



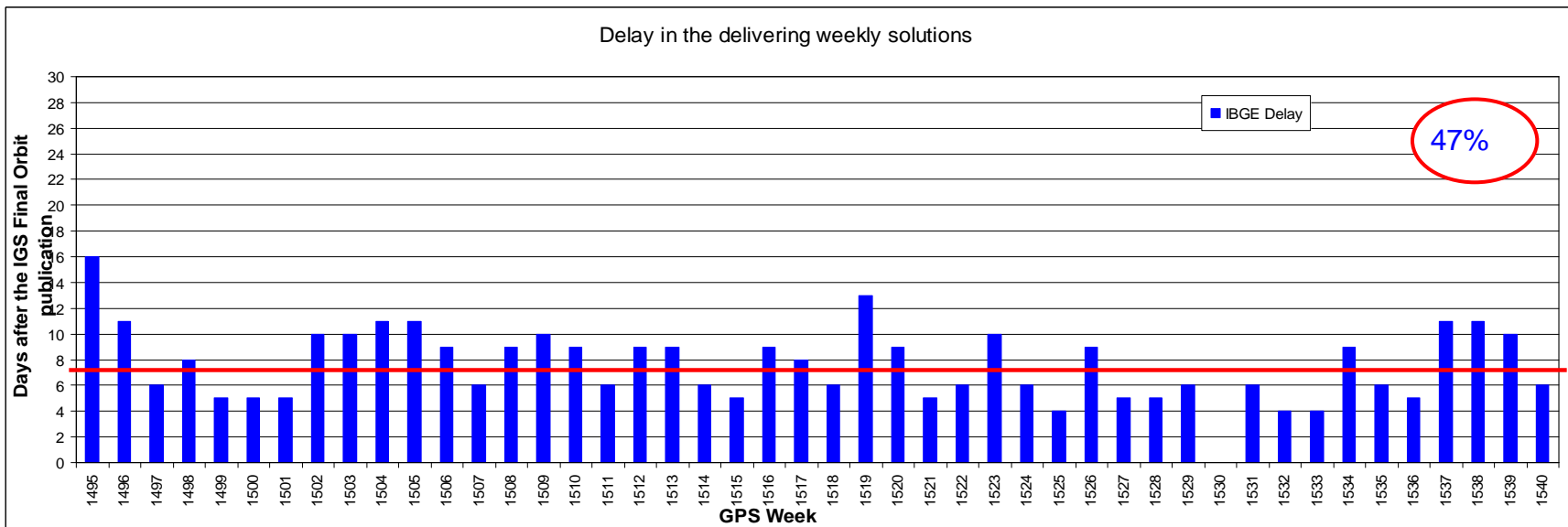
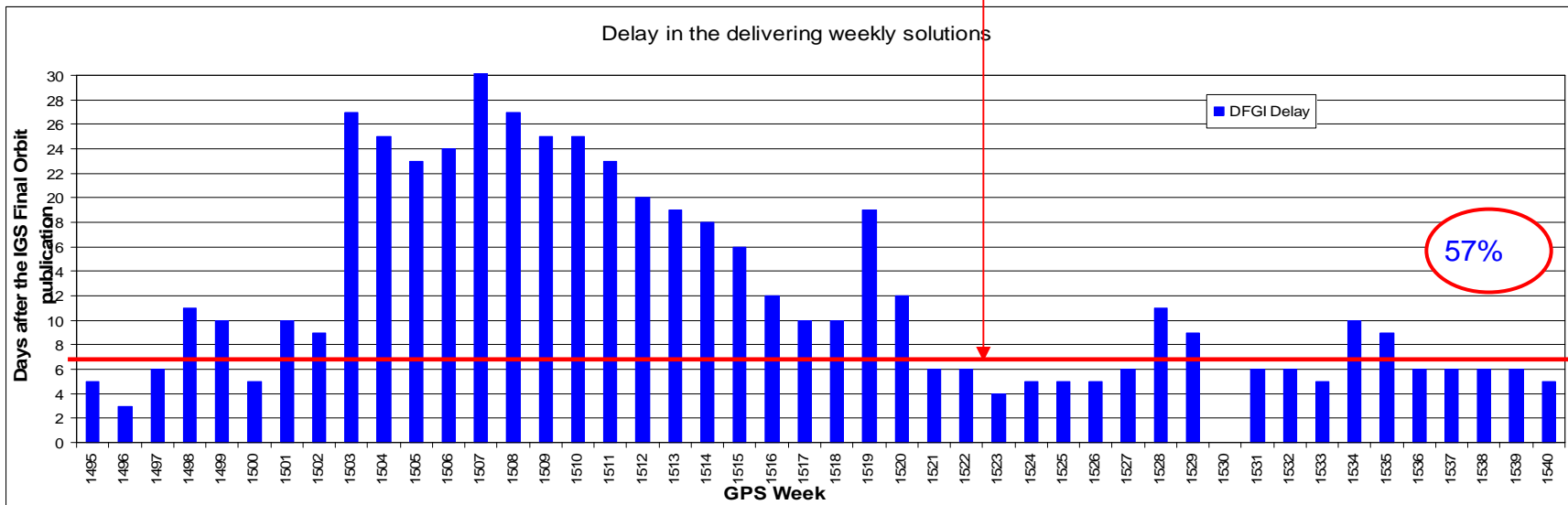
SIRGAS Processing Centres (Weekly solutions)

Combination Centres

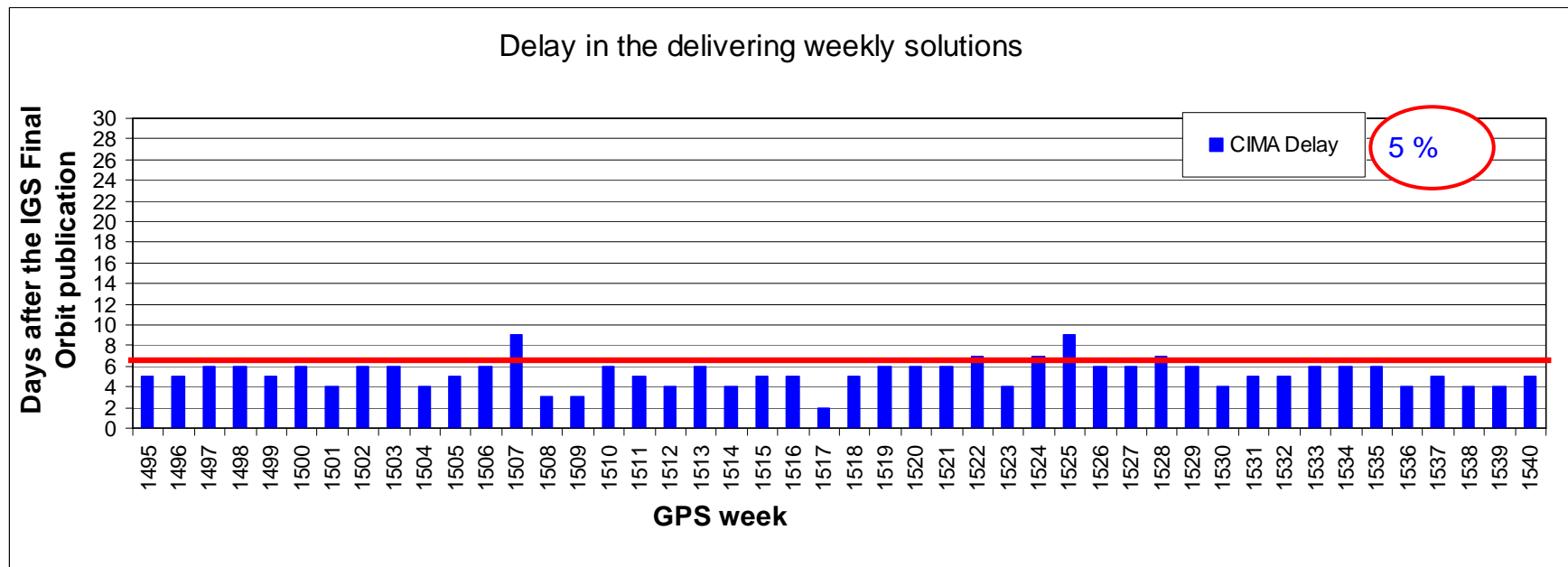
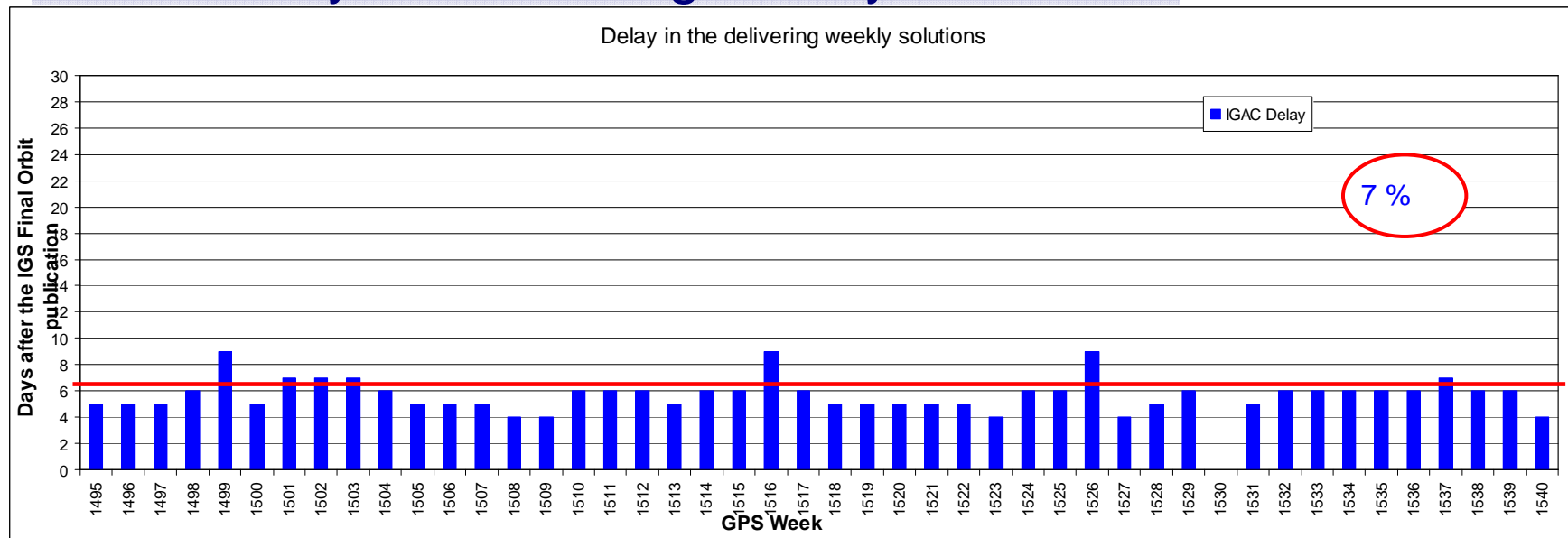
Week	Deadline	CIMA	DGFI	IBGE	IGAC	ECU	LUZ	URY	Deadline	DGFI	IBGE
1495	2008-09-27	2008-09-25	2008-09-25	2008-10-06	2008-09-25				2008-10-04	2008-10-07	2008-11-12
1496	2008-10-04	2008-09-30	2008-09-30	2008-10-08	2008-10-02				2008-10-11	2008-10-08	2008-11-12
1497	2008-10-11	2008-10-08	2008-10-10	2008-10-10	2008-10-09				2008-10-18	2008-10-20	2008-11-12
1498	2008-10-18	2008-10-17	2008-10-22	2008-10-19	2008-10-17				2008-10-25	2008-10-23	2008-11-12
1499	2008-10-25	2008-10-21	2008-10-28	2008-10-23	2008-10-27				2008-11-01	2008-10-28	2008-11-12
1500	2008-11-01	2008-10-30	2008-10-30	2008-10-30	2008-10-30				2008-11-08	2008-11-03	2008-11-12
1501	2008-11-08	2008-11-04	2008-11-11	2008-11-06	2008-11-08				2008-11-15	2008-11-17	2008-11-17
1502	2008-11-15	2008-11-19	2008-11-17	2008-11-18	2008-11-15				2008-11-22	2008-11-21	2008-11-27
1503	2008-11-22	2008-11-21	2008-12-12	2008-11-25	2008-11-22				2008-11-29	2008-12-14	2008-11-27
1504	2008-11-29	2008-11-26	2008-12-17	2008-12-03	2008-11-28				2008-12-06	2008-12-19	2009-01-08
1505	2008-12-06	2008-12-04	2008-12-22	2008-12-10	2008-12-04				2008-12-13	2008-12-22	2009-01-09
1506	2008-12-13	2008-12-11	2008-12-30	2008-12-15	2008-12-11				2008-12-20	2008-12-31	2009-01-09
1507	2008-12-20	2008-12-18	2009-01-13	2008-12-19	2008-12-18				2008-12-27	2009-01-14	2009-01-09
1508	2008-12-27	2008-12-22	2009-01-16	2008-12-29	2008-12-24				2009-01-03	2009-01-20	2009-01-27
1509	2009-01-03	2009-12-30	2009-01-21	2009-01-06	2009-01-31				2009-01-10	2009-01-22	2009-01-23
1510	2009-01-10	2009-01-06	2009-01-28	2009-01-12	2009-01-09				2009-01-17	2009-01-28	2009-02-04
1511	2009-01-17	2009-01-14	2009-02-02	2009-01-16	2009-01-16				2009-01-24	2009-02-02	2009-02-05
1512	2009-01-24	2009-01-20	2009-02-06	2009-01-26	2009-01-23				2009-01-31	2009-02-06	2009-02-17
1513	2009-01-31	2009-01-30	2009-02-12	2009-02-02	2009-01-29	2009-01-28			2009-02-07	2009-02-12	2009-02-16
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1515	2009-02-14	2009-02-06	2009-02-23	2009-02-12	2009-02-13	2009-02-13			2009-02-21	2009-02-24	2009-03-02
1516	2009-02-21	2009-02-18	2009-02-26	2009-02-23	2009-02-23	2009-02-18			2009-02-28	2009-03-02	2009-03-04
1517	2009-02-28	2009-02-24	2009-03-03	2009-03-01	2009-02-27	2009-02-23			2009-03-07	2009-03-04	2009-03-06
1518	2009-03-07	2009-03-05	2009-03-10	2009-03-06	2009-03-05	2009-03-03			2009-03-14	2009-03-10	2009-03-11
1519	2009-03-14	2009-03-13	2009-03-26	2009-03-20	2009-03-12	2009-03-10			2009-03-21	2009-03-27	2009-03-30
1520	2009-03-21	2009-03-20	2009-03-26	2009-03-23	2009-03-19	2009-03-19	2009-03-20		2009-03-28	2009-03-27	2009-03-30
1521	2009-03-28	2009-03-27	2009-03-27	2009-03-26	2009-03-26	2009-03-26	2009-03-31		2009-04-04	2009-04-07	2009-04-09
1522	2009-04-04	2009-04-04	2009-04-03	2009-04-03	2009-04-02	2009-03-31	2009-04-03		2009-04-11	2009-04-07	2009-04-09
1523	2009-04-11	2009-04-08	2009-04-08	2009-04-14	2009-04-08	2009-04-09	2009-04-10		2009-04-18	2009-04-15	2009-04-17
1524	2009-04-18	2009-04-18	2009-04-16	2009-04-17	2009-04-17	2009-04-15	2009-04-17	2009-04-17	2009-04-25	2009-04-21	2009-04-22
1525	2009-04-25	2009-04-27	2009-04-23	2009-04-22	2009-04-24	2009-04-22	2009-04-23	2009-04-21	2009-05-02	2009-04-28	2009-04-30
1526	2009-05-02	2009-05-01	2009-04-30	2009-05-04	2009-05-04	2009-04-29	2009-04-29	2009-04-30	2009-05-09	2009-05-07	2009-05-11
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1528	2009-05-16	2009-05-16	2009-05-20	2009-05-14	2009-05-14	2009-05-13	2009-05-16	2009-05-12	2009-05-23	2009-05-20	2009-06-01
1529	2009-05-23	2009-05-22	2009-05-25	2009-05-22	2009-05-22	2009-05-10	2009-05-21	2009-05-19	2009-05-30	2009-05-27	2009-06-10
1530	2009-05-30	2009-06-01	2009-05-28	2009-05-27	2009-05-28	2009-05-27	2009-05-28	2009-05-27	2009-06-06	2009-06-02	2009-06-10
1531	2009-06-06	2009-06-04	2009-06-05	2009-06-05	2009-06-04	2009-06-04	2009-06-05	2009-06-02	2009-06-13	2009-06-08	2009-06-10
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1534	2009-06-27	2009-06-26	2009-06-30	2009-06-29	2009-06-26	2009-06-26	2009-06-26	2009-06-24	2009-07-04	2009-06-30	2009-07-03
1535	2009-07-04	2009-07-03	2009-07-06	2009-07-03	2009-07-03	2009-07-01	2009-07-03	2009-06-30	2009-07-11	2009-07-07	2009-07-14
1536	2009-07-11	2009-07-08	2009-07-10	2009-07-09	2009-07-10	2009-07-08	2009-07-11	2009-07-08	2009-07-18	2009-07-14	2009-07-24
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1539	2009-08-01	2009-07-29	2009-07-31	2009-08-04	2009-07-31	2009-07-30	2009-07-30	2009-07-28	2009-08-08	2009-08-06	2009-08-10
1540	2009-08-08	2009-08-06	2009-08-06	2009-08-07	2009-08-05	2009-08-07	2009-08-07	2009-08-03	2009-08-15	2009-08-11	



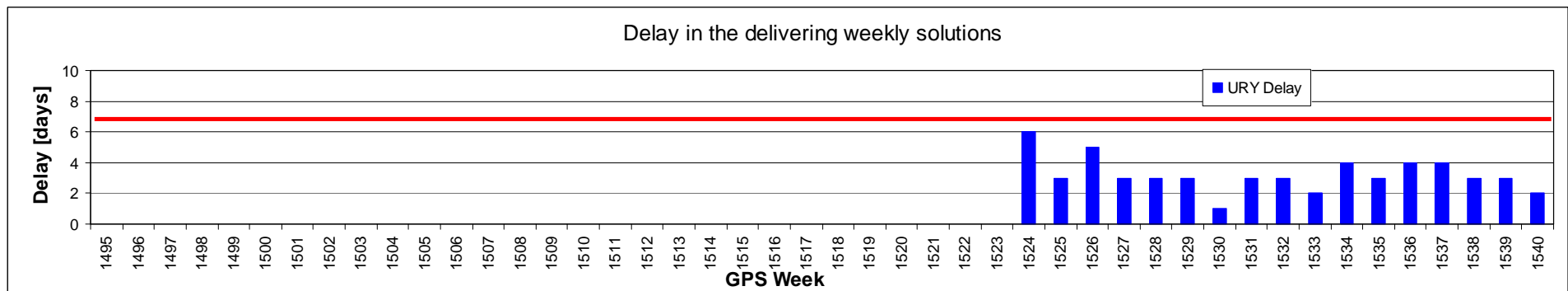
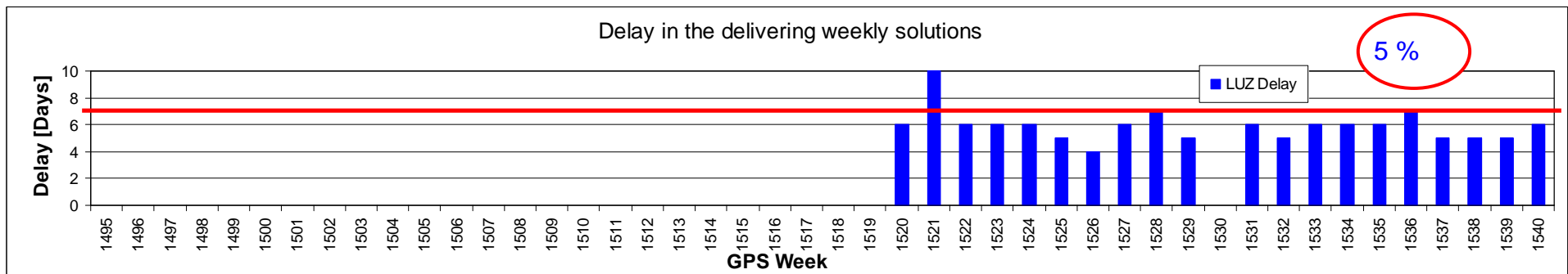
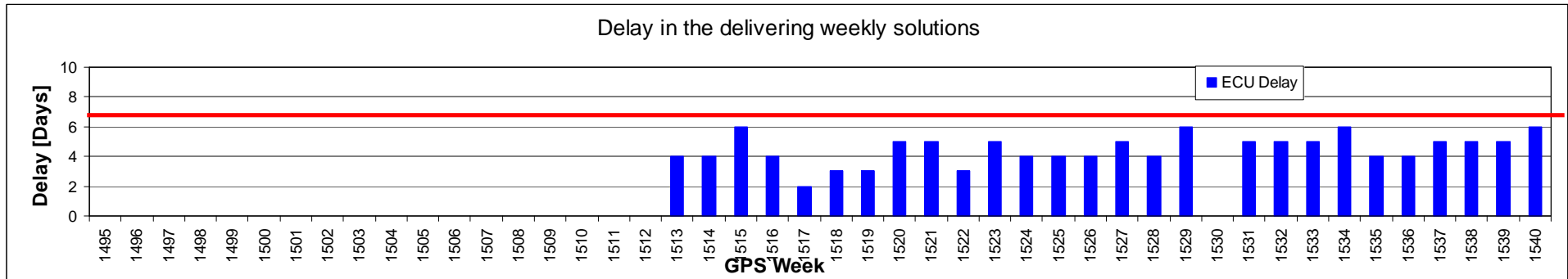
# Punctuality on delivering weekly solutions



# Punctuality on delivering weekly solutions



# Punctuality on delivering weekly solutions Experimental Processing Centres



## Quality of weekly solutions by PC

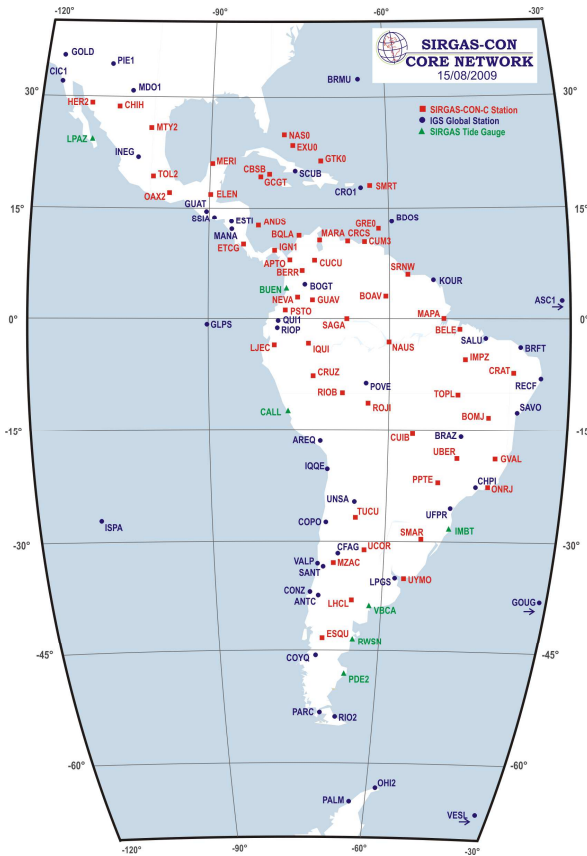
PC	RMS Residuals for weekly repeatability [mm]			RMS residuals wrt combined solution		
	N	E	Up	N	E	Up
CIMA	1.9	1.6	3.8	0.7	0.6	1.5
DGFI	2.2	2.2	5.0	0.7	0.7	1.6
IBGE	2.6	2.6	5.3	0.8	1.0	1.6
IGAC	1.9	2.1	4.2	0.5	0.6	1.3
ECU	1.5	1.4	4.1	0.8	0.7	2.4
LUZ	1.4	1.5	3.5	0.6	0.7	1.8
URY	1.6	1.2	3.6	0.8	0.6	1.5

Others activities	Participation	Collaborations	Place	Date
1- Actualización del archivo AMSUR.STA y carga del Log file	M.V.Mackern Laura Sanchez Sonia Alves Costa W.Seemuller	Responsables de las estaciones.	<a href="ftp://ftp.dgfi.badw-muenchen.de/pub/gps/DGF/station/STA/">ftp://ftp.dgfi.badw-muenchen.de/pub/gps/DGF/station/STA/</a> <a href="ftp://ftp.dgfi.badw-muenchen.de/pub/gps/DGF/station/log/">ftp://ftp.dgfi.badw-muenchen.de/pub/gps/DGF/station/log/</a>	2008-2009
2- Capacitación: Procesamiento con Bernese-BPE	Personal de LUZ	Personal de IGAC Laura Sanchez	IGAC. Colombia Caracas. Venezuela	08 / 2008
3- Capacitación: Procesamiento con Bernese	Personal de ECU	Laura Sanchez	Quito. Ecuador	12 / 2008
4- Capacitación: Combinación de soluciones	M.V.Mackern	Herman Drewes Laura Sanchez	DGFI	02/2009
5- Capacitación: Procesamiento con Bernese	Personal de URY	Laura Sanchez	Montevideo. Uruguay	30/3-3/04/ 2009
6- Primeras instrucciones para sumarse como CP Instituto Geográfico Militar de Chile	Ing. Héctor Parra B. Depto. de Procesamiento y Cálculo	M.Virginia Mackern		04/2009

Others activities	Participation	Colaboration	Place
<b>7- Reportes periódicos de la Combinación</b> <b>*Evaluación de los CP Experimentales</b>	<b>Laura Sanchez W.Seemuller</b>  <b>Sonia Alves Costa</b>		<a href="ftp://ftp.dgfi.badw-muenchen.de/pub/gps/SIRGAS/">ftp://ftp.dgfi.badw-muenchen.de/pub/gps/SIRGAS/</a>  <a href="ftp://geofp.ibge.gov.br/SIRGAS/Resultados/Combinacao">ftp://geofp.ibge.gov.br/SIRGAS/Resultados/Combinacao</a> <a href="ftp://geofp.ibge.gov.br/SIRGAS/EXPERIMENTAL">ftp://geofp.ibge.gov.br/SIRGAS/EXPERIMENTAL</a>
<b>8- Análisis de la Estrategia para la definición del Datum en las Soluciones SIRGAS</b>	<b>M.V.Mackern Laura Sanchez Sonia Alves Costa Claudio Brunini</b>	<b>Consejeros científicos</b>	<b>Febrero/2009-a la fecha</b>
<b>9 - Análisis de 5 soluciones de GMA 1520-1525 (GAMIT)</b>	<b>M.V.Mackern Laura Sanchez Manuela K.</b>		<b>17 Agosto /2009</b>

# SIRGAS-CON-C

The 107 core stations are not always included in all weeks.



¿Elegir algunas diferentes?

Missing station

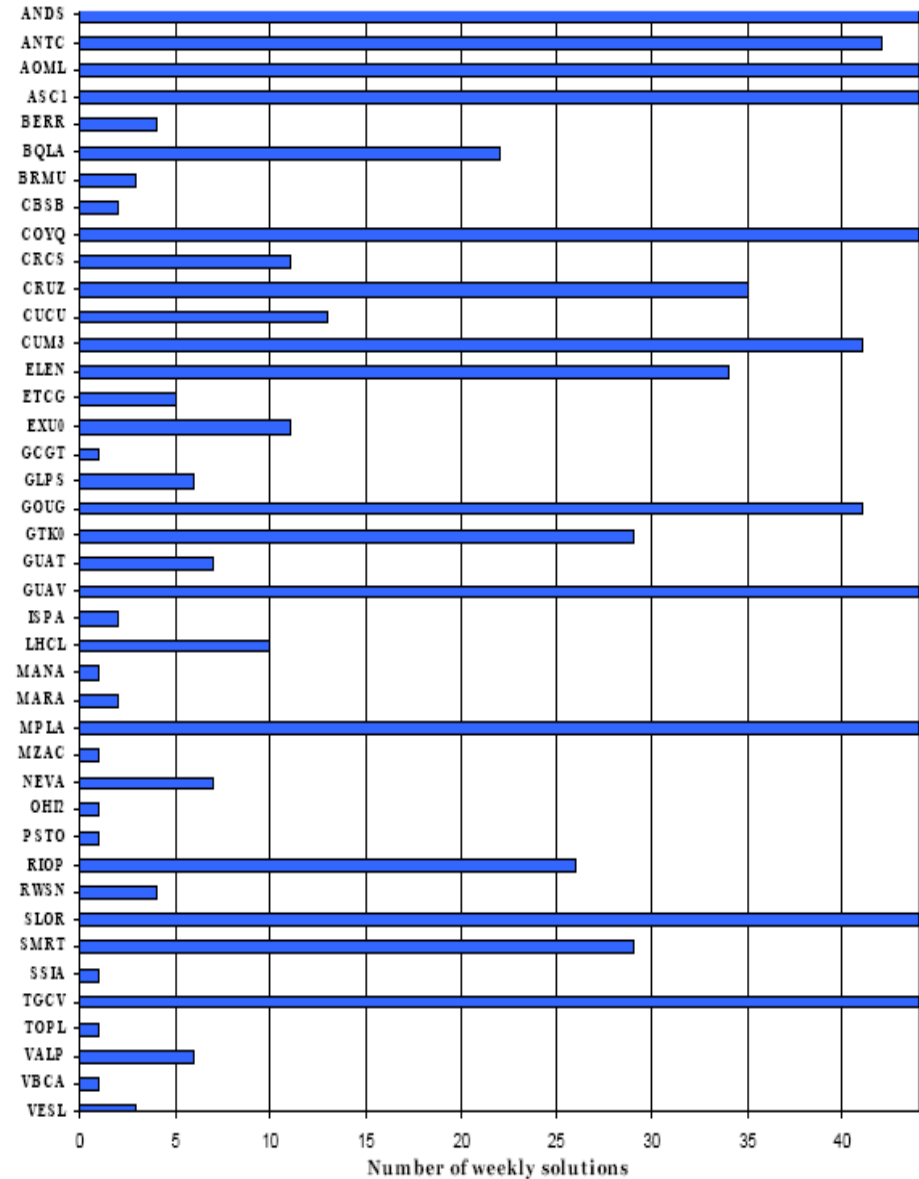


Figure 2. Number of weekly solutions in which SIRGAS-CON core stations are missing.

# Number of common stations

*Table 3. Number of common stations processed by the SIRGAS Analysis Centres.*

Processing Centre	CIM	DGF	IBG	IGA	ECU	LUZ	URY
CIM	50	36	21	15	9	15	31
DGF		107	49	56	17	56	22
IBG			94	17	22	17	22
IGA				94	20	94	5
ECU					32	20	3
LUZ						94	5
URY							44

**DGFI**

Table 3: Number of stations processed by Local and Experimental Processing centres

Processing Centre	CIMA	DGFI	IBGE	IGAC	ECU	LUZ	URY
CIMA	52	35	44	15	9	15	30
DGFI		110	61	66	23	60	21
IBGE			115	22	20	20	37
IGAC				85	20	77	5
ECU					28	19	3
LUZ						77	0
URY							42

**IBGE**



## **Nueva solución multianual**

The New multi-year position and velocity solution  
DGFI09P01 of the IGS Regional Network Associate  
Analysis Centre for SIRGAS

W. Seemuller et all

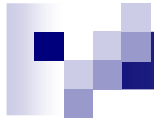
Friday 16:15

S.5

Main Auditorium

## Estudios Atmosféricos

Fecha	Auditorio	Trabajo	Autores
Martes 10:00	S.3 Main Audit.	Second and Third order ionospheric effects on GNSS Positioning: A case study in Brazil	H.A. Marquez J.Galera et. all
Martes 17:00	S.4 Minor Audit.	Nears real time VTEC estimation using La Plata ionospheric Model	M.Gende, et. all
Martes 17:15	S.4 Minor Audit.	Toward a SIRGAS service for mapping the ionosphere's F2 peak parameters	c.Brunini
Viernes 15:00	S.5 Main Audit.	Computing Local Troposphere Models for Colombia based n GNSS Data	I.D. Herrera et all
Viernes 16:45	S.5 Main Audit.	Improving Single Frequency Positioning using SIRGAS Ionospheric Products with Bernese software	M.Gende C.Brunini



**Muchas gracias !!!**